

## The Hashemite University Faculty of Engineering Department of Allied Engineering sciences Course Syllabus First Semester 2022-2023



| Course Title:      | Computer-Aided Engineering | Course           | 110400202 |
|--------------------|----------------------------|------------------|-----------|
|                    | Drawing                    | Number:          |           |
| Designation:       | Compulsory, credit 1 hour  | Prerequisite(s): | 110400201 |
| Instructor:        |                            | Instructor's     |           |
|                    |                            | email:           |           |
|                    |                            |                  |           |
|                    |                            |                  |           |
|                    |                            |                  |           |
|                    |                            |                  |           |
| Coordinator of the |                            |                  |           |
| Course:            |                            |                  |           |
| Office Hours:      |                            |                  |           |

## **Course Description (catalog):**

Introduction to Computer Aided Drawing (AutoCAD) Software, drawing limits, grid setting and drawing aids, coordinate system, drawing tools (point, line, ray, multi-line, poly-line, polygons, rectangle, arc, circle, ellipse), Modify tools (copy, erase, offset, move, rotate, lengthen, terminate, fillet, chamfer, array), Layers, Zoom, dimensions, text, hatch, orthographic projection and isometric drawing.

## **Textbook(s) and/or Other Supplementary Materials:**

AutoCAD manual and lecture notes.

#### **References:**

- 1. James H. Earle, "Engineering Design Graphics, with AutoCAD 2000", Addison Wesley
- 2. Introduction to AutoCAD 2017 2D and 3D Design, Bernd S. Palm and Alf Yarwood

| Торіс   | # Weeks | # Contact<br>hours* |
|---|---------|---------------------|
| AutoCAD basics and Getting Started with AutoCAD 2020  |         | 3                   |
| Drawing of Lines, Absolute and relative Cartesian Coordinates, Object<br>snap, ortho and polar mode                 |         | 3                   |
| Drawing Circles and Polygons, Circle, Construction Line, Polygon,<br>Offset, Trim, Fillet, Drawing Arc, Poly Lines. |         | 6                   |
| Drawing Multi Lines, Making Blocks, Learn the use of the following commands: Make Block,                            |         | 6                   |
| Dimensioning, Learn the use of the following dimensioning commands  |         | 3                   |
| Layers, Creation and control of layers, line properties and hatch   |         | 6                   |
| Multiview drawing (orthographic projection drawing) by using layers commands  |         | 12                  |
| Draw Isometric by using AutoCAD 2D  |         | 6                   |
| Total   | 13      | 45                  |

# **Major Topics Covered:**

\*Contact hours include lectures, quizzes and exams

# **Specific Outcomes of Instruction (Course Learning Outcomes):**

After completing the course, the student will:

|        | Be able to utilize the AutoCAD software to create certain geometric forms using precise    |
|--------|--|
| CLO 1: | drawing instructions that allow these drawings to be expressed in a simple and             |
|        | straightforward manner through visual illustrations. (1,6,7)                               |
| CLO 2: | Be able to set up a drawing with the correct scale, draw with precision and modify objects |
|        | with edit commands (1,6,7)   |
| CLO 3: | Be able to annotate and dimension drawings according to industry standards to place.       |
|        | students on the first visual representation-based step of engineering design. (1,6,7)      |
|        | Be able to Create Multiview drawing construction (orthographic drawings) in                |
| CLO 4: | accordance with industry standards to inspire innovative solutions to numerous             |
|        | fundamental engineering difficulties. (1, 6, 7)  |
| CLOF.  | Do able to exact Leometric drawings with precision $(1 \in 7)$                             |

**CLO 5:** Be able to create Isometric drawings with precision (1,6,7)

# Student Outcomes (SO) Addressed by the Course:

| #                                    | Outcome Description  | Contribution |  |  |
|--------------------------------------|--|--------------|--|--|
| General Engineering Student Outcomes |  |              |  |  |
| (1)                                  | an ability to identify, formulate, and solve complex engineering problems by<br>applying principles of engineering, science, and mathematics   | L            |  |  |
| (2)                                  | an ability to apply engineering design to produce solutions that meet<br>specified needs with consideration of public health, safety, and welfare, as<br>well as global, cultural, social, environmental, and economic factors                       |              |  |  |
| (3)                                  | an ability to communicate effectively with a range of audiences  |              |  |  |
| (4)                                  | an ability to recognize ethical and professional responsibilities in<br>engineering situations and make informed judgments, which must consider.<br>the impact of engineering solutions in global, economic, environmental, and<br>societal contexts |              |  |  |
| (5)                                  | an ability to function effectively on a team whose members together provide<br>leadership, create a collaborative and inclusive environment, establish goals,<br>plan tasks, and meet objectives   |              |  |  |
| (6)                                  | an ability to develop and conduct appropriate experimentation, analyze, and<br>interpret data, and use engineering judgment to draw conclusions  | Н            |  |  |
| (7)                                  | an ability to acquire and apply new knowledge as needed, using appropriate. learning strategies.   | L            |  |  |
| H=High, $M$ = Medium, $L$ =Low       |  |              |  |  |

Midterm Exam Course work Final exam

30 Points30 Points40 Points