

PLANNED SYLLABUS COVERAGE(Theory)

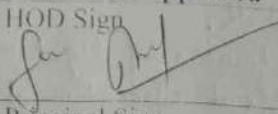
G P Kangra		Department: <u>ECE</u>	Subject <u>Optical Communication</u> <u>and Networking</u>			
		Course <u>Diploma</u>	Duration <u>3 years.</u>			
SYLLABUS COVERAGE		Total Periods <u>56</u>	Theory <u>56</u>			
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	1-8	Introduction	Historical perspective, basic optical fiber Comm. System, Advantages and Disad- -tages of optical Comm., Application of fiber optic Communication. Electromagnetic Spectrum, optical frequency range. Principle of light penetration reflection, concept of Critical frequency. Constructional Detail of	Optical fiber Communication by John. M. Senior PHI publication.		
2.	9-18	Optical fiber And Cables	Various optical fiber, multimode and monomode fiber, SI and Graded Index fibers, N.A, Acceptance angle, types of optic fiber Cable.	do		
3.	19-32	Losses in optical Fiber	Absorption losses, Scattering losses, Radiation losses, Connector losses, Bending losses, Dispersion: Types of dispersion and its effect on data rate. Testing of losses using OTDR.	do		
4.	33-37	Optical Source	Characteristics of light in OFC Principle of operation of LED	do		

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
5.	38-44	Optical Detector	Types of LED structures and description. Injection laser diode, principle of operation, different injection laser diode, Comparison of LED and ILD. Characteristics of photo detectors used in optical comm, PN photodiode PIN photo diode APD.			
6.	45-48	Optical Amplifier	Optical Amplifiers, Semiconductor and fiber optical Amplifier functional types. Principle of operation of SOA, types of SOA, FPA, TWA, SOA Applications, Adv. and disadvantages, Drawbacks			
7.	49-56	Optical fiber System N/W and Application	Fiber optical Amplifier, EDFA, Raman Amplifier			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

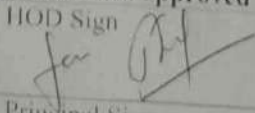
Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

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Date 01/08/2025	HOD Sign 
Date	Principal Sign 

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Additional sheets (if required)

Department: Electronics and Communication Laboratory
 Course: Diploma (5th)
 Subject: Optical Communication and Networking Lab

Sr. No.	Details of Practical	Availability of		Likely Turn/Date	Actual Date	Responsibility	HOD Sign.	Remarks
		Equipment Set up	STD Ref. Write up					
1	Setting up of fiber analog link.	Standard Kit	elwrite ups	G1 23/8 G2 13/8				
2	Setting up of optical digital link	do	do	G1 34/8 G2 20/8				
3	Measurement of bending losses in optical fibers.	do	do	G1 6/9 G2 3/9				
4	To measure and calculate numerical aperture of optical fiber	do	do	G1 20/9 G2 10/9				
5	To observe the characteristics of LED source and detector	Arduino Interfaced	do	G1 27/9 G2 17/9				
6	To demonstrate the splicing of optical fiber	Fusion splicer	do	G1 4/10 G2 24/9				
7	Demonstration of various components and tools used in optical fiber communication networking.	Tool Kit	do	G1 18/10 G2 1/10				

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GPK-F-17

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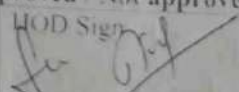
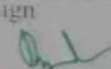
G P Kangra		Department: <u>ECE</u>	Subject <u>Renewable energy</u> <u>Technologies</u>			
		Course <u>Diploma</u>	Duration <u>3 years.</u>			
SYLLABUS COVERAGE		Total Periods <u>52</u>	Theory <u>52</u>			
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-8	Introduction	World energy use, Reserves of energy resources, Environmental aspect of Energy utilisation, Renewable energy Scenario in India and around the world, potential achievement / Applications, Economics of renewable energy system.	Energy Technologies by O. P. Gupta.		
2	9-18	Solar Energy	Solar radiation, Measurement Flat plate, Concentrating Collector Solar direct thermal Application. Solar thermal power generation. fundamental of Solar photovoltaic Conversion, Solar cells, Solar PV generation, Solar PV applications.	—do—		
3	19-30	Wind Energy	Wind data and Energy Estimation, Types of WES performance, Site selection, Details of Wind turbine generator Safety and Environmental aspect.	—do—		
4	31-40	Bio-Energy	Biomass direct Combustion Biomass gasification, Biogas plant, Digesters, Ethanol production, Biodiesel, Cogeneration, Biomass applications.	—do—		
5	41-56	Other Renewable Energy Sources.	Tidal Energy, Wave Energy, OTEC and Cycled OTEC cycles.	—do—		

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			Small Hydro - Geo thermal Energy, Hydrogen and storage, Fuel cell System, Hybrid system			

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Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

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Date 01/08/25	HOD Sign 
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Department: EC E
 Course: Diploma (5th)

Laboratory: Communication Engg.
 Subject: Mobile and Wireless Communication lab

Sr. No.	Details of Practical	Availability of		Likely Turn/Date	Actual Date	Responsibility	HOD Sign.	Remarks
		Equipment Set up	STD Ref. Write up					
1.	To understand the cellular frequency reuse concept to find Co-channel cells for particular cell.	Std Net, Simulation Video/ tool.	e-note wps	G1 22/8/25 G2 14/8/25				
2.	To understand path loss.	do	do	G1 29/8/25 G2 21/8/25				
3.	Understand path loss with shadowing.	do	do	G1 5/9/25 G2 28/8/25				
4.	Understanding the flat fading.	do	do	G1 12/9/25 G2 4/9/25				
5.	Understanding the frequency selective fading.	do	do	G1 19/9/25 G2 11/9/25				
6.	Understanding multipath channel for following objective 1. No fading. 2. Flat fading. 3. Dispersive fading.	do	do	G1 26/9/25 G2 18/9/25				
7.	To simulate a dipole antenna frequency using NEC2	do	do	G1 3/10/25 G2 25/9/25				

Approved/ Not approved

01/09/2028 - 01/09/21-

HOD Sign with date

Principal Signature with date

Department: Electronics and Communication Practical Planning & Coverage Status labs
 Course: Diploma (5th) Subject: Mobile and Wireless Communication labs

Sr. No.	Details of Practical	Availability of		Likely Turn/Date	Actual Date	Responsibility	HOD Sign.	Remarks
		Equipment Set up	STD Ref. Write up					
8.	Perform following experiment using CDMA thraxer bit and Demodulation <u>Ret.</u> (11) Bit Synchronisation extraction experiment. (111) Error Correction encoding experiment.	G1 10/10/25 17/10/15 G12 9/10/25 16/10/25						

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01/11/25

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01/11/25

PLANNED SYLLABUS COVERAGE(Theory)

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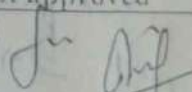
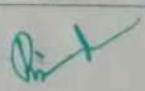
G P Kangra SYLLABUS COVERAGE		Department: <u>ECE</u>		Subject: <u>Industrial Automation</u>		
		Course: <u>Diploma</u>		Duration: <u>3 years</u>		
		Total Periods		Theory: <u>T-56, P-28</u>		
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
		Industrial Automation Overview	Industrial automation overview and data Acquisition system 1.2 Architecture of Industrial Automation system. 1.3 Measurement system characteristics. 1.4 Data Acquisition systems.			
		Control Generation	2.1 Introduction to Automatic control. 2.2 P-I-D Control 2.3 Feed forward control 2.4 Ratio Control 2.5 Branching operations based on conditions expression.			
		Sequence control and PLC	3.1 Introduction to sequence control. 3.2 PLC, RLL. 3.3 PLC Hardware environment.			

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended
		Industrial control Applications	4.1 Hydraulic control systems. 4.2 Pneumatic control systems. 4.3 Energy savings with variable speed drives. 4.4 Introduction to CNC Machines.		

Extra Topics to be covered beyond the scope of the syllabus (as required by industry recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended

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Date 01/08/2025	HOD Sign 
Date 01/08/2025	Principal Sign 

* Use additional sheets (if required).

Department:
Course:

Laboratory:
Subject:

Sr. No.	Details of Practical	Availability of		Likely Turn/Date	Actual Date	Responsibility	HOD Sign.	Remarks
		Equipment Set up	STD Ref. Write up					
1.	Develop a Data Acquisition system using Arduino	PLC Trainer Kit.	Trainer Kit Manual					
2.	Temp control system using PID.	PID Temp sens. kit.	-	-				
3.	Level control system based on 555s feedback system	Level control system	-	-				
4.	PLC programming using Relay Ladder logic for AND, OR, XOR & XNOR	PLC Trainer kit.	-	-				
5.	PLC, RLL programming using Cascade method.	PLC Trainer kit.	-	-				
6.	PLC timer counter register and analog I/P O/P functions.	PLC Trainer kit.	-	-				
7.	Variable speed drives of an Induction motor.	PLC with Induction motor kit	-	-				
8.	PLC/microcontroller based computer numerical control machine job completion.	PLC with CNC machine kit	-	-				

Approved/Not approved

HOD Sign with date

Principal Signature with date

01-08-2025

GP Kangra

TRAINING PROCESS ADEQUACY
FACULTY REPORT

1 Department Electronics & Communication Engg.
Teacher's Name Raman Kumar
Course Program Core Duration 6 months From 04/08/25 To 26/11/2025
Subject Embedded System Total no of period 56 (Th) + 42 (Pr)

2 Report:

- Delivery needs: - Adequate/ Less then adequate (give details)
- Improvements recommended-

Date 01-08-2025

Raman Kumar
Faculty/ Instructor

3 Comments and recommendation:

Date 01/8/2025

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HOD

4 Decision /directions:

Date _____

[Signature]
Principal

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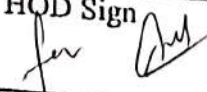
G1		Department: <u>ECE</u>		Subject <u>Embedded System</u>		
Kaigra		Course <u>Program Core</u>		Duration <u>6 months</u>		
SYI ABUS CO\ RAGE		Total Periods <u>56 (Th) + 42 (R)</u>		Theory <u>56</u>		
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	1-14	Unit - I	Embedded C Basics operators for Arduino, Familiarizing with the Arduino IDE, Sketch designing for Arduino, Comm. interface using serial port, Basic understanding of the code with Boolean operators, Pointer Access operations, Bit-wise operations, Compounded operations.	arduino.cc	Tutorialpoint.com	
2.	15-28	Unit - II	Embedded C control structure blocks, Looping Mechanism - for, do and while. The branching operations based on conditions expression.	do -	do -	
3.	29-42	Unit - III	Introduction to Arduino Mega, Arduino mega specifications including power rating, digital & analog peripherals, Difference b/w C language & Embedded C language, Arduino mega ports, Pins, Digital and Analog peripherals.	do -	do -	
4.	43-56	Unit - IV	Comm. with Arduino, different Communication modules available with their real time applications, Communication Interface.	do -	do -	

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Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

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Date 01/08/2015	HOD Sign 
Date	Principal Sign 

Use additional sheets (if required).

G P Kangra

GPK-F-18

Practical Planning & Coverage Status

Department: ECE
Course: Program CoreLaboratory:
Subject: Embedded System Lab

Sr. No.	Details of Practical	Availability of		Likely Turn/Date	Actual Date	Responsibility	HOD Sign.	Remarks
		Equipment Set up	STD Ref. Write up					
1.	Built-in LED state control by push button sketch implementation.							
2.	Built-in LED blinking sketch implementation. OR Built-in LED blinking by toggling states based on binary operation.							
3.	Built-in LED state control by user interface through serial port.							
4.	User interface for Boolean operation and bitwise operation through serial port.							
5.	User interface for Boolean compound operation through serial port.							
6.	Looping mechanism to check the state of pin & if change print its status on serial port.							
7.	Controlling multiple LED's with a loop and an array.							
8.	Use a potentiometer to control the blinking of an LED.							
9.	Uses an analog output (PWM pin) to fade an LED.							
10.	Servo Motor Control using PWM.							

Approved/ Not approved

for 1/8/25

for

G P Kangra
Practical Planning & Coverage Status
Laboratory

GPK-F-18

Laboratory:

Subject: Embedded system Lab

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Approved/ Not approved

for the
T/8/25

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