Description of Course IRE 106

PART A: General Information

1	**Course Title**	: Electronics Devices and Applications Sessional
2	**Type of Course**	: Sessional
3	**Offered to**	: DEPARTMENT OF IRE
4	**Pre-requisite Course(s)**	: None

PART B: Course Details

1. Course Content (As approved by the Academic Council)

Practical Classes based on the Topics Covered in IRE 105.

2. Course Objectives

The students are expected to:

The objective of the course is to equip the students with in-depth basic concepts and understanding of the principles of operation, construction and characteristics of semiconductor devices, and their utilization in basic electronics building blocks (or modules) and their performances practically. The techniques of analysis and design of basic building blocks of modern technology using devices would be emphasized.

3. Knowledge required

Technical

- Introductory knowledge on basic electrical circuit is required.

Mathematics

- None

4. Course Outcomes (COs)

CO No.	CO Statement After undergoing this course, students should be able to:	Corresponding PO(s)*	Domains and Taxonomy level(s)**	Delivery Method(s) and Activity(-ies)	Assessment Tool(s)
CO1	**Understand** the semiconductor material and p-n junction properties	PO (a)	C2	Lecture and Discussion, Co-operative and Collaborative	Continuous Assessment, Mid-term Evaluation (Project +

CO No.	CO Statement After undergoing this course, students should be able to:	Corresponding PO(s)*	Domains and Taxonomy level(s)**	Delivery Method(s) and Activity(-ies)	Assessment Tool(s)
				Method, Problem Based Method, Project work	Experiment), Quiz, Lab Report, Presentation, Assignment, Final Examination (Project + Experiment)
CO2	**Design** simple circuits and mini projects.	PO (c)	C6	Lecture and Discussion, Co-operative and Collaborative Method, Problem Based Method, Project work	Continuous Assessment, Mid-term Evaluation (Project + Experiment), Quiz, Lab Report, Presentation, Assignment, Final Examination (Project + Experiment)
CO3	Attain efficient project management, leadership, problem solving, communication and documentation skills	PO (i), PO (j), PO (k), PO (l)	C2, C3, A4, P7	Lecture and Discussion, Co-operative and Collaborative Method, Problem Based Method, Project work	Continuous Assessment, Mid-term Evaluation (Project + Experiment), Quiz, Lab Report, Presentation, Assignment, Final Examination (Project + Experiment)

***Program Outcomes (POs)**

PO(a): Engineering knowledge; PO(b): Problem analysis; PO(c): Design/development of solutions; PO(d): Investigation; PO(e): Modern tool usage; PO(f): The engineer and society; PO(g): Environment and sustainability; PO(h): Ethics; PO(i): Individual work and teamwork; PO(j): Communication; PO(k): Project management and finance; PO(l): Life-long learning.

****Domains**

C-Cognitive: C1: Knowledge; C2: Comprehension; C3: Application; C4: Analysis; C5: Synthesis; C6: Evaluation
A-Affective: A1: Receiving; A2: Responding; A3: Valuing; A4: Organizing; A5: Characterizing
P-Psychomotor: P1: Perception; P2: Set; P3: Guided Response; P4: Mechanism; P5: Complex Overt Response; P6: Adaptation; P7: Organization

5. Lecture/ Activity Plan

Week	Topic	Course Outcomes
1	Study and observation of the I-V Characteristics of Diode – Ordinary and Zener Diode.	CO1, CO3
2	Project Assignment	
3	Study and observation of the half wave rectifier	CO1, CO3
4	Study and observation of the full wave rectifier	CO1, CO3
5	Study of clipping circuits	CO1, CO3
6	Study of clamping circuits	CO1, CO3
7	Mid Term Evaluation	
8	Design an amplifier and a switch using BJT	CO1, CO2
9	Designing of a First Order Low-pass and High-pass filter using op-amp	CO1, CO2
10	Designing of a voltage regulator using Zener diode	CO1, CO2

11	Designing of analog adder and subtractor circuit	CO1, CO2
12	Designing of a controlled rectifier	CO1, CO2
13	DC motor speed control using SCR in proteus	CO1, CO3
14	Final Evaluation	

6. Assessment Strategy

- Class Attendance (10): Class attendance will be recorded in every class.
- Continuous Assessment (30): Continuous assessment of any of the activities such as lab reports (10), quizzes (10) and assignment (10). The scheme of the continuous assessment for the course will be declared on the first day of classes.
- Mid-term Examination (24): A comprehensive mid-term evaluation will be held where students will receive 50% of their marks in the lab based on the experiments they completed up until the midterm test date, and the remaining 50% of their points will be based on how well their project is going.
- Final Examination (36): A comprehensive final examination will be held in the last week of the term where students will receive 30% of their marks in the lab based on the experiments they completed up until the final test date, and the remaining 70% of their points will be based on how well they have completed and presented their projects with a project report in IEEE format.

7. Distribution of Marks

- Class Attendance 10%
- Continuous Assessment 30%
- Mid-term Evaluation (Project + Experiment) 24%
- Final Examination (Project + Experiment) 36%
- Total 100%

8. Textbook/ Reference N/A

Course Teacher(s):

Name:	Office/Room:	E-mail and Telephone:
Sadia Enam	2nd floor, Academic Building	sadia0001@bdu.ac.bd and 01986511690

Prepared by:
Name: Sadia Enam Signature: Sadia Enam
Date of Preparation: Jan 1, 2024
Date of Approval by BUGS: