0

## Department of Civil Engineering

### Civil Engineering Drawing (61306)

| | |
|---|---|
| **Total Credits** | **1** |
| **major compulsory** | |
| **Prerequisites** | P1 : Building Construction Lab. (61305) OR Building Construction (61371) |

### Course Contents

This course aims at providing an introduction to engineering drawings related to civil engineering using CADD. A student will practice on using general drawings, symbols, measurements, dimensions, directions, distances, and templates. A student will also practice using maps, surveying maps, plans, construction plans, roadway plans and cross-sections, water and wastewater plans, electricity and telecommunication plans, etc, and plans for structural designs and details.

| | Intended Learning Outcomes (ILO's) | Student Outcomes (SO's) | Contribution |
|---|---|---|---|
| 1 | Ability to use tools of CAD to develop elements and components of civil engineering drawings. | K | 90 % |
| 2 | Ability to work in multidisciplinary teams to draw and read plans of engineering projects. | D | 10 % |

### Textbook and/ or Refrences

Mastering in AutoCAD 2006, George Omura websites to be visited during the course, lectures explanation, AutoCAD Help Menu (2008)

| Assessment Criteria | Percent (%) |
|---|---|
| Mid. Term Exam | 20 % |
| Projects | 40 % |
| Final Exam | 40 % |

### Course Plan

| Week | Topic |
|---|---|
| 1 | Introduction, Download AutoCAD, the program interface, toolbars, drawing area and colors, work at the two-dimensional plane, communication with AutoCAD, start drawing, orthogonal drawing, preview screening tools, precision instruments and their characteri |
| 2 | Drawing in general, engineering drawing of civil applications using CAD, plan symbols; create a new file, methods of saving and retrieval, drawing tools: lines, polygons, grips, nibbling and tide us, trim, extend, erasing methods. |
| 3 | Editing tools: copy, copying the opposite-mirror, parallel drawing - offset, moving, rotation, zoom in and out, scales, stretch length and pressure, separation and breaking, chamfer, fillets. |
| 4 | Hatching, symbols of materials and surfaces, blocks, pre-processing models. |
| 5 | First Exam |
| 6 | Arches, curves, circles and oval shapes, writing text and numbers on the plans, standardization and integration, methods of disassembly. |
| 7 | Matrices types, array, and axes. |
| 8 | Area calculations, distances, dimensional charts and calibration |
| 9 | Organization and classification scheme of plan and its parts using layers, layers properties, layers and ways to control the types of fonts and line weights and their meaning, building plans, schemes of structural plans, shop drawings and details. |
| 10 | Major project |

| | |
|---|---|
| 11 | Coordinate systems, cadastral maps, directions, grid and snap system, engineering drawing programs used around the world. |
| 12 | Raster images, sketches and re-production, transport of a drawing to another file, selection methods, undo and partial reversal, setbacks and surprises in the AutoCAD program and ways to overcome them. |
| 13 | Drawing scales, check engineering plans, drawings presentation, paper and plotting. |
| 14 | Introduction to drawing of cut &fill maps, road plans and sections, maps of water and sewerage, electricity and telephone, and others. The most famous CAD software used for such purposes. |
| 15 | Introduction to Modeling and Visualization three-dimensional shapes, embodying simple shapes around an axis, paths, add &subtract to the Models, 3D rotation, basic views, sections, 3D chamfers &fillets, modeling of buildings and construction details. |
| 16 | final exam |