

Republic of Iraq  
Ministry of Higher Education & Scientific  
Research Supervision and Scientific  
Evaluation Directorate Quality Assurance  
and Academic Accreditation International  
Accreditation Dept.

## Academic Program Specification Form


University: Diyala  
College : Engineering  
Departments : Communication Engineering  
Date of Form Completion : 17/9/2023


  
Head of the Dept.

Date : 17 /9/2023

  
Dean's Assistant  
For Scientific  
Affairs  
Date : 19 /9/2023

  
The College Quality  
Assurance and University  
Performance Manager  
Date : 19 /9/2023

  
Dean of the college  
Date : 19/2023





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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		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	COE 106		
ECTS Credits	3		
SWL (hr/sem)	100		
Module Level	UGI	Semester of Delivery	
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	



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### Module Aims, Learning Outcomes and Indicative Contents

#### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. This course deals with the basic concept of electrical circuits.</li> <li>2. This is the basic subject for all electrical and electronic circuits.</li> <li>3. To understand voltage, current and power from a given circuit.</li> <li>4. To develop problem solving skills and understanding of circuit theory through the application of techniques.</li> <li>5. To understand Kirchoff's current and voltage Laws problems.</li> <li>6. To perform mesh and Nodal analysis.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize how electricity works in electrical circuits.</li> <li>2. List the various terms associated with electrical circuits.</li> <li>3. Summarize what is meant by a basic electric circuit.</li> <li>4. Discuss the reaction and involvement of atoms in electric circuits.</li> <li>5. Describe electrical power, charge, and current.</li> <li>6. Define Ohm's law.</li> <li>7. Identify the basic circuit elements and their applications.</li> <li>8. Discuss the operations of sinusoid and phasors in an electric circuit.</li> <li>9. Discuss the various properties of resistors, capacitors, and inductors.</li> <li>10. Explain the two Kirchoff's laws used in circuit analysis.</li> <li>11. Identify the capacitor and inductor phasor relationship with respect to voltage and current.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - Introduction</u></b> 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]</p> <p><b><u>Part B - Free hand drawing</u></b> 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]</p> <p><b><u>Part C - Method of presentation of Engineering Drawing</u></b> Pictorial View, Orthographic View [12 hrs]</p> <p><b><u>Part D - Projections</u></b></p>



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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 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 [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.



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### Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>100</b>		

### Module Evaluation

تقييم المادة الدراسية

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

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي العملي

Material Covered	
<b>Week 1</b>	<b>Engineering Drawing – Introduction</b> <ul style="list-style-type: none"> <li>• Introduction to Engineering Drawing and Drawing Instruments</li> <li>• Conventions</li> <li>• Viewing of engineering drawing sheets</li> <li>• Method of Folding of printed Drawing sheet</li> </ul>
<b>Week 2</b>	<b>Drawing Instrument</b>





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	<ul style="list-style-type: none"> <li>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.</li> </ul>
Week 3	<p><b>Free hand drawing</b></p> <ul style="list-style-type: none"> <li>Lines, polygons, ellipse etc.</li> <li>Geometrical figures and blocks with dimension.</li> <li>Transferring measurement from the given object to the free hand sketches.</li> <li>Solid objects – Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone with dimensions.</li> <li>Free hand drawing of hand tools and measuring tools, simple fasteners (nuts, bolts, rivets etc.) trade related sketches</li> </ul>
Week 4	<p><b>Lines</b></p> <ul style="list-style-type: none"> <li>Definition, types and applications in drawing as per BIS: 46-2003</li> <li>Classification of lines (Hidden, center, construction, extension, Dimension, Section)</li> <li>Drawing lines of given length (Straight, curved).</li> <li>Drawing of parallel lines, perpendicular line</li> <li>Methods of Division of line segment</li> </ul>
Week 5	<p><b>Drawing of Geometrical figures:</b></p> <ul style="list-style-type: none"> <li>Definition, nomenclature and practice of –</li> <li>Angle: Measurement and its types, method of bisecting.</li> <li>Triangle: different types</li> <li>Rectangle, Square, Rhombus, Parallelogram.</li> <li>Circle and its elements</li> <li>Different polygon and their values of included angles. Inscribed and circumscribed polygons</li> </ul>
Week 6	<p><b>Dimensioning , Lettering &amp; Numbering</b></p> <ul style="list-style-type: none"> <li>Single Stroke, Double Stroke, Inclined.</li> <li>Definition, types and methods of dimensioning (functional, non-functional and auxiliary)</li> <li>Position of dimensioning (Unidirectional, Aligned)</li> <li>Types of arrowheads</li> <li>Leader line with text</li> <li>Symbols preceding the value of dimension and dimensional tolerance</li> </ul>
Week 7	<p><b>Sizes and layout of drawing sheets</b></p> <ul style="list-style-type: none"> <li>Selection of sizes</li> <li>Title Block, its position and content</li> <li>Item Reference on Drawing Sheet (Item list)</li> </ul>
Week 8	<p><b>Method of presentation of Engineering Drawing</b></p> <ul style="list-style-type: none"> <li>Pictorial View</li> <li>Orthographic View</li> <li>Isometric View</li> </ul>
Week 9	<p><b>Symbolic representation – different symbols used in the trades</b></p> <ul style="list-style-type: none"> <li>Fastener (Rivets, Bolts and Nuts)</li> </ul>



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	<ul style="list-style-type: none"> <li>• Bars and profile sections</li> <li>• Weld, Brazed and soldered joints</li> <li>• Electrical and electronics element</li> <li>• Piping joints and fitting</li> </ul>
<b>Week 10</b>	<b>Projections</b> <ul style="list-style-type: none"> <li>• Concept of axes plane and quadrant</li> <li>• Orthographic projections</li> <li>• Method of first angle and third angle projections (definition and difference)</li> <li>• Symbol of 1st angle and 3rd angle projection in 3rd angle</li> </ul>
<b>Week 11</b>	<ul style="list-style-type: none"> <li>• Orthographic projection from isometric projection</li> <li>• Reading of fabrication drawing</li> </ul>
<b>Week 12</b>	<b>Mid – term Exam</b>
<b>Week 13</b>	<ul style="list-style-type: none"> <li>• Sign and Symbols of Electrical, Electronics and related trades</li> <li>• Sketch of Electrical and Electronics/ trade related components</li> <li>• Electrical and Electronics wiring diagram/ trade related Layout diagram</li> </ul>
<b>Week 14</b>	<ul style="list-style-type: none"> <li>• Electrical earthing diagram – Drawing the schematic diagram of plate and pipe earthing.</li> <li>• Electrical, Electronics/ trade related circuit diagram</li> <li>• Block diagram of Instruments/ equipment of related trade</li> </ul>
<b>Week 15</b>	<ul style="list-style-type: none"> <li>• Maps, and Charts, Reading Datasheets and Manuals</li> </ul>
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<ul style="list-style-type: none"> <li>• Theraja, B. L. <b>A Textbook of Electrical Technology-Volume I (Basic Electrical Engineering)</b>. Vol. 1. S. Chand Publishing, 2005.</li> <li>• C.K. Alexander and M.N.O Sadiku, <b>Fundamentals of Electric Circuits</b>, McGraw-Hill Education, Fifth Edition, 2013</li> </ul>	Yes
<b>Recommended Texts</b>	<ul style="list-style-type: none"> <li>• Allan H. Robbins and Wilhelm C. Miller, <b>Circuit analysis: Theory and practice</b>, Cengage Learning, Fifth Edition, 2013.</li> <li>• Nilsson, James William, <b>Electric circuits</b>, Pearson Education India, 2008.</li> </ul>	No
<b>Websites</b>	<a href="https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering">https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering</a>	

### Grading Scheme



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### مخطط الدرجات

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