

PLANNED SYLLABUS COVERAGE (Theory)

GP Kangra		Department: Electronics & Communication Engineering Subject :EDC-II							
SYLLABUS COVERAGE		Course : Diploma		Duration: 3 Yrs.					
Sr. No.		Period Nos		Topic			Details	Instruction Reference	Additional Study Recommended
		Total Period: 56 Theory : 56							
1	(01-09)	Sinusoidal Oscillators	-Working Principle of Oscillator, Use of positive feedback in amplifier circuit; Barkhausen criterion, Difference between Oscillator & Electrical Generator. -Different Types of Oscillator circuits: Tuned collector, Hartley, Colpitts, Phase shift, Wien Bridge, and Crystal oscillator-Their working principle, frequency range and applications	Principles of Electronics by VK Mehta (S.Chand)	Electronics Principles by Malvino (TMH)				
2	(10-15)	Tuned Voltage Amplifier	-Series and Parallel Resonant Circuits, Comparison between Series and Parallel resonant Circuits, -Single & Double Tuned Voltage Amplifier Circuits and their frequency response	-----do-----	-----do-----				
3	(16-17)	Review & Discussion	Review and doubt session.						
4	(18-24)	Wave Shaping Circuits	- Integrating and differentiating circuits: Their working and applications - Diode Clipping circuits, biased Clipping circuits - Clamping circuits	-----do-----	-----do-----				
5	(25-31)	Multivibrator Circuits	- Working principle of Transistor as Switch - Concept of Multi-vibrator: Astable, Monostable, and Bistable - Block diagram of IC555 and its working and applications - Working of IC555 as astable and monostablemultivibrator - Applications of Multivibrator Circuits	-----do-----	-----do-----				

6	(32-40)	Operational Amplifiers	<ul style="list-style-type: none"> - Characteristics of an ideal operational amplifier and its block diagram, Pin Identification of IC741 - Definitions: Differential voltage gain, CMRR, slew rate, input offset current, input offset voltage, total output offset voltage. - Open loop configurations: Differential, Inverting & Non Inverting modes, limitations of open loop configuration. - Closed loop configuration: As an Inverting & Non-inverting amplifier, Schmitt trigger circuit, Comparator, Differentiator and Integrator 	-----do-----	-----do-----
7	(41-43)	Review & Discussion	Review and doubt session.	-----do-----	-----do-----
8	(44-48)	Optoelectronic Devices	<ul style="list-style-type: none"> -Working principle of Photo-resistor, photo diode, photo transistor and their applications, -Need for Opto-isolation in electronic circuit, Working of optocoupler circuit. 		
9	(49-54)	Regulated Power Supplies	<ul style="list-style-type: none"> - Working of DC regulated power Supply - Line and load side regulation - Regulator ICs (78XX, 79XX) -Switching Mode Power Supply: Working Principle, advantages & applications. 	-----do-----	-----do-----
10	(55-56)	Discussion on Old Question Papers	At least three previous year question paper will be discussed		

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G P Kangra		Department: E.C.E. Subject : MICROPROCESSOR & PROGRAMMING				
		Course :Diploma		Duration : Three years		
SYLLABUS PLANNED		Total Periods: 32(P)+64(T)			Theory : 64	
Sr. No		No. of Periods	Topic and details	Instruction Reference	Additional Study recommended	Remarks
1		1-4	Evolution of Microprocessor Typical organization of a microcomputer system and functions of its various blocks Microprocessor, its evolution, function and impact on modern society.			
2		5-15	Architecture of a Microprocessor (With reference to 8085 microprocessor) Concept of Bus , bus organization no f8085, Functional block diagram of 8085 and function of each block, Pin details of 8085 and related signals, Demultiplexing of address/data bus generation of read/write control signals, Steps to execute a stored programme.			
3		16-26	Memories and I/O interfacing Memory organization, Concept of memory mapping, partitioning of total memory space. Address decoding, concept of I/O mapped I/O and memory mapped I/O. Interfacing of memory mapped I/O devices. Concept of stack and its function. Basic RAM Cell, NXM bit RAM, Expansion of word length and capacity, static and dynamic RAM, basic idea of ROM, PROM, EPROM and EEPROM.	Microprocess or and Applications B Ram	Microprocessor Architecture programming & application with the 8085 Ramesh A. Gaonkar, Penfam International	

4		27-36	<p>Programming (with respect to 8085 microprocessor) Brief idea of machine and assembly languages, Machines and Mnemonic codes. Instruction form at and Addressing mode. Identification of instructions as to which addressing mode they belong. Concept of Instruction set. Explanation of the instructions of the following groups of instruction set. Data transfer group, Arithmetic. Group, Logic Group, Stack, I/O and Machine Control Group. Programming exercises in assembly language. (Examples can be taken from the list of experiments).</p>			
5		37-41	<p>Instruction Timing and Cycles Instruction cycle, machine cycle and T-states, Fetch and execute cycle. Doubt session and discussion</p>			
6		42-49	<p>Interrupts Concept of interrupt, Maskable and non-maskable, Edge triggered and level triggered interrupts, Software interrupt, Restart interrupt and its use, Various hardware interrupts of 8085, Servicing interrupts, extending interrupt system</p>			
7		50-55	<p>Data transfer techniques Concept of programmed I/O operations, sync data transfer, a sync data transfer (hand shaking), Interrupt driven data transfer, DMA, Serial output data, Serial Input data Doubt session and discussion</p>			

8		56-64	16-bit Microprocessor 8086 Silent features of 8086 Microprocessor, architecture of 8086 (Block diagram, signal description), register organization, concepts of pipe lining, memory segmentation and memory address generation.			
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PLANNED SYLLABUS COVERAGE (Theory)

G P Kangra		Department: ELECTRONICS & COMM. ENGG.				
		Subject: POWER ELECTRONICS				
		Course : Diploma		Duration : Three years		
SYLLABUS COVERAGE		Total Periods: 64				Theory : 64
Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommend	Remark
1.	1 to 15	Introduction to thyristors and other Power Electronics Devices	1.1 Construction, Working principles of SCR, two transistor analogy of SCR, V-I characteristics of SCR. 1.2 SCR specifications & ratings. 1.3 Different methods of SCR triggering. 1.4 Different commutation circuits for SCR. 1.5 Series & parallel operation of SCR. 1.6 Construction & working principle of DIAC, TRIAC & their V-I Characteristics. 1.7 Construction, working principle of UJT, V-I characteristics of UJT. UJT as relaxation oscillator. 1.8 Brief introduction to Gate Turnoff thyristor (GTO), Programmable unijunction transistor (PUT).	Power Electronics by P. S. Bhimbhra, Khanna Publishers, New Delhi		
2.	16		Discussion ,Doubt removal & Student feedback session			
3.	17 to 27	Controlled Rectifiers	2.1 Single phase half wave controlled rectifier with R & R-L load. 2.2 Single phase fully controlled full wave bridge rectifier R & R-L Load. 2.3 Single phase fully controlled full wave center tap rectifier R&R-L Load. 2.4 Single phase half controlled full wave rectifier with R & R-L Load.	-do-		

4.	28		Discussion ,Doubt removal & Student feedback session			
5.	29 to 45	Inverters, Choppers, Dual Converters and Cyclo converters.	3.1 Principle of operation of basic inverter circuits, concepts of duty cycle, series & parallel inverters & their applications. 3.2 Choppers: Introduction, types of choppers (Class A, Class B, Class C and Class D). Step up and step down choppers. 3.3 Dual Converter sand cyclo converters: Introduction, types & basic working principle of dual converters and cyclo converters & their applications.	-do-		
6.	46		Discussion, Doubt removal & Student feedback session			
7.	47 to 54	Thyristorised Control of Electric drives	4.1 DC drive control i) Half wave drives. ii) Full wave drives iii) Chopper drives (Speed control of DC motor using choppers)	-do-		
8.	55		Discussion, Doubt removal & Student feedback session			
9.	56 to 63	Application of Power Electronic Devices	5.1 UPS, on-line, offline & their specifications 5.2 Light intensity control 5.3 speed control of universal motors 5.4 fan regulator 5.5 Automatic battery charger circuit			
10.	64		Discussion, Doubt removal & Student feedback session			

Vivek Kumar
Lecturer,ECE

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G P Kangra		Department: EC.E.Subject : COMMUNICATION SYSTEM				
		Course :Diploma Duration : Three years				
SYLLABUS COVERAGE		Total Periods: 56			Theory : 56	
Sr. No	Period NOS.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-8	AM/FM Transmitter	<p>a)Classification of transmitters on the basis of modulation, service, frequency and power</p> <p>b)Block diagram of AM transmitter and working of each stage</p> <p>c) Block diagram of FM transmitters and working of each stage.</p>			
2	9-22	AM/FM Radio Receivers	<p>a) Principle and working with block diagram of super heterodyne of AM receiver. Function of each block and typical waveforms at input and output of each block</p> <p>b) Performance characteristics of a radio receiver sensitivity, selectivity, fidelity S/N ratio, image rejection ratio and their measurement Procedure.</p> <p>c)Selection criteria for intermediate frequency(IF).Concepts of simple and delayed AGC</p> <p>d) Block diagram of an FM receiver, function of each block and wave forms at input and output of different blocks. Need for limiting and de-emphasizing FM reception</p> <p>e) Block diagram of communication receivers, differences with respect to broadcast receivers.</p>			
3	23-36	Antennas	a)Electromagnetic spectrum and its various			

4	37-50	Propa- gation	<p>ranges: VLF, LF, MF, HF, VHF, UHF, Microwave.</p> <p>b)Physical concept t of radiation of electromagnetic energy from a dipole. ConceptofpolarizationofEMWaves.</p> <p>c)Definition and physical concepts of the terms used with antennas like pointsource,gaindirectivity,aperture,effecti vearea,radiationpattern, beam width and radiation resistance, loss resistance.</p> <p>d)Types of antennas- ,characteristics and typical applications of half wave dipole, folded dipole, loop antenna,yagiand ferrite rod antenna</p> <p>e)Brief description of broad-side and end fire arrays, the irradiation pattern and applications(with out analysis)</p> <p>a)Basic idea about different modes of wave propagation and typical .Ground wave propagation and its chara cteristics, Summer field equation for field strength.</p> <p>b)Space wave communication – line of sight propagation, standard atmosphere, concept of effective earth radius range of space wave propagation standard atmosphere</p> <p>c)Duct propagation: sky wave propagation- ionosphere and its Layers. Explanation of terms-virtual height,criticalfrequency ,skips distance, maximum usable frequency,and multiple hop propagation.</p>			
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5	51-56	Satellite Communications	<p>Basic idea, passive and active satellites, Meaning of the terms; orbit, apogee, perigee</p> <p>-Geo-stationary satellite and its need.</p> <p>Block diagram and Explanation of a satellite communication link</p>			
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G P Kangra		Department: E.C.E.Subject : AUDIO VIDEO SYSTEMS					
		Course :Diploma Duration : Three years					
SYLLABUS PLANNED		Total Periods: 64 Practical: 32 Theory : 64					
Sr. No		No. of Periods	Topic and details	Instruction Reference	Additional Study Recomm- ended	Remarks	
1		1-8	1. Audio Systems 1.1. Microphones and Loudspeakers a) Carbon, moving coil, cordless microphone b) Direct radiating and horn loudspeaker c) Multi-speaker system				
2		9-15	2. Digital Audio Fundamentals Audio as Data and Signal, Digital Audio Processes Outlined, Time Compression and Expansion.				
3		16-29	3. Television 3.1. Basics of Television - Elements of TV communication system - Scanning and its need - Need of synchronizing and blanking pulses - Composite Video Signal 3.2 Colour Television - Primary, secondary colours - Concept of Mixing, Colour Triangle - PAL TV Receiver - NTSC, PAL, SECAM (brief comparison)				
4		30-38	4. Digital Video, Compression Techniques and Standards Digital Video, The RGB and YUV Representation of Video Signals, The Need for Compression, how compression works, Compression formats for video - MPEG-x format, H.26x format	Modern Televisio n Practice by R. R. Gulati & Consumer Electronic s by S. P. Bali			

5		39-50	<p>5. Digital Television-Transmission and Reception Digital satellite television, Direct-To-Home (DTH) satellite television, Digital TV receiver, Merits of digital TV receivers, Digital Terrestrial Television (DTT), Introduction to :Video on demand, CCTV, CATV with optical fiber.</p>			
6		51-64	<p>6. Liquid Crystal and Plasma Screen Televisions LCD technology, LCD matrix types and operation, LCD screens for television, Plasma and conduction of charge, Plasma television screens, Signal processing in Plasma TV receivers, A Plasma colour receiver, LCD colour receivers, Single LCD receivers, 3-LCD colour receivers, Performance comparison of Plasma and LCD televisions, Introduction to LED TV, RGB dynamic LEDs, Edge-LEDs, Differences between LED-backlit and Backlit LCD displays, Comparison of Plasma TV and LED TV, Introduction to OLED TVs.</p>			

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