		4132 - BA	ASIC E	LECT	RONICS	(4102	, 4212)		Mark	
Teaching	s Schedule P		Progr	essive sment		Exami	nation 3	ctical E		Total
Lectures	Practical	Credits	L	25	3.Hrs	10	3	50		200
3	4	7	25		Theory	Test	Total	TW	PR	Gr Total
Pre-re	quisite	Source	Sem	ester	75	25	100	25	50	175
	Vil	EXN			<u> </u>	1				ding the basic

Rationale: This course involves study of principles behind electronics. It is essential in understa d behaviour of basic devices.

characteristics and behaviour of the		H	rs Mics
	COURSE CONTENTS	1	7 35
	000110		

Semi-conductors: Atomic Structures, energy band concept, classification of materials as conductors, insulators and Semi-conductors, intrinsic and extrinsic Semiconductors, carrier generation and recombination, p and n type of Semi-conductors, conduction in intrinsic and extrinsic Semi-conductors. Effect of temperature on Semi-conductors. Junction Diode: p-n junction, unbiased diode, barrier potential junction diode operation under forward and reverse bias conduction's, important diode ratings, VI characteristics, and static and dynamic resistance. Diode applications: Rectification -half wave, full wave (center tapped and bridge type) rectifier circuit, operation and comparison, meaning of ripple factor and rectification efficiency, simple calculations involving selection of rectifier components. Relation between peak, rms. And average components. Filters - L, C, LC, section filters, operation and comparison, simple numerical examples involving selection of filter components (derivations not expected). Zener Diode: Construction, operation, characteristics, breakdown mechanism, and important specifications, Zener as a regulator, Simple calculations.

BJT – Basic construction, NPN and PNP type, transistor action, current – relationship in a transistor, leakage currents. Transistor input and output characteristics in CE, CB and CC configuration; alpha, Beta and relation between them, important current and voltage ratings for a transistor. Comparison between the configurations. Simple calculations. Biasing of Transistors: Need for biasing, Q point, biasing Techniques for BJT - self bias, fixed bias collector to Base bias, emitter bias, potential divider biasing, comparison between various biasing methods. Brief idea of thermal considerations for a BJT and Heat sinks. Thermal runaway, stability. Simple calculations. Transistor as an amplifier: Basic CE amplifier, meaning of Zi, Zo, Av, Ai, Ap. Graphical analysis of amplifier using concept of AC and DC load line for CE and

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21

SYLLABI OF COURSES FOR DIPLOMA PROGRAMME IN MEDICAL ELECTRONICS, LEVEL IV	& V	
CB configurations phase relationships, comparison of the three amplifier configurations. (Derivations not Expected). Simple calculations.		
3. FULD EFFECT TRANSISTORS		-
JEET: Structure, n channel and channel utran	5	1
with BJT, important JFET parameters, JFET biasing circuits. MOSFET: Structure,		
operation and characteristics of a kind of the loading circuits. MOSFET: Structure,		
Comparison with JFET. Application of JFET and MOSFET in brief.		
4. VACCUM TUBES		
Brief explanation of various trace of the	5	10
photoelectric, field, cathode materiala dimention emission, thermionic, secondary,		
construction operation characteristics and indirectly heated emitters,		
Tetrode, pentode, and applications of mainteners of vacuum diode, triode,		
Tetrode, pentode, and applications of vacuum tubes. Comparison of tubes and transistors. Simple calculations.		
Total		_
PRACTICALS (Any 12 of the following)	48	100
1. 4/ DIALIC Characteristics of a new at 1.		
4. 4) CELET as a tegulator more matic		
<ul> <li>b) Study of Half wave rectifier with capacitor filter with and without full load.</li> <li>a) Study of Half 1, Forward and reverse abarding the with and without full load.</li> </ul>		
<ul> <li>a) Study of Half 1. Forward and reverse characteristics of a junction diode.</li> <li>a) Study of Full wave rectifier with and metrics for the full.</li> </ul>		
<ul> <li>a) Study of Full wave rectifier with and without full load.</li> </ul>		
O DIGUY OI FULL WAVE TECTITION WATE ADDRESS (1. CT.		
<ul> <li>a) Study of Bridge rectifier with and without full load.</li> <li>b) Study of Bridge rectifier with and without full load.</li> </ul>		
Static input and output characteristics of BJT in CB configuration.		
Static input and output characteristics of BJT in CB configuration. a) Study of Fixed hiss circuit with an end with the configuration.		
a) Study of Fixed bias circuit with and without emitter resistance.		
b) Study of collector bias circuit.		
<ul> <li>a) Study of potential divider biasing circuit with emitter resistance.</li> <li>b) Study of potential divider biasing circuit with emitter resistance.</li> </ul>		
<ol> <li>Study of static characteristics of FET.</li> </ol>	я	
1. Study of common Emitter amplifier.		
2. Study of static characteristic of MOSFET.		
3. Study of characteristics of vacuum tube diode. Study of characteristics of vacuum triode.		
Study of characteristics of vacuum triode.		
Study of characteristics of vacuum pentode.		
EFERENCE BOOKS:		
Electronic Principles by Melsing		
Electronic Devices & Classical States		
Electronic Devices and Circuit by Milman and Halkias. Basic Course in Electronic Devices and Circuits by G.K. Mithal.		
Basic Course in Electronics by Bhargava and Others, TTTI Publication.		
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