**East West University**

**Department of Computer Science and Engineering**

**Course Outline CSE 200**

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**Course: CSE200 Computer Aided Engineering Drawing**

**Credit and Teaching Scheme:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Theory | Laboratory | Total |
| Credits | 0 | 1 | 1 |
| Contact Hours | 0 | 2 Hours/Week for 13 weeks + Final exam in 14th week | 2 Hours/Week for 13 weeks + Final exam in the 14th week |

**Prerequisite:** None

**Course Objective**

This course introduces students to the standards and conventions of engineering drawing. This course emphasizes the use of CAD software to generate computer models and technical drawings. The fundamental principles of orthogonal projections as well as isometric projections and views are also covered in this course.

**Knowledge Profile**

K3: Theory-based engineering fundamentals; A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

**Learning Domains**

Cognitive – **C2:** Understanding **C3:** Applying, **C4:** Analyzing

Psychomotor – **P2:** Manipulation, **P3:** Precision

Affective - **A2:** Responding

**Program Outcomes (POs)**

PO1: Engineering Knowledge

**Complex Engineering Problem Solution**

EP1: Depth of knowledge required

EP2: Range of conflicting requirements

**Course Outcomes (Cos)**

After completion of this course students will be able to:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CO** | **CO Description** | **PO** | **Learning  Domains** | **Knowledge  Profile** | **Complex Engineering Problem Solving** |
| CO1 | **Understand** the fundamental concepts of engineering drawings and **use** computer aided drawing instruments to create geometric constructions. | PO1 | C2, C3 | K3 |  |
| CO2 | **Understand** the theory of projection and sectional views. **Use** CAD tools to **apply** and **examine** multi-view projection techniques i.e. orthographic projections of lines, planes and solids. | PO1 | C2, C3, C4 | K3 |  |
| CO3 | **Apply** and **examine** isometric drawing techniques, isometric projections and conversion among 3D drawing, isometric drawing and multi-view projections using CAD tools. | PO1 | C3, C4 | K3 |  |
| CO4 | **Demonstrate** skills on Computer Aided Design instruments to create 2D and 3D engineering drawings, write report on a complete design. | PO1 | C3, P2, P3, A2 | K3 | EP1, EP2 |

**Course Contents, Teaching-Learning Method and Assessment Scheme**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Course Topic | Teaching -Learning Method | CO | Mark of Cognitive Learning Levels | | | Mark of COs | Exam Mark |
| C2 | C3 | C4 |
| **Introduction** to drawing instruments, Lines, Lettering and Dimensioning. | Lecture,  Demonstration,  Class Discussion, Discussion with Instructor/TA | CO1 | 5 |  |  | 5 | Mid Semester Assessment  (20) |
| **Scales:** Plain, Diagonal and Vernier Scale.  **Curves used in engineering practice:** ellipse, parabola, hyperbola. | Do | CO1 | 5 |  |  | 5 |
| **Projection of Lines:** Oblique Lines, Traces. Applications of Projection of Lines.  **Projection of Planes:** Polygonal Lamina, Circular Lamina.  **Projection of Solids:** Cube, Prism, Pyramid, Cylinder, Cone. Suspended Solids | Do | CO1 | 5 |  |  | 5 |
| **Sectional views:** Full section, Half section, Offset section, Broken section | Do | CO2 | 5 |  |  | 5 |
| **Isometric Projections:** Isometric Lines, Planes and Scale. Conversion of given 2D views to Isometric Projection/View. Conversion of given 3D View to 2D representation | Do | CO3 |  |  | 10 | 10 | Final Lab Exam (30) |
| **AutoCAD Drafting (3D):** Isometric drawing | Do | CO3 |  |  | 10 | 10 |
| **AutoCAD Drafting (3D):** 3D modelling | Do | CO3 |  |  | 10 | 10 |
| **Orthographic Projection:** First and Third angle projection methods | Do | CO2 |  |  | 10 | 10 | Lab Performance (30) |
| **AutoCAD Drafting (2D):** Drawing 2D geometric constructions, Floor planning | Do | CO2 |  |  | 10 | 10 |
| **AutoCAD Drafting (Projection):** Drawing multi-view projections and sectional views. | Do | CO2 |  |  | 10 | 10 |

**Mini Project**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mini Project** | **Teaching-Learning Method** | **CO** | **EP/**  **EA** | **Mark of Cognitive Learning Level** | | **Mark of Psychomotor Learning Levels** | | **Mark of Affective Learning Level** | **CO Mark** |
| **C2** |  | **P2** | **P3** | **A2** |
| Lab-based Mini Project  On AutoCAD Drafting (3d modelling) including Report and Presentation | Group based moderately complex 3d modelling project with report writing | CO4 | EP1, EP2 | 7 |  | 3 | 3 | 2 | 15 |

**Overall Assessment Scheme**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Assessment Area | CO | | | | Other | PO Marks |
| CO1 | CO2 | CO3 | CO4 | PO1 |
| Class Test | 5 | 10 | 10 |  |  | 25 |
| Assignment |  | 5 | 5 |  |  | 10 |
| Midterm Semester Assessment | 10 | 10 |  |  |  | 20 |
| Lab Final Exam |  |  | 30 |  |  | 30 |
| Lab Performance |  |  |  | 5 |  | 05 |
| Mini Project |  |  |  | 15 |  | 15 |
| **Total Mark** | 15 | 25 | 40 | 20 |  | 100 |

**Teaching Materials/Equipment**

**Textbook:**

1. Engineering Drawing (With an introduction to AutoCAD) by Dhananjay A Jolhe

2. Engineering Drawing by Basant Agrawal & C M Agrawal

**Lab Manual:**

Lab manual will be provided.

**Project Description:**

Project description will be provided.

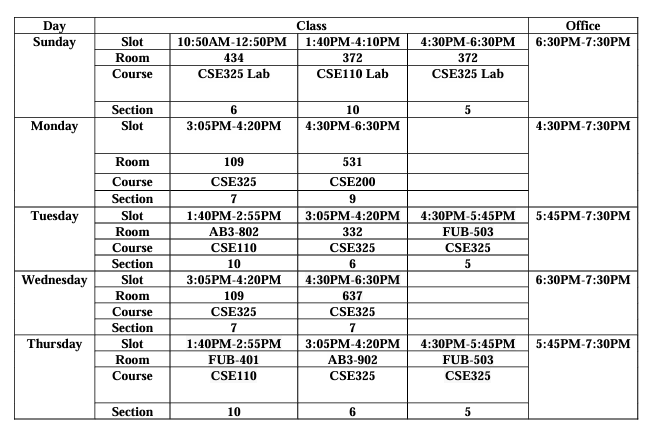
**Equipment/Software:**

AutoCad 2023.

**Grading System**

|  |  |  |
| --- | --- | --- |
| **Marks (%)** | **Letter Grade** | **Grade Point** |
| 80% and above | A+ | 4.00 |
| 75% to less than 80% | A | 3.75 |
| 70% to less than 75% | A- | 3.50 |
| 65% to less than 70% | B+ | 3.25 |
| 60% to less than 65% | B | 3.00 |
| 55% to less than 60% | B- | 2.75 |
| 50% to less than 55% | C+ | 2.50 |
| 45% to less than 50% | C | 2.25 |
| 40% to less than 45% | D | 2.00 |
| Less than 40% | F | 0.00 |

**Office Hour**

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**Exam Dates**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **Class Slot** | **Mid Semester Exam** | **Final Lab Test** |
| **According to the academic calendar provided in the University website** | | | |

**Academic Code of Conduct**

**Academic Integrity:**

Any form of cheating, plagiarism, personification, falsification of a document as well as any other form of dishonest behavior related to obtaining academic gain or avoidance of evaluative exercises committed by a student is an academic offence under Academic Code of conduct and **may lead to severe penalties as decided by the Disciplinary committee of the university.**

**Special Instructions:**

* Students are expected to attend all the classes and examinations. A student MUST have at least 80% class attendance to sit for final exam.
* Students will not be allowed to enter into the classroom after 20 minutes of the starting time.
* For plagiarism, Grade will automatically become zero for that exam/assignment.
* Normally there will be **NO make-up exam.** However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground,** if a student misses any exam, he/she MUST get approval of makeup exam by written application to the Chairperson through the Course Instructor **within 48 hours** of the exam time. Proper supporting documents in favor of the reason of the missing the exam must be presented with the application.
* For **Final exam,** there will be No makeup exam. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground,** if a student misses the final exam, he/she MUST get approval of **Incomplete Grade** by written application to the Chairperson through the Course Instructor **within 48 hours** of the final exam time. Proper supporting documents in favor of the reason of the missing the final exam must be presented with the application. **It is the responsibility of the student to arrange an Incomplete Exam within the deadline mentioned in the Academic Calendar in consultation with the course Instructor.**
* All mobile phones MUST be turned into **Silent Mode** during class and exam period.
* There is **zero tolerance for cheating** in exams. Students caught with cheat sheets in their possession, whether used or not; writing on the palm of hand, back of calculators, chairs, or nearby walls; copying from cheat sheets or other cheat sources; copying from other examinee etc. would be treated as cheating in the exam hall. The only penalty for cheating is **expulsion for several semesters as decided by the Disciplinary Committee of the university.**