Second level courses (Sophomore)

First semester (Fall)

No.	Cod	Course Name	Instructor
1	CECE 102	Fundamental of structured programming	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
2	CECE 201	Digital Logic Design I	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
3	CECE 202	Electric Circuits I	Dr. Ibrahim Ali Mahmoud Abdel Dayem
4	MATH 201	Calculus III	Dr. Gamal El-Anani
5	ENGR 206	Strength and Testing of Materials	Prof. Dr. Al-Desouki Ibrahim Saleh Eid
6	ENGR 102	Lower intermediate English	Dr. Ahmed El-Hosseini
7	BASE309	Human Rights	Dr. Abd El-Aziz Ramadan

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
CECE 102	Fundamental of structured programming
A- Affiliation	
Relevant program:	Control and computer system engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	2021-2022

B-Basic Information

Title	Fundamental of structured programming
Code	CECE 102
Credit Hours	3Cr. hr
Lectures	2hr
lab	2hr
Total	4hr
Prerequisite	CECE 101
Instructor name/Email	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi mohammed.ghaboushy@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Prepare the students for the advanced course in C++ which will provide the student with the fundamental knowledge and skills to become a C++ programmer.
oc 2	Understand transpose the physical problem domain into a hierarchy of objects.

oc 3	Know Objects, their behaviors, and their relationships, will be modeled and these models will be programmed into a functional application that the student will compile, modify, enhance and run.
oc 4	Write Program in a structured style whereby reinforcing the concepts of software quality, reliability and maintainability.

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.
OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP5
2	oc 2	OP6
3	oc 3	OP5
4	oc 4	OP7

4- Learning outcomes of the course (LOs)

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

Lo1	Describe OOPs concepts
Lo2	Use functions and pointers in your C++ program
Lo3	Understand tokens, expressions, and control structures
Lo4	Explain arrays and strings and create programs using them
Lo5	Describe and use constructors and destructors

5- Program competencies served by the course:

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

B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design
B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B2
2	Lo2	B2
3	Lo3	B2
4	Lo4	B2, B3
5	Lo5	B2, B3

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Introducing C ++ Programming	2	0	2	LO1
2	Variables	2	0	2	LO1
3	Working with Tokens, Expressions and Control Structures in C++	2	0	2	LO1
4	Managing Input and Output Data	2	0	2	LO2
5	Arranging the Same Data Systematically: Arrays	2	0	2	LO3
6	Revision and quiz	2	0	2	LO3
7	Decisions	2	0	2	LO3
8	Midterm		1.0		
9	Functions	2	0	2	LO2
10	Pointers + (Quiz)	2	0	2	LO3
11	Maximum power transfer.	2	0	2	LO5
12	Quiz (2) + solved examples	2	0	2	LO4
13	Classes and Objects in C++	2	0	2	LO5
14	Implementing OOPs Concepts in C++	2	0	2	LO5
15	General revision	2	0	2	LO3
16	Final Exam		2.0		

Total hours	28	0	28	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	Teaching and Learning Methods												
	On line / face to face lecture	Tutorials: sheets/ sketches	projects	Problem solving	Brain storming	Practical: lab	discovering	Site visit	Reports/ researches	Cooperative work	presentation	Discussion	modelling
Lo1	✓												
Lo2	✓	✓		✓		✓	✓						
Lo3	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo4	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

Student assessment method

a- Assessment method and its relation to the Los of the course

Course lLOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1											
Lo2				✓		✓					
Lo3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lo4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

b- Time schedule of assessment

Quizzes	Quiz (1) Quiz (2)	Week (3) Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly

Sheets and Sketches		weekly	
Researches and reports		Week (2,3)	
the Projects		Week (4,8)	
Practical modelling		Week (4,8)	
Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	
c- Grading system			
quizes	Quiz (1)	(2.5) marks	
	Quiz (2)	(2. 5) marks	
Discussions	15%		
Sheets and Sketches	15%		(60) marks
Researches and reports	20%	30 marks	
the Projects	30%		
Practical modelling	20%		
Attendance		(10) marks	
Mid-term exam		(15) marks	
final exam			(40) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	Timothy B. D'Orazio, McGraw-Hill, "Programming in C++ lessons and applications", International Edition, 2004
c) Recommend books	Walter Savitch, Addison-Wesley, 'Problem solving with C++", 7thedn, 2009.
d) Periodicals, Web sites, etc	• www.prenhall.com • presentations, handouts by Mohamed, N.A.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

- On line teaching hours if it is needed

- Extra assignments

Course coordinator:	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	2021/2022

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
CECE 201	Digital logic design I
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Digital logic design I
Code	CECE 201
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 101
Instructor name/Email	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi mohammed.ghaboushy@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Explain the logic gates concepts
oc 2	Explain the boolean algebra and logic simplification.
oc 3	Explain karnaugh map
oc 4	Explain combinational logic analysis
oc 5	Explain functions of combinational logic

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.

OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP5
2	oc 2	OP6
3	oc 3	OP5
4	oc 4	OP7
5	oc 5	OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Understand logic gates: definition, function and practice.
Lo2	Know boolean algebra and logic simplification: definition, function and practice.
Lo3	Know laws and rules of boolean algebra and demorgan's theorems.
Lo4	Understand boolean analysis of logic circuits and logic simplification using boolean algebra.
Lo5	Understand standard forms of boolean expressions and boolean expressions and truth tables
Lo6	Know the karnaugh map, combinational logic analysis and functions of combinational logic.

5- Program competencies served by the course:

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

B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design
B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.

B5	Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B2
2	Lo2	B2, B3
3	Lo3	B2
4	Lo4	B2
5	Lo5	B2
6	Lo6	B5

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Introduction	2	2	0	Lo1
2	Number systems	2	2	0	Lo1
3	Logic Gates	2	2	0	Lo1
4	Boolean algebra and logic simplification	2	2	0	Lo2
5	Laws and rules of Boolean algebra	2	2	0	Lo2
6	Demorgan's theorem	2	2	0	Lo3
7	Midterm		1.0		
8	Boolean analysis of logic circuits	2	2	0	Lo4
9	Logic simplification using Boolean algebra	2	2	0	Lo4
10	Standard forms of Boolean expressions	2	2	0	Lo5
11	Boolean expressions and truth tables	2	2	0	Lo5
12	Karnaugh map	2	2	0	Lo6
13	Combinational logic analysis	2	2	0	Lo6
14	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

	Teaching and Learning Methods

Course learning Outcomes (LOs)	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
Lo1	✓												
Lo2	✓	✓											
Lo3	✓	✓	✓	✓	✓		✓		✓	✓			✓
Lo4	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
Lo6	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1											
Lo2											
Lo3	✓	✓	✓	✓	✓		✓		✓		✓
Lo4	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo6	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)

the Projects		Week (4,8)	
Practical modelling		Week (4,8)	
Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	
c- Grading system			
Quizzes	Quiz (1) Quiz (2)	(5) marks (5) marks	
Discussions	15%		
Sheets and Sketches	20%		
Researches and reports	20%	5 marks	(40) marks
the Projects	30%		
Practical modelling	20%		
Attendance		(10) marks	
Mid-term exam		(15) marks	
final exam			(60) marks
Total			(100) marks

10- List of references:	
a) Course notes	Lecture notes and handouts
b) Required books	1. Digital Fundamentals, 11th Edition by Thomas L, Floyd 2. Digital Design Principles and Practices- 4th Ed, John F. Wakerly, Prentice Hall, 2005
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course coordinator:	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
CECE 202	Electric circuits (I)
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	202١-202٢

B-Basic Information

Title	Electric circuits (I)
Code	CECE 202
Credit Hours	3Cr.hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	PHYS 102
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem dr.ibrahim@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Identify electrical components (resistors, capacitors, inductors, and etc.)
oc 2	Perform circuit analysis and calculations for resistive, capacitive, and inductive DC circuits.
oc 3	Apply basic laws and calculations to circuit theorems such as Superposition, Thevenin's, and Nortons.
oc 4	Understand the principles of DC and AC.

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.

OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP5
2	oc 2	OP6, OP7
3	oc 3	OP5
4	oc 4	OP7, OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Ability to apply basic laws to resistive circuits.
Lo2	Ability to perform mesh and nodal analysis.
Lo3	Ability to apply circuit theorems.
Lo4	Ability to use phasors to analyze steady-state sinusoidal circuit analysis.
Lo5	Ability to understand complex power.

5- Program competencies served by the course:

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

B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design
B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
B4	Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application
B5	Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B2
2	Lo2	B2, B3
3	Lo3	B2, B3
4	Lo4	B4, B5
5	Lo5	B2

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Introduction to electric circuit variables and elements.	2	2	0	LO1
2	Magnetic field quantities	2	2	0	LO1
3	Simple resistive circuits+ Solved examples+ Quiz (1).	2	2	0	LO1
4	Techniques for circuit analysis.	2	2	0	LO2
5	Node voltage method.	2	2	0	LO3
6	Mesh current method.	2	2	0	LO3
7	Source transformation.	2	2	0	LO3
8	Midterm		1.0		
9	Superposition.	2	2	0	LO2
10	Thevenin and Norton equivalent circuits.	2	2	0	LO3
11	Maximum power transfer.	2	2	0	LO5
12	Quiz (2) + solved examples	2	2	0	LO4
13	Operational Amplifiers.	2	2	0	LO5
14	Introduction to inductance and capacitance.	2	2	0	LO5
15	Sinusoidal steady state analysis (a.c. circuits).	2	2	0	LO3
14	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	Teaching and Learning Methods												
	On line / face to face lectures	Tutorials: sheets/	projects	Problem solving	Brain storming	Practical: lab	discovering	Site visit	Reports/ researches	Cooperative work	presentation	Discussion	modelling
Lo1	✓												
Lo2	✓												✓
Lo3	✓			✓	✓		✓		✓	✓			✓
Lo4	✓			✓	✓		✓		✓	✓	✓	✓	✓
Lo5	✓			✓	✓		✓		✓	✓	✓	✓	✓

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course lLOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1											
Lo2	✓	✓	✓	✓							✓
Lo3	✓	✓	✓	✓			✓		✓		✓
Lo4	✓	✓	✓	✓			✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓			✓	✓	✓	✓	✓

b- Time schedule of assessment

Quizzes	Quiz (1) Quiz (2)	Week (3) Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly

Sheets and Sketches		weekly	
Researches and reports		Week (2,3)	
the Projects		Week (4,8)	
Practical modelling		Week (4,8)	
Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	

c- Grading system

quizes	Quiz (1) Quiz (2)	(2.5) marks (2.5) marks	
Discussions	15%		
Sheets and Sketches	15%		
Researches and reports	20%	15 marks	(40) marks
the Projects	30%		
Practical modelling	20%		
Attendance		(5) marks	
Mid-term exam		(15) marks	
final exam		(60) marks	
Total		(100) marks	

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	1. James W. Nilsson, and Susan A. Riedel ,Electric Circuits , 10th edition. 2. Charles K. Alexander & Mathew Sadiku, Fundamental of Electric Circuits, 5th edition.
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course coordinator:	Dr. Ibrahim Ali Mahmoud Abdel Dayem
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
Math201	Calculus III
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Calculus III
Code	Math201
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	Math102
Instructor name/Email	Dr. Gamal El Anani gamalanany@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Explain concepts of sequences and series.
oc 2	Explain concepts of mathematical Vectors and planes.
oc 3	Apply knowledge of mathematics to solve Partial differentiation problems.
oc 4	Explain Concepts of double integrals
oc5	Search and analyze data, to Deal with design situations within solving design problems based on the analytical process for Multiple integrals
oc 6	Demonstrate methodologies of solving engineering problems with Green's Theorem.
oc 7	Apply knowledge of Theory of equations, and Complex numbers to solve engineering problems.

2- program objectives served by the course:

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

OP 1	Sequences and series (including power series).
OP 2	Vectors and planes.
OP 3	Partial differentiation.
OP 4	Introduction to double integrals (including double integrals in polar coordinates).
OP 5	Multiple integrals.
OP 6	Cylindrical and spherical coordinates Vector-valued functions, vector calculus: Green's Theorem, Gauss Theorem and Stokes' Theorem and their applications.
OP7	Complex numbers.

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

Course objectives		program objectives
1	oc 1	OP1
2	oc 2	OP2
3	oc 3	OP3
4	oc 4	OP4
5	oc 5	OP5
6	oc 6	OP6
7	oc 7	OP7

4- Learning outcomes of the course (LOs)

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

Lo1	Explain concepts and theories of mathematics and sciences, appropriate to calculus III.
Lo2	Demonstrate methodologies of solving engineering problems, data collection and interpretation
Lo3	Select appropriate solutions for engineering problems based on analytical thinking
Lo4	Apply knowledge of mathematics to solve engineering problems.
Lo5	Apply knowledge of linear algebraic equations, iterative methods, and infinite series to solve engineering problems.
Lo6	Prepare and present technical reports about application of matrices to solve engineering problems.
Lo7	Communicate effectively in tutorial class room with the demonstrator.

Lo8	Effectively manages tasks, time, and resources, when solving mathematics problems, and in exams
Lo9	Apply knowledge of mathematics to solve differential problems

5- Program competencies served by the course:

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

A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics
A2	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

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A1
2	Lo2	A1
3	Lo3	A1
4	Lo4	A1
5	Lo5	A2
6	Lo6	A2
7	Lo7	A2
8	Lo8	A2
9	Lo9	A2

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Sequences and series (including power series	2	2	0	Lo1, Lo2
2	Vectors and planes.	2	2	0	Lo1, Lo3
3	Partial differentiation	2	2	0	Lo5, Lo6, Lo7, Lo8
4	Introduction to double integrals	2	2	0	Lo2, Lo4
5	Double integrals in polar coordinates	2	2	0	Lo2, Lo4
6	Multiple integrals.	2	2	0	Lo2, Lo4
7	Cylindrical and spherical coordinates	2	2	0	Lo4
8	Midterm		1.0		

9	Vector-valued functions,	2	2	0	Lo2, Lo4
10	vector calculus	2	2	0	Lo2, Lo4
11	Green's Theorem	2	2	0	Lo2, Lo5, Lo6
12	, Gauss Theorem	2	2	0	Lo2, Lo4
13	Stokes' Theorem and applications	2	2	0	Lo2, Lo4
14	Complex numbers.	2	2	0	Lo2, Lo4
15	Revision	2	2	0	Lo2, Lo4, Lo5, Lo6
14	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	Teaching and Learning Methods												
	On line / face to face lecture	Tutorials: sheets/ database	projects	Problem solving	Brain storming	Practical: lab	discovering	Site visit	Reports/ researches	Cooperative work	presentation	Discussion	modelling
Lo1	✓	✓		✓	✓						✓	✓	
Lo2	✓	✓		✓	✓						✓	✓	
Lo3	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo4	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo5	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo6	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo7	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo8	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo9	✓	✓		✓	✓		✓		✓	✓	✓	✓	

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.

The Tutorials concerns the brain storming and the problem solving.

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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1	✓	✓	✓	✓				✓	✓	✓	
Lo2	✓	✓	✓	✓				✓	✓	✓	
Lo3	✓	✓	✓	✓				✓	✓	✓	
Lo4	✓	✓	✓	✓				✓	✓	✓	
Lo5	✓	✓	✓	✓				✓	✓	✓	
Lo6	✓	✓	✓	✓				✓	✓	✓	
Lo7	✓	✓	✓	✓				✓	✓	✓	
Lo8	✓	✓	✓	✓				✓	✓	✓	
Lo9	✓	✓	✓	✓				✓	✓	✓	

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)
Attendance		weekly
Mid-term exam		Week (7)
final exam		Week (14)

c- Grading system

quizes	Quiz (1)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	25%		
Sheets and Sketches	50%	5 marks	(30) marks
Researches and reports	25%		
Attendance		(10) marks	
Mid-term exam		(20) marks	
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	1. Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994. 2. Anthony croft, Robert Davison, Engineering Mathematics A modern Foundation for Electrical, Electronic & Control Engineering, Addison - Wesley - Publishing Company, 1992
c) Recommend books	Stokowski, E, Olinick, M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994
d) Periodicals, Web sites, etc	Web Sites related to Mathematics and Mathematical engineering as: www.math.hmc.edu, www.tutorial.math.lamar.edu, www.web.mit.edu

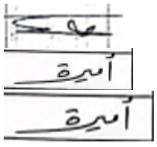
11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Gamal El Anani
program Coordinator	Dr. Amera Marey
Head of the Department	Dr. Amera Marey
Date:	٢٠٢١/٢٠٢٢



Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
ENGR 206	Strength and Testing of Materials
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Strength and Testing of Materials
Code	ENGR 206
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	ENGR 103
Instructor name/Email	Prof. Dr. Al -Desouki Ibrahim Saleh Eid eldesuki.eid@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Formulate the fundamentals of stress and strain in components
oc 2	Apply the mechanical behavior of materials under tensile, compressive, and shear loads.
oc 3	Develop and appropriate experiment discussion of mechanical behavior of materials under hardness, impact loading, fracture and fatigue.
oc 4	Application of stresses and the corresponding deformations in components
oc 5	Search and analyze data, to deal with axial loading, torsion, and bending
oc 6	Apply the analytics of statically indeterminate problems
oc7	Application of transformation of plane stresses
oc8	Solve problems on Mohr's circle.
oc9	Application of transverse loading

2- program objectives served by the course:

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

OP 1	Stress and strain in components
OP 2	Mechanical behavior of materials under tensile, compressive, and shear loads.
OP 3	Mechanical behavior of materials under hardness, impact loading, fracture and fatigue.
OP 4	Analysis of stresses and the corresponding deformations in components
OP 5	Axial loading, torsion, and bending
OP 6	Statically indeterminate problems.
OP 7	Transformation of plane stresses,
OP 8	Mohr's circle.
Op9	Transverse loading.

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

	Course objectives	program objectives
1	oc 1	OP1
2	oc 2	OP2
3	oc 3	OP3
4	oc 4	OP4
5	oc 5	OP5
6	oc 6	OP6
7	oc 7	OP7
8	oc 8	OP8
9	oc 9	OP9

4- Learning outcomes of the course (LOs)

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

Lo1	know the various physical, chemical, and mechanical properties of metals,
Lo2	know the standard specifications of test specimens and test procedure,
Lo3	know the theoretical basis of material tests.
Lo4	Interpret results of standard tests.
Lo5	Make required data processing on test results.
Lo6	Conduct standard tests.
Lo7	Teach materials properties and testing to industrial school students

5- Program competencies served by the course:

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

A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics
A2	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 and development.
A5	Practice research techniques and methods of investigation as an inherent part of learning.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A1
2	Lo2	A1
3	Lo3	A1
4	Lo4	A2
5	Lo5	A5
6	Lo6	A5
7	Lo7	A5

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Analysis of the different problems of stress and strain in components	2	2	0	Lo1, Lo2
2	Mechanical behavior of materials under tensile	2	2	0	Lo1, Lo3
3	Compressive, and shear loads	2	2	0	Lo5, Lo6
4	Hardness, impact loading	2	2	0	Lo2, Lo4
5	Fracture and fatigue.	2	2	0	Lo2, Lo4
6	Analysis of stresses and the corresponding deformations in components	2	2	0	Lo2, Lo4
7	Axial loading	2	2	0	Lo4
8	Midterm	1.0			
9	Torsion	2	2	0	Lo2, Lo4

10	Bending	2	2	0	Lo2, Lo4
11	Transverse loading	2	2	0	Lo2, Lo5
12	Statically indeterminate problems.	2	2	0	Lo2, Lo4
13	Transformation of plane stresses.	2	2	0	Lo2, Lo4
14	Mohr's circle.	2	2	0	Lo2, Lo4
15	Revision	2	2	0	Lo2, Lo4, Lo5
16	Final Exam	2.0			
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	Teaching and Learning Methods												
	On line / face to face lectures	Tutorials: sheets/ database	projects	Problem solving	Brain storming	Practical: lab	discovering	Site visit	Reports/ researches	Cooperative work	presentation	Discussion	modelling
Lo1	✓	✓		✓	✓				✓	✓	✓	✓	
Lo2	✓	✓		✓	✓				✓	✓	✓	✓	
Lo3	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo4	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo5	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo6	✓	✓		✓	✓		✓		✓	✓	✓	✓	
Lo7	✓	✓		✓	✓		✓		✓	✓	✓	✓	

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1	✓	✓	✓	✓				✓			
Lo2	✓	✓	✓	✓				✓			
Lo3	✓	✓	✓	✓			✓	✓	✓		
Lo4	✓	✓	✓	✓			✓	✓	✓	✓	
Lo5	✓	✓	✓	✓			✓	✓	✓	✓	
Lo6	✓	✓	✓	✓			✓	✓	✓	✓	
Lo7	✓	✓	✓	✓			✓	✓	✓	✓	

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)
the Projects		Week (4,8)
Practical modelling		Week (4,8)
Attendance		weekly
Mid-term exam		Week (7)
final exam		Week (14)

c- Grading system

quizes	Quiz (1)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	20%		
Sheets and Sketches	40%	5 marks	(30) marks
Researches and reports	40%		
Attendance		(10) marks	
Mid-term exam		(20) marks	
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	Material Engineering, Elsabbagh A.S, Cairo,2006

c)	Recommend books	Engineering Materials, A. ATA & El-Erian A., London,1976.
d)	Periodicals, Web sites, etc	No periodicals are needed.

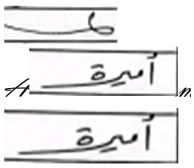
11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Prof. Dr. Al -Desouki Ibrahim Saleh Eid
program Coordinator	Dr. Amera Marey
Head of the Department	Dr. Amera Marey
Date:	٢٠٢١/٢٠٢٢



Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
ENGL 102	Lower Intermediate English
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Lower Intermediate English
Code	ENGL 102
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	1hr
Total	3hr
Prerequisite	ENGL 101
Instructor name/Email	Dr. Ahmed El-Husani ahmed.elhousiny@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Enabling students to read and understand passages about the field of management and accounting
oc 2	How to write CVs and official letters
oc 3	How to use this knowledge in open market environments
oc 4	Acquiring business terminologies and abbreviations

2- program objectives served by the course:

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

OP 1	Acquire good reading skills enabling them to read faster, comprehend and identify required information.
OP 2	Develop effective and appropriate skills to present information in a concise manner.

OP 3	Understand major grammatical structures and use them in writing and speaking.
OP 4	Know the meanings of word-roots and use such knowledge in recognizing and learning the meanings of other terms of importance.

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

	Course objectives	program objectives
1	oc 1	OP1
2	oc 2	OP2
3	oc 3	OP3
4	oc 4	OP4
5	oc 5	OP5

4- Learning outcomes of the course (LOs)

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

Lo1	Analyze and respond thoughtfully to competing claims
Lo2	Evaluate and choose appropriate texts for citation.
Lo3	Cite effectively and properly, conforming to academic expectations concerning paraphrase, quotation, attribution, and bibliographical forms.
Lo4	Make informed choices about voice and style, using one's reading as a resource for rhetorical models.

5- Program competencies served by the course:

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

A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams
A8	Assume full responsibility for own learning and self-development, engage in lifelong learning, and demonstrate the capacity to engage in post-graduate and research studies.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A7
2	Lo2	A7
3	Lo3	A7
4	Lo4	A8

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Understand the differences between the kinds of writing academic writers are called upon to do abbreviations	2	2	0	Lo1, Lo2
2	Uunderstand that readers in different disciplines approach text with different expectations and preferences	2	2	0	Lo1, Lo3
3	Imagine meaningful shapes for ideas, so that a text's form is a natural manifestation of what one wants to say	2	2	0	Lo5, Lo6
4	Recognize identifiable genres and shape texts around different generic expectations where appropriate	2	2	0	Lo2, Lo4
5	Sequence thoughts effectively, articulating connections between a text's individual discussions	2	2	0	Lo2, Lo4
6	How to write CVs and official letters	2	2	0	Lo2, Lo4
7	Midterm		1.0		
8	About erosion and weathering of the rocks.	2	2	0	Lo2, Lo4
9	The present condition & the past perfect	2	2	0	Lo2, Lo4
10	Dailogues	2	2	0	Lo2, Lo5
11	Revision	2	2	0	Lo2, Lo4
12	Revision	2	2	0	Lo2, Lo4,Lo 5
13	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

a- Teaching and Learning Methods

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

Notes:*The research concerns the cooperative work, the discussion, the site visit and the presentations.*
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Tools of assessment

Course lLOs	Mid -term exam	Final exam	sheets/	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1	✓	✓	✓				✓	✓	✓	
Lo2	✓	✓	✓				✓	✓	✓	
Lo3	✓	✓	✓			✓	✓	✓	✓	
Lo4	✓	✓	✓			✓	✓	✓	✓	

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)
the Projects		Week (4,8)
Practical modelling		Week (4,8)

Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	
c- Grading system			
quizes	Quiz (1)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	5%		
Sheets and Sketches	45%		
Researches and reports	10%	10 marks	(30) marks
the Projects	10%		
Practical modelling	20%		
Attendance		(5) marks	
Mid-term exam		(20) marks	
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes
Lecture notes and handouts

b) Required books
- The English Language department implements two learning management systems, namely:
- Digital Learning Platform for Oxford University Press, www.Oxfordlearn.com
- ITools for Q: Skills for Success (A digital reference for the book)
- Randall's ESL Cyber Listening Lab, http://www.esl-lab.com/

c) Recommend books
- 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.

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

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Ahmed El-Husani	Ahmed
program Coordinator	Dr. Amera Marey	أميرة
Head of the Department	Dr. Amera Marey	أميرة
Date:	٢٠٢١/٢٠٢٢	

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
BASE 309	Human Rights
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Human Rights
Code	BASE 309
Credit Hours	0 Cr. hr
Lectures	0 hr
Tutorial	2hr
Total	4hr
Prerequisite	-
Instructor name/Email	Dr. Abd El-Aziz Ramadan abdelaziz.Ramadan@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Understanding the main topics and feature of human rights concerning the engineers and the clients.
oc 2	Focusing on analyzing and presenting the international institutional framework to deal with human rights issues.
oc 3	Addressing the role of the non-governmental organizations in the field of protecting human rights.

2- program objectives served by the course:

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

OP 1	Raising students' awareness of the importance of preserving the built environment in its social, economic and environmental aspects to achieve the goals of sustainable development 2030.

OP 2	Developing students' professional skills and the ability to self- and continuous learning.
OP 3	Students gain experiences in effective communication with the surrounding community.
OP 4	Provide students with the skills to conduct scientific research

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

	Course objectives	program objectives
1	oc 1	OP1, OP2, OP3, OP4
2	oc 2	OP1, OP2, OP3
3	oc 3	OP1, OP2, OP3

4- Learning outcomes of the course (LOs)

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

Lo1	The concept of the human rights and the international organizations and the non-governmental organizations in the field of human rights.
Lo2	Present research issues and share teams while conducting research's
Lo3	Analyze frame work of the various organizations in protecting the human rights.
Lo4	Present the case studies concerning the self-learning.
Lo5	Practice self-learning to in contact with the main issues related to the human rights.

5- Program competencies served by the course:

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

A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
A5	Practice research techniques and methods of investigation as an inherent part of learning.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

6- The relation between the course learning outcomes and the program competencies

Course (LOs)	program competencies

1	Lo1	A1, A5
2	Lo2	A4, A7
3	Lo3	A7
4	Lo4	A1
5	Lo5	A10

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Introducing to the concept of human rights (from its inception to the present time.)	0	2	0	Lo3, Lo5
2	Types of human rights as stated in the Egyptian constitution 1971.	0	2	0	Lo3, Lo5
3	Human rights in light of the provisions of Islamic law	0	2	0	Lo3, Lo5
4	Human rights as stated on both Holly Quran and in the prophet Mohamed Sunna. (Research as case studies)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
5	Egyptian human rights during the eras of modern Egypt (one hundred years).	0	2	0	Lo3, Lo5
6	The changes of human rights since early age of Egyptian kingdom till now. (Research as case studies)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
7	Human rights in Egyptian law.	0	2	0	Lo3, Lo5
8	Midterm		1.0		
9	Statements of human rights as specified in various countries in the world.	0	2	0	Lo3, Lo5
10	Case study of human rights in various countries in the world (Research)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
11	Human rights between the individual and society and between state sovereignty and international protection. (Research)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5

12	The conflict between nations sovereignty and international society in relation to human rights concept. (Research)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
13	The loss of Egyptian human rights between inherited family traditions and some ugly society habits. (Research)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
14	Factors influencing the loss of the Egyptian citizen human rights (family old beliefs, ignorance of environmental rules by society and hardship of competent authorities). (Research)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
15	The sodden abrupt changes of western nations policy towards the mean and Arab countries, and relation to human rights. (Research)	0	2	0	Lo1, Lo2, Lo3, Lo4, Lo5
16	Final Exam		2.0		
Total hours		0	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	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
Lo1		✓							✓	✓			
Lo2		✓									✓		
Lo3		✓								✓		✓	
Lo4		✓									✓		
Lo5		✓					✓					✓	

Notes:

- *The research concerns the cooperative work, the discussion, the site visit and the presentations.*
- *The Tutorials concerns the brain storming and the problem solving.*

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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1									✓		
Lo2										✓	
Lo3		✓	✓					✓	✓		
Lo4										✓	
Lo5		✓	✓					✓			

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Researches and reports		Week (4, 6, 10, 12,13,14,15)
Attendance		weekly
Mid-term exam		Week (8)
final exam		Week (16)

c- Grading system

Quizzes	Quiz (1)	5 marks	
	Quiz (2)	5 marks	
Presentations	50%	10 marks	(30) marks
Researches and reports	50%		
Attendance		10 marks	
Mid-term exam			(20) marks
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	▪ Lizabeth A. Stephan, David R. Bowman, William J. Park, Benjamin L. Sill, Matthew W. Ohland, "Thinking like an engineer", Published by Pearson 2018. ▪ Harris, C. E., Jr., Pritchard, M. S., & Rabins, M. J. Engineering Ethics. Second edition. Belmont, CA: Wadsworth, 2000.
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

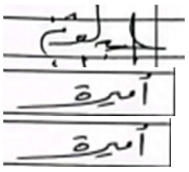
11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Abd El-Aziz Ramadan
program Coordinator	Dr. Amera Marey
Head of the Department	Dr. Amera Marey
Date:	٢٠٢١/٢٠٢٢



Second level courses (Sophomore)

Second semester (Spring)

No.	Code	Course Name	Instructor
1	CECE 203	Electric Circuits II	Dr. Ibrahim Ali Mahmoud Abdel Dayem
2	CECE 213	Electric Circuits Lab	Dr. Ibrahim Ali Mahmoud Abdel Dayem
3	CECE 209	Digital Logic Design II	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
4	CECE 211	Digital Logic Lab	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
5	PHYS 301	Waves,Optics & Atomic Physics	Dr. Dr. Amal Elgawadi
6	PHYS 311	Optics Lab	Dr. Neven Gamal Rostom
7	MATH 202	Differential Equations	Dr. Dr. Gamal El-Anani
8	BASE 303	Engineering Economics	Dr. Abd El-Aziz Ramadan

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
CECE 203	Electric circuits (II)
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Electric circuits (II)
Code	CECE 203
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 202
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem dr.ibrahim@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Develop the understanding regarding power calculations in ac circuits.
oc 2	Understand the condition of resonance circuits.
oc 3	AC electric circuits and systems with AC power concepts.
oc 4	Analysis of the concepts of impedance, phase and frequency response.

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.
OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical

	problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP5
2	oc 2	OP6
3	oc 3	OP7
4	oc 4	OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Ability for analysis the relevant topics from the electrical circuit's domain.
Lo2	Calculates the transient states in the circuits, makes the comments of expected results and presents them in graphical forms.
Lo3	Use circuit analysis methods to solve electrical circuits problems that involve AC power sources and AC power
Lo4	Use different software tools for the analysis of AC circuits.

5- Program competencies served by the course:

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

B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design
B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
B4	Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application.
B5	Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B2
2	Lo2	B2, B4
3	Lo3	B2, B3
4	Lo4	B2, B5

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Capacitor and inductors.	2	2	0	Lo1
2	First order circuit.	2	2	0	Lo1
3	Second order circuit.	2	2	0	Lo1
4	Sinusoidal steady state analysis & Quiz.	2	2	0	Lo1
5	Sinusoidal steady state analysis AC power calculation and analysis.	2	2	0	Lo2
6	Balanced three phase circuits.	2	2	0	Lo2
7	Mutual inductance.				Lo2
8	Midterm		1.0		
9	Frequency selective circuits.	2	2	0	Lo1
10	Laplace transform in circuit analysis.	2	2	0	Lo2
11	Passive Filters	2	2	0	Lo4
12	Quiz (2) + solved examples	2	2	0	Lo3
13	Passive Filters	2	2	0	Lo4
14	Active Filters	2	2	0	Lo4
15	General Review				Lo2
14	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

	Teaching and Learning Methods

Course learning Outcomes (LOs)	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
Lo1	✓												
Lo2	✓	✓											
Lo3	✓	✓	✓	✓	✓		✓		✓	✓			✓
Lo4	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment: quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1											
Lo2											
Lo3	✓	✓	✓	✓	✓		✓		✓		✓
Lo4	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)
the Projects		Week (4,8)
Practical modelling		Week (4,8)
Attendance		weekly
Mid-term exam		Week (7)

final exam	Week (14)		
c- Grading system			
quizes	Quiz (1)	(2.5) marks	
	Quiz (2)	(2.5) marks	
Discussions	15%		
Sheets and Sketches	15%		
Researches and reports	20%	15 marks	(40) marks
the Projects	30%		
Practical modelling	20%		
Attendance		(10) marks	
Mid-term exam		(15) marks	
final exam			(60) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	▪ James W. Nilsson, and Susan A. Riedel, Electric Circuits, 10th edition. ▪ Charles K. Alexander & Mathew Sadiku, Fundamental of Electric Circuits, 5th edition
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Ibrahim Ali Mahmoud Abdel Dayem	
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul	
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem	
Date:	٢٠٢١/٢٠٢٢	

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
CECE 213	Electric circuits lab
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Electric circuits lab
Code	CECE 213
Credit Hours	1 Cr. hr
Lectures	0hr
lab	2hr
Total	2hr
Prerequisite	Conc. with CECE 203
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem, Eng. Aliaa Mosa Freej dr.ibrahim@sva.edu.eg, aliaa.mousa@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	To be able to know different electrical terms and define them with examples
oc 2	To be able to describe the basic principles, laws and theorems of electrical circuits
oc 3	To be able to analyze and different types of basic electrical circuits
oc 4	Test circuits, analyze data and compare measured performance to theory and simulation.

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.

OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP5
2	oc 2	OP5
3	oc 3	OP6
4	oc 4	OP7, OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Uses the proper concepts for analysis of relevant topics from the electrical circuit's domain
Lo2	Provides experiments concerning the electric circuits with the use of proper instrumentation and explain the results
Lo3	Calculates the transient states in the circuits, makes the comments of expected results and presents them in graphical forms
Lo4	Use circuit analysis methods to solve electrical circuits problems that involve AC power sources and AC power
Lo5	Use different software tools for the analysis of AC circuits

5- Program competencies served by the course:

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

B5	Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B5
2	Lo2	B5
3	Lo3	B5

4	Lo4	B5
5	Lo5	B5

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Resistors and the Color Code.	2	2	0	LO1
2	Ohm's Law.	2	2	0	LO1
3	Series Resistance.	2	2	0	LO1
4	Series dc Circuits.	2	2	0	LO2
5	Parallel Resistance	2	2	0	LO3
6	Parallel dc Circuits.	2	2	0	LO3
7	Series-Parallel dc Circuits.	2	2	0	LO3
8	Midterm		1.0		
9	Thevenin's Theorem and Maximum Power Transfer.	2	2	0	LO2
10	Norton's Theorem and Current Sources.	2	2	0	LO3
11	Methods of Analysis.	2	2	0	LO5
12	Tests of circuits	2	2	0	LO4
13	Capacitors.	2	2	0	LO5
14	Active Filters	2	2	0	LO5
15	R-L and R-L-C Circuits with a dc Source Voltage	2	2	0	LO3
16	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	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

Lo1	✓	✓	✓		✓	✓		✓	✓	✓		
Lo2	✓	✓	✓		✓	✓		✓	✓	✓		
Lo3	✓	✓	✓		✓	✓		✓	✓	✓		
Lo4	✓	✓	✓		✓	✓		✓	✓	✓		
Lo5	✓	✓	✓		✓	✓		✓	✓	✓		

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
	Tools of assessment										
Lo1		✓	✓	✓	✓	✓	✓	✓		✓	
Lo2		✓	✓	✓	✓	✓	✓	✓		✓	
Lo3		✓	✓	✓	✓	✓	✓	✓		✓	
Lo4		✓	✓	✓	✓	✓	✓	✓		✓	
Lo5		✓	✓	✓	✓	✓	✓	✓		✓	

b- Time schedule of assessment

Quizzes	Quiz (1) Quiz (2)	
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports the Projects		weekly
Practical modelling Attendance		weekly
Mid-term exam		Week (7)
final exam		Week (14)

c- Grading system

quizes	Quiz (1) Quiz (2)	(0) marks (0) marks	(60) marks

Discussions	20%		
Sheets and Sketches	70%		
Researches and reports	0%	40 marks	
the Projects	10%		
Practical modelling	0%		
Attendance		(10) marks	
Mid-term exam		(10) marks	
final exam			(40) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	▪ James W. Nilsson, and Susan A. Riedel, Electric Circuits, 10th edition. ▪ Charles K. Alexander & Mathew Sadiku, Fundamental of Electric Circuits, 5th edition
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Ibrahim Ali Mahmoud Abdel Dayem
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course code:	Course name
CECE 209	Digital Logic Design II
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Digital Logic Design II
Code	CECE 209
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 201
Instructor name/Email	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi mohammed.ghaboushy@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	To study the basic philosophy underlying the various number systems, negative number representation, binary.
oc 2	Arithmetic, binary codes and error detecting and correcting binary codes.
oc 3	To study the combinational logic design of various logic and switching devices and their realization.
oc 4	To study the sequential logic circuits design both in synchronous and asynchronous modes.

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.

OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP5
2	oc 2	OP5
3	oc 3	OP6, OP12
4	oc 4	OP7, OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Understand various types of number systems and their conversions.
Lo2	Simplify the Boolean expressions and apply the Boolean theorems through logical gates
Lo3	Design and implement variety of logical devices using combinational circuits concepts.
Lo4	Demonstrate and compare the construction of programmable logic devices and different types of ROM
Lo5	Analyze sequential circuits like registers and counters using flip-flops.

5- Program competencies served by the course:

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

B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design
B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
B4	Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application

B5	Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B2
2	Lo2	B2
3	Lo3	B2, B3
4	Lo4	B3, B4
5	Lo5	B3, B4, B5

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Half adder and full adder description	2	2	0	LO1
2	Ripple carry and look ahead adder description	2	2	0	LO1
3	Look ahead carry adder + Solved examples+ Quiz (1).	2	2	0	LO1
4	Comparator description	2	2	0	LO2
5	comparator+ solved examples.	2	2	0	LO3
6	Decoder and Encoder	2	2	0	LO3
7	Multiplexer.				LO3
8	Midterm		1.0		
9	Design Exercises	2	2	0	LO2
10	Sequential circuits and latches	2	2	0	LO3
11	Sequential circuits and latches	2	2	0	LO5
12	Quiz (2) + solved examples	2	2	0	LO4
13	Flip Flop	2	2	0	LO5
14	Shift Registers	2	2	0	LO5
15	Memory				LO3
14	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	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
Lo1	✓												
Lo2	✓	✓											
Lo3	✓	✓	✓	✓	✓		✓		✓	✓			✓
Lo4	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
Lo6	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1											
Lo2											
Lo3	✓	✓	✓	✓	✓		✓		✓		✓
Lo4	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo5	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo6	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly

Sheets and Sketches		weekly	
Researches and reports		Week (2,3)	
the Projects		Week (4,8)	
Practical modelling		Week (4,8)	
Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	

c- Grading system

Quizes	Quiz (1) Quiz (2)	(5) marks (5) marks	
Discussions	15%		
Sheets and Sketches	20%		
Researches and reports	20%	5 marks	(40) marks
the Projects	30%		
Practical modelling	20%		
Attendance		(10) marks	
Mid-term exam		(15) marks	
final exam			(60) marks
Total			(100) marks

10- List of references:

▪ Course notes	Lecture notes and handouts
▪ Required books	▪ Digital fundamentals, 11th edition by Thomas l, Floyd ▪ Digital design principles and practices- 4th ed, john f. wakerly, prentice hall, 2005.
▪ Recommend books	Mentioned at time.
▪ Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
CECE 211	Digital Logic Design Lab
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Electrical and communication engineering
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Digital Logic Design Lab
Code	CECE 211
Credit Hours	1Cr. hr
Lectures	0hr
Tutorial	2hr
Total	2hr
Prerequisite	Conc. with CECE 203
Instructor name/Email	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi mohammed.ghaboushy@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	To understand number representation and conversion between different representation in digital electronic circuits
oc 2	To analyze logic processes and implement logical operations using combinational logic circuits.
oc 3	To understand characteristics of memory and their classification.
oc 4	To verify the theoretical concepts through laboratory and simulation experiments.

2- program objectives served by the course:

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

OP 5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies.
OP 6	Prepare undergraduate students who can create new ways to meet society's needs by applying fundamentals of engineering sciences to practical problems using design and syntheses of electrical components, circuits, and systems.
OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 12	Prepare engineers who can work on electrical power systems, including designing and realizing such systems.

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

	Course objectives	program objectives
1	oc 1	OP12
2	oc 2	OP5, OP12
3	oc 3	OP6, OP12
4	oc 4	OP7, OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Explain the Concept of Number Systems.
Lo2	Construct the Combinational Logic Circuits.
Lo3	Develop the Synchronous Sequential Circuits.
Lo4	Develop the Asynchronous Sequential Circuits.
Lo5	Construct the Programmable Logic Devices.

5- Program competencies served by the course:

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

B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
B4	Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application
B5	Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	B3
2	Lo2	B3
3	Lo3	B4
4	Lo4	B4
5	Lo5	B5

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Basic Electronic instruments and measurements, oscilloscope.	2	2	0	LO1
2	Lab report outline and results presentation.	2	2	0	LO1
3	Inverters.	2	2	0	LO1
4	AND gates .	2	2	0	LO2
5	OR gates .	2	2	0	LO3
6	NAND gates .	2	2	0	LO3
7	NOR gates.	2	2	0	LO3
8	Midterm		1.0		
9	XOR gates .	2	2	0	LO2
10	XNOR gates .	2	2	0	LO3
11	Combinational circuits.	2	2	0	LO5
12	Test circuits	2	2	0	LO4
13	Half adder and full adder description	2	2	0	LO5
14	Ripple carry and look ahead adder description	2	2	0	LO5
15	Look ahead carry adder	2	2	0	LO3
14	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

	Teaching and Learning Methods

Course learning Outcomes (LOs)	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
Lo1	✓	✓	✓			✓	✓			✓	✓	✓	
Lo2	✓	✓	✓			✓	✓			✓	✓	✓	
Lo3	✓	✓	✓			✓	✓			✓	✓	✓	
Lo4	✓	✓	✓			✓	✓			✓	✓	✓	
Lo5	✓	✓	✓			✓	✓			✓	✓	✓	

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment											
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1		✓	✓	✓	✓	✓	✓	✓		✓	
Lo2		✓	✓	✓	✓	✓	✓	✓		✓	
Lo3		✓	✓	✓	✓	✓	✓	✓		✓	
Lo4		✓	✓	✓	✓	✓	✓	✓		✓	
Lo5		✓	✓	✓	✓	✓	✓	✓		✓	

b- Time schedule of assessment

Quizzes	Quiz (1) Quiz (2)
Discussions	Every week for any student
Presentations and Movies	weekly
Sheets and Sketches	weekly
Researches and reports the Projects	weekly
Practical modelling	

Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	
c- Grading system			
Quizes	Quiz (1) Quiz (2)	(0) marks (0) marks	
Discussions	20%		
Sheets and Sketches	70%		
Researches and reports	0%	40 marks	(60) marks
the Projects	10%		
Practical modelling	0%		
Attendance		(10) marks	
Mid-term exam		(10) marks	
final exam			(40) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	▪ Digital fundamentals, 11th edition by Thomas l, Floyd ▪ Digital design principles and practices- 4th ed, john f. wakerly, prentice hall, 2005.
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

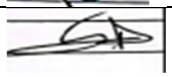
11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course coordinator:	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi	
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul	
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem	
Date:	٢٠٢١/٢٠٢٢	

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
PHYS 301	Optics, waves, and introduction to modern physics

A- Affiliation

Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	202١-202٢

B-Basic Information

Title	Optics, waves, and introduction to modern physics
Code	PHYS 301
Credit Hours	3Cr. hr.
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	PHYS 102
Instructor name/Email	Dr. Dr. Amal Elgawadi dr.amal@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	To start understanding some of the basic optics principles such as the nature of light, interference, diffraction, polarization, and geometric optics.
oc 2	To solve problems of these physical principles.
oc 3	Develop an intuition (feeling) and knowledge of the physical world.
oc 4	Most important to know how scientists and engineers make up physics models and theories as well as their applications, in technology, engineering, medical sciences, etc...
oc 5	Simply show that basic science (e.g. Physics) and technology (e.g. engineering) are two faces of the same coin.

2- program objectives served by the course:

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

OP 1	Understanding some of the basics of optics, waves, and modern physics as a background beneficial to electricity and electronics programs.

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

	Course objectives	program objectives
1	oc 1	OP1
2	oc 2	OP1
3	oc 3	OP1
4	oc 4	OP1
5	oc 5	OP1

4- Learning outcomes of the course (LOs)

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

Lo1	Students should demonstrate the ability to understand the basics of physics related to several branches in engineering.
Lo2	Students will demonstrate the ability to revise and improve such texts.
Lo3	Students will demonstrate the ability to research a topic, develop an argument, and organize supporting details.
Lo4	Edit and revise effectively, recognizing the two as distinct activities and developing strategies for generating critical distance when rereading.
Lo5	Develop a claim that matters in the context of a continuing discussion, writing with a sense of intellectual purpose and stake.
Lo6	Creating engineering designs a process of thinking, not just delivering information

5- Program competencies served by the course:

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

A2	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
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A2
2	Lo2	A2
3	Lo3	A2
4	Lo4	A4
5	Lo5	A4
6	Lo6	A4

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Introduction to the course, grading policy, etc. The nature of light. Introduction of the classical particle and wave models of light. Introduction of the modern models of the dual nature of light. Fizeau's measurement of the speed of light.	2	2	0	Lo1: Lo6
2	Introduction to ray optics approximation (or Geometrical Optics). Longitudinal versus transverse wave motions. The wavelength and the amplitude. Reflection of light. Refraction of light. Introduction to microscopic picture for a light in a medium. Index of refraction. Snell's law of refraction.	2	2	0	Lo1: Lo6
3	Prism and some definitions. Dispersion of light or wavelengths. Refraction in a Prism. Introduction to the electromagnetic spectrum. Introduction to the origin of some electromagnetic waves (absorption and emission). Total internal reflection. Critical angle of total internal reflection. Fiber optics and Fiber Optics. Some applications for total internal reflection.	2	2	0	Lo1: Lo6
4	Physical optics or wave optics. Revisions from physics (1): Sinusoidal nature of Simple harmonic motion “SHM.” Constructing the trigonometric Functions.	2	2	0	Lo1: Lo6

	Superposition of waves. Brief introduction of the Young's double slit experiment. Conditions for interference. Diffraction of light. Relationship: Diffraction to Interference.				
5	Waves in interference, details of the Young's double slit interference. Conditions for constructive and distractive interference.	2	2	0	Lo1: Lo6
6	Intensity distribution of double slit interference pattern. Revision from physics "1": particle in simple harmonic motion. Introduction of the electromagnetic wave nature of light. The average light intensity of double-slit interference at a point. Multiple-slit interference patterns. Change of phase due to reflection. Phase reversal. Interference in thin films. Effect of phase reversal. Newton's rings.	2	2	0	Lo1: Lo6
7	Diffraction patterns and polarization. The f-number, the depth of field, and diffraction. Diffraction simple analogy. Edge diffraction due to lens aperture. Introduction to diffraction patterns. Diffraction pattern created by a ball, a penny, or a slit. Some daily life examples of diffraction. Nature of light and ray optics. Huygens's principle. Fresnel and Fraunhofer diffraction approximations. Diffraction patterns from Narrow slits.	2	2	0	Lo1: Lo6
8	Midterm		1.0		
9	Intensity of single-slit diffraction patterns. Difference between interference and diffraction patterns. Relationship: Diffraction to Interference. Intensity of two-slit diffraction patterns. Multiple-slit interference pattern. Resolution of single-slit and circular apertures. Rayleigh resolution criteria. The diffraction grating.	2	2	0	Lo1: Lo6

10	How a diffraction grating is made. Transmission and a reflection grating. Calculation of the wavelength of monochromatic light using a diffraction grating. The intensity maxima in a diffraction grating pattern.	2	2	0	Lo1: Lo6
11	Classification of the material based on the atomic periodic system. Diffraction of X-rays by crystals. Macroscopic and microscopic crystal structures. Bragg's law.	2	2	0	Lo1: Lo6
12	Polarization of light waves. Background: Electromagnetic wave nature of light. Polarization by selective absorption. Malus's law of the intensity of polarized light by selective absorption. Polarization by reflection.	2	2	0	Lo1: Lo6
13	An application of polarization: optical stress analysis. Application of polarization in photography. Polarization by scattering.	2	2	0	Lo1: Lo6
14	Ray optics (geometrical optics). Image formation by reflection (mirrors) and by refraction (lenses). Concave and convex (divergence) mirrors.	2	2	0	Lo1: Lo6
15	The radius of curvature and cementer of curvature. Sign conventions of the radius of curvature for mirrors and lenses. Types of geometrical images: real and virtual images				Lo1: Lo6
16	Final Exam	2.0			
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	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	
Lo1	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	
Lo2	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	
Lo3	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	
Lo4	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	
Lo5	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	
Lo6	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	

Notes: *The research applied through the Arduino photonics projects. Arduino is an open-source electronics platform based on easy-to-use hardware and software. The brainstorming takes place during the lectures and through the projects and the homework*
The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1	✓	✓	✓		✓		✓	✓	✓		✓
Lo2	✓	✓	✓		✓		✓	✓	✓		✓
Lo3	✓	✓	✓		✓		✓	✓	✓		✓
Lo4	✓	✓	✓		✓		✓	✓	✓		✓
Lo5	✓	✓	✓		✓		✓	✓	✓		✓
Lo6	✓	✓	✓		✓		✓	✓	✓		✓

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)

Discussions	Every week for any student
Presentations and Movies	weekly
Sheets and Sketches	weekly
Researches and reports	Week (2,3)
the Projects	Week (4,8)
Practical modelling	Week (4,8)
Attendance	weekly
Mid-term exam	Week (7)
final exam	Week (14)

c- Grading system

quizes	Quiz (1) Quiz (2)	(5) marks (5) marks	
Discussions	15%		
Sheets and Sketches	20%		
Researches and reports	20%	10 marks	(50) marks
the Projects	30%		
Practical modelling	20%		
Attendance		(10) marks	
Mid-term exam		(20) marks	
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	Physics for scientists and engineers, John W. Jewett and Raymond A. Serway
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Amal Elgawadi
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
PHYS 311	Optics Lab
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Sciences
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	2021-2022

B-Basic Information

Title	Optics Lab
Code	PHYS 311
Credit Hours	1Cr. hr
Lectures	0hr
lab	2hr
Total	2hr
Prerequisite	Concurrent PHYS 301
Instructor name/Email	Dr. Neven Gamal Rostom neveen.kamal@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Formulate the optics.
oc 2	Apply the wave nature of light in the life science
oc 3	Develop and appropriate experiment discussion of models and theories of interferences of light.
oc 4	Application of reflection and refraction of light in industrial application.
oc 5	Apply analytics Apply the laws of refraction of light.
oc 6	Application of diffraction of light in industrial application.
oc 7	Application of interference of light in the industrial application.

2- program objectives served by the course:

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

OP 1	Optics.

OP 2	Wave nature of light.
OP 3	An overview of interference of light with different surfaces and materials.
OP 4	Introduction to laws of reflection, refraction and diffraction of light.
OP 5	Refraction of light.
OP 6	Diffraction grating.
OP 7	Single and double slit.

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

	Course objectives	program objectives
1	oc 1	OP1
2	oc 2	OP2
3	oc 3	OP3
4	oc 4	OP4
5	oc 5	OP5
6	oc 6	OP6
7	oc 7	OP7

4- Learning outcomes of the course (LOs)

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

Lo1	The student Identify the basic fundamental in optics wave nature of light; an overview of interference of light with different surfaces and materials; introduction to reflection, refraction and diffraction of light) and solve complex engineering problems.
Lo2	The student evaluates the reaction of light to predict refractive index of a prism. Solve the different problem of combustion. Analyze application of interference of light. Identify various industrial processes such as the solar panels industry
Lo3	The student can express his opinion by oral presentation and flexible model recalling the final configuration of masses
Lo4	Conduct models to Employ, measuring instruments, and lab tools to determine the amount of salt

5- Program competencies served by the course:

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

A2	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.

A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A2
2	Lo2	A2
3	Lo3	A2, A4
4	Lo4	A4

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Introduction to optics.	0	0	2	Lo1
2	Wave nature of light.	0	0	2	Lo1
3	Photoelectric effect.	0	0	2	Lo1
4	Verification of inverse square law.	0	0	2	Lo1
5	Newtons rings.	0	0	2	Lo1
6	Single slit.	0	0	2	Lo1
7	Revision.	0	0	2	Lo1
8	Midterm		1.0		
9	Double slit.	0	0	2	Lo2
10	Refractive index of prism.	0	0	2	Lo2
11	Thin film interference	0	0	2	Lo2
12	Fresnel.	0	0	2	Lo2
13	Fraun hofer diffraction.	0	0	2	Lo3, Lo4
14	Intensity distribution.	0	0	2	Lo3, Lo4
15	Revision.	0	0	2	Lo2, Lo3, Lo4
14	Final Exam		2.0		
Total hours		0	0	28	--

8- The Teaching and learning methods and their relation to the Los of the course

	Teaching and Learning Methods

Course learning Outcomes (LOs)	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
Lo1	✓	✓		✓	✓	✓	✓			✓	✓	✓	
Lo2	✓	✓		✓	✓	✓	✓			✓	✓	✓	
Lo3	✓	✓		✓	✓	✓	✓			✓	✓	✓	
Lo4	✓	✓		✓	✓	✓	✓			✓	✓	✓	

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment											
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation		modelling
Lo1	✓	✓	✓	✓		✓	✓	✓		✓		
Lo2	✓	✓	✓	✓		✓	✓	✓		✓		
Lo3	✓	✓	✓	✓		✓	✓	✓		✓		
Lo4	✓	✓	✓	✓		✓	✓	✓		✓		

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)
the Projects		Week (4,8)

Practical modelling		Week (4,8)	
Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	
c- Grading system			
quizes	Quiz (1) Quiz (2)	(15) marks (15) marks	
Discussions	5%		
Sheets and Sketches	45%	10 marks	(60) marks
Researches and reports	10%		
lab	10%		
Attendance		(10) marks	
Mid-term exam		(10) marks	
final exam			(40) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	SVA academic book
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Neven Gamal Rostom
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
MATH202	Differential Equations
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	202١-202٢

B-Basic Information

Title	Differential Equations
Code	MATH202
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	MATH 201
Instructor name/Email	Dr. Gamal El-Anani gamalanany@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Explain concepts of ordinary differential equations
oc 2	Explain concepts of mathematical of first order differential equations
oc 3	Apply knowledge of mathematics to solve of second order differential equation problems.
oc 4	Explain Concepts of power series solutions.
oc 5	Search and analyze data, to Deal with design situations within solving design problems based on the analytical process for Laplace transforms.
oc 6	Demonstrate methodologies of solving engineering problems with Laplace transforms
oc 7	Apply knowledge of Theory of equations, and areas, volumes, lengths, moments to solve engineering problems.

2- program objectives served by the course:

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

OP 1	The concept of ordinary differential equations.
OP 2	Methods of solution and applications of first order differential equations
OP 3	Methods of solution and applications of second order differential equations
OP 4	Power series solutions
OP 5	Laplace transforms
OP 6	Solutions of first order linear systems by Laplace transforms.
OP 7	Theory of integration with applications including areas, volumes, lengths, moments, center of mass and work

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

	Course objectives	program objectives
1	oc 1	OP1
2	oc 2	OP2
3	oc 3	OP3
4	oc 4	OP4
5	oc 5	OP5
6	oc 6	OP6
7	oc 7	OP7

4- Learning outcomes of the course (LOs)

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

Lo1	Explain concepts and theories of mathematics and sciences, appropriate to differential equations, function and practice.
Lo2	Demonstrate methodologies of solving engineering problems, data collection and interpretation.
Lo3	Select appropriate solutions for engineering problems based on analytical thinking
Lo4	Apply knowledge of mathematics to solve engineering problems.
Lo5	Apply knowledge of linear algebraic equations, iterative methods, and infinite series to solve engineering problems.
Lo6	Prepare and present technical reports about application of matrices to solve engineering problems.
Lo7	Effectively manages tasks, time, and resources, when solving mathematics problems, and in exams.
Lo8	Apply knowledge of mathematics to solve differential problems

5- Program competencies served by the course:

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

A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
A2	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.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A1, A2
2	Lo2	A1, A2
3	Lo3	A1, A2
4	Lo4	A1
5	Lo5	A1
6	Lo6	A1, A2
7	Lo7	A1
8	Lo8	A1

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Covers mathematical formulation of ordinary differential equations	2	2	0	Lo1, Lo8
2	Methods of solution and applications of first order differential equations	2	2	0	Lo1, Lo8
3	Methods of solution and applications of second order differential equations	2	2	0	Lo1, Lo8
4	Laplace transforms	2	2	0	Lo2
5	Solutions of first order linear systems by Laplace transforms	2	2	0	Lo2
6	Functions and limits,	2	2	0	Lo3
7	Differentiation with applications including maxima and minima				Lo3
8	Midterm		1.0		
9	Maxima and minima	2	2	0	Lo3

10	Theory of integration with applications including areas.	2	2	0	Lo4, Lo5
11	Volumes.	2	2	0	Lo6, Lo7
12	Lengths.	2	2	0	Lo6, Lo7
13	Moments.	2	2	0	Lo6, Lo7
14	Center of mass and work	2	2	0	Lo6, Lo7
15	Revision				
16	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	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
Lo1	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo2	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo3	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo4	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo5	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo6	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo7	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
Lo8	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

	Tools of assessment

Course ILOs	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1	✓	✓	✓	✓				✓	✓	✓	
Lo2	✓	✓	✓	✓				✓	✓	✓	
Lo3	✓	✓	✓	✓				✓	✓	✓	
Lo4	✓	✓	✓	✓				✓	✓	✓	
Lo5	✓	✓	✓	✓				✓	✓	✓	
Lo6	✓	✓	✓	✓				✓	✓	✓	
Lo7	✓	✓	✓	✓				✓	✓	✓	
Lo8	✓	✓	✓	✓				✓	✓	✓	

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		weekly
Researches and reports		Week (2,3)
the Projects		Week (4,8)
Practical modelling		Week (4,8)
Attendance		weekly
Mid-term exam		Week (7)
final exam		Week (14)

c- Grading system

quizes	Quiz (1)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	25%		
Sheets and Sketches	50%		
Researches and reports	25%	10 marks	(50) marks
the Projects	0%		
Practical modelling	0%		
Attendance		(10) marks	
Mid-term exam		(20) marks	
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes — Lecture notes and handouts

b) Required books	▪ Mary Attenborough, Engineering Mathematics, McGraw - HILL Book Company Europe, 1994. ▪ Anthony croft, Robert Davison, Engineering Mathematics A modern Foundation for Electrical, Electronic & Control Engineering, Addison - Wesley - Publishing Company, 1992
c) Recommend books	Swokowski, E, Olinick ,M and Pence, D., Calculus, PWS Publishing Company - Boston, 1994
d) Periodicals, Web sites, etc	Web Sites related to Mathematics and Mathematical engineering as: www.math.hmc.edu, www.tutorial.math.lamar.edu, www.web.mit.edu

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Course coordinator:	Dr. Gamal El-Anani	Gamal
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul	
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem	
Date:	٢٠٢١/٢٠٢٢	

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course specification

Course code:	Course name
BASE 303	Engineering Economics
A- Affiliation	
Relevant program:	Electrical power engineering
Department offering the program:	Electrical and communication engineering
Department offering the course:	Basic Science
Date of program operation:	2008-2009
Date of approval from the higher ministry of education	27/1/2008
Date of course operation	٢٠٢١-٢٠٢٢

B-Basic Information

Title	Engineering Economics
Code	BASE 303
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	Math 102
Instructor name/Email	Dr. Abd El-Aziz Ramadan abdelaziz.Ramadan@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Explain pre-investment phase, project investment phase and operation phase.
oc 2	Explain Bar chart.
oc 3	Apply fixed assets costs, current assets costs, pre operation costs.
oc 4	Derivation of equation of cash future value
oc 5	Derivation of equation of cash net present of expected future cash flow
oc6	Calculation of the internal rate of return.

2- program objectives served by the course:

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

OP 1	Phases of engineering projects/operation
OP 2	Project activity versus time plan
OP 3	Project total investment costs

OP 4	Derivation of equation of cash future value
OP 5	Derivation of equation of cash net present of expected future cash flow
OP 6	calculation of the internal rate of return.

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

Course objectives		program objectives
1	oc 1	OP1
2	oc 2	OP2
3	oc 3	OP3
4	oc 4	OP4
5	oc 5	OP5
6	oc 6	OP6

4- Learning outcomes of the course (LOs)

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

Lo1	Develop cash flow engineering-economic models of costs and benefits of projects
Lo2	Compare the costs and benefits of alternative and mutually exclusive projects using time value of money approaches, including present worth, annual worth, payback period, and Internal Rate of Return (IRR)
Lo3	Assess the effect of inflation and taxation on costs and benefits of projects, as well as developing numerical methods to account for their impact
Lo4	Assess the elements which may affect the decision-making process for public sector projects
Lo5	Develop a strategy to account for uncertainty and risk through the use of sensitivity analysis and probability distribution

5- Program competencies served by the course:

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

A2	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
A3	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.

A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.

6- The relation between the course learning outcomes and the program competencies

	Course (LOs)	program competencies
1	Lo1	A2
2	Lo2	A3
3	Lo3	A3
4	Lo4	A3
5	Lo5	A6

7- Course content and the relation between the course contents and the course LOs

Week No.	Topic	Lecture hr.	Tutorial hr.	Practical hours	course LOs
1	Phases of engineering projects/operation.	2	2	0	Lo1
2	Project activity versus time plan	2	2	0	Lo2
3	Project total investment costs; fixed assets costs, current assets costs, pre operation costs.	2	2	0	Lo2
4	Derivation of equation of cash future value	2	2	0	Lo3
5	Derivation of equation of cash net present of expected future cash flow	2	2	0	Lo3
6	Derivation of equation of cash net present of expected future cash flow	2	2	0	Lo3
7	calculation of the internal rate of return.	2	2	0	Lo3
8	Midterm		1.0		
9	The payback periods.	2	2	0	Lo4
10	The payback periods.	2	2	0	Lo4
11	The payback periods.	2	2	0	Lo4
12	Factory break-even point (BEP).	2	2	0	Lo5
13	Factory break-even point (BEP).	2	2	0	Lo5
14	Factory break-even point (BEP).	2	2	0	Lo5
15	Revision	2	2	0	Lo5
16	Final Exam		2.0		
Total hours		28	28	0	--

8- The Teaching and learning methods and their relation to the Los of the course

Course learning Outcomes (LOs)	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
Lo1	✓		✓	✓	✓		✓		✓	✓	✓	✓	
Lo2	✓		✓	✓	✓		✓		✓	✓	✓	✓	
Lo3	✓		✓	✓	✓		✓		✓	✓	✓	✓	
Lo4	✓		✓	✓	✓		✓		✓	✓	✓	✓	
Lo5	✓		✓	✓	✓		✓		✓	✓	✓	✓	

Notes:

The research concerns the cooperative work, the discussion, the site visit and the presentations.
The Tutorials concerns the brain storming and the problem solving.
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.

9- Student assessment method

a- Assessment method and its relation to the Los of the course

Course ILOs	Tools of assessment										
	quizzes	Mid -term exam	Final exam	sheets/ sketches	projects	Practical: lab	Oral exam	discussions	Reports/ researches	presentation	modelling
Lo1	✓	✓	✓					✓	✓	✓	
Lo2	✓	✓	✓					✓	✓	✓	
Lo3	✓	✓	✓					✓	✓	✓	
Lo4	✓	✓	✓					✓	✓	✓	
Lo5	✓	✓	✓					✓	✓	✓	

b- Time schedule of assessment

Quizzes	Quiz (1)	Week (3)
	Quiz (2)	Week (10)
Discussions		Every week for any student
Presentations and Movies		weekly
Sheets and Sketches		
Researches and reports		Week (2,3)

the Projects			
Practical modelling			
Attendance		weekly	
Mid-term exam		Week (7)	
final exam		Week (14)	

c- Grading system

quizes	Quiz (1)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	25%		
Sheets and Sketches	0%		
Researches and reports	75%	10 marks	(50) marks
the Projects	0%		
Practical modelling	0%		
Attendance		(10) marks	
Mid-term exam		(20) marks	
final exam			(50) marks
Total			(100) marks

10- List of references:

a) Course notes	Lecture notes and handouts
b) Required books	Digital Park, Chan S. Contemporary engineering economics. Vol. 4. Upper Saddle River, NJ: Prentice Hall, 2002.
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

11- Facilities required for teaching and learning:

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

12- Requirements for Disable facilities:

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

Ministry of higher education
High valley institute for engineering and technology
Electrical power engineering program

Course coordinator:	Dr. Abd El-Aziz Ramadan
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/٢٠٢٢