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

MODULE DESCRIPTOR
وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**ENGINEERING DRAWING**	**Module Delivery**	
Module Type	BASIC	**Theory** **Lecture** **Tutorial** **Practical** **Seminar**	
Module Code	EE 106		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	**Semester (s) offered**	2
Administering Department	Electronics Engineering	**College**	Engineering
Module Leader	Yaser I. Jasem	**e-mail**	Yaser_ij@uodiyala.edu.iq
Module Leader's Acad. Title	Assist. Proff.	**Module Leader's Qualification**	MS.c.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval		**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, Indicative Contents and Brief Description

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية مع وصف مختصر

Module Aims أهداف المادة الدراسية	Engineering drawing is the principal method of communication for engineers, the objective is to introduce the students, to the techniques of constructing the various types of polygons, curves and scales. In addition to engineering drawing, students become familiar with the AutoCAD user interface. Understand the fundamental concepts and features of AutoCAD. Use the precision drafting tools in AutoCAD to develop accurate technical drawings—present drawings in a detailed and visually impressive manner.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of this course the students will be able to: 1- Get information about the important tools for engineering drawing. This will give student basic knowledge of technical drawings professions and means of communications to others. 2- Learning how to draw the shapes, angels and lines and others which is essential for engineer 3- Develop student's imagination and ability to represent the shape size and specifications of physical objects. 4- Understand the main idea of using dimension for engineering drawing 5- Familiarize with different drawing equipment, technical standards and procedures for construction of geometric figures. This will give students ability to draw three-dimension objects on the paper and to draw the pectoral drawings. 6- Explain the principle of projection and sectioning 7- Utilize the power and precision of AutoCAD as a drafting and design tool used in the mechanical design and manufacturing industries. 8- Apply basic CAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions. 9- Create, manipulate and edit 2D drawings and figures. 10- Apply elements of mechanical drafting such as layers, dimensions, drawing formats, and 2D figures in projects.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. • Paper size, Lettering & title blocks • Orthographic projection • Isometric and oblique projection • Perspective drawing • Basic geometrical solids • Development of surfaces

	• **Creating Basic Drawings** • Manipulating Objects • Implementing Drawing Organization and Inquiry Commands • Altering Objects • Annotate a Drawing • Dimension Drawings • Hatching Objects • Creating Additional Drawing Objects and working on Projects • Plotting the Drawing Output
Course Description	This course introduces students to the introduction to the drawing tools and how to use them, lines drawing, Basic engineering processes, Composition of the engineering drawings, Letters, numbers, dimensions, Projection, Sectioning, Isometric drawing. Understand the fundamental concepts and features of AutoCAD. Use the precision drafting tools in AutoCAD to develop accurate technical drawings. Present drawings in a detailed and visually impressive manner. Develop a level of comfort and confidence with AutoCAD through hands-on experience.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Begin to establish a strong conceptual understanding of the principles of engineering drawing. Use the reality of work examples and measurements to help students relate abstract concepts to the planning. Encourage discussions and questions to clear up any misconceptions. In addition, provide students with the tool to deal with schematic problems. Encourage active participation and group discussions to enhance critical thinking and problem-solving skills. Guide students through the problem-solving process and provide constructive feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل **In class lectures** **Lab** **Practical** **In class tests** **Final Exam**	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem)	52	**Unstructured SWL (h/w)**	3.5

الحمل الدراسي غير المنتظم للطالب خلال الفصل **Library, dorm, home memorizing** **Preparation for tests** **Homework**		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time (hr)	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	15% (15)	5, 12	LO #1, 2, 3,7,8 and LO# 4,5,6,9,10
	Assignments	6	5% (5)	7, 12	LO # 7, 8 and LO# 9,10
	Homework	2	20% (20)	Continuous	
Summative assessment	**Midterm Exam**	2	10% (10)	7	LO #1, 2, 3,4,7,8 and LO# 4,5,6,9,10
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	- Definition of tools and how to use them, - Introduction 1. Status Bar and Command Prompt 2. AutoCAD Commands 3. Dynamic Input 4. Menus, Ribbons, and Toolbars 5. Cursor and Colors 6. Undo and Redo
Week 2	- Initial principles of drawing, - Drawing Aids 1. Open Existing Drawings 2. Creating a New Drawing 3. Saving Drawings **4.** Exiting AutoCAD
Week 3	- Letters and numbers, 5. SNAP Command 6. Grid Command 7. Running Object Snaps 8. Osnap Settings **9.** UNITS Command

Week 4	- Dimensions, - Draw Commands 1. Line Command 2. Cartesian Coordinate System 3. Orthogonal Lines **4.** Polar Tracking
Week 5	- Line drawing, - 5. Circles 6. Arc Command 7. Polyline Command **8.** Explode Command
Week 6	- Line drawing, 9. Rectangle 10. Ellipse
Week 7	- Engineering operations, - Edit Commands 1. The Move Command 2. The Copy Command 3. The Offset Command 4. The Extend Command **5.** Trim Command
Week 8	- Engineering operations, 6. The Erase Command 7. The Zoom Command 8. The Pan Command 9. The Mirror Command 10. The Rotate Command **11.** The Scale Command
Week 9	- Projection drawing, 12. The Break Command 13. The Stretch Command **14.** The Explode Command
Week 10	- Projection drawing, 15. The Fillet Command 16. The Chamfer Command 17. The Array Command **18.** The Lengthen Command
Week 11	- Projection drawing, - Dimensions 1. Linear Dimensions
Week 12	- Drawing of sectional Views, 2. Aligned Dimensions **3.** Radial Dimensions
Week 13	- Drawing of sectional Views, 4. Angular Dimensions

	5. Continued and Baseline Dimensions
Week 14	- Isometric, 6. Modifying Dimensions
Week 15	- Isometric, 7. Dimension Styles * Creating
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Parkinson, A.C., 1961. A First Year Engineering Drawing 2. J Luzadder, W., 1965. Fundamentals of Engineering Drawing, by Warren J. Luzadder. Prentice-hall. 3. Text book 1: James A. Leach, "AutoCad 2002 companion", 2003. 4. Text book 2: AutoCAD 2D Tutorials, AutoCAD 2013, By Kristen S. Kurland, 2012.	Yes
Recommended Texts	3. Text book 3: 2D_AutoCAD.	Yes
Websites		

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB 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.