



**DEPARTMENT  
OF  
COMPUTER SCIENCE & ENGINEERING (AIML)**

**Lesson Plan**

**Session: Aug. -Dec., 2025**

**Semester: 7<sup>th</sup>**

**Name: \_\_\_\_\_**

**University Roll Number: \_\_\_\_\_**

**BUDDHA INSTITUTE OF TECHNOLOGY**

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CL-1 Sector - 7, GIDA, Gorakhpur - 273209 (U.P)

Phones: (0551) 2990413

# Index

**Timetable**

**Evaluation scheme**

**Subject 1** DEEP LEARNING (DL)

**Subject 2** INTERNET OF THING (IOT)

**Subject 3** SMART MANUFACTURING FOR INDUSTRY

**PPC–M** PLACEMENT PREPRATION CLASS (MATHS)

**PSC** PLACEMENT SUCCESS CLASS

**Techedge** (REACT JS)

**Lab 1** DL LAB

## TIME TABLE

<b>BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR</b> CLASS TIME TABLE (2025-26ODD SEMESTER)										
DEPT.: CSE (AIML)			w.e.L: 04 AUGUST 2025			SEMESTER: 7D			ROOM NO: 418(Block-3)	
Day / Time	9:10-10:05 AM	10:05-11:00 AM	11:15-12:10 PM	12:10-01:05PM	01:05-2:00 PM	2:40-3:35 PM	3:35-4:30 PM			
MON	TECHEDGE (D1+D2)-UC-L-307		SMI (SF)	DL (RS)	CSEP (SF)					
TUES	DL LAB (D1) (RS) L-301		IOT (KJ)	DL (RS)	SMI (SF)					
	INTERNSHIP LAB (D2) (KJ) L-302									
WED	DL LAB (D2) (RS) L-301		DL (RS)	PLACEMENT SUCCESS CLASS (AKC)						
	INTERNSHIP LAB (D1) (KJ) L-302									
THU	IOT (KJ)	HEC	TECHEDGE (D1+D2)-UC-L-306		PPC-MATHS (ST)					
FRI	PROJECT LAB (C1+C2) (KJ) L-305		PPC-MATHS (ST)	SMI (SF)	IOT (KJ)					
SAT	IOT (KJ)	HEC	DL (RS)	SMI (SF)						

	SUBJECT CODE	SUBJECT NAME	FACULTY NAME	LECTURE / WEEK
ACADEMICS	BAI 701	DEEP LEARNING (DL)	MR RANJEET SINGH (RS)	4
	BCS 070	INTERNET OF THING (IOT)	MR KRISHNA JAISWAL (KJ)	4
	BOE-080	SMART MANUFACTURING FOR INDUSTRY 4.0 (SMI)	MR. SOLAIM FAISAL (SF)	4
	BAI 751	DEEP LEARNING LAB (DL LAB)	MR RANJEET SINGH (RS)	2
	BCS 752	INTERNSHIP ASSESSMENT(INTERNSHIP LAB)	MR KRISHNA JAISWAL (KJ)	2
	BCS 753	PROJECT LAB	MR KRISHNA JAISWAL (KJ)	2
	BCS 754	STARTUP & ENTREPRENEURIAL ACTIVITY	-	-
SKILL DEVELOPMENT	---	COMMUNICATION SKILL ENHANCEMENT PROGRAM(CSEP)	MR. SOLAIM FAISAL (SF)	1
	---	TECH EDGE	MR. UJJAWAL CHAUDHARY (UC)	4
	---	HIGHER EDUCATION CELL (HEC)		2
PLACEMENTS	---	PLACEMENT PREPARATION CLASSES (PPC-MATHS)	MR SUDHARAR TRIPATHI (ST)	2
	---	PLACEMENT SUCCESS CLASSES(PSC)	MR ASHWANI KUMAR CHATURVEDI (AKC)	2
SELF-LEARNING	---	LIBRARY		-
TOTAL				29

Dr SHASHANK SRIVASTAV  
HOD

## EVALUATION SCHEME

Subject Code	Subject	Sessional Marks	Exam Marks	Total Marks
<b>THEORY SUBJECTS</b>				
BAI 701	DEEP LEARNING (DL)	30	70	100
BCS 070	INTERNET OF THING (IOT)	30	70	100
BOE 080	SMART MANUFACTURING FOR INDUSTRY	30	70	100
<b>PRACTICAL/DESIGN/DRAWING</b>				
BAI 751	DBMS LAB	50	50	100



**BUDDHA INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING Allied (AI/ML)**  
**ACADEMIC YEAR 2025-26 (ODD Semester)**

**LESSON PLAN DETAILS**

Semester: VII	Section: D	Course Code: BAI 701	Contact Hours /week: 4
Course Name: Deep Learning			# of credits: 3
Faculty name: Mr. Ranjeet Singh			Designation: Assistant Professor
Sessional Marks: 30		End Semester Examination Marks: 70	University Exam Hours: 3

Prerequisites if any:
Machine Learning

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.
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**COURSE SYLLABUS (as prescribed by University / Board)**

Module No	UNIT Contents	Hours	COs
1	INTRODUCTION : Introduction to machine learning- Linear models (SVMs and Perceptrons, logistic regression)- Intro to Neural Nets: What a shallow network computes- Training a network: loss functions, back propagation and stochastic gradient descent- Neural networks as universal function approximates.	18	CO1
2	DEEP NETWORKS : History of Deep Learning- A Probabilistic Theory of Deep Learning- Backpropagation and regularization, batch normalization- VC Dimension and Neural Nets-Deep Vs Shallow Networks- Convolutional Networks- Generative Adversarial Networks (GAN), Semi- supervised Learning.	13	CO2
3	DIMENSIONALITY REDUCTION 9 Linear (PCA, LDA) and manifolds, metric learning - Auto encoders and dimensionality reduction in networks - Introduction to Convnet - Architectures – AlexNet, VGG, Inception, ResNet - Training a Convnet: weights initialization, batch normalization, hyper parameter optimization.	14	CO3





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ACADEMIC YEAR 2025-26 (ODD Semester)

Mapping of CO v/s PSO:

	PS01	PS02	PS03
<b>C01</b>	-	-	-
<b>C02</b>	-	-	-
<b>C03</b>	-	-	-
<b>C04</b>	-	-	-
<b>C05</b>	-	-	-
<b>Average</b>	-	-	-

Correlation levels: 1-Slight (Low)    2-Moderate (Medium)    3-Substantial (High)

Topics to be covered beyond syllabus

NA



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ACADEMIC YEAR 2025-26 (ODD Semester)

## LESSON PLAN

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1.	I	INTRODUCTION : Introduction to machine learning	L2	C01					
2.		INTRODUCTION : Introduction to machine learning	,L2	C01					
3.		INTRODUCTION : Introduction to machine learning	L2	C01					
4.		INTRODUCTION : Introduction to machine learning	,L2	C01					
5.		INTRODUCTION : Introduction to machine learning	L2	C01					



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ACADEMIC YEAR 2025-26 (ODD Semester)

6.	Linear models (SVMs and Perceptrons, logistic regression)-	L2	CO1					
7.	Linear models (SVMs and Perceptrons, logistic regression)-	,L2	CO1					
8.	Linear models (SVMs and Perceptrons, logistic regression)-	L2	CO1					
9.	Tutorial-1 Unit-1	-	-					
10.	Intro to Neural Nets: What a shallow network computes-	L2	CO1					
11.	Training a network	L2	CO1					
12.	Training a network	,L2	CO1					
13.	loss functions,	L2	CO1					
14.	back propagation and stochastic gradient descent-	,L2	CO1					
15.	back propagation and stochastic	L2	CO1					



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ACADEMIC YEAR 2025-26 (ODD Semester)

		gradient descent-							
16.		Neural networks as universal function approximates.	,L2	C01					
17.		Neural networks as universal function approximates.	L2	C01					
18.		Tutorial-2 Unit-1	-	-					
19.	II	DEEP NETWORKS : History of Deep Learning	L2	C02					
20.		DEEP NETWORKS : History of Deep Learning	L2	C02					
21.		A Probabilistic Theory of Deep Learning	L2	C02					
22.		Backpropagation and regularization,	L2	C02					
23.		Backpropagation and regularization,	L2	C02					
24.		Batch normalization	L2	C02					



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ACADEMIC YEAR 2025-26 (ODD Semester)

25.		Tutorial-3 Unit-2	L2	C02					
26.		VC Dimension and Neural Nets	L2	C02					
27.		Deep Vs Shallow Networks	L2	C02					
28.		Convolutional Networks	L2	C02					
29.		Generative Adversarial Networks (GAN)	L2	C02					
30.		Semi- supervised Learning	L2	C02					
31.		Tutorial-4 Unit-2	L2	C02					
32.		DIMENSIONALITY REDUCTION	L2	C03					
33.		Linear (PCA, LDA)	L2	C03					
34.		Linear (PCA, LDA)	L2	C03					
35.		Manifolds, metric learning	L2	C03					
36.		Auto encoders and dimensionality reduction in	L2	C03					



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ACADEMIC YEAR 2025-26 (ODD Semester)

		networks							
37.	III	Tutorial-5 Unit-3	L2	C03					
38.		Auto encoders and dimensionality reduction in networks	L2	C03					
39.		Introduction to Convnet - Architectures	L2	C03					
40.		AlexNet, VGG	L2	C03					
41.		Inception, ResNet	L2	C03					
42.		Training a Convnet: weights initialization	L2	C03					
43.		batch normalization	L2	C03					
44.		hyper parameter optimization.	L2	C03					
45.		Tutorial-6 Unit-3	L2	C03					



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ACADEMIC YEAR 2025-26 (ODD Semester)

46.	IV	OPTIMIZATION AND GENERALIZATION : Optimization in deep learning	L2	CO4					
47.		OPTIMIZATION AND GENERALIZATION : Optimization in deep learning	L2	CO4					
48.		Non-convex optimization for deep networks	L2	CO4					
49.		Stochastic Optimization Generalization in neural networks	L2	CO4					
50.		Spatial Transformer Networks- Recurrent networks	L2	CO4					
51.		Tutorial-7 Unit-4	-	-					
52.		LSTM - Recurrent Neural Network	L2	CO4					
53.		Language Models- Word-Level RNNs	L2	CO4					
54.		Deep Reinforcement Learning - Computational	L2	CO4					



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ACADEMIC YEAR 2025-26 (ODD Semester)

55.		Artificial Neuroscience	L2	C04					
56.		Tutorial-8 Unit-4	L2	C04					
57.	V	CASE STUDY AND APPLICATIONS	L3	C05					
58.		Image net- Detection-	L3	C05					
59.		Audio Wave Net	L3	C05					
60.		Natural Language Processing	L3	C05					
61.		Tutorial-9 Unit-5	L3	C05					
62.		Word2Vec - Joint Detection	L3	C05					
63.		Bioinformatics- Face Recognition	L3	C05					
64.		- Scene Understanding- Gathering Image Captions	L3	C05					
65.		- Scene Understanding- Gathering Image Captions	L3	C05					



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ACADEMIC YEAR 2025-26 (ODD Semester)

66.		Tutorial-9 Unit-10	L3	C05					
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Class Test	Syllabus
CT-01	Class 1-Class 22
CT-02	Class 23-Class 41
PRE-AKTU	Full Syllabus

**\*Revised Bloom's Taxonomy (RBT) Levels:**

L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

**TextBooks:**

- T1.** Michael Nielsen, Neural Networks and Deep Learning, Determination Press, 2015.
- T2.** Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, 2016.

Faculty Sign

HOD's Sign



**BUDDHA INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING Allied (DS)**  
**ACADEMIC YEAR 2025-26 (ODD Semester)**

**LESSON PLAN DETAILS**

Semester: VII	Section: D	Course Code: BCS070	Contact Hours /week: 4
Course Name: Internet of Things			# of credits: 3
Faculty name: Mr. Krishna Jaiswal			Designation: Assistant Professor
Sessional Marks: 30		End Semester Examination Marks: 70	University Exam Hours: 3

Prerequisites if any:
Computer Networks, cloud computing

Content delivery methods:	By Face to face delivery, Presentation, Tutorial etc.
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**COURSE SYLLABUS (as prescribed by University / Board)**

Module No	UNIT Contents	Hours	COs
1	<b>Internet of Things (IoT):</b> Vision, Definition, Conceptual Framework, Architectural view, technology behind IoT, Sources of the IoT, M2M Communication, IoT Examples. Design Principles for Connected Devices: IoT/M2M systems layers and design standardization, communication technologies, data enrichment and consolidation, ease of designing and affordability	<b>12</b>	<b>CO1</b>
2	<b>Hardware for IoT:</b> Sensors, Digital sensors, actuators, radio frequency identification (RFID) technology, wireless sensor networks, participatory sensing technology. Embedded Platforms for IoT: Embedded computing basics, Overview of IOT supported Hardware platforms such as Arduino, NetArduino, Raspberry pi, Beagle Bone, Intel Galileo boards and ARM cortex.	<b>12</b>	<b>CO2</b>
3	<b>Network &amp; Communication aspects in IoT:</b> Wireless Medium access issues, MAC protocol survey, Survey routing protocols, Sensor deployment & Node discovery, Data aggregation & dissemination	<b>10</b>	<b>CO3</b>



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4	<b>Programming the Arduino:</b> Arduino Platform Boards Anatomy, Arduino IDE, coding, using emulator, using libraries, additions in arduino, programming the arduino for IoT.	9	C04
5	<b>Challenges in IoT Design challenges:</b> Development Challenges, Security Challenges, Other challenges IoT Applications: Smart Metering, E-health, City Automation, Automotive Applications, home automation, smart cards, communicating data with H/W units, mobiles, tablets, Designing of smart street lights in smart city.	16	C05

**COURSE OUTCOMES:** At the end of the Course, the Student will be able to:

<b>C01</b>	Demonstrate basic concepts, principles and challenges in IoT.
<b>C02</b>	Illustrate functioning of hardware devices and sensors used for IoT.
<b>C03</b>	Analyze network communication aspects and protocols used in IoT.
<b>C04</b>	Apply IoT for developing real life applications using Arduino programming.
<b>C05</b>	To develop IoT infrastructure for popular applications.

**Mapping of CO v/s PO:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>C01</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C02</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C03</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C04</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C05</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Average</b>	-	-	-	-	-	-	-	-	-	-	-	-

**Mapping of CO v/s PSO:**



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**ACADEMIC YEAR 2025-26 (ODD Semester)**

	PS01	PS02	PS03
<b>C01</b>	-	-	-
<b>C02</b>	-	-	-
<b>C03</b>	-	-	-
<b>C04</b>	-	-	-
<b>C05</b>	-	-	-
<b>Average</b>	-	-	-

**Correlation levels: 1-Slight (Low)    2-Moderate (Medium)    3-Substantial (High)**

**Topics to be covered beyond syllabus**

,Types of Network , Topology, Networking Devices.



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING Allied (DS)  
**ACADEMIC YEAR 2025-26 (ODD Semester)**

**LESSON PLAN**

Lecture	Module	Scheduled				Conducted			
		Topic	*RBT Levels	C O Mapping	Date	Topic	Date	No. Of Students	Faculty Sign
1.	I	Vision, Definition & Conceptual Framework of IoT	,L2	C01					
2.		Architectural View of IoT	,L2	C01					
3.		Technology Behind IoT	L2	C01					
4.		Sources of IoT	,L2	C01					
5.		M2M Communication & IoT Examples	L2	C01					
6.		Tutorial-1 Unit-1	-	-					
7.		IoT/M2M Systems Layers & Design Standardization	L2	C01					



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**ACADEMIC YEAR 2025-26 (ODD Semester)**

8.		Communication Technologies in IoT	L2	C01					
9.		Data Enrichment & Consolidation	L2	C01					
10.		Ease of Designing & Affordability in IoT Systems	L2	C01					
11.		Unit I Revision & Discussion	-	-					
12.		Tutorial 2 – Unit I	-	-					
13.	II	Sensors & Digital Sensors	L2	C02					
14.		Actuators	L2	C02					
15.		RFID Technology	L2	C02					
16.		Wireless Sensor Networks	L2	C02					
17.		Participatory Sensing Technology	L2	C02					
18.		Tutorial-1 Unit II	-	-					
19.		Embedded Computing Basics	L2	C02					



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**ACADEMIC YEAR 2025-26 (ODD Semester)**

20.		Arduino Platform Overview	L3	C02				
21.		NetArduino& Raspberry Pi Overview	L3	C02				
22.		BeagleBone, Intel Galileo Boards, ARM Cortex	L3	C02				
23.		Embedded Platform Selection Criteria	L3	C02				
24.		Tutorial 2 – Unit II	-	-				
25.	III	Wireless Medium Access Issues	L4	C03				
26.		MAC Protocol Survey	L4	C03				
27.		Routing Protocols in IoT	L4	C03				
28.		Sensor Deployment Strategies	L4	C03				
29.		Tutorial-1 Unit III	-	-				
30.		Node Discovery in IoT Networks	L4	C03				
31.		Data Aggregation in IoT	L4	C03				



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32.		Data Dissemination in IoT	L4	C03				
33.		Integration of Networking & Communication Aspects	L4	C03				
34.		Tutorial 2 – Unit III	-	-				
35.	<b>IV</b>	Arduino Board Anatomy	L3	C04				
36.		Arduino IDE & Coding Basics	L3	C04				
37.		Using Emulator for Arduino Projects	L3	C04				
38.		Arduino Libraries & Additions	L3	C04				
39.		Programming Arduino for IoT Applications	L3	C04				
40.		Case Example – Sensor Data Collection	L3	C04				
41.		Tutorial 1 – Unit IV	-	-				
42.		Advanced Arduino Features for IoT	L3	C04				
43.		Tutorial 2 – Unit IV	-	-				



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44.	V	Development Challenges in IoT	,L3	C05				
45.		Security Challenges in IoT	,L3	C05				
46.		Other IoT Challenges (Scalability, Interoperability, etc.)	L3	C05				
47.		Smart Metering Applications	L3	C05				
48.		E-Health Applications	L3	C05				
49.		City Automation	L3	C05				
50.		Tutorial 1 – Unit V	-	-				
51.		Automotive Applications	L3	C05				
52.		Home Automation	L3	C05				
53.		Smart Cards & Communication with Devices	L3	C05				
54.		Smart Street Lights in Smart City	L3	C05				
55.		Emerging IoT Trends & Future	L3	C05				



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**ACADEMIC YEAR 2025-26 (ODD Semester)**

		Scope							
56.		Tutorial 2 – Unit V	-	-					
57.		Revision class - 1	-	-					
58.		Revision Class -2	-	-					
59.		Revision Class -3	-	-					



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**ACADEMIC YEAR 2025-26 (ODD Semester)**

<b>Class Test</b>	<b>Syllabus</b>
CT-01	Class 1-Class 22
CT-02	Class 23-Class 41
PRE-AKTU	Full Syllabus

**\*Revised Bloom's Taxonomy (RBT) Levels:**

L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

**TextBooks:**

**T1.**Michael Miller “The Internet of Things” by Pearson, 2015.

**T2.**Raj Kamal, “Internet of Things: Architecture and Design Principles”, McGraw-Hill, 2nd Edition, 2017

**Faculty Sign**

**HOD's Sign**



# BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING-DS

ACADEMIC YEAR 2025-26 (ODD Semester)

## LESSON PLAN

Semester: VII	Section: D	Course Code: BOE080	Contact Hours /week: 4
Course name: Smart Manufacturing for Industry 4.0			# of credits:3
Teacher's name: <b>Mr. Solaim Faisal</b>			Designation: Assistant Professor
Sessional Marks:30	End Semester Examination Marks: 70		University Exam Hours: 3

<b>Prerequisites if any:</b>			
<b>Course Code</b>	<b>Course Name</b>	<b>Topic/s</b>	<b>Semester</b>

<b>Content delivery by using</b>	Chalk/Marker and Board, PPT and Video Lectures
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### COURSE SYLLABUS (as prescribed by University / Board)

Module No	UNIT Contents	Hours	COs
1	<b>Industry 4.0:</b> Concept, Globalization and emerging issues, The Fourth Revolution, LEAN manufacturing, Smart and connected business perspectives, Smart factories.	8	C01
2	Automation: Programable Logic Controller (PLC) and its Programming software, Communication of different devices with PLC, Sensor, Smart Sensor, HMI design, Cyber Physical System – key components, ISA-95 architecture, CPS-5C architecture, Concept of Digit Twin	8	C02
3	<b>Communication:</b> Protocols-MQTT, OPC UA, EtherNet/IP, Profinet, EtherCAT, etc; MQTT- History, MQTT broker, Message types, Quality of Service (QoS), Application; OPC UA-History, Specification, Client, Server, Programming with -Free and open-source software, Propriety software; Augmented Reality	8	C03
4	<b>IoT Platform:</b> Data Modelling, IoT Platforms-Thing, basic functionalities, Abstract definition of Thing, Networks, etc; IoT Gateway, Machine Interfaces-Cloud-based Mosquitto brokers, Programming with – Free and open-source software, Propriety software	8	C04
5	<b>Machine Learning Foundation:</b> Learning algorithms - Supervised, Unsupervised, Self learning, Feature learning, etc. Models Artificial Neural Networks, Decision trees, Regression analysis, Genetic algorithms, etc.; Programming with – Free and open-source software, Propriety software	8	C05



# BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING-DS

ACADEMIC YEAR 2025-26 (ODD Semester)

**COURSE OUTCOMES:** At the end of the Course, the Student will be able to:

<b>C01</b>	Introduce concept of Industry 4.0 for Smart Manufacturing.
<b>C02</b>	Understand use various hardware used in Smart Manufacturing
<b>C03</b>	Understand need of various communication protocols. hardware and software, IoT Layers and their relative importance.
<b>C04</b>	Understand cloud-computing IoT platform for Smart Manufacturing.
<b>C05</b>	Understand machine learning to make smart factories.

**Mapping of CO v/s PO:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>C01</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C02</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C03</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C04</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>C05</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Average</b>	-	-	-	-	-	-	-	-	-	-	-	-

	PSO1	PSO2	PSO3
<b>C01</b>	-	-	-
<b>C02</b>	-	-	-
<b>C03</b>	-	-	-
<b>C04</b>	-	-	-
<b>C05</b>	-	-	-
<b>Average</b>	-	-	-

**Correlation levels:** 1-Slight (Low)

2-Moderate (Medium)

3-Substantial (High)

<b>Gap in the syllabus</b>	NA
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<b>Topics to be covered beyond syllabus</b>	Cyber Security, Longest Common Subsequence & Matrix Chain Multiplications
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# BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING-DS

ACADEMIC YEAR 2025-26 (ODD Semester)

## LESSON PLAN

Lecture #	Module#	Topics	*RBT Levels	Course Outcome Mapping	Planned Date	Actual Date	Faculty Sign	Remarks
1	I	Introduction to industry 4.0	L1	CO1				
2		Globalization and emerging issues in manufacturing	L1					
3		Fourth industrial revolution key changes	L1					
4		LEAN manufacturing principles	L1					
5		Smart and connected business perspectives	L1					
6		Smart factory Architecture	L1					
7		Recap + Quiz						
8	II	Introduction to automation in manufacturing	L1	CO2				
9		PLC- Basics, types, and application	L1					
10		PLC programming languages (Ladder, FBD)	L1					
11		Hands-on: Basic ladder logic instructions (start/stop, latch, unlatch)	L2					
12		Timer and counter programming in PLC	L2					
13		Hands-on: Timer/counter examples	L2					
14		Sensors in automation- types and selection	L2					
15	Smart sensors – working and benefits	L2						



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**ACADEMIC YEAR 2025-26 (ODD Semester)**

16		Communication of devices with PLC	L2					
17		HMI design principles	L2					
18		Cyber- Physical System	L2					
19		ISA-95 architecture	L2					
20		CPS-5C architecture	L2					
21		Digital Twin – concept, benefits, and examples	L2					
22		PLC mini-project demo & review	L2					
23	III	Introduction to industrial communication protocols	L1	CO3				
24		MQTT-history, feature, architecture	L1					
25		MQTT- message types, QoS, applications	L2					
26		OPC UA – history & specifications	L1					
27		OPC UA – client server communication	L2					
28		EtherNet/IP- basic and industrial use cases	L2					
29		Profinet-overview & comparison with others	L2					
30		EtherCAT – working & advantages	L2					
31		Programming MQTT with open source tools	L2					
32		Proprietary software for industrial communication	L2					
33		Augmented reality in manufacturing	L2					
34		Recap + protocol comparison	L2					
35		Data modelling for IoT	L1					



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING-DS

**ACADEMIC YEAR 2025-26 (ODD Semester)**

36	IV	Introduction to IoT platforms	L1	C04				
37		Abstract definition of "thing" in IoT	L1					
38		Networks and connectivity in IoT	L1					
39		IoT Gateways & their role	L1					
40		Machine interfaces – cloud-based Mosquito brokers	L2					
41		IoT programming with open-source tools	L2					
42		Proprietary IoT software	L2					
43		Machine interfaces & cloud brokers	L2					
44		Unit IV review	L2					
45	V	Introduction to ML in smart factories	L1	C05				
46		Supervised learning algorithms	L1					
47		Unsupervised and self-learning technique	L1					
48		Feature learning – role in IoT data	L2					
49		Artificial Neural Networks – basics and applications	L2					
50		Decision trees, regression analysis in industry	L2					
51		Genetic algorithms	L2					
52		Programming ML models	L2					
53		Revision						
54		Revision						
55	Revision							



# **BUDDHA INSTITUTE OF TECHNOLOGY**

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**ACADEMIC YEAR 2025-26 (ODD Semester)**

**\*Revised Bloom's Taxonomy (RBT) Levels:**

L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

**References:**

**Text books :( As per University / Board syllabus)**

**T1.** Christoph Jan Bartodziej, “The Concept Industry 4.0 – An Empirical Analysis of Technologies and Application in Production Logistics”.

**T2.** Alasdair Gilchrist, “Industry 4.0 – The Industrial Internet of Things”.

**T3.** Daniel Minoli, “Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications”.

**Faculty Sign**

**HOD's Sign**



# SKILL DEVELOPMENT CELL

## Lesson Plan

Course-PPC(MATHS)

College-BIT

Department-AIML

Class/Section-4<sup>th</sup> year

Faculty- Sudhaker Tripathi

Lecture#	Scheduled Topics	Conducted			
		Date	No Of Students	Faculty Sign	Topic
1	MOCK TEST-1				
2	SOLUTION OF MOCK TEST - 1				
3	MOCK TEST-2				
4	SOLUTION OF MOCK TEST - 2				
5	MOCK TEST-3				
6	SOLUTION OF MOCK TEST - 3				
7	MOCK TEST-4				
8	SOLUTION OF MOCK TEST - 4				

9	MOCK TEST-5				
10	SOLUTION OF MOCK TEST - 5				
11	MOCK TEST-6				
12	SOLUTION OF MOCK TEST - 6				
13	MOCK TEST-7				
14	SOLUTION OF MOCK TEST - 7				
15	MOCK TEST-8				
16	SOLUTION OF MOCK TEST - 8				
17	MOCK TEST-9				
18	SOLUTION OF MOCK TEST - 9				
19	MOCK TEST-10				
20	SOLUTION OF MOCK TEST - 10				

**Faculty/ Trainer Sign:**