Lesson Plan No. 1	Course Name: Computer Network Topic: Fundamentals of Communication	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	
	    a. Articulate the concept of fundamentals of communication.
	    b. To study the basic taxonomy and terminology of the computer networking model and architecture

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    - Ask questions.
	        What are the Fundamental of communication?
	        How data is Represented?
	
	2. **Development** (30 minutes)
	    • Overview of Fundamentals of Communication
	    • Overview of Fundamental Characteristics
	    • About Components
	        ▪ Message
	        ▪ Sender
	        ▪ Receiver
	        ▪ Transmission medium
	        ▪ Protocol
	    • About Data Representation
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	    https://nptel.ac.in/courses/106105183
	3. Homework
	    a) Explain the fundamental components of datacommunication?
	    b) Write the characteristics of communication
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Fundamentals of Communication Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2	Course Name: Computer Network Topic: Modulation	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of data flow.
	   b. Understand the concept of modularity
	   c. Appreciate the advantages of data flow and its associated challenges.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   - Ask questions.
	        Pertaining to Data Flow Characteristics, Modularity
	
	2. **Development** (30 minutes)
	   • Overview of Data Flow
	       • Simplex
	       • Half-Duplex
	       • Full-Duplex
	   • Overview of Modulation
	       • Amplitude modulation (AM)
	       • Frequency modulation (FM)
	       • Phase modulation (PM)
	
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	   https://www.youtube.com/watch?v=S8Jod9AtpN4
	   https://archive.nptel.ac.in/courses/108/104/108104091/
	3. Homework
	      a) What is modulation?
	      b) Explain Quadrature Amplitude Modulation with a constellation diagram?
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Data Flow and Modularity Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 3	Course Name: Computer Network Topic: OSI Reference Model	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. Articulate the concept of OSI reference model b. Appreciate the advantages of OSI reference model and its associated challenges.
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions.
	      ▪ How do devices send and receive data or communicate?
	      ▪ What protocols are followed between the two devices?
	2. **Development** (30 minutes)
	  Overview of OSI Reference Model
	  Characteristics of OSI Model
	  Functions of the OSI Layers
	    ▪ Physical layer
	    ▪ Data-Link Layer
	    ▪ Network Layer
	    ▪ Transport Layer
	    ▪ Session Layer
	    ▪ Presentation Layer
	    ▪ Application Layer
	  Its Function and Advantages and Disadvantages
	3. **Exercise** (5 minutes) –
	  Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	  https://www.youtube.com/watch?v=8BK70UDgyrc&list=PLbRMhDVUMngf-peFloB7kyiA40EptH1up&index=5
	3. Homework
	  • Explain briefly the responsibilities of each layer in the OSI model?
	  • Describe the function of each layer in the OSI model
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on OSI Reference Model Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4	Course Name: Computer Network Topic: TCP/IP model	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of TCP/IP Model
	   b. Appreciate the advantages of TCP/IP Model and its associated challenges.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   - Ask questions.
	      ▪ OSI layers
	2. **Development** (30 minutes)
	   Overview of TCP/IP Model
	   Characteristics of TCP/IP Model
	   Functions of the TCP/IP Layers
	      ▪ Physical layer
	      ▪ Data-Link Layer
	      ▪ Network Layer
	         • User Datagram Protocol
	         • Transmission control protocol
	      ▪ Transport Layer
	         • IP Protocol
	         • ARP Protocol
	         • ICMP Protocol
	      ▪ Application Layer
	   Its Function and Advantages and Disadvantages
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	   https://www.youtube.com/watch?v=zzXs0EnCin0
	3. Homework
	   Describe the function of each layer in the TCP/IP model
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on OSI Reference Model Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 5	Course Name: Computer Network Topic: Transmission Impairment	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. Articulate the concept of Transmission Impairment b. Analyze the various reasons of degradation in the signal
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	Ask questions.
	    What are the various reasons of degradation in the signal **?**
	2. **Development** (30 minutes)
	    Overview of Transmission Impairment
	      • Attenuation
	      • Distortion
	      • Noise
	    Numerical solving on above topic
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	    https://www.youtube.com/watch?v=WRgJKeGIz6A&t=2099s
	3. Homework
	    Explain various types of transmission Impairment
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on transmission Impairment Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 6	Course Name: Computer Network Topic: Guided Transmission Media	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. Articulate the concept of Guided Transmission Media
	  b. Analyze the advantages of various Guided Transmission media and its associated challenges.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	        What is Guided Transmission?
	        How many types of media are required to transmit data?
	2. **Development** (30 minutes)
	    Types of Guided Transmission Media
	        • Twisted pair,
	        • Coaxial cable and
	        • fiber optics
	    Its Function and Advantages and Disadvantages
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	      https://www.youtube.com/watch?v=hjVNKeVdKcs
	3. Homework
	    What type of cabling out of twisted pair, coaxial cable and fiber optics is suitable for LAN in the department? Justify your answer
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Guided Transmission Media Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 7	Course Name: Computer Network Topic: Unguided Transmission Media	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of Unguided Transmission Media
	   b. Analyze the advantages of various Unguided Transmission media and its associated challenges.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	      What is Unguided Transmission?
	      How many types of media are required to transmit data?
	2. **Development** (30 minutes)
	   Types of Unguided Transmission Media
	       • Radio waves,
	       • Infra-red waves
	       • Microwaves,
	       • Satellites
	   Its Function and Advantages and Disadvantages
	
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	      https://www.youtube.com/watch?v=Gk9jpUNBYXg
	3. Homework
	   Discuss various types of Unguided Transmission Media
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Unguided Transmission Media Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 8	Course Name: Computer Network Topic: Switching Technique	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. Articulate the concept of the Switching technique
	  b. Analyze the advantages of the Switching technique and its associated challenges.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	       What is a packet?
	       Define message
	       What is a switch?
	2. **Development** (30 minutes)
	    Overview of Switching techniques
	        ▪ Circuit Switching
	            • Space Division Switches
	            • Multistage Switch
	        ▪ Message Switching
	        ▪ Packet Switching
	    Overview of Network Standardization
	    Overview of Electromagnetic Spectrum and Satellites
	        • Geosynchronous Earth Orbit
	        • Geo-stationary Earth Orbit
	        • Medium Earth Orbit
	        • Low Earth Orbit
	    Advantages and Disadvantages
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	      https://www.youtube.com/watch?v=yZV3y-usK_g
	      https://www.youtube.com/watch?v=SaQ3RhRVT6c
	3. Homework
	    • What are the two approaches to packet switching?
	    • Describe the need for switching and define a switch?
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Switching technique, Electromagnetic Spectrum and Satellites Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 9	Course Name: Computer Network Topic: Data Encoding	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	    a. Articulate the concept of the various Data Encoding techniques
	    b. Analyze the process of using various patterns of voltage.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	     What is encoding?
	    Define decoding
	2. **Development** (30 minutes)
	    Explanation on the common types of line encoding:
	    Unipolar,
	    Polar,
	    Bipolar, and
	    Manchester
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	     https://www.youtube.com/watch?v=ifgs0uypC78&list=PL8BF3052396E05930&index=9
	3. Homework
	    Draw line encoding patterns for **Unipolar, Polar, Bipolar, and Manchester**
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Data encoding techniques by drawing patterns Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 10	Course Name: Computer Network Topic: Error detection & Correction	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. Articulate the concept of the Datalink Layer b. Appreciate the advantages of the Datalink Layer and its associated challenges c. Understand the concept of error detection and error correction techniques
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	 Ask questions.
	     Role of Datalink Layer
	     What is an Error?
	 2. **Development** (30 minutes)
	 • Overview of Data Link Layer
	     ▪ Services
	 • Overview of Error Detection
	     • Single parity check
	     • Two-dimensional parity check
	     • Checksum
	     • Cyclic redundancy check
	 • Advantages and Disadvantages
	 • Overview of Error Correction
	     ▪ Hamming Code
	 3. **Exercise** (5 minutes) –
	 Use Google forms and the Near pod tool for quizzes based on the above topic
	 Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework Discuss the concept of redundancy in error detection and correction? Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Error detection and Error Correction Techniques Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 11	Course Name: Computer Network Topic: Elementary Data link protocols	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of the Flow Control
	   b. To study the fundamentals of data link protocols
	   c. Understand the various types of Data link protocols

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	      Role of Datalink Layer
	      What is an Error?
	2. **Development** (30 minutes)
	   • Overview of Data Link protocols
	      ▪ Various types
	      Noiseless channels
	         • Simplest
	         • Stop & wait
	      Noisy channels
	         • Stop & wait ARQ
	         • Go Back N ARQ
	         • Selective Repeat ARQ
	   • Advantages and Disadvantages
	
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	      https://nptel.ac.in/courses/106105183
	3. Homework
	   • Discuss noiseless protocol?
	   • Explain what is stop and wait ARQ?
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Data Link protocols Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 12	Course Name: Computer Network Topic: Channel allocation methods	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. Articulate the concept of the Channel allocation methods
	  b. To study the various types of Channel allocation methods

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	     Flow Control Techniques
	2. **Development** (30 minutes)
	  • Channel Allocation Problem
	     ▪ Static Channel Allocation
	     ▪ Dynamic Channel Allocation
	  • Advantages and Disadvantages
	
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	     https://nptel.ac.in/courses/106105183
	3. Homework
	  • Compare n contrast between the two types of channel allocation methods.
	 Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Channel allocation methods Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 13	Course Name: Computer Network Topic: Random Access Protocol	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of the multiple access protocol
	   b. To study the fundamentals of data communication and protocols
	   c. Appreciate the advantages of multiple access protocols and its associated challenges.

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	     Flow Control Techniques
	2. **Development** (30 minutes)
	   • Overview of Multiple Access Protocol
	   • About Random Access Protocol
	      • ALOHA
	      • CSMA
	      • CSMA/CA
	      • CSMA/CD
	   ▪ About Controlled Access Protocol
	      ▪ Reservation
	      ▪ Polling
	      ▪ Token Passing
	   ▪ About Channelization Protocol
	      ▪ TDMA,FDMA,CDMA
	   • Advantages and Disadvantages
	
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Suggested NPTEL Video lecture
	   https://nptel.ac.in/courses/106105183
	3. Homework
	   • Define controlled access and list three protocols in this category?
	   • Define random access and list three protocols in this category?
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. Nearpod Quiz on Random Access Protocol Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 14	Course Name: Computer Network Topic: IEEE standard 802 for LANS	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. To study the various IEEE standard 802 for LANS
	   b. Articulate the concept of ethernet

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	      What is LAN?
	2. **Development** (30 minutes)
	   • Various IEEE standard 802 for LANs
	   • Introduction on Ethernet
	   • IEEE 802.3 Popular Versions
	   • Frame format of Ethernet
	
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	     https://nptel.ac.in/courses/106105183
	
	3. Homework
	   a. Discuss IEEE standard 802 for LANs
	   b. What is the Frame format of 802.3?
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Ethernet Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 15	Course Name: Computer Network Topic: IEEE standard 802 for LANS	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	    a. To study the concept of Token Ring
	    b. Understand the concept of Token Bus

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	        What is Ethernet?
	        IEEE standard 802 for LANs?
	2. **Development** (30 minutes)
	            Token Bus
	        • Introduction on Token Bus
	        • Organisation of Token Bus
	            Token Ring
	        • Introduction on Token Ring
	        • Various types of Token Ring
	
	3. **Exercise** (5 minutes) –
	        Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	        https://nptel.ac.in/courses/106105183
	
	3. Homework
	        a. Discuss organization of Token Bus
	        b. What are types of Token Ring?
	
	    Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Token Bus & Token Ring Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 16	Course Name: Computer Network Topic: Network Establishment Concepts	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the role of Network Layer b. Articulate the concept of Connection less and connection-oriented Services
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. What is the role of Network layer ? Services offered by Network layer? 2. **Development** (30 minutes) • Overview of Network layer • Explain Connection less Services • Explain Connection-oriented Services 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework a. Differentiate between connectionless and connection-oriented services? b. Differentiate between Adaptative and Non-Adaptative services? Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Network layer Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 17	Course Name: Computer Network Topic: Switching Techniques	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. To study the role of Switching techniques
	  b. Articulate the various types switching techniques

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	        What is the role of switch?
	2. **Development** (30 minutes)
	    • Introduction of Switching Techniques
	    • Explain types of switching techniques:
	        • Circuit switching
	        • Message switching
	        • Packet switching
	    • Advantages & disadvantages:
	        • Circuit switching
	        • Message switching
	        • Packet switching
	3. **Exercise** (5 minutes) –
	     Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	        https://nptel.ac.in/courses/106105183
	
	3. Homework
	            a. Explain types of Switching Techniques
	            b. Discuss the advantage & disadvantage of each of the switching technique
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Switching Techniques Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 18	Course Name: Computer Network Topic: Flooding	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the role of Routing Protocol b. Articulate the various types Flooding
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. What is the role of Router? 2. **Development** (30 minutes) Introduction of Flooding Explain types of Flooding: ▪ Uncontrolled flooding ▪ Controlled flooding ▪ Selective flooding Advantages & disadvantages Example for explanation 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework Explain types of Flooding Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Flooding Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 19	Course Name: Computer Network Topic: Link State Routing	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of Link State Routing b. Articulate the various phases of Link State Routing
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. What is the role of Routing algorithm? 2. **Development** (30 minutes) • Introduction of Link State Routing • Explain various phases of Link State Routing: • Phase 1: reliable flooding • Phase 2 : Route calculation • Advantages & disadvantages • Example/numerical 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework a. Explain Phases of Link State Routing b. Discuss the advantage & disadvantage for Link State Routing Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Link State Routing Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 20	Course Name: Computer Network Topic: Shortest path Routing	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of Shortest Path Routing b. Understand the Dijkstra's method finding shortest route
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	       What is the role of Routing algorithm?
	 2. **Development** (30 minutes)
	     • Introduction of Shortest Path Routing
	     • Explain the method of finding shortest route
	       • Dijkstra's algorithm
	     • Advantages & disadvantages
	     • Example/numerical
	 3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	 Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	 2. Suggested NPTEL Video lecture
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	 3. Homework
	       Explain Dijkstra's algorithm
	
	 Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Shortest Path Routing Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 21	Course Name: Computer Network Topic: Distance Vector Routing	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of Distance Vector Routing b. Understand the method of finding least cost path
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	      What is the role of Routing algorithm?
	2. **Development** (30 minutes)
	   • Introduction of Distance Vector Routing
	   • Explain the method of finding least cost path
	   • Advantages & disadvantages
	   • Example/numerical
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	   https://nptel.ac.in/courses/106105183
	
	3. Homework
	   • Explain Distance Vector Routing
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Distance Vector Routing Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 22	Course Name: Computer Network Topic: Hierarchical Routing	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. To study the concept of Distance Vector Routing
	   b. Understand the method of finding least cost path

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	     What is the role of Routing algorithm?
	2. **Development** (30 minutes)
	    • Introduction of Distance Vector Routing
	    • Explain the method of finding least cost path
	    • Advantages & disadvantages
	    • Example/numerical
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
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	3. Homework
	    • Explain Distance Vector Routing
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2 Nearpod Quiz on Distance Vector Routing Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 23	Course Name: Computer Network Topic: Multicast & Broadcast Routing	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of Multicast Routing b. Understand the method of Broadcast Routing
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. What is the role of Routing algorithm? 2. **Development** (30 minutes) • Introduction of Broadcast Routing • Discussion on several methods in Broadcast Routing: a. Multi destination b. Flooding c. Reverse Path flooding • Explanation on the concept of Multicast Routing • One Example each • Comparison on Multicast & Broadcast Routing 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework Comparison on Multicast & Broadcast Routing Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Multicast & Broadcast Routing Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 24	Course Name: Computer Network	Course No.: PSCSATC-222
	Topic: OSPF Routing Protocol	

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of OSPF Routing Protocol b. Understand the working of OSPF c. Articulate the various types of OSPF and frame format
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	Ask questions.
	 • Define protocol.
	 • What is the role of Routing protocols?
	
	2. **Development** (30 minutes)
	 • Introduction of OSPF Routing Protocol
	 • Discussion on working of OSPF
	 • Explain the various types of OSPF
	  ○ Point to Point
	  ○ Transient link
	  ○ Stub link
	  ○ Virtual Link
	 • Explanation on various packets in OSPF
	 • Description of the frame format in OSPF
	3. **Exercise** (5 minutes) –
	 Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework • Explain the various types of OSPF • Discuss various packets in OSPF Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. Nearpod Quiz on OSPF Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 25	Course Name: Computer Network Topic: BGP	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of BGP b. Understand the working of BGP c. Articulate the various types BGP sessions, Packets & frame format
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. - Define OSPF Routing Protocol - What is the role of OSPF Routing Protocol 2. **Development** (30 minutes) - Introduction of BGP Routing Protocol - Discussion on working of BGP Routing Protocol - Explain the various types of Autonomous Systems - Stub AS - Multihomed AS - Transient AS - Explanation on various packets in BGP - Discuss two BGP sessions: - Internal Session - External Session - Description of the frame format in BGP 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework - Explain the various types of BGP sessions - Discuss various packets in BGP Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on BGP Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 26	Course Name: Computer Network Topic: BGP	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. To study the concept of BGP
	   b. Understand the working of BGP
	   c. Articulate the various types BGP sessions, Packets & frame format

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	   Ask questions.
	       • Define OSPF Routing Protocol
	       • What is the role of OSPF Routing Protocol
	
	2. **Development** (30 minutes)
	       • Introduction of BGP Routing Protocol
	       • Discussion on working of BGP Routing Protocol
	       • Explain the various types of Autonomous Systems
	           ○ Stub AS
	           ○ Multihomed AS
	           ○ Transient AS
	       • Explanation on various packets in BGP
	       • Discuss two BGP sessions:
	           ○ Internal Session
	           ○ External Session
	       • Description of the frame format in BGP
	3. **Exercise** (5 minutes) –
	   Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	    https://nptel.ac.in/courses/106105183
	
	3. Homework
	       • Explain the various types of BGP sessions
	       • Discuss various packets in BGP
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on BGP Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 27	Course Name: Computer Network Topic: Congestion Control	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To study the concept of Congestion control b. Understand the two mechanisms of Congestion control
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	 Ask questions.
	 • Define traffic
	 • What is congestion?
	 2. **Development** (30 minutes)
	 • Introduction of congestion control
	 • Discussion on mechanisms of congestion control
	      o Open loop
	          o Retransmission Policy
	          o Window Policy
	          o Acknowledgement Policy
	          o Admission Policy
	      o Closed loop
	          o Back Pressure
	          o Choke Pressure
	          o Implicit Signaling
	          o Explicit Signaling
	 3. **Exercise** (5 minutes) –
	 Use Google forms and the Near pod tool for quizzes based on the above topic
	 Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework • Explain the various types of controlling congestion • Discuss Open loop concept • Explain closed loop congestion control Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on congestion control Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 28	Course Name: Computer Network	Course No.: PSCSATC-222
	Topic: Congestion Control algorithm	

Objectives	At the end of the lesson the student shall be able to: a. Articulate the concept of Congestion b. Understand the advantages of Congestion and its associated challenges. c. Analyze the two algorithms used in congestion control
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	Ask questions.
	• Define traffic
	• What is congestion?
	2. **Development** (30 minutes)
	• Introduction
	• Discussion on congestion control algorithms:
	    o Leaky Bucket Algorithm
	    o Token Bucket Algorithm
	
	3. **Exercise** (5 minutes) –
	Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework • Discuss congestion control algorithms • Compare Leaky Bucket & Token Bucket Algorithm Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on congestion control Algorithms. Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 29	Course Name: Computer Network Topic: IP Addresses, classes of IP addresses	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. Articulate the concept of TCP/IP b. Articulate the concept of IP Addresses, classes of IP addresses c. To study network design and performance issues
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. • Recall role of TCP/IP 2. **Development** (30 minutes) ▪ Overview of IP address ▪ Types of IP address ○ Public, ○ Private, ○ Static ○ Dynamic. • Version of IP address ○ IPV4 ○ IPV6 • Overview of Network • Classful Addressing ○ Class A ○ Class B ○ Class C ○ Class D ○ Class E • Examples 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework • What is an IP address? Briefly explain classes of IP addresses. • Differentiate between IPv4 and IPv6? Spend 5 minutes to wrap up and consolidate the learnings

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Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on IP addresses Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 30	Course Name: Computer Network Topic: IPv6	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. Articulate the concept of IPv6 b. Understand the packet format of IPv6
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz
Teaching Development	1. **Introduction** (5 minutes) Ask questions. • Recall role of IP address 2. **Development** (30 minutes) ▪ Overview of IPv4 ▪ Packet format of IPv6 ▪ Comparison between IPv4 & IPv6 3. **Exercise** (5 minutes) – Use Google forms and the Near pod tool for quizzes based on the above topic Use Nearpod to collect responses and discuss the answers.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested NPTEL Video lecture https://nptel.ac.in/courses/106105183 3. Homework a. What is IPV6? Explain IPv6 in detail? b. Draw the comparison between IPv4 & IPv6 Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on IPv6. Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 31	Course Name: Computer Network Topic: ARP, RARP	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. Articulate the concept of ARP
	  b. Understand the working of RARP
	  c. Analyze the comparison between ARP and RARP

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	      • Recall role of IP address
	      • What is Physical address?
	2. **Development** (30 minutes)
	      ▪ Introduction of ARP
	      ▪ Explanation on how ARP works
	      ▪ Steps taken by ARP protocol
	      ▪ Introduction of RARP
	      ▪ Explanation on how RARP works
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	    https://nptel.ac.in/courses/106105183
	
	3. Homework
	    a. What is ARP? Explain working of ARP in detail
	    b. Draw the comparison between ARP & RARP
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on ARP & RARP. Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 32	Course Name: Computer Network Topic: BOOTP, DHCP	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of BOOTP
	   b. Understand the working of DHCP
	   c. Analyze the comparison between BOOTP and DHCP

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	     Ask questions.
	       • Recall role of ARP
	       • What is RARP?
	2. **Development** (30 minutes)
	       ▪ Introduction of BOOTP
	       ▪ Explanation on how BOOTP works
	       ▪ Limitations of BOOTP
	       ▪ Introduction of DHCP
	       ▪ Explanation on how DHCP works
	       ▪ Comparison of BOOTP & DHCP
	
	3. **Exercise** (5 minutes) –
	     Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	     https://nptel.ac.in/courses/106105183
	
	3. Homework
	   a. What is BOOTP? Explain working of BOOTP in detail
	   b. Draw the comparison between BOOTP & DHCP
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on BOOTP & DHCP Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 33	Course Name: Computer Network Topic: TCP, UDP	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. Articulate the Segment format of TCP b. Understand the datagram format of UDP c. Analyze the comparison between TCP & UDP
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	     Ask questions.
	       • Applications of transport layer
	 2. **Development** (30 minutes)
	     ▪ Introduction of TCP
	     ▪ Explanation on TCP segment format
	     ▪ Introduction of UDP
	     ▪ Explanation on UDP datagram format
	     ▪ Comparison of TCP & UDP
	
	 3. **Exercise** (5 minutes) –
	     Use Google forms and the Near pod tool for quizzes based on the above topic
	 Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	 2. Suggested NPTEL Video lecture
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	 3. Homework
	     a. What is TCP? Explain TCP segment format
	     b. Draw the comparison between TCP & UDP
	
	 Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on TCP & UDP Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 34	Course Name: Computer Network Topic: Socket Programming	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. Articulate the concept of socket
	   b. Understand the importance of Socket programming

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	      • Applications of transport layer
	2. **Development** (30 minutes)
	      ▪ Introduction of socket programming
	      ▪ Stages for server
	      ▪ Stages for client
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	    https://nptel.ac.in/courses/106105183
	
	3. Homework
	   a. What is socket? Explain socket programming with block diagram
	   b. Discuss various stages of socket programming
	
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on socket programming Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 35	Course Name: Computer Network Topic: Telnet, FTP, SMTP, MIME, WWW, HTTP	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. Articulate the concept of Telnet, FTP, SMTP, MIME, WWW, HTTP
	  b. Understand the importance of Telnet, FTP, SMTP, MIME, WWW, HTTP

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	      • Recall TCP/IP protocols
	2. **Development** (30 minutes)
	    Explanation on:
	      ▪ Telnet
	      ▪ FTP
	      ▪ SMTP
	      ▪ MIME
	      ▪ WWW
	      ▪ HTTP
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	    https://nptel.ac.in/courses/106105183
	
	3. Homework
	    a. Explain the importance of Telnet, FTP, SMTP, MIME, WWW, HTTP
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Telnet, FTP, SMTP, MIME, WWW, HTTP Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 36	Course Name: Computer Network Topic: Cryptography	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	   a. To study the concept of cryptography
	   b. To understand what its components & features are
	   c. To articulate its two types

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	     • Recall encryption
	     • What is Decryption?
	2. **Development** (30 minutes)
	     • Introduction on cryptography
	     • Components of cryptography
	     • Features of cryptography
	     • Types:
	       • Symmetric key
	       • Asymmetric key
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	    https://nptel.ac.in/courses/106105183
	
	3. Homework
	   a. Define cryptography. Discuss its components and its types
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Cryptography Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 37	Course Name: Computer Network	Course No.: PSCSATC-222
	Topic: Data Encryption Standard	

Objectives	At the end of the lesson the student shall be able to: a. To understand the concept of Data Encryption Standard b. To learn about the steps of DES
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	  Ask questions.
	    • Recall Cryptography
	2. **Development** (30 minutes)
	    • Introduction on DES
	    • Steps of DES
	    • Initial & Final permutation
	
	3. **Exercise** (5 minutes) –
	  Use Google forms and the Near pod tool for quizzes based on the above topic
	
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	  https://nptel.ac.in/courses/106105183
	
	3. Homework
	  a. Discuss DES and its operation
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Data Encryption Standard Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 38	Course Name: Computer Network	Course No.: PSCSATC-222
	Topic: Advanced Encryption Standard	

Objectives	At the end of the lesson the student shall be able to:
	   a. To understand the concept of Advanced Encryption Standard
	   b. To learn about the steps of AES

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	       • Recall Cryptography
	       • Recall DES
	2. **Development** (30 minutes)
	       • Introduction on AES
	       • Operation of AES
	       • Encryption process
	       • Decryption process
	
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	      https://nptel.ac.in/courses/106105183
	
	3. Homework
	    a. Discuss AES and its operation
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Advanced Encryption Standard Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 39	Course Name: Computer Network Topic: RSA	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to:
	  a. To understand the concept of RSA
	  b. To learn about the algorithm of RSA

Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	        Ask questions.
	             • Recall Cryptography
	             • Recall DES, AES
	2. **Development** (30 minutes)
	             • Introduction on RSA
	             • Discussion on algorithm of RSA
	
	3. **Exercise** (5 minutes) –
	        Use Google forms and the Near pod tool for quizzes based on the above topic
	
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	        https://nptel.ac.in/courses/106105183
	
	3. Homework
	        a. Discuss RSA and its algorithm
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on RSA Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 40	Course Name: Computer Network Topic: Key Exchange Method	Course No.: PSCSATC-222

Objectives	At the end of the lesson the student shall be able to: a. To understand the concept of Key Exchange method b. To learn about the algorithm of Key Exchange method
Teaching Aids (if any)	a. Power point presentation b. Use of Near pod tool for online quiz

Teaching Development	1. **Introduction** (5 minutes)
	    Ask questions.
	        • Recall Cryptography
	        • Recall DES, AES
	2. **Development** (30 minutes)
	        • Introduction on Key Exchange method
	          Discussion on algorithm of Key Exchange method
	3. **Exercise** (5 minutes) –
	    Use Google forms and the Near pod tool for quizzes based on the above topic
	
	Use Nearpod to collect responses and discuss the answers.

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	
	2. Suggested NPTEL Video lecture
	        https://nptel.ac.in/courses/106105183
	
	3. Homework
	    a. Discuss Key Exchange method and its algorithm
	Spend 5 minutes to wrap up and consolidate the learnings

Evaluation	1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. 2. Nearpod Quiz on Key Exchange method Spend 5 minutes to evaluate student assimilation of the lesson contents

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