



وحدة ضمان الجودة



وزارة التعليم العالي  
المعهد العالي للهندسة والتكنولوجيا  
بدمياط الجديدة

## Mathematics 1 (MTH101)

### 1- Basic Information:

Program Title	All programs
Department Offering the Program	Basic Science and Engineering Department
Department Responsible for the Course	Basic Science and Engineering Department
Course Title	Mathematics 1
Course Code	MTH101
Year/Level	Level 1
Specialization	Major
Authorization Date of Course Specification	-
Pre- Request	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of derivative (methods and applications) and basics of algebra to solve fundamental problems in engineering.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define concepts and theories of derivative and algebra that necessary for engineering system analysis

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>1</sub>	Select appropriate mathematical through differential calculus and algebra based methods for system modelling and analysis

#### C. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of mathematics to solve engineering problems.



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#### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources.

#### 4. Course Contents:

No.	Topics	Lecture	Tutorial	Practical
1	• Vectors - Vectors Algebra- partial fractions	4	4	-
2	• The Concept of functions	2	2	-
3	• Equations theory –Mathematical Deduction	4	4	-
4	• Basic Trigonometric functions and its inverse • Exponential and Logarithmic functions • Hyperbolic functions and its inverse • Connection (definition – theories) • Maclaurin expansion • The Taylor series	4	4	-
5	• Numerical solutions methods	4	4	-
6	• Limits, derivatives and curves drawing	4	4	-
7	• Introduction of Partial Derivatives	4	4	-
8	• Linear equations systems – Gauss Jordan method for deletion.	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	-

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1, B1
2	Semester work(quizzes, sheets, report)	C1, D6
3	Final term examination	A1, B1, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	7 <sup>th</sup> - 9 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Swokowski, E, Olinick, M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994.
2	Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994.

## 9. Facilities required for teaching and learning:

Facility			
1	Lecture classroom	3	White board
2	Seminar	4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	• Vectors - Vectors Algebra- partial fractions	1	A1	B1	C1	D6
2	• The Concept of functions	1	A1	B1	C1	D6
3	• Equations theory –Mathematical Deduction	1	A1	B1	C1	D6
4	• Basic Trigonometric functions and its inverse • Exponential and Logarithmic functions • Hyperbolic functions and its inverse • Connection (definition – theories) • Maclaurin expansion • The Taylor series	1	A1	B1	C1	D6
5	• Numerical solutions methods	1	A1	B1	C1	D6
6	• Limits, derivatives and curves drawing	1	A1	B1	C1	D6
7	• Introduction of Partial Derivatives	1	A1	B1	C1	D6
8	• Linear equations systems – Gauss Jordan method for deletion.	1	A1	B1	C1	D6

**Course Coordinator: Dr. Adel kamel**

**Head of Department: Prof. Dr. Mohammed Saad Elkady**

**Date of Approval: 2018**



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## Mechanics 1 (ENG 101)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Mechanics 1
<b>Course Code</b>	ENG101
<b>Year/Level</b>	Level: 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of force system, distributed forces and moment of inertia.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define concepts and theories of space vectors, momentums, equivalent couples, and equation of equilibrium for rigid body.
A5	Recognize methodologies of solving equilibrium under the effect of forces.

#### B. Intellectual Skills:

No.	Intellectual Skills
B5	Solve engineering problems, such as finding the centre of mass (group of particles – flat surfaces )

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of space vector to get the result of group of forces.



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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to statics. Fundamental concept Basic quantities of unit dimension- System of units Space, Trigonometry and U.S. Customary units, Force. Statics of particle, Statics of Rigid Body, Free body diagrams. Types of forces, Types of system of forces	2	2	-
2	Statics of particles Forces on a particle, Addition of vectors, Resultant of several concurrent forces.	2	2	-
3	Resolution of a forces into components Rectangular components of a force, (unit vectors). Addition of forces by summing X and Y components. Equilibrium of a particle, and Newton's first law of motion.	2	2	-
4	Problem involving the equilibrium of a practice- free body diagram. Rectangular components of a forces in space, force defined by its magnitude and two points on its line of action. Addition of concurrent forces in space, equilibrium of a particle in space.	2	2	-
5	Rigid bodies: equivalent systems of forces. External and internal forces, principle of transmissibility and equivalent forces, vector product of two vectors, vector product expressed in terms of rectangular components	2	2	-
6	Moment of a force about a point. Varignon's theorem, rectangular components of the moment of a force, equivalent systems of forces.	4	4	-



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No.	Topics	Lectures	Tutorial	Practical
7	Equilibrium of rigid bodies Free- body diagram. Equilibrium of a rigid body in two dimensions.	2	2	-
8	Equilibrium of three- dimension force body. Reduction of a system of forces to one force and one couple. Equilibrium of a rigid body in three dimensions. Reactions at supports and connections for a two- dimensional and for a three- dimensional structure.	4	4	-
9	Centroids and centers of gravity. Centre of gravity of a two- dimensional body, centroids of area and lines, first moments of areas and lines, composite plates and wires.	4	4	-
10	Analysis of structures Definition of truss Simple trusses Analysis of trusses by the method of joints	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	-

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1, A5, B5
2	Semester work(quizzes, sheets, report)	C1, D2
3	Final term examination	A1, A5, B5, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup> -14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation Method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Hibbeler, Russell C., and S. C. Fan. <i>Engineering mechanics: statics</i> . Vol. 11. Prentice Hall, 2004.
2	Hibbeler, Russell Charles. <i>Engineering Mechanics: Principles of Statics</i> . Prentice Hall, 2006.
3	Meriam, J. L., and L. G. Kraige. "Engineering mechanics: Statics; SI Version, 6th edn, vol. 1." (2007).

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system





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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to statics. Fundamental concept Basic quantities of unit dimension- System of units Space, Trigonometry and U.S. Customary units, Force. Statics of particle, Statics of Rigid Body, Free body diagrams. Types of forces, Types of system of forces	1	A1	B5	C1	D2
2	Statics of particles Forces on a particle, Addition of vectors, Resultant of several concurrent forces.	1	A1	B5	C1	D2
3	Resolution of a forces into components Rectangular components of a force, (unit vectors). Addition of forces by summing X and Y components. Equilibrium of a particle, and Newton's first law of motion.	1	A1	B5	C1	D2
4	Problem involving the equilibrium of a practice- free body diagram. Rectangular components of a forces in space, force defined by its magnitude and two points on its line of action. Addition of concurrent forces in space, equilibrium of a particle in space.	1	A1	B5	C1	D2



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
5	Rigid bodies: equivalent systems of forces. External and internal forces, principle of transmissibility and equivalent forces, vector product of two vectors, vector product expressed in terms of rectangular components	1	A1 ,A5	B5	C1	D2
6	Moment of a force about a point. Varignon's theorem, rectangular components of the moment of a force, equivalent systems of forces.	1	A1 ,A5	B5	C1	D2
7	Equilibrium of rigid bodies Free- body diagram. Equilibrium of a rigid body in two dimensions.	1	A1 ,A5	B5	C1	D2
8	Equilibrium of three- dimension force body. Reduction of a system of forces to one force and one couple. Equilibrium of a rigid body in three dimensions. Reactions at supports and connections for a two- dimensional and for a three- dimensional structure.	1	A1 ,A5	B5	C1	D2
9	Centroids and centers of gravity. Centre of gravity of a two- dimensional body, centroids of area and lines, first moments of areas and lines, composite plates and wires.	1	A1 ,A5	B5	C1	D2



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
10	Analysis of structures Definition of truss Simple trusses Analysis of trusses by the method of joints	1	A1 ,A5	B5	C1	D2

**Course Coordinator: Dr. Salah Daif**

**Head of Department: Pro. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Physics1 (PHY101)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering department
<b>Department Responsible for the Course</b>	Basic Science and Engineering department
<b>Course Title</b>	Physics 1
<b>Course Code</b>	PHY101
<b>Year/Level</b>	level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	2

### 2- Course Aims:

No.	Aims
1	Study mechanical properties of materials, simple harmonic motion, sound, fluids at rest and in motion, heat transfer and introduction to thermodynamics.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Explain concepts and theories of mathematics for physical quantities, unit's dimensional analysis and basics of thermodynamics.
A <sub>5</sub>	Recognize methodologies of solving problems for stress-strain diagram, and fluids study.

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>2</sub>	Select the appropriate solutions for properties of materials through Brittle and Ductile material.

#### C. Professional Skills:

No.	Professional Skills
C <sub>5</sub>	Use measuring instruments and laboratories equipment to interpret results for acceleration gravity, simple harmonic motion, Hook's law, speed of sound and specific heat.



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#### D. General Skills:

No.	General Skills
D <sub>9</sub>	Refer to relevant literatures.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Physics and Measurement Practical: measurement methods	4	4	2
2	Mechanical properties for materials Practical: Hooks' Law	4	4	2
3	Oscillations Practical: simple pendulum.	4	4	2
4	Sounds. Practical: Resonance in the Air columns.	2	2	4
5	Fluids. Practical: Viscosity.	4	4	4
6	Heat transfer Practical: Heat & Specific Heat & thermo-electrical equivalent & the latent heat of melting ice.	2	2	6
7	The kinetic theory of gases and the work in thermodynamics Practical: melting point of solid materials.	2	2	4
8	The laws of thermodynamic Practical: heating and cooling curves.	4	4	2
9	Temperature and thermal expansion Practical: coefficient of linear thermal expansion.	2	2	2
<b>Total</b>		<b>28</b>	<b>28</b>	<b>28</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Experimental part
3	Discussion sessions
4	Information collection from different sources
5	Research assignment



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1, A5, B2
2	Semester work(quizzes, sheets, report)	C5, D9
3	Practical examination	C5, D9
4	Final term examination	A1, A5, B2, C5

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	7 <sup>th</sup> ,9 <sup>th</sup>
3	Practical examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Serway and Jewett, "Physics for Scientists and Engineers" 6E, Brooks, Cole, 2003
2	David Halliday and Robert Resnick, Fundamentals of Physics, John, Wiley, 7th edition, 2007



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Laboratory
3	Presenter
4	White board
5	Data show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Physics and Measurement Practical: measurement methods	1	A1		C5	D9
2	Mechanical properties for materials Practical: Hooks' Law	1	A5	B2	C5	D9
3	Oscillations Practical: simple pendulum.	1	A5		C5	D9
4	Sounds. Practical: Resonance in the Air columns.	1	A1	B2	C5	D9
5	Fluids. Practical: Viscosity.	1	A1		C5	D9
6	Heat transfer Practical: Heat & Specific Heat & thermo-electrical equivalent & the latent heat of melting ice.	1	A5	B2	C5	D9
7	The kinetic theory of gases and the work in thermodynamics Practical: melting point of solid materials.	1	A5	B2	C5	D9



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
8	The laws of thermodynamic Practical: heating and cooling curves.	1	A5		C5	D9
9	Temperature and thermal expansion Practical: coefficient of linear thermal expansion.	1	A1	B2	C5	D9

**Course Coordinator: Dr. Ahmed Lotfy**

**Head of Department: Prof. Dr. Mohamed SaadElkady**

**Date of Approval: 2018**





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## General Chemistry (CHE 101)

### 1- Basic Information:

Program Title	All programs
Department Offering the Program	Basic Science and Engineering Department
Department Responsible for the Course	Basic Science and Engineering Department
Course Title	General Chemistry
Course Code	CHE 101
Year/Level	Level: 1
Specialization	Major
Authorization Date of Course Specification	-
Pre- Request	-

Teaching hours	Lectures	Tutorial	Practical
	2	-	2

### 2- Course Aims:

No.	Aims
1	Study basics of chemistry to the solution of engineering problems on society and environment.
6	Relate chemical reactions and its characteristics to process industries

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define concepts and theories of chemistry, appropriate to the discipline
A13	Explain the fundamentals, basic characteristics and features of general chemistry and their application in chemical process industries, including fertilizers and cements.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical theories for analyzing problems
B4	Assess different ideas, views, and knowledge from a range of sources.



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### C. Professional Skills:

No.	Professional Skills
C5	Use equipment of laboratory for experimental part to interpret results

### D. General Skills:

No.	General Skills
D3	Communicate effectively
D6	Effectively manage tasks, time, and resources

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Gaseous status	4	-	-
2	Substantial and heat balance in fuel burning operations and chemical operations	2	-	-
3	Properties of solutions	4	-	12
4	Dynamic balance in physical and chemical operations	4	-	-
5	Kinetic chemical interactions	2	-	8
6	Electrochemistry	2	-	-
7	Introduction to chemical corrosion	2	-	-
8	Water processing	2	-	4
9	Building materials	2	-	4
10	Pollution and its treatment	2	-	-
11	Selected chemical industries: chemical manures – dyes – polymers – sugar – petrochemicals – semi-conductors – oil, greases and industrial detergents.	2	-	-
<b>Total</b>		<b>28</b>	<b>-</b>	<b>28</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation Method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1 , B4
2	Semester work(quizzes, sheets, report)	A1, A13, D3,D6
3	Practical Examination	C5, D6
4	Final term examination	A1, A13, B1, B4

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	10%
2	Semester work	20%
3	Practical Examination	10%
4	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Theodore L. Brown, et al, Chemistry the Central Science, Prentice Hall Int. (Pearson International 14 edition), 2018.
2	Shriver and Atkins', Inorganic Chemistry, Oxford University Press, 2010.
3	Austin, G.T., Shreve's Chemical Process Industries, McGraw - Hill Book Co, 5th. Ed., 1984.



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### 9 Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board	6	Laboratory

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Gaseous status. Practical: Chemistry Laboratory Equipment, Titrimetric Analysis.	1	A1	B1	C5	D3,D6
2	Chemical thermodynamics. Practical: Preparation of standard solution of $\text{Na}_2\text{CO}_3$ (0.1N), Determination of normality of hcl by using standard solution of oxalic acid.	1	A13	B1	C5	D3,D6
3	Properties of solutions. Practical: Determination of normality of acetic acid by using standard solution of sodium hydroxide, Determination of normality of sodium carbonate by using standard solution of hcl.	1	A1, A13	B1	C5	D3,D6
4	Material balance in combustion processes. Practical: Standardization of potassium permanganate with oxalic acid.	1	A1	B1	C5	D3,D6



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
5	Dynamic balance in physical and chemical operations. Practical: Determination of nitrites, precipitation titrations.	1,6	A13	B1, B4	C5	D3,D6
6	Kinetic chemical interactions. Practical: Preparation of 0.05N of sodium chloride.	1,6	A1	B1, B4	C5	D3,D6
7	Electrochemistry, corrosion and corrosion control. Practical: Determination of chloride ion by using Mohr method.	1	A1	B1, B4	C5	D3,D6
8	Fertilizers. Practical: Determining Molecule Weight by Freezing Point Depression Method.	1	A1,A13	B1	C5	D3,D6
9	Manufacturing and chemistry of Cement. Practical: Determining Molecule Weight by Freezing Point Depression Method.	1	A13	B1, B4	C5	D3,D6
10	Water processes. Practical: determination of water hardness by complex metric titration .	6	A13	B1, B4	C5	D3,D6

**Course Coordinator: Dr. Khaled Samir**  
**Head of Department: Dr. Khaled Samir**  
**Date of Approval: 2018**



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## Engineering Drawing and Projection

(ENG103)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Engineering Drawing and Projection
<b>Course Code</b>	ENG103
<b>Year/Level</b>	level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	1	-	4

### 2- Course Aims:

No.	Aims
1	Apply knowledge, techniques and skills of engineering drawing, engineering operations.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis.
A3	List the engineering materials related to the characteristics in engineering analysis.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and computer based methods for system modeling and analysis.

#### C. Professional Skills:

No.	Professional Skills
C2	Apply engineering knowledge and techniques to improve design, products and services



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## D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints
D5	Motivate individuals.

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Techniques and skills of engineering drawing	1	-	4
2	Engineering operations	1	-	4
3	Orthogonal projection – Secondary orthogonal	2	-	8
4	Intersections	1	-	4
5	projections of simple bodies	1	-	4
6	rules of writing dimensions	1	-	4
7	Deduction of missing projections	1	-	4
8	Drawing of engineering sections.	1	-	4
9	Steel frames	2	-	8
10	Introduction to AutoCAD Fundamentals of engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting fundamentals including orthographic projection, and isometric pictorials, part dimensioning in 2 dimensional drawings.	3	-	12
<b>Total</b>		<b>14</b>		<b>56</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Practical
3	Tutorial
4	Assignments
5	Essay
6	Group Discussion and presentation

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm exam	A1,B1
2	Semester work(quizzes, sheets, report)	C2, D2 , D5
3	Practical Examination	C2
4	Final examination	A1, A3 B1,C2

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Practical examination	10%
3	Semester work	20%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Bertoline, Gary R. Introduction to Graphics Communications for Engineers (4th Ed.). New York, NY. 2009

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Computer lab
3	Seminar
4	White board
5	Data Show system





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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Techniques and skills of engineering drawing	1	A1	B1	C2	D2, D5
2	Engineering operations	1	A1	B1	C2	D2, D5
3	Orthogonal projection – Secondary orthogonal	1	A1, A3	B1	C2	D2, D5
4	intersections	1	A1, A3	B1	C2	D2, D5
5	Projections of simple bodies	1	A1, A3	B1	C2	D2, D5
6	Rules of writing dimensions	1	A3	B1	C2	D2, D5
7	Deduction of missing projections	1	A3	B1	C2	D2, D5
8	Drawing of engineering sections.	1	A1	B1	C2	D2, D5
9	Steel frames	1	A1, A3	B1	C2	D2, D5
10	Introduction to AutoCAD Fundamentals of engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting fundamentals including orthographic projection, and isometric pictorials, part dimensioning in 2 dimensional drawings.	1	A1, A3	B1	C2	D2, D5

**Course Coordinator: Dr. Salah Daif**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Introductions to Computer Systems

(ENG104)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Introductions to Computer Systems
<b>Course Code</b>	ENG104
<b>Year/Level</b>	Level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	-	1

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science and engineering concepts by identifying computer architecture and how to solve any engineering problems using flowcharts and programming language.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define the concepts and theories of mathematics, science necessary for engineering system analysis by completing how to apply technology on it

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>3</sub>	Create different ideas from a range of sources to evaluate the characteristic and performance of component, systems and processes.

#### C. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of science, information technology, to solve engineering problems.



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#### D.General Skills:

No.	General Skills
D <sub>2</sub>	Work in stressful environment and within constraints (engineering problem and case student play a role in making stress on student).

#### 4. Course Contents:

No.	Topics	Lecture	Practical	Tutorial
1	Computer architecture. practical: Visual Studio C# Interface Writing simple statements	2	2	-
2	Computer systems Practical: Variables, Data type	4	4	-
3	Files systems Practical: Input & Output	2	2	-
4	Computer networks Practical: Conditional Statements	4	4	-
5	Internet networks Practical: Arrays	4	4	-
6	Data systems and information technology Practical: Loop Statement (For, while & do -while)	4	4	-
7	Computer graphics – Multimedia systems Practical: Loop Statement (For, while & do -while)	2	2	-
8	Methods of solving problems and logical design for the programs and matrices. Practical: Nested loop	4	4	-
9	Engineering applications in programming using one structured programming language. Practical: Engineering Case Study.	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Practical part
4	Information collection from different sources
5	Research assignment
6	Practical training/lab



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation methods:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>1</sub> , B <sub>3</sub> , D <sub>2</sub>
2	Semester work(quizzes, sheets, report)	A <sub>1</sub> , B <sub>3</sub> , C <sub>1</sub> , D <sub>2</sub>
3	Practical Examination	C <sub>1</sub> , D <sub>2</sub>
4	Final term examination	A <sub>1</sub> , B <sub>3</sub> , C <sub>1</sub> , D <sub>2</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup> , 13 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Computing essentials timothy, O' leary and linda, 2015.



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### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Computer lab
3	Presenter
4	White board
5	Data show system
6	Wireless internet
7	Sound system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Computer architecture. practical: Visual Studio C# Interface Writing simple statements	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>
2	Computer systems Practical: Variables, Data type	1	A <sub>1</sub>	--	C <sub>1</sub>	D <sub>2</sub>
3	Files systems Practical: Input & Output	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>
4	Computer networks Practical: Conditional Statements	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>
5	Internet networks Practical: Arrays	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>
6	Data systems and information technology Practical: Loop Statement (For, while & do -while)	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>
7	Computer graphics – Multimedia systems Practical: Loop Statement (For, while & do -while)	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
8	Methods of solving problems and logical design for the programs and matrices. Practical: Nested loop	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>
9	Engineering applications in programming using one structured programming language. Practical: Engineering Case Study.	1	A <sub>1</sub>	B <sub>3</sub>	C <sub>1</sub>	D <sub>2</sub>

**Course Coordinator: Dr. Yosry El-Helaly**

**Head of Department: Dr. Haythem Hussein Abdullah**

**Date of Approval: 2018**



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## Mathematics 2 (MTH102)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Mathematics 2
<b>Course Code</b>	MTH102
<b>Year/Level</b>	Level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, concepts of main topics of calculus and analytic geometry basics to solve fundamental engineering problems.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define concepts and theories of integration techniques and analytical geometry in the plane and space for engineering system analysis.

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>1</sub>	Select appropriate mathematical methods for system modelling and analysis

#### C. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply concepts of analytical geometry in the plane and space to solve engineering problems.
C <sub>7</sub>	Apply numerical integration methods to engineering problems.



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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topic	Lectures	Tutorial	Practical
1	<ul style="list-style-type: none"> <li>Basic concepts- equations of second degree and double equation for two straight lines</li> <li>Movement and rotation of axes</li> </ul>	4	4	-
2	<ul style="list-style-type: none"> <li>Circle– conical sectors</li> </ul>	6	6	-
3	<ul style="list-style-type: none"> <li>Analytical geometry in space</li> <li>Cartesian coordinates</li> <li>Cylindrical-spherical -plane in space</li> </ul>	2	2	-
4	<ul style="list-style-type: none"> <li>Equations of surfaces in second order – rotation and movement of axes in space.</li> </ul>	2	2	-
5	<ul style="list-style-type: none"> <li>Indefinite integration (basic functions – theories) – method of integration</li> </ul>	6	6	-
6	<ul style="list-style-type: none"> <li>Definite integration (definition – properties - theories)</li> <li>Applications of definite integration (plain areas – circular volumes – plain technical length)</li> </ul>	4	4	-
7	<ul style="list-style-type: none"> <li>Areas – Circular surfaces</li> </ul>	2	2	-
8	<ul style="list-style-type: none"> <li>Numerical integration.</li> </ul>	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment





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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1 ,B1
2	Semester work(quizzes, sheets, report)	C1, C7,D2
3	Final term examination	A1,B1, C1, C7

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	7 <sup>th</sup> - 9 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Swokowski, E, Olinick ,M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994.
2	Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994.



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### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	<ul style="list-style-type: none"> <li>Basic concepts- equations of second degree and double equation for two straight lines</li> <li>Movement and rotation of axes</li> </ul>	1	A1	B1	C1, C7	D2
2	<ul style="list-style-type: none"> <li>Circle– conical sectors</li> </ul>	1	A1	B1	C1, C7	D2
3	<ul style="list-style-type: none"> <li>Analytical geometry in space</li> <li>Cartesian coordinates</li> <li>Cylindrical-spherical -plane in space</li> </ul>	1	A1	B1	C1, C7	D2
4	<ul style="list-style-type: none"> <li>Equations of surfaces in second order – rotation and movement of axes in space.</li> </ul>	1	A1	B1	C1, C7	D2
5	<ul style="list-style-type: none"> <li>Indefinite integration (basic functions – theories) – method of integration</li> </ul>	1	A1	B1	C1, C7	D2
6	<ul style="list-style-type: none"> <li>Definite integration (definition – properties -theories)</li> <li>Applications of definite integration (plain areas – circular volumes – plain technical length)</li> </ul>	1	A1	B1	C1, C7	D2
7	<ul style="list-style-type: none"> <li>Areas – Circular surfaces</li> </ul>	1	A1	B1	C1, C7	D2
8	<ul style="list-style-type: none"> <li>Numerical integration.</li> </ul>	1	A1	B1	C1, C7	D2

**Course Coordinator: Dr. Adel kamel**

**Head of Department: Prof. Dr. Mohammed SaadElkady**

**Date of Approval: 2018**



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## Mechanics 2 (ENG 102)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Mechanics 2
<b>Course Code</b>	ENG 102
<b>Year/Level</b>	Level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of plane motion using Cartesian axis and relative motion between particles.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define position, velocity and acceleration of particles and principles of conservation of mechanical energy.
A5	Recognize methodologies of solving engineering problems including principles of work and energy.

#### B. Intellectual Skills:

No.	Intellectual Skills
B5	Solve engineering problems to determine the velocity and position of projectile.

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of principle of work and principle of conservation of mechanical energy and momentum of rigid body.



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#### D.General Skills:

No.	General Skills
D7	Search for information to engage in life-long self-learning discipline.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Position, Displacement, Velocity, and Acceleration of particle	4	4	-
2	Plane Motion Path of Particle	2	2	-
3	Description of plane motion using Cartesian axes	2	2	-
4	Projectiles	2	2	-
5	Relative motion between particles	2	2	-
6	Motion for particle in circular path	2	2	-
7	Newton's second law of motion	4	4	-
8	Principle of work and energy of motion	4	4	-
9	Principle of conservation of mechanical energy	2	2	-
10	Principle of Impulse and Momentum of rigid body	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students	Knowledge and skills transfer among different levels of students

#### 7. Student evaluation:



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### 7.1 Student Evaluation methods:

No.	Evaluation Method	ILO's
1	Midterm examination	A1,B5
2	Semester work(quizzes, sheets, report)	C1,D7
3	Final term examination	A5,B5,A1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup> -14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Hibbeler, R. C. "Gupta Ashok Engineering Mechanics: Statics & Dynamics. 11th ed." (2009).
2	Meriam, James L., and L. Glenn Kraige. <i>Engineering mechanics: dynamics</i> . Vol. 2. John Wiley & Sons, 2012.
3	Hibbeler, R. C. "Engineering Mechanics: Statics and Dynamics 13/e." (2013).

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
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1	Position, Displacement, Velocity, and Acceleration of Particle	1	A1	B5		
2	Plane Motion path of Particle	1	A1		C1	D7
3	Description of plane Motion using Cartesian axes	1	A1			D7
4	Projectiles	1		B5	C1	
5	Relative motion between particles	1	A1			D7
6	Motion for particle in circular path	1	A1			
7	Newton's second law of motion	1	A1,A5	B5	C1	D7
8	Principle of work and energy of motion	1	A5		C1	D7
9	Principle of conservation of mechanical energy	1	A5	B5		
10	Principle of impulse and momentum of rigid body	1	A5	B5	C1	D7

**Course Coordinator: prof. Dr. Mohamed Saad Elkady**

**Head of Department: prof.Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Physics 2 (PHY102)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Physics 2
<b>Course Code</b>	PHY 102
<b>Year/Level</b>	Level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	2

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science to study basics of electricity and magnetism, Quantum theory, Laser, Optics and propagation of light.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define concepts and theories of mathematics and sciences necessary for engineering system analysis.
A <sub>5</sub>	Study solving engineering problems including Einstein's quantum hypothesis, laws of reflection and refraction, interference and diffraction.

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>2</sub>	Select the appropriate solutions for engineering problems including Newton's Rings and design of optical fibers.



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### C. Professional Skills:

No.	Professional Skills
C <sub>5</sub>	Use measuring instruments and laboratories equipment to design experiments, collect, analyze and interpret results.

### D. General Skills:

No.	General Skills
D <sub>9</sub>	Refer to relevant literatures.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Basic of electricity. Practical: measurement devices in electrical conductivity.	2	2	4
2	Columb's law and Gauss's law. Practical: sensitivity of galvanometer.	4	4	2
3	Capacitors and capacitance. Practical: capacitors and capacitance	2	2	2
4	Currents and Resistance. Practical: ohm's law - series connection & parallel connection & resistance colour code & meter bridge - voltmeter resistance.	4	4	10
5	Magnetic field and magnetic force. Practical: the inverse square law in magnetism.	4	4	2
6	The nature and propagation of light. Practical: the glass prism.	4	4	2
7	Optical fiber. Practical: the glass prism.	2	2	2
8	Introduction to Quantum theory.	2	2	0
9	Laser. Practical:	2	2	0
10	Lenses and mirrors. Practical: spherometer- mirrors and lenses.	2	2	4
<b>Total</b>		<b>28</b>	<b>28</b>	<b>28</b>





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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Practical part
4	Information collection from different sources
5	Research assignment

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1 - C5
2	Semester work(quizzes, sheets, report)	D9 - A5 - C5
3	Final term examination	A1 - A5 - B2
4	Practical exam	D9 - C5

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>



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## 8. List of References:

No.	Reference List
1	Serwayjewett, " Physics for scientists and engineers", 2004
2	Fitzgerald, "Basic Electric Engineering", McGraw – Hill, 1981
3	William H. Roadstrum & Dan H. Wolaver“ Electrical Engineering For All Engineers” , John Wiley & Sons, 1994

## 9. . Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Laboratory
3	Presenter
4	White board
5	Data show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Basic of electricity. Practical: measurement devices in electrical conductivity.	1	A1	B2	C5	
2	Column's law and Gauss's law. Practical: sensitivity of galvanometer.	1	A1		C5	D9
3	capacitors and capacitance. Practical: capacitors and capacitance	1	A1	B2	C5	
4	Currents and Resistance. Practical: ohm's law -	1	A1		C5	D9



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	series connection & parallel connection & resistance colour code & meter bridge - voltmeter resistance.					
5	Magnetic field and magnetic force. Practical: the inverse square law in magnetism.	1	A5		C5	
6	The nature and propagation of light. Practical: the glass prism.	1	A5	B2	C5	D9
7	Optical fiber. Practical: the glass prism.	1		B2	C5	D9
8	Introduction to Quantum theory.	1	A5		C5	D9
9	Laser. Practical:	1	A5	B2	C5	D9
10	Lenses and mirrors. Practical: spherometer-mirrors and lenses.	1	A5	B2	C5	D9

**Course Coordinator: Dr. Amal Bahiry**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Production Engineering (ENG105)

### 1- Basic Information:

<b>Program Title</b>	All Programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Production Engineering
<b>Course Code</b>	ENG105
<b>Year/Level</b>	Level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
		2	-

### 2-Course Aims:

No.	Aims
1	Study the basic concepts of engineering techniques to apply it in different equipment and tools. .

### 3-Intended Learning Outcomes (ILO'S):

#### A.Knowledge and understanding:

No.	Knowledge and understanding
A <sub>3</sub>	List the characteristics of engineering materials related to production engineering.

#### B.Intellectual Skills:

No.	Intellectual Skills
B <sub>2</sub>	Select the appropriate solutions for engineering problems to produce an iron and steel in many furnaces and convertors.
B <sub>5</sub>	Evaluate the characteristics and performance of engineering materials related to production engineering.



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### C. Professional Skills:

No.	Professional Skills
C <sub>2</sub>	Apply engineering knowledge to improve products of modern tools, systems and procedure, to make the engineering process more balanced costs, benefits, safety, quality and reliability and environmental impact.
C <sub>8</sub>	Apply safe systems including the use laboratory and field equipment competently

### D. General Skills:

No.	General Skills
D <sub>6</sub>	Effectively manage tasks, time, and resources.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	The engineering substances and its properties Practical: engineering materials	3	-	2
2	Heating and cooling diagrams Practical: iron and steel production	3		2
3	Heating equilibrium diagrams Practical : heat treatment	3	-	2
4	Alloys - Casting operation (sand casting and the preparation of the mold) Practical: metal casting & mold for a sand casting & carpenter workshop	6	-	4
5	Forming processes (cold and hot forming: forging rolling – Wire drawing – Blanking and piercing - Deep drawing - The extrusion) Practical: metal forming	6	--	4
6	Processes of metal connections (the riveting – welding with its types sticking) Practical: metal joining process	6	--	2
7	Cutting machining: Lathing - Shaping – Drilling – Milling - Grinding – Work Piece fixation - Cutting tools fixation - Specifications of the operating machine) Practical: carpenter workshop	6	-	2
8	Methods of solving problems Practical: metal machining	3	-	2
9	Measuring tools (venire caliper – micrometers and its types)	3	-	4



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	Practical: measurement tools			
10	Production cycle production efficiency - Industrial safety Practical training in the different workshops	3	-	4
<b>Total</b>		<b>42</b>	<b>-</b>	<b>28</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Practical training/lab

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>3</sub> ,B <sub>2</sub>
2	Semester work(quizzes, sheets, report)	C <sub>2</sub> ,C <sub>8</sub> ,D <sub>6</sub>
3	Practical Exam	C <sub>2</sub> ,C <sub>8</sub> ,D <sub>6</sub>
4	Final term examination	A <sub>3</sub> ,B <sub>5</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	7 <sup>th</sup> , 9 <sup>th</sup> , 14 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>



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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Graham T. Smith, "Cutting Tool Technology Industrial Hand book", Springer-Verlag London 2008.
2	Klas Wermam, "Welding processes handbook"/Woodhwed publishing Ltd, 2003.
3	مكتبة الأنجلو المصرية د.أنور عبدالواحد Book> <a href="https://www.anglo-egyption.com">https://www.anglo-egyption.com</a>

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Production engineering workshops
2	Presenter
3	White board
4	Data show system
5	Sound system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	The engineering substances and its properties Practical: engineering materials	1	A <sub>3</sub>	B <sub>2</sub> ,B <sub>5</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>
2	Heating and cooling diagrams Practical: iron and steel production	1	A <sub>3</sub>	B <sub>2</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>
3	Heating equilibrium diagrams Practical : heat treatment	1	A <sub>3</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>6</sub>
4	Alloys - Casting operation (sand casting and the preparation of the	1	A <sub>3</sub>	B <sub>5</sub>	C <sub>2</sub>	D <sub>6</sub>



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
	mold) Practical: metal casting & mold for a sand casting & carpenter workshop					
5	Forming processes (cold and hot forming: forging rolling – Wire drawing – Blanking and piercing - Deep drawing - The extrusion) Practical: metal forming	1	A <sub>3</sub>	B <sub>2</sub> ,B <sub>5</sub>	C <sub>8</sub>	D <sub>6</sub>
6	Processes of metal connections (the riveting – welding with its types sticking) Practical: metal joining process	1	A <sub>3</sub>	B <sub>2</sub> ,B <sub>5</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>
7	Cutting machining: Lathing - Shaping – Drilling –Milling - Grinding – Work Piece fixation - Cutting tools fixation - Specifications of the operating machine) Practical: carpenter workshop	1	A <sub>3</sub>	B <sub>2</sub> ,B <sub>5</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>
8	Methods of solving problems Practical: metal machining	1	A <sub>3</sub>	B <sub>2</sub> ,B <sub>5</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>
9	Measuring tools (venire caliper – micrometers and its types) Practical: measurement tools	1	A <sub>3</sub>	B <sub>2</sub> ,B <sub>5</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>
10	Production cycle production efficiency - Industrial safety Practical training in the different workshops	1	A <sub>3</sub>	B <sub>5</sub>	C <sub>2</sub> ,C <sub>8</sub>	D <sub>6</sub>

**Course Coordinator: Dr. Abdu El-Naquib**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**





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## Introduction to Engineering and Environment (ENG106)

### 1- Basic Information:

<b>Program Title</b>	All programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Introduction to Engineering and Environment
<b>Course Code</b>	ENG106
<b>Year/Level</b>	level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	-	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of engineering concepts to solve fundamental engineering problems for air pollution, water pollution and solid wastes.

### 3- Intended Learning Outcomes (ILO'S):

#### 4- Knowledge and understanding:

No.	Knowledge and understanding
A <sub>12</sub>	Study different contemporary topics related to Ozone depletion, Acid rain and solid wastes.

#### 5- Intellectual Skills:

No.	Intellectual Skills
B3	Evaluate different ideas, views, and knowledge from a range of sources to know the characteristics of different pollution sources.

### A. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology to solve engineering ethics problems and environmental problems.



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## B. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Engineering concepts: What is engineering – international classification for the engineering jobs – Relation between engineering development and environment economic and social development – Engineering branches – Ethics of the engineering jobs.	10	-	-
2	Introduction to environmental science: the importance of studying environmental science	2	-	-
3	Modern technology and its effect on the environment – Quality of the environment and development elements	4	-	-
4	Sources of environmental pollution and method of control (air pollution – water pollution – solid wastes pollution – economics of environmental pollution control – legislations for the environment protection.	12	-	-
<b>Total</b>		<b>28</b>	<b>-</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7. Student Evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A12 - B3
2	Semester work(quizzes, sheets, report)	C1 - D6
3	Final Term Examination	A12 – B3 – C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 Weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	د.زكريا طاحون , ادارة البيئة نحو الانتاج الأنظف, الهيئة المصرية العامة للكتاب, القاهرة, 2007
2	محمد اسماعيل خضر, مقدمة في علوم البيئة, الهيئة العامة للكتاب, القاهرة 2012

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Engineering concepts: What is engineering – international classification for the engineering jobs – relation between engineering development and environment economic and social development – engineering branches – ethics of the engineering jobs.	1	A12	-	C1	D6
2	Introduction to environmental science: the importance of studying environmental science	1	A12	B3	C1	-
3	Modern technology and its effect on the environment – quality of the environment and development elements	1	A12	-	C1	D6
4	Sources of environmental pollution and method of control (air pollution – water pollution – solid wastes pollution –noise) – economics of environmental pollution control – legislations for the environment protection.	1	A12	B3	C1	D6

**Course Coordinator: prof. Dr. Mohamed Saad Elkady**

**Dr. Ramadan Elkateb**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Technical English Language 1 (LNG101)

### 1- Basic Information:

<b>Program Title</b>	All Programs
<b>Department Offering the Program</b>	Basic Science and Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Technical English Language 1
<b>Course Code</b>	LNG101
<b>Year/Level</b>	Level 1
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	1	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of engineering technology to express one's say and write technical reports

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A2	Study the basics terms of engineering.
A10	Write technical language and technical report writing.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Select the appropriate terms of engineering to write technical English essays.

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of English context to express and write technical engineering essays



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#### D.General Skills:

No.	General Skills
D3	Communicate effectively.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Engineering Lab. : skills in English Lesson 1 Bob's day at work & Lesson 2 Bob returns home with bad news	6	-	6
2	A private flat Lab. : skills in English Lesson 3 Ted's day at school	2	-	2
3	Book shelves Lab. : skills in English Lesson 4 Nicole's day at school	2	-	2
4	Bridges Lab. : skills in English Lesson 5 Ted goes out for the evening Grammar Topics	4	-	4
5	Reinforced concrete Lab. : skills in English Lesson 6 Susan stays home and bake cookies & Lesson 7 Susan hires Bob to run her own business	4	-	4
6	Surveying Lab. : skills in English Lesson 8 Ted forms a rock band & Lesson 9 Nicole for president	4	-	4
7	Hydraulic works Lab. : skills in English Lesson 10 Bob visits the village market	4	-	4
8	Soil mechanics and foundations Lab. : skills in English Grammar topics	2		2
<b>Total</b>		<b>28</b>	<b>-</b>	<b>28</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Practical
3	Tutorial
4	Assignments
5	Essay
6	Group Discussion and presentation

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A2, A10, B2, C1
2	Semester work(quizzes, sheets, report)	C1,D3
3	Practical exam	C1, D3
4	Final term examination	A2, A10, B2, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Practical examination	14 <sup>th</sup>
4	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Practical examination	10%
3	Semester work	20%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>



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## 8. List of References:

No.	Reference List
1	Fundamental of Engineering ,HK H Dass- 2009
2	Bridges if the World, Charles S. Whitney - 2003
3	History of Reinforced Concrete ,Samuel A.Berg-2005
4	Surveying , Heribert Kahmen , 1988

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Computer lab.
3	Seminar
4	White board
5	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Engineering Lab. : skills in English Lesson 1 Bob's day at work & Lesson 2 Bob returns home with bad news	1	A2 , A10	B2	C1	D3
2	A private flat Lab. : skills in English Lesson 3 Ted's day at school	1	A2 , A10	B2	C1	D3
3	Book shelves Lab. : skills in English Lesson 4 Nicole's day at school	1	A2 , A10	B2	C1	D3
4	Bridges Lab. : skills in English Lesson 5 Ted	1	A2 , A10	B2	C1	D3





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	goes out for the evening Grammar Topics					
5	Reinforced concrete Lab. : skills in English Lesson 6 Susan stays home and bake cookies & Lesson 7 Susan hires Bob to run her own business	1	A2 , A10	B2	C1	D3
6	Surveying Lab. : skills in English Lesson 8 Ted forms a rock band & Lesson 9 Nicole for president	1	A2 , A10	B2	C1	D3
7	Hydraulic works Lab. : skills in English Lesson 10 Bob visits the village market	1	A2 , A10	B2	C1	D3
8	Soil mechanics and foundations Lab. : skills in English Grammar topics	1	A2 , A10	B2	C1	D3

**Course Coordinator: Mr / Emad Abo Elnga**

**Head of Department: Prof.Dr / Mohammed Saad Elkady**

**Date of Approval: 2018**



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## Mathematics 3 (MTH201)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Mathematics 3
<b>Course Code</b>	MTH 201
<b>Year/Level</b>	Level: 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	MTH 101

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of concepts ordinary differential equations and multivariable calculus to solve engineering problems to analysis engineering systems

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define concepts and theories of ordinary differential equations and multivariable calculus necessary for engineering system analysis

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>1</sub>	Select appropriate mathematical and computer-based methods for system modelling

#### C. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of mathematics, to solve engineering problems.

#### D. General Skills:

No.	General Skills
D <sub>2</sub>	Work in stressful environment and within constraints.



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#### 4. Course Contents:

No.	Topic	Lectures	Tutorial	Practical
1	<ul style="list-style-type: none"> <li>Functions of several variables</li> <li>Limits of functions of several variables.</li> <li>Continuity in multivariable functions</li> </ul>	2	4	-
2	<ul style="list-style-type: none"> <li>Partial derivatives of higher order</li> <li>extreme for functions of two variables</li> </ul>	4	4	-
3	<ul style="list-style-type: none"> <li>Double integral</li> <li>Triple integral</li> <li>Line integral in space, Green's theorem</li> <li>Surface integral</li> <li>Gauss and stokes's theory</li> </ul>	10	4	-
4	<ul style="list-style-type: none"> <li>Basic concepts Formation of the differential equations</li> <li>Separable differential equations</li> <li>Homogenous differential equations</li> <li>Exact differential equation</li> <li>linear differential equation</li> <li>Bernoulli's equation</li> <li>the linear differential operator</li> </ul>	4	2	-
			4	-
			2	-
			4	-
5	<ul style="list-style-type: none"> <li>Second order homogeneous differential equations with constant coefficients</li> <li>Non-homogeneous linear differential equations</li> </ul>	4	2	-
6	<ul style="list-style-type: none"> <li>Convergence of la-place transform</li> <li>Important properties of la-place transform</li> <li>Laplace transform of derivatives</li> <li>Inverse la-place transform</li> </ul>	4	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time



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2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1,B1
2	Semester work(quizzes, sheets, report)	C1, D2
3	Final term examination	A1,B1,C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Peter V.O.Neil, Advanced Engineering Mathematics, Chirrs Carson Publishing, UK, 2007.
2	Swokowski, E, Olinick ,M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994.
3	Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994.

## 9. Facilities required for teaching and learning:

Facility			
1	Lecture classroom	3	White board
2	Seminar	4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	<ul style="list-style-type: none"> <li>• Functions of several variables</li> <li>• Limits of functions of several variables.</li> <li>• Continuity in multivariable functions</li> </ul>	1	A1	B1	C1	D2
2	<ul style="list-style-type: none"> <li>• Partial derivatives of higher order</li> <li>extreme for functions of two variables</li> </ul>	1	A1	B1	C1	D2
3	<ul style="list-style-type: none"> <li>• Double integral</li> <li>• Triple integral</li> <li>• Line integral in space, Green's theorem</li> <li>• Surface integral</li> <li>• Gauss and stokes's theory</li> </ul>	1	A1	B1	C1	D2
4	<ul style="list-style-type: none"> <li>• Basic concepts Formation of the differential equations</li> <li>• Separable differential equations</li> <li>• Homogenous differential equations</li> <li>• Exact differential equation</li> <li>• linear differential equation</li> <li>• Bernoulli's equation</li> <li>the linear differential operator</li> </ul>	1	A1	B1	C1	D2
5	<ul style="list-style-type: none"> <li>• Second order homogeneous differential equations with constant coefficients</li> <li>• Non-homogeneous linear differential equations</li> </ul>	1	A1	B1	C1	D2
6	<ul style="list-style-type: none"> <li>• Convergence of la-place transform</li> <li>• Important properties of la-place transform</li> </ul>	1	A1	B1	C1	D2



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	<ul style="list-style-type: none"><li>• Laplace transform of derivatives</li><li>• Inverse la-place transform</li></ul>					
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**Course Coordinator: Dr. Moataz Salah**

**Head of Department: Prof.Dr.Mohammed Saad Elkady**

**Date of Approval: 2018**



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## Civil Engineering Drawing (CIE201)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Civil Drawing
Course Code	CIE 201
Year/Level	level 2
Specialization	Major
Authorization Date of Course Specification	-
Pre-request	ENG 105

Teaching hours	Lectures	Tutorial	Practical
	1	4	-

### 2- Course Aims:

No.	Aims
1	Study drawings and projection of; steel connections, reinforced concrete structures, and irrigation structures.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts of drawings of civil engineering applications.
A3	Recognize materials, sections and principles of projections in civil constructions
A6	Identify connections in steel structures.

#### B. Intellectual Skills:

No.	Intellectual Skills
B10	Create drawings of elements in civil engineering

#### C. Professional Skills:

No.	Professional Skills
C10	Practice the neatness in preparing civil drawings.
C15	Prepare technical drafts and detailed drawings both manually and using CAD



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#### D.General Skills:

No.	General Skills
D6	Effectively manage tasks in fixed time

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to civil engineering projects (general concepts- legends and symbols – scales and drawing size – general layout and plants – longitudinal and cross sections – detailing – drawings include structural steel sections and details, culverts roof and floor plants , reinforcement details , housing details.	8	32	-
2	Auto cad fundamentals of civil engineering drafting by way of computer aided drawing (CAD) software.	4	16	-
3	Basic features and capabilities of CAD software.	2	8	-
<b>Total</b>		<b>14</b>	<b>56</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Practical
3	Tutorial
4	Assignments
5	Essay
6	Group Discussion and presentation

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.





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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, A6, B10
2	Semester work	C10,C15, D6
3	Final Term Examination	A1, A3, A6, B10, C15

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Course notes: Lecture notes prepared and written by the lecturers
2	Essential books (text books)
3	Recommended books
4	Web sites and Periodicals

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to civil engineering projects (general concepts- legends and symbols – scales and drawing size – general layout and plants – longitudinal and cross sections – detailing – drawings include structural steel sections and details, culverts roof and floor plants , reinforcement details , housing details.	1	A1, A3, A6	B10	C10	D6
2	AutoCAD fundamentals of civil engineering drafting by way of computer aided drawing (CAD) software.	1	A1 , A3 , A6	B10	C10, C15	D6
3	Basic features and capabilities of CAD software.	1	A1, A3 ,A6	B10	C10, C15	D6

**Course Coordinator:** Dr / Samer El Abd

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Structures analysis (1)

(CIE 202)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	structures analysis (1)
<b>Course Code</b>	CIE 202
<b>Year/Level</b>	level 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	ENG 101

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply a basic knowledge of types of structures (beams, frames, trusses) to teach the student the behavior of statically determinate structure.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving Structural problems; Beams, frames, trusses and arches.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively to select the appropriate solutions for structural problems.
B5	Solve structural problems on the basis of limited information.



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### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, design and engineering practice to solve structural problems.

### D. General Skills:

No.	General Skills
D7	Search for information.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Basic concept in structural analyses	2	2	-
2	Loads and reactions	4	4	-
3	Statically determinate beams	4	4	-
4	Statically determinate rigid frames	4	4	-
5	Statically determinate arches	4	4	-
6	Statically determinate trusses.	6	6	-
7	Influence lines for Statically determinate structures	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Tutorial
3	Sheets and Exercises
4	Sessions of discussion

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, B5
2	Semester work	B2, C1, D7
3	Final Term Examination	A5, B2, B5

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Essential books (text books) <ul style="list-style-type: none"> <li>W. M. El-dakhkhni, "Theory of Structures", Part One, Assiut University, 1973, 1974.</li> <li>W. M. El-dakhkhni, "Theory of Structures", Part Two, Assiut University, 1973, 1974.</li> <li>El-Sayed El-Kasaby and Fayez Kaiser, "Theory of Structures-Solved examples", Part 1, 1999.</li> </ul>
2	Recommended books <ul style="list-style-type: none"> <li>Structural Analysis, R. C. Hibbeler, 2002.</li> <li>Structural Analysis 1: Statically Determinate Structures, S. Khalfalla, September -2019</li> <li>Structural Analysis, R. C. Hibbeler, 2006.</li> </ul>
3	Structural Engineering Web Sites -ASCE Periodicals.



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	discussions rooms with internet connections
3	teaching aids as interactive (smart) board
4	Data Show

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Basic concept in structural analyses	1	A5	B2	C1	D7
2	Loads and reactions	1	A5	B5	C1	D7
3	Statically determinate beams	1	A5	B2, B5	C1	D7
4	Statically determinate rigid frames	1	A5	B2, B5	C1	D7
5	Statically determinate arches	1	A5	B2, B5	C1	D7
6	Statically determinate trusses.	1	A5	B2, B5	C1	D7
7	Influence lines for Statically determinate structures	1	A5	B2, B5	C1	D7

**Course Coordinator:** Dr/ Hamdy abdl aty

**Head of Department:** ASS. Prof / Khaled fawzy

**Date of Approval:** 2018



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## Computer Programming (ENG201)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Basic science and Engineering Department
Course Title	Computer Programming
Course Code	ENG201
Year/Level	level 2
Specialization	Major
Authorization Date of Course Specification	-
Pre- Request	-

Teaching hours	Lectures	Tutorial	Practical
	2	-	2

### 2- Course Aims:

No.	Aims
2	Design a system for components and process by applying “ java “ language programming

### 3- Intended Learning Outcomes (ILO'S):

#### 4- Knowledge and understanding:

No.	Knowledge and understanding
A5	Study engineering problems, data collection problems to identify java programs

#### 5- Intellectual Skills:

No.	Intellectual Skills
B5	Solve engineering problems on the basis of limited and possibly contradicting information by applying java programs

#### 6- Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, information technology, to solve engineering problems by using java programming language.



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### General Skills:

No.	General Skills
D <sub>2</sub>	Work in stressful environment and within constraints
D <sub>6</sub>	Effectively manage tasks, time, and resources

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Basic concepts of programming. ❖ Practical: problem analysis& Developing the programs charts& Structured programming	2	-	2
2	Introduction Java Applications ❖ Practical: Form of the Program& fundamentals of Java programming language and its syntax& Primitive data types, operators, variables&Joptionpane& scanner Classes.	4	-	4
3	Branching[Control Statements]. ❖ Practical: programs about (If statement, If -Else, Nested IF, Switch)	2	-	2
4	[Iterations] Control Statements. ❖ Practical: solved problems about (Repetition statements: for, while, do-while& Nested loop &Continue, Break.)	4	-	4
5	Concepts of object Oriented programming ❖ Practical: Examples Of Classes, Inheritance Concept.	2	-	2
6	Methods in java. ❖ Practical: problems of ( Declare method& Message passing& Method overloading)	2	-	2
7	Arrays and Array list ❖ Practical: Create Array& Matrix& Array List.	4	-	4
8	Introduction to java Applets. Practical: java Applets programs.	4	-	4
9	Graphical user interface (GUI). Practical: GUI exercises.	4	-	4
<b>Total</b>		<b>28</b>	<b>-</b>	<b>28</b>





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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Practical
4	Information collection from different sources
5	Research assignment
6	The grouping of students in the form of small groups

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>5</sub> , B <sub>5</sub> , C <sub>1</sub>
2	Semester work (report, quizzes )	B <sub>5</sub> , C <sub>1</sub> , D <sub>2</sub> , D <sub>6</sub>
3	Final term examination	A <sub>5</sub> , B <sub>5</sub> , C <sub>1</sub>
4	Practical	D <sub>2</sub> , D <sub>6</sub> ,C <sub>1</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%



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3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Java for Engineering and scientists, Stephen J.chapma, 2012
2	How to program Java 9 <sup>th</sup> edition, Paul Deitel, 2011

## 9. . Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Computer lab.
3	Presenter
4	White board
5	Data show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Basic concepts of programming. ❖ Practical: problem analysis & Developing the programs charts& Structured programming	2	A <sub>5</sub>	--	C <sub>1</sub>	D <sub>2</sub>
2	Introduction Java Applications ❖ Practical: Form of the Program& fundamentals of Java programming language and its syntax& Primitive data types, operators,	2	A <sub>5</sub>	--	C <sub>1</sub>	D <sub>2</sub>



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	variables&Joptionpane& scanner Classes.					
3	Branching [Control Statements]. ❖ Practical: programs about (If statement, If -Else, Nested IF, Switch)	2	A <sub>5</sub>	B <sub>5</sub>	C <sub>1</sub>	D <sub>2</sub> , D <sub>6</sub>
4	[Iterations] Control Statements. ❖ Practical: solved problems about (Repetition statements: for, while, do-while& Nested loop &Continue, Break.)	2	A <sub>5</sub>	B <sub>5</sub>	C <sub>1</sub>	D <sub>2</sub> , D <sub>6</sub>
5	Concepts of object Oriented programming ❖ Practical: Examples of Classes, Inheritance Concept.	2	A <sub>5</sub>	--	C <sub>1</sub>	D <sub>6</sub>
6	Methods in java. ❖ Practical: problems of ( Declare method& Message passing& Method overloading)	2	A <sub>5</sub>	B <sub>5</sub>	C <sub>1</sub>	D <sub>6</sub>
7	Arrays and Array list ❖ Practical: Create Array& Matrix& Array List.	2	A <sub>5</sub>	B <sub>5</sub>	C <sub>1</sub>	D <sub>6</sub>
8	Introduction to java Applets. Practical: java Applets programs.	2	A <sub>5</sub>	--	C <sub>1</sub>	D <sub>2</sub> , D <sub>6</sub>
9	Graphical user interface (GUI). Practical: GUI exercises.	2	A <sub>5</sub>	--	C <sub>1</sub>	D <sub>2</sub> , D <sub>6</sub>

**Course Coordinator: Dr. Yosry El-Helaly**

**Head of Department: Dr. Haythem Hussein Abdullah**

**Date of Approval: 2018**



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## Engineering Thermodynamics (ENG 202)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Engineering Thermodynamics
<b>Course Code</b>	ENG 202
<b>Year/Level</b>	level 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	ENG102

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science and engineering concepts to understand the energy transfer concept between different systems and its applications.

### 3- Intended Learning Outcomes (ILO'S):

#### 4- Knowledge and understanding:

No.	Knowledge and understanding
A1	Study the concepts and theories of mathematical, science necessary for engineering thermodynamic properties for different types of systems
A4	Explain the principles of system design including elements design, process and system related to different disciplines.

#### 5- Intellectual Skills:

No.	Intellectual Skills
B2	Select the appropriate solutions for engineering problems and system design, gas power cycles, vapor cycles.



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## 6- Professional Skills:

No.	Professional Skills
C2	Modify engineering knowledge and understanding to improve design, products and services, gas power cycles, vapor cycles.

## A.General Skills:

No.	General Skills
D3	Communicate effectively

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Fundamental concepts - Properties of a pure substance	3	2	-
2	Equation of state - thermodynamic systems - Work and heat	3	2	-
3	First law of thermodynamics; Applications to Systems and Control Volumes	9	6	-
4	Second Law of Thermodynamics; Principle of Carnot cycles	6	4	-
5	Heat engines, Refrigerators and heat pumps - Principle of the increase of entropy	6	4	-
6	Applications to systems and control volumes - Irreversibility and availability	9	6	-
7	Power and refrigeration cycles	6	4	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time
2	Web communication with students.	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>1</sub> , A <sub>4</sub>
2	Semester work(quizzes, sheets, report)	C <sub>2</sub> , D <sub>3</sub>
3	Final term examination	A <sub>1</sub> , A <sub>4</sub> , B <sub>2</sub> , C <sub>2</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup> , 14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	final examination	60%
3	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Haber man, William L., and James EA John. Engineering thermodynamics. Allyn and Bacon, 1980.
2	Cengel, Yunus A. Introduction to thermodynamics and heat transfer. New York: McGraw-Hill, 1997.
3	Bergman, Theodore L., and Frank P. Incropera. Introduction to heat transfer. John Wiley & Sons, 2011.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Presenter
3	White board
4	Data show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Fundamental concepts - Properties of a pure substance	1	A1 ,A4	B2	C2	D3
2	Equation of state - thermodynamic systems - Work and heat	1	A1 ,A4	B2	C2	D3
3	First law of thermodynamics; Applications to Systems and Control Volumes	1	A1 ,A4	B2	C2	D3
4	Second Law of Thermodynamics; Principle of Carnot cycles	1	A1	B2	C2	D3
5	Heat engines, Refrigerators and heat pumps - Principle of the increase of entropy	1	A1	B2	C2	D3
6	Applications to systems and control volumes - Irreversibility and availability	1	A1	B2	C2	D3
7	Power and refrigeration cycles	1	A1	B2	C2	D3

**Course Coordinator: Dr. A. E. Kabeel**

**Head of Department: Prof. Dr. Mohammed Saad Elkady**

**Date of Approval: 2018**



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## Technical English Language 2 (LNG201)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Technical English Language 2
<b>Course Code</b>	LNG201
<b>Year/Level</b>	level 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	LNG 101

Teaching hours	Lectures	Tutorial	Practical
	2	1	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of engineering technology to express one's say and write technical reports

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>2</sub>	Identify the basics terms of engineering.
A <sub>9</sub>	Identify humanitarian topics of interest and molar issues.
A <sub>12</sub>	Define contemporary engineering topics.

#### A. Intellectual Skills:

No.	Intellectual Skills
B <sub>2</sub>	Select the appropriate terms of engineering to write technical English essays.

#### B. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of English context to express and write technical engineering essays.





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### C.General Skills:

No.	General Skills
D3	Communicate effectively.

### 4. Course Contents:

No	Content	Lecture	Tutorial	Practical
1	Water Lab skills in English : Lesson 1 Bob drives a hard bargain& Lesson 2 Bob's big coolie order& grammar topics	4	-	4
2	Chemical and physical properties. Lab skills in English Lesson 3 Amber comes over to bake cookies & Lesson 4Amber and Ted heat up the kitchen& grammar topics	4	-	4
3	Water cycle Lab skills in English lesson 5 Nicole practices her election speech& grammar topics	2	-	2
4	Human uses Lab skills in English : Grammar topics	4	-	4
5	Heat transfer Lab skills in English lesson 6 Bob brings the cookies to the village market& lesson 7 Carol tells Bob the good news& grammar topics	4	-	4
6	Graphic language Lab skills in English : lesson 8 Every one bakes cookies & lesson 9 Nicole's close election & grammar topics	4	-	4
7	Energy Lab Skills in English lesson 10 Bob gets any angry call from Carol & Grammar topics	4	-	4
8	Automatic Control Lab Skills in English Grammar topics	2	-	2
<b>Total</b>		<b>28</b>	<b>-</b>	<b>28</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Practical
3	Assignments
4	Essay
5	Group Discussion and presentation

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A2, B2
2	Semester work (quizzes, sheets, report)	C1, D3
3	Practical exam	C1, D3
4	Final term examination	A2, A9, A12, B2, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup> , 14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>



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## 8. List of References:

No.	Reference List
1	Engineering Heat Transfer ,M.M., Rathore 2011
2	Energy, Chris Woodford-2007

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Computer lab.
3	Seminar
4	White board
5	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Water Lab skills in English : Lesson 1 Bob drives a hard bargain & Lesson 2 Bob's big coolie order & grammar topics	1	A2,A9, A12	B2	C1	D3
2	Chemical and physical properties. Lab skills in English Lesson 3 Amber comes over to bake cookies & Lesson 4 Amber and Ted heat up the kitchen & grammar topics	1	A2,A9,A12	B2	C1	D3
3	Water cycle Lab skills in English lesson 5 Nicole practices her	1	A2,A9,A12	B2	C1	D3



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	election speech & grammar topics					
4	Human uses Lab skills in English : Grammar topics	1	A2,A9,A12	B2	C1	D3
5	Heat transfer Lab skills in English lesson 6 Bob brings the cookies to the village market & lesson 7 Carol tells Bob the good news & grammar topics	1	A2,A9,A12	B2	C1	D3
6	Graphic language Lab skills in English : lesson 8 Every one bakes cookies & lesson 9 Nicole's close election & grammar topics	1	A2,A9,A12	B2	C1	D3
7	Energy Lab Skills in English lesson 10 Bob gets any angry call from Carol & Grammar topics	1	A2,A9,A12	B2	C1	D3
8	Automatic Control Lab Skills in English Grammar topics	1	A2,A9,A12	B2	C1	D3

**Course Coordinator:** Mr. Emad Abo El-naga

**Head of Department:** Prof.Dr. Mohammed Eaad Elkady

**Date of Approval:** 2018



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## Mathematics4 (MTH202)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Mathematics 4
<b>Course Code</b>	MTH 202
<b>Year/Level</b>	Level: 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	MTH 101

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of concepts of complex analysis, Fourier analysis, partial differential equations and special functions to solve and analysis engineering systems.

### 3- Intended Learning Outcomes (ILO'S):

#### 4- Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Study concepts and theories of complex analysis, Fourier analysis, partial differential equations and special functions that necessary for engineering systems analysis

#### 5- Intellectual Skills:

No.	Intellectual Skills
B <sub>1</sub>	Evaluate appropriate mathematical methods for complex analysis, Fourier analysis, partial differential equations and special functions to solve and analysis engineering systems



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## 6- Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics to solve engineering problems.

## A.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

## 4. Course Contents:

No.	Topics	Lecture	Tutorial	Practical
1	Special functions – Fourier series	4	4	-
2	periodic functions and Euler's laws	2	2	-
3	Fourier's integrations	4	4	-
4	solutions of the differential equations by series	2	2	-
5	solving the partial differential equations using variables separation	2	2	-
6	Functions with complex variables	2	2	-
7	complex quantities algebra	2	2	-
8	multiple values functions	2	2	-
9	the analytical functions and Koshi's theorem	2	2	-
10	the complex series and Taylor and Lorant series	2	2	-
11	the zeros, unique points and the rest	2	2	-
12	the infinite series	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases



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3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students
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## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1, B1
2	Semester work(quizzes, sheets, report)	C1,D2
3	Final term examination	A1, B1 , C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> -14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Peter V.O.Neil, Advanced Engineering Mathematics, Chirrs Carson Publishing, UK, 2007.
2	Swokowski, E , Olinick ,M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994.
3	Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994.
4	Anthony croft,Robert Davison, Engineering Mathematics A modern Foundation for Electrical ,Electronic & Control Engineering, Addison - Wesley - Publishing Company, 1992.



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## 9. Facilities required for teaching and learning:

Facility			
1	Lecture classroom	3	White board
2	Seminar	4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Special functions Fourier series	1	A1	B1	C1	D2
2	periodic functions and Euler's laws	1	A1	B1	C1	D2
3	Fourier's integrations	1	A1	B1	C1	D2
4	solutions of the differential equations by series	1	A1	B1	C1	D2
5	solving the partial differential equations using variables separation	1	A1	B1	C1	D2
6	Functions with complex variables	1	A1	B1	C1	D2
7	complex quantities algebra	1	A1	B1	C1	D2
8	multiple values functions	1	A1	B1	C1	D2
9	the analytical functions and Koshi's theorem	1	A1	B1	C1	D2
10	the complex series and Taylor and Lorant series	1	A1	B1	C1	D2
11	the zeros, unique points and the rest	1	A1	B1	C1	D2
12	the infinite series	1	A1	B1	C1	D2

**Course Coordinator: Dr .Moataz salah**

**Head of Department: Prof.Dr.MohammedSaad Elkady**

**Date of Approval: 2018**





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## Surveying (1) (CIE 203)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Surveying (1)
<b>Course Code</b>	CIE 203
<b>Year/Level</b>	level 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	1	1

### 2- Course Aims:

No.	Aims
1	Use knowledge of mathematics, engineering concepts and surveying instruments to solve levelling problems and relation between points
8	Define properties of the land by using the surveying techniques and skills

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A8	Define properties of lands of individuals, communities and institutions, through different surveying
A13	Recognize the different engineering principles related to the design of geo-technical surveying.

#### B. Intellectual Skills:

No.	Intellectual Skills
B14	Conduct suitable construction management techniques.



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### C. Professional Skills:

No.	Professional Skills
C9	Observe record data in laboratory and in the field.
C13	Use laboratory and field equipment competently and safely
C14	Analyse data in laboratory and in the field

### D.General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to Surveying: basic definitions, classification of maps and scales. Introduction to leveling. Types of levels Practical: Learn about levels devices	4	2	2
2	Mapping using linear measurements Practical: measuring some buildings and details inside the institute using the tape	6	3	3
3	Levelling instruments , method of calculation, cross and longitudinal sections, contouring earth work Practical: Use level and take differential readings between points. Create longitudinal level	10	5	5
4	Compass surveying and traverse computation area determination Practical: Make a landline and calculate an area adjacent to it	4	2	2
5	Theodolite: temporary setting up, measuring of horizontal and vertical angles Practical: Identifying theodolite, methods of controlling it, and reading the vertical and horizontal angles	2	1	1
6	Permanent adjustment of theodolite, errors in measuring horizontal and vertical angles Practical: Using theodolite as a model to identify permanent errors in theory	2	1	1
<b>Total</b>		<b>28</b>	<b>14</b>	<b>14</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies
6	Practical examination

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A8, A13, B14
2	Semester work	C9, C14, D1
3	Practical examination	B14, C9, C13, C14
4	Final Term Examination	A8, A13, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Practical examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>



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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Practical examination	10%
3	Semester work	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Walker, J., and Awange, J. L. (2018) Surveying for Civil and Mine Engineers.
2	Recommended books Wolf, P.R. and Brinker, R.C., Elementary Surveying, 10 <sup>th</sup> ed., Harper Collins College Publisher, NY, USA (2002)

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system
5	Lab

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to Surveying: basic definitions, classification of maps and scales. Introduction to leveling. Types of levels	1	A8, A13	B14	-	-
	Practical: Learn about levels devices		A8	-	C9, C13, C14	-
2	Mapping using linear measurements	1	A8	B14	C9	D1
	Practical: measuring some buildings and details inside the institute using the tape		A8	-	C9, C13, C14	-



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3	Leveling instruments , method of calculation, cross and longitudinal sections, contouring earth work	1	A13	B14	C9	D1
	Practical: Use level and take differential readings between points. Create longitudinal level		A8	-	C9, C13, C14	-
4	Compass surveying and traverse computation area determination	1	A8	B14	-	-
	Practical: Make a landline and calculate an area adjacent to it		A8	-	C9, C13, C14	-
5	Theodolite: temporary setting up, measuring of horizontal and vertical angles	1	A13	B14	C9	D1
	Practical: Identifying theodolite, methods of controlling it, and reading the vertical and horizontal angles		A8	-	C9, C13, C14	-
6	Permanent adjustment of theodolite, errors in measuring horizontal and vertical angles	-	-	-	-	-
	Practical: Using theodolite as a model to identify permanent errors in theory		A8	-	C9, C13, C14	-

**Course Coordinator:** Dr / Ayman Helal

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Strength of Materials

(ENG 205)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Basic Science and Engineering Department
Course Title	Strength of Materials
Course Code	ENG 205
Year/Level	2 <sup>nd</sup> level
Specialization	Major
Authorization Date of Course Specification	-
Pre- Request	ENG 101

Teaching hours	Lectures	Tutorial	Practical
	2	1	1

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science, engineering concepts to understand the mechanical properties of the different elements to analyze the different stresses acting on.

### 3- Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis, general concepts of strength of material, normal stress, direct shear stress, mohr`s cycle.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively to select the appropriate solutions for engineering problems and system design, normal stress, direct shear, stresses in beams, torsional stresses

#### C. Professional Skills:

No.	Professional Skills
C2	Apply engineering knowledge and understanding to improve design, products and/or services, normal stress, direct shear stress, stresses in beams, torsional stresses, pressure vessels ,mohr`s cycle.
C4	Practice the neatness and aesthetics in design to approach stresses in beams, torsional stresses, and pressure vessels.



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#### D.General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Simple states of stress and strain	2	1	1
2	Tension and compression stress	4	2	2
3	Shear stress in bolts	4	2	2
4	Bending and shearing stresses in beams	4	2	2
5	Torsion stresses	2	1	1
6	Deflection Of Beams	4	2	2
7	Analysis of thin-walled pressure vessels	4	2	2
8	Analysis of plane stress	4	2	2
<b>Total</b>		<b>28</b>	<b>14</b>	<b>14</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term examination	A <sub>1</sub> , B <sub>2</sub>
2	Semester work( quizzes, sheets, report)	C <sub>4</sub> , C <sub>2</sub> , D <sub>6</sub>
3	Practical Examination	B <sub>2</sub> ,C <sub>4</sub> ,D <sub>6</sub>
4	Final term examination	A <sub>1</sub> , B <sub>2</sub> , C <sub>2</sub> ,C <sub>4</sub>

##### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>



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4	Final term examination	15 <sup>th</sup>
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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Semester work	20%
3	Practical Examination	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference list
1	Hibbeler, R. C. "Statics and Mechanics of Materials 2nd." <i>New Jersey: Pentice Hall</i> (2004).
2	Gupta, J. K., and R. S. Khurmi. "A Textbook of Machine Design." <i>SI Edition</i> (2005).
3	Menard, Kevin P. <i>Dynamic mechanical analysis: a practical introduction</i> . CRC press, 2008.

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Simple states of stress and strain	1	A1	B2	C2	D6
2	Tension and compression stress	1	A1	B2	C2,C4	D6
3	Shear stress in bolts	1	A1	B2	C2,C4	D6
4	Bending and shearing stresses in beams	1	A1	B2	C2,C4	D6
5	Torsion stresses	1	A1	B2	C2,C4	D6
6	Analysis of thin-walled pressure vessels	1	A1	B2	C2,C4	D6
7	Analysis of plane stress	1	A1	B2	C2	D6

**Course Coordinator:** Dr. A. E. Kabeel

**Head of Department:** prof.Dr. Mohamed Saad Elkady

**Date of Approval:** 2018





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## Introductions to Information Technology (ENG206)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Introductions to Information Technology
<b>Course Code</b>	ENG206
<b>Year/Level</b>	Level 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	-	2

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and appropriate engineering tools, necessary for engineering practice web design project and building networks.

### 3- Intended Learning Outcomes (ILO'S):

#### 4- Knowledge and understanding:

No.	Knowledge and understanding
A <sub>2</sub>	List basics of information and communication technology (ICT) by different applications

#### 5- Intellectual Skills:

No.	Intellectual Skills
B <sub>2</sub>	Select the appropriate solutions for engineering problems and system design by accepting student skill of design website and establish network.



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#### A. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of information technology, design and engineering practice to solve engineering problems.

#### B. General Skills:

No.	General Skills
D <sub>4</sub>	Demonstrate efficient IT capabilities by identifying network elements to use internet for searching and mailing.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to information systems	4	-	-
2	Software and hardware used in information systems	6	4	-
3	Communication and Networks	4	-	-
4	Computer Networking	6	-	-
5	The internet; the foundations, Resources and uses of the internet, Emphasizing practical skills for finding, Reading and authorizing materials	4	4	-
6	Privacy Security and Ethics	4	-	-
7	Web Design using HTML Language and applications	-	20	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Practical training/lab



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation methods:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>2</sub> , B <sub>2</sub> , C <sub>1</sub>
2	Semester work(quizzes, sheets, report)	A <sub>2</sub> , B <sub>2</sub> , C <sub>1</sub> , D <sub>4</sub>
3	Practical Examination	C <sub>1</sub> , D <sub>4</sub>
4	Final term examination	A <sub>2</sub> , B <sub>2</sub> , C <sub>1</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> ,7 <sup>th</sup> ,9 <sup>th</sup> ,13 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Computing essentials timothy, O' leary and linda ,2014 .



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Presenter
3	Computer lab.
4	White board
5	Data show system
6	Wireless internet
7	Sound system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to information systems	4	A <sub>2</sub>	--	--	D <sub>4</sub>
2	Software and hardware used in information systems	4	A <sub>2</sub>	--	--	D <sub>4</sub>
3	Communication and Networks	4	A <sub>2</sub>	B <sub>2</sub>	C <sub>1</sub>	D <sub>4</sub>
4	Computer Networking	4	A <sub>2</sub>	B <sub>2</sub>	C <sub>1</sub>	D <sub>4</sub>
5	The internet;	4	A <sub>2</sub>	B <sub>2</sub>	C <sub>1</sub>	D <sub>4</sub>
6	Privacy Security and Ethics	4	A <sub>2</sub>	B <sub>2</sub>	C <sub>1</sub>	D <sub>4</sub>
7	Web Design using HTML Language and applications	4	A <sub>2</sub>	B <sub>2</sub>	C <sub>1</sub>	D <sub>4</sub>

**Course Coordinator: Dr. Yosry El-Helaly**

**Head of Department: Dr.Khalid Fawzy**

**Date of Approval: 2018**



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## Electrical Engineering Fundamentals (ENG208)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Electrical Engineering Fundamentals
<b>Course Code</b>	ENG 208
<b>Year/Level</b>	Level 2
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science and engineering concepts to the solution of Electrical engineering problems.

### 3-Intended Learning Outcomes (ILO'S):

#### A.Knowledge and understanding:

No.	Knowledge and understanding
A <sub>5</sub>	Recognize methodologies of solving engineering problems, data collection problems and interpretation by knowing the basic and different choice for solving different to calculate current, voltage, power for the problem network.

#### B.Intellectual Skills:

No.	Intellectual Skills
B <sub>2</sub>	Select the appropriate solutions for electrical problems and system design to solve and analysis the electric circuits network

#### C. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of mathematics, science, information technology, design, and engineering practice to solve electric engineering problems



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#### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures in electric fields.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Direct Current	3	2	-
2	Theory of electric circuits	8	6	-
3	Delta and Star connections	2	1	-
4	Sine A.C and D.C circuits	8	5	-
5	Time vectors diagram	3	2	-
6	Electric power and power factor in A.C circuits	3	2	-
7	3-Phase current - Electric machines - D.C machines	6	4	-
8	Transformers	3	2	-
9	Induction and synchronous machines	3	2	-
10	Fractional power machine	3	2	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Practical training/lab

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>5</sub> ,B <sub>2</sub>
2	Semester work(quizzes, sheets, report)	C <sub>1</sub> ,D <sub>9</sub>
3	Final term examination	A <sub>5</sub> ,B <sub>2</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	final examination	60%
3	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Fundamentals of Electric Circuits, K.alexander and Sadiku(4 <sup>th</sup> edition ,2007).Prentice Hall.
2	Electrical Engineering, sedra, (9 <sup>th</sup> edition ,2006),Pearson international edition.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Presenter
3	White board
4	Data show system
5	Wireless internet
6	Sound system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Direct Current	1	A5	B2	C1	D9
2	Theory of electric circuits	1	A5	B2		
3	Delta and Star connections	1	A5		C1	
4	Sine A.C and D.C circuits	1	A5	B2		
5	Time vectors diagram	1	A5		C1	D9
6	Electric power and power factor in A.C circuits	1	A5			
7	3-Phase current - Electric machines - D.C machines	1	A5		C1	
8	Transformers	1	A5	B2		D9
9	Induction and synchronous machines	1	A5			
10	Fractional power machine	1	A5	B2	C1	

**Course Coordinator: Dr. HossamAbdelfatah**

**Head of Department: Dr. Huissam Hussein**

**Date of Approval: 2018**





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## Engineering Probability and Statistics (MTH301)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Engineering Probability and Statistics
<b>Course Code</b>	MTH301
<b>Year/Level</b>	Level: 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 1- Course Aims:

No.	Aims
1	Apply knowledge of mathematics and engineering concepts for probability theories , statistics and random variables(continuous and discrete random variables and normal distribution).

### 2- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Study concepts and theories of mathematics necessary for engineering system analysis

#### A. Intellectual Skills:

No.	Intellectual Skills
B <sub>1</sub>	Select appropriate mathematical and computer-based methods for system modelling and analysis

#### B. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of mathematics, to solve statistics problems.
C <sub>7</sub>	Apply numerical modeling methods to engineering problems.



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### C.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Probability theory	4	4	-
2	Discrete and continuous probability distributions	6	6	-
3	Statistics in engineering	4	4	-
4	Descriptive Statistics Sampling distributions	2	2	-
5	Estimation and confidence intervals	4	4	-
6	Hypothesis testing	4	4	-
7	Simple regression	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student Evaluation methods:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>1</sub> , C <sub>1</sub>
2	Semester work (quizzes, sheets, report)	D <sub>2</sub> , C <sub>1</sub>
3	Final term examination	A <sub>1</sub> , B <sub>1</sub> , C <sub>1</sub> , C <sub>7</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> - 7 <sup>th</sup> - 9 <sup>th</sup> - 14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Barry C. Arnold, N. Balakrishnan, H. N. Nagaraja, A First Course in Order Statistics, John Wiley & Sons, Inc., 1992.
2	Kevin R. Murphy, Brett Myers, Statistical Power Analysis, A Simple and General Model for Traditional and Modern Hypothesis Tests, Lawrence Erlbaum Associates, 2nd. Ed., 2004.
3	Mendenhall, W., Introduction to Probability and Statistics, Boston: Duxbury Press, 10th. Ed., 1999.
4	Rosenkrantz, W., Introduction to Probability and Statistics for Scientists and Engineers, New York: McGraw - Hill, 1997.
5	Ross S., A First Course in Probability, Englewood Cliffs, NJ: Prentice Hall, 4th. Ed., 1994.
6	Roazanov, Y. A., Probability Theory: A Concise Course, New York: Dover, 1977.
7	Terrell, G., Mathematical Statistics: A Unified Introduction, New York: Springer – Verlag, 1999.
8	E. Kreyszig "Advanced Engineering Mathematics" 11th edition, John Wiley and Sons, Inc. 2009



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### 9. Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board		

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Probability theory	1	A <sub>1</sub>	-	C <sub>1</sub>	-
2	Discrete and continuous probability distributions	1	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	-
3	Statistics in engineering	1	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	-
4	Descriptive Statistics Sampling distributions	1	A <sub>1</sub>	-	-	D2
5	Estimation and confidence intervals	1	A <sub>1</sub>	-	C <sub>7</sub>	
6	Hypothesis testing	1	A <sub>1</sub>	-	-	D2
7	Simple regression	1	A <sub>1</sub>	B <sub>1</sub>	C <sub>7</sub>	

**Course Coordinator: Dr. Mohamed Shokry**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Structures analysis (2)

(CIE 301)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	structures analysis (2)
<b>Course Code</b>	CIE 301
<b>Year/Level</b>	level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 202

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

### 2- Course Aims:

No.	Aims
1	Use knowledge of mathematics, science, structural engineering concepts, and <u>constructed</u> structures to solve fundamental in-determined Structures problems.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving structural problems.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and structural methods for analysis.
B2	Think creatively and analytically to select the appropriate solutions for structural problems.

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics and Structural engineering practice to solve in-determined structures problems.



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#### D.General Skills:

No.	General Skills
D7	Demonstrate efficient information technology capabilities

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Properties of plane sections	9	6	-
2	Normal, shear and combined stresses	12	8	-
3	Elastic deformation of statically determinate structures	15	10	-
4	Analysis of statically indeterminate structures using the equation of three moments	6	4	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Tutorial
3	Sheets and Exercises
4	Sessions of discussion

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, B1
2	Semester work	C1, D7
3	Final Term Examination	A5, B1, B2



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	- Essential books (text books) <ul style="list-style-type: none"><li>• W. M. El-dakhkhni, "Theory of Structures", Part One, Assiut University, 1973, 1974.</li><li>• W. M. El-dakhkhni, "Theory of Structures", Part Two, Assiut University, 1973, 1974.</li><li>• R. C. Coats, M. G. Coutie and F. K. Kong, "Structural Analysis", Second Edition, NCN 420-5870-1, ELBS-2007.</li></ul>
2	Recommended books <ul style="list-style-type: none"><li>• Structural Analysis, R. C. Hibbeler, 2002.</li><li>• Structural Analysis 2: Statically Indeterminate Structures, S. Khalfalla, September - 2019.</li><li>• Structural Analysis, R. C. Hibbeler, 2006.</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	discussions rooms with internet connections
3	teaching aids such as interactive (smart) board
4	Data Show



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Statically indeterminate structures using force method	1	A5	B1	C1	D7
2	slope deflection method	1	A5	B1, B2	C1	D7
3	Moment distribution method	1	A5	B1, B2	C1	D7
4	Introduction to stiffness method	1	A5	B1, B2	C1	D7

**Course Coordinator:** Dr/ shabban sliem

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018





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## Properties and strength of materials

(CIE 302)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Properties and strength of materials
<b>Course Code</b>	CIE 302
<b>Year/Level</b>	level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	1	1

### 2- Course Aims:

No.	Aims
5	Consider the impacts of engineering solutions on environment to select appropriate building materials from the perspective of strength, durability, suitability of use to location, temperature, weather conditions and impacts of structures.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the engineering materials related to the characteristics in engineering analysis
A13	List the different engineering principles related to the design of reinforced concrete, metallic structures and geo-technical and foundations, water projects, and sanitary engineering.

#### B. Intellectual Skills:

No.	Intellectual Skills
B3	Analyze ideas, views, and knowledge from a range of sources to evaluate the characteristics and performance of components material.



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### C. Professional Skills:

No.	Professional Skills
C9	Observe rescored and analyze data in laboratory and in the field.
C13	Use laboratory and field equipment competently and safely
C14	Analyze data in laboratory and in the field

### D. General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to properties and strength of materials, properties and grading of aggregates ( fine – coarse ) Practical: Sieve analysis – adsorption – specific gravity – specific volume – fineness modulus	4	4	6
2	Manufacture and types of cement Practical: fineness modulus of cement – compression strength – initial and final setting time	4	2	4
3	Concrete manufacture Practical: slump test – compacting factor test – air content in fresh concrete – compression strength – steel tensile strength	4	-	4
4	Concrete workability	2	-	-
5	Concrete strength in tension, compression and flexure – concrete durability	4	-	-
6	Concrete mix design	6	8	-
7	Building materials ( steel, wood, brick, lime, gypsum, stones, bitumen )	2	-	-
8	Plastering and surface coatings	2	-	-
<b>Total</b>		<b>28</b>	<b>14</b>	<b>14</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources



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4	Research assignment
5	Case studies
6	Practical examination

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B3
2	Semester work	C9, D1
3	Practical Examination	C9, C13, C14, D1
4	Final term Examination	A3, A13, B3

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Semester work	20%
3	Practical Examination	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>



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## 8. List of References:

No.	Reference List
1	<p><b>Course notes</b></p> <ul style="list-style-type: none"><li>• Egyptian Code for design and construction of reinforced concrete structures – Appendix No.3: Guide for laboratory testing of concrete materials.</li></ul> <p>، دليل الإختبارات المعملية للخرسانة ، وزارة الإسكان الكود المصري لتصميم وتنفيذ المنشآت الخرسانية والمجتمعات العمرانية ، كود رقم (203) اصدار 2003 والمرفقات</p> <ul style="list-style-type: none"><li>• Lecture Notes, Staff of Properties and Testing of Materials</li><li>• Egyptian standard specifications, Ministry of Industrial, Latest Version.</li></ul> <ul style="list-style-type: none"><li>• المواصفات القياسية المصرية للمواد (مواصفات الركام ، الأسمنت ، الأحجار الطبيعية ، الطوب.... الخ) ، وزارة الصناعة بجمهورية مصر العربية ، هيئة التوحيد القياسي ، آخر إصدار</li><li>• دليل التفتيش علي صناعه الاسمنت " 2002- وزاره الدوله لشئون البيئه – جهاز شئون البيئه</li><li>• الكود المصري لتصميم وتنفيذ المنشآت الخرسانيه المسلحه " كود 203- التحديث الثاني 2001- وزاره الإسكان والمرافق والمجتمعات العمرانيه – مركز بحوث الإسكان والبناء والتخطيط العمراني – جمهوريه مصر العربيه</li><li>• احمد العريان وعبد الكريم عطا " تكنولوجيا الخرسانه " 1967 الناشر: عالم الكتب , القاهره – الجزء الأول والثاني.</li></ul>
2	<p><b>Recommended books</b></p> <ul style="list-style-type: none"><li>• Prasad, I. , "A Text Book of Strength of Materials" Delhi Khanna ,1975</li><li>• Komar, A. , "Building Materials and Components", Moscow Mir ,1987</li><li>• Printice Hall, New Jersey, 1988.</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system
5	Lab



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to properties and strength of materials, properties and grading of aggregates ( fine – coarse )	5	A3	B3	C9	D1
	Practical: Sieve analysis – adsorption – specific gravity – specific volume – fineness modulus		-	-	C9, C13, C14	-
2	Manufacture and types of cement	5	A13	B3	C9	D1
	Practical: fineness modulus of cement – compression strength – initial and final setting time		-	-	C9, C13, C14	-
3	Concrete manufacture	5	A3, A13	-	C9	-
	Practical: slump test – compacting factor test – air content in fresh concrete – compression strength – steel tensile strength		-	-	C9, C13, C14	-
4	Concrete workability	5	A3, A13	B3	C9	D1
5	Concrete strength in tension, compression and flexure – concrete durability	5	A13	B3	C9	D1
6	Concrete mix design	5	A3	B3	C9	D1
7	Building materials ( steel, wood, brick, lime, gypsum, stones, bitumen )	5	A3	B3	-	D1
8	Plastering and surface coatings	5	A13	B3	-	-

**Course Coordinator:** Dr. / Ayman Helal

**Head of Department:** Ass. Prof. Dr. / khaled fawzy

**Date of Approval:** 2018



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## Principles of Building Construction

(CIE 303)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Principles of building construction
<b>Course Code</b>	CIE 303
<b>Year/Level</b>	level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	1	2	-

### 2- Course Aims:

No.	Aims
5	Ability to analyze the impacts of engineering solutions on society & environment to select appropriate building materials from the perspective of strength, durability, suitability of use to location, temperature on buildings.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Explain the different engineering principles in construction, structures, foundations, water projects, and sanitary engineering.

#### B. Intellectual Skills:

No.	Intellectual Skills
B14	Create suitable construction techniques.

#### C. Professional Skills:

No.	Professional Skills
C2	Use both of engineering knowledge and understanding to improve constructions and services.



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#### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Construction technology of different types of projects	1	2	-
2	Conventional construction methods	1	2	-
3	Construction Equipment	1	2	-
4	Pre-fabricated construction methods	1	2	-
5	Effect of environment on methods of construction	1	2	-
6	Architectural principals ( utilities – services – properties )	1	2	-
7	Safety issues during different stages of construction	1	2	-
8	Examples of construction of different types of projects (buildings, roads, RCC dams, marine works, underground structures, etc)	2	4	-
9	Building materials technology (steel , concrete , wood and natural stones)	1	2	-
10	Developing new materials (Fiber reinforced polymers, high strength concrete and ultra-high strength concrete)	2	4	-
11	Architectural drawings and details	2	4	-
<b>Total</b>		<b>14</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B14
2	Semester work	C2, D6
3	Final Term Examination	A13, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Course notes:</b> Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,... etc.
2	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"> <li>Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> <li>Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> </ul>





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No.	Reference List
3	<p><b>Recommended books:</b></p> <ul style="list-style-type: none"> <li>• Chu-Kia Wang and Charles G. Salmon, "Reinforced Concrete Design," 4th Edition, Harper and Row Publishers, New York, 1985.</li> <li>• MacGregor J., "Reinforced Concrete: Mechanics and Design," Printice Hall, New Jersey, 1988.</li> </ul>

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Construction technology of different types of projects	5	A13	B14	C2	-
2	Conventional construction methods	5	A13	B14	C2	D6
3	Construction Equipment	5		B14	C2	D6
4	Pre-fabricated construction methods	5	A13	-	-	D6
5	Effect of environment on methods of construction	5	-	B14	-	D6
6	Architectural principals ( utilities – services – properties )	5	A13	B14	C2	D6
7	Safety issues during different stages of construction	5	A13	B14	C2	-
8	Examples of construction of different types of projects (buildings, roads, RCC dams, marine works, underground structures, etc)	5	A13	B14	C2	D6
9	Building materials technology (steel , concrete , wood and natural stones)	5	A13	B14	C2	D6



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10	Developing new materials (Fiber reinforced polymers, high strength concrete and ultra-high strength concrete)					
11	Architectural drawings and details					
No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
10	Developing new materials (Fiber reinforced polymers, high strength concrete and ultra-high strength concrete)	5	A13	B14	C2	D6
11	Applications of fiber reinforced polymers for replacing steel reinforcements and repair works	5	-	B14	C2	D6

**Course Coordinator:** Dr. Ayman Helal

**Head of Department:** Ass. Prof. Dr. khaled fawzy

**Date of Approval:** 2018



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## Structures analysis (3)

(CIE 304)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	structures analysis (3)
<b>Course Code</b>	CIE 304
<b>Year/Level</b>	level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 203

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Use knowledge of mathematics, science, structural engineering concepts, and <u>constructed</u> structures to solve fundamental in-determined Structures problems.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving structural problems.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and structural methods for analysis.
B2	Think creatively and analytically to select the appropriate solutions for structural problems.

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics and Structural engineering practice to solve in-determined structures problems.



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#### D. General Skills:

No.	General Skills
D7	Demonstrate efficient information technology capabilities

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Statically indeterminate structures using force method	6	6	-
2	slope deflection method	8	8	-
3	Moment distribution method	10	10	-
4	Introduction to stiffness method	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Tutorial
3	Sheets and Exercises
4	Sessions of discussion

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, B1
2	Semester work	C1, D7
3	Final Term Examination	A5, B1, B2



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Course notes Lecture notes prepared by the course coordinator and solved Examples.
2	- Essential books (text books) <ul style="list-style-type: none"><li>• M. E. El-Dakhkhni, " Theory of Structures ", part Two, 1974</li><li>• Shaker, " Plane Analysis of Indeterminate Structures " Ain Shams Univ. Press, March 1973.</li><li>• R.C.Coats, M. G. Coutie and F. K. Kong, " Structural analysis ", Second Edition</li></ul>
3	Recommended books <ul style="list-style-type: none"><li>• M. E. El-Dakhkhni, " Theory of Structures ", Part One, 1973</li><li>• Abd El-Rahman Sadek Bazaraa, "Structural Analysis and Mechanics ", Cairo Univ., 1981.</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	discussions rooms with internet connections
3	teaching aids such as interactive (smart) board
4	Data Show



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Statically indeterminate structures using force method	1	A5	B1	C1	D7
2	slope deflection method	1	A5	B1, B2	C1	D7
3	Moment distribution method	1	A5	B1, B2	C1	D7
4	Introduction to stiffness method	1	A5	B1, B2	C1	D7

**Course Coordinator:** Dr/ shabban sliem

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Fluid Mechanics (ENG 301)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Fluid Mechanics
<b>Course Code</b>	ENG301
<b>Year/Level</b>	level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	ENG 102

Teaching hours	Lectures	Tutorial	Practical
	2	1	1

### 2- Course Aims:

No.	Aims
1	Apply knowledge of science and engineering concepts to study fluid properties, fluid statics and fluid dynamics

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define concepts of energy, momentum equations and dimensional analysis (laminar and turbulent flow).

#### A. Intellectual Skills:

No.	Intellectual Skills
B <sub>3</sub>	Analyze various ideas and views for different forces on immersed bodies.

#### B. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of Bernoulli and continuity equations for experiments of Venturi meter and losses in pipes.
C <sub>9</sub>	Analyze data in laboratory and in pipes and pumps field.



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### C.General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Fluid properties, fluid statics, kinematics	2	2	2
2	Fluid dynamics including energy and Momentum equations	4	2	2
3	Dimensional analysis, Laminar flow, Turbulent flow and its applications	2	2	2
4	Forces on immersed bodies, Introduction to compressible flow	4	2	2
5	Applications to filtration and fluidization	4	2	2
6	Laboratory course in Fluid Mechanics includes experiments on venture-meter, friction losses in pipes	6	2	2
7	Center of pressure, Flow measuring apparatus, multi-pump test (Pump characteristics) and losses in piping systems	6	2	2
<b>Total</b>		<b>28</b>	<b>14</b>	<b>14</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Practical
4	Information collection from different sources
5	Research assignment

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students





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## 7. Student evaluation:

### 7.1 Student Evaluation methods:

No.	Evaluation Method	ILO's
1	Midterm examination	A1, B3, C1
2	Semester work(quizzes, sheets, report)	C1, C9, D1
3	Final term examination	A1, B3, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup> , 14 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Kundu & Cohen - Fluid Mechanics, Academic Press 2002 Munson
2	Introduction to Fluid Mechanics [Butterworth Heinmann 1999]

## 9. Facilities required for teaching and learning:

Facility	
1	Lecture classroom
2	Seminar
3	Computer lab.
4	White board
5	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Fluid properties, fluid statics, kinematics	1	A1	B3	C1, C9	D1
2	Fluid Dynamics including Energy and Momentum equations	1	A1	B3	C1	D1
3	Dimensional analysis, laminar flow, turbulent flow and its applications	1	A1	B3	C1, C9	D1
4	forces on immersed bodies, introduction to compressible flow	1	A1	B3	C1	D1
5	applications to filtration and fluidization	1	A1	B3	C1	D1
6	Laboratory course in Fluid Mechanics includes experiments on venture-meter, friction losses in pipes	1	A1	B3	C1, C9	D1
7	center of pressure, flow measuring apparatus, multi-pump test (Pump characteristics) and losses in piping 1systems	1	A1	B3	C1	D1

**Course Coordinator: Dr. Salah Daif**

**Head of Department: Dr. Mohammed Saad Elkady**

**Date of Approval: 2018**



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## Engineering Economy (ENG303)

### 1- Basic Information:

<b>Program Title</b>	Civil engineering Program
<b>Department Offering the Program</b>	Civil engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Engineering Economy
<b>Course Code</b>	ENG303
<b>Year/Level</b>	Level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the technique and skills of economic analysis effectively and professionally in projects management.

### 3- Intended Learning Outcomes (ILO'S):

#### A- Knowledge and understanding:

No.	Knowledge and understanding
A3	List the economic concepts related to characteristics in engineering analysis to improve the engineering process.
A7	Analyze business and management principles relevant to engineering for replacement and depreciation of equipment's to reduce the cost of operations.

#### B-Intellectual Skills:

No.	Intellectual Skills
B3	Combine different ideas, views, and knowledge from a range of sources to evaluate the characteristics of project economic
B8	Assess economic, societal, and environmental dimensions and risk management in engineering design.



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### C- Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and services.

### D .General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Basic concepts of engineering economy	4	4	-
2	Break even analysis	4	4	-
3	Time value of money	6	6	-
4	Depreciation and replacement analysis	4	4	-
5	Selection between alternatives	6	6	-
6	productivity	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7. Student Evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term exam	A <sub>3</sub> ,B <sub>3</sub> ,B <sub>8</sub>
2	Semester work(quizzes, sheets, report)	C <sub>2</sub> ,D <sub>6</sub>
3	Final term examination	A <sub>3</sub> ,B <sub>3</sub> ,A <sub>7</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	6 <sup>th</sup> , 11 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Engineering economic and financial accounting, A.R.Argasri and VVR McGraw-Hill,New Delhi,2006
2	Industrial Engineering M.I.KHAN,New-Age publishers, New Delhi,2008
3	Engineering Economics RajanMisra,University science press, New Delhi,2009

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Basic concepts of engineering economy	4	A <sub>3</sub>	B <sub>3</sub>	C <sub>2</sub>	
2	Break even analysis	4	A <sub>3</sub> , A <sub>7</sub>	B <sub>3</sub>		D <sub>6</sub>
3	Time value of money	4	A <sub>3</sub> , A <sub>7</sub>	B <sub>3</sub>	C <sub>2</sub>	D <sub>6</sub>
4	Depreciation and replacement analysis	4	A <sub>3</sub>	B <sub>3</sub>	C <sub>2</sub>	D <sub>6</sub>
5	Selection between alternatives	4	A <sub>3</sub>	B <sub>3</sub>	C <sub>2</sub>	D <sub>6</sub>
6	productivity	4	A <sub>3</sub> , A <sub>7</sub>	B <sub>3</sub>	C <sub>2</sub>	D <sub>6</sub>

**Course Coordinator: Dr. Abdu El Naquib**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Numerical Methods in Engineering (MTH302)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Numerical Methods in Engineering
<b>Course Code</b>	MTH302
<b>Year/Level</b>	Level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 1- Course Aims:

No.	Aims
1	Apply knowledge of mathematics and numerical methods to solve algebraic, transcendental, and differential equations to calculate derivatives and integrals.

### 2- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>1</sub>	Define concepts and theories of mathematics for numerical methods analyses

#### A. Intellectual Skills:

No.	Intellectual Skills
B <sub>1</sub>	Study appropriate mathematical methods for analysis.

#### B. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of mathematics integrally to solve numerical problems.

#### B. General Skills:

No.	General Skills
D <sub>6</sub>	Effectively manage tasks, time and resources.



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#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Numerical solution of linear and nonlinear systems	4	4	-
2	Numerical differentiation and integration	6	6	-
3	Curve fitting and interpolation	10	10	-
4	Numerical solution of initial value problems	4	4	-
5	Boundary and Eigen value problems	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Wed communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students

#### 7. Student evaluation:

##### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>1</sub> , C <sub>1</sub>
2	Semester work( quizzes, sheets, report)	B <sub>1</sub> , C <sub>1</sub> , D <sub>6</sub>
3	Final term examination	A <sub>1</sub> , B <sub>1</sub> , C <sub>1</sub>

##### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>





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2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup> -14 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Midterm examination	20%
2	Semester work	20%
3	Final term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	<a href="http://www.chemweb.com">http://www.chemweb.com</a>
2	Kiusalaas, Jaan. Numerical methods in engineering with Python 3. Cambridge university press, 2013.
3	Desai, Chandrakant S., and John F. Abel. Introduction to the finite element method: A numerical method for engineering analysis. Van Nostrand Reinhold, 1972.
4	E. Kreyszig "Advanced Engineering Mathematics" 11th edition, John Wiley and Sons, Inc. 2009

### 9. Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board		

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Numerical solution of linear and nonlinear systems	1	A <sub>1</sub>		C <sub>1</sub>	
2	Numerical differentiation and integration	1	A <sub>1</sub>		C <sub>1</sub>	
3	Curve fitting and interpolation	1	A <sub>1</sub>		C <sub>1</sub>	D <sub>6</sub>
4	Numerical solution of initial value problems	1	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
5	Boundary and eigen value problems	1	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	D6

**Course Coordinator: Dr. Mohamed Shokry**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Hydrology and Irrigation Engineering

(CIE 305)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Hydrology and Irrigation Engineering
<b>Course Code</b>	CIE 305
<b>Year/Level</b>	level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	ENG 301

Teaching hours	Lectures	Tutorial	Practical
	1	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science, engineering concepts to solve fundamental engineering problems for protection against dangers of unexpected natural events.
3	Design experiments to analyze and interpret data to Select and design adequate water control structures, irrigation, water networks, sewerage systems and pumping stations.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis
A4	State the principles of system design elements design, process and/or the including elements and processes. System related to disciplines.
A5	Recognize methodologies of solving engineering problems, data collection problems and interpretation.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively to select the appropriate solutions for engineering problems and system design



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B4	Investigate the failure of structural components, systems, and processes
B5	Solve engineering problems on the basis of limited and possibly contradicting information.

### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems
C5	Use computational facilities, measuring instruments, workshops and laboratories equipment to design experiments to analyze and interpret results.
C8	Apply safe systems at work and observe the appropriate steps to manage risks.

### D. General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Definitions – water resources – soil	4	4	-
2	Estimating of water requirements	4	4	-
3	Managing and distribution of irrigation systems	4	4	-
4	Introduction to various types of irrigation systems – surface irrigation systems	2	2	-
5	Planning and design of irrigation systems	4	4	-
6	Hydrological cycle	2	2	-
7	Precipitation	2	2	-
8	Hydrological losses	2	2	-
9	Hydrograph	2	2	-
10	Sprinkler irrigation	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, A4, A5, B4, B5
2	Semester work	B2, C1, C5, C8, D1
3	Final Term Examination	A4, A5, B2, B4, B5, D1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Bedient, P.B., and Huber, W.C., (1988). "Hydrology and floodplain Analysis". Addison-Wesley Publishing Company.p.650.
2	Deming, D., (2002)."Introduction to Hydrogeology" .McGraw-Hill, New York.
3	Han, D., (2010). "Concise Hydrology". Download free Textbook at BOOKBOON.COM.P.145.



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Definitions – water resources – soil	1,3	A1, A4	B2	C1	
2	Estimating of water requirements	1	A1 , A5	B4	C5	D1
3	Managing and distribution of irrigation systems	3	A4	B2	C1, C8	D1
4	Introduction to various types of irrigation systems – surface irrigation systems	1,3	A1, A4 , A5	B2, B4	C8	
5	Planning and design of irrigation systems	3	A1,	B5	C1, C5	D1
6	Hydrological cycle	1	A4		C5	D1
7	Precipitation	3	A5	B2, B5		
8	Hydrological losses	3	A1, A5	B2, B4	C1	
9	Hydrograph	1	A1, A4, A5	B5	C5	D1
10	Sprinkler irrigation	1,3	A1	B2	C8	

**Course Coordinator:** Dr/ Samer El Abd

**Head of Department:** Prof / khaled fawzy

**Date of Approval:** 2018



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## Reinforced Concrete (1)

### CIE 306

#### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Reinforced Concrete (1)
<b>Course Code</b>	CIE 306
<b>Year/Level</b>	Level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	ENG 205

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

#### 2- Course Aims:

No.	Aims
3	Design different structures systems and getting concrete dimensions by using first principles analysis and getting reinforced requirements for different elements taking into account the different application.

#### 3- Intended Learning Outcomes (ILO'S):

##### A. Knowledge and understanding:

No.	Knowledge and understanding
A4	Study the principles of system design elements and design with basic information and concept of mathematics.

##### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think analytically to select the appropriate solutions for Reinforced concrete problems.
B5	Solve engineering problems on the basis of limited and possibly contradicting information.

##### C. Professional Skills:

No.	Professional Skills
C3	Re-design a process, component or system to carry out specialized engineering designs



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#### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction, materials, properties	2	2	-
2	Design methods and requirements.	2	2	-
3	Load distribution	4	4	-
4	Bond length between concrete and steel bars	4	4	-
5	Loading analysis and design	4	4	-
6	Limit state design method (Flexural analysis and design, shear and design, etc. Loading analysis and design)	4	4	-
7	Design of Beams and design of solid slabs One and two way slabs	4	4	-
8	Short columns	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.





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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A4, B2
2	Semester work	B5, C3, D2
3	Final Term Examination	A4, B2, B5, C3

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Course notes:</b> Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,...etc.
2	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"> <li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> <li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> </ul>
3	<b>Recommended books:</b> <ul style="list-style-type: none"> <li>• Chu-Kia Wang and Charles G. Salmon, "Reinforced Concrete Design," 4th Edition, Harper and Row Publishers, New York, 1985.</li> <li>• MacGregor J., "Reinforced Concrete: Mechanics and Design," Printice Hall, New Jersey, 1988.</li> <li>• ECP committee 203, "The Egyptian code for Design and Construction of Concrete structures", Housing and Building Research Center, Giza, Egypt, 2007</li> </ul>



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction, materials, properties	3	A4	B2	--	D2
2	Design methods and requirements.	3	A4	B5	C3	D2
3	Load distribution	3		B2	-	-
4	Maximum and minimum internal forces.	3	A4	B5	-	D2
5	Working stress design methods (Flexural analysis and design, shear & torsion analysis and design, ecc. Loading analysis and design)	3	A4	B2, B5	C3	D2
6	Limit state design method (Flexural analysis and design, shear & torsion analysis and design, ecc. Loading analysis and design)	3	A4	B5	C3	-
7	Beam structures and introduction to design of solid slabs One and two way slabs	3	A4	B2	C3	-
8	Columns	3	A4	B5	C3	-

**Course Coordinator:** ASS. Prof. dr / khaled fawzy

**Head of Department:** Ass. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Surveying (2)

(CIE307)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Surveying (2)
<b>Course Code</b>	CIE 307
<b>Year/Level</b>	Level 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 202

Teaching hours	Lectures	Tutorial	Practical
	2	1	1

### 2- Course Aims:

No.	Aims
8	Define and preserve properties of the land by using the surveying techniques and skills

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to surveying.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think analytically to select the appropriate solutions for surveying problems.

#### C. Professional Skills:

No.	Professional Skills
C5	Use measuring instruments and laboratories equipment to collect analyze and interpret results.
C13	Use laboratory and field equipment competently and safely
C14	Analyze data in laboratory and in the field



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#### D.General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Indirect methods for distance measurement: Stadia method-tangent methods-substance bar. Practical: Measuring distances using Tachometry (stadia hair method – tangential)	2	1	6
2	Setting out of horizontal and vertical curves	4	2	
3	Introduction to theory of errors and error analysis of surveying measurements. Computations of areas and volumes of earth work in construction sites.	6	3	-
4	Coordinate systems and transformations coordinate computations : Polar method-intersection-resection	6	3	-
5	Modern methods for distance measurements: Distance measurement (EDM) and total stations. Practical: Total station	4	2	2
6	Setting out of engineering projects.	2	1	-
7	Course Project Practical: Traverses work	4	2	6
<b>Total</b>		<b>28</b>	<b>14</b>	<b>14</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies
6	Practical examination



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B2
2	Semester work	C5, D6
3	Practical examination	C5, C13, C14, D6
4	Final Term Examination	A13, B2

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Practical examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Semester work	20%
3	Practical examination	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Walker, J., and Awange, J. L.(2018) Surveying for Civil and Mine Engineers.
2	Recommended books Wolf, P.R. and Brinker, R.C., Elementary Surveying, 10 <sup>th</sup> ed., Harper Collins College Publisher, NY, USA (2002)



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system
5	Lecture classroom
6	Lab

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Indirect methods for distance measurement: Stadia method-tangent methods-substance bar.	8	A13	B2	C5	D6
	Practical: Measuring distances using Tachometry (stadia hair method – tangential)		A13	-	C13, C14	-
2	Setting out of horizontal and vertical curves	8	A13	B2	C5	D6
3	Introduction to theory of errors and error analysis of surveying measurements. Computations of areas and volumes of earth work in construction sites.	8	A13	B2	-	-
4	Coordinate systems and transformations coordinate computations : Polar method-intersection-resection	8	A13	-	C5	D6
5	Modern methods for distance measurements:	8	A13	B2	C5	D6



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	Distance measurement (EDM) and total stations.					
6	Setting out of engineering projects.	8	A13	-	-	-
	Practical: Total station		A13	-	C13, C14	-
7	Course Project	8	A13	B2	C5	D6
	Practical: Traverses work		A13	-	C13, C14	-

**Course Coordinator:** Dr / Ayman Helal

**Head of Department:** Prof / khaled fawzy

**Date of Approval:** 2018



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## Traffic and Transportation Engineering

(CIE 308)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Traffic and Transportation Engineering
Course Code	CIE 308
Year/Level	level 3
Specialization	Major
Authorization Date of Course Specification	
Pre-request	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-
		3	

### 2- Course Aims:

No.	Aims
5	Select appropriate building materials from the perspective of strength, durability, suitability of use to location, temperature, weather conditions and impacts of environment on traffic and transportation Engineering.
8	Define and preserve properties of the land by using the surveying techniques and skills related to transportation

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A4	State the principles of design including elements design, process and systems related to the traffic and transportation engineering.
A11	Identify professional ethics impacting traffic and transportation projects
A13	Study the different engineering principles related to the design of roadways and traffic systems.





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### B. Intellectual Skills:

No.	Intellectual Skills
B5	Solve problems applied to the traffic and transportation on the basis of limited and possibly contradicting information.

### C. Professional Skills:

No.	Professional Skills
C2	Apply professionally the traffic and transportation feedback to improve the design, products and services of the traffic and transportation engineering.

### D. General Skills:

No.	General Skills
D3	Communicate effectively with multidisciplinary teams for projects related to traffic and transportation engineering

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Measures of flow ,speed and Density	2	2	-
2	Statically of traffic characteristics (travel time, delay, speed, pedestrians, parking and accident studies	2	2	-
3	Traffic signals	2	2	-
4	Parking garages and terminals design	2	2	-
5	Freeway surveillance and control	2	2	-
6	General characteristics of transportation: streets, highways, rail, transit, water and pipelines. Egypt transport system : on overview	2	2	-
7	Fundamentals of traffic flow : time space diagrams, capacity analysis	2	2	-
8	control, IVHS, public issues and administration	4	4	-
9	Transport system design: characteristics of driver, vehicle and road. Route location ,horizontal, an. Vertical alignment, earthwork, drainage and pavements	2	2	-
10	Economic evaluation ,system operation, maintenance and rehabilitation	4	4	-
11	Environmental impacts, various laboratory experiments and design projects supplement the subject matter	4	4	-



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<b>Total</b>	<b>28</b>	<b>28</b>	<b>-</b>
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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A4, A11, A13
2	Semester work	C2, D3
3	Final Term Examination	A4, A11, A13, B5

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>



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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Khisty C. J. and Lall B. K., Transportation Engineering – An Introduction, 3rd Edition, Prentice-Hall, Inc., New Jersey, USA, 2003.
2	Wright, P. H. and Dixon K. K., Highway Engineering, 7th Edition, John Wiley & Sons, Inc., 2004.
3	Tom V. M., (2013) lecture notes in traffic engineering and management. Department of civil engineering, Bombay.

### 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Measures of flow ,speed and Density	5	A11, A13			D3
2	Statically of traffic characteristics (travel time, delay, speed, pedestrians , parking and accident studies	5	A11, A4	B5	C2	D3
3	Traffic signals	5	A4	B5	C2	



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4	Parking garages and terminals design	5	A13	B5	C2	D3
5	Freeway surveillance and control	5			C2	D3
6	General characteristics of transportation: streets. And highways, rail, transit, water and pipelines. Egypt transport system: on overview.	5	A4, A13	B5	C2	D3
7	Fundamentals of traffic flow : time space diagrams, capacity analysis	5	A4, A13	B5	-	D3
8	control, IVHS, public issues and administration	5	-	B5	C2	-
9	Transport system design :characteristics of driver, vehicle and road .Route location ,horizontal, and vertical alignment ,earthwork, drainage and pavements	5	A13	-	C2	D3
10	Economic evaluation ,system operation, maintenance and rehabilitation	5	A4	B5	-	D3
11	Environmental impacts, various laboratory experiments and design projects supplement the subject matter	5	A13	B5	C2	-

**Course Coordinator:** Dr/ Alaa Gabr

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Technical Report Writing (ENG207)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Basic Science and Engineering Department
Course Title	Technical Report Writing
Course Code	ENG207
Year/Level	Level 2
Specialization	Major
Authorization Date of Course Specification	-
Pre- Request	-

Teaching hours	Lectures	Tutorial	Practical
	2	1	-

### 1- Course Aims:

No.	Aims
8	Acquire the needed Technical skills to present and prepare technical report

### 2- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>10</sub>	Write technical language and technical report writing through sequence steps (identify report section, present your report, cite reference and add figures and tables).

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>9</sub>	Evaluate results of report models by analyzing percentage of plagiarism and rules of scientific report and rules of presentation.

#### C. Practical and Professional Skills:

No.	Professional Skills
C <sub>7</sub>	Apply communication skills to present report and rules of writing



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#### D.General and transferable Skills:

No.	General Skills
D <sub>3</sub>	Communicate effectively by identify rules of good presentation and presenter
D <sub>7</sub>	Engage in life-long self-learning discipline by making report project in minor department field topic.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to technical writing. ❖ Define a report, Types of reports, Aim ❖ Common concepts: clarity of Writing, Consistency ❖ Supporting Material ❖ Language rules (voice, tense) and Style	4	2	-
2	Common components of a technical report ❖ Organization of report sections ❖ Sections function and content	4	2	-
3	How to write a technical report ❖ Identify layout, Determine Audience ❖ Assign reference, add non text component ❖ Mechanics of report writing. ❖ Quantitative Writing	4	2	-
4	Equations, Tables and Figures	2	1	-
5	Literature citations	2	1	-
6	Using word processing for Writing Report	2	2	-
7	Creating slides with presentation graphics programs	2	1	-
8	MS Excel Application and power view report command	4	1	-



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9	Database Report using MS SQL	4	2	-
<b>Total</b>		<b>28</b>	<b>14</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Practical
4	Information collection from different sources
5	Research assignment
6	Practical training/lab

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low, medium and high performance students.	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A <sub>10</sub> , C <sub>7</sub>
2	Semester work (quizzes, sheets, report, presentation)	B <sub>9</sub> , C <sub>7</sub> , D <sub>3</sub> , D <sub>7</sub>
3	Practical Examination	C <sub>7</sub> , D <sub>3</sub>
4	Final term examination	A <sub>10</sub> , B <sub>9</sub> , C <sub>7</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Midterm examination	8 <sup>th</sup>
2	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup> , 13 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>



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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	final examination	60%
3	Practical examination	10%
4	Semester work	20%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	How to write technical report, 2010 by lutez hering.

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Presenter
3	Computer lab.
4	White board
5	Data show system
6	Wireless internet
7	Sound system

### 10. Matrix of knowledge and skills of the course:

No	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to technical writing	8	A <sub>10</sub>	--	--	D <sub>7</sub>
2	Common components of a technical report	8	A <sub>10</sub>	--	C <sub>7</sub>	D <sub>7</sub>
3	How to write a technical report	8	A <sub>10</sub>	--	C <sub>7</sub>	D <sub>3</sub> , D <sub>7</sub>
4	Equations, Tables and Figures	8	A <sub>10</sub>	--	C <sub>7</sub>	D <sub>3</sub> , D <sub>7</sub>
5	Literature citations	8	A <sub>10</sub>	B <sub>9</sub>	C <sub>7</sub>	D <sub>3</sub> , D <sub>7</sub>
6	Using word processing for Writing Report	8	A <sub>10</sub>	B <sub>9</sub>	C <sub>7</sub>	D <sub>3</sub> , D <sub>7</sub>





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7	Creating slides with presentation graphics programs	8	A <sub>10</sub>	B <sub>9</sub>	C <sub>7</sub>	D <sub>3</sub> , D <sub>7</sub>
8	MS Excel Application and power view report command	8	A <sub>10</sub>	--	C <sub>7</sub>	D <sub>7</sub>
9	Database Report using MS SQL	8	A <sub>10</sub>	B <sub>9</sub>	C <sub>7</sub>	D <sub>3</sub> , D <sub>7</sub>

**Course Coordinator: Dr. Salah Daif**

**Head of Department: Dr. Haythem Hussein Abdullah**

**Date of Approval: 2018**



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## Open channel hydraulics (CIE 401)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program		
<b>Department Offering the Program</b>	Civil Engineering Department		
<b>Department Responsible for the Course</b>	Civil Engineering Department		
<b>Course Title</b>	Open channel hydraulics		
<b>Course Code</b>	CIE 401		
<b>Year/Level</b>	level 4		
<b>Specialization</b>	Major		
<b>Authorization Date of Course Specification</b>			
<b>Pre-request</b>	ENG 301		
<b>Teaching hours</b>	<b>Lectures</b>	<b>Tutorial</b>	<b>Practical</b>
	2	1	1

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics and engineering concepts to study hydraulics topics; flow, Turbines and Pumps.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for analyzing hydraulics phenomena.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively and analytically to select the appropriate solutions for hydraulics problems.

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve hydraulics problems



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C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C13	Use laboratory and field equipment competently and safely
C14	Analyze data in laboratory and in the field

#### D. General Skills:

No.	General Skills
D7	Search for information.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction – review (pipelines hydraulics)	2	2	-
2	Principles of hydraulics of open channel flow	2	2	-
3	Critical flow – velocity distribution – unsteady flow equations	2	2	-
4	Energy approach Practical: [ Hump + Depression ]	8	6	4
5	Momentum approach – rapidly varied flow Practical: [ Hydraulic jump ]	4	2	2
6	Surface roughness	4	2	-
7	Gradually varied flow Practical: [ G.V.F ]	4	2	2
8	Hydraulic machines (pump) – Best hydraulic section	2	2	-
<b>Total</b>		<b>28</b>	<b>20</b>	<b>8</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies
5	Practical examination



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, B2, C1
2	Semester work	B2, C1, C14, D7, C6
3	Practical Examination	B2, C6, C13, C14
4	Final Term Examination	A1, B2, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Practical Examination	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Khurmi, R.S. (2014). " a text book of hydraulics, fluid mechanics and hydraulic machines" S.Chanel and company Ltd. P.990
2	Subramanya, K. (2008) "Flow in open channels" McGra- Hill Education(India). P.602



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system
5	Lab

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction – review (pipelines hydraulics)	1	A1	B2	C1	-
2	Principles of hydraulics of open channel flow	1	A1	B2	C1	-
3	Critical flow – velocity distribution – unsteady flow equations	1	-	-	C1	D7
4	Energy approach	1	-	B2	C1	D7
	Practical: [ Hump + Depression ]		-	-	C13, C14	-
5	Momentum approach – rapidly varied flow	1	A1	B2	C1	D7
	Practical: [ Hydraulic jump ]		-	-	C13, C14	-
6	Surface roughness	1	A1	B2	C1	
7	Gradually varied flow	1	A1	B2	-	D7
	Practical: [ G.V.F ]		-	-	C13, C14	-
8	Hydraulic machines (pump) – Best hydraulic section	1			C6	

**Course Coordinator:** Assoc. Prof. Dr. Hamdy El-Ghandour

**Head of Department:** Assoc. Prof. Dr. khaled Fawzy

**Date of Approval:** 2018



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## Steel structures Design (1)

(CIE 402)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Steel Structures Design (1)
<b>Course Code</b>	CIE 402
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 203

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

### 2- Course Aims:

No.	Aims
2	Design different elements of steel trusses structures according to the Egyptian code for steel structures.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A4	Recognize the design methods of tension members, compression members, bolted and welded connection in trusses and design of columns under axial loads.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical methods for analysis and design of steel structure members including tension members and compression members.

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology and engineering practice integrally in solving steel trusses structure design problems.



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#### D.General Skills:

No.	General Skills
D7	Search for information of steel buildings problems

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Types of steel structures.	4	2	-
2	Types of loads on steel structural building.	4	2	-
3	Method of Design of steel structural buildings. (ASD - LRFD. Methods)	6	4	-
4	Allowable stress in different steel structural buildings.	4	2	-
5	Design of tension members, according to ASDM.	4	2	-
6	Design of Compression members, according to ASDM.	4	4	-
7	Design of bolted connections in trusses	4	2	-
8	Design of welded connections in trusses	4	4	-
9	Design of columns under axial loads.	4	4	-
10	General review of the course	4	2	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	B <sub>1</sub>
2	Semester work	C <sub>1</sub> , D <sub>7</sub>
3	Final Term Examination	A <sub>4</sub> , B <sub>1</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Course notes: <ul style="list-style-type: none"> <li>•Lecture notes prepared by the course coordinator.</li> <li>•Solved examples.</li> </ul>
2	Essential books (text books) - Egyptian Code of Practice For Steel Construction And Bridges (2001)
3	Recommended books <ul style="list-style-type: none"> <li>•E. B. Machaly, “ Behavior, analysis and design of steel work connections “, vol. 3, 2002</li> <li>•E. B. Machaly, “ Behavior, analysis and design of structural steel element“, vol. 1, 2002</li> </ul>
4	Periodicals, Web sites, ... etc <ul style="list-style-type: none"> <li>- <a href="http://www.steelconstruction.org">www.steelconstruction.org</a></li> <li>- <a href="http://www.modernsteel.com">www.modernsteel.com</a></li> <li>- <a href="http://www.berlinsteel.com">www.berlinsteel.com</a></li> </ul>





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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
1	Types of steel structures (Trusses).	2	-	B <sub>1</sub>	C <sub>1</sub>	-
2	Types of loads on steel structural building.	2	-	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
3	Method of Design of steel structural buildings. (ASD - LRFD. Methods)	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
4	Allowable stress in different steel structural buildings.	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
5	Design of tension members, according to ASDM.	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
6	Design of Compression members, according to ASDM.	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
7	Design of bolted connections in trusses	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
8	Design of welded connections in trusses	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
9	Design of columns under axial loads.	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>
10	General review of the course	2	A4	B <sub>1</sub>	C <sub>1</sub>	D <sub>7</sub>

**Course Coordinator:** Dr/ Mohammed Ghanam

**Head of Department:** ASS. Prof. dr / Khaled fawzy

**Date of Approval:** 2018



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## Reinforced Concrete (2) (CIE 403)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Reinforced Concrete (2)
<b>Course Code</b>	CIE 403
<b>Year/Level</b>	Level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 306

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

### 2- Course Aims:

No.	Aims
3	Design different structures systems (flat slabs, hollow blocks, stairs) for different elements.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize structural principles relevant to engineer problems.
A11	Identify professional ethics impacting concrete structures
A14	Define the different structural with complete analysis and design

#### B. Intellectual Skills:

No.	Intellectual Skills
B13	Select codes of practices in designing reinforced engineering concrete.

#### C. Professional Skills:

No.	Professional Skills
C3	Design a process, component or system to carry out specialized engineering designs.



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#### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction	3	2	-
2	Design of Hollow Block and Ribbed slabs	6	4	-
3	Design of sections subjected to Torsion	6	4	-
4	Design of flat slabs	9	6	-
5	Design of Stairs	9	6	-
6	Design of paneled beams	6	4	-
7	Deflection	3	2	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, A11, A14
2	Semester work	C3, D2
3	Final Term Examination	A5, A11, A14, B13



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	EL-Metwally, S.E., and Hosny, H.M.H., "Design Fundamental of Structure Concrete." 1977 Ministry of Housing. Utilities and Urban Communities, "Egyptian Code for Design and Construction of Reinforced Concrete Structures (ECCS203-2001)." Cairo 2001.
2	Hilal.M. , "Reinforced Concrete Fundamentals." Marcou, 1975 Books Hilal M., "Design of Reinforced Concrete Halls," Marcou 1981 .Nassef, M.A., "Reinforced Concrete Design," Cairo Univ., 1988. Abdel Rahman, A., "Fundamental of Reinforced Concrete Incorporating the Egyptian Code of 1989."
3	Cairo. 1991. EL-Behairy, S., "Reinforced Concrete Design Hand Book, "Fifth Edition, Cairo 1998. Gouda M. A., Helmy, M., and Korshe, I., "Basic Design of Reinforced Concrete Structures. "Alexandria. 1972.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction	3	A5, A11			D2
2	Design of Hollow Block and Ribbed slabs	3	A14	B13	C3	-
3	Design of sections subjected to Torsion	3	A14	B13	C3	D2
4	Design of flat slabs	3	A5, A14	B13		-
5	Design of Stairs	3	A14	B13	C3	D2
6	Design of paneled beams	3	A5	B13	C3	D2
7	Deflection	3	A5	B13	C3	D2

**Course Coordinator:** ASS. Prof. dr / khaled fawzy

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Geology and Soil Mechanics 1

(CIE 404)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Geology and Soil Mechanics 1
<b>Course Code</b>	CIE 404
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	1	1

### 2- Course Aims:

No.	Aims
1	Apply knowledge of Science and engineering concepts to solve fundamental soil problems for protection against dangers of unexpected natural events.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving Soil mechanics problems and data collection problems.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively to select the appropriate solutions for soil mechanics problems.

#### C. Professional Skills:

No.	Professional Skills
C8	Apply safe systems including the use of laboratory and field equipment's safely at work to observe the appropriate steps to manage risks related to soil.
C13	Use laboratory and field equipment competently and safely



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#### D.General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction and basics of Geology	2	2	-
2	Basic geological properties of rocks	2	2	-
3	Basic engineering properties of soils Practical: water content – specific gravity – sieve analysis – hydrometer – cassagrand – sand cone test – standard proctor – modified proctor test	12	6	6
4	Permeability and Seepage	4	2	-
5	Effective stresses and pore water pressure	2		-
6	Stresses and strains in continuous body and shear stress of soil Practical: un-confined test	2	2	2
7	Consolidation Practical: oedometer	2	2	2
8	Stability analysis	2	2	-
<b>Total</b>		<b>28</b>	<b>18</b>	<b>10</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies
6	Practical examination



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, B2,C13
2	Semester work	C8, D1,C13
3	Practical Examination	C8
4	Final Term Examination	A5,B2

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Semester work	20%
3	Practical Examination	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Essential books (text books); Prof. Dr. R. F. CRAIG, "SOIL MECHANICS", Department of Civil Engineering – University of Dundee, 1983.
2	Gulhati, S.K. and Datta, M. (2005), "Geotechnical Engineering ", Tata McGraw-Hill , New Delhi.





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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system
5	Lab

## 10. Matrix of knowledge and skills of the course:

No .	Topic	Ai ms	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction and basics of Geology	1	A5	B2	C8	D1
2	Basic geological properties of rocks	1	A5	B2	C8	D1
3	Basic engineering properties of soils	1	A5	B2	C8	-
	Practical: water content – specific gravity – sieve analysis – hydrometer – cassagrاند – sand cone test – standard proctor – modified proctor test		-	-	C8, C13	-
4	Permeability and Seepage	1	A5	B2	C8	D1
5	Effective stresses and pore water pressure	1	A5	B2	-	-
6	Stresses and strains in continuous body and shear stress of soil	1	A5	B2	C8	D1
	Practical: un-confined test		-	-	C8, C13	-
7	Consolidation	1	A5	B2	C8	D1
	Practical: oedumeter		-	-	C8, C13	-
8	Stability analysis					

**Course Coordinator:** Dr/ Magdy Zaiid

**Head of Department:** Assoc. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Project Management and Control (ENG 402)

### 1-Basic Information:

<b>Program Title</b>	Civil engineering Program
<b>Department Offering the Program</b>	Civil engineering Department
<b>Department Responsible for the Course</b>	Basic science and Engineering Department
<b>Course Title</b>	Project Management and Control
<b>Course Code</b>	ENG 402
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	1	2	-

### 2 - Course Aims:

No.	Aims
4	Use the techniques, skills in project management to recognize business and management principles relevant to engineering industry.

### 3-Intended Learning Outcomes (ILO'S):

#### A.Knowledge and understanding:

No.	Knowledge and understanding
A7	Recognize business and management principles relevant to engineering by different methods

#### A.Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, time from project cost control and forecasting funds requirements
B8	Incorporate economic and risk management dimensions in design; in critical path method, resource allocation and program evaluation technique.

#### B. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, information technology, business context and engineering practice to solve engineering problems in introduction to project management, Program evaluation technique.



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### C.General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources as project planning and schedule, network based scheduling, critical path method (CPM), program evaluation and review technique (PERT), Project cost control, Resource allocation and forecasting funds requirements.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to project management.	2	2	-
2	Project planning and scheduling.	2	2	-
3	Network based scheduling.	1	2	-
4	Critical path method.	2	6	-
5	Program evaluation & review technique (PERT)	1	4	-
6	Probability aspects of project completion time.	2	2	-
7	Project cost control.	1	6	-
8	Resource allocation	2	2	-
9	Forecasting funds requirement	1	2	-
<b>Total</b>		<b>14</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7. Student Evaluation method:

No.	Evaluation Method	ILO's
1	Midterm exam	A7,B8,C1
2	Semester work( quizzes, sheets, report)	C1,D6
3	Final term examination	A7,B7,B8, C1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 3 <sup>rd</sup> , 5 <sup>th</sup> , 10 <sup>th</sup> , 12 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Bennett, F. Lawrence. 1996. The management of engineering. New York: Wiley.
2	Cleland, David. 1998. Flied guide to project management. New York: Wiley.
3	Smith, K.A. 2000. Project management and teamwork. New York: McGraw-Hill.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to project management.	4	A7	-	C1	-
2	Project planning and scheduling.	4	A7	B7	-	D6
3	Network based scheduling.	4	A7	-	-	D6
4	Critical path method (CPM).	4	A7	B7,B8	-	D6
5	Program evaluation & review technique (PERT)	4	A7	B8	C1	D6
6	Probability aspects of project completion time.	4	A7	-	-	-
7	Project cost control.	4	A7	B7	-	-
8	Resource allocation	4	A7	B7,B8	-	D6
9	Forecasting funds requirement	4	A7	B7	-	D6

**Course Coordinator:** Prof. Dr. Mohammed saad El-kady

**Head of Department:** Prof. Dr. Mohammed saad El-kady

**Date of Approval:** 2018



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## Computer applications in civil engineering

(CIE 405)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Computer applications in civil engineering
<b>Course Code</b>	CIE 405
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	ENG 201

Teaching hours	Lectures	Tutorial	Practical
	2	-	2

### 2- Course Aims:

No.	Aims
9	Acquire the needed communication skills to lead a group of civil engineer designers or lab technicians

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving engineering problems, data collection problems and interpretation.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and computational methods for system modeling and analysis.
B9	Analyze results of numerical models using computer applications



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### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, and software packages pertaining to the discipline and develop required computer programs.
C7	Apply numerical modeling methods to engineering problems

### D. General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team
D4	Demonstrate efficient IT capabilities

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Study of theoretical models for the analysis of structures. Practical: analyze beams, frames, trusses and slabs	4	-	4
2	Study of how to choose suitable methods for analysis of various structures. Practical: choose suitable methods for designing beams, frames, trusses and slabs	4	-	4
3	Preparation of simple programs based on these models. Practical: design programs for structure analysis using excel or matlab	4	-	4
4	Study of available programs and modifying them for analysis of certain problems. Practical: solving some hydraulic problems	6	-	6
5	Training on the use of available commercial software programs. Practical: using sap, excel, Epanet	6	-	6
6	Computer applications. Practical: choosing a civil engineering case	4	-	4
<b>Total</b>		<b>28</b>	<b>-</b>	<b>28</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies
6	Practical examination

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A5, B1, B9
2	Semester work	C6, C7 D1, D4
3	Practical Examination	C6, C7
4	Final term examination	A5, B1, B9

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Practical Examination	14 <sup>th</sup>
4	Final term examination	15 <sup>th</sup>





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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	10%
2	Semester work	20%
3	Practical Examination	10%
4	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Brain R. Hunt et al. A Guide to MATLAB for Beginners and Experienced Users, 2001
2	Wendly L. Martinez et al computational statistics Handbook with MATLAB, 2002
3	Brain D. Hahn et al Essential MTLAP for Engineering and scientists, 2007

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system
5	Lab

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Study of theoretical models for the analysis of structures.	9	A5	B1	C6	D1
	Practical: analyze beams, frames, trusses and slabs		-	B9	C7	-
2	Study of how to choose suitable methods for analysis of various structures.	9	A5	B1	C6	D1, D4
	Practical: choose suitable methods for designing beams, frames, trusses and slabs		-	B9	C7	-



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3	Preparation of simple programs based on these models.	9	A5	-	-	D1, D4
	Practical: design programs for structure analysis using excel or matlab		-	B9	C7	-
4	Study of available programs and modifying them for analysis of certain problems.	9	A5	B1	C6	D1, D4
	Practical: solving some hydraulic problems		-	B9	C7	-
5	Training on the use of available commercial software programs.	9	A5	B1	C6	D4
	Practical: using sap, excel, Epanet		-	B9	C7	-
6	Computer applications.	9	A5	B1	C6	D1,D4
	Practical: choosing a civil engineering case		-	B9	C7	-

**Course Coordinator:** Dr/ samer el abd

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Water Supply and Sanitary Engineering

(CIE 406)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Water Supply and Sanitary Engineering
<b>Course Code</b>	CIE 406
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	ENG 301

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
3	Interpret data to design water purification plant, water distribution networks and cold water systems

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of water projects, and sanitary engineering.

#### B. Intellectual Skills:

No.	Intellectual Skills
B11	Design water purification plant, water distribution networks and cold water systems

#### C. Professional Skills:

No.	Professional Skills
C3	Create a process, component or system to carry out specialized engineering designs.



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#### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Sources of water supply	2	2	-
2	Drinking water standards, quality requirement	4	4	-
3	Ground water collecting	2	2	-
4	Water transmission and distribution	4	4	-
5	water Treatment ( Intake, low lift pump station, coagulants, high flash mixing tanks, gentle mixing tanks, sedimentation tanks, filtration tanks, disinfection )	16	16	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B11
2	Semester work	C3, D6



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3	Final Term Examination	A13, B11
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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation Method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	الكود المصري لأسس تصميم وتنفيذ محطات تنقية مياه الشرب والصرف الصحي ومحطات الرفع – قرار وزاري رقم 169 لسنة 1997-الطبعة الثالثة 2004. الهندسة الصحية, محمد علي فرج. استاذ الهندسة الصحية جامعة الإسكندرية, 1990. مراجعة تصميم محطات معالجة مياه الصرف الصحي. أ.د محمود عبد العظيم. GTZ program 2006. U.S. Environmental Protection Agency (1988), "Constructed Wetlands and Aquatic Plant Systems for Municipal Wastewater Treatment", Center for Environmental Research Information, Cincinnati, OH.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Sources of water supply	3	A13	-	-	D6
2	Drinking water standards, quality requirement	3	A13	-	-	D6
3	Ground water collecting	3	-	B11	C3	-
4	Water transmission and distribution	3	A13	B11	C3	-
5	water Treatment ( Intake, low lift pump station, coagulants, high flash mixing tanks, gentle mixing tanks, sedimentation tanks, filtration tanks, disinfection )	3	A13	B11	C3	D6

**Course Coordinator:** Dr/ Mohamed Zakaria

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Steel structures Design (2)

(CIE 407)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Steel structures Design (2)
<b>Course Code</b>	CIE 407
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	CIE 402

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

### 2- Course Aims:

No.	Aims
3	Design different elements of steel frame structures and thin walled steel structures according to the Egyptian code for steel structures.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A4	Recognize the principles of design of column, beam-column connection, total frames and rigid and semi-rigid connections.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Design of beams, bases, bracing and composite structures under static and dynamic loads.
B6	Investigate the failure of components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C15	Practice professionally construction management skills. Prepare technical drafts and detailed drawings both manually and using CAD



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#### D. General Skills:

No.	General Skills
D7	Adopt life-long self-learning for steel frame design problems and thin walled steel structures problems

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Steel frames design	8	4	-
2	Riveted and bolted connections	4	3	-
3	High strength bolted connections	4	3	-
4	Welded connections	6	4	-
5	Base connections	8	6	-
6	Roof trusses	4	2	-
7	Rigid frames design	8	6	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.





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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A <sub>4</sub> , B <sub>2</sub>
2	Semester work	C <sub>15</sub> , D <sub>7</sub>
3	Final term examination	A <sub>4</sub> , B <sub>2</sub> , B <sub>6</sub> , C <sub>15</sub>

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Course notes: <ul style="list-style-type: none"> <li>• Lecture notes prepared by the course coordinator.</li> <li>• Solved examples.</li> </ul>
2	Essential books (text books) <ul style="list-style-type: none"> <li>- Egyptian Code of Practice For Steel Construction And Bridges (2001)</li> </ul>
3	Recommended books <ul style="list-style-type: none"> <li>• E. B. Machaly, “ Behavior, analysis and design of steel work connections “, vol. 3, 2002</li> <li>• E. B. Machaly, “ Behavior, analysis and design of structural steel element“, vol. 1, 2002</li> </ul>
4	Periodicals, Web sites, ... etc <ul style="list-style-type: none"> <li>- <a href="http://www.steelconstruction.org">www.steelconstruction.org</a></li> <li>- <a href="http://www.modernsteel.com">www.modernsteel.com</a></li> <li>- <a href="http://www.greatbuildings.com">www.greatbuildings.com</a></li> <li>- <a href="http://www.berlinsteel.com">www.berlinsteel.com</a></li> </ul>



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Steel frames design	3	A4	B2	C15	D7
2	Riveted and bolted connections	3	-	B6	C15	D7
3	High strength bolted connections	3	A4,	B2	C15	D7
4	Welded connections	3	-	B6	C15	D7
5	Base connections	3	A4	-	C15	D7
6	Roof trusses	3	A4,	B2	C15	D7
7	Rigid frames design	3	A4	B6	C15	D7

**Course Coordinator:** Dr/ Mohamed Ghannam

**Head of Department:** ASS. Prof. dr / Khaled fawzy

**Date of Approval:** 2018



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## Reinforced Concrete (3)

(CIE 408)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Reinforced Concrete (3)
<b>Course Code</b>	CIE 408
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	CIE 403

Teaching hours	Lectures	Tutorial	Practical
	3	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively in reinforced concrete design and halls covering analysis.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the system properties and their engineering materials related to the characteristics in engineering analysis under constrains.
A12	Define contemporary engineering topics in reinforced concrete.

#### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C3	Create a system to carry out specialized engineering designs in reinforced concrete.



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#### D. General Skills:

No.	General Skills
D7	Adopt life-long self-learning for halls design problems

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Design of halls with beam girders and long column	9	6	-
2	Design of frames	9	6	-
3	Design of arches (slab and girder)	9	6	-
4	Design of trusses	6	4	-
5	Design of vierendeel girder	6	4	-
6	Design of saw tooth roofs	3	2	-
<b>Total</b>		<b>42</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A12
2	Semester work	C3, D7
3	Final Term Examination	A3, A12, B4



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Course notes:</b> Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,...etc.
2	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"> <li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> <li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> <li>• Yasser-Eleathy 2013, Design of frames, trusses and arch structures</li> </ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Design of halls with beam girders	4	A3	B4	C3	D7
2	Design of frames	4	A3, A12	B4	C3	D7
3	Design of arches	4	A12	B4	C3	-
4	Design of trusses	4	A3, A12	B4	C3	D7
5	Design of vierendeel girder	4	A12	B4	C3	-
6	Design of saw tooth roofs	4	A3, A12	B4	C3	D7

**Course Coordinator:** Ass. Prof. dr / khaled fawzy

**Head of Department:** Ass. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Environmental Management (ENG401)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Basic Science and Engineering Department
<b>Course Title</b>	Environmental Management
<b>Course Code</b>	ENG401
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre- Request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	1	2	-

### 1- Course Aims:

No.	Aims
1	Apply knowledge of engineering concepts to solve environmental problems; Acid rain, ozone depletion water pollution and soil wastes.

### 2- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A <sub>11</sub>	Identify professional ethics and impacts engineering solutions on society and environment.

#### B. Intellectual Skills:

No.	Intellectual Skills
B <sub>3</sub>	Select different ideas, views and knowledge from a range of sources to know and solve the environmental problems.

#### A. Professional Skills:

No.	Professional Skills
C <sub>1</sub>	Apply knowledge of science, information technology to solve engineering problems; Green house, Ozone depletion, Acid rain, solid wastes.



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## B. General Skills:

No.	General Skills
D6	Effectively manage tasks, time and resources.

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	The importance of studying environmental science – modern technology and its effect on the environment	4	4	-
2	quality of the environment and development elements	2	8	-
3	sources of environmental pollution and method of control (air pollution – water pollution)	4	8	-
4	Solid wastes pollution – noise) – economics of environmental pollution control – legislations for the environment protection.	4	8	-
<b>Total</b>		<b>14</b>	<b>28</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

## 7. Student evaluation:

### 7.1 1 Student Evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A11 – B3
2	Semester work(report, quizzes, presentation)	C1 , D6
3	Final Term Examination	A11- B3- C1





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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	د. زكريا طاحون , ادارة البيئة نحو الانتاج الأنظف , الهيئة المصرية العامة للكتاب , القاهرة , 2007
2	محمد اسماعيل خضر , مقدمة في علوم البيئة , الهيئة العامة للكتاب , القاهرة , 2012

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	A i m s	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	The importance of studying environmental science – modern technology and its effect on the environment I	1	A11	B3	C1	D6
2	Quality of the environment and development elements	1	A11	B3	C1	D6
3	Sources of environmental pollution and method of control (air pollution – water pollution	1	A11	B3	C1	D6
4	Solid wastes pollution – noise) – economics of environmental pollution control – legislations for the environment protection.	1	A11	B3	C1	D6

**Course Coordinator: prof. Dr. Mohamed Saad Elkady**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval: 2018**



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## Construction Estimating and Tendering (CIE 411)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Construction Estimating and Tendering
<b>Course Code</b>	CIE 411
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
5	Consider the impacts of engineering solutions on society & environment to study Tendering and cost estimation.

### 3- Intended Learning Outcomes (ILO'S):

#### A- Knowledge and understanding:

No.	Knowledge and understanding
A3	List the Tender Types related to the Civil engineering field.
A15	Recognize the main topics in construction management specially planning bidding contracts, and management of equipment for construction.

#### B-Intellectual Skills:

No.	Intellectual Skills
B14	Conduct suitable construction management techniques



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### C- Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve project cost.

### D- General Skills:

No.	General Skills
D8	Acquire entrepreneurial skills

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Principles of construction cost estimating; Quantity takeoff; Methods of detailed cost estimating	14	14	-
2	Analysis of labor and equipment costs; Construction tendering process; Bidding and contracting systems for construction projects; Laws and regulations related to the construction industry	14	14	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A3, B14
2	Semester work	C2, D8
3	Final term examination	A3, A15, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	حساب كميات الاعمال الانشائية – دكتور / السيد عبد الفتاح القصيبي- دار الكتب العلمية للنشر والتوزيع 2011
2	اداره مشروعات التشييد – دكتور / ابراهيم عبد الرشيد نصير – جامعه عين شمس – دار النشر للجامعات 2007

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Principles of construction cost estimating; Quantity takeoff; Methods of detailed cost estimating	4	A3, A15	B14	C2	D8
2	Analysis of labor and equipment costs; Construction tendering process; Bidding and contracting systems for construction projects; Laws and regulations related to the construction industry	4	A15	B14	C2	D8

**Course Coordinator:** Dr.Ayman Helal

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Air Conditioning systems for Building

(CIE 412)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program		
<b>Department Offering the Program</b>	Civil Engineering Department		
<b>Department Responsible for the Course</b>	Civil Engineering Department		
<b>Course Title</b>	Air Conditioning systems for Building		
<b>Course Code</b>	CIE 412		
<b>Year/Level</b>	level 4		
<b>Specialization</b>	Major		
<b>Authorization Date of Course Specification</b>	-		
<b>Pre-request</b>	Complete 100 h		
<b>Teaching hours</b>	<b>Lectures</b>	<b>Tutorial</b>	<b>Practical</b>
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in building an air conditioning systems.

### 3-Intended Learning Outcomes (ILO'S):

#### A.Knowledge and understanding:

No.	Knowledge and understanding
A6	Identify codes of practice and standards, health and safety requirements in designing air conditioning system.
A9	Identify humanitarian topics of interest and moral issues

#### B.Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.

#### C.Professional Skills:

No.	Professional Skills
C3	Design a process, component or system to carry out specialized engineering designs.

#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.



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#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Psychometric and process of air	2	2	-
2	Cooling load estimation	4	4	-
3	Refrigeration cycles.	4	4	-
4	Water chiller systems	4	4	-
5	Air handling system	2	2	-
6	Cooling towers	4	4	-
7	Equipment selection.	2	2	-
8	Installation, operation and maintenance of air conditioning systems	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A6, A9, B7
2	Semester work	C3, D2
3	Final Term Examination	A6, A9, B7

##### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>





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3	Final term examination	15 <sup>th</sup>
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### 7.3 weighting of Evaluation:

No.	evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"> <li>• Heat and mass transfer pk Nag, tata Mc Graw Hill Education private limited, New belhi- 2011</li> <li>• Engineering thermodynamics onkar singh , new AGE Publisher, new belhi -2007</li> </ul>

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Psychometric and process of air	4	A6	B7	C3	D2
2	Cooling load estimation	4	A9	B7	C3	D2
3	Refrigeration cycles.	4	A6, A9	B7	C3	D2
4	Water chiller systems	4	A9	B7	-	D2
5	Air handling system	4	A6	B7	C3	D2
6	Cooling towers	4	-	B7	C3	D2
7	Equipment selection.	4	A9	B7	C3	D2
8	Installation, operation and maintenance of air conditioning systems	4	A6, A9	-	C3	D2

**Course Coordinator:** Dr. Alaa Gabr

**Head of Department:** ASS. Prof. / khaled fawzy

**Date of Approval:** 2018



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## Design of lighting Systems for buildings

(CIE 413)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Design of lighting Systems for buildings
Course Code	CIE 413
Year/Level	level 4
Specialization	Major
Authorization Date of Course Specification	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally to design lighting system for buildings.

### 3-Intended Learning Outcomes (ILO'S):

#### A.Knowledge and understanding:

No.	Knowledge and understanding
A4	State the principles of system design including elements design, process and/or the including elements, processes, and system related to disciplines.

#### B.Intellectual Skills:

No.	Intellectual Skills
B3	Exchange different ideas, views, and knowledge from a range of sources to evaluate the characteristics and performance of components, systems and processes.

#### C.Professional Skills:

No.	Professional Skills
C11	Carry out maintenance of all types of lighting systems



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#### D.General Skills:

No.	General Skills
D3	Communicate effectively
D6	Effectively manage tasks, time, and resources

#### 4. Table of Content

No.	Topics	Lectures	Tutorial	Practical
1	Principles of lighting	2	2	-
2	lighting design for buildings which includes artificial lighting, point, line and area light sources, types and properties of luminaries, polar curves	6	6	-
3	design methods and calculations, glare index	4	4	-
4	lighting design standard	4	4	-
5	luminaire heat recovery system and lighting energy management	6	6	-
6	hybrid lighting	2	2	-
7	daylighting of buildings,	2	2	-
8	effect of climate on lighting	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	-

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A4, B3
2	Semester work	C11, D3, D6
3	Final Term Examination	A4, B3

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"><li>الكود المصري لاسس تصميم وشروط تنفيذ اعمال اناره الطرق والانفاق كود( 2/308) - المركز القومي لبحوث الاسكان والبناء - وزاره الاسكان والمرافق والتنمية العمرانيه 2012</li><li>دراسه الاضاء الطبيعيه في ضوء محددات قانون البناء في مصر - د خالد محمد الحديدي - كليه هندسه شبرا - جامعه بنها- 2010</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Principles of lighting	4	A4	B3	C11	D3, D6
2	lighting design for buildings which includes artificial lighting, point, line and area light sources, types and properties of luminaries, polar curves	4	A4	B3	C11	D3, D6
3	design methods and calculations, glare index	4	A4	B3	C11	D3, D6
4	lighting design standard	4	A4	B3	-	D6
5	luminaire heat recovery system and lighting energy management	4	A4	B3	C11	D6
6	hybrid lighting	4	-	B3	C11	D3
7	daylighting of buildings,	4	A4	B3	C11	D3
8	effect of climate on lighting	4	A4	-	C11	D3, D6

**Course Coordinator:** Dr / Alaa Gabr

**Head of Department:** ASS. Prof. / khaled fawzy

**Date of Approval:** 2018



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## Productivity Enhancement Methods

(CIE 414)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Productivity Enhancement Methods
<b>Course Code</b>	CIE 414
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and all civil engineering disciplines to enhance productivity in civil engineering projects.
7	Engage in self- and life- long learning in civil engineering projects.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A6	List the productivity enhancement tools and techniques.
A7	Recognize business and management principles relevant to engineering
A9	Identify humanitarian topics of interest and moral issues.

#### B. Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact
B10	Create systematic and methodic approaches when dealing with new and advancing technology.
B15	Evaluate the used techniques and strategies adopted in the solving current engineering problems



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### C. Professional Skills:

No.	Professional Skills
C10	Practice professionally construction management skills.
C14	Analyze data in laboratory and in the field
C16	Troubleshoot almost all types of electronic systems using the standard tools
C18	Use appropriate tools to measure system performance.

### D.General Skills:

No.	General Skills
D5	Lead individuals.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Identification of bottlenecks; impact of human performance on productivity	8	8	-
2	Effect of the interaction between technological advances and human capabilities on performance and productivity	10	10	-
3	Cost reduction and productivity improvement programs	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A6, A7, B7
2	Semester work	C10, D5, A9, B10, B15, C14, C16, C18
3	Final term examination	A6, A7, B7

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	An introduction to efficiency and productivity analysis 1998, TIM Coelli
2	Aggregation Efficiency and measurement, 2007, Rolf fare.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system





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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Identification of bottlenecks; impact of human performance on productivity	4,7	A6, A7	B7,B10	C10,C14	D5
2	Effect of the interaction between technological advances and human capabilities on performance and productivity	4,7	A6, A7, A9	B7,B15	C10,C16,C18	D5
3	Cost reduction and productivity improvement programs	4,7	A6, A7	B7,B10	C10,C18	-

**Course Coordinator:** ASS. Prof. dr / khaled fawzy

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Quality Assurance and Engineering Reliability

(CIE 415)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Quality Assurance and Engineering Reliability
<b>Course Code</b>	CIE 415
<b>Year/Level</b>	Level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and all civil engineering disciplines

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding	
A6	A6-1	Identify quality assurance systems, codes of practice and standards, health and Safety requirements and environmental issues.
	A6-2	Impact of reliability on the design process in engineering mechanical machines electrical equipment and how to maintenance and repair them for structural engineering.

#### B. Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact
B8	Incorporate economic, societal, and environmental and risk management dimensions in design has good options and achieve the construction work with good quality and minimum cost.



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### C. Professional Skills:

No.	Professional Skills
C3	Create a process, component or system to carry out specialized engineering designs to improve the techniques, design and redesign of the construction management skill.

### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Reliability of parallel and serial engineering systems	8	8	-
2	Life testing. Impact of reliability on the design process in engineering fields such as mechanical, electrical and structural engineering.	10	10	-
3	Studies the effect of equipment reliability on product quality.	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A6, B7
2	Semester work	C3, D6
3	Final Term Examination	A6, B7, B8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	• Quality assurance in building, 1990, Alan Griffith

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Reliability of parallel and serial engineering systems	4	A6	B7	-	D6
2	Life testing. Impact of reliability on the design process in engineering fields such as mechanical, electrical and structural engineering.	4	A6	B7, B8	C3	D6
3	Studies the effect of equipment reliability on product quality.	4	A6	B7, B8	C3	D6

**Course Coordinator:** dr / Abdo EL Naqib

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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بدمياط الجديدة

## Quality Control

(CIE 416)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Quality Control
<b>Course Code</b>	CIE 416
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
9	Acquire the needed communication skills include leading and supervising a group of designers.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving engineering problems, data collection problems and interpretation in quality control field.
A7	Recognize the rise of mass production, the engineering requirement were met in final products.

#### B. Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
B15	Assess the used techniques and strategies adopted in the solving current engineering problems.



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### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products services.

### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Design of quality control systems; quality methods for establishing product specifications; process control	12	12	-
2	variables and attributes charts; acceptance sampling; operating characteristics curves; process capabilities; QC software	16	16	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, A7, B7, B15
2	Semester work	C2, D6
3	Final Term Examination	A5, A7, B7, B15

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Introduction of Quality control and the total quality systems, 2012, Amitava Mitra.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system





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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Design of quality control systems; quality methods for establishing product specifications; process control	9	A5, A7	B7, B15	C2	D6
2	variables and attributes charts; acceptance sampling; operating characteristics curves; process capabilities; QC software	9	A7	B7, B15	C2	D6

**Course Coordinator:** dr /Abdo El naqib

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Reliability of Structures

(CIE 417)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Reliability of Structures
<b>Course Code</b>	CIE 417
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
5	Consider the impacts of engineering solutions on society & environment to select appropriate building materials from the perspective of strength, durability, suitability of use to location

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A14	Define the different structural and mechanical properties of building materials to value and handle reliability as an important dimension of structural design

#### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C9	Analyze data in laboratory and in the field.
C10	Practice professionally construction management skills to show the novice reader how to calculate reliability.



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## D. General Skills:

No.	General Skills
D8	Acquire entrepreneurial skills

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Fundamental concepts related to structural reliability, safety measures, load models, resistance models, system reliability	14	14	-
2	optimum safety levels, and optimization of design codes	14	14	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A14, B4
2	Semester work	C9, C10, D8
3	Final Term Examination	A14, B4



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"><li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li><li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Fundamental concepts related to structural reliability, safety measures, load models, resistance models, system reliability	5	A14	B4	C9, C10	D8
2	optimum safety levels, and optimization of design codes	5	A14	B4	C9, C10	D8

**Course Coordinator:** ASS. Prof. Dr. khaled fawzy

**Head of Department:** ASS. Prof. Dr. khaled fawzy

**Date of Approval:** 2018



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## Risk Management and Structures Safety

(CIE 418)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Risk Management and Structures Safety
<b>Course Code</b>	CIE 418
<b>Year/Level</b>	level 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and all civil engineering disciplines.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding	
A6	1	Identify quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues
	2	Risk mangmt would provide a platform for greater success reasons cited included ability to demonstrate financial impact to the organization through safety efforts.
A7	Recognize business and management principles relevant to risk management and construction safety	

#### B. Intellectual Skills:

No.	Intellectual Skills	
B4	Investigate the failure of structural components, systems, and processes	
B10	1	Create systematic and methodic approaches when dealing with new and advancing technology



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2	The safety profession may be due to a lack of understanding of the many roles a safety professional performs with in accompany.
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### C. Professional Skills:

No.	Professional Skills
C10	Practice professionally construction management skills

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Principles and practice regarding safety in building. Accidental prevention and safety control	8	8	-
2	Fire control	4	4	-
3	Fire resistance of building materials, safety provisions for fire and other hazards in building	4	4	-
4	Safety standards and codes	4	4	-
5	Governmental regulations and inspection procedures.	8	8	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A6, A7, B10
2	Semester work	C10, D2
3	Final Term Examination	A6, A7, B4, B10

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Introduction to Risk and un certainty in hydro system engineering, 2013, Ehsun Goodariz.
2	Risks in Technological systems 2010, Goran Grimvall, Ake J. Holmgren.





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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Principles and practice regarding safety in building. Accidental prevention and safety control	4	A6, A7	B4	C10	D2
2	Fire control	4	A6	B4, B10	C10	D2
3	Fire resistance of building materials, safety provisions for fire and other hazards in building	4	A6	B10	C10	D2
4	Safety standards and codes	4	A6, A7	B4	C10	D2
5	Governmental regulations and inspection procedures.	4	A6	B10	-	-

**Course Coordinator:** dr / Abdo EL Naqib

**Head of Department:** ASS. Prof/ khaled fawzy

**Date of Approval:** 2018



وحدة ضمان الجودة



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## Soil Mechanics and Foundation

(CIE 501)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Soil Mechanics and Foundation
<b>Course Code</b>	CIE 501
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 404

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in studying the soil.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of structures, shallow foundation and geo-technical and foundations

#### B. Intellectual Skills:

No.	Intellectual Skills
B13	Select codes of practices in designing all types of foundation.

#### C. Professional Skills:

No.	Professional Skills
C3	Design a process, component or system to carry out specialized engineering designs
C4	Practice the neatness and aesthetics in design to design experiments



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#### D.General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Stresses in soil mass	2	2	-
2	Consolidation of soil	4	4	-
3	Settlement and contact pressure	4	4	-
4	Lateral earth pressure	2	2	-
5	Slope stability	4	4	-
6	Retaining walls – sheet piles	4	4	-
7	Soil bearing capacity	4	4	-
8	foundation for structures	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term Examination	A13, B13
2	Semester work	C3, C4, D6
3	Final term examination	A13, B13

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Ranjan, G. and Datta, M.(2000), “Basic and Applied Mechanics”, second Eddition, New Age international, New Delhi.
2	Gulhati, S.K. and Datta, M. (2005), “Geotechnical Engineering “, Tata McGraw-Hill , New Delhi.
3	الكود المصرى لمكنيكا التربة والتصميم وتنفيذ الأساسات كود رقم 2011 - ECP

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Stresses in soil mass	4	A13	B13	C3, C4	D6
2	Consolidation of soil	4	A13	B13	C3, C4	D6
3	Settlement and contact pressure	4	A13	B13	C3	D6
4	Lateral earth pressure	4	A13	B13	C4	D6
5	Slope stability	4	A13	B13	C3	D6
6	Retaining walls – sheet piles	4	A13	B13	C3, C4	D6
7	Soil bearing capacity	4	A13	B13	C4	D6
8	foundation for structures	4	-	B13	C4	D6

**Course Coordinator:** Dr. Mohamed Gabr

**Head of Department:** ASS. Prof. Dr. khaled fawzy

**Date of Approval:** 2018



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## Highway and Airport Engineering

(CIE 502)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Highway and Airport Engineering
<b>Course Code</b>	CIE 502
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	CIE 308

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
6	Demonstrate knowledge of highway and airport engineering issues by displaying professional and ethical responsibilities; and contextual understanding.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Outline the fundamental concepts, data presentation and computer-based methods appropriate for the highway and airport engineering discipline.
A4	State the principles of design including elements design, process and systems related to the highway and airport engineering.

#### B. Intellectual Skills:

No.	Intellectual Skills
B5	Solve problems applied to the highway and airport engineering on the basis of limited and possibly contradicting information.



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### C. Professional Skills:

No.	Professional Skills
C2	Apply professionally the highway and airport engineering fundamentals and feedback to improve the design, products and services of the highway and airport engineering.
C16	Carry out maintenance of all types of roadways and traffic systems

### D. General Skills:

No.	General Skills
D3	Communicate effectively with multidisciplinary teams for projects related to highway and airport engineering.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Basic design control	2	2	-
2	Geometric design of highways ( sight distance, intersection, alignment, vertical curves	2	2	-
3	Soils and materials, classification, stabilization, design of flexible and rigid pavement, highway drainage	2	2	-
4	Introduction to Airport Engineering	2	2	-
5	Aircraft characteristics	2	2	-
6	Air traffic control and capacity	2	2	-
7	Airport configuration	2	2	-
8	Design of the landing area	4	4	-
9	Airport terminals	4	4	-
10	Design of airport pavements, landing, wind rose, airport land scape, terminals, capacity, control	4	4	-
11	Lighting and markings	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies



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## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, A4 , C16
2	Semester work	C2, D3
3	Final Term Examination	A1, A4, B5, C16

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Materials for Civil and Construction Engineers, Mamlouk and Zaniwski, ISBN:0-13-147714-5, 2006
2	Egyptian Code of Practice for Urban and Rural Roads, 2008
3	Huang, S. C., and Di Benedetto, H. (Eds.). (2015). Advances in asphalt materials: Road and pavement construction. Woodhead Publishing.
4	Papagiannakis, A. T., & Masad, E. A. (2018). Pavement design and materials. John Wiley & Sons.





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## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Basic design control	6	A1	B5	C2	D3
2	Geometric design of highways	6	A4	B5	C16	-
3	Soils and materials	6	A4		C2	D3
4	Introduction to Airport Engineering	6	A1	B5	C2	-
5	Aircraft characteristics	6	A1, A4	B5	-	D3
6	Air traffic control and capacity	6	A1	B5	-	-
7	Airport configuration	6	A4	-	C2	D3
8	Design of the landing area	6	-	B5	C2	
9	Airport terminals	6	A1	B5	C2	D3
10	Design of airport pavements	6	A4	B5	C16	D3
11	Lighting and markings	6	A1	-	C2	D3

**Course Coordinator:** Dr. Alaa Gabr

**Head of Department:** ASS. Prof. Dr. Khaled fawzy

**Date of Approval:** 2018



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## Legal, professional, and social aspects of engineering

(CIE 503)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Legal, professional, and social aspects of engineering
<b>Course Code</b>	CIE 503
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	-

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and all civil engineering disciplines.
9	Acquire the needed communication skills like leading and supervising a group of designers and working effectively within multi-disciplinary teams to manage construction sites.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding	
A3	A3-1	List the engineering materials related to materials of building construction
	A3-2	List the engineering materials related to labors and equipment for constructing process
	A3-3	List the engineering materials related to management of equipment.
A13	Recognize the different engineering principles related to the design of reinforced concrete and metallic structures to geo-technical and foundations, water projects, surveying, photogrammetry and sanitary engineering roadways and traffic systems	



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A15	Recognize the main topics in construction management specially planning, bidding, finance, and contracts
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### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
B8	Incorporate economic, societal, environmental dimensions, and risk management in design

### C. Professional Skills:

No.	Professional Skills
C2	Combine engineering knowledge and understanding to improve design, products and services.
C8	Apply safe systems at work and observe the appropriate steps to manage risks.

### D. General Skills:

No.	General Skills
D3	Communicate effectively
D8	Acquire entrepreneurial skills

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Building and construction contracts procedure	4	4	-
2	Types of construction contracts	4	4	-
3	General conditions of contracts and contract documents.	6	6	-
4	Legal obligations and governing international and Egyptian legislation	4	4	-
5	The role of the architect/ engineer in the construction process.	2	2	-
6	The developments of the concepts of professionalism and ethics	4	4	-
7	Case historical will be discussed	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A13, A15, B4, B7, B8
2	Semester work	C2, C8, D3, D8
3	Final Term Examination	A3, A13, A15, B4, B7, B8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>



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## 8. List of References:

No.	Reference List
1	<b>Course notes:</b> Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,...etc.
2	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"><li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li><li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li></ul>
3	<b>Recommended books:</b> <ul style="list-style-type: none"><li>• Chu-Kia Wang and Charles G. Salmon, "Reinforced Concrete Design," 4th Edition, Harper and Row Publishers, New York, 1985.</li><li>• MacGregor J., "Reinforced Concrete: Mechanics and Design," Printice Hall, New Jersey, 1988.</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Building and construction contracts procedure	4.9	A3, A13, A15	B4, B7	C2	D3
2	Types of construction contracts	9	A15	B8	C8	D8
3	General conditions of contracts and contract documents.	4	A13, A15	B7	C2, C8	D3, D8
4	Legal obligations and governing international and Egyptian legislation	4.9	A15	B4, B8	-	D3, D8
5	The role of the architect/engineer in the construction process.	9	A13	B8	C2	D8
6	The developments of the concepts of professionalism and ethics	4	A15	B7, B8	C2, C8	-
7	Case historical will be discussed	4.9	A13.A15	B7	C2	D8

**Course Coordinator:** Dr. Abdo EL-Naqib

**Head of Department:** ASS. Prof. Dr. khaled fawzy

**Date of Approval:** 2018



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## Project 1 CIE (509)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Project 1
Course Code	CIE 509
Year/Level	Level 5
Specialization	Major
Authorization Date of Course Specification	-
<b>Pre-request</b>	Complete 140 h

Teaching hours	Lectures	Tutorial	Practical
	2	-	2

### 2- Course Aims:

No.	Aims
3	Designing a system; component and process, and recognize its application in civil engineering issues to respond to the recent technological changes
4	Use the techniques, skills, and codes of practice effectively and professionally in projects.
7	Act professionally in design and supervision of civil engineering disciplines to engage in self and life-long-learning
9	Acquire the needed communication skills to lead and supervise a group of designers or lab technicians, working effectively within multi-disciplinary teams to manage construction sites.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the engineering materials related to the characteristics in engineering analysis.
A8	Observe the relevant current engineering technologies.
A10	Write technical language and technical report writing.
A13	Recognize the different engineering principles related to the design of reinforced concrete and metallic structures and geo-technical and foundations, water projects, surveying, photogrammetry and sanitary engineering roadways and traffic systems.



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A14	Define the different structural and mechanical properties of building materials
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### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes
B8	Incorporate economic, societal, environmental dimensions, and risk management in design.
B9	Analyze results of numerical models using computer applications
B11	Design adequate water control structures, irrigation, and water networks, sewerage systems and pumping stations.
B13	Select codes of practices in designing reinforced engineering concrete and metallic structures.
B15	Assess the used techniques and strategies adopted in the solving current engineering problems.

### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and/or services
C4	Practice the neatness and aesthetics in design and approach.
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline.
C7	Apply numerical modeling methods to engineering problems
C8	Apply safe systems including the use laboratory, field equipment competently and safely at work.
C11	Carry out maintenance of all types of roadways and traffic systems.
C12	Prepare technical reports to present data
C15	Practice professionally construction management skills. Prepare technical drafts and detailed drawings both manually and using CAD

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints
D5	Lead and motivate individuals
D6	Effectively manage tasks, time, and resources.
D8	Acquire entrepreneurial skills





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#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associated with a large scale design project	8	-	8
2	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	10	-	10
No.	Topics	Lectures	Tutorial	Practical
1	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	10	-	10
<b>Total</b>		<b>28</b>	<b>-</b>	<b>28</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources and experimental work.
4	Research assignment
5	Practical examination

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student Evaluation Method:

No.	Evaluation Method	ILO's
1	Oral Examination	A3,A8,A10,A13,A14,B4, B9, B8,B11,B13,B15
2	Semester work	C2,C4,C6, C7, C8,C11, C15, D2, D5, D6, D8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Oral Examination	at the end of IE 510
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup> -14 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Oral Examination	50%
2	Semester work ( presentation, Report)	50%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Subject studies

## 9. Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board	6	Lab



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associated with a large scale design project	3.4.9	A3,A8,A10,A13 ,A14	B4,B8, B9, B11,B13, B15	C2,C4,C6, C7, C8,C11, C12	D2, D6
2	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	3.4.9	A3,A8,A10,A13 ,A14	B4,B8, B9, B11,B13, B15	C2,C4,C6, C7, C8,C11, C12	D2, D5, D6
3	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	3.4.9	A3,A8,A10,A13 ,A14	B4,B8, B9, B11,B13, B15	C2,C4,C6, C7, C8,C11, C12, C15	D2, D6, D8

**Course Coordinator:** Ass. Prof. Dr./ Khaled fawzy

**Head of Department:** Ass. Prof. Dr./ Khaled fawzy

**Date of Approval:** 2018



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## Design of Irrigation works

(CIE 504)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Design of Irrigation works
<b>Course Code</b>	CIE 504
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	CIE 401

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science, engineering concepts, and construct structures to solve Irrigation problems.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of water structures

#### B. Intellectual Skills:

No.	Intellectual Skills
B11	Select appropriate design processes for water control structures, irrigation and water structures

#### C. Professional Skills:

No.	Professional Skills
C3	Design a process, component or system to carry out specialized Irrigation works designs.



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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.
D6	Effectively manage tasks, time, and resources.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction	2	2	-
2	Retaining walls	4	4	-
3	Gravity retaining walls	2	2	-
4	Reinforced concrete R.W.	2	2	-
5	Reinforced concrete bridges	2	2	-
6	Rolled steel joist bridge	2	2	-
7	Culvert	2	2	-
8	Syphon	4	4	-
9	Dams	4	4	-
10	Heading up works	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B11
2	Semester work	C3, D2, D6
3	Final Term Examination	A13, B11

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	P C Punmia Et Al. Irrigation And Water Power Engineering, Sixteenth Edition, 2009
2	الكود المصري للموارد المائية وأعمال الري المجلد السابع الطبعة الأولى 2003

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction:	1	A13	B11	C3	D2, D6
2	Retaining walls	1	A13	B11	C3	D2
3	Gravity retaining walls	1	A13	B11	C3	D6
4	Reinforced concrete R.W.	1	A13	B11	C3	D2,D6
5	Small span	1	-	B11	C3	D6
6	Reinforced concrete bridges	1	A13	-	C3	D6
7	Rolled steel joist bridges	1	-	B11	C3	D2
8	Crossing works:	1	A13	B11	C3	D2, D6
9	Syphon:	1	A13	B11	C3	D6
10	Aqueducts:	1	A13	B11	C3	D6
11	Tail escapes:	1	A13	B11	-	D2
12	Heading up works	1	A13	-	C3	D2

**Course Coordinator:** Dr/ Samer El Abd

**Head of Department:** ASS. Prof / Khaled fawzy

**Date of Approval:** 2018



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## Foundation Engineering 1 (CIE 505)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program		
<b>Department Offering the Program</b>	Civil Engineering Department		
<b>Department Responsible for the Course</b>	Civil Engineering Department		
<b>Course Title</b>	Foundation 1		
<b>Course Code</b>	CIE 505		
<b>Year/Level</b>	level 5		
<b>Specialization</b>	Major		
<b>Authorization Date of Course Specification</b>	-		
<b>Pre-request</b>	CIE 501		
<b>Teaching hours</b>	<b>Lectures</b>	<b>Tutorial</b>	<b>Practical</b>
	2	2	-

### 2- Course Aims:

No.	Aims
2	Design a system for components, process, constraints, construct to protect all types of foundations; footings and piles.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design to geo-technical and foundations

#### B. Intellectual Skills:

No.	Intellectual Skills
B4	Recognize the different type's failure for structural components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C11	Control all types of foundations.

#### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources
D9	Refer to relevant literatures





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#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Design of strip footing	4	4	-
2	Design Isolated and combined footing	6	6	-
3	Design of strap beam	2	2	-
4	Design of raft foundations	8	8	-
5	Pile cap - pile Foundation	8	8	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A13, B4
2	Semester work	C11, D6, D9
3	Final term examination	A13, B4, C11



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	الكود المصري لميكانيكا التربة وتصميم وتنفيذ الأساسات كود رقم ECP 202-2011
2	Gulhati, S.K. and Datta, M. (2005), "Geotechnical Engineering", Tata McGraw-Hill, New Delhi.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Design of strip footing	2	A13	B4	C11	D6
2	Design Isolated and combined footing	2	A13	B4	C11	D6, D9
3	Design of strap beam	2	A13	B4	-	D9
4	Design of raft foundations	2	A13	B4	C11	D9
5	Pile cap - pile Foundation	2	A13	B4	C11	D9

**Course Coordinator:** Dr/ Magdy Zaied

**Head of Department:** ASS.Prof / khaled fawzy

**Date of Approval:** 2018



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## Inland Navigation and Harbor Engineering

(CIE 506)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Inland Navigation and Harbor Engineering
<b>Course Code</b>	CIE 506
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	ENG 301

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, engineering concepts, and construct structures to solve fundamental engineering problems related to harbors and navigations.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of marine structures
A14	Define the different structural and mechanical properties of building materials related to harbor design.

#### B. Intellectual Skills:

No.	Intellectual Skills
B8	Incorporate economic, societal, environmental dimensions, and risk management in design of harbors.

#### C. Professional Skills:

No.	Professional Skills
C3	Design a component or system to carry out specialized engineering designs related to harbor and inland navigation.



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#### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Wind and current – tide - Wave theories	8	8	-
2	Surf zone hydrodynamics	2	2	-
3	Wave forces	4	4	-
5	Harbor planning	2	2	-
6	Design of breakwater	4	4	-
7	Design of quay walls	4	4	-
8	Ship repair structures	2	2	-
9	Inland navigation	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, A14, B8
2	Semester work	C3, D2
3	Final Term Examination	A13, A14, B8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 Weighting of evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Carl A. Thoresen, port Designers Handbook Third edition, 2014.
2	Gregory Tsinker, Handbook of port and Harbor Engineering: Geotechnical and structural and structural Aspects, 2014.
3	الكود المصرى للموارد المائية وأعمال الري المجلد السابع الطبعة الأولى 2003

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Wind and current – tide -Wave theories	1	A13, A14	B8	C3	D2
2	Surf zone hydrodynamics	1	A13, A14	B8	C3	D2
3	Wave forces	1	A14	B8	C3	D2
4	Harbor planning	1	A14	-	C3	D2
5	Design of breakwater	1	A13	B8	C3	D2
6	Design of quay walls	1	A13, A14	B8	C3	D2
7	Ship repair structures	1	A14	-	-	D2
8	Inland navigation	1	A13	-	C3	-
9	Wind and current – tide -Wave theories	1	A14	B8	-	D2

**Course Coordinator:** Dr/ Samer Elabd

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Project 2 CIE 510

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Project 2
<b>Course Code</b>	CIE 510
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	CIE 509

Teaching hours	Lectures	Tutorial	Practical
	1	4	-

### 2- Course Aims:

No.	Aims
3	Designing a system; component and process to recognize its application in civil engineering issues to the recent technological changes
6	Identify quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.
7	Act professionally in design and supervision of civil engineering disciplines to engage in self and life-long-learning
9	Acquire the needed communication skills.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A8	Observe the relevant current engineering technologies.
A10	Write technical language and technical report writing.
A13	Recognize the different engineering principles related to the design of reinforced concrete and metallic structures besides, geo-technical and foundations, water projects, surveying, photogrammetry and sanitary engineering roadways and traffic systems.
A14	Define the different structural and mechanical properties of building materials
A15	Recognize the main topics in construction management specially planning bidding and contracts.





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## B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes
B8	Incorporate economic, societal, environmental dimensions, and risk management in design.
B9	Analyze results of numerical models using computer applications
B11	Design adequate water control structures, irrigation, and water networks, sewerage systems and pumping stations.
B14	Conduct suitable construction management techniques.
B15	Assess the used techniques and strategies adopted in the solving current engineering problems.

## C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and/or services
C4	Practice the neatness and aesthetics in design and approach.
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C7	Apply numerical modeling methods to engineering problems
C10	Apply quality assurance procedures to follow codes and standards.
C11	Carry out maintenance of all types of roadways and traffic systems.
C12	Prepare technical reports to present data
C15	Practice professionally construction management skills. Prepare technical drafts and detailed drawings both manually and using CAD

## D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints
D5	Lead and motivate individuals
D6	Effectively manage tasks, time, and resources.
D8	Acquire entrepreneurial skills

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Continuation and conclusion of the investigations on the chemical industrial problems of Project I; written reports and team presentations are required.	14	56	-
<b>Total</b>		<b>14</b>	<b>56</b>	<b>-</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation Method:

No.	Evaluation Method	ILO's
1	Oral Examination	A8,A10,A13,A14,A15,B4,B8,B9,B11,B14, B15
2	Semester work	C2,C4,C6,C7,C10, C11,C12,C15
3	Report evaluation	D2,D5,D6,D8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Oral Examination	at the end of IE 510
2	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup> - 14 <sup>th</sup>
3	Report evaluation	After final exam by 2 weeks



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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Oral Examination	50%
2	Semester work	25%
3	Report evaluation	25%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Subject studies

### 9. Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board		

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Continuation and conclusion of the investigations on the chemical industrial problems of Project I; written reports and team presentations are required.	3,6,9	A8,A10,A13, A14, A15	B4,B8,B9,B11, B14,B15	C2,C4,C6,C7, C10,C11, C12,C15	D2, D5, D6, D8

**Course Coordinator:** Ass. Prof. Dr. / Khaled fawzy

**Head of Department:** Ass. Prof. Dr. / Khaled fawzy

**Date of Approval:** 2018



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## Bridge Engineering

### CIE 511

#### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Bridge Engineering
Course Code	CIE 511
Year/Level	5th level
Specialization	Major
Authorization Date of Course Specification	-
Pre-request	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

#### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in Designing Bridges.

#### 3- Intended Learning Outcomes (ILO'S):

##### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving engineering problems, data collection problems and interpretation.

##### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.

##### C. Professional Skills:

No.	Professional Skills
C11	Carry out maintenance of all types of bridges



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## D.General Skills:

No.	General Skills
D4	Demonstrate efficient structure system capabilities

## 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Different types of bridges	2	2	-
2	different methods in bridges construction	4	4	-
3	load calculations and its different effects	4	4	-
4	methods of bridges design using the standard specifications codes	4	4	-
5	using commercial computer packages for bridge design	4	4	-
6	Planning of bridge projects; Design, analysis and construction of various types of bridges including reinforced and prestressed concrete bridges, steel bridges, composite bridges, and cable	6	8	-
7	supported bridges	4	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, C11
2	Semester work	B4, D4
3	Final Term Examination	A5, B4, C11, D4

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Metwally Abu Hamid "Steel bridges". Faculty of engineering, Cairo Univeristy."Cairo 2007.
2	Egyptian Code of bractice for steel construction and bridges (allowable stress design) code No (205) 2008

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Different types of bridges	4	A5	B4	C11	D4
2	different methods in bridges construction	4	A5	B4	C11	D4
3	load calculations and its different effects	4	A5	B4	C11	D4
4	methods of bridges design using the standard specifications codes	4	A5	B4	C11	D4
5	using commercial computer packages for bridge design	4	A5	B4	C11	D4
6	Planning of bridge projects; Design, analysis and construction of various types of bridges including reinforced and prestressed concrete bridges, steel bridges, composite bridges, and cable	4	A5	B4	C11	D4
7	supported bridges	4	A5	B4	C11	D4

**Course Coordinator:** dr / Mohamed Ghannam

**Head of Department:** Ass.Prof. dr / khaled fawzy

**Date of Approval:** 2018



وحدة ضمان الجودة



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## Coastal Engineering Fundamentals

(CIE 512)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Coastal Engineering Fundamentals
<b>Course Code</b>	CIE 512
<b>Year/Level</b>	Level5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science, engineering concepts, and construct structures to solve fundamental engineering problems for design harbors and marine structures.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of marine structures
A14	Define the different structural and mechanical properties of building materials.

#### B. Intellectual Skills:

No.	Intellectual Skills
B8	Incorporate economic, societal, environmental dimensions, and risk management in designing coastal structures.

#### C. Professional Skills:

No.	Professional Skills
C3	Apply a process, component or system, and carry out specialized engineering designs





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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Effect of waves on coastal structures	6	6	-
2	design of seawalls, jetties, harbors, ship channels and pipelines	6	6	-
3	diffusion and spreading	4	4	-
4	oil spill containment and collection	6	6	-
6	Analysis of wave data.	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, A14, B8
2	Semester work	C3, D2
3	Final Term Examination	A13, A14, D2

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 Weighting of evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Carl A. Thoresen, port Designers Handbook Third edition, 2014
2	YOUNG C KIM, HANDBOOK OF COSTAL AND OCEAN ENGINEERING, 2010
3	الكود المصرى للموارد المائية وأعمال الري المجدد السابع الطبعة الأولى 2003

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Effect of waves on coastal structures	1	A13, A14	B8	C3	D2
2	design of seawalls, jetties, harbors, ship channels and pipelines	1	A13, A14	B8	C3	D2
3	diffusion and spreading	1	A14	B8	C3	D2
4	oil spill containment and collection	1	A14	-	C3	D2
5	Analysis of wave data.	1	A13	B8	C3	D2
6	Effect of waves on coastal structures	1	A13, A14	B8	C3	D2

**Course Coordinator:** Dr/ Samer Elabd

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Concrete Structures Technology

(CIE 513)

### 1- Basic Information:

Program Title	Civil Engineering program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Technology of Concrete Constructions
Course Code	CIE 513
Year/Level	level 5
Specialization	Major
Authorization Date of Course Specification	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
		2	2

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in studying the various technologies used in concrete constructions.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the material properties and their engineering materials related to concrete structures
A6	Identify quality assurance systems, codes of practice and standards for concrete structures

#### B. Intellectual Skills:

No.	Intellectual Skills
B13	Select codes of practices in designing reinforced engineering concrete structures

#### C. Professional Skills:

No.	Professional Skills
C9	Apply basic organizational and project management skills used to develop concrete technology.



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#### D.General Skills:

No.	General Skills
D5	Lead individuals

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Advantages and limitations of concrete, types of cements and admixtures, batching equipment, types of mixers, ready-mixed concrete, pumping equipment, slip forming, concreting	8	8	-
2	Casting in lifts, finishing concrete, hot weather concreting, formwork design, methods of curing, strength of concrete, destructive and nondestructive testing of concrete	12	10	-
3	Durability, repair and maintenance of concrete.	8	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A6, B13
2	Semester work	C9, D5
3	Final Term Examination	A3, A6, C9, B13

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Ericfleming (2005), construction technology an illustrated in troduction, black well publishing.
2	محمود امام و محمد امين "خواص ومقاومة المواد" – الجزء الثاني، كلية الهندسة جامعة المنصورة.
3	"الكود المصرى لتصميم وتنفيذ المنشآت الخرسانية المسلحة كود رقم 203" – التحديث الثانى (2001) وزارة الإسكان والمرافق والمجتمعات العمرانية – مركز بحوث الإسكان والبناء والتخطيط العمرانى – جمهورية مصر العربية.



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Advantages and limitations of concrete, types of cements and admixtures, batching equipment, types of mixers, ready-mixed concrete, pumping equipment, slip forming, shotcreting	4	A3	B13	C9	D5
2	Casting in lifts, finishing concrete, hot weather concreting, formwork design, methods of curing, strength of concrete, destructive and nondestructive testing of concrete	4	A6	B13	C9	D5
3	Durability, repair and maintenance of concrete. Employment of major construction equipment and estimation of their production.	4	A3, A6	B13	C9	D5

**Course Coordinator:** Dr. Abdo EL Naqib

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Construction Contracting

(CIE 514)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Construction Contracting
<b>Course Code</b>	CIE 514
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
6	Demonstrate knowledge of contemporary engineering issues by displaying professional and ethical responsibilities; and contextual understanding related to construction contracting.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A10	Write technical report.
A15	Recognize the main topics in construction management specially planning bidding and contracts.

#### B. Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
B8	Incorporate economic, societal, and environmental and risk management dimensions in design.





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### C. Professional Skills:

No.	Professional Skills
C10	Apply quality assurance procedures and follow codes and standards.

### D. General Skills:

No.	General Skills
D7	Search for information.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Construction contracting for contracts, architects and owners	2	2	-
2	Organization and administration industry structure	2	2	-
3	Construction contracts, bonds and insurance	2	2	-
4	Planning, estimating and control	2	2	-
5	Quality take off and pricing labor and equipment estimates	6	6	-
6	Estimating excavation and concrete	6	6	-
7	Proposal Preparation	4	4	-
8	Scheduling and cost control	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A10, A15, B7, B8
2	Semester work	C10, D7
3	Final term examination	A10, A15, B7, B8, C10

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Using and understanding engineering service and constructing john R.clark / 1986

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Construction contracting for contracts, architects and owners	6	A10	B8	C10	D7
2	Organization and administration industry structure	6	-	B7	-	-
3	Construction contracts, bonds and insurance	6	A10, A15	B7, B8	C10	D7
4	Planning, estimating and control	6	A10	B8	-	D7
5	Quality take off and pricing labor and equipment estimates	6	A10	B7	C10	D7
6	Estimating excavation and concrete	6	A15		C10	-
7	Proposal Preparation	6	-	B8	C10	D7
8	Scheduling and cost control	6	A15	B7	C10	D7

**Course Coordinator:** Dr / Ayman Helal

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Cost Analysis for Structure projects

(CIE 515)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Cost Analysis for Structure projects
<b>Course Code</b>	CIE 515
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and for analyzing cost.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A15	Recognize the main topics in construction management specially cost analyzing.

#### B. Intellectual Skills:

No.	Intellectual Skills
B3	Exchange different ideas, views, and knowledge from a range of sources to evaluate the characteristics and performance of components, systems and processes.
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact



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### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C17	Prepare quantity surveying reports

### D. General Skills:

No.	General Skills
D3	Communicate effectively

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Direct costs	2	2	-
2	indirect costs	2	2	-
3	collective systems	4	4	-
4	comparisons between projects	6	6	-
5	fundamentals of cost analysis for wood , steel and concrete buildings	6	6	-
6	preparing project and report writing	6	6	-
7	case study	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A15, B3, B7, C17
2	Semester work	C6, D3
3	Final-term examination	A15, B3, B7, C17

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Using and understanding engineering service and constructing john R.clark / 1986

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Direct costs	4	A15	B3	C6	D3
2	indirect costs	4	A15	B3	C6	D3
3	collective systems	4	-	B7	C6	D3
4	comparisons between projects	4	A15	B3, B7	C6	D3
5	fundamentals of cost analysis for wood , steel and concrete buildings	4	A15	B7	C6	-
6	preparing project and report writing	4	A15	B3	C6	D3
7	case study	4	A15	B3, B7	C6,C17	D3

**Course Coordinator:** Dr / Ayman Helal

**Head of Department:** ASS. Prof. / khaled fawzy

**Date of Approval:** 2018



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## Design of Earthquake Structures

(CIE 516)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Design of Earthquake Structures
<b>Course Code</b>	CIE 516
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in Designing earthquake structures.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of reinforced concrete and metallic structures to geo-technical and foundations
A14	Define the different structural and mechanical properties of building materials

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and computational methods for system modeling and analysis.

#### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and services.





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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Causes of earthquakes	2	2	-
2	Seismic waves, scales of earthquakes	4	4	-
3	Equation of motion for single degree of freedom and multi-degree of freedom systems	4	4	-
4	Structural behavior under random forces	4	4	-
5	Spectral analysis depending on soil conditions	4	4	-
6	Modal analysis for multi strong buildings	4	4	-
7	Design principles for earthquake structures according to the Egyptian code	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, A14, B1
2	Semester work	C2, D2
3	Final Term Examination	A13, A14, B1, C2

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Course notes:</b> Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,...etc.
2	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"><li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li><li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li></ul>
3	<b>Recommended books:</b> <ul style="list-style-type: none"><li>• Chu-Kia Wang and Charles G. Salmon, "Reinforced Concrete Design," 4th Edition, Harper and Row Publishers, New York, 1985.</li></ul>



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Causes of earthquakes	4	A13	-	C2	D2
2	Seismic waves, scales of earthquakes	4	A14	B1	-	D2
3	Equation of motion for single degree of freedom and multi-degree of freedom systems	4	-	B1	C2	-
4	Structural behavior under random forces	4	A13, A14	-	C2	-
5	Spectral analysis depending on soil conditions	4	A14	B1	-	D2
6	Modal analysis for multi strong buildings	4	-	B1	C2	-
7	Design principles for earthquake structures according to the Egyptian code	4	A13	B1	C2	D2

**Course Coordinator:** ASS. Prof. dr / khaled fawzy

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Design of Marine Platforms

(CIE 517)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Design of Marine Platforms
<b>Course Code</b>	CIE 517
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science, engineering concepts, and construct structures to solve fundamental engineering problems for design harbors and marine structures.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of marine structures
A14	Define the different structural and mechanical properties of building materials.

#### B. Intellectual Skills:

No.	Intellectual Skills
B8	Incorporate economic, societal, environmental dimensions, and risk management in designing marines.
B12	Select appropriate design processes for marine platforms

#### C. Professional Skills:

No.	Professional Skills
C3	Re-design a process, component or system to carry out specialized marines designs



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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Marine platform ( definition – types)	6	4	-
2	Loads affecting the marine platforms – tide and wind forces	6	6	
2	loads affecting the marine platforms	6	4	-
3	design of fixed marine platforms	8	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, A14, B8,B12
2	Semester work	C3, D2
3	Final Term Examination	A13, A14, B8, B12



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Carl A. Thoresen, port Designers Handbook Third edition, 2014
2	Gregory Tsinker, Handbook of port and Harbor Engineering: Geotechnical and structural and structural Aspects, 2014.
3	الكود المصرى للموارد المائية وأعمال الري المجلد السابع الطبعة الأولى 2003

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Marine platform ( definition – types)	1	A13, A14	B8, B12	C3	D3
2	Loads affecting the marine platforms – tide and wind forces	1	A13	B8	C3	D3
3	loads affecting the marine platforms	1	A14	B8	C3	D3
4	design of fixed marine platforms	1	A14	B8, B12	C3	D3

**Course Coordinator:** Dr/ Samer ELabd

**Head of Department:** Ass. Prof/ Khaled fawzy

**Date of Approval:** 2018



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## Design of shell structures

(CIE 519)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Design of shell structures
<b>Course Code</b>	CIE 519
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
2	Design a system for components, process, constraints, construct, and protect all types of shell structures.
6	Demonstrate knowledge of contemporary shell structure issues by displaying professional and ethical responsibilities

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A4	State the principles of system design elements design, process and/or the including elements and processes. System related to disciplines.
A12	Define contemporary topics related to shell structures

#### B. Intellectual Skills:

No.	Intellectual Skills
B10	Create systematic and methodic approaches when dealing with shell structures
B13	Select codes of practices in designing reinforced engineering concrete and shell structures to determine the levels, types, and design systems of building foundations.





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### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and/or services for all types of structures.
C11	Carry out maintenance of Shell structures.

### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	forces and stresses affecting the shell structures	8	8	-
2	analysis of shell structures	10	10	-
3	design of shell structures	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A4, A12, B13
2	Semester work	C2, C11, D9
3	Final Term Examination	A4, A12, B13, C11

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Recommended books:</b> <ul style="list-style-type: none"><li>• Theory and design of concrete shells by Dr. BBINOY KUMARI CHATTERIEE.</li><li>• Reinforced concrete designers hand book by CHARL - REYNOLDS</li><li>• "Fundamentals of reinforced concrete structures" by Dr. S. HILLAL</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	forces and stresses affecting the shell structures	2,6	A4	B13	C2, C11	D9
2	analysis of shell structures	2,6	A4	B13	C2	D9
3	design of shell structures	2,6	A4,A12	B10,B13	C11	-

**Course Coordinator:** ASS. Prof / khaled fawzy

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Engineering Project Evaluation

### CIE 520

#### 1. Basic Information:

<b>Program Title</b>	Civil Engineering program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Engineering Project Evaluation
<b>Course Code</b>	CIE 520
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

#### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and project evaluation.

#### 3. Intended Learning Outcomes (ILO'S):

##### A. Knowledge and understanding:

No.	Knowledge and understanding
A7	Recognize business and management principles relevant to project evaluation.

##### B. Intellectual Skills:

No.	Intellectual Skills
B9	Analyze results of numerical models and judge their limitations

##### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs
C10	Prepare technical drafts, quantity surveying reports.
C17	Prepare quantity surveying reports



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#### D.General Skills:

No.	General Skills
D3	Communicate effectively

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Fundamentals of project appraisal and feasibility study; Planning of civil engineering projects	10	10	-
2	Economic analysis of civil engineering projects	8	8	-
3	Introduction to environmental impact assessment and social impact assessment; Case studies on civil engineering project appraisal.	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



وحدة ضمان الجودة



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المعهد العالي للهندسة والتكنولوجيا  
بدمياط الجديدة

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A7, B9
2	Semester work	C6, C10, C17, D3
3	Final term examination	A7, B9

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"><li>• د. عبد السلام زيدان . المقرر العلمي لماده اداره المشروعات , المعهد العالي للتنمية الاداريه 2015.</li><li>• د. سليمان خليل الفارس واخرون , اداره الموارد البشريه " الافراد " - جامعه دمشق 2005-2006</li><li>• اسامه قاضي . اساسيات اداره المشروعات</li></ul> الدليل المعرفي لاداره المشروعات - الطبعة الخامسة وكتاب ملحق مشروعات التشييد الطبعة الثانيه

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Fundamentals of project appraisal and feasibility study; Planning of civil engineering projects	4	A7	B9	C6, C10, C17	D3
2	Economic analysis of civil engineering projects	4	A7	B9	C6, C10	D3
3	Introduction to environmental impact assessment and social impact assessment; Case studies on civil engineering project appraisal.	4	A7	B9	C6, C10	-

**Course Coordinator:** dr / Hamdy abdL- aty

**Head of Department** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Environmental Pollution Control

(CIE 521)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Environmental Pollution Control
<b>Course Code</b>	CIE 521
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
3	Conduct experiments to analyze and interpret the selected data

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A5	Recognize methodologies of solving engineering problems, data collection problems and interpretation
A6	Identify quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.

#### B. Intellectual Skills:

No.	Intellectual Skills
B11	Design adequate wastewater treatment plant, sewerage systems, pumping stations, and quality factors for environmental control.
B15	Assess the used techniques and strategies adopted in the solving current engineering problems.





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### C. Professional Skills:

No.	Professional Skills
C3	Re-design a process, component or system to carry out specialized engineering designs

### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to soil, water, air and radiation pollution and sewerage system design	4	4	-
2	Sewerage pump station design	4	4	-
3	Wastewater treatment plant design ( Primary treatment, deceleration tank, screen, approach channel, grit removal chamber, design of proportional weir, and primary sedimentation tank )	12	12	-
4	Wastewater treatment plant ( secondary treatment )	4	4	-
5	Introduction to environmental control and assessment of environmental impact. Case studies	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student Evaluation:

### 7.1 Student Evaluation Method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A5, A6, B15
2	Semester work	C3, D6
3	Final Term Examination	A5, A6, B11, B15

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 Weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	1- الكود المصري لأسس تصميم وتنفيذ محطات تنقية مياه الشرب والصرف الصحي ومحطات الرفع – قرار وزاري رقم 169 لسنة 1997- الطبعة الثالثة 2004. 2-الهندسة الصحية ، محمد على فرج . استاذ الهندسة الصحية جامعة الإسكندرية, 1990. 3- R.F. Craig (1974) Craig's Soil Mechanics, Formerly Department of Civil Engineering, University of Dundee UK. 4-U.S. Environmental Protection Agency (1988), "Constructed Wetlands and Aquatic Plant Systems for Municipal Wastewater Treatment", Center for Environmental Research Information, Cincinnati, OH.



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## 9. Facilities Required For Teaching And Learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system

## 10. Matrix of Knowledge and Skills of the Course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to soil, water, air and radiation pollution and sewerage system design	3	A5,A6	-	-	D6
2	Sewerage pump station design	3	A5, A6	-	-	D6
3	Wastewater treatment plant design ( Primary treatment, deceleration tank, screen, approach channel, grit removal chamber, design of proportional weir, and primary sedimentation tank )	3	A5, A6	B11, B15	C3	-
4	Wastewater treatment plant ( secondary treatment )	3	A6	B11, B15	C3	-

**Course Coordinator:** Dr/ Mohamed Zakaria EL-Shekhaby

**Head of Department:** ASS. Prof / Khaled Fawzy

**Date of Approval:** 2018



وحدة ضمان الجودة



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## Fiber Reinforced Cement Composites (CIE 522)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Fiber Reinforced Cement Composites
<b>Course Code</b>	CIE 522
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in fiber cement composites.

### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of reinforced concrete and foundations
A14	Define the different structural and mechanical properties of building materials

### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and computational methods for analysis.

### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and/or services.

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.



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#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Fiber-reinforcement of cement-based matrices, continuous and discontinuous fibers, and meshes.	4	4	-
2	Fiber-reinforced concrete and Ferro-cement	4	4	-
3	Laminated cementations composites	2	2	-
4	Behavior and mechanical properties. Mechanics of fiber reinforcement	6	6	-
5	Constitutive models. High-strength, high-performance fiber composites.	4	4	-
6	Hybrid and smart composites	4	4	-
7	Lectures, projects and laboratory	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A13, A14, B1
2	Semester work	C2, D2
3	Final term examination	A13, A14, B1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	High performance fiber reinforced cement composite / 2012 / gustavoj.puraa

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Fiber-reinforcement of cement-based matrices, continuous and discontinuous fibers, and meshes.	4	A13	B1	C2	D2
2	Fiber-reinforced concrete and Ferro-cement	4	A13	-	C2	D2
3	Laminated cementations composites	4	A14	B1	-	-
4	Behavior and mechanical properties. Mechanics of fiber reinforcement	4	A13, A14	B1	C2	-
5	Constitutive models. High-strength, high-performance fiber composites..	4	A14	-	C2	D2
6	Hybrid and smart composites	4	-	B1	-	D2
7	Lectures, projects and laboratory	4	A14	-	C2	D2

**Course Coordinator:** ASS. Prof. dr / khaled fawzy

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Ground Water Hydraulics

(CIE 523)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Ground water hydraulics
<b>Course Code</b>	CIE 523
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
1	Apply knowledge of mathematics, science, and engineering concepts to solve groundwater problems.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for groundwater problems analysis.

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively and analytically to select the appropriate solutions for groundwater problems.
B12	Select appropriate design processes for ground water hydraulics

#### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology, design, and engineering practice to solve groundwater problems





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#### D. General Skills:

No.	General Skills
D3	Communicate effectively

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction – groundwater- types of aquifers	2	2	-
2	Mechanics of flow through porous media	4	4	-
3	Darcy's law – application – direct of ground water flow	4	4	-
4	Case studies ( Seepage through dam – seepage through confined aquifer – seepage under a dike )	2	2	-
5	Steady and unsteady flow to wells – fully and partially penetrating of wells	4	4	-
6	Saltwater intrusion ( potential flow theory – boundary effects – theory of images – numerical methods – analytical methods )	8	8	-
7	Practical aspects of well design	2	2	-
8	Drilling and testing	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, B2,B12
2	Semester work	C1,D3
3	Final Term Examination	A1, B2,B12

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	El-Ghandour, H.A., (2005). "Analysis and Optimization of Salt Water Intrusion in Coastal Aquifers". M.Sc. Thesis, Irrigation and Hydraulics Dept., Faculty of Engineering, El-Mansoura University, P. 177.
2	Todd, D.K., Mays, L.W., (2005). "Groundwater Hydrology". Willy India
3	Viessman, JR.W., Lewis, G.L., and John, W.K., (1989). "Introduction to Hydrology". Harper & Row, Publishers, Inc. P. 780.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction – groundwater- types of aquifers	1	A1	B2	C1	-
2	Mechanics of flow through porous media	1	A1	B2	C1	D3
3	Darcy's law – application – direct of ground water flow	1	A1	B2,B12	C1	-
4	Case studies ( Seepage through dam – seepage through confined aquifer – seepage under a dike )	1	A1	B2, B12	C1	-.
5	Steady and unsteady flow to wells – fully and partially penetrating of wells	1	A1	B2	C1	-
6	Saltwater intrusion ( potential flow theory – boundary effects – theory of images – numerical methods – analytical methods )	1	A1	B2	C1	-
7	Practical aspects of well design	1	A1	B2	C1	-
8	Drilling and testing	1	A1	B2	C1	-

**Course Coordinator:** Assoc. Prof. Dr. / Hamdy El-Ghandour

**Head of Department:** Assoc. Prof. Dr. / khaled Fawzy

**Date of Approval:** 2018



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## Highway Materials and Construction

(CIE 524)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Highway Materials and Construction
<b>Course Code</b>	CIE 524
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
5	Consider the impacts of engineering solutions on society & environment to select appropriate building materials in highways from the perspective of strength, durability, suitability of use to location, temperature and weather conditions.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the material properties and their engineering materials related to the characteristics in engineering analysis.

#### B. Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.

#### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and/or services.
C16	Carry out maintenance of all types of roadways and traffic systems.
C18	Plan all types of roadways and traffic systems



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#### D.General Skills:

No.	General Skills
D9	Refer to relevant literatures.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Application of soil classification methods, material characterization, sub-grade and sub-base stabilization, material variability and quality control	12	12	-
2	pavement evaluation and rehabilitation, highway construction	16	16	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, B7
2	Semester work	C2, C16,C18, D9
3	Final Term Examination	A3, B7



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Huang, S. C., and Di Benedetto, H. (Eds.). (2015). Advances in asphalt materials: Road and pavement construction. Woodhead Publishing.
2	Papagiannakis, A. T., & Masad, E. A. (2018). Pavement design and materials. John Wiley & Sons.
3	Advanced structural materials, 2010

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Application of soil classification methods, material characterization, sub-grade and sub-base stabilization, material variability and quality control	5	A3	B7	C2	D9
2	pavement evaluation and rehabilitation, highway construction	5	A3	B7	C2, C16,C18	D9

**Course Coordinator:** Dr / Alaa Gabr

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Modern Structure Materials

(CIE 525)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Modern Structure Materials
<b>Course Code</b>	CIE 525
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques and skills in the course of modern structure materials.
6	Demonstrate knowledge of contemporary modern structure issues by displaying professional and ethical responsibilities

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the material properties and their engineering materials related to the characteristics in engineering analysis
A12	Define contemporary topics related to modern structure materials

#### B. Intellectual Skills:

No.	Intellectual Skills
B10	Create systematic and methodic approaches when dealing with modern structures
B14	Conduct suitable construction management techniques.





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### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and services

### D. General Skills:

No.	General Skills
D6	Effectively manage tasks, time, and resources

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	General introduction for the technological development of material science	8	8	-
2	general classification of the modern materials in the structure field – compound materials and their applications	8	8	-
3	carbon fibers and its use in structures – insulating materials – ant fire materials	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm Examination	A3, A12, B10,B14
2	Semester work	C2, D6
3	Final term examination	A3, A12, B10,B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"><li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li><li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li></ul>
2	Advanced structural materials, 2010



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	General introduction for the technological development of material science.	4,6	A3,A12	B10,B14	C2	D6
2	General classification of the modern materials in the structure field – compound materials and their applications.	4,6	A3, A12	-	C2	D6
3	Carbon fibers and its use in structures – insulating materials – artifice materials.	4,6	A3, A12	B10,B14	-	D6

**Course Coordinator:** Dr / Ayman Helal

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Hydraulics Engineering

(CIE 526)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Hydraulic engineering
<b>Course Code</b>	CIE 526
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
3	Design adequate water control structures, irrigation, water networks, and pumping stations.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding	
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis.	
A13	A13-1	Recognize the different engineering principles related to hydraulic engineering.
	A13-2	Construction of spillway and culvert.

#### B. Intellectual Skills:

No.	Intellectual Skills
B12	Select appropriate design processes for water control structures, irrigation and water networks, sewerage systems and pumping stations.



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### C. Professional Skills:

No.	Professional Skills
C3	Re-design a process, component or system to carry out specialized engineering designs of study and uniform flow cannel, varied and rapidly flows water.

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Governing equations ( Bernoulli and Continuity ) - Applications	4	4	-
2	Flow through orifices ( types – equations – time of filling and emptying tanks)	4	4	-
3	Flow over weirs ( types – equations )	4	4	-
4	Application of Momentum equation	2	2	-
5	Steady flow in pipe lines ( Basics ) – Hydraulic analysis of pipe line networks	10	10	-
6	Unsteady flow in pipeline networks	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments, each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, A13, B12
2	Semester work	C3, D2
3	Final Term Examination	A1, A13, B12

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"><li>Fluid mechanics through problems R.J GARDE, New AGE publishers- 2006</li><li>Flow in open channels K.. Subramanya. Tata Mcgraw hill education private limited, NEW DELHI 2011</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Governing equations ( Bernoulli and Continuity ) - Applications	1	A13	B12	C3	D2
2	Flow through orifices ( types – equations – time of filling and emptying tanks)	1	A13	B12	C3	D2
3	Flow over weirs ( types – equations )	1	A1	-	C3	D2
4	Application of Momentum equation	1	A13	-	C3	-
5	Steady flow in pipe lines ( Basics ) – Hydraulic analysis of pipe line networks	1	A1	B12	-	-
6	Unsteady flow in pipeline networks	1	A13	B12	C3	D2

**Course Coordinator:** Dr/ Abdo El naqib

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Pavement Design

(CIE 527)

### 1- Basic Information:

Program Title	Civil Engineering Program
Department Offering the Program	Civil Engineering Department
Department Responsible for the Course	Civil Engineering Department
Course Title	Pavement Design
Course Code	CIE 527
Year/Level	level 5
Specialization	Major
Authorization Date of Course Specification	-
Pre-request	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
2	Design a system for components, construct and protect all types of pavement design for different purposes.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the material properties and their engineering materials related to the characteristics in engineering analysis.
A4	State the principles of system design elements design and the including elements and processes.
A14	Define the different structural and mechanical properties of pavement structures

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and computational methods for system modeling and analysis.





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### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology, design, and engineering practice to solve engineering problems

### D. General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Characteristics of pavement loads.	4	4	-
2	Stress analysis in pavements.	4	4	-
3	Design practices, construction, rehabilitation and maintenance.	4	4	-
4	Optimization of the design of rigid and flexible pavements systems.	4	4	-
5	Empirical and mechanistic stochastic structural subsystems.	4	4	-
6	Utility theory, serviceability concept, cost studies, traffic delay, environmental deterioration, rehabilitation and maintenance optimization systems.	8	8	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A4, A14, B1
2	Semester work	C1, D1
3	Final Term Examination	A3, A4, A14, B1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Mid Term Examination	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Semester work	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Huang, S. C., and Di Benedetto, H. (Eds.). (2015). Advances in asphalt materials: Road and pavement construction. Woodhead Publishing.
2	Papagiannakis, A. T., & Masad, E. A. (2018). Pavement design and materials. John Wiley & Sons.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Characteristics of pavement loads.	2	A3,A4,A14	B1	C1	D1
2	Stress analysis in pavements.	2	A4	B1	-	D1
3	Design practices, construction, rehabilitation and maintenance.	2	A4,A14	-	C1	D1
4	Optimization of the design of rigid and flexible pavements systems.	2	A3,A14	B1	C1	-
5	Empirical and mechanistic stochastic structural subsystems.	2	A3, A4	B1	C1	D1
6	Utility theory, serviceability concept, cost studies, traffic delay, environmental deterioration, rehabilitation and maintenance optimization systems.	2	A4	-	C1	D1

**Course Coordinator:** Dr/ Alaa Gabr

**Head of Department:** Ass. Prof / khaled fawzy

**Date of Approval:** 2018



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## Planning of buildings maintenance and Protection

(CIE 529)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Planning of buildings maintenance and Protection
<b>Course Code</b>	CIE 529
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
5	Consider the impacts of engineering solutions to select appropriate prepare building materials from the perspective of strength, durability.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the engineering materials related to the characteristics in maintenance.
A6	Identify quality assurance system, codes of practice to maintain the safety of the building

#### B. Intellectual Skills:

No.	Intellectual Skills
B2	Think creatively and analytically to select the appropriate solutions for engineering problems and system design.
B4	Investigate the failure of structural components, systems, and processes.



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### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and services.
C18	Plan all types of roadways and traffic systems

### D. General Skills:

No.	General Skills
D7	Search for information.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Review on of deterioration of building materials	4	4	-
2	Concept of life cycle cost- Protection methods against deterioration and corrosion of building materials	8	8	-
3	Types of defects and damages. Non-destructive tests	6	6	-
4	Partially destructive tests. Load tests. Materials for repair and selection. Methods and techniques of repair. Rehabilitation and retrofitting.	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A6, B2, B4,C18
2	Semester work	C2, D7
3	Final Term Examination	A3, A6, B2, B4,C18

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Course notes:</b> Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,... etc.
2	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"> <li>Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li> </ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Review on of deterioration of building materials	5	A3	B2	C2	-
2	Concept of life cycle cost- Protection methods against deterioration and corrosion of building materials	5	A3	B2, B4	-	D7
3	Types of defects and damages. Non-destructive tests	5	-	B4	C2	D7
4	Partially destructive tests. Load tests. Materials for repair and selection. Methods and techniques of repair. Rehabilitation and retrofitting.	5	A3,A6	B2	C2,C18	D7

**Course Coordinator:** dr / Abdo EL-Naqib

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Pre-Fabricated Concrete Frames

(CIE 530)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Pre-Fabricated Concrete Frames
<b>Course Code</b>	CIE 530
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
3	Interpret data to design different elements for concrete structure
6	Demonstrate knowledge of contemporary shell structure issues by displaying professional and ethical responsibilities

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the engineering materials related to the characteristics in concrete analysis
A12	Define contemporary topics related to pre-fabricated concrete
A14	Define the different structural and mechanical properties of building materials

#### B. Intellectual Skills:

No.	Intellectual Skills
B10	Create systematic and methodic approaches when dealing with shell structures
B13	Select codes of practices in designing reinforced engineering concrete and metallic structures.





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### C. Professional Skills:

No.	Professional Skills
C9	Analyze data in laboratory and in the field.

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Performance of prefabricated concrete	4	4	-
2	Design of concrete supported to shear stress	4	4	-
3	Design of columns	4	4	-
4	Design of roofs	4	4	-
5	Design of building frames	4	4	-
6	Design projects using the computer	4	4	-
7	Detailed reports	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A12, A14, B10, B13
2	Semester work	C9, D2
3	Final Term Examination	A3, A12, A14, B10, B13

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<b>Essential books (text books / design codes):</b> <ul style="list-style-type: none"><li>• Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li><li>• Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001.</li></ul>
2	<b>Recommended books:</b> <ul style="list-style-type: none"><li>• MacGregor J., "Reinforced Concrete: Mechanics and Design," Printice Hall, New Jersey, 1988.</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom



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2	seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Performance of prefabricated concrete	3,6	A3, A12,A14	B10, B13	C9	D2
2	Design of concrete supported to shear stress	3,6	A12,A14	B10, B13	C9	D2
3	Design of columns	3,6	A12,A14	B10, B13	C9	D2
4	Design of roofs	3,6	A12,A3	B10, B13	C9	D2
5	Design of building frames	3,6	A3, A12,A14	B10, B13	C9	D2
6	Design projects using the computer	3,6	A3, A12,A14	B10, B13	C9	D2
7	Detailed reports	3,6	A3, A12,A14	B10, B13	C9	D2

**Course Coordinator:** Prof. dr / khaled fawzy

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Project Decision Analysis

(CIE 531)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Project Decision Analysis
<b>Course Code</b>	CIE 531
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and all civil engineering disciplines
7	Engage in self- and life- long learning.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A11	Identify professional ethics and impacts engineering solutions on society and environment.
A15	Recognize the main topics in construction management specially planning, bidding, finance, and contracts

#### B. Intellectual Skills:

No.	Intellectual Skills
B3	Combine different ideas, views, and knowledge from a range of sources to evaluate the characteristics and performance of components
B14	Conduct suitable construction management techniques
B15	Assess the used techniques and strategies adopted in the solving current engineering problems.



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### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C12	Prepare technical reports
C13	Use laboratory and field equipment competently
C15	Practice professionally construction management skills. Prepare technical drafts and detailed drawings both manually and using CAD

### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Quantitative methods of decision-making	8	8	-
2	Important mathematical models useful in decision processes	8	8	-
3	Model-structure assumptions, limitations and methods for use	6	6	-
4	Concepts and models of support systems for management decision problems	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A11, B3, B14
2	Semester work	C6, D9, B15, C12, C13, C15
3	Final Term Examination	A15, B3, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"><li>د عبد السلام زيدان . المقرر العلمي لماده اداره المشروعات , المعهد العالي للتنمية الاداريه 2015</li><li>د. سليمان خليل الفارس واخرون , اداره الموارد البشريه " الافراد " - جامعه دمشق 2005-2006</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Quantitative methods of decision-making	4,7	A15	B3,B15	C6,C12	D9
2	Important mathematical models useful in decision processes	4	A11	B14,B15	C6,C13	-
3	Model-structure assumptions, limitations and methods for use	4,7	A15	B3, B14	C6,C13	D9
4	Concepts and models of support systems for management decision problems	4,7	A15	B3	C6,C15	D9

**Course Coordinator:** dr / Hamdy ABd- Aty

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Project financial Management

(CIE 532)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Project financial Management
<b>Course Code</b>	CIE 532
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management and all civil engineering disciplines.
7	Engage in self- and life- long learning.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A9	Identify humanitarian topics of interest and moral issues.
A15	Recognize the main topics in construction management specially planning bidding and contracts

#### B. Intellectual Skills:

No.	Intellectual Skills
B3	Combine different ideas, views, and knowledge from a range of sources to evaluate the characteristics and performance of components, systems and processes
B10	Create systematic and methodic approaches when dealing with new and advancing technology.





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### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C10	Practice professionally construction management skills.
C16	Troubleshoot almost all types of electronic systems using the standard tools.
C17	Identify appropriate specifications for required devices.

### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Cash flow and its analysis -project budget - project financial methods	10	10	-
2	Risk and cost control.	8	8	-
3	Financial path for project - time value - profit rate - inflation effects.	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A15, B3
2	Semester work	C6, C10, D9, A9, B10, C16, C17
3	Final Term Examination	A15, B3

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"><li>• د عبد السلام زيدان . المقرر العلمي لماده اداره المشروعات , المعهد العالي للتتميه الاداريه 2015.</li><li>• د. سليمان خليل الفارس واخرون , اداره الموارد البشريه " الافراد " - جامعه دمشق 2005-2006</li><li>• اسامه قاضي . اساسيات اداره المشروعات</li></ul> الدليل المعرفي لاداره المشروعات – الطبعة الخامسة وكتاب ملحق مشروعات التشييد الطبعة الثانيه

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Cash flow and its analysis - project budget - project financial methods	4,7	A15	B3,B10	C6,C16	D9
2	Risk and cost control.	4,7	A15	B3	C10,C17	D9
3	Financial path for project - time value - profit rate - inflation effects.	4	A15, A9	B3,B10	C6, C10	-

**Course Coordinator:** Dr / Hamdy Abd- Aty

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



وحدة ضمان الجودة



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## Project Management 2

(CIE 533)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Project Management 2
<b>Course Code</b>	CIE 533
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects management.
7	Engage in self- and life- long learning.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A11	Identify professional ethics and impacts engineering solutions on society and environment.
A15	Recognize the main topics in construction management specially planning, bidding, finance, and contracts.

#### B. Intellectual Skills:

No.	Intellectual Skills
B9	Analyze results of numerical models and judge their limitations
B14	Conduct suitable construction management techniques
B15	Assess the used techniques and strategies adopted in the solving current engineering problems.



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### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C12	Prepare and present technical reports.
C14	Use laboratory and field equipment competently
C15	Practice professionally construction management skills. Prepare technical drafts and detailed drawings both manually and using CAD

### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Evaluation and performance development for construction projects	4	4	-
2	Productivity in construction works	4	4	-
3	The efficient utilization of project resources	4	4	-
4	Construction economies	4	4	-
5	Tenders strategies	6	6	-
6	Different field application	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A15,B9
2	Semester work	C6, D9, A11, B15, C12, C14,C15
3	Final Term Examination	A15, B9, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"><li>• د0 عبد السلام زيدان . المقرر العلمي لماده اداره المشروعات , المعهد العالي للتنمية الاداريه 2015</li><li>• د. سليمان خليل الفارس واخرون , اداره الموارد البشريه " الافراد "- جامعه دمشق 2005-2006</li></ul>

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Evaluation and performance development for construction projects	4,7	A15, A11	B9,B15	C6,C12	D9
2	Productivity in construction works	4	A15	B9, B14	C6,C14	D9
3	The efficient utilization of project resources	4,7	A15	B14,B15	C6,C14	D9
4	Construction economies	4	A15, A11	B14	C6,C15	D9
5	Tenders strategies	7	A15	B9	C6,C12	-
6	Different field application	4	A15	B9, B14	C6	D9

**Course Coordinator:** Dr / Hamdy Abd- Aty

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Project Visibility Study (CIE 534)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Project Visibility Study
<b>Course Code</b>	CIE 534
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in projects visibility study.
8	Act professionally in design and supervision of civil engineering disciplines

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A6	Identify quality assurance systems, codes of practice during the visibility study stage
A9	Identify humanitarian topics of interest and moral issues.
A15	Recognize the main topics in construction management specially planning, bidding, finance, and contracts

#### B. Intellectual Skills:

No.	Intellectual Skills
B9	Analyze results of numerical models.
B12	Select appropriate design processes for water control structures, irrigation and water networks, sewerage systems and pumping stations.
B14	Conduct suitable construction management techniques.





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### C. Professional Skills:

No.	Professional Skills
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C13	Use laboratory and field equipment competently
C15	Practice professionally construction management skills. Prepare technical drafts and detailed drawings both manually and using CAD
C17	Identify appropriate specifications for required devices.

### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	The importance of visibility study for the projects	6	6	-
2	the definition of the visibility study and the historical development for it	6	6	-
3	the project essence and its principles and forms – initial visibility studies and its elements - environmental visibility studies - important financial sides in visibility study - the important monetary sides in visibility study - the important marketing sides - the exhibition of the products and the effective parameters in it - the pricing policies	8	8	-
4	the situation of the government, the consumer and the competitive projects - the engineering and technical visibility for the project	4	4	-
5	study of the social visibility – evaluation methods of the visibility study	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources



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4	Research assignment
5	Case studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A6, A15, B9, B14
2	Semester work	C6, D9, A9, B12, C13, C15, C17
3	Final Term Examination	A6, A15, B9, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> - 7 <sup>th</sup> - 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	<ul style="list-style-type: none"> <li>• د0 عبد السلام زيدان . المقرر العلمي لماده اداره المشروعات , المعهد العالي للتتميه الاداريه 2015 .</li> <li>• د. سليمان خليل الفارس واخرون , اداره الموارد البشريه " الافراد " - جامعه دمشق 2005-2006</li> </ul>



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

N o.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	The importance of visibility study for the projects	4	A6,A15	B9, B14	C6,C13	D9
2	Definition of the visibility study and the historical development for it	4,8	A6,A15	B9, B14	C6,C15	D9
3	project essence and its principles and forms – initial visibility studies and its elements - environmental visibility studies - important financial sides in visibility study - the important monetary sides in visibility study - the important marketing sides - the exhibition of the products and the effective parameters in it - the pricing policies	4	A15, A9	B14,B12	C6,C15	-
4	situation of the government, the consumer and the competitive projects - the engineering and technical visibility for the project	4,8	A15	B9,B12	C6,C17	D9
5	study of the social visibility – evaluation methods of the visibility study	4,8	A15, A9	B14	C6	D9

**Course Coordinator:** Dr / Hamdy Abd- Aty

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



وحدة ضمان الجودة



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## River engineering

(CIE 535)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	River engineering
<b>Course Code</b>	CIE 535
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
3	Interpret data about rivers classifications and its flow measures to design adequate water control structures, and pumping stations.
8	Act professionally in design and supervision of civil engineering disciplines.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A11	Identify professional ethics and impacts engineering solutions on society and environment.
A13	Investigate the river engineering properties to recognize the different engineering principles related to the design of river water structures projects.

#### B. Intellectual Skills:

No.	Intellectual Skills
B10	Create systematic and methodic approaches when dealing with new and advancing technology.
B11	Study rivers classifications and its flow measurement.
B12	Select appropriate design processes for water control structures.



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### C. Professional Skills:

No.	Professional Skills
C11	Carry out maintenance of control structures
C12	Prepare technical reports.
C14	Use laboratory and field equipment competently
C18	Use appropriate tools to measure system performance.

### D. General Skills:

No.	General Skills
D9	Refer to relevant literatures

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Classifications of rivers, data collection method; velocity and flow rate measurements.	6	6	-
2	Design of hydraulic structures: dike, spillway, dam	14	14	-
3	Countermeasure on sediment control; corrosion deposition scour	8	8	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B10, B12
2	Semester work	C11, D9, A11, C12, C14, C18
3	Final Term Examination	A13, B11, B12

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> -7 <sup>th</sup> - 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	EBEED, G.s. "Lecture Notes on Design of irrigation Structures" Ain shams University, faculty of Engineering, 2014.
2	ASWA G.L., "irrigation and water Resources Engineering", New international (p) limited, publishers, Ansari Road Daryagauj, New Delhi,2005.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Classifications of rivers, data collection method; velocity and flow rate measurements.	3,8	A13	B11,B10	C11	-
2	Design of hydraulic structures: dike, spillway, dam, gate, pumping stations, sheet pile.	3	A13	B12	C12	D9
3	Countermeasure on sediment control; corrosion deposition scour, bill of quantity	3,8	A13	B11, B12	C11,C18	-
4	Cost estimation, operation and maintenance.	3	A13, A11	B12,B10	C11,C14	D9

**Course Coordinator:** Dr/ Mohamed gabr

**Head of Department:** ASS. Prof / Khaled fawzy

**Date of Approval:** 2018



وحدة ضمان الجودة



وزارة التعليم العالي  
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## Traffic Control Systems

(CIE 538)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Traffic Control Systems
<b>Course Code</b>	CIE 538
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
5	Select appropriate building materials from the perspective of strength, durability, suitability of use to location, temperature, weather conditions and impacts of water and environment on traffic control Engineering.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Outline the fundamental concepts, data presentation and computer-based methods appropriate for the traffic and transportation engineering discipline.
A4	State the principles of design including elements design, process and systems related to the traffic and transportation engineering.

#### B. Intellectual Skills:

No.	Intellectual Skills
B5	Solve problems applied to the highway and airport engineering based on limited and possibly contradicting information.

#### C. Professional Skills:

No.	Professional Skills
C2	Apply professionally the highway and airport engineering fundamentals and feedback to improve the design, products and services of the traffic and transportation





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	engineering.
C16	Carry out maintenance of all types of roadways and traffic systems
C18	Plan all types of roadways and traffic systems

#### D.General Skills:

No.	General Skills
D3	Communicate effectively with multidisciplinary teams for projects related to traffic and transportation engineering

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic-responsive control concepts	8	8	-
2	Control concepts and methods for signal intersections, arterial systems and area traffic networks.	10	10	-
3	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections, arterial, and networks.	10	10	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, A4
2	Semester work	C2,C16,C18,D3
3	Final Term Examination	A1, A4, B5

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Mid Term Examination	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Semester work	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Essential books (text books): - Transportation Engineering, an Introduction, C. Jotin Khisty, Prentice Hall, Englewood Cliffs, New Jersey, 1990. - Traffic Engineering, William R. McShane, Prentice Hall, Englewood Cliffs, New Jersey, 1990.
2	Recommended books: Ott, Introduction to Statistical Methods and Data Analysis, PWS-Kent, 1990.
3	Control of traffic systems in buildings, 2006 sandro marken



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### 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic-responsive control concepts	5	A1,A4	B5	C2,C16,C18	D3
2	Control concepts and methods for signal intersections, arterial systems and area traffic networks.	5	A1	B5	-	D3
3	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections , arterial, and networks.	5	A1,A4	B5	C2,C16,C18	-

**Course Coordinator:** Dr/ Alaa Gabr

**Head of Department:** Ass. Prof / khaled fawzy

**Date of Approval:**2018



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## Reinforced Concrete (4)

(CIE 539)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Reinforced Concrete (4)
<b>Course Code</b>	CIE 539
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
3	Design by using elastic theory and practical methods for analysis and design water structure system

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of reinforced concrete water structure.

#### B. Intellectual Skills:

No.	Intellectual Skills
B13	Select codes of practices in designing reinforced engineering concrete
B14	Conduct suitable construction management techniques different water structures

#### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design



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#### D.General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction	2	2	-
2	Design of un-cracked sections	6	6	-
3	Design of rectangular tanks	6	6	-
4	Design of Circular tanks	6	6	-
5	Design of elevated tanks	8	8	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A13, B13, B14



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2	Semester work	C2, D2
3	Final Term Examination	A13, B13, B14

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	EL-Metwally, S.E., and Hosny, H.M.H., "Design Fundamental of Structure Concrete." 1977 Ministry of Housing. Utilities and Urban Communities, "Egyptian Code for Design and Construction of Reinforced Concrete Structures (ECCS203-2001)." Cairo 2001.
2	Cairo. 1991. EL-Behairy, S., "Reinforced Concrete Design Hand Book, "Fifth Edition, Cairo 1998. Gouda M. A., Helmy, M., and Korshe, I., "Basic Design of Reinforced Concrete Structures. "Alexandria. 1972.

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	Seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction	3	-	B13	-	D2
2	Design of un-cracked sections	3	A13	B13, B14	C2	
3	Design of rectangular tanks	3	A13	B14	C2	D2
4	Design of Circular tanks	3	A13	B13, B14	C2	D2
5	Design of swimming pools	3	A13	B14	C2	D2

**Course Coordinator:** ASS. Prof. dr / khaled fawzy

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018



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## Tunneling and underground Excavation

(CIE 540)

### 1-Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Tunneling and underground Excavation
<b>Course Code</b>	CIE 540
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2-Course Aims:

No.	Aims
2	Design a system for components, process, constraints, construct to protect all types of excavations and tunneling systems for different purposes.
8	Act professionally in design and supervision of civil engineering disciplines

### 3-Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A2	Identify the basics of tunneling excavations of information
A12	Define contemporary topics related to tunneling and underground excavations

#### B. Intellectual Skills:

No.	Intellectual Skills
B12	Select appropriate design processes for water control structures, irrigation and water networks, sewerage systems and tunneling.
B13	Analyze codes of practices in designing reinforced engineering concrete and metallic structures of all types.





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### C. Professional Skills:

No.	Professional Skills
C2	Merge engineering knowledge and understanding to improve design, products and/or services to improve design of tunnels
C11	Carry out maintenance of all types of tunnels.
C13	Use laboratory and field equipment competently
C17	Identify appropriate specifications for required devices.

### D. General Skills:

No.	General Skills
D3	Communicate effectively

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to tunnels	2	2	-
2	numerical methods in tunnel constructions	4	4	-
3	Computer software packages and its applications in tunnels.	4	4	-
4	Tunneling and excavations in hard rock	4	4	-
5	Basic rock mechanics, shape, size and orientation of an opening, elastic deformation and the Kirsch solution, rock mass classification, support design and ground reaction curve, drill and blast method, NATM tunneling method. Tunneling in soft ground	4	4	-
6	problems of urban tunneling, deformation and surface settlement, load on liners, face stability, methods of soft ground tunneling including EPB and slurry shield methods	4	4	-
7	Selection of methods of attack for excavation of tunnels and deep vertical sided openings. Tunneling procedures based on behavioral characteristics of soil and rock , study of tunnel boring machines, shielded and drill-and-blast operations, linings, soil linear interaction. Deep excavation procedures related to support of excavation systems, methods of installation and dewatering	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A2, A12, B13
2	Semester work	C2, C11, D3, B12, C13, C17
3	Final term examination	A2, A12, B13

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Mid Term examination	8 <sup>th</sup>
2	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>



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## 8. List of References:

No.	Reference List
1	Design and construction of tunnels, Pietro Lanaridi, 2010
2	Tunneling and tunnel mechanics, Dimitrios Kolymbas 2005

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Introduction to tunnels	2,8	A2	B13	C2,C13	D3
2	numerical methods in tunnel constructions	2,8	A2	B13,B12	C2, C11	D3
3	Computer software packages and its applications in tunnels.	2,8	A2	B13	C2, C11	D3
4	Tunneling and excavations in hard rock	2	A2,A12	B13	C11,C17	D3
5	basic rock mechanics, shape, size and orientation of an opening, elastic deformation and the Kirsch solution, rockmass classification, support design and ground reaction curve, drill and blast method, NATM tunneling method. Tunneling in soft ground.	2	A2,A12	B13,B12	C2, C11	D3



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No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
6	load on liners, face stability, problems of urban tunneling, deformation and surface settlement methods of soft ground tunneling including EPB and slurry shield methods	2	A2	B13	C2, C11	D3
7	Selection of methods of attack for excavation of tunnels and deep vertical sided openings. Tunneling procedures based on behavioral characteristics of soil and rock , study of tunnel boring machines, shielded and drill-and-blast operations, linings, soil linear interaction. Deep excavation procedures related to support of excavation systems, methods of installation.	2,8	A2	B13.B12	C2, C11,C17	D3

**Course Coordinator:** Dr / Hamdy ABD- ATY

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Urban Transportation Planning

(CIE 541)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Urban Transportation Planning
<b>Course Code</b>	(CIE 541)
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
2	Design a system for components, process, constraints, construct.
8	Define properties of the land by using the surveying techniques and skills related to transportation planning

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for urban transportation planning.

#### B. Intellectual Skills:

No.	Intellectual Skills
B1	Select appropriate mathematical and computational methods for system modeling and analysis.



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### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology, design and engineering practice to solve engineering problems
C18	Plan all types of roadways and traffic systems

### D. General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team.
D2	Work in stressful environment and within constraints.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Land use-transportation interaction	6	6	-
2	The process of Urbana transportation planning, urban transport problems, goals, and objectives, data and information, Survey design, tavel demande fore casting : 1) trip générations, 2) trip distribution, 3) modal choie, 4) route assignement.	10	10	-
3	The evaluation of urban transport system.	4	4	-
4	transport system management	4	4	-
5	demand management, and control	4	4	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion Sessions
3	Information Collection from Different Sources
4	Case Studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material.	Better access any time.
2	Asking small groups to do assignments each composed of low, medium, and high performance students.	Knowledge and skills transfer among different levels of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, B1
2	Semester work	C1,C18, D1, D2
3	Final Term Examination	A1, B1

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term Examination	8 <sup>th</sup>
3	Final Term Examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Recommended books: Ott, Introduction to Statistical Methods and Data Analysis, PWS-Kent, 1990.
2	Simulation of urban transport system , slim hammed and mekki ksouri , feb 2014
3	Urban dynamics and simulation models, densi pumai, romain reuillon , 2018



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Seminar
2	Lecture Classroom
3	White Board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Land use-transportation interaction	2	A1	B1`	C1	D1, D2
2	The process of Urbana transportation planning, urban transport problèmes, goals, and objectives, data and information, Survey design, tavel demande fore casting : 1) trip générations, 2) trip distribution, 3) modal choie, 4) route assignement.	2,8	A1	B1	C1, C18	D2
3	The evaluation of urban transport system,	2	-	B1	C1, C18	D2
4	transport system management	2	A1	B1	C1,C18	-
5	demande management, and control	2	-	B1	C1	D1, D2

**Course Coordinator:** Dr/ Alaa Gabr

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018





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## Special Concrete Structures 1

CIE 542

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Special Concrete Structures 1
<b>Course Code</b>	CIE 542
<b>Year/Level</b>	Level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
4	Use the techniques, skills, and codes of practice effectively and professionally in all civil engineering disciplines

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A3	List the system properties and their engineering materials related to the characteristics in engineering analysis under constrains
A12	Define contemporary engineering topics.
A14	Define the different structural and mechanical properties of special concrete structures

#### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C11	Design different systems structures



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#### D.General Skills:

No.	General Skills
D4	Demonstrate efficient structure system capabilities

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to tall building structures	14	14	-
2	Design criteria for tall building structures – loading - structural formation – modeling for analysis – braced frames – rigid frames – shear walls	14	14	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A3, A12 ,A14, B4
2	Semester work	C11, D4
3	Final Term Examination	A3, A12, A14, B4



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	EL-Metwally, S.E., and Hosny, H.M.H., "Design Fundamental of Structure Concrete." 1977 Ministry of Housing. Utilities and Urban Communities, "Egyptian Code for Design and Construction of Reinforced Concrete Structures (ECCS203-2001)." Cairo 2001.
2	Cairo. 1991. EL-Behairy, S., "Reinforced Concrete Design Hand Book, "Fifth Edition, Cairo 1998. Gouda M. A., Helmy, M., and Korshe, I., "Basic Design of Reinforced Concrete Structures. "Alexandria. 1972.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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بدمياط الجديدة

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Presentation of the course in digital material	4	A3	B4	C11	D4
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	4	A3, A12,A14	B4	C11	D4

**Course Coordinator:** ASS. Prof / khaled fawzy

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Foundation Engineering 2

(CIE 543)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Foundation 2
<b>Course Code</b>	CIE 543
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
2	Design a system for components, constraints, construct to protect all types of foundations.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A13	Recognize the different engineering principles related to the design of to geo-technical and deep foundations

#### B. Intellectual Skills:

No.	Intellectual Skills
B7	Judge engineering decisions considering balanced costs, benefits, safety and quality.
B13	Select codes of practices in designing reinforced engineering concrete and geotechnical and deep foundation



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### C. Professional Skills:

No.	Professional Skills
C10	C10.1 practice professionally construction management skills.
	C10.2 Prepare technical drafts, quantity surveying reports and detailed drawings.

### D. General Skills:

No.	General Skills
D1	Collaborate effectively within multidisciplinary team

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Hydraulics of soils	4	4	-
2	Flow net in soil	6	6	-
3	Application of flow	6	6	-
4	Deep foundation	6	6	-
5	Sheet piles	6	6	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Cooperative learning	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid-term examination	A13, B13, B7
2	Semester work	C10, D1
3	Final term examination	A13, B13, B7

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	الكود المصري لميكانيكا التربة وتصميم وتنفيذ الاساسات كود رقم ECP 202-2011
2	Ranjan, G. and Datta, M.(2000), "Basic and Applied Mechanics", second Eddition, New Age international, New Delhi.
3	Gulhati, S.K. and Datta, M. (2005), "Geotechnical Engineering ", Tata McGraw-Hill , New Delhi.

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Hydraulics of soils	2	A13	B7, B13	C10	D1
2	Flow net in soil	2	A13	B13	C10	D1
3	Application of flow	2	A13	B13	-	D1
4	Retaining walls	2	A13	B7	C10	D1
5	Sheet piles	2	A13	B7	-	D1

**Course Coordinator:** Dr/ Magdy Zaied

**Head of Department:** ASS. Prof. dr / khaled fawzy

**Date of Approval:** 2018





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## Special Concrete Structures 2

(CIE 544)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Special Concrete Structures 2
<b>Course Code</b>	CIE 544
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
2	Design a system for components, process, constraints and construct

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis
A4	State the principles of system design elements design, process and/or the including elements and processes. System related to disciplines.
A14	Define the different structural and mechanical properties of special concrete structures

#### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C11	Carry out maintenance of all types of structures



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#### D. General Skills:

No.	General Skills
D8	Acquire entrepreneurial skills

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Introduction to composite construction	2	2	-
2	Materials of composite structures	6	6	-
3	Simply supported composite beams	6	6	-
4	Continuous supported composite beams	6	6	-
5	Shear connections – composite columns – composite slabs	8	8	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Midterm examination	A1, A4, A14, B4
2	Semester work	C11, D8
3	Final term examination	A1, A4, A14, B4



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## 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

## 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	EL-Metwally, S.E., and Hosny, H.M.H., "Design Fundamental of Structure Concrete." 1977 Ministry of Housing. Utilities and Urban Communities, "Egyptian Code for Design and Construction of Reinforced Concrete Structures (ECCS203-2001)." Cairo 2001.
2	Hilal.M. , "Reinforced Concrete Water Tanks." Marcou, 1975 Books Hilal M., "Design of Reinforced Concrete Halls," Marcou 1981 .Nassef, M.A.,"

## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	introduction to composite construction and materials of composite	2	A1, A14	B4	C11	D8
2	materials of composite constructions and simply supported composite beams and continuous beams	2	A4	-	C11	D8
3	shear connections and composite columns	2	A1, A4,A14	B4	-	-
4	composite slabs	2	-	B4	C11	D8

**Course Coordinator:** ASS. Prof / khaled fawzy

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Railway Engineering (CIE 545)

### 1- Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Railway Engineering
<b>Course Code</b>	CIE 545
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2- Course Aims:

No.	Aims
2	Design a system for components, process, constraints, construct, and protect all types of railway.
7	Engage in self- and life- long learning.

### 3- Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis

#### B. Intellectual Skills:

No.	Intellectual Skills
B3	Combine different ideas, views, and knowledge from a range of sources to evaluate the characteristics and performance of components, systems and processes.
B5	Solve railway problems based on limited and possibly contradicting information.
B12	Select appropriate design processes for water control structures, irrigation and water networks, sewerage systems and railway stations.



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### C. Professional Skills:

No.	Professional Skills
C1	Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems
C16	Troubleshoot almost all types of electronic systems using the standard tools.
C18	Use appropriate tools to measure system performance.

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints.

### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Engineering principles for railways planning	2	2	-
2	Railways components and specifications	4	4	-
3	Design of different parts of railways	6	6	-
4	Types of stations	2	2	-
5	Types of signals	2	2	-
6	maintenance	4	4	-
7	Planning of railways lines	4	4	-
8	Transportation economy	2	2	-
9	Management and insurance.	2	2	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.



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## 7. Student evaluation:

### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, B3, B5
2	Semester work	C1, D2, B12, C16, C18
3	Final Term Examination	A1, B3, B5

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>
3	Final term examination	15 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Recommended books • E. B. Machaly, " Behavior, analysis and design of steel work connections ", vol. 3, 2002 • Railway development 2008, Dr frank pruinisma and DR irik pills.



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## 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	Engineering principles for railways planning	2	A1	B3	C1	-
2	Railways components and specifications	2,7	A1	B5,B12	C16	D2
3	Design of different parts of railways	2,7	A1	B5	C1	D2
4	Types of stations	2,7	A1	B3, B5	C1	D2
5	Types of signals	2,7	A1	B12	C1	D2
6	maintenance	2	A1	B3	C16	D2
7	Planning of railways lines	2	-	B12	C1,C18	-
8	Transportation economy	2	A1	B5	C1	-
9	Management and insurance.	2	A1	B3	C1,C18	D2

**Course Coordinator:** Dr/ Alaa Gabr

**Head of Department:** Ass. Prof. / Khaled fawzy

**Date of Approval:** 2018





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## Reinforced Concrete (5) (CIE 546)

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Department
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Reinforced Concrete (5)
<b>Course Code</b>	CIE 546
<b>Year/Level</b>	level 5
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-
<b>Pre-request</b>	Complete 100 h

Teaching hours	Lectures	Tutorial	Practical
	2	2	-

### 2. Course Aims:

No.	Aims
2	Design a system for components, process, constraints and construct shell structure.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A1	Define the concepts and theories of mathematics, science necessary for engineering system analysis
A4	State the principles of system design elements design

#### B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes.

#### C. Professional Skills:

No.	Professional Skills
C11	Carry out maintenance of all types of concrete



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#### D.General Skills:

No.	General Skills
D8	Acquire entrepreneurial skills

#### 4. Course Contents:

No.	Topics	Lectures	Tutorial	Practical
1	Design shell structure	12	12	-
2	design of pre-stressed reinforced concrete	16	16	-
<b>Total</b>		<b>28</b>	<b>28</b>	<b>-</b>

#### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from different sources
4	Research assignment
5	Case studies

#### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Asking small groups to do assignments; each composed of low, medium, and high performance students.	Knowledge and skills transfer among different level of students.

#### 7. Student evaluation:

##### 7.1 Student evaluation method:

No.	Evaluation Method	ILO's
1	Mid Term Examination	A1, A4, B4
2	Semester work	C11, D8
3	Final Term Examination	A1, A4, B4

##### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	semester work	2 <sup>nd</sup> , 7 <sup>th</sup> , 9 <sup>th</sup>
2	Mid Term examination	8 <sup>th</sup>



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3	Final term examination	15 <sup>th</sup>
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### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Mid-term examination	20%
2	Semester work	20%
3	Final-term examination	60%
<b>Total</b>		<b>100%</b>

### 8. List of References:

No.	Reference List
1	Hilal.M. , "Reinforced Concrete Water Tanks." Marcou, 1975 Books Hilal M., "Design of Reinforced Concrete Halls," Marcou 1981 .Nassef, M.A., Reinforced Concrete Design," Cairo Univ., 1988.Abdel Rahman, A., "Fundamental of Reinforced Concrete Incorporating the Egyptian Code of 1989."

### 9. Facilities required for teaching and learning:

No.	Facility
1	Lecture classroom
2	seminar
3	White board
4	Data Show system

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	shell structure	2	A1	B4	C11	D8
2	design of pre stressed reinforced concrete	2	A1, A4	B4	C11	D8

**Course Coordinator:** ASS. Prof / khaled fawzy

**Head of Department:** ASS. Prof / khaled fawzy

**Date of Approval:** 2018



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## Training 1 ENG 430

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Training1
<b>Course Code</b>	ENG 430
<b>Year/Level</b>	Level: 3
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-

Training hours	Lectures	Tutorial	Practical
	-	-	42

### 2. Course Aims:

No.	Aims
3	Designing a system; component and process, to recognize its application in civil engineering issues to respond to the recent technological changes
4	Use the techniques, skills, and codes of practice effectively and professionally in training.
8	Acquire the needed communication skills to lead and supervise a group of designers or lab technicians, to work effectively within multi-disciplinary teams to manage construction sites.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A8	Observe the relevant current engineering technologies.
A10	Write technical language and technical report writing.
A13	Recognize the different engineering principles related to the design of reinforced concrete and metallic structures.



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## B. Intellectual Skills:

No.	Intellectual Skills
B4	Investigate the failure of structural components, systems, and processes
B8	Incorporate economic, societal, environmental dimensions, and risk management in design.
B11	Design adequate water control structures, irrigation, and water networks, sewerage systems and pumping stations.
B13	Analyze codes of practices in designing reinforced engineering concrete and metallic structures of all types.

## C. Professional Skills:

No.	Professional Skills
C2	Apply knowledge and understanding to improve design, products and services.
C4	Practice the neatness and aesthetics in design and approach.
C6	Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C12	Prepare technical reports to present data

## D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints
D5	Lead and motivate individuals
D6	Effectively manage tasks, time, and resources.
D8	Acquire entrepreneurial skills

## 4. Course Contents:

No.	Topics	Tutorial	Practical
1	The training aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues	-	37
	A complete set of appropriately presented drawings, accompanied by a detailed report of the training's attributable studies and potential considerations should be implemented by each student	-	5
<b>Total</b>		-	<b>42</b>



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## 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from the field of training
4	Research assignment

## 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	Presentation of the course in digital material	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students

## 7. Student evaluation:

### 7.1 Student Evaluation Method:

No.	Evaluation Method	ILO's
1	Oral Examination	A8,A10,A13,B4,B8,B11,B13
2	Final work (presentation, Report)	C2,C4,C6,C12,D5,D8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Oral Examination	at the end of training
2	Final work ( presentation, Report)	4 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Oral Examination	50%
2	Final work ( presentation, Report)	50%
<b>Total</b>		<b>100%</b>

## 8. List of References:



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No.	Reference List
1	Subject studies

### 9. Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board		

### 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	The graduation training aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associated with a large scale design project	3.4.8	A8,A10,A13	B4,B8,B11, B13	C2,C4,C6,C12	D2, D5,D6,D8
2	The training examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	3.4.8	A8,A10,A13	B4,B8,B11, B13	C2,C4,C6, C12	D2, D5,D6,D8
3	A complete set of appropriately presented drawings, accompanied by a detailed report of the training attributable studies and potential considerations should be implemented by each student	3.4.8	A8,A10,A13	B4,B8,B11, B13	C12	D2, D5,D6,D8

**Course Coordinator:** Ass. Prof. Dr./ Khaled fawzy

**Head of Department:** Ass. Prof. Dr./ Khaled fawzy

**Date of Approval:** 2018



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المعهد العالي للهندسة والتكنولوجيا  
بدمياط الجديدة

## Training 2 ENG 530

### 1. Basic Information:

<b>Program Title</b>	Civil Engineering Program
<b>Department Offering the Program</b>	Civil Engineering Department
<b>Department Responsible for the Course</b>	Civil Engineering Department
<b>Course Title</b>	Training
<b>Course Code</b>	ENG 530
<b>Year/Level</b>	Level: 4
<b>Specialization</b>	Major
<b>Authorization Date of Course Specification</b>	-

Teaching hours	Lectures	Tutorial	Practical
-	-	-	42

### 2. Course Aims:

No.	Aims
6	Identify quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.
8	Acquire the needed communication skills to lead and supervise a group of designers or lab technicians.

### 3. Intended Learning Outcomes (ILO'S):

#### A. Knowledge and understanding:

No.	Knowledge and understanding
A14	Define the different structural and mechanical properties of building materials
A15	Recognize the main topics in construction management specially planning bidding and contracts.

#### B. Intellectual Skills:

No.	Intellectual Skills:
B4	Investigate the failure of structural components, systems, and processes
B14	Conduct suitable construction management techniques.
B15	Evaluate the used techniques and strategies adopted in the solving current engineering problems.





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### C. Professional Skills:

No.	Professional Skills
C10	Apply quality assurance procedures and follow codes and standards.
C16	Carry out maintenance of all types of roadways and traffic systems.

### D. General Skills:

No.	General Skills
D2	Work in stressful environment and within constraints
D5	Lead and motivate individuals
D6	Effectively manage tasks, time, and resources.
D8	Acquire entrepreneurial skills

### 4. Course Contents:

No.	Topics	Tutorial	Practical
1	The training examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	-	37
2	Presentations will be emphasizes the technical content.	-	5
<b>Total</b>		-	<b>42</b>

### 5. Teaching and learning methods:

No.	Teaching Methods
1	Lectures
2	Discussion sessions
3	Information collection from the field of training
4	Research assignment

### 6. Teaching and learning methods for disable students:

No.	Teaching Methods	Reason
1	In the field of planets	Better access any time
2	Web communication with students	Better communication with certain cases
3	Asking small groups to do assignments; each composed of low ,medium and high performance students	Knowledge and skills transfer among different levels of students



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## 7. Student evaluation:

### 7.1 Student Evaluation Method:

No.	Evaluation Method	ILO's
1	Oral Examination	A14,A15,B4, B14,B15
2	Report evaluation	C10,C16,D2,D5,D6,D8

### 7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Oral Examination	at the end of training
2	Final report (presentation, Report)	4 <sup>th</sup>

### 7.3 weighting of Evaluation:

No.	Evaluation method	Weights
1	Oral Examination	50%
2	Report evaluation	50%
<b>Total</b>		<b>100%</b>

## 8. List of References:

No.	Reference List
1	Subject studies

## 9. Facilities required for teaching and learning:

No.	Facility	No.	Facility
1	Lecture classroom	4	Data show system
2	Presenter	5	Sound system
3	White board		



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## 10. Matrix of knowledge and skills of the course:

No.	Topic	Aims	Knowledge and understanding	Intellectual Skills	Professional Skills	General Skills
1	The training examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	6,9	A14, A15	B4,B14,B15	C10,C11,C16	D2, D5,D6,D8
2	Presentations will be emphasized the technical content.	6,9	A14, A15	B4,B14,B15	C10,C11, C16	D2, D5,D6,D8

**Course Coordinator:** Ass. Prof. Dr. / Khaled fawzy

**Head of Department:** Ass. Prof. Dr. / Khaled fawzy

**Date of Approval:** 2018