**University of Management and Technology**

School of Engineering

Department of Electrical Engineering

**Course Outline**

Course code……EE-208L…... Course Title…Electronic Devices & Circuits Lab………

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| Program | BSEE |
| Credit Hours | 1 |
| Duration | One semester |
| Prerequisites | EE111 Circuit Analysis |
| Resource Persons | Muhammad Shoaib  Arif Saeed  Zawar Hussain |
| Counseling Timing | See Office doors |
| Contact | [muhammad.shoaib@umt.edu.pk](mailto:jamil.ahmed@umt.edu.pk)  [arif.saeed@umt.edu.pk](mailto:arif.saeed@umt.edu.pk)  [zawar.hussain@umt.edu.pk](mailto:hassantariq@umt.edu.pk) |

**Chairman/Director signature………………………………….**

**Dean’s signature…………………………… Date………………………………………….**

**Learning Objective:**

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| The lab deals with fundamental and practical aspect of Electronic Devices and Circuits. It is designed to practically implement and observe the characteristics of Diodes, BJTs, MOSFETs ,Operational Amplifiers and their circuit applications. Simulations will also be part of the lab experiments. The students will be required to prepare their own lab copies. Assessments based on designing and testing will be carried in mid-term and final to evaluate understanding of students. |

In accordance with HEC curriculum **outcomes** a, b, d and e, the upon completion, students will be able

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| * Have good understanding of basic electronics devices like diodes, transistors, and Op-Amps. * Be able to analyze and design electronic circuits * Be able to design electronic circuits to meet given specifications |

**Learning Methodology:**

Practical’s, interactive, participative

**Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

**Marks Evaluation Marks in percentage**

Lab Manuals & Performance: 40%

Final Viva or Quiz + Performance: 60%

Total: 100%

**Recommended Text Books:**

**Text book:**

Electronic Devices & Circuit Theory - Lab Manual, Robert L. Boylestad, Louis Nashelsky

**Reference Books:**

Electronic Devices and Circuit Theory, Robert L. Boylestad, Louis Nashelsky, 10th Edition Fundamental of electric circuits by Floyd

**Calendar of Course contents to be covered during semester**

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| --- | --- | --- |
| **Week** | **Course Contents** | **Relevance to Theory Course Reference Book** |
| 1. | Diode V-I Characteristics | Ch # 1 |
| 2 | Series and Parallel Diode Configurations | Ch # 2 |
| 3 | Half Wave  Full Wave Rectifier  Power supply design | Ch # 2 |
| 4 | Clipping Circuit  Clamping Circuit | Ch # 2 |
| 5 | Light Emitting Diode  Zener Diode as clipper and voltage regulator | Ch # 2 |
| 6 | BJT V-I Characteristics | Ch # 3 |
| 7 | Fixed and Voltage Divider Bias Circuits of BJTs | Ch # 4 |
| 8 | Emitter and Collector Feedback Bias Circuits of BJTs | Ch # 4 |
| 9 | Common Emitter Amplifier Design | Ch # 4 |
| 10 | VI characteristics of FET | Ch # 6 |
| 11 | Differential Amplifier Design  Op Amp as Buffer, Averaging Amplifier, Integrator and Differential Amplifier | Ch # 10 |
| 12 | A/D and D/A converter design using Operational Amplifier | Ch # 13 |
| 13 | Using Operational Amplifier for Low Pass, High Pass , Band Pass and Band Stop filter designs | Ch # 11 |