MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**Suport or related learning activity**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CET1104**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CET		**College**	EETC	
Module Leader	Rawaa dawood Salim		**e-mail**	rawaadawood@mtu.edu.iq	
Module Leader's Acad. Title	Asst. lecturer		**Module Leader's Qualification**	MSC.	
Module Tutor	Asst. Prof. Dr. Oras Ahmed Shareef		**e-mail**	dr.oras@mtu.edu.iq	
Peer Reviewer Name	Dr. Mahmoud Shuker Mahmoud		**e-mail**	mahmoud.shukur@mtu.edu.iq	
Scientific Committee Approval Date	13/06/2023		**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 Aims أهداف المادة الدراسية	1. To develop spatial visualization skills: Enhance your ability to visualize and mentally manipulate objects in three-dimensional space based on two-dimensional drawings. Strengthen your spatial awareness and improve your understanding of complex engineering design 2. Learn sketching and taking field dimensions. 3. Take data and transform it into graphic drawings. 4. Learn basic engineering drawing formats. 5. Learn basic AutoCAD skills. 6. Learn who draw 2D drawings in AutoCAD.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the basic of AutoCAD 2. Explain Drawing settings 3. How to drawing: Point, Line, Multiline, P line, Spline, X line, Rectangle. 4. How to drawing: Donut, Polygon, Circle, Arc, Ellipse 5. List Modify Tools Identify: Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, 6. Identify Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. 7. Explain Zoom, Pan. 8. How to assign: Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions. 9. Dealing with: Text, Style, M text, Scale text, Spell, 10. Knowing the Hatching Objects. 11. Drawing 3d modeling. 12. Drawing the Exercises .
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **--AutoCAD Software,** drawing settings, Drawing Tools, Line, Circle, Arc, Ellipse, Donut, Polygon, Rectangle, Point, Multiline, P line, Spline, X line. **[20 hrs.]** **--Modify Tools** Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. **[4 hrs.]** **--Display Control** Zoom, Pan, Redraw, Clean Screen. **[4 hrs.]**

	--Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions. **[4 hrs.]** --Hatching Objects **[4hrs]** **--Text**, Style, M text, Scale text, Spell, **[4 hrs.]** **--3D MODELLING, Convert** 2D to 3D, Solid Editing **[20 hrs.]**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Familiarize with the Software: Before diving into engineering drawing concepts, it's important to become familiar with the AutoCAD software. This includes understanding the user interface, basic tools, and commands. with introductory tutorials or online resources that cover the basics of AutoCAD. 2. Step-by-Step Instructions: Break down complex drawing tasks into smaller, manageable steps. Provide step-by-step instructions and demonstrations using AutoCAD, showing students how to execute each step effectively. This approach helps students understand the workflow and build their confidence. 3. Visual Aids and Examples: Utilize visual aids, such as slides, diagrams, and examples, to reinforce concepts. Show real-world engineering drawings and explain how they were created using AutoCAD. Visual representations can enhance understanding and make abstract concepts more tangible. 4. Group Activities and Collaboration: Promote collaboration among students by assigning group activities or projects. This allows them to work together, share knowledge, and learn from one another. Encourage students to discuss their approaches and problem-solving techniques related to engineering drawing in AutoCAD. 5. Provide Feedback: Regularly provide constructive feedback on students' drawings. Highlight areas for improvement, suggest alternative methods, and point out common mistakes. This feedback loop is crucial for students to refine their skills and develop a deeper understanding of engineering drawing principles.

Student Workload (SWL) الحمل الدراسي للطالب موزع على ١٥ اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 11	LO #1-3, 4 and 11
	Assignments	2	10% (10)	4,11	1-3 , 3-10
	Projects / Lab.	10	20% (20)	Continuous	
	Report				
Summative assessment	**Midterm Exam**	3 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introducing of Engineering Drawing
Week 2	Drawing settings of AutoCAD
Week 3	Drawing Tools Point, Line ,Multiline, P line, Spline, X line.
Week 4	Rectangle, Donut, Polygon

Week 5	Circle, Arc, Ellipse
Week 6	Modify Tools Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. Display Control Zoom, Pan, Redraw, Clean Screen.
Week 7	Mid exam
Week 8	Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions
Week 9	Annotation Tools Text, Style, M text, Scale text, Spell
Week 10	Hatching Objects
Week 11,12	3D modeling
Week13	Convert 2D To 3D
Week 14	Solid Editing
Week 15	Exercises drawing
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Introduction to AutoCAD 2010 By Alf Yarwood Copyright 2009	Yes
Recommended Texts	An Introduction to Autodesk Inventor 2010 and AutoCAD 2010 Unbnd Edition by Randy Shih	No
Websites		

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.