



## **Second level**

### **Courses Specifications**

#### **First Semester (Fall)**

<b>No.</b>	<b>Code</b>	<b>Course Name</b>	<b>Instructor</b>
1	ARCH205	Building Construction	Dr. Sherihan Adel
2	CVEE203	Field plane & Topographic Surveying	Dr. yehia farid
3	CVEE204	Field plane Surveying	Dr. yehia farid
4	CVEE301	Structural Analysis 1	Dr. Mohamed El daidmony
5	ENGR 203	Strength and testing of materials	Dr. Hany Ibrahim
6	ENGL 102	Lower intermediate English	Dr. Alhosseiny
7	MATH 201	Calculus 3	Dr. Gamal El aniny



**1-ARCH205 Building Construction:**

## Course Specification

Course Code:	Course Name
ARCH 205	Building Construction

### A- Affiliation

Relevant program:	Civil program Engineering
Department offering the program:	Civil Engineering
Department offering the course:	Architecture Engineering
Date of program operation:	2009 -2010
Date of approval from the Higher Ministry of education	27/1/2008
Date	2023-2024

### B-Basic Information

Title	Building Construction
Code	ARCH 205
Credit Hours	3 Cr. Hrs.
Lectures	2 Hrs.
Tutorial	4 Hrs.
practical	0Hrs.
Total	6 Hrs.
Prerequisite	ARCH 105
Instructor name/Email	Dr. sherihan adel <a href="mailto:dr.sherihan.adel@gmail.com">dr.sherihan.adel@gmail.com</a>



## **C- Professional Information**

### **1-Course core:**

The course aims to clarify the main elements of the building, building materials, and different building construction systems. The course enables students to draw the construction details through studying: building methods (bearing walls, skeleton structures), structural elements of the building including; foundation types, columns, floors layers, walls and bonds, openings, lintels and arches, vaults and domes structure, and stairs. Students will apply this knowledge in creating a small project; plan, elevation, and section.

### **2-Course Learning Objectives: oC**

oC1	Developing a basic understanding of building construction vocabularies and drafting symbolism.
oC2	Examining different structural elements such as columns, beams, walls, foundations and stairs , types and construction stages at site.
oC3	Studying various construction systems such as bearing walls construction systems.
oC4	Implementing projects that adopt a solution to a contemporary societal problem that depends on various civil designs and construction applications and keeping pace with Cods and legislation.
oC5	Conduct professional research that solves civil problems.

### **3-Program objectives served by the course:**

O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O4	Training students on projects that adopt a solution to contemporary societal problem based on various civil designs and construction applications and coping with the standards and the legislations.
O6	Developing students' professional skills and the ability to self- and continuous learning.



4-The relation between the course objectives and the program objectives	
Course objectives	Program objectives
oC1	O1
oC2	O2,O4
oC3	O1,O2
oC4	O1,O2
oC5	O1,O6

5- Learning outcomes of the course (LOs): ( Lo )	
Upon the completion of the course the student should be able to:	
LO7	State the factors affecting the engineering projects.
LO13	Classify the constraints of: project financing, project management, cost control and methods of project delivery.
LO22	Plan, supervise and monitor implementation of engineering projects.
LO29	Work efficiently as an individual and share in team works.
LO34	maintain safety in the implementation of the project.

6- Program competencies served by the course:	
Upon the completion of the Program the student should be able to:	
C6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
C7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
CR3	Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.

7- The relation between the course learning outcomes and the program competencies		
	Course (LOs)	program competencies
1	LO7,LO13,LO29,LO34	C6
2	LO29	C7
3	Lo22	CR3



8-Course Content					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	Los
1	Course introduction and its objectives	2	2	0	LO13
2	Foundation construction	2	2	0	LO22,LO29
3	the English bond	2	2	0	LO29
4	the Flemish bond	2	2	0	LO34
5	- Research ,Quiz I	2	2	0	LO7,LO13
6	load bearing building	2	2	0	LO29
7	Skeleton building	2	2	0	LO7
8	Midterm exam	15			LO22
9	Working Plans	2	2	0	LO34
10	sections	2	2	0	LO13
11	Insulation layer	2	2	0	LO13,LO34
12	stairs	2	2	0	LO7
13	- Quiz II, research - modelling	2	2	0	LO7,LO13,LO22,LO29
14	- Semifinal Project.	2	2	0	LO13,LO22
15	- Final project	2	2	0	LO7
16	Final exam	60			LO22,LO29
<b>Total hours</b>		28	28	0	



9-The Teaching and Learning Methods and their relation to the Los of the course						
Course learning Outcomes (LOs) Teaching and Learning Methods	LO7	LO13	LO29	LO34	LO29	Lo22
On line / face to face lectures						
Tutorials: sheets/ sketches						
projects						
Problem solving						
Brain storming						
Practical: lab						
discovering						
Site visit						
Reports/ researches						
Cooperative work						
presentation						
Discussion						
Modeling						
<b>Notes</b> <ul style="list-style-type: none"> <li>• The research concerns the cooperative work, the discussion, the site visit and the presentations.</li> <li>• The project concerns the brain storming and the problem solving.</li> <li>• Online lectures used as hybrid learning, but in case of totally on line learning all the used teaching and learning methods will be on line.</li> </ul>						



10-Student assessment Method						
Assessment method and its relation to the Los of the course						
Assessment method	Course learning Outcomes (LOs)	Tools of assessment				
		LO7	LO13	LO29	LO34	LO29
Quizzes						
Mid -term exam						
Final exam						
sheets/ sketches						
projects						
Practical: lab						
Oral exam						
discussions						
Reports/ researches						
presentation						
modeling						

11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (5)		(5) marks	(40) marks
	Quiz ( 2 )	Week (5,13)		(5) marks	
Discussions		Weekly	(5) %	(10) marks	
Discussions		Every week for any student			
Sheets and Sketches		Week (7-10-13-15)	(0) %		
the Projects		Week ( 15 )	(30) %		
Practical modelling		Week (13 )	(15) %		
Attendance		weekly		(5) marks	
Mid-term exam		Week (8)		(15) marks	
final exam		Week (16)		(60) marks	
Total				(100) marks	



12-List of references:	
<b>a- Course notes</b>	<ul style="list-style-type: none"><li>- Student have to take written not based on the instructor's lecture</li><li>- Submission must be a periodical technical presentation.</li><li>- Final submission is A1 paper and technical presentation.</li><li>- The discussion and students' participants are very essential.</li><li>- The evaluations are internal periodical assessments.</li><li>- Student grades are available and posted in the class.</li><li>- Only group work is allowed.</li></ul>
<b>b- Required books</b>	<p>- علي أحمد رفعت - " فن العمارة والخرسانة المسلحة " - مؤسسة فرانكلين للطباعة والنشر القاهرة - نيويورك - 1970م</p> <p>- محمد عبد الله - "انشاء مباني - تكنولوجيا البناء" - مطبعة جامعة القاهرة - القاهرة - مصر - الطبعه الثالثه - 2000م</p> <p>-Francis o.k. ching, building construction illustrated – wiley – 4edition – 2008.</p>

13- Facilities required for teaching and learning:
<ol style="list-style-type: none"><li>1.References in library</li><li>2.Appropriate teaching design studios including presentation board, data show</li><li>3.Google classroom</li><li>4.E- learning Moodle</li></ol>

14-Requirements for Disable facilities:
<ol style="list-style-type: none"><li>1-Extra assignments</li><li>2-On line extra teaching hours</li></ol>

<b>Course coordinator</b>	DR. SHERIHAN ADEL
<b>program Coordinator</b>	
<b>Head of the Department</b>	Dr. Fahima El-Shahed
<b>Date</b>	2023/2024





## **2-CVEE203 Field plane & Topographic Surveying:**

### **Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>CVEE203</b>	<b>Field plane &amp; Topographic Surveying</b>

#### **A- Affiliation**

<b>Relevant program:</b>	<b>Civil program Engineering</b>
<b>Department offering the program:</b>	<b>Civil Engineering</b>
<b>Department offering the course:</b>	<b>Civil Engineering</b>
<b>Date of program operation:</b>	<b>2008 -2009</b>
<b>Date of approval from the Higher Ministry of education</b>	<b>27/1/2008</b>
<b>Date</b>	<b>2023/2024</b>

#### **B- Basic Information**

<b>Course Name</b>	<b>Field plane &amp; Topographic Surveying</b>
<b>Course Code</b>	<b>CVEE 203</b>
<b>Course Offered to Program</b>	<b>Civil Engineering</b>
<b>Department Offering the Course</b>	<b>Civil Engineering</b>
<b>Date of Program Operation</b>	<b>2008-2009</b>
<b>Date of Approval from the Higher Ministry of Education</b>	<b>27/1/2008</b>
<b>Date of Course Operation</b>	<b>2023-2024</b>
<b>Credit Hours</b>	<b>3h</b>
<b>Lectures</b>	<b>2h</b>
<b>Tutorial</b>	<b>2h</b>
<b>practical</b>	<b>0h</b>
<b>Total</b>	<b>4h</b>
<b>Instructor Name</b>	<b>Dr.tarek waleed</b>
<b>Instructor Email</b>	



## **C- Professional Information**

### **1- Course Core**

Introduces geodetic positions - Coordinates systems - modern surveying devices - design of curves as horizontal and vertical. Surveying devices (balance - Theodolites - tacometer) – Level differences - roperire - errors in the budget - the budget tables - longitudinal and cross-sections and the most important data that describes them - networks and errors and correction - design and planning of curves. Integrated applications and monitoring stations in the ways of the signing of coordinates, roads, airports, roads - tunnels area - water and sanitation networks and public utility lines. Introduction to GIS, GPS.

### **2- Course Learning Objectives: ( oc )**

oc1	Developed an understanding of the principles of civil drawing.
oc2	Understood the basic skills of surveying work including distance and angles measurements.
oc3	Developed the skill for using surveying instrumentation.
oc4	Understood how to collect, document, and analyze surveying measurements
oc5	Learned how to conduct a variety of surveying exercises with emphasis on layout surveys.
oc6	Developed an understanding of applying basic surveying techniques in the field.
oc7	Demonstrated an understanding of how to perform basic surveying computations.

### **3- program objectives served by the course: ( o )**

Upon the completion of the course the student should be able to:	
O1	Being creativity and imagine in the design process.
O4	Implementing projects that adopt a solution to a contemporary societal problem that depends on various civil designs and construction applications and keeping pace with Cods and legislation.
O6	Professional development based on self-learning and continuous learning.
O9	Qualification to deal with the latest materials and systems that can transform engineering drawings into a real condition that meets the needs of the client and the era.
O10	Analysis and deduction through simulation systems.



4- The relation between the course objectives and the program objectives	
Course objectives	program objectives
oc1	O1
oc 2	O1,O4
oc 3	O1,O4,O6
oc 4	O1
oc 5	O9
oc 6	O10,O6
oc 7	O10,O6

5- Learning outcomes of the programs (LOs): ( Lo )	
Upon the completion of the course, the student should be able to:	
LO9	Analysis structure mechanical-properties, and Strength of Materials, Surveying.
LO19	Apply engineering design processes to produce cost-effective solutions that meet specified needs.
LO20	Use contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements.
LO22	Plan, supervise and monitor implementation of engineering projects.
LO23	Use contemporary tools to implement engineering design drawings, and presentations.

6- Learning outcomes of the course (Los)	
Upon the completion of the Program the student should be able to:	
Lo1	Describe the concepts of plane surveying, including the Public Land Survey System
Lo2	Properly set up and operate plane surveying equipment.
Lo3	Interpret and record data and field notes.
Lo4	Analyze and compute survey and engineering findings.

7- The relation between the course learning outcomes and the program competencies	
Course (Los)	program (LOs)



1	Lo1	LO1
2	Lo2	LO2
3	Lo3	LO29
4	Lo4	LO20 & LO9

8- Course Content and their to the course LOs					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	LOs
1	Introduction to Plane Surveying	2	2	0	LO1,LO2
2	Field Notes: Preparation and Use of Field Notes	2	2	0	LO2
3	Land Surveying and Measurement Error	2	2	0	LO4,LO2
4	Leveling	2	2	0	LO4
5	Distance Measurement	2	2	0	LO3,LO2
6	Horizontal Curves	2	2	0	LO3
7	Quiz (1)	2	2	0	LO1,LO2
8	<b>Mid-term exam</b>	15			LO1,LO3
9	Vertical Curves	2	2	0	LO3
10	Electronic Instruments and Electronic Measurements	2	2	0	LO4
11	Traversing	2	2	0	LO1,LO3
12	Mapping Surveys	2	2	0	LO1,LO2
13	Introduction to Public Land Survey System	2	2	0	LO2
14	Introduction to Public Land Survey System	2	2	0	LO2
15	Quiz (2)	2	2	0	LO3
15	<b>Final exam</b>	60			LO1,LO4
<b>Total hours</b>		28	28	0	



Course learning Outcomes (LOs) The Teaching and Learning Methods	LO1	LO2	LO3	LO4
On line / face to face lectures				
Tutorials: sheets/ sketches				
projects				
Problem solving				
Brain storming				
Practical: lab				
discovering				
Site visit				
Reports/ researches				
Cooperative work				
presentation				
Discussion				
modelling				

Course learning Outcomes (LOs) Assessment method	LO1	Lo2	Lo3	Lo4
quizzes				
Mid -term exam				
Final exam				
sheets/ sketches				
projects				
Practical: lab				
Oral exam				
discussions				
Reports/ researches				
presentation				
modelling				



11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (7)		(5) marks	(40) marks
	Quiz ( 2 )	Week (15)		(5) marks	
Discussions		Weekly	(40) %	(10) marks	
Sheets and Sketches		Week (7-10-13-15)	(60) %		
Researches and reports		Week (13)	(0) %		
the Projects			(0) %		
Practical modelling			(0) %		
Attendance		weekly		(5) marks	
Mid-term exam		Week (8)		(15) marks	
final exam		Week (16)		(60) marks	
Total				(100) marks	

12- List of references:	
a. Course notes	Staff lectures notes.
b. Rquired books	<ul style="list-style-type: none"> <li>• Agor, R. (1981), "<b>Advanced Surveying</b>". Channa Publishers, Press.</li> <li>• Anderson, J. M. and E. Mikhail, (1997), "<b>Surveying: Theory and Practice</b>", McGrawHill, New York.</li> <li>• Brinker, R. C. and P. R. Wolf, (1988), "<b>Elementary Surveying</b>", 8th ed., Harper &amp; Row, New York.</li> <li>• Mikhail, E., and F. Ackermann (1976), "<b>Observation and least squares</b>". Harper and Row Publishers Inc., New Yor.</li> <li>• Schofield, W. and M. Breach (2001), "<b>Engineering Surveying</b>", ISBN–13: 978-0-7506-6949-8</li> <li>• surveying and levelling " N NBASAK"</li> </ul>
c. Recommended books	<ul style="list-style-type: none"> <li>• Introduction to Surveying.</li> </ul>
d. Periodicals, Web sites, etc	Non



### 13- Facilities required for teaching and learning:

- Appropriate teaching design studios including presentation board, data show
- Google classroom
- E- learning

### 14- Requirements for Disable facilities:

- On line teaching hours if it is needed
- Extra assignments

<b>Course coordinator:</b>	<b>Dr.tarek waleed</b>
<b>program Coordinator</b>	Civil Engineering
<b>Head of the Department</b>	Dr.Ashraf Abdel khalek Mostafa
<b>Date:</b>	2023/2024



### **3- CVEE204 Field Plane Surveying**

<b>Course Code:</b>	<b>Course Name</b>
<b>CVEE204</b>	<b>Field Plane Surveying</b>

#### **A- Affiliation**

Relevant program:	Civil program Engineering
Department offering the program:	civil Engineering
Department offering the course:	civil Engineering
Date of program operation:	2009 -2010
Date of approval from the Higher Ministry of education	27/1/2008
Date	2023-2024

#### **B-Basic Information**

<b>Title</b>	<b>Field Plane Surveying</b>
<b>Code</b>	<b>CVEE204</b>
<b>Credit Hours</b>	<b>1 Cr. Hrs.</b>
<b>Lectures</b>	<b>0 Hrs.</b>
<b>Tutorial</b>	<b>2 Hrs.</b>
<b>practical</b>	<b>0 Hrs.</b>
<b>Total</b>	<b>2 Hrs.</b>
<b>Prerequisite</b>	<b>CVEE203</b>
<b>Instructor name/Email</b>	<b>Dr:tarek walid</b>





## **C- Professional Information**

### **1-Course Core**

Covers fundamental principles of surveying; basic measuring procedures and use of surveying instruments; and use of surveying equipment for leveling, traverse and area/volume computations.

### **2-Course Learning Objectives: ( oc )**

oc1	Developed an understanding of the principles basic measuring procedures of surveying.
oc2	Understood the basic skills of surveying work including distance and angles measurements.
oc3	Developed the skill for using surveying instrumentation.
oc4	Understood how to collect, document, and analyze surveying measurements
oc5	Learned how to conduct a variety of surveying exercises with emphasis on layout surveys.
oc6	Developed an understanding of applying basic surveying techniques in the field.
oc7	Demonstrated an understanding of how to perform basic surveying computations.

### **3-program objectives served by the course: ( o )**

Upon the completion of the course the student should be able to:

O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O3	Maintain the built environment with its social, economic and environmental aspects to achieve the 2030 sustainable development goals.
O4	Implementing projects that adopt a solution to a contemporary societal problem that depends on various civil designs and construction applications and keeping pace with Cods and legislation.
O5	Conduct professional research that solves civil problems.



4-The relation between the course objectives and the program objectives	
Course objectives	program objectives
oc 1	O4 , O1
oc 2	O2 , O3
oc 3	O4 , O5
oc 4	O1
oc 5	O1 , O3
oc 6	O4 , O5
oc 7	O1, O2

5- Program LOs served by the course:	
Upon the completion of the course the student should be able to:	
LO9	Analysis structure mechanical-properties, and Strength of Materials, Surveying, Soil Mechanics, Hydrology and Fluid Mechanics.
LO19	Apply engineering design processes to produce cost-effective solutions that meet specified needs.
LO20	Use contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements.
LO22	Plan, supervise and monitor implementation of engineering projects.
LO23	Use contemporary tools to implement engineering design drawings, and presentations.

6- Learning outcomes of the course (Los)	
Upon the completion of the Program the student should be able to:	
Lo1	Describe the concepts of plane surveying, including the Public Land Survey System
Lo2	Properly set up and operate plane surveying equipment.
Lo3	Interpret and record data and field notes.
Lo4	Analyze and compute survey and engineering findings.

7- The relation between the course learning outcomes and the program competencies		
	program competencies	course (Los)
1	LO1	Lo1
2	LO2	Lo2



3	LO29	Lo3
4	LO20& LO9	Lo4

8- Course Content and their to the course LOs					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	LOs
1	Introduction to Plane Surveying	2	0	2	LO1,LO2
2	Field Notes: Preparation and Use of Field Notes	2	0	2	LO2
3	Land Surveying and Measurement Error	2	0	2	LO1,LO2
4	Leveling	2	0	2	LO2
5	Distance Measurement	2	0	2	LO1,LO2
6	Horizontal Curves	2	0	2	LO2
7	Quiz (1)	2	0	2	LO1,LO2
8	<b>Mid-term exam</b>				
9	Vertical Curves	2	0	2	LO2
10	Electronic Instruments and Electronic Measurements	2	0	2	LO2
11	Traversing	2	0	2	LO1,LO3
12	Mapping Surveys	2	0	2	LO1,LO2
13	Introduction to Public Land Survey System	2	0	2	LO4
14	Introduction to Public Land Survey System	2	0	2	LO2
15	Quiz (2)	2	0	2	LO4
15	<b>Final exam</b>				
<b>Total hours</b>		28	0	28	



Course learning Outcomes (LOs) The Teaching and Learning Methods	Lo1	Lo2	Lo3	Lo4
On line / face to face lectures				
Tutorials: sheets/ sketches				
projects				
Problem solving				
Brain storming				
Practical: lab				
discovering				
Site visit				
Reports/ researches				
Cooperative work				
presentation				
Discussion				
modelling				

Course learning Outcomes (LOs) Assessment method	Lo1	Lo2	Lo3	Lo4
quizzes				
Mid -term exam				
Final exam				
sheets/ sketches				
projects				
Practical: lab				
Oral exam				
discussions				



Reports/ researches				
presentation				
modelling				

Content	Time schedule of assessment		
Quizzes	Quiz ( 1 )	Week (7)	
	Quiz ( 2 )	Week (15)	
Discussions		Weekly	(40) %
Sheets and Sketches		Week (7-10-13-15)	(60) %
Researches and reports		Week (13)	(0) %
the Projects			(0) %
Practical modelling			(0) %
Attendance		weekly	
Mid-term exam		Week (8)	
final exam		Week (16)	
Total			

12- List of references:	
a. Course notes	Staff lectures notes.
b. Rquired books	<ul style="list-style-type: none"> <li>• Agor, R. (1981), "<b>Advanced Surveying</b>". Channa Publishers, Press.</li> <li>• Anderson, J. M. and E. Mikhail, (1997), "<b>Surveying: Theory and Practice</b>", McGrawHill, New York.</li> <li>• Brinker, R. C. and P. R. Wolf, (1988), "<b>Elementary Surveying</b>", 8th ed., Harper &amp; Row, New York.</li> <li>• Mikhail, E., and F. Ackermann (1976), "<b>Observation and least squares</b>". Harper and Row Publishers Inc., New Yor.</li> <li>• Schofield, W. and M. Breach (2001), "<b>Engineering Surveying</b>", ISBN–13: 978-0-7506-6949-8</li> </ul>
c. Recommended books	<ul style="list-style-type: none"> <li>• Introduction to Surveying.</li> </ul>



<b>d. Periodicals, Web sites, etc</b>	Non
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**13- Facilities required for teaching and learning:**

1. Appropriate teaching design studios including presentation board, data show
2. Google classroom
3. E- learning

**14- Requirements for Disable facilities:**

1. On line teaching hours if it is needed
2. Extra assignments

<b>Course coordinator:</b>	Dr:tarek walid
<b>program Coordinator</b>	Civil Engineering
<b>Head of the Department</b>	Dr.Ashraf Abdel khalek Mostafa
<b>Date:</b>	2023/2024



#### **4-CVEE301 Structural Analysis 1:**

### **Course Specification**

<b>Course Code</b>	<b>Course Name</b>
<b>CVEE 301</b>	<b>Structural Analysis I</b>

#### **A- Affiliation**

Department offering the program:	Civil Engineering
Relevant program:	Civil Engineering
Department offering the course:	Civil Engineering
Date of program operation:	2009-2010
Date of approval from the Higher Ministry of education	
Confirmation date of the program as NARS 2018:	Department council no (.....)
Confirmation date of the course as NARS 2018:	Department council no (.....)
Date of course operation	2023-2024

#### **B-Basic Information**

<b>Title</b>	<b>Structural Analysis I</b>
<b>Code</b>	<b>CVEE 301</b>
<b>Credit Hours</b>	<b>3 Cr. Hrs.</b>
<b>Lectures</b>	<b>2 Hrs.</b>
<b>Tutorial</b>	<b>2 Hrs.</b>
<b>PARTICAL</b>	<b>0Hrs.</b>
<b>Total</b>	<b>4 Hrs.</b>
<b>Prerequisite</b>	ENGR 103
<b>Instructor name/Email</b>	<b>Professor. Mohamed hamdy elfiky</b>



## **C- Professional Information**

### **1.Course core:**

**Analysis of statically determinate structures under static loads; reaction of supports, Stability of structures, member forces in trusses, normal, shear and bending moment diagrams for beams & frames, inclined structures, trusses.**

### **2.Course Learning Objectives: ( oc )**

Oc1	Compute external reactions in statically determinate beams, frames, Trusses, and arches under the effect of all types of loadings.
Oc2	Analyze the behavior of statically determinate beams, beams with link members and frames, through modeling.
Oc3	Compute and interpret internal forces in statically determinate beams and frames under the effect of external loads.
Oc4	Compute internal forces for trusses
Oc5	Observe the structure stability.

### **3- Program objectives served by the course: (o)**

Upon the completion of the course, the student should be able to:

O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O3	Maintain the built environment with its social, economic and environmental aspects to achieve the 2030 sustainable development goals.
O5	Conduct professional research that solves civil problems.
O6	Professional development based on self-learning and continuous learning.
O10	Analysis and deduction through simulation systems.

### **4-The relation between the course objectives and the program objectives**

<b>Course objectives</b>	<b>program objectives</b>
oc1	O1, O2
oc 2	O1,O10
oc 3	O1
oc 4	O1,O3,O6
oc 5	O1, O5

### **5- Program LOs served by the course:**





Upon the completion of the course the student should be able to:	
LO14	Predict the knowledge of industries, organizations, regulations and procedures involved.
LO15	Explain the role of industries, organizations, regulations and procedures involved.
LO24	Use numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques.
LO9	Analysis structure mechanical-properties, and Strength of Materials, Surveying, Soil Mechanics, Hydrology and Fluid Mechanics.

### 6- Learning outcomes of the course (Los)

Upon the completion of the course the student should be able to:

- Lo1 Recall concepts and theories of mathematics appropriate to structural engineering.
- Lo2 Recognize principles of building technologies, structure and construction methods, technical installations and the way they may influence structural design.
- Lo3 Select appropriate solutions for engineering problems based on analytical thinking
- Lo4 Integrate knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems
- Lo5 Professionally merge engineering knowledge, understanding, and feedback to improve geometric, intersections,
- Lo6 Search for information and engage in life-long self-learning discipline.

### 7-The relation between the course learning outcomes and the program competencies

	programs (LOs)	Course los
1	LO14,	Lo1
2	LO9,LO24	Lo2
3	LO27	Lo3
4	LO15,LO24	Lo4
5	LO15	Lo5
6	LO27	Lo6

### 8- Course Content and they're to the course Los

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	Los
1	Modeling of Structures-Principal of Plane Statics	2	2	0	Lo1, Lo2



2	Reactions for Beams, Frames, Trusses and Arches	2	2	0	Lo4
3	Reactions for Beams, Frames, Trusses and Arches (Examples)	2	2	0	Lo5,Lo6
4	Reactions for Beams, Frames, Trusses and Arches (Examples)	2	2	0	Lo2Lo3
5	Structures with Link-Member	2	2	0	Lo4
6	Structures with Link-Member (Examples)	2	2	0	Lo5
7	Thrust (N.F.), Shearing Force (S.F.), :Bending Moments (B.M.)	2	2	0	Lo6
8	Mid-term exam	25			Lo6
9	Thrust (N.F.), Shearing Force (S.F.), Bending Moments (B.M.) (Examples)	2	2	0	Lo2
10	Thrust (N.F.), Shearing Force (S.F.), Bending Moments (B.M.) (Examples)	2	2	0	Lo1 Lo2
11	Thrust (N.F.), Shearing Force (S.F.), Bending Moments (B.M.) (Examples)	2	2	0	Lo3, Lo4
12	Thrust (N.F.), Shearing Force (S.F.), Bending Moments (B.M.) (Examples)	2	2	0	Lo6
13	Statically Determinate Trusses	2	2	0	Lo5
14	Stability of Structures	2	2	0	Lo2
15	Quiz	2	2	0	Lo4
16	Final exam	60			Lo6
<b>Total hours</b>		28	28	28	

9-The Teaching and Learning Methods and their relation to the Los of the course						
	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6
<b>The Teaching and Learning Methods</b>						
<b>Online / face-to-face lectures</b>						
<b>Tutorials: sheets/ sketches</b>						
<b>projects</b>						
<b>Problem-solving</b>						
<b>Brainstorming</b>						



Practical: lab						
discovering						
Site visit						
Reports/ researches						
Cooperative work						
presentation						
Discussion						
modeling						

		10- Student assessment method					
Course learning Outcomes (LOs)	Assessment method	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6
		quizzes					
Mid-term exam							
Final exam							
sheets/ sketches							
projects							
Practical: lab							
Oral exam							
discussions							
Reports/ researches							
presentation							
modeling							



11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz	Week (15)		(10) marks	(40) marks
Discussions		Weekly	(40) %	(10) marks	
Sheets and Sketches		Week (7-10-11-13)	(60) %		
Researches and reports			(0) %		
the Projects			(0) %		
Practical modelling			(0) %		
Attendance		weekly		(5) marks	
Mid-term exam		Week (8)		(15) marks	
final exam		Week (16)		(60) marks	
Total				(100) marks	

12- List of references:	
a. Course notes	<b>Structural Analysis I</b>
b. Required books	<ul style="list-style-type: none"> <li>• “Theory of Structures” Part 1, By W.M.El-Dakhkhini, Cairo, Dar El-Maaref, 2000.</li> </ul>
c. Recommended books	<ul style="list-style-type: none"> <li>• Theory of structure</li> </ul>
d. Periodicals, Web sites, etc	<a href="http://www.greatbuildings.com/">http://www.greatbuildings.com/</a>

13- Facilities required for teaching and learning:
None

14-Requirements for Disable facilities:
None

Course coordinator:	<b>Professor. Mohamed hamdy elfiky</b>
program Coordinator	<b>Civil Engineering</b>
Head of the Department	Dr.Ashraf Abdel khalek Mostafa
Date:	2023/2024



**5-ENGR 203 Strength and testing of materials:**

**Course Specification**

Course Code	Course Name
ENGR 203	Strength and testing of materials

**A- Affiliation**

Department offering the program:	Civil Engineering
Relevant program:	Civil Engineering
Department offering the course:	Civil Engineering
Date of program operation:	2008-2009
Date of approval from the Higher Ministry of education	27/1/2008
Confirmation date of the program as NARS 2018:	Department council no (.....)
Confirmation date of the course as NARS 2018:	Department council no (.....)
Date of course operation	2023-2024

**B- Basic Information**

Course Name	Strength and testing of material
Course Code	ENGR203
Course Offered to Program	Civil Engineering
Department Offering the Course	Civil Engineering
Date of Program Operation	2008-2009
Date of Approval from the Higher Ministry of Education	27/1/2008
Date of Course Operation	2023-2024
Credit Hours	3h
Lectures	2h
Tutorial	2h
Practical	0h
Total	4h
Instructor Name	Professor. Hany ibrahim
Instructor Email	hani.ibrahim@sva.edu.eg



## **C- Professional Information**

### **1- Course Core**

General view on the different properties of materials; physical properties, chemical properties and mechanical properties.

Building materials.

Binder materials; lime, gypsum and cement.

Properties and testing of concrete materials: cement, Aggregates, water.

Static tension test and Types of reinforcing steel and tensile test.

Specifications of building materials.

Scientific visits to a cement factory, steel factory and aggregate quarry

### **2-Course Learning Objectives: ( oc )**

oc1	Learn mechanical behavior of materials under tensile loads
oc2	Learn mechanical behavior of materials under compressive loads
oc3	Learn mechanical behavior of materials under shear loads
oc4	Compute stress and strain in components
oc5	Apply axial loading, torsion, bending, and transverse loading.
oc6	Transformation of plane stresses, and Mohr's circle

### **3-program objectives served by the course: ( o )**

Upon the completion of the course the student should be able to:	
O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O5	Conduct professional research that solves civil problems.
O9	Qualification to deal with the latest materials and systems that can transform engineering drawings into a real condition that meets the needs of the client and the era.
O10	Analysis and deduction through simulation systems.



3

4- The relation between the course objectives and the program objectives	
Course objectives	program objectives
oc1	O1 ,O2
oc 2	O1 ,O2
oc 3	O1 ,O2
oc 4	O1 ,O5
oc 5	O1 ,O9,O10,O11
oc 6	O1 ,O11

5- Program LOs served by the course:	
Upon the completion of the course the student should be able to:	
LO9	Analysis structure mechanical-properties, and Strength of Materials, Surveying, Soil Mechanics, Hydrology and Fluid Mechanics.
LO18	conduct and Develop appropriate experimentation.
LO16	Solve complex engineering problems.
LO21	Conduct techniques and methods of investigation as researches and reports.
LO17	Apply engineering fundamentals, basic science and mathematics.

6- Learning outcomes of the course (LOs)	
Upon the completion of the course the student should be able to:	
Lo1	Learn mechanical behavior of materials under tensile loads
Lo2	Learn mechanical behavior of materials under compressive loads
Lo3	Learn mechanical behavior of materials under shear loads
Lo4	Compute stress and strain in components
Lo5	Apply axial loading, torsion, bending, and transverse loading. Transformation of plane stresses, and Mohr's circle.
Lo6	Learn mechanical behavior of materials under tensile loads

7-The relation between the course learning outcomes and the program competencies		
	program competencies	Course (LOs)
1	LO9	Lo1
2	LO18	Lo2
4	LO21	Lo3
5	LO16	Lo4
6	LO17	Lo5



8- Course Content and their to the course Los					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	Los
1	Introduction & production of cement	3	2	0	Lo1
2	Properties of Fresh concrete	2	2	0	Lo2
3	Factors affecting workability	2	2	0	Lo4
4	Workability tests	2	2	0	Lo5
5	Properties of hardened concrete	2	2	0	Lo1,Lo3
6	Compressive strength test	2	2	0	Lo5
7	Quiz(1)	2	2	0	Lo1,Lo3
8	<b>Mid-term exam</b>	15			Lo1,Lo5
9	Bending test	2	2	0	Lo3
10	Creep and shrinkage	2	2	0	Lo4
11	Design of concrete mix using absolute volume eq.	2	2	0	Lo1,Lo4
12	B.S. method for concrete mix design	2	2	0	Lo2,Lo5
13	Corrosion of reinforcement	2	2	0	Lo4
14	Corrosion of reinforcement	2	2	0	Lo3
15	Quiz (2)	2	2	0	Lo5
16	<b>Final exam</b>	60			Lo1,Lo5
<b>Total hours</b>		28	28	0	

	Lo1	Lo2	Lo3	Lo4	Lo5
<b>The Teaching and Learning Methods</b>					
On line / face to face lectures					
Tutorials: sheets/ sketches					
projects					
Problem solving					
Brain storming					
Practical: lab					
discovering					
Site visit					
Reports/ researches					
Cooperative work					
presentation					
Discussion					
modelling					





10- Student assessment method					
Assessment method and its relation to the Los of the course					
Course learning Outcomes (LOs)	Lo1	Lo2	Lo3	Lo4	Lo5
Assessment method					
quizzes					
Mid -term exam					
Final exam					
sheets/ sketches					
projects					
Practical: lab					
Oral exam					
discussions					
Reports/ researches					
presentation					
modelling					

11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (7)		(5) marks	(40) marks
	Quiz ( 2 )	Week (15)		(5) marks	
Discussions		Weekly	(40) %	(10) marks	
Sheets and Sketches		Week (7-10-13-15)	(50) %		
Researches and reports			(10) %		
the Projects			(0) %		
Practical modelling			(0) %		
Attendance		weekly		(5) marks	
Mid-term exam		Week (8)		(15) marks	
final exam		Week (16)		(60) marks	
Total				(100) marks	

12- List of references:	
a. Course notes	



<b>b. Required books</b>	- M. Imam, L. Vandewalle, and F. Mortelmans "Indirect Tensile Strength of Very High Strength Concrete" Proceedings of International Symposium on Utilization of High Strength Concrete, Lillehammer, Norway, June 1993, pp. 1114-1121.
<b>c. Recommended books</b>	- Egyptian Code for Concrete Construction. - civil engineering materials "Shan somaya,I" or entice hall, englewood,cliffs,new j -1995-
<b>d. Periodicals, Web sites, etc</b>	

### 13- Facilities required for teaching and learning:

1. Appropriate teaching design studios including presentation board, data show
2. Google classroom
3. References in the library

### 14- Requirements for Disable facilities:

1. On line teaching hours if it is needed
2. Extra assignments

<b>Course coordinator:</b>	Professor. Hany ibrahim
<b>program Coordinator</b>	Civil Engineering
<b>Head of the Department</b>	Dr.Ashraf Abdel khalek Mostafa
<b>Date:</b>	2023/2024



**6-ENGL 102 Lower intermediate English:**

**Course Specification**

Course Code:	Course Name
ENGL 102	Lower Intermediate English

**A- Affiliation**

Relevant program:	Architectural Engineering program Electrical Power Engineering program Civil Engineering program
Department offering the program:	Architectural Engineering program Electrical Power Engineering program Civil Engineering program
Department offering the course:	Basic Science
Date of program operation:	2008 -2009
Date of approval from the Higher Ministry of education	27/1/2008
Confirmation date of the program as NARS 2018:	Department council no (1)
Confirmation date of the course as NARS 2018:	Department council no (1)
Date of course operation	2023-2024

**B-Basic Information**

Title	Lower Intermediate Englis
Code	ENGL 102
Credit Hours	3h
Lectures	2h
Tutorial	2h
Partical	0h
Total	4h
Prerequisite	ENGL 101
Instructor name	Dr Abd elaziz ramadan



## C- Professional Information

### 1- Course core:

Note: General description in the form to be used for the Bulletin or Handbook should be attached): The ENGL-102 course introduces the students to the form, style, content, and nature of scientific English and establishes a connection with their respective field of specialty. With these aspects fully introduced, students are gradually orientated with their prospective fields of specialty and placed in a position where they can proceed confidently toward their undergraduate and later on postgraduate studies.

### 2- Course Learning Objectives: ( oc )

Oc1	Enabling students to read and understand passages about the field of management and accounting.
oc2	How to write CVs and official letters.
oc3	How to use this knowledge in open market environments.
oc4	Acquiring business terminologies and abbreviations.

### 3-program objectives served by the course: ( o )

Upon the completion of the course the student should be able to:

O2	Apply strategies to solve societal problems.
O3	Maintain the built environment with its social, economic and environmental aspects to achieve the 2030 sustainable development goals.
O5	Conduct professional research that solves civil problems.
O11	Conducting scientific research.

### 4-The relation between the course objectives and the program objectives

Course objectives	program objectives
oc1	O2
oc 2	O11
oc 3	O3,O5
oc 4	O11,O5



### 5-Learning outcomes of the course (LOs): ( Lo )

Upon the completion of the course the student should be able to:

LO29	Work efficiently as an individual and share in team works.
LO20	Use contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements.
LO26	Plan and manage construction processes
LO23	Use contemporary tools to implement engineering design drawings, and presentations.
LO30	Communicate to convey ideas verbally, numerically, graphically, and using symbols effectively with a range of audiences.
LO31	Use creative, innovative and flexible thinking.

### 6-Program competencies served by the course:

Upon the completion of the Program the student should be able to:

C7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
C8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
C9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.

### 7-The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	LO29	C7
2	LO20,LO23,LO30	C8
3	LO26,LO31	C9



<b>8- Course Content and their to the course LOs</b>					
<b>Week No.</b>	<b>Topic</b>	<b>Lecture hr.</b>	<b>Tutorial hr.</b>	<b>Practical hours</b>	<b>LOs</b>
1	course introduces the students to the form, style scientific English	2	2	0	LO29, LO20
2	course introduces the students to the form content.	2	2	0	LO30, LO23
3	course introduces the students to the nature of scientific English.	2	2	0	LO26, LO31
4	can proceed confidently toward their undergraduate and later on postgraduate studies.	2	2	0	LO30, LO23
5	connection with their respective field of specialty.	2	2	0	LO23
6	Enabling students to read and understand passages about the field of management and accounting.	2	2	0	LO30, LO23
7	Quiz(1)	2	2	0	LO30, LO23
8	<b>Mid-term exam</b>	20			LO30, LO23
9	How to write CVs and official letters.	2	2	0	LO26
10	How to use this knowledge in open market environments.	2	2	0	LO26, LO31
11	Conduct professional research that solves civil problems.	2	2	0	LO30, LO23
12	Acquiring business terminologies and abbreviations.	2	2	0	LO30, LO23
13	Quiz (2)	2	2	0	LO30, LO23
14	<b>Final exam</b>	50			LO30, LO23
<b>Total hours</b>		28	28	0	



9- The Teaching and Learning Methods and their relation to the Los of the course						
Course learning Outcomes (LOs)	LO29	LO20	LO26	LO30	LO31	LO23
The Teaching and Learning Methods						
On line / face to face lectures						
Tutorials: sheets/ sketches projects						
Problem solving						
Brain storming						
Practical: lab discovering						
Site visit						
Reports/ researches						
Cooperative work presentation						
Discussion						
modelling						
Notes						
<ul style="list-style-type: none"> <li>• The research concerns the cooperative work, the discussion, the site visit and the presentations.</li> <li>• The Tutorials concerns the brain storming and the problem solving.</li> <li>• Online lectures used as hybrid learning , but in case of totally on line learning all the used teaching and learning methods will be on line.</li> </ul>						

10-Student assessment method						
Assessment method and its relation to the Los of the course						
Course learning Outcomes (LOs)	Tools of assessment					
	LO23	LO29	LO20	LO26	LO30	LO31
The Teaching and Learning Methods						



Quizzes/ exams						
Presentations and Movies						
Discussions						
Sheets and Sketches						
Problem solving						
lab						
Site visits						
Researches and reports						
Modelling						
Cooperative work						

11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (4)		(5) marks	(50) marks
	Quiz ( 2 )	Week (8)		(5) marks	
Discussions		Week ( 6 )	(40) %	(10) marks	
Sheets and Sketches		Every week	(50) %		
Researches and reports		Every week	(10) %		
the Projects		Every week	(0) %		
Practical modelling		Every week	(0) %		
Attendance		weekly		(5) marks	
Mid-term exam		Week (8)		(20) marks	
final exam		Week (16)		(50) marks	
Total				(100) marks	

12- List of references:	
a- Course notes	Lecture notes and handouts





<b>b- Required books</b>	<b><u>Essential References (For students' use)</u></b>  The English Language department implements two learning management systems, namely:  - Digital Learning Platform for Oxford University Press  <a href="http://www.Oxfordlearn.com">www.Oxfordlearn.com</a>  - iTools for Q: Skills for Success (A digital reference for the book)  - Randall's ESL Cyber Listening Lab  <a href="http://www.esl-lab.com/">http://www.esl-lab.com/</a>
<b>c- Recommended books</b>	Dutch Journal of Applied Linguistics  -ELT Journal, Oxford University Press  - International Journal of Applied linguistics  - International Journal of Research and Practice in Interpreting  - Journal of English Language Teaching- FTP Directory Listing  - Journal of Clinical Linguistics & Phonetics  - Journal of t5he Internationals Phonetics Association  - Second Language Research, University Press  - Studies in Second Language Research, University Press  - The Journal of Applied Linguistics



<b>d- Periodicals, Web sites, etc</b>	<b>Electronic Materials, Web Sites etc</b>  - Language laboratories  - Blackboard, E-Podium and smart board  <b>http:// ud.edu.sa</b>  - <b>http://ezp.ud.edu.sa/menu</b>  - <b>http://library.ud.edu.sa</b>  - <b>http://www.oclc.org/woerldcat.en.html</b>  - <b>http://www.classzone.com/books/researchguide/</b>  - <b>http://dictionary.cambridge.org/dictionary/british/criterion?q=criteria</b>  - <b>http://www.merriam-webster.com/</b>  - <b>http://oxforddictionaries.com/words/the-oxford-english-dictionary</b>
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### 13- Facilities required for teaching and learning:

Lecturer notes , Chemical Lab -Library- Internet - Data show - E-Learning moodle

### 14-Requirements for Disable facilities:

1. Appropriate teaching design studios including presentation board, data show, lab for modelling
2. Google class room E- learning Moodle

<b>Course coordinator:</b>	<b>Dr Abd elaziz ramadan</b>
<b>program Coordinator</b>	
<b>(Head of the Department)</b>	
<b>Date:</b>	2023/2024



## **7-MATH 201 Calculus 3:**

### **Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>Math201: Calculus III</b>	<b>Calculus III</b>

#### **A- Affiliation**

<b>Relevant program:</b>	Civil Engineering program
<b>Department offering the program:</b>	Civil Engineering program
<b>Date of program operation:</b>	2008 -2009
<b>Date of approval from the Higher Ministry of education</b>	27/1/2008
<b>Confirmation date of the program as NARS 2018:</b>	Department council no (1)
<b>Confirmation date of the course as NARS 2018:</b>	Department council no (1)
<b>Date of course operation</b>	2023-2024

#### **B-Basic Information**

<b>Title</b>	Calculus III
<b>Code</b>	Math201
<b>Credit Hours</b>	3 Cr. Hrs.
<b>Lectures</b>	2 Hrs.
<b>Tutorial</b>	2 Hrs.
<b>Total</b>	4 Hrs.
<b>Prerequisite</b>	Math102
<b>Instructor Name/Email</b>	Dr. Gamal El -Anany gamalanani75@gmail.com



## Professional Information

### 1- Course core:

The course introduces students to some important statistical concepts and techniques that are common applications in engineering. Covers graphical and numerical summaries of data, plot data, probabilities of random events, random variables, properties of density and distribution functions, measures of location and dispersion, expected values, independence of random variables, scaling and adding random variables, the binomial, Poisson and normal distributions, the central limit theorem, hypothesis testing, confidence intervals, t test, paired t test, standard errors, least squares, residuals, correlation, examples of regression, quality control, clustering rare events.

### 2-Course Learning Objectives: ( oc )

Oc1	Understand the classification of multiple integrals.
oc2	Understand the methods to solve the double integrals.
oc3	Understand using Sequences and series (including power series).
oc4	Be familiar with Green's Theorem

### 3- program objectives served by the course: ( o )

Upon the completion of the course the student should be able to:

O7	Developing skills in employing modern computer programs in the analysis, design and modeling process.
O9	Qualification to deal with the latest materials and systems that can transform engineering drawings into a real condition that meets the needs of the client and the era.
O11	Conducting scientific research.

### - The relation between the course objectives and the program objectives

	Course objectives	program objectives
1	oc1	O9,O11
2	oc 2	O9,O11
3	oc 3	O7,O11
4	oc 4	O7,O11



<b>5-Learning outcomes of the course (LOs): (Lo)</b>	
Upon the completion of the course the student should be able to:	
LO17	Apply engineering fundamentals, basic science and mathematics
LO3	Assess and evaluate findings.
LO4	Use statistical analyses and objective engineering judgment to draw conclusions.
LO18	conduct and Develop appropriate experimentation.
LO23	Use contemporary tools to implement engineering design drawings, and presentations.
LO33	Practice self-learning and other learning strategies.

<b>6-Program competencies served by the course:</b>	
Upon the completion of the Program the student should be able to:	
C1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
C2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
C10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

<b>7-The relation between the course learning outcomes and the program competencies</b>		
	<b>Course (LOs)</b>	<b>program competencies</b>
<b>1</b>	LO17	C1
<b>2</b>	LO3,LO4,LO18	C2
<b>3</b>	LO23,LO33	C10

<b>8- Course Content and their to the course LOs</b>					
<b>Week No.</b>	<b>Topic</b>	<b>Lecture hr.</b>	<b>Tutorial hr.</b>	<b>Practical hours</b>	<b>LOs</b>
1	Teaching and learning methods for outstanding students	3	2	0	LO17, LO3
2	Partial differentiation. Introduction to double integrals (including double integrals in polar coordinates). Multiple integrals.	2	2	0	LO18, LO4
3	Parametric equations. Cylindrical and spherical coordinates. Vector-valued functions, vector calculus: Green's Theorem,	2	2	0	LO18, LO4



	Gauss Theorem and Stokes' Theorem and their applications. Complex numbers.				
4	Introduction to double integrals (including double integrals in polar coordinates). Multiple integrals. Parametric equations. Cylindrical and spherical coordinates	2	2	0	LO33, LO23
5	Sequences and series (including power series). Vectors and planes. Surfaces	2	2	0	LO18, LO33
6	Vector-valued functions, vector calculus: Green's Theorem, Gauss Theorem and Stokes' Theorem and their applications.	2	2	0	LO23
7	Teaching and learning methods	2	2	0	LO18
8	<b>Mid-term exam</b>	20			LO17, LO3
9	Complex numbers.	2	2	0	LO17
10	Total sum	2	2	0	LO18
11	Teaching and learning methods for disable students		2	0	LO18, LO4
12	Teaching and learning methods for low capacity students		2	0	LO18, LO33
13	Quiz (2)	2	2	0	LO3
14	<b>Final exam</b>	50			LO17, LO3
<b>Total hours</b>		28	28	0	

9- The Teaching and Learning Methods and their relation to the Los of the course						
Course learning Outcomes (LOs)	LO17	LO3	LO4	LO18	LO23	LO33
The Teaching and Learning Methods						
On line / face to face lectures						
Tutorials: sheets/ sketches						
projects						
Problem solving						



Brain storming						
Practical: lab						
discovering						
Site visit						
Reports/ researches						
Cooperative work						
presentation						
Discussion						
modelling						

10- Student assessment method						
Assessment method and its relation to the Los of the course						
Course learning Outcomes (LOs) Assessment method	LO17	LO3	LO4	LO18	LO23	LO33
quizzes						
Mid -term exam						
Final exam						
sheets/ sketches						
projects						
Practical: lab						
Oral exam						
discussions						
Reports/ researches						
presentation						
modelling						

11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (5)		(5) marks	(30) marks
	Quiz ( 2 )	Week (12)		(5) marks	
Discussions		Weekly	(40) %	(10) marks	
Sheets and Sketches		Week (7-10-13-15)	(50) %		



Researches and reports			(10) %	
the Projects			(0) %	
Practical modelling			(0) %	
Attendance		weekly		(5) marks
Mid-term exam		Week (8)		(20) marks
final exam		Week (16)		(50) marks
Total				(100) marks

### 12- List of references:

<b>a- Course notes</b>	<u>There are lectures notes prepared in the form of a book authorized by the department.</u>
<b>b.Required books</b>	<ul style="list-style-type: none"> <li>▪ Swokowski, E, Olinick ,M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994.</li> <li>▪ Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994.</li> </ul> <p>Anthony croft,Robert Davison, Engineering Mathematics A modern Foundation for Electrical, Electronic &amp; Control Engineering, Addison - Wesley - Publishing Company, 1992.</p>
<b>c.Recommended books</b>	<p>Web Sites related to Mathematics and Mathematical engineering as:</p> <p><a href="http://www.math.hmc.edu">www.math.hmc.edu</a>,</p> <p><a href="http://www.web.mit.edu">www.web.mit.edu</a></p>

### 13- Facilities required for teaching and learning:

N.A

### 14- Requirements for Disable facilities:

N.A

<b>Course coordinator:</b>	<b>Dr. Gamal El -Anany</b>
<b>program Coordinator</b>	
<b>(Head of the Department)</b>	
<b>Date:</b>	2023/2024





## Second level

### Courses Specifications Second Semester (Fall)

No.	Cod	Course Name	Instructor
1	CVEE110	Civil Drawing	Dr. Mohamed Hazem
2	CVEE201	Construction Materials & Quality Control	Dr. Hany Ibrahim
3	CVEE202	Construction Materials Lab	Dr. Hany Ibrahim
4	CVEE302	Structural Analysis 2	Dr. Mohamed El daidmony
5	ENGR 205	Engineering Geology (Earth Systems)	Dr. Ahmed Farag
6	BASE303	Engineering economics	Dr. Abd el aziz
7	MATH 202	Differential Equations	Dr. Gamal El aniny



## **1-CVEE110 Civil Drawing1:**

### **Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>CVEE110</b>	<b>CVEE Civil drawing 1</b>

#### **A- Affiliation**

<b>Relevant program:</b>	<b>Civil Engineering program</b>
<b>Department offering the program:</b>	<b>Civil Engineering program</b>
<b>Date of program operation:</b>	<b>2008 -2009</b>
<b>Date of approval from the Higher Ministry of education</b>	<b>27/1/2008</b>
<b>Confirmation date of the program as NARS 2018:</b>	<b>Department council no (1)</b>
<b>Confirmation date of the course as NARS 2018:</b>	<b>Department council no (1)</b>
<b>Date of course operation</b>	<b>2023-2024</b>

#### **B- Basic Information**

<b>Course Name</b>	<b>Civil drawing 1</b>
<b>Course Code</b>	<b>CVEE 110</b>
<b>Course Offered to Program</b>	<b>Civil Engineering</b>
<b>Department Offering the Course</b>	<b>Civil Engineering</b>
<b>Date of Program Operation</b>	<b>2008-2009</b>
<b>Date of Approval from the Higher Ministry of Education</b>	<b>27/1/2008</b>
<b>Date of Course Operation</b>	<b>2023-2024</b>
<b>Credit Hours</b>	<b>1h</b>
<b>Lectures</b>	<b>1h</b>
<b>Tutorial</b>	<b>2h</b>
<b>Practical</b>	<b>0h</b>
<b>Total</b>	<b>4h</b>
<b>Instructor Name</b>	<b>Dr.ahmed abd elaziz</b>
<b>Instructor Email</b>	



## C- Professional Information

### 1- Course Core

Metallic sheds: Column base, Riveted joints, Connections between girders and beams, Columns and beams. Steel bridges: Truss connections, Main girders (upper and lower chords, verticals and diagonals), Cross girders and stringers. Reinforced concrete structures: Footings, Column slabs and beams. Irrigation structures: Earth works, Retaining walls, Bridges, Culverts, Syphons, Regulators, Weirs, Symmetrical and unsymmetrical locks

<b>2-Course Learning Objectives: ( oc )</b>	
oc1	Developed an understanding of the principles of civil drawing.
oc2	Know metallic sheds: Column base, Riveted joints
oc3	Understand the Connections between girders and beams, Columns and beams
oc4	Content of Steel bridges: Truss connections, Main girders (upper and lower chords, verticals and diagonals)
oc5	Content of Cross girders and stringers
oc6	Draw the Reinforced concrete structures: Footings, Column slabs and beams.
oc7	Know about Irrigation structures: Earth works, Retaining walls, Bridges, Culverts, Syphons, Regulators, Weirs, Symmetrical and unsymmetrical locks. 1 credit in three hour lab.

<b>3-program objectives served by the course: ( o )</b>	
Upon the completion of the course the student should be able to:	
O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O3	Maintain the built environment with its social, economic and environmental aspects to achieve the 2030 sustainable development goals.
O6	Professional development based on self-learning and continuous learning.
O9	Qualification to deal with the latest materials and systems that can transform engineering drawings into a real condition that meets the needs of the client and the era.
O10	Analysis and deduction through simulation systems.



4-The relation between the course objectives and the program objectives	
Course objectives	program objectives
oc 1	O9 , O10
oc 2	O1
oc 3	O1,O2,O6
oc 4	O1,O2
oc 5	O1,O2
oc 6	O1,O2
oc 7	O1,O2,O3

5- Program LOs served by the course:	
Upon the completion of the course the student should be able to:	
LO23	Use contemporary tools to implement engineering design drawings, and presentations.
LO30	Communicate to convey ideas verbally, numerically, graphically, and using symbols effectively with a range of audiences.
LO31	Use creative, innovative and flexible thinking.
LO15	Explain the role of industries, organizations, regulations and procedures involved.
LO33	Practice self-learning and other learning strategies.

6- Learning outcomes of the course (LOs)	
Upon the completion of the Program the student should be able to:	
Lo1	Describe the concepts of plane surveying, including the Public Land Survey System
Lo2	Properly set up and operate plane surveying equipment.
Lo3	Interpret and record data and field notes.
Lo4	Analyze and compute survey and engineering findings.

7- The relation between the course learning outcomes and the program competencies		
	program competencies	Course (LOs)
1	LO23,LO30	Lo1
2	LO31	Lo2
3	LO15,	Lo3
	LO23,LO33	Lo4



8- Course Content and their to the course Los					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	LOs
1	Metallic sheds: Column base, Riveted joints	1	2	0	Lo1
2	Connections between girders and beams, Columns and beams	1	2	0	Lo3
3	Steel bridges: Truss connections Main girders (upper and lower chords, verticals and diagonals)	1	2	0	Lo2
4	Cross girders and stringers	1	2	0	Lo3& Lo4
5	Reinforced concrete structures: Footings, Column slabs and beams.	1	2	0	Lo2
6	Irrigation structures	1	2	0	Lo3
7	Quiz (1)	1	2	0	Lo2
8	<b>Mid-term exam</b>	20			Lo3
9	Irrigation structures	1	2	0	Lo2
10	Irrigation structures	1	2	0	Lo3
11	Culverts, Syphons, Regulators, Weirs,	1	2	0	Lo4
12	Symmetrical and unsymmetrical locks. 1 credit in three-hour lab.	1	2	0	Lo2
13	Symmetrical and unsymmetrical locks. 1 credit in three hour lab.	1	2	0	Lo3
14	Application for the irrigation structure	1	2	0	Lo4
15	Quiz (2)	1	2	0	Lo4
16	<b>Final exam</b>	50			Lo1,Lo4
<b>Total hours</b>		13	28	0	



<b>9- The Teaching and Learning Methods and their relation to the Los of the course</b>				
<b>Course learning Outcomes (LOs)</b> <b>The Teaching and Learning Methods</b>	<b>Lo1</b>	<b>Lo2</b>	<b>Lo3</b>	<b>Lo4</b>
On line / face to face lectures				
Tutorials: sheets/ sketches				
projects				
Problem solving				
Brain storming				
Practical: lab				
discovering				
Site visit				
Reports/ researches				
Cooperative work				
presentation				
Discussion				
modelling				

<b>10- Student assessment method</b>				
<b>Assessment method and its relation to the Los of the course</b>				
<b>Course learning Outcomes (Los)</b> <b>Assessment method</b>	<b>Lo1</b>	<b>Lo2</b>	<b>Lo3</b>	<b>Lo4</b>
quizzes				
Mid -term exam				
Final exam				
sheets/ sketches				
projects				
Practical: lab				
Oral exam				
discussions				
Reports/ researches				
presentation				
modelling				



11- Grading System / Week				
Content	Time schedule of assessment		Marks	
Quizzes	Quiz ( 1 )	Week (7)		(5) marks
	Quiz ( 2 )	Week (15)		(5) marks
Discussions		Weekly	(40) %	(10) marks
Sheets and Sketches		Week (7-10-13-15)	(60) %	
Researches and reports		Week (13)	(0) %	
the Projects			(0) %	
Practical modelling			(0) %	
Attendance		weekly		(10) marks
Mid-term exam		Week (8)		(20) marks
final exam		Week (16)		(50) marks
Total				(100) marks

12- List of references:	
a. <b>Course notes</b>	<ul style="list-style-type: none"> <li>• Staff lectures notes.</li> <li>• elementary structural design drawing volum1 “Tarek elsayed Mahmoud”</li> </ul>
b. <b>Rquired books</b>	
c. <b>Recommended books</b>	<ul style="list-style-type: none"> <li>• Civil Engineer drawing.</li> </ul>
d. <b>Periodicals, Web sites, etc</b>	Non

13- Facilities required for teaching and learning:
<ul style="list-style-type: none"> <li>• Appropriate teaching design studios including presentation board, data show</li> <li>• Google classroom</li> <li>• E- learning</li> </ul>

14- Requirements for Disable facilities:
<ul style="list-style-type: none"> <li>• On line teaching hours if it is needed</li> <li>• Extra assignments</li> </ul>

<b>Course coordinator:</b>	<b>Dr.ahmed abd elaziz</b>
<b>program Coordinator</b>	Civil Engineering
<b>Head of the Department</b>	Dr.Ashraf Abdel khalek Mostafa
<b>Date:</b>	2023/2024



## 2-CVEE201 Construction Materials & Quality Control:

### Course Specification

Course Code:	Course Name
CVEE201	Construction Materials & Quality Control

#### A- Affiliation

Relevant program:	Civil Engineering program
Department offering the program:	Civil Engineering program
Date of program operation:	2008 -2009
Date of approval from the Higher Ministry of education	27/1/2008
Confirmation date of the program as NARS 2018:	Department council no (1)
Confirmation date of the course as NARS 2018:	Department council no (1)
Date of course operation	2023-2024

#### A- Basic Information

Course Name	Construction materials & quality control
Course Code	CVEE 201
Course Offered to Program	Civil Engineering
Department Offering the Course	Civil Engineering
Date of Program Operation	2008-2009
Date of Approval from the Higher Ministry of Education	27/1/2008
Date of Course Operation	2023-2024
Credit Hours	3h
Lectures	2h
Tutorial	2h
Practical	0h
Total	4h
Instructor Name	Professor. Hany ibrahim
Instructor Email	hani.ibrahim@sva.edu.eg





## C- Professional Information

### 1- Course Core

Properties and testing of fresh and hardened concrete.

- Advantage and disadvantage of concrete.
- Concrete industry; batching, mixing, transportation, casting, compaction, curing and finishing.
- Segregation and bleeding.
- Admixtures and additives, bituminous materials used in construction and maintenance of structures, roads and pavements)
- Mix design – concrete trial mixes on construction site.
- Shrinkage and Creep of concrete.
- Strength and Durability of concrete
- Corrosion of reinforcing steel.

Tests and quality control of various construction materials.

### 2-Course Learning Objectives: ( oc )

oc1	Learn Properties and testing of fresh and hardened concrete
oc2	Learn Advantage and disadvantage of concrete
oc3	Learn Concrete industry; batching, mixing, transportation, casting, compaction, curing and finishing.
oc4	Mix design – concrete trial mixes on construction site.
oc5	Shrinkage and Creep of concrete.
oc6	Corrosion of reinforcing steel.

### 3-program objectives served by the course: ( o )

Upon the completion of the course the student should be able to:

O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O4	Implementing projects that adopt a solution to a contemporary societal problem that depends on various civil designs and construction applications and keeping pace with Cods and legislation.



#### 4-The relation between the course objectives and the program objectives

Course objectives	program objectives
oc1	O1
oc 2	O2,O4
oc 3	O1,O2
oc 4	O1,O2
oc 5	O1,O2,O4
oc 6	O1,O2,O4

#### 5- Program LOs served by the course:

Upon the completion of the course the student should be able to:

LO6	Define standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
LO20	Use contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements.
LO29	Work efficiently as an individual and share in team works.
LO11	address construction defects, instability and quality issues; maintain safety measures in construction and materials.
LO12	assess environmental impacts of projects.

#### 6- Learning outcomes of the course (LOs)

Upon the completion of the Program the student should be able to:

Lo1	Evaluate the main properties of fresh concrete.
Lo2	Identify the workability of fresh concrete.
Lo3	Describe the mechanism of bleeding and segregation of fresh concrete
Lo4	Evaluate the main properties of hardened concrete.
Lo5	Conduct the different tests to measure the fresh properties of concrete.
Lo6	Perform the different tests to measure the hardened properties of concrete.
Lo7	Differentiate between creep and shrinkage



7-The relation between the course learning outcomes and the program competencies		
program competencies		Course (Los)
1	LO6,	Lo1
2	LO29	Lo2
3	LO11	Lo3
4	LO12	Lo4
5	,LO20	Lo5
6	LO12	Lo6
7	LO12	Lo7

8- Course Content and their to the course LOs					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	LOs
1	Introduction & production of cement	2	2	0	Lo1
2	Properties of Fresh concrete	2	2	0	Lo2
3	Factors affecting workability	2	2	0	Lo3
4	Workability tests	2	2	0	Lo5
5	Properties of hardened concrete	2	2	0	Lo2
6	Compressive strength test	2	2	0	Lo4
7	Quiz(1)	2	2	0	Lo3
8	<b>Mid-term exam</b>	20			Lo1, Lo5
9	Bending test	2	Lo1	0	Lo4
10	Creep and shrinkage	2	2	0	Lo2, Lo3
11	Design of concrete mix using absolute volume eq.	2	2	0	Lo2, Lo6
12	B.S. method for concrete mix design	2	2	0	Lo5
13	Corrosion of reinforcement	2	2	0	Lo3, Lo4
14	Corrosion of reinforcement	2	2	0	Lo2, Lo5
15	Quiz (2)	2	2	0	Lo5
16	<b>Final exam</b>	50			Lo1, Lo7
<b>Total hours</b>		28	28	0	



9- The Teaching and Learning Methods and their relation to the Los of the course							
Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7
The Teaching and Learning Methods							
On line / face to face lectures							
Tutorials: sheets/ sketches							
projects							
Problem solving							
Brain storming							
Practical: lab							
discovering							
Site visit							
Reports/ researches							
Cooperative work							
presentation							
Discussion							
modelling							

10- Student assessment method							
Assessment method and its relation to the Los of the course							
Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7
Assessment method							
quizzes							
Mid -term exam							
Final exam							
sheets/ sketches							



projects							
Practical: lab							
Oral exam							
discussions							
Reports/ researches							
presentation							
modelling							

11- Grading System / Week				
Content	Time schedule of assessment		Marks	
Quizzes	Quiz ( 1 )	Week (7)		(5) marks
	Quiz ( 2 )	Week (15)		(5) marks
Discussions		Weekly	(40) %	(10) marks
Sheets and Sketches		Week (7-10-13-15)	(50) %	
Researches and reports			(10) %	
the Projects			(0) %	
Practical modelling			(0) %	
Attendance		weekly		(5) marks
Mid-term exam		Week (8)		(15) marks
final exam		Week (16)		(60) marks
Total				(100) marks

12- List of references:	
a. Course notes	
b. Rquired books	- M. Imam, L. Vandewalle, and F. Mortelmans "Indirect Tensile Strength of Very High Strength Concrete" Proceedings of International Symposium on Utilization of High Strength Concrete, Lillehammer, Norway, June 1993, pp. 1114-1121.
c. Recommended books	- Egyptian Code for Concrete Construction. - materials and processes in manufacturing "Paul deGrom" prentice-hall intonation, Inc. -1997- - construction materials and processes Dona. Watson mc grow -hill book company -the civil engineer standard method of measurement in practice R.C.Mclaffrey



	<p>- مواد ونظم بناء حديثة د/ موسى محمود شومان حقوق الطبع محفوظة للمؤلف 2009</p> <p>- محاضرات مواد انشائية ومراقبه الجودة د/ موسى شومان</p> <p>- engineering and general geology for B.E. civil mining .metallurgy</p> <p>B.3sc(pass) and A,M ,L.E</p> <p>- materials science and technology for design engineering alex.e.javitz Hayden book company ,Inc. ,new, York</p>
d. Periodicals, Web sites, etc	

### 13- Facilities required for teaching and learning:

- Appropriate teaching design studios including presentation board, data show
- Google classroom
- References in the library

### 14- Requirements for Disable facilities:

- On line teaching hours if it is needed
- Extra assignments

Course coordinator:	Professor. Hany ibrahim
program Coordinator	Civil Engineering
Head of the Department	Dr.Ashraf Abdel khalek Mostafa
Date:	2023/2024



### **3-CVEE202 Construction Materials Lab:**

## **Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>CVVEE202</b>	<b>Construction Materials Lab</b>

### **A- Affiliation**

<b>Relevant program:</b>	Civil Engineering program
<b>Department offering the program:</b>	Civil Engineering program
<b>Date of program operation:</b>	2008 -2009
<b>Date of approval from the Higher Ministry of education</b>	27/1/2008
<b>Confirmation date of the program as NARS 2018:</b>	Department council no (1)
<b>Confirmation date of the course as NARS 2018:</b>	Department council no (1)
<b>Date of course operation</b>	2023-2024

### **A- Basic Information**

<b>Course Name</b>	Construction materials lab
<b>Course Code</b>	CVVEE202
<b>Course Offered to Program</b>	Civil Engineering
<b>Department Offering the Course</b>	Civil Engineering
<b>Date of Program Operation</b>	2008-2009
<b>Date of Approval from the Higher Ministry of Education</b>	27/1/2008
<b>Date of Course Operation</b>	2023-2024
<b>Credit Hours</b>	1h
<b>Lectures</b>	0h
<b>Tutorial</b>	0h
<b>Practical</b>	2h
<b>Total</b>	2h
<b>Instructor Name</b>	Professor. Hany ibrahim
<b>Instructor Email</b>	hani.ibrahim@sva.edu.eg



## C- Professional Information

### 1- Course Core

- Properties and testing of fresh and hardened concrete.
- Advantage and disadvantage of concrete.
  - Concrete industry; batching, mixing, transportation, casting, compaction, curing and finishing.
  - Segregation and bleeding.
  - Admixtures and additives, bituminous materials used in construction and (maintenance of structures, roads and pavements)
  - Mix design – concrete trial mixes on construction site.
  - Shrinkage and Creep of concrete.
    - Strength and Durability of concrete
    - Corrosion of reinforcing steel.
- Tests and quality control of various construction materials.

### 2-Course Learning Objectives: ( oc )

oc1	Learn Properties and testing of fresh and hardened concrete
oc2	Learn Advantage and disadvantage of concrete
oc3	Learn Concrete industry; batching, mixing, transportation, casting, compaction, curing and finishing.
oc4	Mix design – concrete trial mixes on construction site.
oc5	Shrinkage and Creep of concrete.
oc6	Corrosion of reinforcing steel.

### 3-program objectives served by the course: ( o )

Upon the completion of the course the student should be able to:

O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O4	Implementing projects that adopt a solution to a contemporary societal problem that depends on various civil designs and construction applications and keeping pace with Cods and legislation.





#### 4-The relation between the course objectives and the program objectives

Course objectives	program objectives
oc1	O1
oc 2	O2,O4
oc 3	O1,O2
oc 4	O1,O2
oc 5	O1,O2,O4
oc 6	O1,O2,O4

#### 5- Program LOs served by the course:

Upon the completion of the course the student should be able to:

LO6	Define standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
LO20	Use contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements.
LO29	Work efficiently as an individual and share in team works.
LO11	address construction defects, instability and quality issues; maintain safety measures in construction and materials.
LO12	assess environmental impacts of projects.

#### 6- Learning outcomes of the course (LOs)

Upon the completion of the Program the student should be able to:

Lo1	Evaluate the main properties of fresh concrete.
Lo2	Identify the workability of fresh concrete.
Lo3	Describe the mechanism of bleeding and segregation of fresh concrete
Lo4	Evaluate the main properties of hardened concrete.
Lo5	Conduct the different tests to measure the fresh properties of concrete.
Lo6	Perform the different tests to measure the hardened properties of concrete.
Lo7	Differentiate between creep and shrinkage



7-The relation between the course learning outcomes and the program competencies		
program competencies		Course (Los)
1	LO6,	Lo1
2	LO29	Lo2
3	LO11	Lo3
4	LO12	Lo4
5	,LO20	Lo5
6	LO12	Lo6
7	LO12	Lo7

8- Course Content and their to the course LOs					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	Los
1	Introduction & production of cement	2	2	0	Lo1
2	Properties of Fresh concrete	2	2	0	Lo2
3	Factors affecting workability	2	2	0	Lo3
4	Workability tests	2	2	0	Lo5
5	Properties of hardened concrete	2	2	0	Lo2
6	Compressive strength test	2	2	0	Lo4
7	Quiz(1)	2	2	0	Lo3
8	<b>Mid-term exam</b>	20			Lo1, Lo5
9	Bending test	2	Lo1	0	Lo4
10	Creep and shrinkage	2	2	0	Lo2, Lo3
11	Design of concrete mix using absolute volume eq.	2	2	0	Lo2, Lo6
12	B.S. method for concrete mix design	2	2	0	Lo5
13	Corrosion of reinforcement	2	2	0	Lo3, Lo4
14	Corrosion of reinforcement	2	2	0	Lo2, Lo5
15	Quiz (2)	2	2	0	Lo5
16	<b>Final exam</b>	50			Lo1, Lo7
<b>Total hours</b>		28	28	0	



9- The Teaching and Learning Methods and their relation to the Los of the course							
Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7
The Teaching and Learning Methods							
On line / face to face lectures							
Tutorials: sheets/ sketches							
projects							
Problem solving							
Brain storming							
Practical: lab							
discovering							
Site visit							
Reports/ researches							
Cooperative work							
presentation							
Discussion							
modelling							

10- Student assessment method							
Assessment method and its relation to the Los of the course							
Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7
Assessment method							
quizzes							
Mid -term exam							
Final exam							
sheets/ sketches							



projects							
Practical: lab							
Oral exam							
discussions							
Reports/ researches							
presentation							
modelling							

11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (7)		(10) marks	(50) marks
	Quiz ( 2 )	Week (15)		(10) marks	
Discussions		Weekly	(40) %	(10) marks	
Sheets and Sketches		Week (7-10-13-15)	(50) %		
Researches and reports			(10) %		
the Projects			(0) %		
Practical modelling			(0) %		
Attendance		weekly		(10) marks	
Mid-term exam		Week (8)		(10) marks	
final exam		Week (16)		(50) marks	
Total				(100) marks	

12- List of references:	
a. Course notes	
b. Required books	- M. Imam, L. Vandewalle, and F. Mortelmans "Indirect Tensile Strength of Very High Strength Concrete" Proceedings of International Symposium on Utilization of High Strength Concrete, Lillehammer, Norway, June 1993, pp. 1114-1121.



<b>c. Recommended books</b>	- Egyptian Code for Concrete Construction. - materials and processes Paul deGrom
<b>d. Periodicals, Web sites, etc</b>	

### 13- Facilities required for teaching and learning:

- Appropriate teaching design studios including presentation board, data show
- Google classroom
- References in the library

### 14- Requirements for Disable facilities:

- On line teaching hours if it is needed
- Extra assignments

<b>Course coordinator:</b>	Professor. Hany ibrahim
<b>program Coordinator</b>	Civil Engineering
<b>Head of the Department</b>	Dr.Ashraf Abdel khalek Mostafa
<b>Date:</b>	2023/2024



#### **4-CVEE302 Structural Analysis 2:**

### **Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>CVEE 302</b>	<b>Structural Analysis II</b>

#### **A- Affiliation**

Relevant program:	civil program Engineering
Department offering the program:	Civil Engineering
Department offering the course:	Civil Engineering
Date of program operation:	2009-2010
Date of approval from the Higher Ministry of education date	27/1/2008
	<b>2023 - 2024</b>

<b>Title</b>	Structural Analysis II
<b>Code</b>	CVEE 302
<b>Credit Hours</b>	<b>3 Cr. Hrs.</b>
<b>Lectures</b>	<b>2 Hrs.</b>
<b>Tutorial</b>	<b>2 Hrs.</b>
<b>Practical</b>	<b>0Hrs.</b>
<b>Total</b>	<b>4 Hrs.</b>
<b>Prerequisite</b>	CVEE 301/ENGR 203
<b>Instructor name</b>	Dr Mohamed hamdy

#### **B- Basic Information**

<b>Course Name</b>	<b>Structural Analysis II</b>
<b>Course Code</b>	<b>CVEE 302</b>
<b>Course Offered to Program</b>	<b>Civil Engineering</b>
<b>Department Offering the Course</b>	<b>Civil Engineering</b>
<b>Date of Program Operation</b>	<b>2008-2009</b>
<b>Date of Approval from the Higher Ministry of Education</b>	<b>27/1/2008</b>
<b>Date of Course Operation</b>	<b>2023-2024</b>
<b>Credit Hours</b>	<b>3 Cr. Hrs.</b>
<b>Lectures</b>	<b>2 Hrs.</b>
<b>Tutorial</b>	<b>2 Hrs.</b>
<b>Practical</b>	<b>0Hrs.</b>
<b>Total</b>	<b>4 Hrs.</b>
<b>Instructor Name</b>	<b>Dr Mohamed hamdy</b>



## **C- Professional Information**

### **1-Course core:**

Normal stresses and shear stresses, closed frames, Arches, influence lines. Analysis of statically indeterminate structures by three-moment equation, the method of consistent deformation, slope-deflection (Conjugate beam), Approximate analysis of statically indeterminate structures. Matrix force and displacement methods for beams and frames analysis

### **2-Course Learning Objectives: oC**

oC1	This course focuses on the methods to analysis the statically determinate structures.
oC2	Analyze closed frames and draw internal forces.
oC3	Compute the internal forces for different types of Arches.
oC4	Observe the effect of moving load and draw influence line for different structures.
oC5	Calculate, analyze and draw the normal stress and shear stress distributions.
oC6	Apply three moment equation method to solve the indeterminate structures.

### **3-Program objectives served by the course:**

O1	Being creativity and imagine in the design process.
O2	Apply strategies to solve societal problems.
O4	Implementing projects that adopt a solution to a contemporary societal problem that depends on various civil designs and construction applications and keeping pace with Cods and legislation.
O6	Professional development based on self-learning and continuous learning.
O9	Qualification to deal with the latest materials and systems that can transform engineering drawings into a real condition that meets the needs of the client and the era.
O10	Analysis and deduction through simulation systems.
O11	Conducting scientific research.

### **4-The relation between the course objectives and the program objectives**

<b>Course objectives</b>	<b>Program objectives</b>
oc1	O1,O2
oc 2	O1,O4
oc 3	O1,O2,O9
oc 4	O1,O2,O10
oc 5	O1,O2
oc 6	O1,O2,O6,O11



### 5- Program LOs served by the course:

Upon the completion of the course the student should be able to:

LO15	Explain the role of industries, organizations, regulations and procedures involved.
LO33	Practice self-learning and other learning strategies.
LO9	Analysis structure mechanical-properties, and Strength of Materials, Surveying, Soil Mechanics, Hydrology and Fluid Mechanics.
LO8	Select appropriate and sustainable technologies for the construction of buildings, infrastructures and water structures.
LO27	Transform design concepts into buildings.
LO28	integrate plans into overall planning within the constraints of: project financing, project management, cost control and methods of project delivery.

### 6- Learning outcomes of the course (Los)

Upon the completion of the Program the student should be able to:

Lo1	Select appropriate mathematical methods for modeling and analyzing structural problems.
Lo2	Adopt, create and innovate thinking in solving problems, and in designing systems, components and processes.
Lo3	Adopt appropriate mathematical principles, computing methods, design techniques and codes of practice in civil engineering disciplines, for modeling, analyzing and solving engineering problems.
Lo4	Apply knowledge of mathematics and engineering practice to solve structural engineering problems.
Lo5	Apply numerical modeling methods and appropriate computational techniques to structural engineering problems.
Lo6	Search for information and engage in life-long self-learning discipline.

### 7-The relation between the course learning outcomes and the program competencies

	program competencies	Course (Los)
1	LO15	Lo1
2	LO8	Lo2
3	LO27	Lo3
4	LO33	Lo4
5	LO28	Lo5
6	LO9	Lo6





8-Course Content					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	Los
1	Closed Frames and Applications I	2	2	0	Lo1
2	Closed Frames and Applications II	2	2	0	Lo2
3	Introduction to Arches, Parabolic Arches and Circular Arches I	2	2	0	Lo3
4	Applications, Parabolic Arches and Circular Arches I	2	2	0	Lo5
5	Influence Line for different structures I	2	2	0	Lo2
6	Influence Line for different structures II	2	2	0	Lo4
7	Midterm exam	15			Lo1,L4
8	Introduction to Normal Stresses	2	2	0	Lo1, Lo5
9	Application of Normal Stresses I	2	2	0	Lo4
10	Application of Normal Stresses II	2	2	0	Lo2, Lo3
11	Introduction to Shear Stresses	2	2	0	Lo2, Lo6
12	Application of Shear Stresses I	2	2	0	Lo5
13	Application of Shear Stresses II	2	2	0	Lo3, Lo4
14	Introduction to Three Moment Equation	2	2	0	Lo2, Lo5
15	Application of Three Moment Equation I	2	2		Lo5
16	Final exam	60			Lo6
<b>Total hours</b>		28	28	0	

9- The Teaching and Learning Methods and their relation to the Los of the course						
The Teaching and Learning Methods Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6
On line / face to face lectures						
Tutorials: sheets/ sketches						
projects						
Problem solving						
Brain storming						
Practical: lab						
discovering						
Site visit						
Reports/ researches						



Cooperative work						
presentation						
Discussion						
modelling						
<ul style="list-style-type: none"> <li>The project concerns the brain storming and the problem solving.</li> <li>Online lectures used as hybrid learning, but in case of totally on line learning all the used teaching and learning methods will be on line.</li> </ul>						

10- Student assessment method							
Assessment method and its relation to the Los of the course							
Assessment method	Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6
	quizzes						
Mid -term exam							
Final exam							
sheets/ sketches							
projects							
Practical: lab							
Oral exam							
discussions							
Reports/ researches							
presentation							
modelling							

11- Grading System / Week					
Content	Time schedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (5)		(5) marks	(40) marks
	Quiz ( 2 )	Week (5,13)		(5) marks	
Discussions		Weekly	(40) %	(10) marks	



Presentations and Movies		Weekly		
Sheets and Sketches		None	(50) %	
Researches and reports		Week ( 5,13 )	(10) %	
the Projects	Semi Final	Week ( 14 )	(0) %	
	Final	Week ( 15 )		
Practical modelling			(0) %	
Attendance		weekly		(5) marks
Mid-term exam		Week (8)		(15) marks
final exam		Week (16)		(60) marks
Total				(100) marks

### 12-List of references:

a. <b>Course notes</b>	<ul style="list-style-type: none"> <li>• Student have to take written not based on the instructor's lecture</li> <li>• Submission must be a periodical technical presentation.</li> <li>• Final submission is A1 paper and technical presentation.</li> <li>• The discussion and students' participants are very essential.</li> <li>• The evaluations are internal periodical assessments.</li> <li>• Student grades are available and posted in the class.</li> <li>• Only group work is allowed.</li> </ul>
b. <b>Required books</b>	<ul style="list-style-type: none"> <li>• “Theory of Structures” Part 1 and 2, By W.M.El-Dakhkhini, Cairo, Dar El-Maaref,</li> <li>• 2000.</li> <li>• <a href="http://www.greatbuildings.com/">http://www.greatbuildings.com/</a></li> </ul>
c. <b>Recommended books</b>	<ul style="list-style-type: none"> <li>• structure systems ralph Rapson -hanskribandal in Germany</li> <li>• structural engineering hand book edwinH.Gaylord mc grew- hill book company</li> </ul>

### 13- Facilities required for teaching and learning:

<ol style="list-style-type: none"> <li>1. References in library</li> <li>1. Appropriate teaching design studios including presentation board, data show</li> <li>2. Google classroom</li> <li>3. E- learning Moodle</li> </ol>
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**14-Requirements for Disable facilities:**

1. Extra assignments
2. On line extra teaching hours

<b>Course Instructor</b>	Dr Mohamed hamdy
<b>program Coordinator</b>	
<b>Head of the Department</b>	Dr. Ashraf Abdelkhalek
<b>Date</b>	2023-2024



**5-ENGR 205 Engineering Geology (Earth Systems):**

**Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>ENGR 205</b>	<b>Engineering Geology (Earth Systems)</b>

**A- Affiliation**

Relevant program:	civil program Engineering
Department offering the program:	Civil Engineering
Department offering the course:	Civil Engineering
Date of program operation:	2009-2010
Date of approval from the Higher Ministry of education date	27/1/2008 2023 - 2024

**B- Basic Information**

<b>Course Name</b>	<b>Engineering Geology (Earth Systems)</b>
<b>Course Code</b>	<b>ENGR 205</b>
<b>Course Offered to Program</b>	<b>Civil Engineering</b>
<b>Department Offering the Course</b>	<b>Civil Engineering</b>
<b>Date of Program Operation</b>	<b>2008-2009</b>
<b>Date of Approval from the Higher Ministry of Education</b>	<b>27/1/2008</b>
<b>Date of Course Operation</b>	<b>2023-2024</b>
<b>Credit Hours</b>	<b>3h</b>
<b>Lectures</b>	<b>2h</b>
<b>Tutorial</b>	<b>2h</b>
<b>practical</b>	<b>0h</b>
<b>Total</b>	<b>4h</b>
<b>Instructor Name</b>	<b>Dr.mahmoud fawzy</b>



## **C- Professional Information**

### **1- Course Core**

The objectives of this course are to learn the classification of minerals and rocks– Faults, folds and joints– earthquakes– Geological maps– engineering properties of rocks– weathering and related problems– Geophysical applications.

<b>2-Course Learning Objectives: ( oc )</b>	
oc1	This course introduces the study of Geology definitions
oc2	Learn The mechanical and physical properties of the rocks.
oc3	Knowing Faults- Dividers - folds.
oc4	Knowing Soil formation.
oc5	Applications on geological maps.

<b>3-program objectives served by the course: ( o )</b>	
Upon the completion of the course the student should be able to:	
O2	Apply strategies to solve societal problems.
O3	Maintain the built environment with its social, economic and environmental aspects to achieve the 2030 sustainable development goals.
O5	Conduct professional research that solves civil problems.
O6	Professional development based on self-learning and continuous learning.
O8	Gain experience in effective communication with the surrounding community.

<b>4-The relation between the course objectives and the program objectives</b>		
	<b>Course objectives</b>	<b>program objectives</b>
<b>1</b>	oc1	O2,O3
<b>2</b>	oc 2	O8
<b>3</b>	oc 3	O2,O8
<b>4</b>	oc 4	O2,O5,O6
<b>5</b>	oc 5	O2,O6



### 5- Program LOs served by the course:

Upon the completion of the course the student should be able to:

LO16	Solve complex engineering problems.
LO21	Conduct techniques and methods of investigation as researches and reports.
LO9	Analysis structure mechanical-properties, and Strength of Materials, Surveying, Soil Mechanics, Hydrology and Fluid Mechanics.
LO17	Apply engineering fundamentals, basic science and mathematics.
LO24	Use numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques.
LO33	Practice self-learning and other learning strategies.

### 6- Learning outcomes of the course (LOs)

Upon the completion of the Program the student should be able to:

Lo1	introduces the study of Geology definitions
Lo2	Learn The mechanical and physical properties of the rocks.
Lo3	Knowing Faults- Dividers - folds.
Lo4	Knowing Soil formation
Lo5	Applications on geological maps.

### 7- The relation between the course learning outcomes and the program competencies

	program competencies	Course (Los)
1	LO16	Lo1
2	LO21,LO33	Lo2
3	LO9	Lo3
4	LO24	Lo4
5	LO17	Lo5



8- Course Content and their to the course LOs					
Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	Los
1	Introduction	2	2	0	Lo1
2	Geology definitions	2	2	0	Lo2
3	soil installation	2	2	0	Lo3
4	Engineering geology	2	2	0	Lo5
5	rocks	2	2	0	Lo2
6	The mechanical and physical properties of the rocks	2	2	0	Lo4
7	Rock properties	2	2	0	Lo1
8	<b>Mid-term exam</b>	1			<b>Lo1, Lo3</b>
9	Phase relations	2	Lo1	0	Lo3
10	Phase relations	2	Lo2	0	Lo2
11	Faults- Dividers - folds	2	Lo3	0	Lo2
12	Faults- Dividers - folds	2	Lo5	0	Lo4
13	Soil formation	2	Lo2	0	Lo5
14	geological maps	2	2	0	Lo4
15	<b>Final exam</b>	2			<b>Lo1,Lo5</b>
<b>Total hours</b>		26	26	0	

9- The Teaching and Learning Methods and their relation to the Los of the course					
Course learning Outcomes (Los)					
	Lo1	Lo2	Lo3	Lo4	Lo5
The Teaching and Learning Methods					
On line / face to face lectures					
Tutorials: sheets/ sketches projects					
Problem solving					
Brain storming					
Practical: lab discovering					
Site visit					
Reports/ researches					
Cooperative work presentation					





Discussion					
modelling					

10- Student assessment method					
Assessment method and its relation to the Los of the course					
Course learning Outcomes (Los)	Lo1	Lo2	Lo3	Lo4	Lo5
Assessment method					
quizzes					
Mid -term exam					
Final exam					
sheets/ sketches					
projects					
Practical: lab					
Oral exam					
discussions					
Reports/ researches					
presentation					
modelling					

11- Grading System / Week				
Content	schedule of assessment		Marks	
Quizzes	Quiz ( 1 )	Week (6)		(5) marks
	Quiz ( 2 )	Week (13)		(5) marks
Discussions		Weekly	(40) %	(10) marks
Sheets and Sketches		Week (1-3-5-9-11)	(50) %	
Researches and reports		Week (13)	(10) %	
the Projects			(0) %	
Practical modelling			(0) %	
Attendance		weekly		
Mid-term exam		Week (8)		(20) marks
final exam		Week (15)		(60) marks
Total				(100) marks



12- List of references:	
a. Course notes	
b. Required books	الجيولوجيا الهندسية
c. Recommended books	<ul style="list-style-type: none"><li>• تمارين الخرائط الجيولوجية</li><li>• engineering properties of soils joseph E. bowel ISN0007-11292109</li><li>• reducing soil water evaporation with tillage and straw mulching S.K.lolota and sass prihar Munson young</li><li>• soil science simplified Neal s.eash William f.bennett ISN 978-0-8138-1823-8</li><li>• Data handbook for clay materials haven olphen pcrigamon press 1979</li><li>• جمال الدين عطيه مقدمة فى الجيولوجيا الهندسه AIAQSA</li><li>•</li></ul>
d. Periodicals, Web sites, etc	<a href="http://www.caterpillar.com">www.caterpillar.com</a>

13- Facilities required for teaching and learning:
<ul style="list-style-type: none"><li>• Appropriate teaching design studios including presentation board, data show</li><li>• Google classroom</li><li>• E- learning</li></ul>

14- Requirements for Disable facilities:
<ul style="list-style-type: none"><li>• On line teaching hours if it is needed</li><li>• Extra assignments</li></ul>

Course coordinator:	Dr Mahmoud fawzy
program Coordinator	Civil Engineering
Head of the Department	Dr.Ashraf Abdel khalek Mostafa
Date:	2023/2024



**6-BASE303 Engineering economics:**

**Course Specification**

Course Code:	Course Name
<b>BASE 303</b>	<b>Engineering Economics</b>

**A- Affiliation**

<b>Relevant program:</b>	Architectural Engineering program Electrical Power Engineering program Civil Engineering program
<b>Department offering the program:</b>	Architectural Engineering program Electrical Power Engineering program Civil Engineering program
<b>Department offering the course:</b>	Basic Science
<b>Date of department operation:</b>	2008 -2009
<b>Date of approval from the Higher Ministry of education</b>	<b>27/1/2008</b>
<b>Date of course operation</b>	<b>2023-2024</b>

**B-Basic Information**

<b>Title</b>	<b>Engineering Economics</b>
<b>Code</b>	<b>BASE 303</b>
<b>Credit Hours</b>	<b>3 Cr. Hrs.</b>
<b>Lectures</b>	<b>2 Hrs.</b>
<b>Tutorial</b>	<b>2Hrs.</b>
<b>Practical</b>	<b>0Hrs.</b>
<b>Total</b>	<b>4 Hrs.</b>
<b>Prerequisite</b>	<b>Math 102</b>
<b>Instructor Name/Email</b>	<b>Dr. Abdul Aziz Ramadan</b>



### **C- Professional Information**

#### **1-Course core:**

The objective of the course is to address the economic aspects of buildings with defining the scope, elements and features of cost during [(a) design (b) implementation / (c) building operation] as well as providing the student with skills and techniques to control the cost of construction operations and introducing the economic feasibility study of projects and their components site feasibility studies and evaluation thereof / preliminary feasibility studies in design operations and marketing studies). The course also deals with the study of the national economic field and its impact on the formulation and development of construction operations.

#### **2-Course Learning Objectives: oC**

oC1	To introduce students to concepts of indefinite integrals.
oC2	To teach students the fundamental theorem of calculus
oC3	To provide students with applications of the definite integral.
oC4	To provide students with numerical integration, improper integrals.

#### **3-Program objectives served by the course:**

O5	Conduct professional research that solves civil problems.
O6	Professional development based on self-learning and continuous learning.
O10	Analysis and deduction through simulation systems.

#### **4-The relation between the course objectives and the program objectives**

<b>Course objectives</b>	<b>Program objectives</b>
oc1	O5,O6
oc 2	O5,O6
oc 3	O5,O6,O10
oc 4	O5,O6,O10



### 5-Learning outcomes of the course (LOs)

Upon the completion of the course the student should be able to:

LO2	Simulate, analyse and interpret data.
LO4	Use statistical analyses and objective engineering judgment to draw conclusions.
LO13	Classify the constraints of: project financing, project management, cost control and methods of project delivery
LO5	Display global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
LO19	Apply engineering design processes to produce cost-effective solutions that meet specified needs.
LO25	Produce designs for Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures.
LO34	maintain safety in the implementation of the project.

### 6-Program competencies served by the course:

Upon the completion of the Program the student should be able to:

C2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
C3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
C6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.

### 7- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	LO2, LO4	C2
2	LO5,LO19,LO25	C3
3	LO13,LO34	C6



8-Course Contents					
Topic		Lecture hours	Tutorial hours	Practical hours	LOS
1	Introduction to engineering economics.	2	2	0	LO2, LO19
2	Phases of engineering projects/operation1.	2	2	0	LO5, LO13
3	Project activity versus time plan	2	2	0	LO4, LO19
4	Project total investment costs ; fixed assets costs, current assets costs, pre operation costs.	2	2	0	LO34
5	Project total investment costs ; current assets costs, pre operation costs.	2	2	0	LO13, LO19
6	Derivation of equation of cash future value	2	2	0	LO25, LO4
7	Midterm.	20			LO4, LO5
8	Derivation of equation of present of future cash flow.	2	2	0	LO4,
9	Derivation of equation of cash net present of expected future cash flow.	2	2	0	LO5
10	Calculation of the internal rate of return	2	2	0	LO34
11	calculation of the internal rate of return	2	2	0	LO25
12	The payback period.	2	2	0	LO19
13	Factory breakeven point (BEP).	2	2	0	LO5
14	Revision.	2	2	0	LO19
15	Final Exam.	50			LO34
Total		26	26	0	LO19



9- The Teaching and Learning Methods and their relation to the Los of the course						
Course learning Outcomes (LOs)	LO2	LO4	LO13	LO5	LO19	LO25
<b>The Teaching and Learning Methods</b>						
On line / face to face lectures						
Tutorials: sheets/ sketches						
projects						
Problem solving						
Brain storming						
Practical: lab						
discovering						
Site visit						
Reports/ researches						
Cooperative work						
presentation						
Discussion						
modelling						
Notes						
<ul style="list-style-type: none"> <li>• The research concerns the cooperative work, the discussion, and the presentations.</li> <li>• The exercises concerns the brain storming and the problem solving.</li> <li>• Online lectures used as hybrid learning , but in case of totally on line learning all the used teaching and learning methods will be on line.</li> </ul>						

10- Student assessment method						
Assessment method and its relation to the Los of the course						
Course learning Outcomes (LOs)	LO2	LO4	LO13	LO5	LO19	LO25
<b>Assessment method</b>						
quizzes						
Mid -term exam						
Final exam						
sheets/ sketches						
projects						
Practical: lab						
Oral exam						
discussions						
Reports/ researches						



presentation						
modelling						
Cooperative work						

### 11- Grading System / Week

Content	chedule of assessment		Marks		
Quizzes	Quiz ( 1 )	Week (4)		(5) marks	(50) marks
	Quiz ( 2 )	Week (8)		(5) marks	
Discussions		Week ( 6 )	(25) %	(10) marks	
Sheets and Sketches		Every week	(50) %		
Researches and reports		Every week	(25) %		
Practical modelling		Every week	(0) %		
Attendance		weekly		(10) marks	
Mid-term exam		Week (8)		(20) marks	
final exam		Week (16)		(50) marks	
Total				(100) marks	

### 12- List of references:

a- Course notes	Lecture notes and handouts
b- Required books	
c- Recommended books	
d- Periodicals, Web sites, etc	

### 13-Facilities required for teaching and learning:

-Lecturer notes, Library- Internet - Data show - E-Learning Moodle.

### 14-Requirements for Disable facilities:

1. Appropriate teaching design studios including presentation board, data show.
  2. Google class room
- E- learning Moodle

<b>Course Instructor:</b>	Dr. Abdul-Aziz Ramadan
<b>(Head of the Department)</b>	Dr. Amara Marye
<b>Date:</b>	2023/2024





## **7-MATH 202 Differential Equations:**

### **Course Specification**

<b>Course Code:</b>	<b>Course Name</b>
<b>Math202</b>	<b>Differential Equations</b>

#### **A- Affiliation**

<b>Relevant program:</b>	Architectural Engineering program Electrical Power Engineering program Civil Engineering program
<b>Department offering the program:</b>	Architectural Engineering program Electrical Power Engineering program Civil Engineering program
<b>Department offering the course:</b>	Basic Science
<b>Date of program operation:</b>	2008 -2009
<b>Date of approval from the Higher Ministry of education</b>	27/1/2008
<b>Confirmation date of the program as NARS 2018:</b>	Department council no (1) 1/7/2021
<b>Confirmation date of the course as NARS 2018:</b>	Department council no (1) 1/10/2021
<b>Date of course operation</b>	2023-2024

#### **B-Basic Information**

<b>Title</b>	<b>Differential Equations</b>
<b>Code</b>	<b>Math202</b>
<b>Credit Hours</b>	<b>3 Cr. Hrs.</b>
<b>Lectures</b>	<b>2 Hrs.</b>
<b>Tutorial</b>	<b>2 Hrs.</b>
<b>practical</b>	<b>0Hrs.</b>
<b>Total</b>	<b>4 Hrs.</b>
<b>Prerequisite</b>	<b>Math 201</b>
<b>Instructor Name/Email</b>	<b>Dr. Gamal El -Anany gamalanani75@gmail.com</b>



## **C- Professional Information**

### **1-Course core:**

Covers mathematical formulation of ordinary differential equations, methods of solution and applications of first order and second order differential equations, power series solutions, solutions by Laplace transforms and solutions of first order linear systems. In addition, it covers functions and limits, differentiation with applications including maxima and minima, related rates, approximations, theory of integration with applications including areas, volumes, lengths, moments, center of mass and work. The course has a computer laboratory component.

### **2-Course Learning Objectives: oC**

oC1	Understand the classification of ordinary differential equations.
oC2	Understand the methods to solve first order differential equations.
oC3	Understand the methods to solve second order differential equations.
oC4	Be familiar with Laplace transforms

### **3- Program objectives served by the course:**

O5	Conduct professional research that solves civil problems.
O6	Professional development based on self-learning and continuous learning.
O11	Conducting scientific research.

### **4-The relation between the course objectives and the program objectives**

<b>Course objectives</b>	<b>Program objectives</b>
oc1	O5,O6,O11
oc 2	O5,O6,O11
oc 3	O5,O6,O11
oc 4	O5,O6,O11



**5-Learning outcomes of the course (LOs)**

Upon the completion of the course the student should be able to:

LO1	Identify, formulate basic science and mathematics.
LO2	Simulate, analyze and interpret data.
LO16	Solve complex engineering problems.
LO4	Use statistical analyses and objective engineering judgment to draw conclusions.
LO14	Predict the knowledge of industries, organizations, regulations and procedures involved.
LO33	Practice self-learning and other learning strategies.

**6-Program competencies served by the course:**

Upon the completion of the Program the student should be able to:

C1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
C2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
C10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

**7- The relation between the course learning outcomes and the program competencies**

	Course (LOs)	program competencies
1	LO1,LO16	C1
2	LO2,LO4	C2
3	LO14,LO33	C10



<b>8- Course Content</b>				
<b>Topic</b>	<b>Lecture hours</b>	<b>Tutorial hours</b>	<b>Practical hours</b>	<b>LOS</b>
1- Covers mathematical formulation of ordinary differential equations	2	2	0	LO16
2- methods of solution and applications of first order differential equations	2	2	0	LO14
3- methods of solution and applications of second order differential equations	2	2	0	LO16, LO1
4- Laplace transforms	2	2	0	LO4, LO2
5- solutions of first order linear systems by Laplace transforms	2	2	0	LO14
6- functions and limits,	2	2	0	LO33, LO14
7- differentiation with applications including maxima and minima	2	2	0	LO2
8- midterm				LO33, LO4
9- maxima and minima	2	2	0	LO33
10- theory of integration with applications including areas	2	2	0	LO1, LO4
11- volumes,	2	2	0	LO2
12- lengths,	2	2	0	LO14
13- moments,	2	2	0	LO2
14- center of mass and work	2	2	0	LO16
15- Revision	2	2	0	LO2
16- Final Exam		3		LO4, LO16
<b>total</b>	<b>28</b>	<b>28</b>	<b>0</b>	<b>LO33, LO14, LO16</b>



9- The Teaching and Learning Methods and their relation to the Los of the course						
Course learning Outcomes (LOs)	LO1	LO2	LO16	LO4	LO14	LO33
<b>The Teaching and Learning Methods</b>						
On line / face to face lectures						
Tutorials: sheets/ sketches						
projects						
Problem solving						
Brain storming						
Practical: lab						
discovering						
Site visit						
Reports/ researches						
Cooperative work						
presentation						
Discussion						
Notes						
<ul style="list-style-type: none"> <li>• The research concerns the cooperative work, the discussion, and the presentations.</li> <li>• The exercises concerns the brain storming and the problem solving.</li> <li>• Online lectures used as hybrid learning , but in case of totally on line learning all the used teaching and learning methods will be on line.</li> </ul>						

10- Student assessment method						
Assessment method and its relation to the Los of the course						
Course learning Outcomes (LOs)	LO1	LO2	LO16	LO4	LO14	LO33
<b>Assessment method</b>						
quizzes						
Presentations and Movies						
Discussions						
Sheets and Sketches						
Problem solving						



lab						
Site visits						
Researches and reports						
Modelling						
Cooperative work						

### 11- Grading System / Week

Content	chedule of assessment		Marks	
Quizzes	Quiz ( 1 )	Week (4)		(5) marks
	Quiz ( 2 )	Week (8)		(5) marks
Discussions		Week ( 6 )	(25) %	(10) marks
Sheets and Sketches		Every week	(50) %	
Researches and reports		Every week	(25) %	
Practical modelling		Every week	(0) %	
Attendance		weekly		(10) marks
Mid-term exam		Week (8)		(20) marks
final exam		Week (16)		(50) marks
Total				(100) marks

### 12- List of references:

<b>a- Course notes</b>	<b>Lecture notes and handouts</b>
<b>b- Required books</b>	<ul style="list-style-type: none"> <li>• Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994.</li> <li>• Anthony croft, Robert Davison, Engineering Mathematics A modern Foundation for Electrical, Electronic &amp; Control Engineering, Addison - Wesley - Publishing Company, 1992</li> </ul>
<b>c- Recommended books</b>	Swokowski, E, Olinick ,M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994



<b>d- Periodicals, Web sites, etc</b>	<b>No periodicals are needed.</b> Web Sites related to Mathematics and Mathematical engineering as: <b><u><a href="http://www.math.hmc.edu">www.math.hmc.edu</a></u>,</b> <b><u><a href="http://www.tutorial.math.lamar.edu">www.tutorial.math.lamar.edu</a></u>,</b> <b><u><a href="http://www.web.mit.edu">www.web.mit.edu</a></u></b>
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### 13- Facilities required for teaching and learning:

Lecturer notes , Library- Internet - Data show - E-Learning moodle

### 14-Requirements for Disable facilities:

1. Appropriate teaching design studios including presentation board, data show.
  2. Google class room
- E- learning Moodle

<b>Course coordinator:</b>	Dr.Gamal El-Anany
<b>program Coordinator</b>	
<b>(Head of the Department)</b>	
<b>Date:</b>	2023/2024