C.U.SHAH UNIVERSITY–Wadhwan City

FACULTY OF: -Technology and Engineering (Diploma Engineering)
DEPARTMENT OF: -Electronics and Communication Engineering
SEMESTER: -__II__ **CODE**: -2TE02BEE1
NAME – Basic of Electronics Engineering (BEE)

Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			Total
											Internal		University	
		Th	Tu	Pr	To		Sessional Exam		University Exam		Pr	TW	Pr	
							Marks	Hours	Marks	Hours				
2TE02BEE1	Basic of Electronics Engineering (BEE)	4	0	2	6	5	30	1.5	70	03	30	20	---	150

Objectives:-

- This course provides information about the basic introduction of Electronics Devices with short & sweet analysis. The students will learn the concepts of Semiconductor Materials. They also learn different Applications of Semiconductor Materials. The content of the course includes various basic concepts of Electronics Components, Switching Devices.

Prerequisites: -Basic concepts of materials & their Applications.

Course Outlines:-

Sr. No.	Course Contents	Hours
1	**Electronic components**:- Construction and use of common electronic components,Resistors - carbon composition, carbon film, cracked carbon, metal oxide film wire- wound, variable resistors, Capacitors - paper , silvered paper, mica, silvered mica, ceramic plastic foil, electrolytic, variable resistor, Inductors - fixed and variable inductors.	**10**
2	**Switches& Relays**:- Switches - Toggle switch- SPDT, DPDT,TPDT ,Centre off, Without centre off ,Rotary switch types depending on their poles and positions, Rocker switch , Push button latch and non latch , Tactile switch, Micro switch, Relays - electromagnetic and reed relay, Chokes - A.F and R.F chokes.	**08**
3	**Transmission Media:-** Types of Media, Guided Media, Unguided Media, Cables, Connectors, Fuses.	**08**
4	**Semiconductorphysics and diodes**:- Energy levels of conductors, semiconductors and insulators, Extrinsic material N & P type. Ideal diode basic construction & characteristics, D.C. & A.C. resistance of diode, Diode equivalent circuits, Drift and diffusion currents, Transition and diffusion capacitance.	**10**

5	**Diode application:-** Series and parallel diode configuration with d.c. inputs, The half-wave, full-wave and bridge rectifier and determination of PIV ,Determination of average d.c. current, voltage, ratio of rectification and ripple factor, Requirement of filters ,Simple capacitor filter & induction filter, Diode clamper and clipper ,Voltage doubler and multipliers, Zener diode characteristics & operation, Schottky barrier diode ,Varactor/diode tunnel diode.	**10**
6	**Transistor** :- Transistor construction ,Transistor operation and amplifying action Common base configuration ,Common emitter configuration, Common collector configuration ,Relation between current gain, alpha and beta.	**08**

Experiment List:-

- To test AC/DC voltage sources with Digital Multimeter (DMM)
- To identify ,find value and test different types of Resistors .
- To identify ,find value and test different types of capacitors .
- To identify ,find value and test different types of Inductors .
- To make use of Resister ,capacitor, inductor in series and parallel connection.
- To identify different types of cables & test it .Discover their application.
- To identify different types of connectors & Discover their application.
- To identify different types of fuses & test it.
- To identify different types of Switches and discover its usage.
- To identify different types of Relays and discover its usage.
- To demonstrate external controls of CRO & function Generator.
- To measure amplitude & frequencies of different sine waveform using CRO.
- To measure amplitude & frequencies of different square waveform using CRO.
- To study forward & reverse V-I characteristics of diode.
- To study the positive & negative clipping.
- To study the positive & negative clamping.
- To test Half wave rectifier and observe waveforms with and without filter.
- To test Full wave rectifier and observe waveform with and without filter.
- To test Bridge rectifier and observe waveforms with and without filter.
- To study zener diode characteristic.

Learning Outcomes:-

- Student can aquire the basic Knowledge of electrical & electronics fundamentals.
- Students will be able to know about Relay, Switches, Cables, Connectors, Opto Electronics Devices which will helpful for Understanding of new applications and techniques for their use.

Books Recommended:-

- Electronics Principles , **A.P. Malvino,** MGH, 2009 or latest
- Principle of Electronics , **V.K.Mehta** , S. Chand
- Electronic Devices and Circuit Theory , **Boylstad Robert ,** Pearson Education, 2007
- Electronic Devices and Circuits , **Bell David A ,** Oxford University Press, 2008 or latest
- Electronic Components and Materials,**Madhuri Joshi**, Shroff Publishers & Distributors private ltd