GOVT. POLYTECHNIC, PANCHKULA

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

LESSON PLANS

(August-November 2026)

PROGRAMMING IN C

Name of Faculty: Ms. Meenu Nain
Discipline: Electronics & Communication Engg.
Semester: 3rd
Subject: Programming in C
Lesson Plan Duration: 16 Weeks
Work load (Lecture/Practical) per week (in hours): Lectures-03, Practical 08

Week	Day	Theory Topic (Including assignment / test)	Group	Practical Topic (Programming exercises-P.E.)
1st	1st	Algorithm and Programming Development: Introduction, Steps in development of a program	G-I	P.E. on executing and editing a C program
	2nd	Flow charts, Algorithm development		
	3rd	Algorithm and Flowchart writing for practical	G-II	P.E. on executing and editing a C program
2nd	4th	Programme Debugging, Practice of error detection and corrections in examples.	G-I	P.E. on defining variables and assigning values to variables
	5th	Program Structure: Introduction to structure of C program		
	6th	Keywords, assign statements	G-II	P.E. on defining variables and assigning values to variables
3rd	7th	I/O statements: Printf and Scanf,	G-I	P.E. on arithmetic and relational operators
	8th	Constants, variables and data types		
	9th	Operators and Expressions	G-II	P.E. on arithmetic and relational operators
4th	10th	Unformatted and Formatted IOS	G-I	P.E. on arithmetic Expressions and their evaluation
	11th	Data Type Casting		
	12th	Class Test	G-II	P.E. on arithmetic expressions and their evaluation
5th	13th	Control Structures: Introduction and use	G-I	P.E. onformatting input/output using printf and scanf and their return type values
	14th	Decision making with IF – statement		
	15th	IF – Else and Nested IF	G-II	P.E. onformatting input/output using printf and scanf and their return type values

6th	**16th**	While and do-while, for loop	G-I	P.E. using if, if-else statement
	17th	Break. Continue statements		

	18th	Go to and switch statements	G-II	P.E. using if, if-else statement
7th	**19th**	Revision of unit III	G-I	P.E. on switch statement
	20th	Sessional Test I		
	21st	Pointers: Introduction to pointers	G-II	P.E. on switch statement
8th	**22nd**	Signed and unsigned short and long integer variable concepts	G-I	P.E. on do – while statement
	23rd	Address operator and pointers, Declaring and initializing pointers		
	24th	Single pointer	G-II	P.E. on do – while statement
9th	**25th**	Revision of unit IV	G-I	P.E. on for loop statement
	26th	Introduction to functions		
	27th	Global and local variables	G-II	P.E. on for loop statement
10th	**28th**	Function Declaration	G-I	Simple programs using pointers
	29th	Standard functions		
	30th	Parameters and Parameter Passing	G-II	Simple programs using pointers
11th	**31st**	Call - by value/reference	G-I	Programs on one-dimensional array
	32nd	Sessional II		
	33rd	Arrays and Strings: Introduction to Arrays, Array Declaration, Length of array	G-II	Programs on one-dimensional array.
12th	**34th**	Single and Multidimensional Array, Arrays of characters	G-I	Programs on two-dimensional array.
	35th	Introduction of Strings: String declaration and definition, String Related function i.e. strlen, strcpy, strcmp		
	36th	Passing an array to function	G-II	Programs on two-dimensional array.
13th	**37th**	Pointers to an array and strings	G-I	Programs for putting two strings together and comparing two strings
	38th	Structures and Unions: Introduction		
	39th	Declaration of structures	G-II	Programs for putting two strings together and comparing two strings

14th	**40th**	Accessing structure members	G-I	Simple programs using functions
	41st	Structure Initialization		
	42nd	Pointer to structures	G-II	Simple programs using functions
15th	**43rd**	Introduction, Difference between Structures and unions	G-I	programs using structures and union
	44th	Concept of File Handling		
	45th	Opening and Closing of File	G-II	programs using structures and union
16th	**46th**	Modes of Accessing Files	G-I	Program on Reading and Writing data to a file.
	47th	Reading and Writing in the File	G-II	Program on Reading and Writing data to a file.
	48th	Sessional III		

ANALOG AND DIGITAL COMMUNICATION

Name of Faculty: Dr. Sunita Saini
Discipline: Electronics & Communication Engg.
Semester: 3rd
Subject: Analog & Digital Communication
Lesson Plan Duration: 16 Weeks
Work load (Lecture/Practical) per week (in hours): Lectures-03, Practical 04

Week	**Theory**		**Practical**	
	Lecture Day	**Topic**	**Practical Day**	**Topic**
Week 1	**1**	**UNIT I** **Analog Communication**	**Day 1**	Observe wave forms at input and output of pulse code modulator with CRO.
	2	Need for modulation		
	3	Frequency translation and		
Week 2	**4**	Demodulation in communication systems	**Day 2**	File Check
	5	Basic scheme of a modern communication system.		
	6	**UNIT II** **Amplitude Modulation**		
Week 3	**7**	Derivation of expression for an amplitude modulated wave.	**Day 3**	To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation
	8	Carrier and side band components		
	9	Modulation index.		
Week 4	**10**	**Assignment 1**	**Day 4**	File check
	11	Spectrum and BW of AM Wave		
	12	Relative power distribution in carrier and side bands		
Week 5	**13**	Elementary idea of DSB-SC, SSB-SC	**Day 5**	To measure the modulation index of the wave obtained in above practical
	14	Note book Checking		
	15	**Class Test- Unit 1 and Unit 2**		
Week 6	**16**	**Assessment 1**	**Day 6**	File check
	17	ISB and VSB modulations, their comparison, and areas of applications.		
	18	**UNIT III** **Frequency Modulation**		

Week 7	**19**	Expression for frequency modulated wave and its frequency spectrum (without Proof and analysis of Bassel function)	**Day 7**	To obtain an FM wave and measure the frequency deviation for different modulating
	20	Modulation index, maximum frequency deviation and deviation ratio		signals.
	21	BW of FM signals, Carson's rule, Effect of noise on FM carrier. Noise triangle, Role of limiter		
Week 8	**22**	Need for pre-emphasis and de-emphasis, capture effect	**Day 8**	File check
	23	Comparison of FM and AM in communication systems		
	24	**Assignment 2**		
Week 9	**25**	**UNIT IV** **Digital Communication** Basic block diagram of digital and data communication systems. Their comparison with analog communication systems.	**Day 9**	Observe wave forms at input and output of QPSK modulators
	26	Sampling theorem and its basic concept. - Introduction to PAM, PPM, PWM -Quantization and error of Quantization		
	27	PCM, DPCM, their advantage and disadvantages		
Week 10	**28**	**Assessment 2**	**Day 10**	File check
	29	DELTA and ADAPTIVE DELTA Modulation concept of COMPANDING		
	30	Frequency hopping spread spectrum technique		
Week 11	**31**	**Assignment 3** Note Book Checking	**Day 11**	Observe wave forms at input and output of PSK modulators
	32	**Class Test-Unit 3 and Unit 4**		
	33	**UNIT V** **Digital Modulation Techniques**		
Week 12	**34**	Basic block diagram and principle of working	**Day 12**	File check
	35	Amplitude shift keying (ASK):		
	36	Interrupte continuous wave (ICW), two tone modulation		
Week 13	**37**	Frequency Shift keying (FSK)	**Day 13**	Observe wave forms at input and output of ASK modulators
	38	Phase shift keying (PSK),		

	39	Quadrature Phase Shift Keying (QPSK)		
Week 14	**40**	Note book Checking	**Day 14**	File check
	41	**Class Test Unit 5**		
	42	**Assessment 3**		
Week 15	**43**	Revision of unit 1	**Day 15**	Observe wave forms at input and output of FSK modulators
	44	Revision of unit 2		
	45	Revision of unit 3		
Week 16	**46**	Revision of unit 4	**Day 16**	File check
	47	Revision of unit 5		
	48	Full syllabus revision and doubts session		

ELECTRONIC DEVICES AND CIRCUITS-II

Name of Faculty: Ms. Sujata Kundu
Discipline: Electronics & Communication Engg.
Semester: 3rd
Subject: EDC-II
Lesson Plan Duration: 16 Weeks
Work load (Lecture/Practical) per week (in hours): Lectures-03, Practical 02

		Theory	Practical	Practical topic
Week	**Lecture Day**	**Topic (Including Assignment/ Test)**	**Practical week**	**Topic name**
1st	**1**	(Multistage Amplifier) Need and gain for multistage amplifier, different types of multistage amplifier.	1	Review of Lab/ Practical.
	2	Types of multistage amplifier: - RC coupled amplifier.		
	3	RC coupled amplifier, frequency response and bandwidth.		
2nd	**4**	Types of multistage amplifier: - Direct coupled amplifier.	2	Plot the frequency response of two stages RC coupled amplifier and calculate the bandwidth.
	5	Direct coupled amplifier and Transformer coupled amplifier.		
	6	Transformer coupled amplifier, frequency response and bandwidth.		
3rd	**7**	Large signal Amplifier Difference between voltage and power amplifier, Importance of impedance matching in amplifier.	3	To measure the gain of Push-Pull amplifier.
	8	Class A, Class B, Class AB and Class C amplifiers.		
	9	Collector efficiency and distortion in amplifier.		
4th	**10**	Single ended power amplifiers, graphical method of calculation of output power, heat dissipation curve and its importance.	4	To measure the voltage gain of emitter follower circuit and plot its frequency response.
	11	Push-pull amplifier and complementary Push- pull amplifier.		
	12	Revision		
5th	**13**	Assignment topic/Test/Quiz.	5	Revision
	14	Expert lecture/Revision/ seminar		
	15	Sessional exam		
6th	**16**	Assignment –Topic & Class work Checking	6	To observe the output waveforms of Hartley Oscillator.
	17	Feedback in Amplifiers Basic principles and types of feedback.		
	18	Derivation of expression for gain of an amplifier employing feedback.		
7th	**19**	Effect of feedback (negative) on gain, stability, distortion and bandwidth of an amplifier.	7	To observe the output waveforms of Colpitt's Oscillator.
	20	RC coupled amplifier with emitter bypass capacitor.		
	21	Emitter follower amplifier and its applications.		
8th	**22**	Revision / seminar	8	Revision

	23	Assignment topic/Test/Quiz.		
	24	Expert lecture/Revision		

9th	**25**	Sinusoidal Oscillators Use of positive feedback.	9	To observe the output waveforms of RC phase shift Oscillator.
	26	Barkhausen criterion for oscillations, different types of oscillator.		
	27	Tuned collector oscillator and its working principle.		
10th	**28**	Hartley and Colpitts oscillators and its working principle.	10	To observe the output waveforms of Wein bridge Oscillator.
	29	Phase shift oscillator and its working principle.		
	30	Wien's bridge oscillator and its working principle.		
11th	**31**	Revision/ seminar	11	Use of IC 555 as astable MV and observe the O/P for different duty cycle.
	32	Assignment topic/Test/Quiz.		
	33	Expert lecture/Revision		
12th	**34**	Assignment topic/ Sessional exam.	12	Use of IC 555 as monostable MV and observe the O/P for different value of RC
	35	Multivibrator Circuits and Operational amplifiers , Working principle of transistor as a switch.		
	36	Concept of multivibrator:- Astable, Monostable and Bistable multivibrators and their applications.		
13th	**37**	Astable multivibrator in detail.	13	Use of IC 555 as monostable MV and observe the O/P for different value of RC
	38	Monostable and Bistable multivibrator in detail.		
	39	Pin and block diagram of IC 555, working and applications.		
14th	**40**	IC 555 as a Monostable and Astable multivibrator.	14	To use IC 741(OP-AMP) as an inverter, adder, subtractor and integrator.
	41	Operational amplifier: - IC 741 and its pins configuration.		
	42	Block diagram and characteristics of ideal operational amplifier.		
15th	**43**	Definition of differential voltage gain, CMRR, PSRR, Slew rate and input offset current.	15	To use IC 741(OPAMP) as a inverter, adder, subtractor and integrator.
	44	As an inverter, scale changer, adder, subtractor, differentiator and integrator.		
	45	Assignment –Topic & Class work Checking		
16th	**46**	Revision/ seminar	16	Viva Voice
	47	Sessional exam		
	48	Revision/ Seminar		

DIGITAL ELECTRONICS

Name of Faculty: Ms. Divya Chopra
Discipline: Electronics & Communication Engg.
Semester: 3rd
Subject: Digital Electronics
Lesson Plan Duration: 16 Weeks
Work load (Lecture/Practical) per week (in hours): Lectures-03, Practical 02

Week	Theory		Practical	Week	Theory		Practical
	Lecture day	**Topic (including assignment/ test)**	**Topic**		**Lecture day**	**Topic (including assignment/ test)**	**Topic**
1st	1	Unit 1. Introduction to analog and digital signal	Verification and interpretation of truth tables for AND, OR, NOT NAND, NOR and Exclusive OR (EXOR) and Exclusive NOR(EXNOR) gate	8th	22	Operation using waveforms and truth tables of RS, T, D, Master/Slave JK flip flops	Verification of truth table for Multiplexers and x and De-Multiplexers
	2	Binary, octal and hexadecimal number system			23	Difference between a latch and a flip flop	
	3	Conversions of number systems			24	Introduction and basic concepts including shift left and shift right	
	4	Binary addition and subtraction including binary points	Realisation of logic functions with the help of NAND or NOR gates		25	Serial in parallel out, serial in serial out, parallel in serial out, parallel in parallel out, Universal shift register	To design a 4 bit SISO, SIPO, PISO, PIPO shift registers using JK/D flip flops and verification of their operation.
	5	1's and 2's complement method of addition/subtraction.			26	Assignment 2	
	6	Concept of code, weighted and non-weighted codes			27	2nd Sessional test	
3rd	7	8421, BCD, excess-3 and Gray code	To design a half adder using XOR and NAND gates and verification of its operation	10th	28	Unit 5. Working principle of A/D and D/A converters, Stair step Ramp A/D converter	To design a 4 bit ring counter and verify its operation
	8	Concept of parity, single and double parity and error detection			29	Dual Slope A/D converter	
	9	Unit 2. Concept of negative and positive logic			30	Successive Approximation A/D Converter	
4th	10	Definition, symbols and truth tables of NOT, AND, OR, NAND, NOR, EXOR Gates, NAND and NOR as universal	To design of a full adder circuit using XOR and NAND gates and verify its operation	11th	31	Binary Weighted D/A converter	Use of Asynchronous Counter ICs (7490 or 7493)
	11	Introduction to TTL and CMOS logic families			32	R/2R ladder D/A converter	

	12	Postulates of Boolean algebra, De Morgan's Theorems			**33**	Applications of A/D and D/A converter	
5th	**13**	Karnaugh map (upto 4 variables), simple application in developing combinational	To design circuit for 7 segment display ICs	**12th**	**34**	Memory organization, classification of semiconductor memories	To design and verification of A/D converter
	14	Assignment 1			**35**	Static and dynamic RAM	
	15	**1st sessional exam**			**36**	Introduction to 74181 ALU IC	
6th	**16**	Unit 3. Half adder, full adder design and implementation	Verification of truth table for positive edge triggered, negative edge triggered, level triggered IC flip-flops (At least one IC each of D latch, D flipflop, JK flip-	**13th**	**37**	Assignment 3	To design and verification of D/A converter
	17	4 bit adder circuit			**38**	Revision of chapter 5	
	18	Four-bit decoder circuits for 7 segment display and decoder/driver Ics			**39**	**3rd sessional test**	
7th	**19**	Basic functions and block diagram of MUX. DMUX	Verification of truth table for encoder and decoder ICs	**14th**	**40**	Revision of chapter 1 and chapter 2	To design and verification of 74181 ALU IC
	20	Basic functions and block diagram of Encoder			**41**	Revision of chapter 3 and chapter 4	
	21	Unit 4. Concept and types of latch with their working and applications			**42**	Revision of chapter 5	