وزارة التعليم العالي والبحث العلمي
جهاز الإشراف والتقويم العلمي
دائرة ضمان الجودة والاعتماد الأكاديمي

استمارة وصف البرنامج الأكاديمي للكليات والمعاهد

الجامعة :ديالى
الكلية \ المعهد : الهندسة
القسم العلمي : هندسة الاتصالات
تاريخ ملئ الملف: 19/9/2023

التوقيع:
اسم رئيس القسم : أ.م.د. محمد سليمان صالح
التاريخ: 19/9/2023

التوقيع:
اسم المعاون العلمي: ا.م.د. جبار قاسم جبار
التاريخ: 19/9/2023

دقق الملف من قبل
قسم ضمان الجودة والأداء الجامعي
اسم مدير قسم ضمان الجودة والأداء الجامعي:
التاريخ 19/9/2023
التوقيع

مصادقة السيد العميد

Ministry of Higher Education and Scientific Research - Iraq
University of Diyala
College of Engineering
Department of Communications Engineering

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**Basic**			☐**Theory** ☐ **Lecture** ☐**Lab** ☐**Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**COE 106**				
ECTS Credits	**3**				
SWL (hr/sem)	**100**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		BSC.-COMM	**College**	College of Engineering	
Module Leader	Name:		**e-mail**	E-mail:	
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. This course deals with the basic concept of electrical circuits. 2. This is the basic subject for all electrical and electronic circuits. 3. To understand voltage, current and power from a given circuit. 4. To develop problem solving skills and understanding of circuit theory through the application of techniques. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform mesh and Nodal analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Discuss the reaction and involvement of atoms in electric circuits. 5. Describe electrical power, charge, and current. 6. Define Ohm's law. 7. Identify the basic circuit elements and their applications. 8. Discuss the operations of sinusoid and phasors in an electric circuit. 9. Discuss the various properties of resistors, capacitors, and inductors. 10. Explain the two Kirchoff's laws used in circuit analysis. 11. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **<u>Part A - Introduction</u>** Introduction to Engineering Drawing and Drawing Instruments, Conventions, Viewing of engineering drawing sheets, Method of Folding of printed Drawing sheet , Drawing board, T-square, Drafter (Drafting M/c), Set squares, Protector, Drawing Instrument Box (Compass, Dividers, Scale, and Diagonal Scales etc.), pencils of different grades, Drawing pins/ Clips. [18 hrs] **<u>Part B - Free hand drawing</u>** Lines, polygons, ellipse etc., Geometrical figures and blocks with dimension, Transferring measurement from the given object to the free hand sketches., Solid objects, Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone with dimensions, Free hand drawing of hand tools and measuring tools, simple fasteners (nuts, bolts, rivets etc.) trade related sketches. [15 hrs] **<u>Part C - Method of presentation of Engineering Drawing</u>** Pictorial View, Orthographic View [12 hrs] **<u>Part D - Projections</u>**

	Concept of axes plane and quadrant, Orthographic projections, Method of first angle and third angle projections (definition and difference), Symbol of 1st angle and 3rd angle projection in 3rd angle [24 hrs] Orthographic projection from isometric projection, Reading of fabrication drawing Sign and Symbols of Electrical, Electronics and related trades, Sketch of Electrical and Electronics/ trade related components, Electrical and Electronics wiring diagram/ trade related Layout diagram, Electrical earthling diagram – Drawing the schematic diagram of plate and pipe earthling., Electrical, Electronics/ trade related circuit diagram, Block diagram of Instruments/ equipment of related trade [8 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**1. Behavior management** Behavior management strategies foster an atmosphere of mutual respect, reduce disruptive behavior and ensure students have an equal opportunity to fulfill their potential in the classroom. It's crucial to provide them with both a positive and productive learning environment. Examples include establishing a reward system with an interactive chart where students move up or down depending on their performance and behavior in class. **2. Blended learning** With a blended learning teaching strategy, technology is incorporated with traditional learning. This allows students to work at their own pace, research their ideas and become more physically engaged during lessons. Examples include providing interactive tablets or whiteboards with engaging activities and posting classwork online for easier access. **3. Cooperative learning** Group work is a cooperative learning strategy that allows students with various learning levels to work together. By encouraging them to express their own ideas and listen to others' ideas as a group, you help students develop communication and critical thinking skills. Examples include solving math puzzles together, performing skits as a team or working on group presentations. **4. Formative assessment** A formative assessment is used periodically to monitor student learning incrementally. This can more effectively measure the process of learning as opposed to end-of-unit tests and can help you to improve your teaching methods throughout the year. Examples of this teaching strategy include self-evaluation exercises and summarizing a topic in multiple ways. **5. Student-led teaching** The student-led teaching strategy lets students become the teacher. In a classroom with learners at different levels, you can better engage those learning faster by showing them how to teach and give feedback to their peers.They may team-teach or work in groups to teach a new topic. Examples include letting a student teach an entire lesson or having advanced writers lead a peer-editing session as well as provide constructive criticism.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #4 and #8, #11
	Assignments	2	10% (10)	3 and 13	LO #3, #4 and #10, #14
	Homework	8	20% (20)	Continuous	All
Summative assessment	**Midterm Exam**	2hr	10% (10)	12	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي العملي

	Material Covered
Week 1	**Engineering Drawing – Introduction** • Introduction to Engineering Drawing and Drawing Instruments • Conventions • Viewing of engineering drawing sheets • Method of Folding of printed Drawing sheet
Week 2	**Drawing Instrument**

	• Drawing board, T-square, Drafter (Drafting M/c), Set squares, Protector, Drawing Instrument Box (Compass, Dividers, Scale, and Diagonal Scales etc.), pencils of different grades, Drawing pins/ Clips.
Week 3	**Free hand drawing** • Lines, polygons, ellipse etc. • Geometrical figures and blocks with dimension. • Transferring measurement from the given object to the free hand sketches. • Solid objects – Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone with dimensions. • Free hand drawing of hand tools and measuring tools, simple fasteners (nuts, bolts, rivets etc.) trade related sketches
Week 4	**Lines** • Definition, types and applications in drawing as per BIS: 46-2003 • Classification of lines (Hidden, center, construction, extension, Dimension, Section) • Drawing lines of given length (Straight, curved). • Drawing of parallel lines, perpendicular line • Methods of Division of line segment
Week 5	**Drawing of Geometrical figures:** • Definition, nomenclature and practice of – • Angle: Measurement and its types, method of bisecting. • Triangle: different types • Rectangle, Square, Rhombus, Parallelogram. • Circle and its elements • Different polygon and their values of included angles. Inscribed and circumscribed polygons
Week 6	**Dimensioning , Lettering & Numbering** • Single Stroke, Double Stroke, Inclined. • Definition, types and methods of dimensioning (functional, non-functional and auxiliary) • Position of dimensioning (Unidirectional, Aligned) • Types of arrowheads • Leader line with text • Symbols preceding the value of dimension and dimensional tolerance
Week 7	**Sizes and layout of drawing sheets** • Selection of sizes • Title Block, its position and content • Item Reference on Drawing Sheet (Item list)
Week 8	**Method of presentation of Engineering Drawing** • Pictorial View • Orthographic View • Isometric View
Week 9	**Symbolic representation – different symbols used in the trades** • Fastener (Rivets, Bolts and Nuts)

	• Bars and profile sections • Weld, Brazed and soldered joints • Electrical and electronics element • Piping joints and fitting
Week 10	**Projections** • Concept of axes plane and quadrant • Orthographic projections • Method of first angle and third angle projections (definition and difference) • Symbol of 1st angle and 3rd angle projection in 3rd angle
Week 11	• Orthographic projection from isometric projection • Reading of fabrication drawing
Week 12	**Mid – term Exam**
Week 13	• Sign and Symbols of Electrical, Electronics and related trades • Sketch of Electrical and Electronics/ trade related components • Electrical and Electronics wiring diagram/ trade related Layout diagram
Week 14	• Electrical earthing diagram – Drawing the schematic diagram of plate and pipe earthing. • Electrical, Electronics/ trade related circuit diagram • Block diagram of Instruments/ equipment of related trade
Week 15	• Maps, and Charts, Reading Datasheets and Manuals
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• Theraja, B. L. **A Textbook of Electrical Technology-Volume I (Basic Electrical Engineering)**. Vol. 1. S. Chand Publishing, 2005. • C.K. Alexander and M.N.O Sadiku, **Fundamentals of Electric Circuits**, McGraw-Hill Education, Fifth Edition, 2013	Yes
Recommended Texts	• Allan H. Robbins and Wilhelm C. Miller, **Circuit analysis: Theory and practice**, Cengage Learning, Fifth Edition, 2013. • Nilsson, James William, **Electric circuits**, Pearson Education India, 2008.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme

مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.