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|---|---------------|----------------|----------------|-------------------------------|----------------------------------|--|
| <b>Number of units</b><br>4   | <b>T</b><br>3 | <b>Pr</b><br>2 | <b>Th</b><br>1 | <b>Number of weekly hours</b> | <b>Annual System</b><br>30 weeks | <b>Al-Esra'a University College</b><br><b>Department: Engineering of Refrigeration and Air Conditioning Technologies</b> |
|   |               |                |                | <b>Computer Application</b>   |                                  | <b>Fourth stage</b>  |
| <b><u>Course Objective</u></b>  |               |                |                |                               |                                  |  |
| Teaching the student, Computer softwares and applications in the engineering field (AutoCAD 3d commands/drawings) |               |                |                |                               |                                  |  |

| Week | Topic  | Lab. Experiment Assignments         | Notes |
|------|--|-------------------------------------|-------|
| 1    | Introduction to AutoCAD -3D, workspace, visual style, 3d views, view ports, right hand rule, world coordinate and user coordinate systems and types of coordinate systems. | examples on coordinate systems      |       |
| 2    | 3D solids (box, wedge and cylinder).   | examples on box, wedge and cylinder |       |
| 3    | 3D solids (cone and tours).  | examples on cone and tours          |       |
| 4    | 3D solids (sphere and pyramid).  | examples on sphere and pyramid      |       |
| 5    | Examples to 3D solids.   | applied examples                    |       |
| 6    | Basic solid editing (union, subtract and intersect) with examples.   | examples on basic solid editing     |       |
| 7    | Fillet and chamfer with applied examples.  | examples on fillet and chamfer      |       |
| 8    | 3D operations (3d move and 3d rotate) with examples.   | examples on 3d move and 3d rotate   |       |
| 9    | 3D operations (3d align and 3d mirror) with examples.  | examples on 3d align and 3d mirror  |       |
| 10   | 3D operations (3d array and slice) with examples.  | examples on 3d array and slice      |       |
| 11   | More applied examples.   | examples                            |       |
| 12   | User coordinate system ( origion, face and objects) with examples.   | applied examples on ucs             |       |
| 13   | User coordinate system (view, world,x-y-z) with examples.  | appliedexamples on ucs              |       |

|                        |  |  |  |
|------------------------|--|--|--|
| 14                     | User coordinate system (z-axis and 3 points) with examples.                        | applied examples on ucs  |  |
| 15                     | Applied examples   | applied examples on ucs  |  |
| <b>Half-year Break</b> |  |  |  |
| 16                     | Advanced 3d commands (extrude and loft)  | examples on extrude and loft   |  |
| 17                     | Applied examples   | General training examples  |  |
| 18                     | Advanced 3d commands (revolve, sweep) with examples.                               | examples on revolve and sweep  |  |
| 19                     | Advanced 3d commands (press pull and section plane) with examples.                 | Press pull and section plane   |  |
| 20                     | Advanced solid editing/face (extrude, move, rotate and offset).                    | Advanced solid editing/face (taper, delete, copy, color, material, undo and exit |  |
| 21                     | Advanced solid editing/face (taper, delete, copy, color, material, undo and exit). | Advanced solid editing/face (taper, delete, copy, color, material, undo and exit |  |
| 22                     | Applied examples.  | Applied examples.  |  |
| 23                     | Advanced solid editing/edge (copy and color).                                      | examples   |  |
| 24                     | Advanced solid editing/body (imprint, separate, shell, clean and check).           | examples   |  |
| 25                     | Surface (box, cone, dome and mesh).  | examples on 3d surface Surface (box, cone, dome and mesh.                        |  |
| 26                     | surface (pyramid and sphere  | examples   |  |
| 27                     | surface (torus and wedge) with examples.   | examples   |  |
| 28                     | Training examples  | General training examples  |  |
| 29                     | Training examples  | General training examples  |  |
| 30                     | Training examples  | General training examples  |  |