Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	**Erbil Technology College**	
Department	**Automotive Technology Engineering**	
Module Name	**Mechanical Drawing (SOLIDWORKS)**	
Module Code	**MED603**	
Degree	**Technical Diploma** ☐ **Bachelor** ☑ 1 **High Diploma** ☐ **Master** ☐ **PhD** ☐	
Semester	**4**	
Qualification	**Master**	
Scientific Title	**Assistant Lecturer**	
ECTS (Credits)	**5**	
Module type	**Prerequisite** ☐ **Core** ☐ **Assist.** ☑ 1	
Weekly hours		
Weekly hours (Theory)	**( )hr Class**	**(79)Total hrs Workload**
Weekly hours (Practical)	**(4)hr Class**	**(121)Total hrs Workload**
Number of Weeks	**14**	
Lecturer (Theory)	**Yaseen Hameed Rashid**	
E-Mail & Mobile NO.	**yaseen.rashid@epu.edu.iq 07501120497**	
Lecturer (Practical)	firas.saib@epu.edu.iq , rebin.rashid@epu.edu.iq	
E-Mail & Mobile NO.		
Websites		

Course Book

Course Description	Student will learn in this course how drawing mechanical parts and joint them. So he/she acquire ability to read the mechanical drawing and knowing the engineering symbol and terms. The student learns drawing assembly parts. At the course beginning it will be review of engineering drawing type of line and views and symbols dimensions and design of the board which it is taken at the first stage. The first subject for the second stage the student will recognize the type of mechanical joints (temporary joint and regular joint) joint includes joint by screw and nut, joint by Key, joint by Pin, joint by Welding, joint by Rivet, and learn drawing them every part alone and assembly. The drawing needs table which is contains data about the mechanical part the student will be able to use this tables to draw them and know type of thread and recognize the screws that used for joint and screws that used for transition power. The course includes how drawing pins and its use in boilers, trusses and using spring and their types and how we can draw them (Compression spring, Tension spring, Torsion spring, Spiral spring and Leaf spring). Regular joint type includes joint by welding and how the parts are prepared and recognize tables, type of clutches and coupling and drawing pipes.
Course objectives	Upon completion of this course the student will be able to: Instruction the student how transaction with technical maps which contains simple and complex mechanical parts and how he/she can draw them and manufacture them. Profit skill dealing with technical and engineers and work in mechanical workshops. Working in mechanical workshops needs skill and precisely so this is the teacher's goal in this course to make the student in situation accept and take this knowledge. This skill or experience needs hardly and continuous work through technical maps that, mechanical parts needs accuracy when manufacture it so that the student must be accurate in his work wherein drawing and manufacture those mechanical parts which they are existence in any equipage or outfit in daily life.
Student's obligation	The student must attendance the hall 4 hour/week. 1. Detailed lecture notes are available on the web (for viewing and/or downloading). You should download a copy of these and bring them with you to lecture. 2. Preparation and participation will be important for learning the material. You will be responsible for studying the notes prior to each lecture. Several reading assignments will be given to help promote this activity (1/3 of participation grade). 3. Several active learning techniques will be applied on a regular basis (turn-to-your-partner exercises, muddiest part of the lecture, and ungraded concept quizzes). We will make extensive use of the PRS system (2/3 of participation grade). 4. Homework problems will be assigned (approximately one hour of homework per lecture hour). The Unified Engineering collaboration rules apply. 5. The student must attendance the drawing hall twice in week for 3 hour abidance the lecturer instruction wherein early attendance and bringing requisite tools and keep the drawing hall clean and protect furniture. 6. Student obligation is complete the daily maps in the hall or at home if they need and execution the mid examination.
Required Learning Materials	To avoid student bared in the hall lecturer uses several tools, whiteboard, data show and other demonstrate tools to interest student.

	Task		Weight (Marks)	Due Week	Relevant Learning Outcome
Evaluation	Paper Review				
	Assignments	Homework	20%	10	
		Class Activity	20 %	10	
		Report	0 %		
		Seminar	0 %		
		Essay			
		Project			
	Quiz		4 %	2	
	Lab.		%		
	Midterm Exam		16 %	1	
	Final Exam		40%	1	
	Total		100%		

Specific learning outcome:

Upon the completion of this course students will be able to complete the following:

1. Student will achieve modern knowledge and techniques to have ability deal with mechanical drawing maps and drawing them easily.
2. When student complete the course he/she will able to recognize the mechanical parts in machines and tools and able to manufacture them in the workshop with the engineering standards.
3. The course will be the key for student to get an employment after completing the course because the course items contains the necessary knowledge's about the mechanical parts and equipment, so he/she will an perfect technical for the workshops.
4. The course up-to-date to rival new mechanical engineering standards to ensure that the student will receive right information and it will be useful for them.
5. Students will be able to understand the theory of projection.
6. Students will be able to know and understand the conventions and the methods of engineering drawing.
7. Students will be able to improve their visualization skills so that they can apply these skills in developing new products.
8. Students will be able to prepare simple layout of factory buildings.

Course References:	1. كتاب الاستاذ عبد الرسول الخفاف , الطبعة الثالثة ١٩٨٧ 2. Technicke Kresleni ve strojnictvi, Dr.Karel nasek Aleksander Nadasdi 3. Casti stroju II, Alfred Bolek 4. Strojnicke Tabulky, Josif Bartos 5. عمليات التصنيع, مازن المفني 6. Fundamentals of engineering drawing , second edition charlesJ.vierck 1960 . 7. Engineering Drawing and Graphic technology 12 th edition vierck1978 . 8. الرسم الهندسي د. فتحي شريف الطبعة الثانية ١٩٦٧

Introduction	**Week**	**Learning Outcome**
Reviewing and remember the subjects which taken in the first class as lines – views, dimension lines, value of dimension, symbols origin indication arrow bend notes. Kind of joint temporary joint contains joint by screw, keys, and pins, joint by welding, rivets.	1	1
Joint by keys types of key and completing the mechanic parts by key. Splinted joint drawing the two parts assembly connecting by splinted spring type of springs-tensile spring – compressing spring – drawing the exhaust valve.	2	1
Continues (Regular) joints 1-welding joint learn the symbols by the standard tables and drawing two figures on different kind of welding and application of weld.	3	2
Joint by rivets drawing the table on the all pins of rivet types and connecting the plates by rivets 1- Lap joint. 2- Butt joint. And drawing pictures on placating on rivet and type of rivet heads.	4	2,3
Drawing an assembly parts of vice, (Power screw) drawing the parts and completing.	5	2,3
Couplings rigid coupling flexible. Drawing the parts and completing. Drawing the more types on the flexible coupling.	6	1
Clutches used types and drawing two friction clutched and conical clutches.	7	4
Bearings antifriction bearing and friction bearing what and where it's used drawing the friction bearings. Roll and ball bearing kinds, properties table spatial of ball bearing complete the kind of ball bearing on the shaft.	8	4
Belts and pulleys types and used and draw two pictures on type of pulleys. Gears / spur gears base in formation drawing the spur gears by in politic way. Bevel gear.	9	3

Complete the two type of gears bevel and spur. Drawing assembly of spur and bevel gear.	10	7
Warm and worm gears properties and used drawing the picture on it.	11	8
. Drawing gear box more than one seed.	12	7
Cams and followers types and used drawing two pictures on the all kind of cams	13	8
Pipes – type of pipe signals drawing the different kind of pipe symbol draw.	14	8

Questions Example Design

The examination style for drawings is deferent because the student be required to draw mechanical parts single or assembled so the question will be like:

1. Sketch any two views of a knuckle joint for connecting two 40 mm diameter rods. Show all important dimensions.
2. Draw the sectional front view and top view for the double riveted double strap zig-zag butt joint.

Draw sectional front view and side view of a hydraulic pipe joint of flanged type, to connect two pipes, each of diameter 50 mm.

Compositional:

1. List Kind of joints.

Extra notes:

Student must be any time ready for quizzes and bring the necessary tool for drawing.

External Evaluator

I have read the terms of this article and acknowledge that it meets the required purpose.

Dr.Basim Mohammed Fadhil

Assistant Lecturer

07730142544