Third level courses (Junior)

First semester (Fall)

No.	Cod	Course Name	Instructor
1	CECE 301	Electronics I	Ass.Prof. Dr. Ashraf Mohamed Ali Hassan
2	CECE 313	Electrical and Electronic Measurements	Dr. Ibrahim Ali Mahmoud Abdel Dayem
3	CECE 202	Measurements & Instrumentation Lab	Dr. Ibrahim Ali Mahmoud Abdel Dayem
4	CECE 303	Signals and Systems	Ass.Prof. Dr. Ashraf Mohamed Ali Hassan
5	CECE 204	Computer Organization	Dr. Mohamed Mahmoud Ahmed Mohamed El-Ghoboushi
6	BASE 402	Feasibility Studies	Dr. Mohamed Mahmoud Badawy
7	MATH 301	Probability & Statistic	Dr. Gamal El-Anani

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

Course specification

Course code:	Course name
CECE 301	Electronic 1
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	Electronic 1
Code	CECE 301
Credit Hours	3Cr. hr
Lectures	2hr
lab	2hr
Total	4hr
Prerequisite	CECE 203
Instructor name/Email	Ass.Prof. Dr. Ashraf Mohamed Ali Hassan ashraf.ali@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Strong background in basic science and basic mathematics and be able to use these tools in their own engineering field.
oc 2	He should employ the necessary techniques, hardware, and communication tools for modern engineering applications
oc 3	He also should be able to work in a multi-disciplinary environment, and follow and contribute to the developments in their own field recognizing the significance of lifelong learning.
oc 4	Employ broad discipline that covers the fields of integrated electronic circuits, electronic data storage, high-speed computing, communications, signal processing, microwave, wave propagation and antenna, optoelectronics, automation, automatic control, and monitoring systems, circuit analysis, network analysis, digital signal processing, and microprocessors

oc 5	Designed to strike a balance between theoretical and laboratory experience and to impart a fundamental and practical understanding of the principles required for a successful career in electronics engineering.
oc 6	A solid core of foundation courses in physics, mathematics, computer science, and general engineering, which is also essential for lifelong learning.
oc 7	Implementing the tools studied in electromagnetic, wave propagation and antenna, circuits, electronics, power electronic devices, digital logic design, computers, programming, computer networks, signal processing, optoelectronics, and communications

2- program objectives served by the course:

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

OP5	Prepare students for engineering analyses and problem-solving using appropriate mathematical and computational methodologies
OP6	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.
OP7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP9	Provide students with an awareness of the tools and skills necessary for participating effectively in building a robust national economy and meeting current and future modern industry needs

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	OP6
4	oc 4	OP7
5	oc 5	OP7
6	oc 6	OP5, OP7
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 fundamentals concepts of semiconductor materials
Lo2	Understanding the basic concepts of operational amplifier
Lo3	Apply the basic knowledge of transformer
Lo4	Knowledge of Bipolar junction transistor as a switch and as an amplifier
Lo5	In depth knowledge of different types of field effect transistors
Lo6	Analysis of Small and high frequency signal analysis for transistor

5- Program competencies served by the course:

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

B1	Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems.
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	B1
2	Lo2	B2
3	Lo3	B1, B2
4	Lo4	B1
5	Lo5	B2, B3
6	Lo6	B3,B4

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	The fundamentals concepts of semiconductor materials	2	0	2	LO1
2	Understanding the basic concepts of operational amplifier	2	0	2	LO2
3	Introduction to transformer	2	0	2	LO3

4	Bipolar junction transistor as a switch	2	0	2	LO4
5	Bipolar junction transistor as an amplifier	2	0	2	LO2
6	Field effect transistor	2	0	2	LO3
7	Metal oxide transistor	2	0	2	LO4
8	Midterm		1.0		
9	Small and high frequency signal analysis for transistor	2	0	2	LO5
10	Analysis Amplifier frequency response	2	0	2	LO7
11	Introduction to electrical machine	2	0	2	LO3
12	Design Dc Machinery concept and Dc -Motors	2	0	2	LO6
13	Revision	2	0	2	LO1
14	Small and high frequency signal analysis for transistor	2	0	2	LO5
15	Final Exam		2.0		
Total hours		28	-	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 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)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	15%		
Sheets and Sketches	20%		
Researches and reports	20%	5 marks	(40) marks
the Projects and lab	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	▪ Adel S. Sedra, Kenneth C. Smith, 'Microelectronic Circuits,' 6th Edition, Oxford University Press, 2011. ▪ Behazad Rzavi, 'Fundamentals of Microelectronics,' 2nd edition, John Wiley, 2013. ▪ Thomas L. Floyd, ' Electronic Devices,' Prentice Hall, 9th edition, 2011. ▪ Donald Neamen, 'Microelectronics: Circuit Analysis & Design,' 4th edition, Mcgraw Hill, 2009.
c) Recommend books	Mentioned at time.
d) Periodicals, Web	No periodicals are needed.
e) sites, etc	

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:	Ass.Prof. Dr. Ashraf Mohamed Ali Hassan
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 330	Electrical and Electronic Measurements
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	Electrical and Electronic Measurements
Code	CECE 330
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 203
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem dr.ibrahim@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	The students will gain familiarity with functions and properties of instruments measuring system.
oc 2	The students will gain familiarity with error analysis of measurement methods.
oc 3	Familiarity with the analogue and digital electric measurement devices (Oscilloscopes, signal generators, spectrum analyzer).
oc 4	Familiarity with the computer systems for testing and measuring.

2- program objectives served by the course:

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

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 9	Provide students with an awareness of the tools and skills necessary for participating effectively in building a robust national economy and meeting current and future modern industry needs.

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

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

4- Learning outcomes of the course (LOs)

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

Lo1	Know functions and properties of instruments measuring system.
Lo2	Define the system error analysis of measurement methods.
Lo3	Compare between systematic errors and gross errors.
Lo4	Calculate the percentage of errors in electrical measurements.
Lo5	Familiarity with the analogue and digital electric measurement devices (Oscilloscopes, signal generators, spectrum analyzer).
Lo6	Familiarity with the computer systems for testing and measuring.

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, B3
2	Lo2	B2, B3
3	Lo3	B4
4	Lo4	B4
5	Lo5	B4, B5
6	Lo6	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	Digital measurements Digital voltmeter– Digital ammeter –Digital ohmmeter	2	2	0	LO1
2	Measurements of current, voltage, resistance, frequency, time, amplitude and power	2	2	0	LO1
3	Accuracy of measurement and error analysis.	2	2	0	LO1
4	Quiz (1) + Absolute & secondary Error.	2	2	0	LO2
5	Basic of statistical analysis.	2	2	0	LO3
6	Electromechanical instruments.	2	2	0	LO3
7	Permanent magnet moving coil construction.				LO3
8	Midterm		1.0		
9	Galvanometer.	2	2	0	LO4
10	Dc Ammeter.	2	2	0	LO4
11	Multirange Ammeters.	2	2	0	LO5
12	Quiz (2) +solve example.	2	2	0	LO5
13	DC Voltmeter Circuit.	2	2	0	LO6
14	Rectifier Voltmeter.	2	2	0	LO4
15	Rectifier Ammeter.				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	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
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:

a) Course notes	Lecture notes and handouts
b) Required books	Electronic Instrumentation and Measurements- 2nd Edition, David A. Bell
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 313	Measurements & Instrumentation 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	2021-2022

B-Basic Information

Title	Electrical and Electronic &Measurements Lab
Code	CECE 313
Credit Hours	1Cr. hr
Lectures	0hr
Tutorial	2hr
Total	2hr
Prerequisite	Conc. with CECE 330
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem dr.ibrahim@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Define the International System of Units (measurement system).
oc 2	Define a unit of measurement and demonstrate the ability to convert measurements.
oc 3	Define length, temperature, time, volume, mass, density, and concentration.

2- program objectives served by the course:

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

OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications

OP 9	Provide students with an awareness of the tools and skills necessary for participating effectively in building a robust national economy and meeting current and future modern industry needs.

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

	Course objectives	program objectives
1	oc 1	OP7
2	oc 2	OP7, OP9
3	oc 3	OP7, OP9

4- Learning outcomes of the course (LOs)

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

LO1	Classify the standard devices and galvanometers for the measurement of voltage and Current.
LO2	Construct the wattmeter and energy meter to measure power and energy.
LO3	Construct instrumentation transformer to measure high values of current and voltage.
LO4	Analyze the bridges for the measurement of low, medium and high resistance.
LO5	Analyze the bridges for the measurement of inductance and capacitance measurement.
LO6	Construct the potentiometers to measure AC and DC values of unknown voltage.

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	B4
2	Lo2	B4
3	Lo3	B4
4	Lo4	B2, B3
5	Lo5	B2, B3
6	Lo6	B2,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	Working and Characteristics of Various Types of Meters.	0	0	2	LO1
2	Measurement of the Low Resistance.	0	0	2	LO1
3	Sensitive Voltage/Audio Detector.	0	0	2	LO1
4	Voltmeter usage.	0	0	2	LO2
5	Ohmmeter usage.	0	0	2	LO3
6	A very simple circuit.	0	0	2	LO3
7	Ammeter usage.	0	0	2	LO3
8	Midterm		1.0		
9	DC and AC bridges.	0	0	2	LO4
10	Ohm's law.	0	0	2	LO4
11	Nonlinear resistance.	0	0	2	LO5
12	DC Voltmeter Circuit.	0	0	2	LO5
13	Multirange Ammeters.	0	0	2	LO6
14	Rectifier Voltmeter.	0	0	2	LO4
15	Rectifier Ammeter.	0	0	2	LO5
16	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	✓	✓	✓			✓	✓			✓	✓	✓	
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) 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)	(0) marks	
	Quiz (2)	(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	Electronic Instrumentation and Measurements- 2nd Edition, David A. Bell
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:	2021/2022

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

Course specification

Course code:	Course name
CECE303	Signals and Systems
A- Affiliation	
Relevant program:	Electronics and communication 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	Signals and Systems
Code	CECE303
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 203
Instructor name/Email	Ass.Prof. Dr. Ashraf Mohamed Ali Hassan ashraf.ali@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Have a substantial knowledge about the analysis of signals that includes.
oc 2	Understand the physical meaning of signals Classify the different kinds of signals.
oc 3	Know the different applications of signals. Know the Elementary or basic signals [unit-step function, Ramp function, unit impulse function, sampling function, complex exponential, Sinc signal, Gate signal, and signum signal] and uunderstand and analyze the Sampling theory.
oc 4	Know the main elements required to convert the signal from analog to digital that includes:[Sampling, Quantization, and coding].
oc 5	Understand and discriminate between Convolution, and Correlation of signals.

oc 6	Understand the basic operations of signals [Addition, multiplication, Shifting, reflection, amplitude scaling, and time scaling].
oc7	Know and analyze the different signal transformation techniques, their applications and proprieties: Fourier series, Fourier transform [FT] Inverse Fourier transform [IFT] and Discrete Fourier transform [DFT].

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 9	Provide students with an awareness of the tools and skills necessary for participating effectively in building a robust national economy and meeting current and future modern industry needs
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	OP5
4	oc 4	OP5, OP6
5	oc 5	OP5, OP6
6	oc 6	OP9, OP12
7	oc 7	OP9, OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Identify the different types of signals.
Lo2	Recognize the basic principles of the properties of the signal.
Lo3	Discuss the effect of continuous input signal on the system.
Lo4	Check the frequency components of the discrete signal
Lo5	Use the mathematical method to derive frequency domain of the continuous signal.

5- Program competencies served by the course:

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

B1	Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems.
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.

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

	Course (LOs)	program competencies
1	Lo1	B1
2	Lo2	B1
3	Lo3	B2
4	Lo4	B2
5	Lo5	B1

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	Signal Definition	2	2	0	Lo1
2	Signal Types	2	2	0	Lo1
3	System Classification	2	2	0	Lo1
4	Convolution	2	2	0	Lo2
5	Convolution	2	2	0	Lo2
6	Fourier series	2	2	0	Lo3
7	Fourier transform	2	2	0	Lo3
8	Midterm		1.0		
9	Fourier transform	2	2	0	Lo3
10	Discrete Fourier Transform	2	2	0	Lo4
11	Discrete Fourier Transform	2	2	0	Lo4
12	Laplace Transform	2	2	0	Lo4
13	Laplace Transform Cont.	2	2	0	Lo5
14	Sampling Process	2	2	0	Lo5
15	Sampling Process	2	2	0	Lo5
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)	(5) marks	
	Quiz (2)	(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:

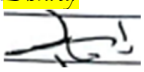
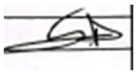
a) Course notes	Lecture notes and handouts
b) Required books	1. Signals & systems, Allan V. Oppenheim. 2. Digital signal processing, John G. Porkies. 3. Schaum, "Theory and Problems of Signals Analysis and Systems", Copyright © 1995 by The McGraw-Hill.
c) Recommend books	Mentioned at time.
d) Periodicals, 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:	Ass.Prof. Dr. Ashraf Mohamed Ali Hassan	Ashraf
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 204	Computer Organization
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	Computer Organization
Code	CECE 204
Credit Hours	3Cr. hr
Lectures	2hr
lab	2hr
Total	4hr
Prerequisite	CECE 102 - CECE 209
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 Computer Evolution and Performance.
oc 2	Explain the Computer interconnection structures.
oc 3	Study the Organization and Architecture
oc 4	Study Computer arithmetic and Instruction sets memories.
oc 5	CPU structure and function.
oc6	Cache memory, Interrupt and Short and long I/O Wait Interrupt.

2- program objectives served by the course:

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

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	OP6, OP7
2	oc 2	OP6, OP7
3	oc 3	OP6, OP7
4	oc 4	OP6, OP7
5	oc 5	OP12
6	oc 6	OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Understand Organization and Architecture and Computer Evolution and Performance.
Lo2	Know Computer interconnection structures Internal memory.
Lo3	Know External memory and Input / output and Computer arithmetic and Instruction sets.
Lo4	Understand CPU structure and function.
Lo5	Understand Cache memory and Interrupt.
Lo6	Know Short and long I/O Wait Interrupt.

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
5	Lo5	B2
6	Lo6	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	Organization and Architecture	2	0	2	Lo1
2	Computer evolution and performance	2	0	2	Lo1
3	Internal memory	2	0	2	Lo2
4	External memory	2	0	2	Lo3
5	Input/output	2	0	2	Lo3
6	Computer arithmetic and instruction sets	2	0	2	Lo3
7	Midterm		1.0		
8	CPU structure and function	2	0	2	Lo4
9	Cache memory	2	0	2	Lo5
10	Interrupt	2	0	2	Lo5
11	Interrupt types	2	0	2	Lo5
12	Input/output programs	2	0	2	Lo6
13	Short and long I/O wait interrupts	2	0	2	Lo6
14	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 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)	(5) marks	
	Quiz (2)	(5) marks	
Discussions	15%		
Sheets and Sketches	20%		(40) marks
Researches and reports	20%	5 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	W. Stalling, "Computer Organization and Architecture", 3rd ed., McGraw-Hill, 2007.
c) Recommend books	D. Patterson and J. Hennessy, "Computer Organization & Design interface", McGraw-Hill, 4th
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. 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
BASE 402	Feasibility Studies
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	2021-2022

B-Basic Information

Title	Feasibility Studies
Code	BASE 402
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	-
Instructor name/Email	Dr. Mohamed Mahmoud Badawy Mohammed.ghaboushy@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Illustrate importance of feasibility studies for projects.
oc 2	Definition of feasibility study and historical development of interest.
oc 3	Preliminary feasibility studies and their components.
oc 4	Identify the most important financing aspects in the feasibility study: sources of financing, how to calculate their cost, and criteria for choosing the best sources.
oc 5	Making feasibility study evaluation for projects
oc 6	Illustrate Feasibility study evaluation methods.

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 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	OP6
4	oc 4	OP12
5	oc 5	OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Identify the nature of the project, its components and forms.
Lo2	Illustrate preliminary feasibility studies and their components.
Lo3	Study the effects of environmental feasibility studies.
Lo4	Impact of social feasibility study on mega projects.
Lo5	Utilize feasibility study evaluation methods to making feasibility reports
Lo6	Develop cash flow diagrams for projects and studying its effects on the feasibility of projects.

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.
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
A5	Practice research techniques and methods of investigation as an inherent part of learning.

A9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations

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

	Course (LOs)	program competencies
1	Lo1	A1
2	Lo2	A2
3	Lo3	A5, A1
4	Lo4	A2
5	Lo5	A1, A3
6	Lo6	A9, A5, 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	The importance of feasibility studies for projects.	2	2	0	Lo1
2	Definition of feasibility study and historical development of interest.	2	2	0	Lo2, Lo3
3	The nature of the project, its components and forms.	2	2	0	Lo2, Lo3
4	Preliminary feasibility studies and their components.	2	2	0	Lo1, Lo6
5	Environmental feasibility studies + Quiz (1)	2	2	0	Lo2 Lo1 : Lo3
6	Environmental feasibility studies.	2	2	0	Lo2
7	Making cash flow diagram for construction projects				Lo6
8	Midterm		1.0		
9	A social feasibility study design criterion.	2	2	0	Lo2
10	The most important financing aspects in the feasibility study: sources of financing, how to calculate their cost,	2	2	0	Lo2

	and criteria for choosing the best sources.				
11	The most important financing aspects in the feasibility study: preparing financial statements, financial obligations on the project, and financial incentives for projects	2	2	0	Lo4, Lo5
12	Technical and engineering feasibility of the project	2	2	0	Lo4, Lo5
13	Feasibility study evaluation methods. + Quiz (2)	2	2	0	Lo3 Lo4 : Lo6
14	Feasibility study evaluation methods.	2	2	0	Lo2
15	Revision				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 LOs	On line / face to	Tutorials: sheets/	projects	Problem	solving Brain	Practical: lab discoverin	g Site visit	Reports/ researches	Cooperativ e work	presentati on	Discussion	modeling
Lo1	√	√	√	√				√	√	√		
Lo2	√	√	√	√	√			√		√	√	√
Lo3	√	√	√	√	√			√		√	√	
Lo4	√	√	√	√				√	√	√		
Lo5	√	√	√	√	√			√		√	√	√
Lo6	√		√						√			

Notes:

- The research concerns the cooperative work, the discussion, and the presentations.
- The Tutorials concerns the brain storming and the problem solving.
- Online lectures used as hybrid learning, but in case of totally online 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

b- Tools of assessment

Course LOs	quizzes	Mid - term	Final exam	sheets/ sketches	projects	Practical: lab Oral exam	discussions	Reports/ researches	presentation	modeling
Lo1	√	√	√	√	√			√		
Lo2	√	√	√	√	√		√	√	√	√
Lo3	√		√	√	√		√	√	√	
Lo4	√	√	√	√	√			√		
Lo5	√		√	√	√		√	√	√	√
Lo6	√	√	√		√					

c- Time schedule of assessment

Quizzes	Week (5,13)
Discussions	weekly
Sheets and sketches	Week (7-10-13- 15)
Researches and reports	Week (14)
Attendance	weekly
Mid- term exam	Week (8)
final submission	Week (16)

d- Grading system

Quizzes	Quiz (1)	(10) marks	(30) marks
	Quiz (2)	(10) marks	
Sheets and Sketches	(50) %		
Reports	(10) %	(٥) marks	
Discussion/	(40) %		
Attendance		(5) marks	
Mid- term exam			20 marks
final exam			50 marks
total			100 marks

10- List of references:

a) Course notes	The importance of feasibility studies for projects , The conceptual estimation report , Time adjustment , location adjustment , size adjustment and forecast cost estimation .

b) Required books	Project evaluation and feasibility analysis by Kevin baker. Financial feasibility studies for property development theory and practice TIMHAVARD.
c) Recommend books	Feasibility study, project management, professional pm wiring note book
d) Periodicals, Web sites, etc	https://www.researchgate.net/publication/341134813_A_PRACTICAL_GUIDE_TO_WRITING_A_FEASIBILITY_STUDY

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 Badawy
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
MATH301	Probability & Statistics
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	Probability & Statistics
Code	MATH301
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	MATH 102
Instructor name/Email	Dr. Gamal El-Anani gamalanany@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Explain concepts of some important statistical
oc 2	Explain concepts of Covers graphical and numerical summaries of data.
oc 3	Apply knowledge of mathematics to distribution functions, measures
oc 4	Explain Concepts of expected values
oc 5	Search and analyze data, to Deal with design situations within solving design problems based on the analytical process for the central limit theorem, hypothesis testing
oc 6	Demonstrate methodologies of solving engineering problems with correlation, examples of regression, quality control,
oc 7	Apply knowledge of Theory of equations, and clustering of rare events. 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 course introduces students to some important statistical concepts and techniques that are of common application in engineering.
OP 2	Covers graphical and numerical summaries of data, plotting data, probabilities of random events
OP 3	Random variables, properties of density and distribution functions, measures of location and dispersion
OP 4	Expected values, independence of random variables, scaling and adding random variables, the binomial Poisson and normal distributions
OP 5	The central limit theorem, hypothesis testing, confidence intervals, t test, paired t test, standard errors, least squares, residuals
OP 6	Correlation, examples of regression, quality control,
OP 7	Clustering of rare events.

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 Probability & Statistics
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 and prepare and present technical reports about application of matrices to solve engineering problems.

Lo6	Communicate effectively in tutorial classroom with the demonstrator and effectively manages tasks, time, and resources, when solving mathematics problems, and in exams.
Lo7	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	A2
5	Lo5	A1
6	Lo6	A2
7	Lo7	A1,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	The course introduces students to some important statistical concepts.	2	2	0	Lo1, Lo2
2	Techniques that are of common application in engineering.	2	2	0	Lo1, Lo3
3	Covers graphical and numerical summaries of data.	2	2	0	Lo5, Lo6
4	Plotting data, probabilities of random events.	2	2	0	Lo2, Lo4
5	Random variables, properties of density and distribution functions	2	2	0	Lo2, Lo4

6	Measures of location and dispersion	2	2	0	Lo2, Lo4
7	Expected values, independence of random variables				Lo4
8	Midterm		1.0		
9	Scaling and adding random variables, the binomial Poisson, and normal distributions	2	2	0	Lo2, Lo4
10	The central limit theorem, hypothesis testing, confidence intervals	2	2	0	Lo2, Lo4
11	Test, paired t test, standard errors,	2	2	0	Lo2, Lo5
12	Least squares, residuals	2	2	0	Lo2, Lo4
13	Correlation, examples of regression, quality control,	2	2	0	Lo2, Lo4
14	Clustering of rare events.	2	2	0	Lo2, Lo4
15	Revision				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

10	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	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	

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	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	Mendenhall, W., Introduction to Probability and Statistics, Boston: Duxbury Press, 10thEd., 1999.
c) Recommend books	▪ Barry C. Arnold, N. Balakrishnan, H.N. Nag raja, A First Course in Order Statistic, John Wiley& Sons, Inc., 1992. ▪ Kevin R.M Murphy, Brett Myers, Statistical Power Analysis, A Simple and General Model for Traditional and Modern Hypothesis Tests, Lawrence Erlbaum Associates,2nd Ed., 2004. ▪ Rosencrantz, W., Introduction to Probability and Statistics for Scientists and Engineers, New York: McGraw –Hill, 1997. ▪ Ross S., A First Course in Probability Englewood Cliffs, NJ: Prentice Hall, 4th Ed.,1994. ▪ Rozanov, Y.A., Probability Theory: A Concise Course, New York: Dover, 1997. ▪ Terrell, G., Mathematical Statistics:A Unified Introduction, New York: Springer – Verlag, 1999
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. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/2/٢٠٢٢

Third level courses (Junior)

Second semester (Spring)

No.	Cod	Course Name	Instructor
1	CECE 305	Automatic Control	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
2	CECE 315	Control Lab	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
3	CECE 302	Electronics II	Dr. Ibrahim Ali Mahmoud Abdel Dayem
4	CECE 312	Electronics Lab	Dr. Ibrahim Ali Mahmoud Abdel Dayem
5	CECE 306	Electromagnetic Theory	Prof. Dr. Hussein Hamed Al-Ghaz
6	CECE 325	Fundamentals of Communication I	Ass. Prof. Dr. Ashraf Mohamed Ali Hassan
7	CECE 326	Communication Lab	Ass. Prof. Dr. Ashraf Mohamed Ali Hassan
8	MATH 302	Linear Algebra and Matrices	Dr. Gamal El-Anani

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

Course specification

Course code:	Course name
CECE 305	Automatic Control
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	Automatic Control
Code	CECE 305
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 203
Instructor name/Email	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul ihab.nabil@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	This course aims to familiarize students on State-space modelling and analysis.
oc 2	The students will gain familiarity with Automatic controllability, and observability
oc 3	Familiarity with state feedback design and pole placement
oc 4	Familiarity with Design and operation of understanding the ways of implementation control system techniques.

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,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	Be familiarizing with the control system and its components.
Lo2	Convert the controlled closed loop in simplest form.
Lo3	Familiarity with Automatic State-space modelling and analysis
Lo4	The principle of open loop , closed control system ,state feedback design and pole placement
Lo5	Familiarity with Design and operation of understanding the ways of implementation control system techniques.

5- Program competencies served by the course:

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

B1	Select, model, and analyze electrical power systems applicable to the specific discipline by applying the concepts of generation, transmission, and distribution of electrical power systems.
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.

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

	Course (LOs)	program competencies
1	Lo1	B1

2	Lo2	B1
3	Lo3	B1
4	Lo4	B1, B2
5	Lo5	B1, 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: component of control system	2	2	0	LO1
2	State-space modelling and analysis	2	2	0	LO1
3	Focuses on Automatic Controllability + Solved examples+ Quiz (1).	2	2	0	LO1
4	Quiz (1) +Automatic Observability.	2	2	0	LO2
5	Focuses on state feedback design + solved examples.	2	2	0	LO3
6	Focuses on Pole placement.	2	2	0	LO3
7	Dynamic observers.				LO3
8	Midterm		1.0		
9	Focuses on Static characteristic for controlled system	2	2	0	LO2
10	The principle of open loop control system	2	2	0	LO3
11	Focuses on Output feedback design.	2	2	0	LO5
12	Quiz (2)	2	2	0	LO4
13	Focuses on Stability Analysis	2	2	0	LO5
14	Focuses on Special Topics.	2	2	0	LO5
15	Focuses on solved examples in controlled system .				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												
	Online / 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 online.

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)	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:	
a) Course notes	Lecture notes and handouts
b) Required books	▪ Nise, N.S. “Control systems engineering”, John Wiley & Sons Ltd., UK, 2020. ▪ Katsuhiko Ogata, "Modern Control Engineering", Prentice Hall, 5th Edition, 2009. ▪ F. Golnaraghi and B. C. Kuo, “Automatic control Systems”, 10th ed., John Wiley & Sons, Inc. 2017. ▪ Andrea Bacciotti, “Stability and Control of Linear Systems”, Volume 185, Springer, 2019
c) Recommend books	R. C. Dorf and R. H. Bishop, "Modern Control Systems", Addison-Wesley, 11th Edition, 2014.
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. Ehab Mohamed Nabil Ismail Abdel Rasoul
program Coordinator	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul
Head of the Department	Dr. Ibrahim Ali Mahmoud Abdel Dayem
Date:	٢٠٢١/2/٢٠٢٤

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

Course specification

Course code:	Course name
CECE315	Control 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	Control Lab
Code	CECE315
Credit Hours	1Cr. hr
Lectures	0hr
lab	2hr
Total	2hr
Prerequisite	Con CECE 302
Instructor name/Email	Dr. Ehab Mohamed Nabil Ismail Abdel Rasoul ihab.nabil@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	This course aims to familiarize students with the control system and its components.
oc 2	The students will gain familiarity with Automatic temperature control using a two-position controller with and without hysteresis..
oc 3	Familiarity with The principle of open loop and closed control system
oc 4	Familiarity with Design and operation of p-action controller , and Static characteristic for controlled system.

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
\	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	Be familiar with the control system and its components.
Lo2	Convert the controlled closed loop in simplest form.
Lo3	Familiarity with Automatic temperature control using a two-position controller with and without hysteresis.
Lo4	The principle of open loop and closed control system
Lo5	Familiarity with Design and operation of p-action controller, and Static characteristic for controlled system.

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

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

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: component of control system	0	0	2	LO1
2	Parameter for temperature-controlled system	0	0	2	LO1
3	Focuses on Automatic temperature control of sauna + Solved examples.	0	0	2	LO1
4	Automatic temperature control using a two-position controller with hysteresis.	0	0	2	LO2
5	Focuses on Calibration of temperature sensor + solved examples.	0	0	2	LO3
6	Focuses on Two position (2-state) controller without hysteresis.	0	0	2	LO3
7	Disturbance response for a two-position controller.	0	0	2	LO3
8	Midterm		1.0		
9	Focuses on Static characteristic for controlled system	0	0	2	LO2
10	The principle of open loop control system	0	0	2	LO3
11	Focuses on Design and operation of p-action controller.	0	0	2	LO5
12	Focuses on Design and operation of p-action controller.	0	0	2	LO4
13	Focuses on project objective	0	0	2	LO5
14	Focuses on Special Topics.	0	0	2	LO5
15	Focuses on solved examples in controlled system.	0	0	2	LO3
16	Final Exam		2.0		
Total hours		0	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 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	▪ Nise, N.S. “Control systems engineering”, John Wiley & Sons Ltd., UK, 2020. ▪ Katsuhiko Ogata, "Modern Control Engineering", Prentice Hall, 5th Edition, 2009. ▪ F. Golnaraghi and B. C. Kuo, “Automatic control Systems”, 10th ed., John Wiley & Sons, Inc. 2017.
c) Recommend books	Andrea Bacciotti, “Stability and Control of Linear Systems”, Volume 185, Springer, 2019 R. C. Dorf and R. H. Bishop, "Modern Control Systems", Addison-Wesley, 11th Edition, 2014.
d) Periodicals, Web sites, etc	No periodicals are needed.

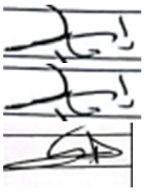
11- Facilities required for teaching and learning:

- 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. Ehab Mohamed Nabil Ismail Abdel Rasoul
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 302	Electronics 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	202١-202٢

B-Basic Information

Title	Electronics II
Code	CECE 302
Credit Hours	3Cr. hr
Lectures	2hr
lab	2hr
Total	4hr
Prerequisite	CECE 301
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem dr.ibrahim@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Know the principles of the feedback.
oc 2	Know the present techniques of wave shaping and generation.
oc 3	Provide the operation and application of differential amplifier.
oc 4	Introduce some special purpose Analog IC – like 555-timer and PLL.
oc 5	Define the voltage and current relationships in transmission lines and operation characteristics.
oc6	provide the student with the fundamental skills to understand the basic of semiconductor and components like diode, Transistor ,MOSFET and operational

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
OP9	Provide students with an awareness of the tools and skills necessary for participating

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
6	oc 6	OP5, OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Define current engineering technologies as related to the electronics.
Lo2	Select and apply appropriate scientific principles mathematical and computer-based methods for analysing generation electronic engineering system
Lo3	Initiate creative thinking for resolving and innovative solutions for the practical industrial problems
Lo4	Assess and evaluate the characteristics and performance of analogue electronic circuits
Lo5	Apply knowledge of mathematics of analogue electronics design integrally to solve engineering problems

5- Program competencies served by the course:

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

B1	Select, model, and analyze electrical power systems applicable to the specific discipline by applying the concepts of generation, transmission, and distribution of electrical power systems.
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	B1
2	Lo2	B1, B2
3	Lo3	B2, B3
4	Lo4	B3, B5
5	Lo5	B3, 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	Signal stage amplifiers.	2	0	2	LO1
2	Frequency response of one stage amplifiers	2	0	2	LO1
3	Bypass capacitors.	2	0	2	LO1
4	Emitter and source follower.	2	0	2	LO2
5	Input and output amplifiers& quiz	2	0	2	LO3
6	Multistage amplifiers	2	0	2	LO3
7	Coupling between stage.	2	0	2	LO4
8	Midterm		1.0		
9	Operational amplifiers	2	0	2	LO5
10	Properties of OP-AMPS	2	0	2	LO5
11	Simple analog computers & quiz	2	0	2	LO5
12	Comparator Schmitt trigger.	2	0	2	LO5
13	Sample and hold	2	0	2	LO5
14	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 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		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 and lab	30%		
Practical modelling	20%		
Attendance		(10) marks	
Mid-term exam		(15) marks	
final exam			(60) marks
Total			(100) marks

10- List of references:

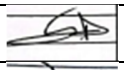
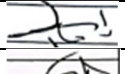
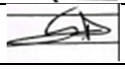
a) Course notes	Lecture notes and handouts
b) Required books	▪ AdelS.Sedra KennethC.Smith microelectronic circuits international sixth edition ▪ D.P. Patnaika, "Analog electronics and opamp", 3rd ed, 2007
c) Recommend books	Mentioned at time.
d) Periodicals, Web sites, etc	No periodicals are needed.

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:	٢٠٢١/2/٢٠٢٢	

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

Course specification

Course code:	Course name
CECE 312	Electronics 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	Electronics Lab
Code	CECE 312
Credit Hours	1Cr. hr
Lectures	0hr
Lab	2hr
Total	2hr
Prerequisite	Conc. with CECE 302
Instructor name/Email	Dr. Ibrahim Ali Mahmoud Abdel Dayem dr.ibrahim@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Verify the network theorems and operation of typical electronics circuits.
oc 2	Study various stages of a Zener diode based regulated power supply.
oc 3	Understand various biasing concepts, BJT based amplifiers.
oc 4	Understand diode and it‘s applications in clipping and clamping circuits, Rectifiers and design regulated power supply using Zener diodes.
oc 5	To be able to plot the current voltage characteristics of Diode, Transistors, and its different biasing conditions.
oc 6	Usage of semiconductor devices in designing the circuits.

2- program objectives served by the course:

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

OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 9	Provide students with an awareness of the tools and skills necessary for participating effectively in building a robust national economy and meeting current and future modern industry needs.

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

	Course objectives	program objectives
1	oc 1	OP7
2	oc 2	OP7
3	oc 3	OP7
4	oc 4	OP7
5	oc 5	OP7, OP9
6	oc 6	OP7, OP9

4- Learning outcomes of the course (LOs)

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

LO1	Study basic circuit concepts in a systematic manner suitable for analysis and design and further analyze the electric circuit using network theorems.
LO2	To understand the different types of semiconductor devices and their characteristics.
LO3	Illustrate about working of transistors, transistor-based amplifiers, and its biasing.
LO4	Explain the concepts of feedback and oscillations and construct feedback amplifiers
LO5	Apply knowledge of mathematics of analogue electronics design integrally to solve engineering problems

5- Program competencies served by the course:

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

B1	Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems.
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	B1
2	Lo2	B2
3	Lo3	B2, B3
4	Lo4	B2, B3
5	Lo5	B3, 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	Study and operation of digital multi-meter, function generator, regulated power supply, CRO, etc.	0	0	2	LO1
2	Verification of KVL and KCL	0	0	2	LO1
3	Verification of Superposition theorem.	0	0	2	LO1
4	Verification of Thevenin's, Norton's Theorem.	0	0	2	LO2
5	To plot the IV-characteristics of an ordinary and Zener diode and LED.	0	0	2	LO3
6	Study of Half wave and Full Wave Rectifiers.	0	0	2	LO3
7	Study of Fixed Bias, Voltage divider bias Feedback configuration for transistors.	0	0	2	LO4
8	Midterm		1.0		
9	Input and output amplifiers& quiz	0	0	2	LO5
10	Multistage amplifiers.	0	0	2	LO5
11	Coupling between stage.	0	0	2	LO5

12	Properties of OP-AMPS.	0	0	2	LO5
13	Study of transistor amplifier circuit.	0	0	2	LO5
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

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) 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	▪ AdelS.Sedra Kenneth C.Smith microelectronic circuits international sixth edition
c) Recommend books	▪ D.P. Patnaika, "Analog electronics and opamp", 3rd ed, 2007
d) Periodicals, Web sites, etc	▪ Mentioned at time.

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 306	Electromagnetic Theory
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	2021-2022

B-Basic Information

Title	Electromagnetic Theory
Code	CECE 306
Credit Hours	3Cr. hr
Lectures	2hr
lab	2hr
Total	4hr
Prerequisite	Conc. with PHYS 102 , MATH 201
Instructor name/Email	Prof. Dr. Hussein Hamed Al-Ghaz Hussein Al-goz@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Determine length, area, and volume in three dimensional (3D) orthogonal coordinate system(rectangular, cylindrical, and spherical coordinates).
oc 2	Formulate vector representation of an electric field or electric flux density given a known charge distribution or a potential field.
oc 3	Develop relationship between electric field, potential, and energy density (potential energy stored)in the electrostatic field.
oc 4	Relate static electric or magnetic field in the presence of dielectric or magnetic materials. Identify them across the boundaries of various insulating or magnetic materials.
oc 5	Find the capacitance and stored energy with one dimensional potential variation using direct integration (Laplace's equation).

oc 6	Apply known magnetic field laws to quantify different magnetic fields due to direct current. Define physical interpretation of curl and divergence with application of divergence and Stoke's theorems.
oc 7	Determine the force or moment of force exerted by the magnetic field on other charges. Formulate point and integral forms of Maxwell's equations for time-varying electric and magnetic fields and apply them to simple EM problems.

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	OP5
4	oc 4	OP6, OP7
5	oc 5	OP6, OP7
6	oc 6	OP6, OP7,OP12
7	oc 7	OP6, OP7,OP12

4- Learning outcomes of the course (LOs)

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

Lo1	Determine length, area, and volume in three dimensional (3D) orthogonal coordinate system(rectangular, cylindrical, and spherical coordinates).
Lo2	Formulate vector representation of an electric field or electric flux density given a known charge distribution or a potential field.
Lo3	Develop relationship between electric field, potential, and energy density (potential energy stored)in the electrostatic field.

Lo4	Relate static electric or magnetic field in the presence of dielectric or magnetic materials. Identify them across the boundaries of various insulating or magnetic materials.
Lo5	Find the capacitance and stored energy with one dimensional potential variation using direct integration(Laplace's equation).
Lo6	Apply known magnetic field laws to quantify different magnetic fields due to direct current. Define physical interpretation of curl and divergence with application of divergence and Stoke's theorems.
Lo7	Determine the force or moment of force exerted by the magnetic field on other charges9. Formulate point and integral forms of Maxwell's equations for time-varying electric and magnetic fields and apply them to simple EM problems.

5- Program LOs 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 LOs

	Course (LOs)	program LOs
1	Lo1	B2
2	Lo2	B2
3	Lo3	B2
4	Lo4	B2
5	Lo5	B2, B3
6	Lo6	B2, B3
7	Lo7	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	Introduction Review of vector algebra, Coordinate systems and transformation, vector calculus, Divergence and Stokes' theorems, and the Laplace operator.	2	0	2	Lo1
2	Focuses on Coulomb's law and Electrostatic fields for discrete and continuous charges in vacuum.	2	0	2	Lo1
3	Electric flux density, gauss's law, applications of gauss's law, electric scalar potential.	2	0	2	Lo1
4	relationship between electrostatic fields and the scalar potential, and work done.	2	0	2	Lo2
5	Electric dipole, energy and energy density, fundamental postulates of electrostatic field.	2	0	2	Lo3
6	boundary conditions of static electric field in conductor Poisson's and Laplace's equations.	2	0	2	Lo3
7	Discrete memoryless channel.	2	0	2	Lo3
8	Midterm		1.0		
9	Dielectrics and polarization, boundary conditions and capacitance, Conductors, Current density, and Resistance.	2	0	2	Lo4
10	Image method and Boundary value problems (Poisson's and Laplace's equations in different coordinate systems).	2	0	2	Lo4
11	Magnetostatic fields Biot savart and Ampere's law.	2	0	2	Lo5
12	magnetic flux density, magnetic scalar and vector potentials.	2	0	2	Lo5
13	Comparison between Magnetostatic and Electrostatic fields	2	0	2	Lo6
14	Magnetic force, magnetic dipole, magnetic materials, magnetic energy, boundary conditions, and Magnetic circuits .	2	0	2	Lo6
15	Maxwell's equation for time varying fields, Faraday's law.	2	0	2	Lo7
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 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	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	

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		
the Projects		weekly
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	30%		
Sheets and Sketches	40%		
Researches and reports	0%	5 marks	(40) marks
the Projects	30%		
Practical modelling	0%		
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	W.Haytand J . Buck, Engineering Electromagnetic, McGraw - Hill, 7th Ed., 2006.
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:	Prof. Dr. Hussein Hamed Al-Ghaz
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 code:	Course name
CECE 325	Fundamental of communication
A- Affiliation	
Relevant program:	Electronic and communication 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 communication
Code	CECE 325
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	CECE 303
Instructor name/Email	Ass. Prof. Dr. Ashraf Mohamed Ali Hassan Asherf Ali @sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Strong background in basic science and basic mathematics and be able to use these tools in their own engineering field.
oc 2	He should employ the necessary techniques, hardware, and communication tools fo modern engineering applications
oc 3	He also should be able to work in a multi-disciplinary environment, and follow and contribute to the developments in their own field recognizing the significance of lifelong learning.
oc 4	Broad discipline that covers the fields of integrated electronic circuits, electronic data storage, high-speed computing, communications, signal processing, microwave, wave propagation and antenna, optoelectronics, automation, automatic control, and monitoring systems, circuit analysis, network analysis, digital signal processing, and microprocessors

oc 5	Designed to strike a balance between theoretical and laboratory experience and to impart a fundamental and practical understanding of the principles required for a successful career in electronics engineering.
oc 6	A solid core of foundation courses in physics, mathematics, computer science, and general engineering, which is also essential for lifelong learning.
oc 7	Cover electromagnetic, wave propagation and antenna, circuits, electronics, power electronic devices, digital logic design, computers, programming, computer networks, signal processing, opto-electronics ,and communications

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 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, OP6
3	oc 3	OP5, OP6
4	oc 4	OP5, OP6
5	oc 5	OP12
6	oc 6	OP5, OP6
7	oc 7	OP5, OP6

4- Learning outcomes of the course (LOs)

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

Lo1	The fundamentals of signals & linear time invariant systems used in communication systems.
Lo2	Understanding the basic concepts of sampling theory
Lo3	Apply the properties of Fourier series for continuous time signals
Lo4	Knowledge of probability, random variables & random processes
Lo5	In depth knowledge of different types of analog communication system and different modulation techniques used in these systems
Lo6	Analysis of noise and its impact on different modulation techniques.
Lo7	Apply all of the preceding basic concepts to practical issues

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, B3
4	Lo4	B2
5	Lo5	B2
6	Lo6	B2, B3
7	Lo7	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	Introduction to Signals, Signal Classification, Continuous/ Discrete-Time Signals	2	2	0	LO1
2	Fourier series, Fourier transform & Its Properties'. Time-Invariant, Signal transmission through LTI Systems, Auto	2	2	0	LO2

	correlation, Cross correlation, Energy and power spectral density.				
3	Probability, Random Variables & their moments, their significance, Gaussian & Rayleigh Probability density functions	2	2	0	LO3
4	Amplitude Modulation: Need of Modulation, Block schematic of a typical communication system	2	2	0	LO4
5	AM modulation system, Modulation index, Generation (Squire Law & Switching Modulator)	2	2	0	LO3
6	AM Detection (Envelope & Squire Law Detector) of AM wave , Side bands & Power contents in AM Wave,	2	2	0	LO4
7	AM transmitter block diagram, TRF receiver & its limitations, Necessity of heterodyning, Super heterodyne radio receivers, IF amplifiers & selection of IF				LO5
8	Midterm		1.0		
9	DSB-SC (Balanced, Ring Modulator & Synchronous Detector), SSB-SC, Methods of generation & detection,	2	2	0	LO4
10	VSB modulation, Comparison of various AM systems, Frequency division multiplexing, Group delay & phase delay.	2	2	0	LO5
11	Revision	2	2	0	LO2
12	Frequency Modulation: Relationships between Phase & Frequency Modulation, Narrowband FM, Wideband FM & their Spectrum, Transmission bandwidth of FM And PM signals.	2	2	0	LO6
13	Methods of generation (Direct & Indirect) & detection of FM (Discriminators : Balanced, Phase Shift And PLL Detector), Pre-Emphasis & De-Emphasis, Stereophonic FM Broadcasting.	2	2	0	LO7
14	Revision	2	2	0	LO4
15	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	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓

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	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo6	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lo7	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

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)	(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 b) Required books	Fundamental of Communication ▪ Fundamentals of Signals and Systems ▪ Using the Web and MATLAB Edward W. Kamen Bonnie S Heck Third Edition ▪ K. Deergha Rao. Signals and Systems
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:	Ass. Prof. Dr. Ashraf Mohamed Ali Hassan
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 326	Communication Lab
A- Affiliation	
Relevant program:	Electronic and communication 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	Communication Lab
Code	CECE 326
Credit Hours	1Cr. hr
Lectures	0hr
Lab	2hr
Total	2hr
Prerequisite	Conc. with CECE 325
Instructor name/Email	Ass. Prof. Dr. Ashraf Mohamed Ali Hassan Asherf Ali @sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	He should employ the necessary techniques, hardware, and communication tools for modern engineering applications
oc 2	He also should be able to work in a multi-disciplinary environment and follow and contribute to the developments in their own field recognizing the significance of lifelong learning.
oc 3	Broad discipline that covers the fields of integrated electronic circuits, electronic data storage, high-speed computing, communications, signal processing, microwave, wave propagation and antenna, optoelectronics, automation, automatic control, and monitoring systems, circuit analysis, network analysis, digital signal processing, and microprocessors

oc 4	Designed to strike a balance between theoretical and laboratory experience and to impart a fundamental and practical understanding of the principles required for a successful career in electronics engineering.
oc 5	Cover electromagnetic, wave propagation and antenna, circuits, electronics, power electronic devices, digital logic design, computers, programming, computer networks, signal processing, optoelectronics, and communications

2- program objectives served by the course:

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

OP 7	Teach students to use experimental and data analysis techniques for electrical power engineering applications
OP 9	Provide students with an awareness of the tools and skills necessary for participating effectively in building a robust national economy and meeting current and future modern industry needs.

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

Course objectives		program objectives
1	oc 1	OP7
2	oc 2	OP7
3	oc 3	OP7
4	oc 4	OP7
5	oc 5	OP7, OP9

4- Learning outcomes of the course (LOs)

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

LO1	An ability to apply knowledge of communication theory and equations practically
LO2	Ability to simulate communication experiment using Emona101.
LO3	Ability to simulate communication experiment using MATLAB simulation (Simulink & coding).
LO4	Knowledge of probability, random variables & random processes.
LO5	Ability to function in teams.
LO6	An ability to design electronic component related to communication.

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, B3
4	Lo4	B2
5	Lo5	B2, B3
6	Lo6	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	Introduction to Signals, simulate different kind of signal (Analogue- Digital)	0	0	2	LO1
2	Apply different simple process (multiplication-addition-subtraction-convolution) using kit and MATLAB	0	0	2	LO2
3	Apply the Probability of Random Variables(using AWGN) & their moments, their significance, Gaussian & Rayleigh Probability density functions	0	0	2	LO3
4	Simulate Amplitude Modulation: Need of Modulation, Block schematic of a typical communication system using Kit and MATAB	0	0	2	LO4

5	Simulate AM modulation system, Modulation index, Generation (Squire Law & Switching Modulator) using Kit and MATAB	0	0	2	LO3
6	Simulate AM Detection (Envelope & Squire Law Detector) of AM wave , Side bands & Power contents in AM Wave, using Kit and MATAB	0	0	2	LO4
7	Simulate AM transmitter block diagram, TRF receiver & its limitations, Necessity of heterodyning, Super heterodyne radio receivers, IF amplifiers & selection of IF, using Kit and MATAB	0	0	2	LO5
8	Midterm		1.0		
9	Simulate DSB-SC (Balanced, Ring Modulator & Synchronous Detector), SSB-SC, Methods of generation & detection, using Kit and MATAB	0	0	2	LO4
10	Simulate SSB modulation, Comparison of various AM systems using Kit and MATAB.	0	0	2	LO5
11	Revision	0	0	2	LO2
12	Simulate Frequency Modulation: Relationships between Phase & Frequency Modulation, Narrowband FM, Wideband FM & their Spectrum, Transmission bandwidth of FM And PM signals, using Kit and MATAB.	0	0	2	LO6
13	Simulate Methods of generation (Direct & Indirect) &	0	0	2	LO6

	detection of FM (Discriminators : Balanced, Phase Shift And PLL Detector), Pre- Emphasis & De-Emphasis, Stereophonic FM Broadcasting, using Kit and MATAB.				
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

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)	
	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)	(0) marks	
	Quiz (2)	(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	Fundamental of Communication
b) Required books	▪ Emona 101 lab manual ▪ Fundamentals of Signals and Systems Using the Web and MATLAB Edward W. Kamen Bonnie S Heck Third Edition
c) Recommend books	▪ Mentioned at time.
d) Periodicals, Web sites, etc	▪ Mentioned at time.

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:	Ass. Prof. Dr. Ashraf Mohamed Ali Hassan
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
MATH 302	Linear Algebra and Matrices
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	Linear Algebra and Matrices
Code	MATH 302
Credit Hours	3Cr. hr
Lectures	2hr
Tutorial	2hr
Total	4hr
Prerequisite	MATH 202
Instructor name/Email	Dr. Gamal El-Anani gamalanany@sva.edu.eg

C- Professional information

1- Course learning objectives:

oc 1	Explain concepts of systems of linear equation
oc 2	Explain concepts of mathematical of algebra of matrices
oc 3	Apply knowledge of mathematics to linear transformations
oc 4	Explain Concepts of determinants
oc 5	Search and analyze data, to Deal with design situations within solving de problems based on the analytical process for vector spaces.
oc 6	Demonstrate methodologies of solving engineering problems with inner prc spaces
oc 7	Apply knowledge of Theory of equations, eigenvalues, and eigenvectors to s 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 Covers systems of linear equation.

OP 2	Algebra of matrices.
OP 3	Linear transformations.
OP 4	Determinants.
OP 5	Vector spaces.
OP 6	Inner product spaces.
OP 7	Eigenvalues and eigenvectors.

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 Linear Algebra and Matrices.
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 and prepare and present technical reports about application of matrices to solve engineering problems.
Lo6	Communicate effectively in tutorial class room with the demonstratorand effectively manages tasks, time, and resources, when solving mathematics problems, and in exams.
Lo7	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, A2
3	Lo3	A2
4	Lo4	A2
5	Lo5	A1
6	Lo6	A1, A2
7	Lo7	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 l
1	The concept of matrices	2	2	0	Lo1, Lo2
2	Covers systems of linear equation	2	2	0	Lo1, Lo3
3	algebra of matrices	2	2	0	Lo5, Lo6
4	linear transformations	2	2	0	Lo2, Lo4
5	determinants	2	2	0	Lo2, Lo4
6	vector spaces	2	2	0	Lo2, Lo4
7	inner product spaces				Lo4
8	Midterm		1.0		
9	eigenvalues and eigenvectors	2	2	0	Lo2, Lo4
10	diagonalization	2	2	0	Lo2, Lo4
11	orthogonally	2	2	0	Lo2, Lo5
12	special matrices and applications	2	2	0	Lo2, Lo4
13	The use of computer software such as MathCAD	2	2	0	Lo2, Lo4
14	MATLAB	2	2	0	Lo2, Lo4
15	Revision				Lo2, Lo4 Lo5
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	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
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 lLOs	Tools of assessment											
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Lo1	✓	✓	✓	✓				✓	✓	✓	✓
Lo2	✓	✓	✓	✓				✓	✓	✓	✓
Lo3	✓	✓	✓	✓				✓	✓	✓	✓
Lo4	✓	✓	✓	✓				✓	✓	✓	✓
Lo5	✓	✓	✓	✓				✓	✓	✓	✓
Lo6	✓	✓	✓	✓				✓	✓	✓	✓
Lo7	✓	✓	✓	✓				✓	✓	✓	✓

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)	(5) marks (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 - Wesle - 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
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