Course Outline

UNIT CODE	EEEI335
UNIT NAME	Computer Aided Design
LECTURER	Eng. BENARD MUMO MAKAA, PE. Email:ben@benardmakaa.com Website:www.benardmakaa.com Phone.+254716518555

Purpose

The aim of this course is to enable the student to;

1. Understand basic aspects of engineering drawing practice
2. Gain skills of engineering drawing and sketching
3. Understand basic electrical and electronic drawings

Learning Outcomes

At the end of this course, the student should be able to;

1. Construct electrical and electronic drawings and schematics in computer aided software such as AutoCAD
2. Understand the different types of electrical and electronic drawings/diagrams and their use.
3. Learn how to read electrical drawings and diagrams
4. Master AutoCAD software: Basic and advanced commands, drawing, modifying, annotation commands, layers and blocks in AutoCAD.

Instructional Materials/Equipment

1. Computer laboratory
2. Projector

Course Text Books

1. Madsen A. David. (2012), *Engineering Drawing & Design*, DLEMAR, Cengage Learning, 5th Ed.
2. Bethune D. James (2020), *Engineering with AutoCAD*, Pearson Education
3. U.S Department of Energy (1993). *Engineering Symbology, Prints, and Drawings, Volume 1 & 2*

Course Journals

1. Journal of Engineering Design, Taylor & Francis
2. Journal of Engineering, Design and Technology

Reference Books

1. Madsen A. David. (2012), Engineering Drawing & Design, DLEMAR, Cengage Learning, 5th Ed.
2. Giesecke F. E., Hill I. L. Norak J. E. & Mitchell A. (2016), *Technical Drawing*, Peachpit Press.
3. Cecil H. Jensen, Jay D. Helsel, Dennis Short (2007), *Engineering Drawing And Design*, Mc Graw-Hill

Reference Journals

1. Research on Distinguishing Character Based on AutoCAD Engineering Drawing; Computer Technology and Development.
2. Journal of Computer Aided Materials Design

No.	Topics Covered	Sub-Topic/Activity
1	Engineering Symbology, Prints and Drawings	• Introduction to Print Reading: Anatomy of a Drawing, Title Blocks, Grid System, Revision Block, Changes, Notes and Legends • General Introduction to the Types of Drawings, Views and Perspectives: Piping and Instrument Drawings (P & IDs), Electrical Drawings and Schematics, Electronic Drawings and Schematics, Fabrication, Construction and Architectural Drawings.
2	Electrical Drawing and Diagrams	• Symbology: Schedule of Symbols • Types of Electrical Drawings & Schematics: Block Diagram, Schematics Circuit Diagram, Single Line Diagram or One-line Diagram, Pictorial Diagram, Logic Diagrams, Riser Diagram, Electrical Floor Plan, IC Layout Diagram. • Reading Electrical Drawings and Diagrams
3	Electronic Diagrams, Prints and Schematics	• Introduction • Electronic Schematic Drawing Symbology

		• Reading Electronic Prints, Diagrams and Schematics • Block Drawing Symbology • Examples of Block Diagrams
4	Engineering Fabrication, Construction, and Architectural Drawings	• Introduction • Dimensioning Drawings • Dimensioning and Tolerance Symbology, Rules and Conventions
5	AutoCAD	• Introduction to AutoCAD, Launching AutoCAD, Basic Features, Geometry • Basic AutoCAD Commands, Typing Commands. • Opening existing drawings • Creating new drawings • Saving Drawings • Printing and Plotting in AutoCAD • Orthographic Drawings • Line types • Layers: Introduction • Blocks: Introduction • Creating Layouts • Colours and Line Weights • Annotation, Dimensions • Advanced AutoCAD commands