

NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGG.

Autumn Semester 2020-2021

COURSE HANDOUT

Date: 03/12/2020-2021

Course code: EE1101 (B. Tech EEE+ECE)

Course Title: Basic Electrical and Electronics Engineering

Course Structure: 3-0-1

Credit : 4

Professor in-charge: Prof. (Dr.) S N SINGH / B NS MUNDA

(Part II-Basic Electronics Portion)

Course description

Semiconductor devices: construction, working, V-I characteristics of diode, Zener Diode, LED, Photodiode, SCR, Diac, Triac and their applications, Transistors: BJT, FET, MOSFET, construction and working, types of configuration, V-I Characteristics

Biasing of transistor circuits - fixed bias, emitter bias, feedback bias, Operational Amplifier: Introduction, Parameters application – inverting, non-inverting amplifier, Integrator, differentiator, summing circuit. Introduction to Logic circuits.

Scope:

- To provide a good fundamental in basic electronics.
- To promote the importance of decision making in basic electronics.
- To study the decision making in circuit design and planning.
- To develop decision making skills in circuit and process systems.
- To proficient in electronic circuits, working concepts and plotting of different characteristics graph.

Objectives :

- At the end of this course, the student will be able to understand the importance of decision making in circuit design and working process.
- At the end of this course, the student will be able to apply the analytical skills for decision making in circuit design, working principles/operational attitudes.

Text Books:

- [1] Electronics device & circuits – Boylsted
- [2] Integrated Electronics – Milliman & Halkias
- [3] Principle of electronics – V.K.Mehta
- [4] Operational amplifier and Linear Integrated Circuits – R.A. Gayakward

Reference Books:

- [1] Principle of Electronics – sanjay S.K.
- [2] Micro Electronics – Milliman & Halkias
- [3] Electronics devices & Circuits – J B Gupta

Evaluation scheme

Lecture No.	Learning Objectives	Topics to be covered	Refer to chapter, see (Book)
1-2	Semiconductor devices: construction, working	Introduction to Electronics	Ch. 8, [T3]
3-5	V-I characteristics of diode , Zener, Diode, LED, Photodiode	Characteristics of Diodes	Ch.9, [T3]
6-7	SCR , Diac , Triac and their applications	Characteristics and application of Diodes	Ch.22, [T3]
8-12	Transistors: BJT , FET , MOSFET, construction and working , types of configuration, V-I Characteristics	Transistors introduction and types	Ch.11,[T3]
12-15	Biasing of transistor circuits- fixed bias, emitter bias, feedback bias	Biasing configurations	Ch.22,[T3]
16-18	Operational Amplifier: Introduction, Parameters application – inverting ,non-inverting amplifier	Introduction to Operational Amplifiers	Ch.1, [T4]; Ch.2, [T2]
18-22	Integrator, differentiator, summing circuit. Introduction of Logic circuits	Application of Operational Amplifiers	Ch.4, [T4] and supplement material

Sl. No.	Evaluation Component	Duration	Weightage	Date & Time	Nature of the Component
1.	Teacher Assessment		20%		Closed book/Online Test
2.	Mid-Sem Exam	2 Hrs.	30%		Closed book/Online Test
3.	End Sem. Exam	3 Hrs.	50%		Closed book

Chamber consultation hour: Friday 2nd Half

Notices: All notices regarding this course will be displayed on the **Departmental Notice Board of Electronics & Communication Engineering./ONLINE-MODE.**

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