Department of ECE

Details of Lesson Plan

S.No.	Particulars	Details
1.	Course Name	Network Synthesis & Analysis
2.	Course Code	ECE -303
3.	Academic Year	2024 -2025
4.	Semester	3rd
5.	Number of Lesson plans	30
6.	Faculty Assigned	Dr. Satyendra Kumar Singh

Faculty Signature

Lesson Plan No. 1.a	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Introduction of IoT	

Objectives	At the end of the lesson the student shall be able to: a. Understand the Introduction of IoT b. Illustrate the State of the Art, Architecture of IoT
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions about Architecture of IoT
	  - Ask questions about Arduino simulation environment
	  - Ask questions about interfacing of sensor & actuators
	  - Ask questions about basic networking with Wi-Fi module
	  - Ask questions about IoT applications and cloud platforms
	
	2. **Development** (30 minutes)
	  a. Explain the IoT architecture
	
	  b. Explanation of Arduino simulation environment
	
	  c. Explanation interfacing of sensor & actuators
	
	  d. Explain the basic networking with Wi-Fi module
	
	  e. IoT applications and cloud platforms
	
	  f. Recent applications of IoT
	
	3. **Exercise** (5 minutes) –
	  Ask students to explain the IoT architecture
	
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	https://docs.google.com/document/d/1TloJqC945U9_vajm-nzj1Cy_1yg52j8C/edit?usp=drive_link&ouid=100610997393466310877&rtpof=true&sd=true

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on Sensing Layer, Network Layer, Data processing Layer, and Application Layer of IoT 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 basics of Sensing Layer, Network Layer and Data processing Layer of

	Architecture of IoT
	Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 1	Course Name: Introduction to Internet of Things Topic: Introduction of IoT	Course No.: ECE-501

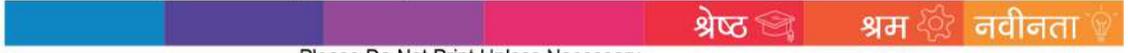|	
Objectives	At the end of the lesson the student shall be able to: a. Understand the Introduction of IoT b. Illustrate the State of the Art, Architecture of IoT
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	 - Ask questions about Architecture of IoT
	 - Ask questions about Arduino simulation environment
	 - Ask questions about interfacing of sensor & actuators
	 - Ask questions about basic networking with Wi-Fi module
	 - Ask questions about IoT applications and cloud platforms
	
	2. **Development** (30 minutes)
	   a. Explain the IoT architecture
	
	   b. Explanation of Arduino simulation environment
	
	   c. Explanation interfacing of sensor & actuators
	
	   d. Explain the basic networking with Wi-Fi module
	
	   e. IoT applications and cloud platforms
	
	   f. Recent applications of IoT
	
	3. **Exercise** (5 minutes) –
	   Ask students to explain the IoT architecture
	
	 - Use Nearpod to collect responses and discuss the answers.
	 - Quiz link
	https://docs.google.com/document/d/1TloJqC945U9_vajm-nzj1Cy_1yg52j8C/edit?usp=drive_link&ouid=100610997393466310877&rtpof=true&sd=true

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on Sensing Layer, Network Layer, Data processing Layer, and Application Layer of IoT 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 basics of Sensing Layer, Network Layer and Data processing Layer of

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Lesson Plan

	Architecture of IoT
	Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2	Course Name: Introduction to Internet of Things Topic: State of the art of IoT	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the state of the art of IoT b. Understand the platform of IoT c. Understand the future of IoT d. Illustrate the Architecture Reference Model e. Understand IOT Reference architecture and reference model dependency
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions about state of the art of IoT
	  - Ask questions about platform of IoT
	  - Ask questions about future of IoT
	  - Ask questions about architecture reference model
	  - Ask questions about IOT reference architecture and reference model dependency
	2. **Development** (30 minutes)
	  a. Explain the IoT architecture
	
	  b. Explanation of platform of IoT
	
	  c. Discussion of future of IoT
	
	  d. Explain about architecture reference model
	
	  e. Explanation of IoT domain model
	
	  f. Discussion on model notation and semantics
	
	3. Exercise (5 minutes) –
	  Ask students to explain the IoT architecture
	
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://docs.google.com/document/d/1TloJqC945U9_vajm-nzj1Cy_1yg52j8C/edit?usp=drive_link&ouid=100610997393466310877&rtpof=true&sd=true

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on IoT architecture, architecture reference model 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 IoT architecture, examples of IoT
	Spend 5 minutes to evaluate student assimilation of the lesson contents

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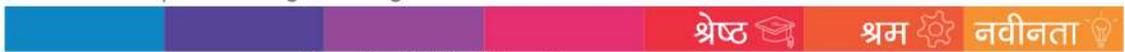| Lesson Plan No. 3	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Fundamentals of IoT	

Objectives	At the end of the lesson the student shall be able to: a. Understand the IoT fundamentals b. Understand the future the data, device, analytics and connectivity of components c. Illustrate the history and working of internet of hing (IoT)
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions about fundamentals of IoT
	  - Ask questions about data, device, analytics and connectivity of IoT devices
	  - Ask questions about history and working of internet of thing
	  - Ask questions based on features of IoT
	  - Ask questions about network infrastructures of IoT
	2. **Development** (30 minutes)
	   a. Explain the fundamentals of IoT
	
	   b. Explanation of data, device, analytics and connectivity of IoT devices
	
	   c. Discussion on history and working of internet of thing
	
	   d. Explain features of IoT
	
	   e. Explanation of network infrastructures of
	
	3. **Exercise** (5 minutes) –
	   Ask students to explain the fundamentals of IoT
	
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://docs.google.com/document/d/1TloJqC945U9_vajm-nzj1Cy_1yg52j8C/edit?usp=drive_link&ouid=100610997393466310877&rtpof=true&sd=true

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on data, device, analytics and connectivity of IoT devices 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 features of IoT, data, device, analytics and connectivity of IoT devices

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Lesson Plan No. 4	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: IOT protocols & architecture	

Objectives	At the end of the lesson the student shall be able to: a. Understand the IOT protocols & architecture b. Understand the IoT Network Protocols c. Understand the IoT Data Protocols d. Understand the MQTT, DDS, AMQP & CoAP protocols e. Illustrate the 3-layer & 5-layer architecture of IoT
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard
Teaching Development	1. **Introduction** (5 minutes) - Ask questions about MQTT & DDS protocols - Ask questions about AMQP & CoAP protocols - Ask questions about IoT data protocols - Ask questions based the IoT network protocols - Ask questions about 3-layer & 5-layer architecture of IoT 2. **Development** (30 minutes) a. Explain the types of IoT protocols b. Explanation of MQTT, DDS, AMQP & CoAP protocols c. Discussion on IoT data protocols d. Explain IoT network protocols e. Explanation of 3-layer & 5-layer architecture of IoT 3. **Exercise** (5 minutes) – - Ask students to explain the specific IoT protocols list - Use Nearpod to collect responses and discuss the answers. - Quiz link - https://docs.google.com/forms/d/1A3n94xLwPnv15Zrex5vq0b8iI3wIurm-BxDBS2AizL0/edit
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on 3-layer & 5-layer architecture of IoT 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 features of IoT data protocols, IoT network protocols Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 5	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Real-time examples of IoT	

Objectives	At the end of the lesson the student shall be able to: a. Understand the real-time examples of IoT b. Understand the concept of real-time examples of IoT c. Understand the data & network Protocols of real-time examples
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard
Teaching Development	1. **Introduction** (5 minutes) - Ask questions about real-time application of IoT - Ask questions about examples of real-time application of IoT - Ask questions about data & network Protocols of real-time examples - Ask questions based on the identification of component of devices - Ask questions about IO port and signalling conditioning of the given examples 2. **Development** (30 minutes) a. Explain the real-time application of IoT b. Explanation of examples of real-time application of IoT c. Discussion on the identification of component of devices d. Explain IO port and signalling conditioning of the given examples e. Explanation of different type of fields for application of Iot 3. **Exercise** (5 minutes) – - Ask students to explain the real-time examples of IoT - Use Nearpod to collect responses and discuss the answers. - Quiz link - https://docs.google.com/forms/d/1A3n94xLwPnv15Zrex5vq0b8iI3wIurm-BxDBS2AizL0/edit
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on health centre, agriculture & toll tax collection by IoT devuces 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 features of real-time examples of IoT Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 6	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Various platforms for IoT	

Objectives	At the end of the lesson the student shall be able to: a. Understand the various platforms for IoT b. Understand the concept to how IoT platform help c. Illustrate the service offer by IoT platform
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	 - Ask questions about various platforms for IoT
	 - Ask questions about name of platforms
	 - Ask questions about how IoT platform help
	 - Ask questions about working of IoT platform
	
	 2. **Development** (30 minutes)
	   a. Explain the various platforms for IoT
	
	   b. Explanation of how IoT platform help
	
	   c. Discussion on the about working of IoT platform
	
	   d. Explain the service offer by IoT platform
	
	   e. Explanation of service offering by various types of IoT platform
	
	 3. **Exercise** (5 minutes) –
	 - Ask students to explain the real-time examples of IoT
	 - Use Nearpod to collect responses and discuss the answers.
	 - Quiz link
	 - https://docs.google.com/forms/d/1A3n94xLwPnv15Zrex5vq0b8iI3wIurm-BxDBS2AizL0/edit

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on how IoT platform help 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 service offer by IoT platform & name of IoT platform Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 7	Course Name: Introduction to Internet of Things Topic: Overview of IoT components	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the overview of IoT components b. Understand the name of major IoT components and their working principle c. Illustrate the specific area, range and communication protocol of IoT components
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions about overview of IoT components
	  - Ask questions about hardware and signal conditioning the components
	  - Ask questions about how name of major IoT components and their working principle
	  - Ask questions about specific area, range and communication protocol of IoT components
	
	2. **Development** (30 minutes)
	  a. Explain the overview of IoT components
	
	  b. Explanation of block diagram for IoT components
	
	  c. Discussion on the about hardware and signal conditioning the components
	
	  d. Explain the how name of major IoT components and their working principle
	
	  e. Explanation of specific area, range and communication protocol of IoT components
	
	3. **Exercise** (5 minutes) –
	  - Ask students to explain the real-time examples of IoT
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://docs.google.com/forms/d/1A3n94xLwPnv15Zrex5vq0b8iI3wIurm-BxDBS2AizL0/edit

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on specific area, range and communication protocol of IoT components 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 name of the IoT components and their range

	Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 8	Course Name: Introduction to Internet of Things Topic: IoT Communication Technologies	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the IoT Communication Technologies b. Understand the device - to- device communication c. Understand the cloud - to- device communication d. Understand the peer - to- peer communication e. Understand the machine - to- machine communication
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	- Ask questions about IoT Communication Technologies
	- Ask questions about device - to- device communication
	- Ask questions about cloud - to- device communication
	- Ask questions about the peer - to- peer communication
	- Ask questions about the machine - to- machine communication
	2. **Development** (30 minutes)
	  a. Explain the IoT Communication Technologies and is examples
	
	  b. Explanation of device - to- device communication e.g. name of some devices
	
	  c. Discussion on cloud - to- device communication e.g. name of cloud offering
	
	  d. Explain the peer - to- peer communication
	
	  e. Explanation of machine - to- machine communication
	
	3. **Exercise** (5 minutes) –
	- Ask students to explain the peer - to- peer communication
	- Use Nearpod to collect responses and discuss the answers.
	- Quiz link
	- https://docs.google.com/forms/d/1A3n94xLwPnv15Zrex5vq0b8iI3wIurm-BxDBS2AizL0/edit

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work on specific area, range and communication protocol of IoT components 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 IoT Communication Technologies

	Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 9	Course Name: Introduction to Internet of Things Topic: M2M Vs IOT	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the M2M Vs IOT b. Understand the difference between M2M Vs IOT by on the basis of various parameter
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions about M2M communication
	  - Ask questions about IoT devices
	  - Ask questions about the difference between M2M Vs IOT by on the basis of various parameter
	2. **Development** (30 minutes)
	  a. Explain of M2M communication
	
	  b. Explanation of IoT devices & its communication techniligy c. difference between M2M Vs IOT by on the basis of various parameter
	
	3. **Exercise** (5 minutes) –
	  - Ask students to explain the difference between M2M Vs IOT
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://docs.google.com/forms/d/1A3n94xLwPnv15Zrex5vq0b8iI3wIurm-BxDBS2AizL0/edit

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work to explain machine – to- machine communication 3. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 difference between M2M Vs IOT by on the basis of various parameter Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 10	Course Name: Introduction to Internet of Things Topic: recent developments in IoT	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the recent developments in internet of things b. Understand the challenges in internet of things
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	   - Ask questions about recent developments in technology
	   - Ask questions about recent developments in internet of things
	   - Ask questions about the challenges in internet of things
	   - Ask questions about the data security
	   - Ask questions about protection of IoT devices
	2. **Development** (30 minutes)
	   a. Explain the recent developments in technology that are used in IoT technology
	
	   b. Explain the recent developments in internet of things
	
	   c. Explanation of the challenges in internet of things due data security & protection of IoT devices
	
	3. **Exercise** (5 minutes) –
	   - Ask students to recent developments in internet of things
	   - Use Nearpod to collect responses and discuss the answers.
	   - Quiz link
	   - https://docs.google.com/document/d/1TloJqC945U9_vajm-nzj1Cy_1yg52j8C/edit?usp=drive_link&ouid=100610997393466310877&rtpof=true&sd=true

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. Home work to recent developments in technology that are used in IoT technology 2. Suggested Video lecture https:// https://youtu.be/oxMdDsud5vg 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 recent developments in technology that are used in IoT technology Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 11	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Arduino Simulation Environment	

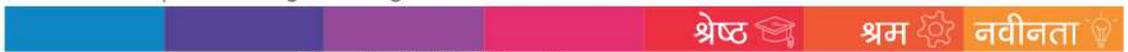| Objectives	At the end of the lesson the student shall be able to: a. Understand the Arduino Simulation Environment b. Understand the different type of Arduino board c. Working with the Setup the IDE
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions about Arduino Simulation Environment
	  - Ask questions about different type of Arduino board
	  - Ask questions about the Arduino board specification
	  - Ask questions about Setup the IDE software
	  - Ask questions about program sketch, program upload & serial monitor
	
	2. **Development** (30 minutes)
	  a. Explain Arduino Simulation Environment
	
	  b. Explain the different type of Arduino board
	
	  c. Explanation of the Arduino board specification e.g. IO port, power supply, Digital IO port, Analog IO port & other pin configuration
	
	  d. Explain the Setup the IDE software
	
	  e. Explanation with programming Setup the IDE software
	
	3. **Exercise** (5 minutes) –
	  - Ask students to Arduino Simulation Environment
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. Home work to draw Arduino board diagram with pin configuaration 2. Suggested Video lecture https:// 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 Arduino board diagram with pin configuaration Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 12	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: program using Arduino Software	

Objectives	At the end of the lesson the student shall be able to: a. Understand the writing of program using Arduino Software b. Understand Embedded C programming for Arduino c. Understand the Arduino Libraries
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	 - Ask questions about void setup
	 - Ask questions about void loop
	 - Ask questions about the program using Arduino Software
	 - Ask questions about Embedded C programming for Arduino
	 - Ask questions about Arduino Libraries
	
	 2. **Development** (30 minutes)
	   a. Explain programming through Arduino Software
	
	   b. Explain the different void setup & void loop with its physical significance
	
	   c. Explanation of various function with their instruction
	
	   d. Explanation of pinMode i.e. selection of pin number and mode meaning it may input or output. Input and output value are shown on the mode
	
	   d. Explain the Embedded C programming are used for controllers
	
	   e. Explanation with programming Setup the IDE software
	
	 3. **Exercise** (5 minutes) –
	 - Ask students to Arduino Simulation Environment
	 - Use Nearpod to collect responses and discuss the answers.
	 - Quiz link
	 - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. Home work to draw Arduino board diagram with pin configuaration 2. Suggested Video lecture https:// 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 Arduino board diagram with pin configuaration

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Lesson Plan No. 13	Course Name: Introduction to Internet of Things Topic: Interfacing LED & push-button	Course No.: ECE-501

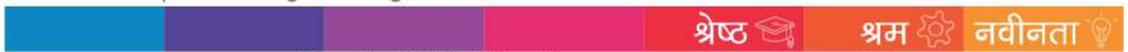|	
Objectives	At the end of the lesson the student shall be able to: a. Understand the Interfacing LED, push-button, buzzer and LCD with Arduino Uno b. Understand the sketch and upload the program using IDE software c. Understand the Arduino port and wiring on the board
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	 - Ask questions about Arduino Uno, Buzzer, LED, LDR (photoresistor), 220 and 10k ohm resistor, Wires & Breadboard
	 - Ask questions about interfacing of above component to Arduino Uno
	 - Ask questions about the program using Arduino Software
	 - Ask questions about power supply to Arduino Uno
	
	 2. **Development** (30 minutes)
	   a. develop the programming for Interfacing LED, push-button, buzzer and LCD with Arduino Uno
	
	   b. Explain the different void setup & void loop with its physical significance
	
	   c. Explanation of interfacing of above component to Arduino Uno
	
	   d. Explanation of upload the program for uploading into IDE
	
	   d. Explain the execution of program and turn the LED
	
	 3. **Exercise** (5 minutes) –
	 - Ask students to Arduino Simulation Environment
	 - Use Nearpod to collect responses and discuss the answers.
	 - Quiz link
	 - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. Home work to draw Arduino board diagram with pin configuaration 2. Suggested Video lecture https:// 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 Arduino board diagram with pin configuaration Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 14	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Cloud Computing	

Objectives	At the end of the lesson the student shall be able to: a. Understand the Cloud Computing b. Understand the generation and model of Raspberry Pi c. Understand the Raspberry Architecture and Pin Configuration d. Understand the Raspberry Pi version, CPU speeds, core & RAM
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	 - Ask questions about generation and model of Raspberry Pi
	 - Ask questions about Introduction to Raspberry Pi
	 - Ask questions based on the Raspberry Architecture and Pin Configuration
	 - Ask questions related Raspberry Pi version, CPU speeds, core & RAM
	
	 2. **Development** (30 minutes)
	    a. Introduction to Raspberry Pi
	
	    b. Explanation on generation and model of Raspberry Pi
	
	    c. Explanation of Raspberry Pi version, CPU speeds, core & RAM
	
	    d. Explanation of Raspberry Pi Architecture and Pin Configuration
	
	    d. Interfacing of Raspberry Pi to external world
	
	 3. **Exercise** (5 minutes) –
	 - Ask students to generation and model of Raspberry Pi
	 - Use Nearpod to collect responses and discuss the answers.
	 - Quiz link
	 - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. Home work on write notes on Raspberry Pi version, CPU speeds, core & RAM 2. Suggested Video lecture https:// 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 Arduino board diagram with pin configuaration Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 15	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Cloud computing service provider	

Objectives	At the end of the lesson the student shall be able to: a. Understand the cloud computing b. Understand cloud computing service provider c. Understand the cloud computing provider
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions any idea about cloud computing provider
	  - Ask questions about requirements of cloud computing
	  - Ask questions based Cloud Service Models
	  - Ask questions about the working of cloud computing
	2. **Development** (30 minutes)
	  a. Introduction to Raspberry Pi
	
	  b. Explanation on generation and model of Raspberry Pi
	
	  c. Explanation of Raspberry Pi version, CPU speeds, core & RAM
	
	  d. Explanation of Raspberry Pi Architecture and Pin Configuration
	
	  d. Interfacing of Raspberry Pi to external world
	
	3. **Exercise** (5 minutes) –
	  - Ask students to generation and model of Raspberry Pi
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. Home work on write notes on Raspberry Pi version, CPU speeds, core & RAM 2. Suggested Video lecture https:// 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 Arduino board diagram with pin configuaration Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 16	Course Name: Introduction to Internet of Things Topic: Interfacing of sensor & actuators	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand introduction to interfacing of sensor & actuators b. Understand overview of sensors working c. Understand different types of Sensors & their working
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard
Teaching Development	1. **Introduction** (5 minutes) - Ask questions based on sensor & actuators - Ask questions what is the difference between sensor & actuators - Ask questions different types of Sensors their working - Ask questions about interfacing and wiring of sensors 2. **Development** (30 minutes) a. Explanation of theory for sensor & actuators b. Explanation of different types of Sensors their working c. Explanation of interfacing and wiring of sensors d. Explanation of operation of sensor e. Explanation of pin configuration, colour coding, data signal and power supply and construction of sensor 3. **Exercise** (5 minutes) – - Ask students about introduction to interfacing of sensor & actuators - Use Nearpod to collect responses and discuss the answers. - Quiz link - https://nearpod.com/quick-launch/oeq/create/1856086738
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for explanation of different types of Sensors their working 3. Suggested Video lecture https:// 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 types of sensor, types of output signals Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 17	Course Name: Introduction to Internet of Things Topic: Analog and digital sensors	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand of analog and digital sensors b. Understand different types of analog and digital sensors c. Understand difference between analog and digital sensors
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions based on analog sensor
	  - Ask questions based on digital sensor
	  - Ask questions what is the difference between analog and digital sensors
	  - Ask questions on working of analog and digital sensors
	  - Ask questions about application of analog and digital sensors
	
	2. **Development** (30 minutes)
	  a. Explanation of analog and digital sensors
	
	  b. Explanation of different types of analog and digital sensors
	
	  c. Explain the difference between analog and digital sensors
	
	  d. Explain the working principle of analog and digital sensors
	
	  e. List out the application of analog and digital sensors
	
	3. **Exercise** (5 minutes) –
	  - Ask students to explain the working principle of analog and digital sensors
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for application of analog and digital sensors 3. Suggested Video lecture https:// 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 types of sensor based on their nature (analog and digital sensors) Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 18	Course Name: Introduction to Internet of Things Topic: Temperature & humidity sensors	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the working principle, pin configuration of temperature & humidity sensors b. Understand sketches with arduino c. Understand the interfacing of temperature and humidity with arduino
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions based working principle, pin configuration of temperature & humidity sensors
	  - Ask questions programming of temperature & humidity sensors
	  - Ask questions program upload and pin selection using arduino
	  - Ask questions based monitor the data display devices & PC monitor
	2. **Development** (30 minutes)
	  a. Explanation of working principle, pin configuration of temperature & humidity sensors
	
	  b. Explanation of programming of temperature & humidity sensors
	
	  c. Explain the upload and pin selection using arduino
	
	  d. Explain the of temperature & humidity sensors for IoT based application
	
	e. List out the application of analog and digital sensors
	
	3. **Exercise** (5 minutes) –
	  - Ask students to explain the working principle, pin configuration of temperature & humidity sensors
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for programming of temperature & humidity sensors 3. Suggested Video lecture https:// https://drive.google.com/file/d/1ISZCWjQMi5dToRu10hpfT-3S09jOvNxg/view?usp=drive_link Spend 5 minutes to wrap up and consolidate the learnings
Evaluation	1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss.

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| | 2.Nearpod Quiz on temperature & humidity sensors for IoT based application |
| | Spend 5 minutes to evaluate student assimilation of the lesson contents |

Lesson Plan No. 19	Course Name: Introduction to Internet of Things Topic: pin configuration of motion sensor	Course No.: ECE-501

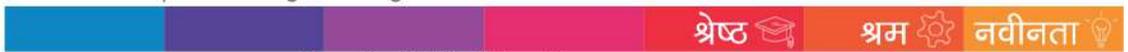|	
Objectives	At the end of the lesson the student shall be able to: a. Understand the working principle, pin configuration of motion, light and gas sensor b. Understand sketches of motion, light and gas sensor using arduino c. Understand the interfacing of motion, light and gas sensor
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	- Ask questions based working principle, pin configuration of motion, light and gas sensor
	- Ask questions programming of motion, light and gas sensor
	- Ask questions program upload and pin selection using arduino
	- Ask questions based monitor the data display devices & PC monitor
	
	2. **Development** (30 minutes)
	  a. Explanation of working principle, pin configuration of a motion, light and gas sensor
	
	  b. Explanation of programming of motion, light and gas sensor
	
	  c. Explain the upload and pin selection using arduino
	
	  d. Explain the of motion, light and gas sensor for IoT based application
	
	e. List out the application of analog and digital sensors
	
	3. **Exercise** (5 minutes) –
	- Ask students to explain the working principle, pin configuration of a motion, light and gas sensor
	- Use Nearpod to collect responses and discuss the answers.
	- Quiz link
	- https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for programming of a motion, light and gas sensor 3. Suggested Video lecture https://drive.google.com/file/d/16JqarSVckPfCnRoTwPLfnlo1kEAXedRj/view?usp=drive_link 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 motion, light and gas sensor for IoT based application Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 20	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Actuators with arduino, interfacing of relay switch	

Objectives	At the end of the lesson the student shall be able to: a. Understand the interfacing of actuators with arduino, interfacing of relay switch b. Understand the function of actuators c. Understand the function of relay switch d. Understand the uses of relay switch e. Understand the interfacing of actuators with arduino, interfacing of relay switch with load devices
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	- Ask questions based on the interfacing of actuators with arduino, interfacing of relay switch
	- Ask questions based on function of actuators
	- Ask questions based on uses of actuators
	- Ask questions based on the function of relay switch
	- Ask questions based on uses of relay switch
	- Ask questions for generation of different supply using actuator
	- Ask questions based interfacing of actuators & relay switch with ardiuno board
	2. **Development** (30 minutes)
	   a. Explanation of on the interfacing of actuators with arduino, interfacing of relay switch
	
	   b. Explanation of function of actuators
	
	   c. Explanation of uses of actuators
	
	   d. Explanation of uses of relay switch
	
	   e. Explanation of function of relay switch
	
	   f. Explanation of generation of different supply using actuator
	
	   g . Explain the interfacing of actuators & relay switch with ardiuno board
	3. **Exercise** (5 minutes) –
	- Ask students to explain the function of actuators
	- Use Nearpod to collect responses and discuss the answers.
	- Quiz link
	- https://nearpod.com/quick-launch/oeq/create/1856086738

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Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.
	2. Home work for the interfacing of actuators & relay switch with ardiuno board
	3. Suggested Video lecture
	https://drive.google.com/file/d/16JqarSVckPfCnRoTwPLfnlo1kEAXedRj/view?usp=drive_link
	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 the interfacing of actuators & relay switch with ardiuno board
	Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 21	Course Name: Introduction to Internet of Things Topic: Basics of wireless networking	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the basics of wireless networking b. Understand the types of wireless networks c. Understand advantages of wireless networks d. Understand introduction to ESPXX e. Understand the features and application of micro controller ESPX
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions based on basics of wireless networking
	  - Ask questions based on types of wireless networks
	  - Ask questions based on advantages of wireless networks
	  - Ask questions based on introduction to ESPXX
	  - Ask questions based on features and application of micro controller ESPX
	2. **Development** (30 minutes)
	  a. Explanation based on basics of wireless networking
	  b. Explanation on types of wireless networks
	  c. Explanation of advantages of wireless networks
	  d. Explanation based on introduction to ESPXX
	  e. Explanation based on features and application of micro controller ESPX
	3. **Exercise** (5 minutes) –
	  - Ask students to basics of wireless networking
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for the interfacing of actuators & relay switch with ardiuno board 3. Suggested Video lecture https://drive.google.com/file/d/1iqOiCoZNnoSOyrAfnP8_OzHK-bQIAKvO/view?usp=drive_link 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 advantages of wireless networks

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	Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 22	Course Name: Introduction to Internet of Things Topic: Variant and features of ESP8266	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to:
	
	   a. Understand the ESP8266
	   b. Understand the variant and features of ESP8266
	   c. Understand the NodeMCU
	   d. Understand the working with NodeMCU
	   e. Understand various Wi-Fi libraries
	   f. Understand WiFi class, IPAddress class & Server class

Teaching Aids (if any)	a. PPT
	   b. Use of Nearpod tool for online quiz
	   c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	   - Ask questions based on ESP8266
	   - Ask questions based on variant and features of ESP8266
	   - Ask questions based on NodeMCU
	   - Ask questions based on working with NodeMCU
	   - Ask questions based on various Wi-Fi libraries
	   - Ask questions based on WiFi class, IPAddress class & Server class
	2. **Development** (30 minutes)
	   a. Explanation based on basics of ESP8266
	
	   b. Explanation on variant and features of ESP8266
	
	   c. Explanation of NodeMCU
	
	   d. Explanation based on various Wi-Fi libraries
	
	   e. Explanation based on WiFi class, IPAddress class & Server class
	
	3. **Exercise** (5 minutes) –
	   - Ask students to basics of ESP8266
	   - Use Nearpod to collect responses and discuss the answers.
	   - Quiz link
	   - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for the variant and features of ESP8266 3. Suggested Video lecture https://drive.google.com/file/d/1uBvnySniQjTdwkghlXZS9e-_0_T7MuK_/view?usp=drive_link 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 variant and features of ESP8266
	Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 23	Course Name: Introduction to Internet of Things Topic: BACNet Protocol	Course No.: ECE-501

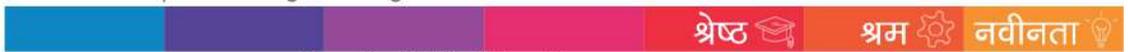| Objectives	At the end of the lesson the student shall be able to: a. Understand the BACNet Protocol b. Understand BACnet network layer c. Understand the BACnet Application Layer d. Understand the Bacnet Protocol
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	   - Ask questions based on BACNet Protocol
	   - Ask questions based on BACnet network layer
	   - Ask questions based on BACnet Application Layer
	   - Ask questions based on BACnet Protocol
	2. **Development** (30 minutes)
	   a. Explanation based on BACNet Protocol
	
	   b. Explanation on BACnet network layer
	
	   c. Explanation of NodeMCU
	
	   d. Explanation based on various Wi-Fi libraries
	
	   e. Explanation based on WiFi class, IPAddress class & Server class
	3. **Exercise** (5 minutes) –
	   - Ask students to basics of BACNet Protocol
	   - Use Nearpod to collect responses and discuss the answers.
	   - Quiz link
	   - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for the BACnet network layer 3. Suggested Video lecture https://drive.google.com/file/d/1uBvnySniQjTdwkghlXZS9e-_0_T7MuK_/view?usp=drive_link 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 BACnet network layer Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 24	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Virtualization concepts of IoT	

Objectives	At the end of the lesson the student shall be able to: a. Understand the virtualization concepts of IoT b. Understand the virtualization allows sharing of the physical resources c. Understand the virtualization allows supporting dynamic connectivity among connected devices d. Understand the cloud architecture of IoT e. Understand the cloud architecture components f. Understand the work of cloud architecture
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard
Teaching Development	1. **Introduction** (5 minutes) - Ask questions based on the virtualization concepts of IoT - Ask questions based on sharing of the physical resources using virtualization - Ask questions based on dynamic connectivity among connected devices - Ask questions based on cloud architecture of IoT - Ask questions based on cloud architecture components - Ask questions for the working of cloud architecture 2. **Development** (30 minutes) a. Explanation of the virtualization concepts of IoT b. Explanation of sharing of the physical resources using virtualization c. Explanation of virtualization allows supporting dynamic connectivity among connected devices d. Explanation of uses of cloud architecture of IoT e. Explanation of cloud architecture components f. Explanation of working of cloud architecture 3. **Exercise** (5 minutes) – - Ask students to the virtualization concepts of IoT - Use Nearpod to collect responses and discuss the answers. - Quiz link - https://nearpod.com/quick-launch/oeq/create/1856086738
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for cloud architecture components 3. Suggested Video lecture https://drive.google.com/file/d/18WyBFZwWW9bYRUSqkrrObXXUISDghS84/view?usp=drive_link

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Lesson Plan

	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 the cloud architecture components and virtualization
	Spend 5 minutes to evaluate student assimilation of the lesson contents

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Lesson Plan No. 26	Course Name: Introduction to Internet of Things Topic: SaaS, PaaS, IaaS	Course No.: ECE-501

Objectives	At the end of the lesson the student shall be able to: a. Understand the cloud services - SaaS, PaaS, IaaS b. Understand the difference between SaaS, PaaS, IaaS c. Understand the cloud providers & offerings d. Understand the data centre of cloud providers
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard
Teaching Development	1. **Introduction** (5 minutes) - Ask questions based on the cloud services - SaaS, PaaS, IaaS - Ask questions based on the difference between SaaS, PaaS, IaaS - Ask questions based on the difference between SaaS, PaaS, IaaS - Ask questions based on cloud providers & offerings - Ask questions based on the data centre of cloud providers 2. **Development** (30 minutes) a. Explanation on the cloud services - SaaS, PaaS, IaaS b. Explanation on the difference between SaaS, PaaS, IaaS c. Explanation on the difference between SaaS, PaaS, IaaS d. Explanation of cloud providers & offerings e. Explanation on the difference between SaaS, PaaS, IaaS 3. **Exercise** (5 minutes) – - Ask students to explain about cloud services - SaaS, PaaS, IaaS - Use Nearpod to collect responses and discuss the answers. - Quiz link - https://nearpod.com/quick-launch/oeq/create/1856086738
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work difference between SaaS, PaaS, IaaS 3. Suggested Video lecture https://drive.google.com/file/d/18WyBFZwWW9bYRUSqkrrObXXUISDghS84/view?usp=drive_link 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 difference between SaaS, PaaS, IaaS Spend 5 minutes to evaluate student

	assimilation of the lesson contents

Lesson Plan No. 28	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: Cloud providers & offerings	

Objectives	At the end of the lesson the student shall be able to: a. Understand the cloud services - SaaS, PaaS, IaaS b. Understand the difference between SaaS, PaaS, IaaS c. Understand the cloud providers & offerings d. Understand the data centre of cloud providers
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions based on the cloud services - SaaS, PaaS, IaaS
	  - Ask questions based on the difference between SaaS, PaaS, IaaS
	  - Ask questions based on the difference between SaaS, PaaS, IaaS
	  - Ask questions based on cloud providers & offerings
	  - Ask questions based on the data centre of cloud providers
	
	2. **Development** (30 minutes)
	
	  a. Explanation on the cloud services - SaaS, PaaS, IaaS
	
	  b. Explanation on the difference between SaaS, PaaS, IaaS
	
	  c. Explanation on the difference between SaaS, PaaS, IaaS
	  d. Explanation of cloud providers & offerings
	
	  e. Explanation on the difference between SaaS, PaaS, IaaS
	
	3. **Exercise** (5 minutes) –
	
	  - Ask students to explain about cloud services - SaaS, PaaS, IaaS
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work difference between SaaS, PaaS, IaaS 3. Suggested Video lecture https://drive.google.com/file/d/18WyBFZwWW9bYRUSqkrrObXXUISDghS84/view?usp=drive_link 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 difference between SaaS, PaaS, IaaS Spend 5 minutes to evaluate student assimilation of the lesson contents

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Kot Bhalwal, Jammu

Model Institute of Engineering
& Technology (Autonomous)
Lesson Plan

Lesson Plan No. 29	Course Name: Introduction to Internet of Things	Course No.: ECE-501
	Topic: IOT applications for industry	

Objectives	At the end of the lesson the student shall be able to: a. Understand the IOT applications for industry b. Understand the future factory concepts of IoT
Teaching Aids (if any)	a. PPT b. Use of Nearpod tool for online quiz c. Chalk & talk, Blackboard

Teaching Development	1. **Introduction** (5 minutes)
	  - Ask questions based on IOT applications for industry
	  - Ask questions based on IOT applications e.g. Predictive maintenance, Quality control, Supply chain management, Asset tracking, Inventory monitoring etc.
	  - Ask questions based on the future factory concepts of IoT
	2. **Development** (30 minutes)
	
	  a. Explanation on the IoT applications for industry
	
	  b. Explanation of IIoT
	
	  c. Explanation on the Predictive maintenance, Quality control, Supply chain management
	
	3. **Exercise** (5 minutes) –
	
	  - Ask students to explain about IoT applications for industry
	  - Use Nearpod to collect responses and discuss the answers.
	  - Quiz link
	  - https://nearpod.com/quick-launch/oeq/create/1856086738

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Home work for future factory concepts of IoT 3. Suggested Video lecture https://drive.google.com/file/d/18WyBFZwWW9bYRUSqkrrObXXUISDghS84/view?usp=drive_link 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 future factory concepts of IoT Spend 5 minutes to evaluate student assimilation of the lesson contents

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Dr. Arun K. Gupta Teaching-Learning Centre ——————— Version 1.1

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