

Ramgarhia Polytechnic College, Phagwara



Computer science and Engineering **Department**

Head of Department:	Er. Poonam Rana
Name of the Faculty:	Er. Anju Bala
Discipline:	Computer science and Engineering Department
Semester:	5 th
Subject:	Mobile Technologies
Lesson Plan Duration:	16 Weeks




















RATIONALE

Mobile Technologies includes basic introduction of various wireless, cellular and mobile communication technologies. Different concepts related to communication of mobile devices and their hardware and software configuration will be explained.

Learning Outcomes

After undergoing this course, the students will be able to:

- CO1. Identify various issues in different mobile communication technologies.
- CO2. Explain the evolution of computing techniques such as distributed computing, Cloud Computing etc.
- CO3. Compare and contrast the different features of GSM and 3G, 4G Technologies.
- CO4. Analyse and use of various layers such as Physical, Network, Transport layer in Mobile IP technology.
- CO5. Classify various infrastructure based wireless LAN technologies such as Wi-fi, Wi-Max etc.
- CO6. Compare various infrastructure less wireless LAN technologies such as Bluetooth, Mobile Adoc networks, VANETS, NFC etc for various applications.
- CO7. Describe the use of various Mobile OS and their features.
- CO8. Write a simple program to run on mobile devices.

PO 	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO 							
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							

Syllabus

Units	Details	Hours
1.	Mobility Issues, challenges, and benefits; Introduction of mobile and cellular communication technology; Review of distributed/network operating systems, ubiquitous computing, Cloud Computing	(14 hrs)
2.	Global System for Mobile Communication (GSM) System Overview GSM Architecture, Mobility Management, Network Signaling, GPRS, CDMA, EDGE, Introduction to 3G, 4G Technologies	(14 hrs)
3.	Mobile IP Networks Physical mobility, challenges, limits and connectivity, mobile IP and cellular IP in mobile computing. Transport layer issues in wireless, Indirect TCP, Mobile TCP	(16 hrs)
4.	Wireless LANs	(16 hrs)

	Introduction to IEEE 802.11, wifi standards, Bluetooth technologies and standards, Near Field Communication, Wi Max Standard. Mobile AdHoc Networks, Vehicular Area Networks.	
5.	Mobile Devices and OS: Various types of Devices, Operating Systems: Introduction to various mobile operating systems (Android, Windows 10, iOS)	(12 hrs)
6.	Application Development: WWW programming model, Development Environment for Mobile Devices, Introduction to small program development in Mobile	(8 hrs)

Reference Books:

1. Mobile Communication by Jochen Schiller; Pearson Education.
2. Principles of Mobile Computing by U. Hansman and L. Merck; Springer.
3. Computer Networks by A. S. Tanenbaum; Pearson Education

Delivery/Instructional Methodologies

Sr.No.	Description
1.	Chalk and Talk
2.	PowerPoint Presentation

Assessment Methodologies

Sr. No.	Description	Type
1.	Student Assignment	Direct
2.	Test	Direct

3.	Board Examination	Direct
4.	Student Feedback	Direct

Gaps in the syllabus - to meet industry/profession requirements

S.NO.	DESCRIPTION	PROPOSED ACTIONS	PO MAPPING
	N/A	N/A	N/A

Topics beyond syllabus/advanced topics

Units	Details	Hours
N/A	N/A	N/A

Web Source References

Sr. No.	URL
1.	https://nptel.ac.in/

Lesson Plan

Week	Theory		Practical	
	Lecture Day		Practical Day	

	1 st	Introduction on Mobility	1.	N/A
1 st	2 nd			
	3 rd	Issues, challenges, and benefits .		
	4 th			
	5 th			
2 nd	6 th	Introduction of mobile and cellular communication technology	2.	N/A
	7 th			
	8 th			
	9 th	Review of distributed/network operating systems,		
	10 th			
3 rd	11 th	Ubiquitous computing, Cloud Computing	3.	N/A
	12 th			
	13 th			
	14 th	Introduction on Global System for Mobile Communication (GSM) System Overview		
	15 th			
	16 th			

4 th	17 th	GSM Architecture	4.	N/A
	18 th			
	19 th	Mobility Management,		
20 th				
5 th	21 st	Network Signaling	5.	N/A
	22 th			
	23 th	GPRS, CDMA, EDGE		
	24 th			
	25 th			
6 th	26 th	Introduction to 3G, 4G Technologies		N/A
	27 th			
	28 th	REVISION		
	29 th	1 st Sessional Test (Tentative)		
	30 th	SEMINAR		
	36 th	Mobile IP and cellular IP in mobile computing.		
	37 th			

8 th			8.	N/A
	38 th	Transport layer issues in wireless		
	39 th			
	40 th			
9 th	41 th	Indirect TCP,	9.	N/A
	42 th			
	43 th	Mobile TCP		
	44 th			
	45 th	Introduction on Wireless LANs		
10.	46 th		10.	N/A
	47 th	Introduction to IEEE 802.11		
	48 th	Wifi standards, Bluetooth technologies and standards		
	49 th			
11 th	51 st		11.	N/A
	52 nd	Near Field Communication,		

	53 rd	Wi Max Standard		
	54 th			
12 th	56 th	PTM	12.	N/A
	57 th	2 nd Sessional Test (Tentative)		
	58 th	AdHoc Networks, Vehicular Area Networks.		
	59 th			
13 th	61 st	Introduction on Mobile Devices and OS	13.	N/A
	62 nd			
	63 th	Various types of Devices,		
	64 th			
14 th	66 th	Introduction to various mobile operating systems (Android, Windows 10, iOS)	14	N/A
	67 th			
	68 th			
	69 th			
	71 st	Application Development		

15 th	72 nd		15.	N/A
	73 th	WWW programming model		
	74 th			
16 th	76 th	Development Environment for Mobile Devices	16.	N/A
	77 th	PTM		
	78 th	REVISION		
	79 th	3rd Sessional Test (Tentative)		
	80 TH	Introduction to small program development in Mobile		