GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Diploma in Vocation (D.Voc), 2nd Semester

Branch: All Branches

Subject Name: Basic Electronics

Subject Code: 1220103

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	OJT	C	University exams (ESE)	Progressive Assessment (PA)	External Practical /viva Exam(ESE)	Internal evaluation Practical /viva Exam(PA)	
3	0	0	3	50	0	0	0	50

Course Content:

Unit No.	Content	No. of Hours
1.	**Electronic Components and Signals:** Active and passive components, Voltage and Current Source, Symbols of various Semiconductor components, Definitions of: amplitude, Frequency, Phase, Wavelength, Definitions of: Signal, waveform, spectrum, Time and frequency domain representation Test Signals: unit step, unit impulse, and unit ramp Types Signals: sinusoidal, triangular and saw tooth, square	12
2.	**Diodes and Applications:** P-N junction diode, Bridge Rectifier, 'T' and 'π' Filter circuits, Zener diode, Zener diode as voltage regulator	06
3.	**Transistors:** PNP and NPN transistor (working principle), Transistor as switch, FET, working of PMOS and NMOS, Working of CMOS Logic Family	08
4.	**Oscillators:** Types of feedback (Positive and Negative), Principle of oscillation, Oscillators: Hartley and Colpitts	06
5.	**Cables, Connectors and Measuring Instruments**: Differentiate the different types of cables. Distinguish the different types of connectors, Use different measuring instruments, Analog and Digital display. Cables: coaxial cable, twisted pair cable and fiber optic cable, Connectors: coaxial cable connectors, RJ- 45, RS-232, HDMI connectors, Multimeters: Analog and digital multimeter, CRO: front panel controls and application	10
	Total	42

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks

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R Level	U Level	A Level	N Level	E Level	C Level
5	20	10	15	0	0

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

Sr. No.	Title of Books	Author	Publication
1	Principle of Electronics	V.K.Mehta	S.Chand & Co., latest edition
2	Electronics Principles	Albert Paul Malvino	McGraw Hill, latest edition
3	Electronics Devices and Circuit Theory	Robert L. Boylestad	Pearson, latest edition
4	Electronic Instrumentation	H.S.Kalsi	McGraw Hill, latest edition
5	Cables and Connectors	John Kadick	AVO International, latest edition

(b) Open source software and website:

1. https://nptel.ac.in/

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Understanding of electronic components & their symbols, basic properties, and functions in circuits.
02	Analyze the functionality of Diodes
03	Understanding of various transistors characteristics.
04	Analyze various types of oscillators
05	Application of Cables, Connectors and Measuring Instruments

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