**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Lab Descriptive File**

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| 1 | Lab Title | **Engineering Drawing** |
| 2 | Course Code | EE-205 |
| 3 | Credit Hours | 1 |
| 4 | Pre-requisites |  |
|  5 |  Co-requisites |  |
| 6 | Semester | 4th  |
| 7 | Resource Person | Ms. Rimsha Musharraf |
| 8 | Contact Hours (Theory) | 00 |
| 9 | Contact Hours (Lab) | 48 |
| 10 | Office Hours  | 8 AM to 4 PM |
| 11 | Email | ramshakhan794@gmail.com |
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| 12 | Lab Outline as per Scheme of Studies ( SoS) |
| Types of lines and usage, dimensioning, orthographic first angle projection, orthographic third angle projection, introduction to computer aided drawing, isometric projection, sectional drawing and assembly drawing. Reading and preparing electrical engineering drawings such as wiring diagram, power system layout diagram, PCB drawing etc |
| 13 | Lab Objectives as per SoS |
| Upon successful completion of this course, students should be able to do the following: 1. set up drawings within a AutoCAD from different disciplines (e.g. Electrical, mechanical, architectural)2. utilize the Draw and Modify tools of AutoCAD to construct and modify different geometries; 3. employ dimensioning tools of AutoCAD to add dimensions and/or tolerances (for electrical design applications) to the blueprint; 4. apply the Hatch command in drawings involving sectional views to highlight interior complexities of the design; 5. employ the Layer command in organizing the drawing according to the different categories of elements present in the design document; 6. build a library of symbols and employ existing symbols in electrical, architectural, mechanical and other applications; and 7. Communicate with other members of the technical team through using the acceptable industry standards (i.e., ANSI and/or other applicable industry standards). |
| 14 | Books  |
| 1. Shawna Lockhart, “Tutorial Guide to AutoCAD”, Prentice Hall.2. A. C. Parkinson, "First Year Engineering Drawing".3. N.D. Bhatt, Engineering Drawing. |
| 15 | Course Learning Outcomes (CLOs) |
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| Ser | CLO | Domain | Taxonomy Level | PLO |
| 1 | Ability to draw basic Engineering drawing object | Psychomotor | 3 | 5 |
| 2 | Ability to read basic Engineering drawing | Cognitive | 3 | 1 |
| 3 | Apply Engineering drawing skills using AutoCAD tool | Psychomotor | 2 | 5 |

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| 16 | Marks Breakup  |
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| Lab Assessments | 5 |
| Lab Sessional Exams( Lab performance + Lab Assessments) | 10 |
| Lab Terminal Exam  (%Viva +%Project+%Paper) | 25 |
| Total (lab) | %50 |

Lab

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| Final marks | Lab marks \* 0.50 |

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| **19** | **Course Learning Outcomes (CLOs) and Assessment Plan (LAB)** |
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| CLOActivity  | CLO L1 | CLO L2 | CLO L3 |
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| Lab 1 |   | C2 |  |
| Lab 2 |  | C2 |  |
| Lab 3 |  | C2 | C3, C4 |
| Lab 4 |  | C2 |  |
| Lab 5 |  | C2 |  |
| Lab 6 |  | C2 |  |
| Lab 7 |  |  | C3 |
| Lab 8 |  |  | C3 |
| Lab 9 | C1 |  |  |
| Lab 10 |  |  | C3 |
| Lab 11 |  | C2 |  |
| Lab 12 |  |  | C3 |
| Term Project |  |  | C1,C2,C3 |
| Session Test |  |  | C1,C2,C3 |
| Final Lab paper |  |  | C1,C2,C3 |
| Viva |  |  | C1,C2 |

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| **20** | **Lab Details** |
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| **Computer Resources** |
| * Software based
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| **21** | **Mapping of CLOs to PLOs**  |

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| PLOCLOs | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 | PLO10 | PLO11 | PLO12 |
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| LAB CLO1 |  |  |  |  |  |  |  |  |  |  |  |  |
| LAB CLO2 |  |  |  |  |  |  |  |  |  |  |  |  |
| LAB CLO3 |  |  |  |  |  |  |  |  |  |  |  |  |

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| **22** | **List of Experiment With Objectives as Per OBE Format**  |
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| **Sr. No.** | **Statement** | **Taxonomy level** | **CLO** | **PLO** |
|  | Introduction and Importance of Engineering Drawing | P1 | 2 | 1 |
|  | Basic Display Commands (Zoom, Pan) and basic drawing commands (Line, Polyline).Basic Display Commands (Zoom, Pan) and basic drawing commands (Line, Polyline).Basic Display Commands (Zoom, Pan) and basic drawing commands (Line, Polyline).Basic Display Commands (Zoom, Pan) and basic drawing commands (Line, Polyline).Types of lines and usage, Dimensioning, projection | P2 | 2 | 1 |
|  | Orthographic projections (1st angle) projection and dimensioning | P2,P3 | 2 | 1 |
|  | Orthographic projections (2nd angle) projection and dimensioning | P2, P3 | 2 | 1 |
|  | Introduction to AutoCAD(basics commands of AutoCAD) | P4 | 3 | 5 |
|  | Introduction to 2D drawing, Basic Display Commands (Zoom, Pan) and basic drawing commands (line, polyline) | P4 | 3 | 5 |
|  | Setting up drawing sheet & status bar | P4 | 3 | 5 |
|  | Working with Modify Toolbar Commands. | P4 | 3 | 5 |
|  | Architectural drawings(Floor plan drawing) | P2 | 1 | 5 |
|  | Electrical wiring diagram | P4 | 3 | 5 |
|  | Power system layout | P4 | 2 | 1 |
|  | Working with 3D interface | P4 | 3 | 5 |
|  | Common 3D Commands | P4 | 3 | 5 |
|  | Term project in AutoCAD for Power system layout diagram or PCB drawing | P4 |  |  |

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