

**PNS School of Engg. & Tech, Marshaghai, Kendrapara****LESSON PLAN**  
**Session (2024-2025)**

<b>Discipline:</b> Computer Science & Engineering		<b>Semester:</b> 4 <sup>th</sup>	<b>Name of the faculty:</b> Biswaranjan Swain
<b>Subject:</b> Data Communication & Computer Networks (Th2)		<b>No. of Days/week:</b> 05	<b>Start Date:</b> 04/02/2025
			<b>End Date:</b> 17/05/2025
<b>Week</b>	<b>Class Day</b>	<b>Theory Topics</b>	
1 <sup>st</sup>	1 <sup>st</sup>	<b>1. Network &amp; Protocol</b> Introduction	
	2 <sup>nd</sup>	Data Communication	
	3 <sup>rd</sup>	Network characteristics	
	4 <sup>th</sup>	Types of network	
	5 <sup>th</sup>	Protocol & Architecture, Standards	
2 <sup>nd</sup>	1 <sup>st</sup>	OSI model	
	2 <sup>nd</sup>	OSI model	
	3 <sup>rd</sup>	TCP/IP	
	4 <sup>th</sup>	TCP/IP	
	5 <sup>th</sup>	<b>2. Data Transmission &amp; Media</b> Data transmission Concepts and Terminology	
3 <sup>rd</sup>	1 <sup>st</sup>	Analog transmission	
	2 <sup>nd</sup>	Digital Data transmission	
	3 <sup>rd</sup>	Digital Data transmission	
	4 <sup>th</sup>	Transmission impairments, Channel capacity	
	5 <sup>th</sup>	Transmission media, Guided Transmission	
4 <sup>th</sup>	1 <sup>st</sup>	Guided Transmission	
	2 <sup>nd</sup>	Wireless Transmission	
	3 <sup>rd</sup>	<b>3. Data Encoding</b> Introduction to encoding techniques	

	4 <sup>th</sup>	Digital data to digital signals
	5 <sup>th</sup>	Line coding, Uni-polar , polar, bipolar
5 <sup>th</sup>	1 <sup>st</sup>	Block coding and scrambling
	2 <sup>nd</sup>	Digital data to analog signals, Amplitude shift keying (ask)
	3 <sup>rd</sup>	Frequency shift keying (fsk), Phase shift keying (psk)
	4 <sup>th</sup>	Analog data to digital signals,
	5 <sup>th</sup>	Sampling, Quantization, Encoding
6 <sup>th</sup>	1 <sup>st</sup>	Analog data to analog conversion, Amplitude modulation
	2 <sup>nd</sup>	Frequency modulation, Phase modulation
	3 <sup>rd</sup>	<b>4. Data Communication &amp; Data link control</b> Asynchronous and Synchronous Transmission
	4 <sup>th</sup>	Error detection, Simple parity check,
	5 <sup>th</sup>	Two-dimensional parity check, Check sum
7 <sup>th</sup>	1 <sup>st</sup>	Cyclic redundancy check, Line configuration
	2 <sup>nd</sup>	Error correction (hamming code), Flow control
	3 <sup>rd</sup>	Stop and wait, Sliding window, Error control, Stop and wait arq
	4 <sup>th</sup>	Two-dimensional parity check, Check sum
	5 <sup>th</sup>	Multiplexing
8 <sup>th</sup>	1 <sup>st</sup>	FDM synchronous TDM,
	2 <sup>nd</sup>	Statistical TDM
	3 <sup>rd</sup>	<b>5. Introduction to Switching &amp; Routing</b> Introduction to switching techniques, Circuit switching
	4 <sup>th</sup>	Packet switching, Datagram packet switching
	5 <sup>th</sup>	Virtual circuit switching
9 <sup>th</sup>	1 <sup>st</sup>	X.25 protocol, X.25 structure, Layer of x.25
	2 <sup>nd</sup>	Routing in packet switching network
	3 <sup>rd</sup>	Introduction to congestion, Effects of congestion
	4 <sup>th</sup>	Congestion control, Open loop & close loop, Traffic
	5 <sup>th</sup>	Congestion control in packet switching

10 <sup>th</sup>	1 <sup>st</sup>	<b>6. LAN Technology</b> Introduction to topology & various types of topologies
	2 <sup>nd</sup>	LAN architecture,
	3 <sup>rd</sup>	Medium access control
	4 <sup>th</sup>	Network devices, Repeater, Hub, Bridge
	5 <sup>th</sup>	Switch, Router, Gateway,
11 <sup>th</sup>	1 <sup>st</sup>	Ethernet, Types of ethernet networks
	2 <sup>nd</sup>	CSMA, CSMA/CA,
	3 <sup>rd</sup>	CSMA/CD
	4 <sup>th</sup>	Fiber channel, Wireless LAN Technology..
	5 <sup>th</sup>	<b>7. TCP/IP</b> TCP/IP Protocol Suite, Basic Protocol functions
12 <sup>th</sup>	1 <sup>st</sup>	Principles of Internetworking
	2 <sup>nd</sup>	Internet Protocol operations
	3 <sup>rd</sup>	Internet Protocol operations
	4 <sup>th</sup>	Internet protocol -ip addressing
	5 <sup>th</sup>	Internet protocol-ip services &

*Biswaranjan Swain*

SIGNATURE OF LECTURER

*Biswaranjan Swain*

SIGNATURE OF H.O.D