

Maharashtra State Board of Technical Education, Mumbai
TEACHING PLAN (TP)

Academic Year: 2025-26 (EVEN)

Institute Code and Name: 0078- K K Wagh Polytechnic, Nashik

Programme and Code: Information Technology (IF)

Course and Code: Emerging Trends in Computer and IT (ETI)

Scheme: K Allocated Hrs. 45 Name of Faculty: Mr. T. G. Uphade

Semester: Sixth

Course Index: 602

Course Code: 316313

Class: TYIF (Cray)

COURSE LEVEL LEARNING OUTCOMES (COS)

- CO1 - Elaborate the role of Artificial Intelligence, Machine Learning and Deep Learning in various domains.
- CO2 - Compare the architecture of IoT in Local environment vs Cloud Environment.
- CO3 - Explain the functioning of Blockchain Technology in various applications considering different challenges.
- CO4 - Explain characteristics of different Immersive Technologies.
- CO5 - Identify the appropriate Model of Digital Forensic Investigation for given situation.

TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category	Learning Scheme			Credits	Paper Duration	Assessment Scheme										Total Marks					
				Actual Contact Hrs/Week					SLH	NLH	Theory			Based on LL & TSL Practical				Based on SL						
				CL	TL	LL					FA - TH		Total		FA-PR		SA-PR							
											Max	Max	Max	Min	Max	Min	Max	Min						
316313	Emerging Trends in Computer and IT	ETI	DSC	3	-	-	2	1.5	30	70 *#	100	40	-	-	-	-	25	10	125					

Total IKS Hrs for Sem.: 0 Hrs

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @\\$ Internal Online Examination

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	2	2	1	-	-	1	1	1	1
CO2	2	2	1	-	-	1	1	1	1
CO3	2	2	1	-	-	1	1	1	1
CO4	2	2	1	-	-	1	1	1	1
CO5	2	2	1	-	-	1	1	1	1

Legends :- High:03, Medium:02,Low:01, No Mapping: -

*PSOs are formulated at institute level

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Unit No. (Allocated Hrs.)	CO	TLO aligned to CO's	Title/Details	Plan (No. of Lectures)		Actual Execution		Pedagogy Used	Remark		
				From	To	From	To				
			Unit - I Introduction of AI and ML								
1 (9)	CO1	TLO 1.1 TLO 1.2	1.1 Introduction of AI Concept Scope of AI, Types of AI, Applications of AI	02 Lectures				Chalk Board, PPT, Learn Live			
			16/12/2025	18/12/2025							
		TLO 1.3 TLO 1.4 TLO 1.5 TLO 1.6 TLO 1.7	1.2 Machine Learning: Applications of Machine Learning, Concept of Deep Learning, Applications of Deep Learning Concept of Neural Network, Difference between AI, ML & DL	03 Lectures							
			20/12/2025	27/12/2025							
			1.3 Generative AI, Transformers, Types of Generative AI, Applications of Generative AI, 1.4 AI & ML in Digital Security Types of attacks, AI powered attacks protection measures	04 Lectures							
			27/12/2025	01/01/2026							
			Unit - II Internet of Things								
2 (10)	CO2	TLO 2.1 TLO 2.2 TLO 2.3	2.1 Introduction of Internet of Things (IoT): Definition, Characteristics of IoT, Features & Application of IoT, Advantages and limitations of IoT	02 Lectures				Chalk Board, PPT, Learn Live			
			03/01/2026	06/01/2026							
			2.2 Design of IoT: Physical design of IoT, Logical design of IoT, Architecture of Internet of Things, 2.3 Sensors and actuators used in IoT	04 Lectures							
		TLO 2.4 TLO 2.5	08/01/2026	15/01/2026							

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				From	To	From	To				
2 (10)	CO2	TLO 2.6 TLO 2.7	2.4 5G Network in IOT communication: 5-G characteristics and application areas, Next Generation Network, 2.5 IoT and Cloud Computing: Architecture of Cloud based IoT	04 Lectures				Chalk Board, PPT, Learn Live			
				15/01/2026	22/01/2026						
			Unit - III Blockchain Technology								
3 (8)	CO3	TLO 3.1 TLO 3.2	3.1 Basics of Blockchain Technology- Definition, Key Features of Blockchain (Decentralization, Transparency, Immutability), Traditional vs Blockchain System, Blockchain Architecture	03 Lectures				Chalk Board, PPT, Learn Live			
				24/02/2026	05/02/2026						
		TLO 3.3 TLO 3.4 TLO 3.5 TLO 3.6	Types of Blockchain, Blockchain, Applications, Role of Blockchain in Smart Contracts & Cryptocurrencies, Challenges in Blockchain Technology	05 Lectures							
				07/02/2026	17/02/2026						
			Unit – IV Immersive Technology & Sustainable Computing								
4(8)	CO4	TLO 4.1	4.1 Introduction to Immersive Technology and types of immersive technologies- Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR), Extended Reality (XR), Haptic Technology	03 Lectures				Chalk Board, PPT, Learn Live			
				21/02/2026	26/02/2026						

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				From	To	From	To				
4 (8)	CO4	TLO 4.2	Applications of Immersive Technology, Green Computing, Quantum Computing	05 Lectures				Chalk Board, PPT, Learn Live			
		TLO 4.3		28/02/2026	07/3/2026						
			Unit – V Digital Forensics and Ethical Hacking								
5 (10)	CO5	TLO 5.1	5.1 Introduction to digital forensics, Rules of digital forensics, The Process of Digital forensics investigation and Evidence Handling, Models of Digital Forensic Investigation	05 Lectures				Chalk Board, PPT, Learn Live			
		TLO 5.2		10/03/2026	14/03/2026						
		TLO 5.3	Ethical Hacking, Types of Hacking- Network Hacking, Operating System Hacking, Application Hacking, National Cyber Security Policy (NCSP), 2013, IT Act 2000, IT Act 2008(Amendment) and IT Act 2023(DPDP) Cyber Crime Prevention against Women and Children (CCPWC) Scheme (2018)	05 Lectures							
		TLO 5.4		17/03/2026	27/03/2026						
		TLO 5.5									
*			Introduction to Cloud Computing	06/03/2026	06/03/2026						

*** Content Beyond Syllabus**

ASSESSMENT METHODOLOGIES/TOOLS

A. Formative assessment (Assessment for Learning) (FA-TH)

Two unit tests (MCQs) of 30 marks will be conducted and average of two unit tests will be considered.

Formative assessment of self learning of 25 marks should be assessed based on self learning activity such as Infosys Springboard Certification/Microprojects/ Assignment (60% weightage to process and 40% to product)

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B. Summative Assessment (Assessment of Learning) (SA-TH)

End Semester Online (MCQ type) Exam

C. Suggested micro project / assignment/ activities for specific learning / skills development (self-learning)

1. Course on Artificial intelligence for beginners provided by Microsoft
2. Crash Course on Machine Learning provided by Google
3. Course on Blockchain and its applications on SWAYAM platform provided by NPTEL
4. Courses provided by Infosys Springboard

SUGGESTED LEARNING MATERIALS / BOOKS

Sr. No	Author	Title	Publisher with ISBN Number
1	R.B. Mishra	Artificial Intelligence	PHI ISBN:978-8-1203-3849-9
2	S Sridhar, M Vijayalakshmi	Machine Learning	Oxford University Press ISBN:978-0-1901-2727-5
3	Bikramaditya Singhal Gautam Dhameja Priyanshu Sekhar Panda	Beginning Blockchain-A Beginner's Guide to Building Blockchain Solutions	Apress, ISBN-13 (pbk): 978-1-4842-3443-3 ISBN-13 (electronic): 978-1-4842-3444-0
4	Tiana Laurence	Blockchain For Dummies Wiley India	ISBN: 9788126527755
5	Arshadeep Bahga, Vijay Madisetti	Internet Of Things-A Hands-on Approach	University Press ISBN: 978-8-17371-954-7
6	John Sammons	The Basics of Digital Forensic	Elsevier ISBN: 978-1-59749-661-2
7	Dr. Nilakashi Jain, Dr. Dhananjat R. Kalbande	Digital Forensic (2017 Edition)	Wiley Publishing Inc. ISBN: 978-81-265-6574-0
8	Kevin Beaver CISSP	Hacking for Dummies (5th Edition)	Wiley Publishing Inc. ISBN: 978-81-265-6554-2
9	Sagaya Aurelia	Immersive Technologies	CRC Press ISBN: 978-10-327-5114-6
10	Githa S. Heggde,Santosh Kumar Patra,Rasananda Panda	Immersive Technology and Experiences	Palgrave Macmillan ISBN: 978-981-99-8833-4

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LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.versatek.com/wp-content/uploads/2016/06/IoT -eBook-version5.pdf	eBook on Internet of Things
2	https://www.youtube.com/watch?v=iqjcNRJf-Nc	Immersive technology
3	https://www.tutorialspoint.com/internet_of_things/internet_of_things_tutorial.pdf	eBook on Internet of Things
4	https://microsoft.github.io/AI-For-Beginners/	Artificial intelligence
5	https://developers.google.com/machine-learning/crash-course	Machine learning
6	https://www.infosecinstitute.com/resources/digital-forensics/digital-forensics-models/#gref	Digital Forensics
7	https://www.researchgate.net/publication/300474145_Digital_Forensics/	Digital Forensics eBook
8	https://www.tutorialspoint.com/ethical_hacking/ethical_hacking_process.htm	Ethical Hacking
9	https://onlinecourses.nptel.ac.in/noc22_cs44/preview	Blockchain Technology course
10	https://www.youtube.com/watch?v=ScqopKqK6v0	Immersive technology
11	https://www.indiacode.nic.in/bitstream/123456789/131_16/1/it_act_2000_updated.pdf	IT Act 2000
12	https://www.meity.gov.in/static/uploads/2024/06/2bf1f0e9f04e6fb4f8fef35e82c42aa5.pdf	IT Act 2023 (DPDP)
13	https://www.indiacode.nic.in/bitstream/123456789/15386/1/it_amendment_act2008.pdf	IT Act 2008 (Amendment)
14	https://www.infosys.com/about/springboard.html	Digital Learning and Reskilling
15	https://iterasec.com/blog/understanding-ai-attacks-and-their-types/	Types of AI attacks
16	https://www.cm-alliance.com/cybersecurity-blog/5-ways-to-avoid-ai-powered-hacking	AI powered attacks -protection

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Mr. T. G. Uphade
(Name of Faculty)

Ms. M. S. Karande
HOD-IF