نموذج وصف البرنامج الأكاديمي

اسم الجامعة: جامعة .كلكامش

الكلية/ المعهد: كلية الهندسة

القسم العلمي: قسم هندسة الالكترونيك والاتصالات

اسم البرنامج الأكاديمي او المهني: بكالوريوس

اسم الشهادة النهائية: بكالوريوس في هندسة الالكترونيك والاتصالات

النظام الدراسي: مقررات

تاريخ اعداد الوصف:

التوقيع :

اسم رئيس القسم:

التاريخ :

التوقيع :

اسم المعاون العلمي:

التاريخ :

دقق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:

التاريخ ١٤/ ٨/ ٢٠٢٥

التوقيع

مصادقة السيد العميد

1. Teaching Institute	Gilgamesh Ahliya University
2. University Department / Center	Electronics and Communication Engineering
3. Program Title	B. Sc. in Electronics and Communication Engineering
4. Title of Final Award	B. Sc. in Electronics and Communication Engineering
5. Models of Attendance Offered	Annual Educational System
6. Accreditation	ABET
7. Other External Influences	None
8. Date of production/ revision of this specification	25-06-2023
9. Aims of the program	
i- Use technical, teamwork, and communication skills, along with leadership	
ii- Pursue graduate degrees in Electronics & Communication engineering and other fields.	
iii- Function ethically in their professional Electronics & Communication engineering roles.	

iv- Pursue professional licensure.
v- Engage in life-long learning through independent study and by participating in professional conferences, workshops, seminars, or continuing education.
10.Learning Outcomes, Teaching and Learning and Assessment methods. (The same as ABET Student Outcomes from a to k)

A-Program Outcomes – Knowledge

A1- An ability to apply knowledge of mathematics, science and engineering *(a in ABET Student Outcomes).*

A2- An ability to design and conduct experiments, as well as to analyze and interpret data *(b in ABET Student Outcomes).*

A3- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability *(c in ABET Student Outcomes).*

A4- An ability to identify, formulate, and solve engineering problems *(e in ABET Student Outcomes).*

A5- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context *(h in ABET Student Outcomes).*

A6- A knowledge of contemporary issues *(j in ABET Student Outcomes).*

B-Subject-specific skills

B1- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice *(k in ABET Student Outcomes).*

C-Thinking skills

C1- An understanding of professional and ethical responsibility *(f in ABET Student Outcomes).*

C2- A recognition of the need for, and an ability to engage in life-long learning *(i in ABET Student Outcomes).*

D- Program Outcomes – General and transferable skills (other skills relevant to employability and Personal development)

D1- An ability to function on multidisciplinary teams *(d in ABET Student Outcomes).*

D2- An ability to communicate effectively using written, oral and visual methods of communication *(g in ABET Student Outcomes).*

Teaching and Learning Methods

Mentioned in Course Portfolios

Assessment Methods

Mentioned in Course Portfolios in addition to surveys done to senior students and employers.

11. Program Structure

No.	Level/ year	Course or Module Code	Course or Module Title	Credit rating	Hours		
					Contact	Prac	Tutorial
1	Second/ First	ECE202	Mathematics III	3	3	0	0
2		GS201	The Scientific Method - Critical and Creative Thinking	1	1	0	0
3		ECE206	Combinational Logic Circuits	3	2	2	0
4		ECE204a	Microelectronic Devices and Circuits 1	4	3	2	0
5		ECE208	Modeling and performance using MATLAB	3	2	2	0
6		ECE209	Network Analysis	2	2	0	0
7		ECE207	Electricity and Magnetism	2	2	0	0
8		ECE203	Academic Writing Skills	2	2	0	0
1	Second/ Second	ECE204b	Microelectronic Devices and Circuits 2	4	3	2	0
2		ECE212	Engineering Design Process	1	1	0	0
3		EEN212	English	2	2	0	0
4		ECE210	Electromagnetic Fields	3	3	0	0
5		ECE211	Probability, Random process, and statics	2	2	0	0
6		ECE205	Signals and Systems	4	3	2	0
1	Third/First	ECE304	Sequential logic circuits	3	2	2	0
2		ECE302	Electromagnetic Wave Propagation	2	2	0	0
3		ECE305a	Communication systems 1	3	2	2	0
4		ECE306	Integrated Circuits and Applications	2	2	0	0
5		ECE309	Analog Electronics Design Lab.	3	2	2	0
6		EEN312	English 3	2	2	0	0
7		ECE311	System Engineering	2	2	0	0
1	Third/ Second	ECE303	Antenna Engineering	3	2	2	0
2		ECE305b	Communication Systems II	3	2	2	0
3		ECE308	Computer Aided Communication Systems Design Lab	2	1	2	0
4		ECE312	Computer Aided Electronic Circuit Design Lab	2	1	2	0
5		ECE307	Digital Systems Design Lab	3	2	2	0
6		ECE313	Power Electronics	3	2	2	0
7		ECE310	Digital Signal Processing	3	2	2	0
1	Fourth/	ECE404	Mobile communications	3	2	2	0

2	First	ECE406	Control Engineering	3	2	2	0
3		ECE408	Engineering Management	2	2	0	0
4		ECE409	Information Theory	2	2	0	0
5		EEN412	English Language 4	2	2	0	0
6		ECE4XX	Elective 1	3	2	2	0
7		ECE401	Graduation Project	3	2	3	0
1	Fourth/ Second	ECE403	Optical communications	3	2	2	0
2		ECE401	Graduation Project	3	2	3	0
3		ECE405	Computer Networks	3	2	2	0
4		ECE4XX	Elective 2	3	2	2	0
5		ECE410	Embedded Systems	2	2	0	0
6		ECE407	Engineering Ethics	2	2	0	0
7		ECE411	Microwave	2	2	0	0

Credit units =

For 2nd stage = 38

For 3rd stage = 36

For 4th stage = 36

1. Admission

   Minimum number of students = 15

   Maximum number of students=150

2. Planning for Personal Development

   There is the training of faculty members in writing of program learning outcomes

3. Admission criteria:

   The submission to the program and acceptance of students are central from ministry of Higher Education and Scientific Research.

Curriculum Skills Map														
Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed														
Courses				**Program Learning Outcomes (ABET Student Outcomes)**										
Year/ Level	**Course Code**	**Course Title**	**Core (C)Title or Option (O)**	**Knowledge and understanding**						**Subject - specific skills**	**Thinking skills**		General and transferable skills (or)other skills relevant to employability and Personal development	
				A1 (a)	**A2 (b)**	**A3 (c)**	**A4 (e)**	**A5 (h)**	**A6 (j)**	**B1 (k)**	**C1 (f)**	**C2 (i)**	**D1 (d)**	**D2 (g)**
First	ECE202	Mathematics III	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ECE206	Combinational Logic Circuits	Core	✓			✓	✓		✓	✓			✓
	ECE204a	Microelectronic Devices and Circuits 1	Core		✓			✓			✓	✓		✓
	ECE208	Modeling and performance using MATLAB	Core	✓				✓	✓	✓	✓	✓		✓
	GS201	The Scientific Method - Critical and Creative Thinking	Basic	✓			✓		✓	✓		✓		✓
	ECE209	Network Analysis	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
	ECE207	Electricity and Magnetism	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
	ECE203	Academic Writing Skills	Basic	✓	✓		✓		✓	✓		✓		✓

Second	ECE205	Signals and Systems	**Core**	✓						✓			✓	
	ECE204b	Microelectronic Devices and Circuits	**Core**	✓		✓	✓			✓	✓			
	ECE212	Engineering Design Process	**Core**			✓				✓			✓	
	EEN212	English	**Basic**						✓					✓
	ECE210	Electromagnetic Fields	**Core**	✓					✓	✓	✓			
	ECE211	Probability, Random process, and statics	**Core**	✓	✓	✓	✓						✓	

Course Description Form

1. Course Name:	
Combinational Logic Circuits	
2. Course Code:	
ECE206	
3. Semester / Year:	
Semester: 2	
4. Description Preparation Date:	
08/04/2024	
5. Available Attendance Forms:	
Face to Face	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Theoretical Hrs. per week: 2 Applied Hrs. per week : 2	
7. Course administrator's name (mention all, if more than one name)	
Name: Ameer Hussein Morad Email: ameer.housein.morad@gau.edu.iq	
8. Course Objectives	
Course Objectives	At Completing of this module the student should be able to: • Design methodologies for electronic circuits, to use mathematical expressions to describe the functions of simple combinational circuits. • Convert numerical data from one format to another and to use different formats to represent numerical data. • Understand Boolean algebra, basic laws and rules in logic design, De_ Morgan's theorem, Karnaugh map, and approaches to simplifying logic circuits. • Understand systematical design methodology for combinational logic circuits and build this kind of digital systems by using some IC devices. • Understand systematical design methodology for sequential logic circuits
9. Teaching and Learning Strategies	
Strategy	Lectures, tutorials, problem solving and experimental Labs.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1-2	6	Concepts of number system	Number System and Codes (Decimal, Binary, Octal, and Hexadecimal) Conversions between number systems. BCD, Ex-3, Gray codes	Lecture	assignments
3-4	6	Understand Boolean algebra concepts and basic logic gates function	Boolean Algebra and Truth table. Implementation using Logic Gates (AND, OR, and NOT) and	lecture	Quiz and lab exp.
6	4	Understand universal gates NAND and NOR and use them to implement SOP and POS Boolean function forms	Combinational logic circuit using NAND and NOR gates. DE Morgan Theorem	lecture	Quiz and lab exp.
7-8	6	Simplification of Boolean Funtions	Algebraic Simplification. Karnaugh Map	lecture	Quiz and lab exp.
9-10	6	Combinational Circuits examples	Parallel Addersubtract circuit. Multiplier circuit. Comparator circuit.	lecture	Quiz and lab exp.
11	6	Concept of decoder and encoder	Decoder and Encoder Implementation of Boolean function using Decoder.	lecture	Quiz and lab exp.

12-13	4	Concept of Multiplexer and De-multiplexer	Multiplexer and De-multiplexer Implementation	lecture	Quiz and lab exp.
			of Boolean function using Multiplexer		
14-15	6	Memory devices	Implementation of Boolean Function using Memory, PAL, GAL	lecture	Quiz and lab exp.

11. Course Evaluation	
Quizzes, Assignments 40 mark LAB: 10 marks Final examination: 50 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	- Digital Design , 5th_Edition, M. MORRIS MANO, Michael D. Ciletti, 2012 2- Digital Fundamental by Floyd, 2010
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name	
probability, random process, and statics	
2. Course Code	
ECE211	
3. Semester / Year	
2023-2024	
4. Description Preparation Date	
01−04−2024	
5. Available Attendance Forms:	
Face to face	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: assist lecturer Ola Abdulhussein Ahmed Email: ola.a.ahmed@gau.edu.iq	
8. Course Objectives	
Course Objectives	At the end of this course the student should be able • Knowing the main statistical concept and how it calculate and apply. • Ability to understand the basics of probability calculations and use probability models for some random experiments (applying them in practi life). • Knowing the value and importance of the course and explain the possibility of applying it in their specialty.
9. Teaching and Learning Strategies	

Strategy	• Using modern study methods • Adopting the method of discussion and dialogue

	• Daily and monthly exams. • Training in class. • Guide the student to useful sources .

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
First	2	Introduction on the main concept	Definition and knowledg of statistics Its types and types of data Definition of some essential terms.	lecture	Questions and discussions
Second	2	Calculate the frequency distribution	Types of frequencies distribution and how determine each type	lecture	Questions and discussions
third	2	_Calculate the Cumulative frequency distribution - practice to draw the frequency distribution graph	- Cumulative frequency Distribution - the frequency distribution graph	lecture	Questions and discussions
Fourth		Calculate the Measures of Cer Tendency	Measures of Central Tendenc	lecture	Questions and discussions
Fifth		Calculate the Measures of Variation	Measures of Variation	lecture	Questions and discussions
Sixth		Exame			

Seventh		-Knowing the basic interpretations of probability Classical probability Empirical or relative frequency probability Subjective probability how to measure them. -Understand the conc e Of sample space, eve n Complement of event -using addition role probability.	-the basic interpretations of probability. - the concept Of sample space, event, Complement of event. - the addition role of probability.	lecture	Questions and discussions
Eighth		-find the probability using multiplication Role. -find the probability o Tow or more indepen l or dependent event	-The multiplication role probability -dependent and indepen event.	lecture d	Questions and discussions
Ninth		-find the condition probability -find at least at most probability. -applied Bayes rule	-condition probability -at least at most probability - Bayes rule	lecture	Questions and discussions
Tenth		-understand the con c of Permutation - understand the con of Combination	- Permutation - c Combination	lecture	Questions and discussions
Eleventh		-find the discrete probability distributio -find the Binomial probabilities,	Statistical probability distribution	lecture	Questions and discussions
Twelveth		Measure the normal distribution	Continues distributions	lecture	Questions and discussions
Thirteenth		Exam			
Fourteenth		Give the marks to students General revision		lecture	Questions and discussions
Fifteenth		Final exam			
11. Course Evaluation					

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc Daily activities: 5 Class work: 5 Home work: 10 Exams:20 Quizzes:10 Final exam: 50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Elementary statistics : a step by step approach / Allan Bluman. — 8th ed. Probability, statistics, and random processes for electrical engineer Alberto Leon-Garcia. -- 3rd ed.
Recommended books and references (scientific journals, reports…)	مبادئ الاحصاء , محمد صبحي ابو صالح، دار اليازور ي العلمية ,٢٠٠٠.
Electronic References, Websites	https://www.studysmarter.co.uk/explanations/math/probability-andstatistics/

Course Description Form

1. Course Name:
Electromagnetic Fields
2. Course Code:
ECE210
3. Semester / Year:
Second Semester 2023-2024
4. Description Preparation Date:
1/4/2024
5. Available Attendance Forms:
Class Lecture
6. Number of Credit Hours (Total) / Number of Units (Total)
45 hours
7. Course administrator's name (mention all, if more than one name)
Name: Assit.lecture Haneen Jumhoor Sabbar Email: haneen.g.sabbar@gau.edu.iq
8. Course Objectives

Course Objectives	•The objectives of this module are to tease out the laws of electromagnetism from our every day experience by specific examples of how electromagnetic phenomena man if est themselves. We want to be able to: •Describe, in words, the ways in which various concept sin electromagnetism come in to play in particular situations. •Represent the se electromagnetic phenomena and fields mathematically in those situations. •The over all goal is to use the scientific method to come to understand the enormous variety of electromagnetic phenomena in terms of a few relatively simple laws and Maxwell's equations.

9. Teaching and Learning Strategies

Strategy	Lectures, tutorials, problem solving

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	3	Electrostatic potential.	**Introduction.**	lecture	

2	3	To understand the electromagnetic field behavior.	**Electrostatics: PartI:** 1.Coulomb's Law and Field Intensity 2.Electric Fields Due to Continuous Distributions	lecture	
3	3	Electrostatic potential.		lecture	
			Electrostatics:Part I:Cont. 3.ElectricFluxDensity 4.ElectricPotential 5.RelationshipBetweenEAndV.		
4	3	Identify Maxwell's equations.	**Electrostatics: Part II** 1. Gauss's Law 2. Applications of Gauss' Law	lecture	**Quiz 1**
5	3	Identify (B2) Maxwell's equations. To understand how laws of electromagnetism can be applied to problems arising i engineering.	**Electrostatics: Part** 3. First Maxwell's E 4. Applications of Fi n	lecture	
6	3	Tounderstandhowlawsofelec magnetismcanbeappliedtopro emsarisinginengineering.	t **Magnetostatics:** 1. Magnetic Flux De 2. Second Maxwell' 3. Applications of Se	lecture	
7	3	Classify conductors and nonconductors	**Electrodynamics: P** e 1. Properties of Mat 2. Convection and C 3. Continuity Equat i	lecture	**Quiz 2**
8	3	Formulate and analyze Faraday's law of induction.	**Electrodynamics: Part II:** 1. Faraday's Law 2. Third Maxwell's Equation 3. Applications of Th Maxwell's Equation.	lecture	
9	3		**Midterm 1**	lecture	

10	3	Formulate and analyze Ampère's Law	**Magnetodynamics: Part I:** 1. Ampère's Law 2. Applications Ampère's Law.	lecture	
11	3		**Magnetodynamics: Part II:** 1. Displacement Current 2. Fourth Maxwell's Equation	lecture	
			3. Applications of Fourth Maxwell's Equation.		
12	3	Formulate and apply boundary conditions.	**Electrostatic Boundary: Part I:** 1. Poisson's Equation 2. Applications Poisson's Equation	lecture	**Quiz3**
13	3	Formulate and apply boundary conditions.	**Electrostatic Boundary: Part II:** 1. Laplace's Equation 2. Applications Laplace's Equation.	lecture	
14	3		**Midterm 2**	lecture	
15	3		**Seminars**	lecture	

11. Course Evaluation

• Home works
• Final examination: 50 marks
• 20% Quizzes, Oral questions – Continuous evaluation
• 30% Class Participation, Presentations – Continuous

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	2018by Matthew N.O. Sadiku
Main references (sources)	2018by William. H. Hayt.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	NONE

Course Description Form

1. Course Name:
Signals and Systems
2. Course Code:
ECE205
3. Semester / Year:
Semester 2
4. Description Preparation Date:
08/04/2024
5. Available Attendance Forms:
Face to Face
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory: 3 Hours Practical: 2 Hours
7. Course administrator's name (mention all, if more than one name)
Name: Saif Faris Abulhail Email: saifabulhail@gmail.com
8. Course Objectives

Course Objectives	Students completing this course are have a good understanding of the fu and applications of discrete-time sig systems, convolution, and z transfor

9. Teaching and Learning Strategies	
Strategy	Lectures, tutorials, problem solving

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name
1	3		Signals
2	3		- Fundamentals of systems
3	3		- Fundamentals of systems
4	3		-Classification of signals.

5	3			- Classification of systems

6	3			Linearity, causality, time-invariance, stability
7	3			- LIT System properties.
8	3			Basic Building Blocks of system
9	3			- convolution
10	3			- convolution
11	3			Prosperities of Convolution
12	3			Correlation
13	3			System Described by Linear-Constant Coefficient Difference Equation
14	3			Z-Transform
15	3			-properties of Z-transform

11. Course Evaluation

Quizzes, Assignments 40 mark Mid _Exam: 10 marks Final examination: 50 marks.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Oppenheim, Alan, and Alan Willsky. Signals and Systems. 2nd ed. Prentice Hall, 1996. ISBN: 9780138147570.
Recommended books and references (scientific journals, reports...)	Text Book1: Dimitris M., Vinay I."Applied digitalsignal processing" Cambridge, 2011.
Electronic References, Websites	

Course Description Form

1. Course Name:
Microelectronic Devices and Circuits 2
2. Course Code:
COE204b
3. Semester / Year:
Semester 2
4. Description Preparation Date:
08/04/2024
5. Available Attendance Forms:
Face to Face
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory: 2 Hours Practical: 2 Hours
7. Course administrator's name (mention all, if more than one name)
Name: Saif Faris Abulhail Email: saifabulhail@gmail.com
8. Course Objectives

Course Objectives	The course or subject "Electronic Circuits" aims to introduce students to the study of the basic devices and configurations of electronic systems. The specific aim is to familiarize students with the operation, analysis and design of electronic circuits (diode, transistor, and amplifier circuits). The electronic circuits including: diode circuit applications, bipolar junction transistor (BJT) circuits, field-effect transistor (FET) circuits, multistage (compound) amplifiers, and feedback amplifiers.

9. Teaching and Learning Strategies

Strategy	Lectures, tutorials, problem solving

10. Course Structure

Week	Hours		Required Learning Outcomes	Unit or subject name	Learning method
1	3			The P-N Junction Diode Circuits and Applications	
2	3			Diode operation regions (forward, reverse, and zener), diode resistance levels (dc/static, ac/dynamic,	

					and average ac), diode modeling (piecewiselinear, simplified, and ideal), diode notation and specification sheets, load-line analysis, diode switching circuits (logic gates), rectification and capacitor filters, clippers, clampers, voltage multipliers, zener diode characteristics and applications (ac regulation, dc referencing, and dc regulation).
	3	3			Bipolar Junction Transistor (BJT) Circuits

	4	3			Construction, operation, configurations and characteristics, operating regions, load-lines, limits of operation (power dissipation and breakdown voltage), specification sheets, casing and terminal identifications, BJT as an amplifier, dc	

				biasing circuits (design, analysis, and stability), the BJT inverter (transistor switch).
5	3			Field-Effect Transistor (FET) Circuits
6	3			JFET/MOSFET: construction, operation, configurations and characteristics, operating regions, specification sheets, casing and terminal identifications, dc biasing circuits, the JFET as an analog switch, the JFET chopper .
7	3			Small–Signal FET Amplifiers

8	3			FET modeling, amplifiers design and analysis, low and high frequency operation.	
9	3			Multistage and Compound Amplifiers	
10	3			Cascade amplifiers, BJT, FET, amplifiers, direct-coupled BJT, FET, amplifiers: Cascade, Darlington, and feedback pair, differential amplifiers,	

				current mirror circuits, current source circuits, transformer coupling, frequency response of multistage amplifiers.
11	3			Feedback Amplifiers
12	3			The general feedback structure, some properties of negative feedback, the four basic feedback topologies (voltageseries, voltage-shunt, current series, and current- shunt), gain, impedance, bandwidth, and Stability.
13	3			Field-Effect Transistor (FET) Circuits

14	3			JFET/MOSFET: construction, operation, configurations and characteristics, operating regions, specification sheets, casing and terminal identifications, dc biasing circuits, the JFET as an analog switch, the JFET chopper .	
15	3			Small–Signal FET Amplifiers	

11. Course Evaluation	
Quizzes, Assignments 40 mark Mid _Exam: 10 marks Final examination: 50 marks.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• R. L. Boylestad and L. Nashelelsky, ***Electronic Devices and Circuit theory***, Pearson Prentice Hall, Inc., 8th Edition, 2002.
Main references (sources)	• T. Floyd, ***Electronic Devices***, Pearson Prentice Hall, Inc., 7th Edition 2005.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Research and Creative Thinking

GS201

1. Teaching Institution	Gilgamesh private university
2. University Department/Centre	Computer Engineering Department
3. Course title/code	Research and Creative Thinking/GS201
4. Programme(s) to which it contributes	ABET
5. Modes of Attendance offered	Curriculum System
6. Semester/Year	Fall /2023
7. Number of hours tuition (total)	60
8. Date of production/revision of this specification	November 2023
9. Aims of the Course	
1- understanding of thinking processes and an ability to manage and apply these intentionally 2- skills and learning dispositions that support logical, strategic, flexible and adventurous thinking 3- confidence in evaluating thinking and thinking processes across a range of familiar and unfamiliar contexts	
10· Learning Outcomes, Teaching ,Learning and Assessment Method	

A- Knowledge and Understanding

A1. Understand the importance of research ethics and integrate research ethics into the research process.

A2. Students' writing will improve

A3. Be able to assess and critique a published journal article that uses one of the primary research methods in the field.

A4. Be able to construct an effective questionnaire that employs several types of survey questions.

A5. Students will be able to distinguish credible sources of information .

B. Subject-specific skills

B1- Understand research terminology

B2- be aware of the ethical principles of research, ethical challenges and approval processes

B3- Critically analyze published research

B4- Develop an ability to apply effective, creative and innovative solutions to research problems

B5- Develop teamwork, and interpersonal skills in negotiating research programs via use of problem solving and critical thinking exercises in research case studies

B6- Critically evaluate the efficacy of virtual means of delivering or developing research strategies

B7- Identify the components of a literature review process

Teaching and Learning Methods

1-Individual and group specialized laboratory experiments 2-
Various exploratory techniques.

3- Overlap between old and modern methods of teaching

Assessment methods

Assessment methods for a Research and Creative Thinking course may comprise exams, quizzes, Lecturing by using the board, Open discussion on a certain topic, Written examination, Short questions, Problem solving

C. Thinking Skills

C1- Critical thinking: Students learn to analyze and evaluate information, identify patterns, and draw conclusions based on evidence
C2- Problem-solving: Students learn to apply Research and Creative Thinking concepts to solve problems related to data representation, communication, and inference
C3- Mathematical reasoning: Students learn to use mathematical tools and techniques to quantify information, perform inference, and study the relationship between information and learning

D. General and Transferable Skills (other skills relevant to employability and personal development)

.In order to develop the thinking skills of the students:

D1- Communication skills help know when and how to ask questions, how to read body language and how to talk to people in many contexts.
D2-Dependability, includes punctuality, organization and responsibility. D3-Teamwork skills involve the ability to work with others towards a common goal. Effective teamwork requires several other qualities such as empathy, active listening and strong communication

D4- Writing and presenting research findings: Organizing research papers and reports, Academic writing conventions and citation styles, Effective oral presentation skills and visual aids usage

11. Course Structure					
Week	Hours	ILOs	Unit/Module or TopicTitle	Teaching Method	Assessment Method
1	2	What is Research? Why do Research? Motivation in Research Objectives of Research		Theoretical lecture	Lecturing by using the board
2	2	Introduction to Scientific Research and the Research Process		Theoretical lecture	Lecturing by using the board
3	2	Explain the relationship between theory and research		Theoretical lecture	quizzes
4	2	Literature Reviews and Data Base Searches. Researching a topic, evaluating information, and Literature survey		Theoretical lecture	Lecturing by using the board
5	2	The Structure of a Scientific Paper		Theoretical lecture	Lecturing by using the board
6	2	Describe and compare the major quantitative and qualitative research methods in mass communication research		Theoretical lecture	quizzes

7	2	Propose a research study and justify the theory as well as the methodological decisions, including sampling and measurement		Theoretical lecture	Open discussion on a certain topic
8	2	To locate, analyse and synthesise information about the diversity of research approaches		Theoretical lecture	Lecturing by using the board
9	2	Writing an Academic Scientific Paper		Theoretical lecture	Written examination
10	2	Referencing and Academic Integrity		Theoretical lecture	Lecturing by using the board
11	2	Reviewing and Scientific Assessment.		Theoretical lecture	Short questions
12	2	Research Ethics and Engaging Cultures		Theoretical lecture	Open discussion on a certain topic
13	2	Presentation Skills and Presentation Evaluations		Theoretical lecture	Lecturing by using the board

14	2	Work on a Research Proposals		Theoretical lecture	Final proposal
15	2	Paper Submission and Presentation		Theoretical lecture	Powerpoint Presentation

12. Infrastructure	
	Writing Up Research, by Robert Weissberg and

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Suzanne Buker. ISBN: 0139708316 Science Research Writing. A Guide for Non Native Speakers of English, by Hilary Glasman Deal. 2002, ISBN: 9781848163096.
Special requirements (include for example workshops, periodicals, IT software, websites)	Professor John L. Cotton, Professor Randall J. Scalise, and Professor Stephen Sekula. The Scientific Method - Critical and Creative Thinking (Debunking Pseudoscience). (accessed 01.04.2014) /http://www.physics.smu.edu/pseudo
Community-based facilities (include for example, guest Lectures ,internship,field studies)	
13. Admissions	
Pre-requisites	
Minimum number of students	15
Maximum number of students	60

MATHEMATICS III

ECE 202

1. Teaching Institution	Gilgamesh private university
2. University Department/Centre	Electronics & Communication Engineering Department

3. Course title/code	MATHEMATICS III
4. Programme(s) to which itcontributes	B. Sc. in Electronics & Communication Engineering
5. Modes of Attendance offered	Curriculum system
6. Semester/Year	Fall2023
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	Nov. 2023
9. Aims of the Course	
By the end of the module, you will know how to differentiate and integrate functions of several variables. In single variable calculus the Fundamental Theorem of Calculus relates derivatives to integrals. We will see something similar in multivariable calculus and the capstone to the course will be the three theorems (Green's, Stokes' and Gauss') that do this.	
10· Learning Outcomes, Teaching, Learning and Assessment Method	
A- After completing this module, students should have developed a clear understanding of the fundamental concepts of multivariable calculus and a range of skills allowing them to work effectively with the concepts. The basic concepts are : • Derivatives as rates of change, computed as a limit of ratios • Integrals as a 'sum,' computed as a limit of Riemann sums	

B. Subject-specific skills

1. Fluency with vector operations, including vector proofs and the ability to translate back and forth among the various ways to describe geometric properties, namely, in pictures, in words, in vector notation, and in coordinate notation.
2. Fluency with matrix algebra, including the ability to put systems of linear equation in matrix format and solve them using matrix multiplication and the matrix inverse .
3. An understanding of a parametric curve as a trajectory described by a position vector; the ability to find parametric equations of a curve and to compute its velocity and acceleration vectors .
4. A comprehensive understanding of the gradient, including its relationship to level curves (or surfaces), directional derivatives, and linear approximation. 5. The ability to compute derivatives using the chain rule or total differentials.
6. The ability to set up and solve optimization problems involving several variables, with or without constraints.

Teaching and Learning Methods

This module will be taught through classroom lectures (5hrs/week). The lecture material will be reinforced and expanded on through recitation sessions (3hrs/week) and homework.

Assessment methods

Quizzes (2) and Home-works (1 per month) = 10% Exams (2 per semester) = 40% Final Exam = 50% Total = 100%

C. Thinking Skills

To value hard-work to reach excellence and serve people using modern science

D. General and Transferable Skills (other skills relevant to employability and personal development)

: In order to develop the thinking skills of the student

To know that it is only through knowledge we can develop our country and society towards a better life

To know that we need life-long learning to keep up-to-date with scientific developments

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1,2	6	Understanding Parametric Curves	Parametric Equations for Curves	Lecture	Quiz/ Exam
3,4,5	9	Thorough Comprehension of 3-D surfaces	Functions of Two Variables, Tangent Approximation and Optimization	Lecture	Quiz/ Exam
7,7	6	Understanding of Gradient	Chain Rule, Gradient and Directional Derivatives main	Lecture	Quiz/ Exam
8,9	6	Set up of Constrained Optimization Problems	Lagrange Multipliers and Constrained Differentials	Lecture	Quiz/ Exam
10,11	6	Ability to set up and compute double integral	Double Integrals	Lecture	Quiz/ Exam

12,13	6	understanding of line integrals for work and flux	Vector Fields and Line Integrals	Lecture	Quiz/ Exam
14,15	6	Ability to set up and compute triple integral	Triple Integrals	Lecture	Quiz/ Exam

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS	Edwards, Henry C., and David E. Penney. Multivariable Calculus. 6th ed. Lebanon, IN: Prentice Hall, 2002. ISBN: 9780130339676
13. Admissions	
Pre-requisites	MATH II
Minimum number of students	15
Maximum number of students	50

Network Analysis

ECE 209

1. Teaching Institution	Gilgamesh private university

2. University Department/Centre	Electronics and Communication
3. Course title/code	Network Analysis / ECE209
4. Programme(s) to which it contributes	B. Sc. in Electronics & Communication Engineering
5. Modes of Attendance offered	curriculum system
6. Semester/Year	Semester
7. Number of hours tuition (total)	45
8. Date of production/revision of this specification	November 2023

9. Aims of the Course

1. The subject deals with the various methods of analysis of electrical circuits under transient and steady state conditions.
2. To understand the concept of Laplace and Fourier transform and transform circuits using Thevenin's and Norton's theorem.

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

A1-Recall basics of electrical circuits with nodal and mesh analysis.

A2- Illustrate electrical network theorems.

A3-Develop Laplace Transformed network for steady state and transient analysis.

A4-Analyses electrical network parameter for different application.

A5-Determine the elements required to network synthesis method

A6- Be able to continue to learn necessary principles of electrical circuit analysis

A7- Be able to work more effectively in teams (groups)

B. Subject-specific skills

B1-To verify Maximum Power Transfer Theorem.
B2-To verify Superposition Theorem.
B3- To verify Thevenin's and Norton's Theorem.
B4- To verify Reciprocity Theorem

Teaching and Learning Methods

1- Through the presentation of a theoretical explanation with the aid of white board and 'Data Show', to illustrate syllabus (examples and exercises) and using text books.

Assessment methods

For the purpose of evaluation is used
1. Method of rapid tests and snap
2. Identify some homework
3. quarterly exams

C. Thinking Skills

C.1. Modeling the problem step by step.
C.2.Solving the problem with the aid of known methods

Teaching and Learning Methods

Teaching and Learning Methods for part
1. explain the required terms
2. to discuss ideas and share knowledge
3. methodology and use of text books

Testing through discussion (singular or plural)
1- Writing Testing
2- Oral discussion

Assessment methods

-Lecturing by using the board
-Showing short ethical films
-Open a discussion on a certain topic All
this is associated with :
1- Written examination
2- Short questions
3- Multiple choice questions
4- Problem solving
5- Essays
6- Oral examination
7- Practical examination

D. General and Transferable Skills (other skills relevant to employability and personaldevelopment)

.In order to develop the thinking skills of the students:

D1(

D2- ,

D3-

D4-

11. Course Structure					
Week	Hours	ILOs	Unit/Module or TopicTitle	Teaching Method	Assessment Method
1	3	B.1, B.2, C.1	Incidence matrix of linear oriented graph	Lectures (power point)	Quiz
2	3	B.1, B.2, C.1	Kirchhoff laws in Incidence matrix formulation	Lectures (power point)	Quiz
3	3	B.1, B.2, C.1	Planer graph, tie set matrix, cut set matrix	Lectures (power point	Assignments and Quiz
4	3	B.1, B.2, C.1	Mesh analysis	Lectures (power point	Assignments and Quiz
5	3	B.1, B.2, C.1	Nodal analysis	Lectures (power point)	Quiz
6	3	B.1, B.2, C.1	Network applications (Amplifier, Transmission Lines)	Lectures (power point	Homework and Quiz
7	3	B.1, B.2, C.1	Review of Network function for one port and two ports	Lectures (power point	Assignments and Quiz
8	3	B.1, B.2, C.1	Pole zero location for driving point	Lectures (power point)	Quiz
9	3	B.1, B.2, C.1	Ability to set up and compute double integral	Lectures (power point	Assignments and Quiz
10	3	B.1, B.2, C.1	Properties of positive real function	Lectures (power point	Assignments and Quiz

11	3	B.1, B.2, C.1	Passively-necessary and sufficient conditions for positive real function	Lectures (power point)	Quiz
12	3	B.1, B.2, C.1	Propagation constant	Lectures (power point	Assignments and Quiz
13	3	B.1, B.2, C.1	Derivation of characteristic impedance constant for T and Pi	Lectures (power point	Assignments and Quiz
14	3	B.1, B.2, C.1	Network under sinusoidal steady state	Lectures (power point	Assignments and Quiz
15	3	B.1, B.2, C.1	Attenuation constant and phase constant	Lectures (power point	Assignments and Quiz

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures ,internship,field studies)	
13. Admissions	
Pre-requisites	
Minimum number of students	

Maximum number of students	

Engineering design process

ECE 212

1. Teaching Institution	Gilgamesh private university
2. University Department/Centre	Electronic and Communications Engineering
3. Course title/code	Engineering design process
4. Programme(s) to which it contributes	B. Sc. in Electronic and Communications Engineering

5. Modes of Attendance offered	curriculum system
6. Semester/Year	Fall semester 2023-2024
7. Number of hours tuition (total)	45
8. Date of production/revision of this specification	November 2023

9. Aims of the Course

1. Engineering Design and Process (EDP) is the capstone course in the PLTW high school engineering
2. program. It is an engineering research course in which students work in teams to design and develop an original
3. solution to a valid open-ended technical problem by applying the engineering design process. The course applies
4. and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

A1- Students need to apply themselves on a daily basis. There is a fixed timeline to follow in this course, make sure to follow through!

A2- This course encourages and teaches students to problem solve and use critical thinking to solve problems.

A3-Develop Laplace Transformed network for steady state and transient analysis.

A4-Analyses electrical network parameter for different application.

B. Subject-specific skills

Time Management - Students need to apply themselves on a daily basis. There is a fixed timeline to follow in this course, make sure to follow through! Personal Motivation

- Actively seeking and taking part in any undertaking relating to the chosen skill area. Problem-Solving Ability
- This course encourages and teaches students to problem solve and use critical thinking to solve problems. Reliability/Dependability
- Demonstration by the student that he/she can be relied upon to do what is expected in class and in group work.

This includes completing assignments on time and in a professional manner and working with their group partner. Ability to Work with Others

- A variety of skills including teamwork are addressed. In this course students must work in groups on various tasks and projects for solving problems, generating ideas, stimulating critical thinking, etc. by unrestrained spontaneous participation in discussion. Students will acquire strong teamwork and communication skills throughout this course.

Teaching and Learning Methods

1- Through the presentation of a theoretical explanation with the aid of white board and 'Data Show', to illustrate syllabus (examples and exercises) and using text books.

Assessment methods

For the purpose of evaluation is used

Grades will be calculated on a straight point basis.

Projects will be based on a scale of 1 to 100 points depending on the assignment or project. Daily work and participation grades will be based on completion of the Engineering Notebook and Portfolio. Weekly quizzes, cumulative unit exams and a National PLTW Assessment will be given during the semester.

C. Thinking Skills

C.1. Modeling the problem step by step.
C.2.Solving the problem with the aid of known methods

Teaching and Learning Methods

Teaching and Learning Methods for part
1. explain the required terms
2. to discuss ideas and share knowledge
3. methodology and use of text books
Testing through discussion (singular or plural)
1- Writing Testing
2- Oral discussion

Assessment methods

-Lecturing by using the board
-Showing short ethical films
-Open a discussion on a certain topic All
this is associated with :
1- Written examination
2- Short questions
3- Multiple choice questions
4- Problem solving
5- Essays
6- Oral examination
7- Practical examination
8- Quizzes,
9- Oral semesters

D. General and Transferable Skills (other skills relevant to employability and personaldevelopment)

.In order to develop the thinking skills of the students:

D1(

D2- ,

D3-

D4-

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	B.1, B.2, C.1	Project Management	Lectures (power point)	Quiz
2	3	B.1, B.2, C.1	Define a Problem	Lectures (power point)	Quiz
3	3	B.1, B.2, C.1	Identify a Valid Problem	Lectures (power point	Assignments and Quiz
4	3	B.1, B.2, C.1	Design a Solution	Lectures (power point	Assignments and Quiz
5	3	B.1, B.2, C.1	Develop a Design Proposal	Lectures (power point)	Quiz
6	3	B.1, B.2, C.1	Design and Prototype a Solution	Lectures (power point	Homework and Quiz
7	3	B.1, B.2, C.1	Plan for the Prototype	Lectures (power point	Assignments and Quiz

8	3	B.1, B.2, C.1	Build the Prototype	Lectures (power point)	Quiz
9	3	B.1, B.2, C.1	Test, Evaluate, and Refine the Solution	Lectures (power point	Assignments and Quiz
10	3	B.1, B.2, C.1	Plan the Test	Lectures (power point	Assignments and Quiz
11	3	B.1, B.2, C.1	Test the Prototype	Lectures (power point)	Quiz
12	3	B.1, B.2, C.1	Communicate the Process and Results	Lectures (power point	Assignments and Quiz
13	3	B.1, B.2, C.1	Documentation and Presentation	Lectures (power point	Assignments and Quiz
14	3	B.1, B.2, C.1	project	lecture	Presentation
15	3	B.1, B.2, C.1	Project presentation	lecture	Presentation

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS	Engineering Design Process Second Edition / Yusuf Haik
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures ,internship,field studies)	
13. Admissions	
Pre-requisites	None
Minimum number of students	15

Maximum number of students	50

Course Specifications

ECE 203

University	Gilgamesh Ahliya University
Department	Electronic and Communication engineering
Course Title	Academic writing Skills
Course Coordinator	
Year of study/semester	Second year/semester I
Total hours	90
Pre requisite	

Course Catalog Description

This writing course emphasizes the role of ideas and thinking within the writing process. One's writing, it is argued, can only be as good as the quality of the ideas conveyed. Thus, this course will place emphasis not only on how you say something, i.e. style, but what you say, i.e. substance. To this extent, this course will assess both the language and substance of a student's writing. Besides an emphasis on ideas, this course is taught through student's active engagement the writing process. One's writing improves by writing and then receiving in-class feedback that can be profitably used in future writing exercises, including homework.

COURSE ASSESSMENTS & LEARNING OUTCOMES MATRIX

Course Learning Outcomes

1 - Students will have more confidence and enthusiasm to write
2 - Students will understand the tone, register and style of academic or formal writing
3 - Students will employ proper grammar and punctuation
4 - Students will know the key components of an Academic Essay

Course Objectives
1 - How to construct effective Thesis Statements 2 – How to create interesting and relevant context 3 – How to build solid arguments, beginning with clear topic sentences 4 - How to link arguments together
Teaching Methods
Direct classroom lectures with examples Weekly essays
Feedback & Assessment
Face-to-face lectures for basic knowledge *Using many Questions for brain-storming* Quizzes (2) and Home-works (1) (for each chapter) = 20% Exams (1) (Short essay) = 30% Final Exam = 50% Total = 100%

Tentative Course Outline					
Week	*Hours*	*Topics*	*Learning Outcomes*	*Mode of delivery*	*Feedback*
1-2	2	Course introduction and overview	The class is designed to introduce the teacher and the course expectations, including attendance, class format, homework frequency, and grading system. As well, this course syllabus will be discussed.	Lecture	Quiz / Exam

3-4	2	Creative Writing	The purpose of this Topic is to ease students into the habit of writing on a regular basis. The tasks contained therein are in a free style, without many rules, so as to facilitate the writing process.	Lecture	Quiz / Exam
5-6	2	Free Expression Essay	This first in-class task is designed to express one's feelings or thoughts in writing. This introductory task, though ungraded, will also assist the instructor in understanding the general limits and merits of students' writing.	Lecture	Quiz / Exam
7	2	Opinion Essay	An opinion essay is designed as a prelude to the argumentative essay, the components of which will occupy most of the winter semester.	Lecture	Quiz / Exam
8-9	2	The Argumentative Essay	This topic area is an important first step towards ultimate goal of writing research essays whichi s the focus of the second semester	Lecture	Quiz / Exam

10-11	2	Thesis Statement	Creating an effective Thesis Statement (or the main idea) for your essay is paramount to being a successful writer not only in university but in any venue that requires the student to persuade others.	Seminar	Exam
12	2	identify good and poor T.Ss.	Students will be given a series of T.Ss. in which students must identify which are better and worse. Discussions and explanations will follow.	Seminar	Exam
13	2	Improve poor T.Ss	Students will be given T.Ss. which they will need to improve, first by identifying what the problem(s) is/are and then correcting them.	Seminar	Exam
14	2	Create your own T.Ss	the students will be given partial essays, and they will have to write an appropriate T.S. to match the essay	Seminar	Exam

Course Structure	
Textbook	Salomon Greta, .Just_Write_Jt!, pdf, chs. 6-7.
Supplementary Reading	https://www.sterling.edu/documents/academics/Thesi sStatement.pdf

Electronic books and websites	https://wts.indiana.edu/writing-guides/index.htinl
Computer Usage	

Microelectronic devices and circuits 1

ECE 204a

1. Teaching Institution	Gilgamesh private university
2. University Department/Centre	Electronic and Communications engineering
3. Course title/code	Microelectronic devices and circuits 1
4. Programme(s) to which it contributes	Electronic Engineering
5. Modes of Attendance offered	Full time/actual attendance
6. Semester/Year	Full/2023-2024
7. Number of hours tuition (total)	90
8. Date of production/revision of this specification	September /2023
9. Aims of the Course	

The course or subject “Electronic Circuits” aims to introduce students to the study of the basic devices and configurations of electronic systems. The specific aim is to familiarize students with the operation, analysis and design of electronic circuits (diode, transistor, and amplifier circuits). The electronic circuits including: diode circuit applications, bipolar junction transistor (BJT) circuits, field-effect transistor (FET) circuits, multistage (compound) amplifiers, and feedback amplifiers.

10. Learning Outcomes, Teaching, Learning and Assessment Method

A. Knowledge and understanding

A1. Understand the operations of diode circuits and applications A2. Analyze and design different diode circuits.

A3. Knowledge the operations of transistor devices: BJT and MOSFET.

A4. Analyze and design DC bias circuits for BJTs/FETs for the basic categories (CE/CS, CC/CD, and CB/CD).

A5. Perform analysis at AC of amplifiers based on BJTs and FETs usings mall-signal models.

A6. Study, analyze, and design multistage and compound amplifiers. A7. Knowledge and analyze feedback amplifiers and its topologies. A8. Understand and analyze frequency responses of amplifiers.

B. Subject-specific skills

B1. Knowledge of the fundamentals of electronic circuits, properties of electronic devices, applicable models and operating margins.

B2. Correct application of the theory and resolution techniques in the analysis of electronic circuits.

B3. Ability to solve simple exercises of electronic circuit design from a given set of specifications.

Teaching and Learning Methods

- Lectures (theoretical explanation supporting by examples)
- Tutorials (solving problems and exercises)

Assessment methods

- Daily test, Quiz, Homework, Report, Other (5% + 5% = 10%)
- 1st term exam (20%)
- 2nd term exam (20%)
- Final exam (50%)

C. Thinking Skills

C1. Knowledge to reasonably justify the steps followed when solving a problem of electronic circuit analysis and design.

C2. Ability to solve problems with initiative, decision making, creativity, critical reasoning; and to communicate and transmit knowledge and skills in the field of Industrial Engineering.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Ability to communicate with others through scientific discussions during lectures D2. Knowledge to perform measurements, calculations, assessments, valuations, surveys, studies, reports, work plans and similar work.

11. Course Stricture

First Term

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
			The P-N Junction Diode Circuits and Applications		

1-10	30	A1 A2	Diode operation regions (forward, reverse, and zener), diode resistance levels (dc/static, ac/dynamic, and average ac), diode modeling (piecewise-linear, simplified, and ideal), diode notation and specification sheets, load-line analysis, diode switching circuits (logic gates), rectification and capacitor filters, clippers, clampers, voltage multipliers, zener diode characteristics and applications (ac regulation, dc referencing, and dc regulation).	Lectures and Tutorials	Daily test, Quiz, Homework, Report, Other (10%) 1st term exam (40%)
			Bipolar Junction Transistor (BJT) Circuits		

11-15	15	A3 A4	Construction, operation, configurations and characteristics, operating regions, load-lines, limits of operation (power dissipation and breakdown voltage), specification sheets, casing and terminal identifications, BJT as an amplifier, dc biasing circuits (design, analysis, and stability), the BJT inverter (transistor switch).	=	=
Second Term					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
			Small–Signal BJT Amplifiers		

16-20	15	A5 A8	BJT modelling (hybrid and re), graphical determination of the hparameters, voltage, current, and power gains, expressing gain in decibels, input and output impedances, phase relationship, low and high frequency operation, classification of amplifiers based on frequency response.	Lectures and Tutorials	Daily test, Quiz, Homework, Report, Other (5%) 2st term exam (10%)
21-22	6	A3 A4	Field-Effect Transistor (FET) Circuits JFET/MOSFET: construction, operation, configurations and characteristics, operating regions, specification sheets, casing and terminal identifications, dc biasing circuits, the JFET as an analog switch, the JFET chopper .	=	=
23-25	9	A5 A8	Small–Signal FET Amplifiers FET modeling, amplifiers design and analysis, low and high frequency operation.	=	=

26-27	6	A6 A8	Multistage and Compound Amplifiers Cascade amplifiers, BJT, FET, and BIFET RC-coupled amplifiers, direct-coupled BJT, FET, and BIFET amplifiers: Cascade, Darlington, and feedback pair, differential amplifiers, current mirror circuits, current source circuits, transformer coupling, frequency response of multistage amplifiers.	=	=
28-30	9	A7 A8	Feedback Amplifiers The general feedback structure, some properties of negative feedback, the four basic feedback topologies (voltage-series, voltage-shunt, current series, and current- shunt), gain, impedance, bandwidth, and Stability.	=	=

12. Infrastructure

Required reading: • Core Texts • Course Materials • Other	• T. Floyd, ***Electronic Devices***, Pearson Prentice Hall, Inc., 7th Edition 2005. • R. L. Boylestad and L. Nashelelsky, ***Electronic Devices and Circuit theory***, Pearson Prentice Hall, Inc., 8th Edition, 2002. • T. F. Bogart, ***Electronic Devices and Circuits***, Merrill Publishing Company, 1986. • Lectures

Community-based facilities (include for example, guest Lectures , internship , field studies)	Implementation of simple electronic circuits or mini projects
13. Admissions	
Pre-requisites	Physical Electronics and Materials (GEC 107) Electrical Engineering Fundamentals (GEC 108)
Minimum number of students	15
Maximum number of students	60

Course Specifications

ECE208

University	Gilgamesh Ahliya University
Department	Electronic and Communication engineering
Course Title	Modeling and performance using MATLAB
Course Coordinator	
Year of study/semester	4th year / Autumn Semester
Total hours	90
Pre requisite	

Course Catalog Description

The module provides an aggressively gentle introduction to MATLAB. It is designed to give students fluency in MATLAB, including popular toolboxes. The course consists of interactive lectures with students doing sample MATLAB problems in real time. Problem-based MATLAB assignments are given which require significant time on MATLAB.

COURSE ASSESSMENTS&LEARNING OUTCOMES MATRIX

Course Learning Outcomes

13- Describe the general principles of data communication.
14- Describe how computer networks are organized with the concept of approach.
15- Describe how signals are used to transfer data between nodes.
16- Implement a simple LAN with hubs, bridges, and switches.
17- Describe how packets on the Internet are delivered.
18- Analyze the contents in a given data link layer packet, based on the layer concept.

Teaching Methods& Learning Activities

The course uses team-based learning. Lectures and exercises are combined. The intention is to facilitate learning, provide students feedback throughout the semester, and enable learning in the context of realistic scenarios through projects.

Course Objectives

The module starts with a comprehensive and detailed study of current computer networks and communications technologies. It includes a review of network techniques, switching and multiple access; high-speed local area networks; network protocols, including data link, network, and transport and application layers. A selection of key topics are looked at in greater depth to reveal the state-of-theart and issues (problems) that remain to be solved

Assessment Methods

This module will be taught through classroom lectures. The lecture material will be reinforced and expanded on through recitation sessions, homeworks and by practical exercises in the laboratory

Course Policies

- Absence from lectures and/or tutorials shall not exceed 15%.
- Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course.
- If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course

Module and Instructor Feedback Date

Final feedback will be given by the instructor at the end of the course

Tentative Course Outline					
Week	*Hours*	*Learning Outcomes*	*Topics*	*Mode of delivery*	*Feedback*
1	4	Introduction and Network Models	Module 1	Theoretical Lecture	
2-3	4	Data and Signals	Module 2	Theoretical Lecture	Hw
4-5	4	Digital and Analog Transmission	Module 3	Theoretical Lecture	Quiz
6-7	4	Multiplexing, Error Detention, and Data Link Control	Module 3	Theoretical Lecture	Quiz Hw
8-9	4	Media Access Control and Ethernet	Module 4	Theoretical Lecture	Exam
10	4	Network Layer and Next Generation IP	Module 5	Theoretical Lecture	Quiz

11-12	4	Data-Link and Network Layer Protocols	Module 6	Theoretical Lecture	Quiz
13	4	Unicast and Multicast Routing	Module 6	Theoretical Lecture	Exam
14	4	Wired Networks and Virtual LANs	Module 7	Theoretical Lecture	Quiz Hw
15	4	Wireless Networks	Module 7	Theoretical Lecture	

Course Structure	
Textbook	
Supplementary Reading	This module is self-contained. No textbook is necessary, apart from the extensive lecture notes which are available online at MIT's OCW.

Electronic books and websites	Šćepanović, Danilo. 6.094 Introduction to MATLAB, January IAP 2010. (MIT OpenCourseWare: Massachusetts Institute of Technology), http://ocw.mit.edu/courses/electrical-engineering-andcomputer-science/6-094-introduction-to-matlabjanuary-iap-2010 (Accessed 1 Mar, 2014). License: Creative Commons BY-NC-SA
Computer Usage	• Linux operating system • Text Editor Software • Java Programming Language • C Programming Language

Crimes of the Defunct Baath Party

ECE213

1. Teaching Institution	Gilgamesh private university
2. University Department/Centre	Computer engineering
3. Course title/code	ECE213
4. Programme(s) to which itcontributes	B. Sc. In Computer engineering
5. Modes of Attendance offered	Curriculum system
6. Semester/Year	1st semester 2023-2024
7. Number of hours tuition (total)	45 hrs
8. Date of production/revision of this specification	
9. Aims of the Course	
1- 2- 3- 4-	
10· Learning Outcomes, Teaching ,Learning and Assessment Methode	

A- Knowledge and Understanding

A1.. Observation

A2- Comprehension

A3-Application

A4.Analysis

A5.Synthesis

A6.Evaluation

B. Subject-specific skills

B1-

B2 -

B3-

B4-

B5-

B6-

B7- B8-

Teaching and Learning Methods

1-Individual and group specialized laboratory experiments 2-
Various exploratory techniques.
3- Overlap between old and modern methods of teaching

Assessment methods

C. Thinking Skills

C1-
C2-
C3-

Teaching and Learning Methods

Teaching and Learning Methods for part
(١
(٢
Testing through discussion (singular or plural)
(١
(٢
(٣
(٤
(٥
(٦

Assessment methods

-Lecturing by using the board
-Showing short ethical films
-Open a discussion on a certain topic

All this is associated with :
(١Written examination
(٢Short questions
(٣Multiple choice questions
(٤Problem solving
(٥Essays

(٦Oral examination
(٧ Practical examination
(٨Quizzes,
(٩Oral semesters

11.	D. General and Transferable Skills (other skills relevant to employability and personaldevelopment) ourse Structure						
Wee	.In order t D1 Hours(	o develop the thinking s ILOs	kills of the: student Unit/Module or s TopicTitle		Teaching Method	Assessment	ethod
1	D2- , D3-						
2	D4-						
3							
4							
5							
6							
7							
8							

9					
10					
11					
12					
13					
14					
15					

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures ,internship,field studies)	
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

Course Description Form

Course Name:
Power Electronics
Course Code:
ECE32206
Semester / Year:
Stage 3 - Second Course
Description Preparation Date:
2025-1-27
Available Attendance Forms:
Weekly - Theoretical & practical
Number of Credit Hours (Total) / Number of Units (Total)
60 hr \ 4 units
Course administrator's name (mention all, if more than one name)
Name: aya.a. kadhim Email: aya.a.kadhim@gu.edu.iq
Course Objectives
-To provide students with a solid foundation in the fundamental concepts and techniques of power electronic elements and circuits.

-To develop students' ability to analyze and solve basic power electronic circuit problems.

-To familiarize students with the properties and behavior of semiconductor switches and other power electronic elements.

-To enhance students' critical thinking and problem-solving skills in the context of power electro circuits analysis.

Teaching and Learning Strategies

Lectures: Conduct interactive lectures to introduce and explain the key concepts, theories, and principles related to each topic. Use visual aids, examples, and real-world applications to enhance student understanding.

2.Problem-solving Sessions: Dedicate regular sessions to solving problems and exercises related to each topic. Encourage students to actively participate in problem-solving discussions and provide guidance and feedback during these sessions.

3.Laboratory Sessions: Conduct laboratory sessions where students can apply the learned theories and techniques to real-world circuit analysis. Provide hands-on experiments and projects to reinforce their understanding and enhance their practical skills.

4.Group Discussions: Assign group activities or case studies that require students to work collaboratively on analyzing and solving circuit problems. This fosters teamwork, critical thinking, and communication skills.

5.Assessments: Implement regular formative assessments, such as quizzes, assignments, and in-class exercises, to evaluate students' understanding and progress. Provide constructive feedback to guide their learning and address any misconceptions.

6.Mid-term Exam: Administer a mid-term exam to assess students' comprehension of the topics covered in the first half of the module. This exam can help identify areas that require further clarification or reinforcement.

7.Final Exam: Conduct a comprehensive final exam to assess students' overall understanding of the module's content. Design the exam to incorporate a variety of question formats, including theoretical concepts, problem-solving, and circuit analysis.

8.Office Hours: Offer dedicated office hours or consultations to provide individualized support and address students' questions or concerns. This facilitates personalized guidance and ensures students receive assistance when needed.

9.Review Sessions: Before exams or major assessments, conduct review sessions to summarize key concepts, address common challenges, and provide additional practice problems. This helps consolidate knowledge and reinforces understanding.

10.Continuous Feedback: Provide ongoing feedback to students on their progress, performance, and problem-solving skills. Encourage self-reflection and self-assessment to foster a growth mindset and promote continuous improvement.

11.Encourage Active Learning: Incorporate active learning strategies such as think-pair-share, concept mapping, and problem-based learning. Engage students in discussions, encourage questions, and promote independent thinking to deepen their understanding.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1		Understand and design power electronic circuits.	Introduction to power electronic	1.Foundational Knowledge (Lectures Reading)	• Quizzes • Assignments • In-class Participatic
2		Identify understand the wor power	Power semiconducto devices		

		electronic elements		2.Practical Application Design(Labs, Simulations, Projects) 3. Active Learning Reinforcement 4.Blended Approach	
3	2	Compare between Different semiconductor switches.	Types of power electronic semiconductor switches.		
4		Identify the n isolated dc-dc converter.	Non isolated dc-dc converter		
5		Understand and des the step-down dc-dc converter (BUCK).	Step down dc-dc converter (Buck)		
6		Understand and des the step-up dc-dc converter (Boost).	Step up dc-dc conver (Boost)		
7		Understand and des the step-up and dow dc-dc converter (BUCK-BOOST).	Step up and down dc-dc converter (Buck-Boost)		
8		Understand and des the step-up and dow dc-dc converter (CU	Mid-term exam		
9		Understand and des the step-up and dow	Step up and down dc-dc converter (CU		

		dc-dc conve (SEPIC).			
10		Identify the isolated dc-dc converter.	Step up and down dc-dc converter (SEF		
11		Compare betw isolated and n isolated dc-dc converter.	Isolated dc-dc conve		
12		Understand and des the isolated flyback dc-dc converter.	Flyback dc to converter		
13		Understand and des the isolated forward dc-dc converter.	Forward dc to converter		
14		Identify an inverter.	Introduction Inverters		
15		Understand and analyze an inve circuit.	Single and three pha voltage source inver		
1-15	2 \ عملي	Apply the theoretical concepts ((Material Covered)) for every week.			

Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Learning and Teaching Resources	
Required textbooks (curricular books any)	Fundamentals of Power Electronic, Second edition, Robert W. Erickson, Dragan Maksimovic, University of Colorado, Boulder
Main references (sources)	Power Electronics by Daniel W Hart
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
Systems Engineering
Course Code:
ECE31206
Semester / Year:
1st Semester / 3rd Stage
Description Preparation Date:
16-9-2024
Available Attendance Forms:
Weekly - Theoretical

Number of Credit Hours (Total) / Number of Units (Total)
2 / hour 30
Course administrator's name (mention all, if more than one name)
Name: aya.a.kadhim Email: aya.a.kadhim@gu.edu.iq
Course Objectives
• Understand the fundamental principles and concepts of systems engineering • Identify the system life cycle and process models. • Develop skills in analyzing and documenting system requirements • Understand the principles of system design and architecture. • Apply system integration, verification, and validation techniques. • Study risk management and quality assurance in systems engineering. • Explore operational support and system validation techniques • Apply system engineering principles to real-world projects.
Teaching and Learning Strategies
• Interactive lectures • Design assessments and critiques • Simulations and modeling • Iterative design tasks • Course objectives

• Students work in teams to address design challenges, encouraging peer-to-peer learning and sharing of ide and solving problems collectively

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understand the fundamentals systems engineering concepts	Introduction Systems Engineering	Lecture Reading Assignments	Competition, Participation
2.3	2	Understand the system life cycle and process models	System Life Cycle Models	Lectures Case Studies	Assignment, Study
3.4	2	Develop skills in system requirements analysis	Requirements Engineering	Workshops and Group Discussions	Case
5.6	2	Understand the principles of system design and architecture	System Design Architecture	Lecture, Exercises	Requirements Document Competition
7.8	2	Apply system integration and verification techniques	System Integration Verification	Laboratory Exercises Practical Sessions	Design Presentation Assignment Design
9.10	2	Study risk management and quality assurance in systems engineering	Risk Management Quality Assurance	Lecture	Lab Report

11.12	2	Explore system validation and operational support techniques	System Validation and Support	Case Studies	Integration Proj
13.14	2	Apply system engineering principles to a comprehensive project	Comprehensive System Project	Practical Workshops, Group Work	Validation Proj
15	2	Exam	Course Review	Review Board	Exam

Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Learning and Teaching Resources

Required textbooks (curricular books, if any	• Systems Engineering Principles and Practice by Alexander Kossiakoff and William N. Sweet. • The Engineering Design of Systems by Dennis M. Buede.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	