

TEACHING PLAN (TP)

Academic Year: 2025-26 (EVEN)

Institute Code and Name: 0078- K. K. Wagh Polytechnic, Nashik**Semester:** Sixth**Programme and Code:** Information Technology (IF)**Course Index:** CO603**Course and Code:** Wireless & Mobile Network (WMN)**Course Code:** 316325**Scheme:** K**Allocated Hrs. 45****Name of Faculty:** Mrs. C. P. Borade**CLASS: TYIF (PARAM)****COURSE LEVEL LEARNING OUTCOMES (COS)**

- CO1 - Identify various terminologies used in GSM network systems.
- CO2 - Establish wireless network with the given technology.
- CO3 - Differentiate between various generations of mobile network .
- CO4 - Explain 5G network system architecture.
- CO5 - Establish wireless sensor networks for the given application.

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	SA-TH	Total		FA-PR	SA-PR	SLA					
													Max	Min	Max	Min						
316325	Wireless & Mobile Network	WMN	DSC	3	-	4	1	8	4	3	30	70	100	40	25	10	--	25	10	150		

Total IKS Hrs. for Sem.: 0 Hrs.

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hour 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
	3	-	-	1	2	1	2		
CO1	3	-	-	1	2	1	2		
CO2	3	-	3	2	3	1	2		
CO3	3	-	-	2	2	1	3		
CO4	3	-	2	3	3	3	3		
CO5	3	2	2	3	2	3	3		

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

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Chap No. (Allocated Hrs.)	CO	TLO	Unit Name and Learning Content Title/ Details	Plan (No. Of Lectures)		Actual Execution		Pedagogy Used	Remark		
				From	To	From	To				
1 (08)	CO -1	TLO 1.1 TLO 1.3	Unit-I: Introduction to GSM					Chalk, Board, PPT+ LCD, Videos, Google Classroom , MKCL ERA			
			1.1 Global System for Mobile communication (GSM) architecture, GSM frequency spectrum, GSM radio aspects, GSM Supplementary services, GSM channel types 1.2 Call processing in GSM Registration /location update, mobile terminated call and mobile originate call	03 Lectures							
		TLO 1.2	1.3 Mobility management : Location update procedure: Inter LA movement, Inter MSC movement, Inter VLR movement 1.4 Concept of roaming	17/12/2025	19/12/2025						
			1.5. Types of area: Location area, Routing area, Tracking area 1.6 Network signaling: GSM protocol model	03 Lectures							
				24/12/2025	31/12/2025						
				02 Lectures							
				01/01/2026	02/01/2026						

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Unit No. (Allocated Hrs.)	CO	TLO aligned to COs	Title/ Details	Plan (No. Of Lectures)		Actual Execution (From-To & No. of Lectures)		Pedagogy Used	Remark		
				From	To	From	To				
2(08)	CO -2	TLO 2.1	Unit - II GPRS and Mobile Data communication					Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA			
			2.1 General packet radio services (GPRS) architecture, GPRS services 2.2 GPRS network nodes, mobility management and routing in GPRS	03 Lectures							
		TLO 2.2	2.3 RFID (Radio Frequency Identification): Architecture, classification of RFID tags, applications, advantages and disadvantages	07/01/2026	09/01/2026						
				02 Lectures							
		TLO 2.3 TLO 2.4	2.4 Wi-Fi : Classification, architecture, applications in business and healthcare domain 2.5 Wi-Max: Need of WMAN and applications in smart cities and public safety domain, Advantages and disadvantages	14/01/2026	15/01/2026						
				03 Lectures							
		TLO 3.1	3.1 Mobile internet standard, Wireless application protocol (WAP): Model, WAP Protocol stack	16/01/2026	21/01/2026						
				02 Lectures							
			3.2 Wireless markup languages (WML) 3.3 International mobile telecommunications 2000 (IMT-2000) : Features and services	22/01/2026	23/01/2026						
			02 Lectures								
				24/01/2026	30/01/2026						

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Unit No. (Allocated Hrs.)	CO	TLO aligned to COs	Title/ Details	Plan (No. Of Lectures)		Actual Execution (From-To & No. of Lectures)		Pedagogy Used	Remark		
				From	To	From	To				
3(08)	C0-3	TLO 3.2 TLO 3.3	3.4 Wideband Code Division Multiple Access (W-CDMA) and CDMA 2000: Specifications and features 3.5 UMTS (Universal Mobile Telecommunication System) technology: Features, architecture, applications and advantages	02 Lectures				Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA			
				04/02/2026	05/02/2026						
4 (09)	CO -4	TLO 4.1	3.6 Introduction to 4G technology : Architecture and Features of 4G, Features of VoLTE, 4.5G	02 Lectures				Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA			
				06/02/2026	11/02/2026						
		TLO 4.2	4.1 Introduction to 5G: 5G network architecture, 5G enable technologies	02 Lectures							
				12/02/2026	13/02/2026						
		TLO 4.3	4.2 IMT 2020 standard: Specifications and features	02 Lectures							
				18/02/2026	20/02/2026						
		TLO 4.4	4.3 5G Radio spectrum: low band, medium band, millimeter wave (Ultrahigh) band, 5G service providers	02 Lectures				Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA			
				21/02/2026	25/02/2026						
				03 Lectures							
				26/02/2026	04/03/2026						

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Unit No. (Allocated Hrs.)	CO	TLO aligned to COs	Title/ Details	Plan (No. Of Lectures)		Actual Execution (From-To & No. of Lectures)		Pedagogy Used	Remark
				From	To	From	To		
5(12)	CO - 5		Unit - V Wireless Network Technologies					Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
		TLO 5.1	5.1 Mobile IP: Operational Principle, Home agent ,Foreign Agent	02 Lectures		05/03/2026	06/03/2026		
		TLO 5.2	5.2 Line coding techniques: Unipolar NRZ, Bipolar RZ and Manchester NRZ	02 Lectures		10/03/2026	11/03/2026		
		TLO 5.3	5.3 Binary amplitude shift keying, Binary phase shift keying, Binary frequency shift keying, PCM (Pulse code modulation), DM(Delta Modulation)	03 Lectures		12/03/2026	18/03/2026		
			5.4 MANETs (Mobile Adhoc Networks): Topologies, features, applications, architecture	02 Lectures		20/03/2026	20/03/2026		
		TLO 5.4	5.5 WSN (Wireless Sensor Networks): Different types of architecture, characteristics, applications	03 Lectures		25/03/2026	28/03/2026		

ASSESSMENT METHODOLOGIES/TOOLS**Formative assessment (Assessment for Learning)**

- Continuous assessment based on process and product related performance indicators. Each practical will be assessed considering 1) 60% weightage is to process 2) 40% weightage to product

Summative Assessment (Assessment of Learning)

- End semester examination, Lab performance, Viva voce

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Sr. No	Author	Title	Publisher
1	Theodore S. Rappaport	Wireless Communications Principles & Practice	Pearson Education India : 2nd edition (1January 2010), ISBN : 978-8131731864
2	Lin YI-Bang, Clamtae Emrich	Wireless and Mobile Network Architecture	John Wiley & Sons, New Delhi, 2001 ISBN 978-81-265-1560-8
3	William C.Y. Lee	Mobile Cellular Telecommunications	McGraw Hill Education (India) Private Limited. ISBN : 978-0070635999
4	T.L.Singal	Wireless Communications	McGraw Hill Education (1 July 2017)(India) Private Limited,ISBN : 978-0070681781

LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://www.ericsson.com/en/reports-and-papers/white-papers/advanced-antenna-systems-for-5g-networks	5G-networks
2	https://mobilepacketcore.com/lte-4g-network-architecture/	LTE 4G architecture
3	https://www.linkedin.com/pulse/applications-5g-technology-ra-mya-chandran-swprc	Applications of 5G
4	https://www.spirent.com/products/automated-wireless-testing-wi-fi-5g	Wi-Fi Testing
5	https://mobilepacketcore.com/lte-4g-network-architecture/	4G architecture

Mrs. C. P. Borade
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