

LESSON PLAN

Discipline: IT		
Semester: 5 th		
Name of Faculty : Smt. Kumari Jyoti		
Subject: Internet of Things (TH1)	No. of days/ week Class allotted: 3	Effective From Date: 01.07.2026
Week	Class Day	Theory
1 st	1 st	UNIT 1: INTRODUCTION TO INTERNET OF THINGS (IOT): Overview of IoT - Definition and significance of IoT,
	2 nd	Historical evolution and future prospects,
	3 rd	Applications across various industries,
2 nd	1 st	IoT Architecture and Components,
	2 nd	Basic architecture - sensors, actuators,
	3 rd	connectivity, and data processing,
3 rd	1 st	Hardware components: microcontrollers (e.g., Arduino, Raspberry Pi),
	2 nd	Software components: operating systems and middleware.
	3 rd	1. Doubt Clearing class 2. Quiz test 3. Assignment
4 th	1 st	UNIT 2: SENSORS, ACTUATORS, AND DATA ACQUISITION: Sensors and Actuators,
	2 nd	Types of sensors: temperature, humidity, motion, etc.,
	3 rd	Actuators: motors, relays,
5 th	1 st	and control mechanisms,
	2 nd	Interfacing sensors and actuators with microcontrollers,
	3 rd	Data Acquisition and Processing - Analog and digital data acquisition methods,
6 th	1 st	Signal conditioning and filtering techniques,
	2 nd	Introduction to data processing and storage
	3 rd	1. Doubt Clearing class 2. Quiz test 3. Assignment
7 th	1 st	UNIT 3: COMMUNICATION PROTOCOLS AND NETWORKING: IoT Communication Protocols,
	2 nd	Overview of protocols:
	3 rd	MQTT, CoAP, HTTP, etc.,
8 th	1 st	Wireless communication: Wi-Fi, Bluetooth, Zigbee, Lora WAN.,
	2 nd	Wired communication: Ethernet, Serial communication,
	3 rd	Networking Fundamentals - IP addressing and subnetting,
9 th	1 st	Network topologies and architectures,
	2 nd	Introduction to IPv6 and its relevance to IoT
	3 rd	1. Doubt Clearing class 2. Quiz test 3. Assignment
10 th	1 st	UNIT 4: IOT PLATFORMS AND CLOUD INTEGRATION : IoT Platforms,
	2 nd	Overview of popular IoT platforms (e.g., AWS IoT, Google Cloud IoT),
	3 rd	Data analytics and

11th	1st	visualization tools,
	2nd	Edge computing concepts, Cloud Computing for IoT,
	3rd	Introduction to cloud services: IaaS, PaaS, SaaS,
12th	1st	Integration of IoT devices with cloud platforms,
	2nd	Data storage, processing,
	3rd	and management in cloud.
13th	1st	1. Doubt Clearing class 2. Quiz test 3. Assignment
	2nd	UNIT 5: IOT SECURITY AND PRIVACY: Security Challenges in IoT,
	3rd	Common vulnerabilities and threats,
14th	1st	Authentication and authorization mechanisms,
	2nd	Data encryption and secure communication,
	3rd	Privacy Considerations - Data privacy laws and regulations,
15th	1st	User consent and data ownership,
	2nd	Best Practices for ensuring privacy in IoT applications.
	3rd	1. Doubt Clearing class 2. Quiz test 3. Assignment

- **CO1** :Explain the fundamental concepts of the Internet of Things (IoT), including its architecture, components, communication models, and applications.
- **CO2** :Identify and apply IoT ecosystem elements such as sensors, actuators, microcontrollers, communication protocols, and cloud platforms in IoT-based solutions.
- **CO3** :Develop and integrate hardware components including Arduino, Raspberry Pi, sensors, and actuators to implement basic IoT applications.
- **CO4** :Analyze data collected from IoT sensors to monitor system performance and support decision-making in real-world applications.
- **CO5** :Identify common IoT security threats, vulnerabilities, and appropriate security mechanisms to enhance the reliability and safety of IoT systems.

Smt. Kumari Jyoti

Signature of Faculty

Smt. Kumari Jyoti
HOD,
Senior Lecture, IT
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LESSON PLAN

Discipline: IT		Semester: 3 rd	Name of Faculty : Smt. Kumari Jyoti
Subject: Programming with Python (TH2)	No. of days/ week Class allotted: 3	Effective From Date: 01.07.2026	
Week	Class Day	Theory	
1 st	1 st	UNIT 1: INTRODUCTION TO PYTHON: Overview of Python: Features and Applications	
	2 nd	Setting Up the Python Environment	
	3 rd	(Python Installation, IDEs)	
2 nd	1 st	Python Syntax: Variables,	
	2 nd	Data Types, and Operators Writing	
	3 rd	Executing,	
3 rd	1 st	Debugging Python Scripts	
	2 nd	1. Doubt Clearing class 2. Quiz test 3. Assignment	
	3 rd	UNIT 2: CONTROL STRUCTURES AND FUNCTIONS: Conditional Statements: if, else, elif	
4 th	1 st	Loops: for, while,	
	2 nd	and Nested Loops	
	3 rd	Functions: Defining, Calling, and Scope of Variables	
5 th	1 st	Introduction to Lambda Functions and Recursion	
	2 nd	1. Doubt Clearing class 2. Quiz test 3. Assignment	
	3 rd	UNIT 3: DATA STRUCTURES IN PYTHON: Lists, Tuples, Sets,	
6 th	1 st	Dictionaries: Operations and Applications,	
	2 nd	List Comprehensions and	
	3 rd	Dictionary Comprehensions Working with Strings:	
7 th	1 st	Methods	
	2 nd	Manipulation	
	3 rd	Introduction to Python's Collections Module	
8 th	1 st	1. Doubt Clearing class 2. Quiz test 3. Assignment	
	2 nd	UNIT – 4: File Handling and Modules: File Operations, Reading,	
	3 rd	Writing, and Appending Files	
9 th	1 st	Working with CSV and JSON Files,	
	2 nd	Python Modules: Built-In Modules (e.g., math, os, datetime)	
	3 rd	Python Modules: Built-In Modules (e.g., math, os, datetime)	
10 th	1 st	Creating and Using Custom Modules	
	2 nd	1. Doubt Clearing class 2. Quiz test 3. Assignment	

	3rd	UNIT – 5: OBJECT-ORIENTED PROGRAMMING (OOP) IN PYTHON: Understanding Classes and Objects
11th	1st	Concepts of Encapsulation,
	2nd	Inheritance,
	3rd	Polymorphism,
12th	1st	Working with Magic Methods
	2nd	Operator Overloading
	3rd	Exception Handling in Python
13th	1st	1. Doubt Clearing class 2. Quiz test 3. Assignment
	2nd	UNIT – 6: ADVANCED PYTHON AND APPLICATIONS: Introduction to libraries: NumPy, Pandas,
	3rd	Matplotlib Basics of Web Scraping:
14th	1st	Using requests and BeautifulSoup,
	2nd	Scripting for Automation: Working with os
	3rd	and shutil Modules,
15th	1st	Mini-Project: Developing a Python Script for a Real-World Problem
	2nd	Mini-Project: Developing a Python Script for a Real-World Problem
	3rd	1. Doubt Clearing class 2. Quiz test 3. Assignment

CO1:	Describe the PYTHON syntax, conditional , control statements, Loops and functions to write Programs.
CO2:	Examine the data structures like Lists, Dictionaries ,Sets and Tuples to process and sort the data.
CO3:	Identify operations involved in files and Modules.
CO4:	Interpret the concept of Object Oriented programming like Encapsulation, Inheritance and Polymorphism
CO5:	Develop the ability to write Libraries like Numpy and Pandas.

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LESSON PLAN

Discipline: IT		Semester: 5 th	Name of Faculty : Smt. Kumari Jyoti
Subject: Programming with Java (TH3)	No. of days/ week Class allotted: 3	Effective From Date: 01.07.2026	
Week	Class Day	Theory	
1st	1st	UNIT 1: INTRODUCTION TO JAVA History and features of Java	
	2nd	Setting up the Java Development Kit(JDK) Understanding the Java Virtual Machine (JVM)	
	3rd	Basic Java syntax: data types, variables, operators, control flow statements (if-else, switch, loops)	
2nd	1st	Input/output operations (using Scanner and System.out)	
	2nd	Writing a Simple Program Compiling and executing Create Packaged class	
	3rd	1. Doubt Clearing class 2. Quiz test 3. Assignment	
3rd	1st	UNIT 2: INTRODUCTION TO OBJECT ORIENTED PROGRAMMING Basic concepts of OOPs: objects, classes,	
	2nd	data encapsulation, inheritance, Polymorphism etc.	
	3rd	Fundamentals of Class & Object,	
4th	1st	New Keyword, reference variable, Members methods of a class,	
	2nd	Access modifiers: public, private, protected, default.	
	3rd	Encapsulation: Hiding data through access modifiers.	
5th	1st	Access Control	
	2nd	Static Methods, Static Variables, Static Block	
	3rd	Constructor, Overloading methods, Overloading constructors	
6th	1st	Using of final keyword, Finalize method	
	2nd	1. Doubt Clearing class 2. Quiz test 3. Assignment	
	3rd	UNIT 3: INHERITANCE Basics of Inheritance, members accessibility in inheritance	
7th	1st	Types of inheritance: Single, multilevel, hierarchical. Super keyword.	
	2nd	Method overriding. Final keyword (for classes, methods, and variables).	
	3rd	Dynamic Method Dispatch, Abstract class, Preventing Overriding, Preventing Inheritance	
8th	1st	Interfaces: Defining and implementing interfaces.	

	2 nd	1. Doubt Clearing class 2. Quiz test 3. Assignment
	3 rd	UNIT 4: INTERFACES Purpose of interface
9 th	1 st	Defining an interface
	2 nd	implementing interfaces Interface reference variables
	3 rd	Interface with variables Extending interfaces
10 th	1 st	1. Doubt Clearing class 2. Quiz test 3. Assignment
	2 nd	UNIT 5: ARRAYS AND STRINGS Arrays: declaring and initializing arrays,
	3 rd	accessing array elements
11 th	1 st	Multidimensional arrays
	2 nd	String manipulation: creating strings, string methods (length, concat, substring, etc.)
	3 rd	Wrapper classes: Integer, Float, Double, etc.
12 th	1 st	1. Doubt Clearing class 2. Quiz test 3. Assignment
	2 nd	UNIT 6: EXCEPTION HANDLING AND FILE HANDLING File input/output: reading from and writing to files
	3 rd	Using File Input Stream, File Output Stream, Buffered Reader, Buffered Writer
13 th	1 st	Exceptions: types of exceptions, try-catch blocks, finally block
	2 nd	Throwing exceptions Custom exceptions
	3 rd	1. Doubt Clearing class 2. Quiz test 3. Assignment
14 th	1 st	UNIT 7: MULTITHREADED PROGRAMMING Basics of threads,
	2 nd	Java threaded model, defining threads using Runnable interface,
	3 rd	defining threads using Thread superclass,
15 th	1 st	Multiple threads, Thread Priority values,
	2 nd	Thread Synchronization Using synchronized blocks
	3 rd	1. Doubt Clearing class 2. Quiz test 3. Assignment

CO1. Explain the history, evolution, architecture, and core concepts of Java programming language.

CO2. Apply Java data types, variables, arrays, operators, and control statements to develop problem-solving programs.

CO3. Develop object-oriented Java applications by implementing classes, methods, inheritance, packages, interfaces, and exception handling.

CO4. Create multithreaded Java applications using threads and synchronization techniques for concurrent programming.

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