SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC,New Delhi

NAAC Accredited Grade "A+" with CGPA 3.51 in 3rd cycle

ISO 9001:2015 & ISO 14001:2015 Certified

Department of Computer Science

Lesson Plan (Session 2022-2023)

Class: BVSD Sem: VI   **Course Code:** BVSD-61

Nomenclature: Mobile Computing   **Duration: 13 Weeks**

 Dates: (Feb 2023-April 2023)

SYLLABUS
BVSD-61 Mobile computing

Maximum Marks: 100   **External: 80**   **Minimum Pass Marks: 35**
Internal: 20   **Time: 3 hours**

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of objective type/short-answer type questions covering the entire syllabus. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus.
Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

Unit I
Introduction to Mobile Communications and Computing: Mobile Computing (MC) Introduction to MC, Novel Applications, Limitations, and Architecture. GSM: Mobile Services, System Architecture, Radio Interface, Protocols, Localization and Calling, Handover, Security, and New Data Services. Wireless Medium Access Control: Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and far Terminals), SDMA, FDMA, TDMA, CDMA.

Unit II
Mobile Network Layer: Mobile IP (Goals, Assumptions, Entities and Terminology, IP Packet Delivery, Agent Advertisement and Discovery, Registration, Tunneling and Encapsulation, Optimizations), Dynamic Host Configuration Protocol (DHCP), Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast Retransmit/Fast Recovery, Transmission/Time-out Freezing, Selective Retransmission, Transaction Oriented TCP.

Unit III

Database Issues: Hoarding Techniques, Catching Invalidation Mechanisms, Client Server Computing with Adaption, Power-aware and Context-aware Computing, Transactional Models, Query Processing, Recovery, and Quality of Service Issues, Data Dissemination: Communications Asymmetry, Classification of new Data Delivery Mechanisms, Push Based Mechanisms, Pull-based Mechanisms, Hybrid Mechanisms, Selective Tuning (indexing) Techniques.

Unit IV

Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, Spectrum of MANET Applications, Routing and Various Routing Algorithms, Security in MANETs, Protocols and Tools: Wireless Application Protocol-WAP (Introduction, Protocol Architecture, and Treatment of Protocols of all Layers), Bluetooth (User Scenarios, Physical Layer, MAC Layer, Networking, Security, Link Management) and J2ME.

TEXT BOOKS:

- Schiller Jochen, Mobile Communications 2nd Edition, Addison Wesley, 2004
- Stojmenovic and Cacute, Handbook of Wireless Networks & Mobile Computing, Wiley, 2002

REFERENCE BOOKS:

- Behravanfar Reza, Mobile Computing Principles : Designing and Developing Mobile Applications with UML & XML, ISBN :0521817331, Cambridge University Press, October 2004
- Adelstein Frank, Gupta Sandeep KS, Richard Golden, Schweibert Loren, Fundamentals of Mobile and Pervasive Computing, ISBN : 0071412379, McGraw Hill Professional, 2005

Course Title	MOBILE COMPUTING
CO No.	Course Outcomes
CO-1	Explain the principles and theories of mobile computingtechnologies.
CO-2	Describe infrastructures and technologies of mobile computingtechnologies.
CO-3	List applications in different domains that mobile computing offersto the public, employees, and businesses.
CO-4	Describe the possible future of mobile computing technologies andapplications.
CO-5	Effectively communicate course work through written and oralpresentations.

S.No	Instructional Technique	Assessment Methods (AM)
1	Chalk & Talk	Assignments
2	ICT tools	Quiz
3	Group discussions	Group Discussions
4	Industrial visit	Oral Tests
5	Case studies	Sessional
6	Small Projects	Presentations
7	Workshop	Seminar
8	Spoken Tutorials	University Exams
9	Flipped Class	
10.	E-Resources	

Detailed Lesson Plan

Week	Date	B(Voc) (6th Sem) (BVSD-61)	Inrstructional technique	Assessment Method
1	01.02.2023	-		
	02.02.2023	Introduction to Mobile Communications and Computing:	1	1
	03.02.2023	Mobile Computing (MC) Introduction to MC, Novel Applications	1	1
	04.02.2023	Limitations, and Architecture. GSM	1	1,2,3,4
	05.02.2023	Sunday		
2	06.02.2023	-		
	07.02.2023	-		
	08.02.2023	-		
	09.02.2023	Mobile Services, System Architecture	2-PPT/Projector	1,2,3,4
	10.02.2023	Radio Interface, Protocols	2-PPT/Projector	---
	11.02.2023	Localization and Calling, Handover	2-PPT/Projector	1,2,3,4
	12.02.2023	Sunday		
3	13.02.2023	-		
	14.02.2023	-		
	15.02.2023	-		
	16.02.2023	Security, and New Data Services. Wireless Medium Access Control		
	17.02.2023	Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and far Terminals)	1	1,2,3,4,6
	18.02.2023	Holiday		
	19.02.2023	Sunday		
4	20.02.2023	-		
	21.02.2023	-		
	22.02.2023	-		--
	23.02.2023	SDMA,FDMA, TDMA, CDMA.	8,10	1,2,3,4
	24.02.2023	Mobile Network Layer:	8,10	1,2

		Mobile IP (Goals, Assumptions, Entities and Terminology, IP Packet Delivery		
	25.02.2023	Agent Advertisement and Discovery, Registration		4
	26.02.2023	Sunday		
5	**27.02.2023**	-		
	28.02.2023	-		
	01.03.2023	-		
	02.03.2023	Tunneling and Encapsulation, Optimizations		1,2,3,4
	03.03.2023	Dynamic Host Configuration Protocol (DHCP), Mobile Transport Layer: Traditional TCP	2-(PPT/Projector)	1,2,3,4
	04.03.2023	Indirect TCP, Snooping TCP, Mobile TCP, Fast Retransmit/Fast Recovery	6	5
	05.03.2023	Sunday		
6	**06.03.2023** **07.03.2023** **08.03.2023** **09.03.2023** **10.03.2023** **11.03.2023**	Holi Holidays	--	
	12.03.2023	Sunday		
7	**13.03.2023**	-		
	14.03.2023	-		
	15.03.2023	-		
	16.03.2023	Assignment-1	6	1
	17.03.2023	Transmission/Time-out Freezing, Selective Retransmission, Transaction Oriented TCP.	2-(PPT/Projector)	1,2,3,4
	18.03.2023	Database Issues: Hoarding Techniques, Catching Invalidation Mechanisms	8,10	1,2,3,4
	19.03.2023	Sunday		
8	**20.03.2023**	-		
	21.03.2023	-		
	22.03.2023	-		

	23.03.2023	Holiday		
	24.03.2023	Client Server Computing with Adaption, Power-aware and Context-aware Computing	2-(PPT/Projector)	1,2,3,4
	25.03.2023	Transactional Models, Query Processing, Recovery, and Quality of Service Issues	6	--
	26.03.2023	Sunday		
9	27.03.2023	-		
	28.03.2023	-		
	29.03.2023	Revision		5
	30.03.2023	Holiday		
	31.03.2023	Data Dissemination: Communications Asymmetry, Classification of new Data Delivery Mechanisms	2-PPT/Projector	1,2,3,4
	01.04.2023	Sessional	2-PPT/Projector	1,2,3,4
	02.04.2023	Sunday		
10	03.04.2023	-		
	04.04.2023	Holiday		
	05.04.2023	-		
	06.04.2023	Push Based Mechanisms, Pull-based Mechanisms, Hybrid Mechanisms, Selective Tuning (indexing) Techniques.	2-PPT/Projector	1,2,3,4
	07.04.2023	Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET	1	1,2,3,4
	08.04.2023	Spectrum of MANET Applications, Routing and Various Routing Algorithms	2-(PPT/Projector)	1,2,3,4,6
11	09.04.2023	Sunday		
	10.04.2023	-		
	11.04.2023	-	---	
	12.04.2023	-		
	13.04.2023	Security in MANETs, Protocols and Tools	8,10,2	1,2
	14.04.2023	Holiday		
	15.04.2023	Assignment-2		1
12	16.04.2023	Sunday		

	Date	Topic		
	17.04.2023	-		
	18.04.2023	-		
	19.04.2023	-		
	20.04.2023	Wireless Application Protocol-WAP (Introduction)	1	1,2
	21.04.2023	Protocol Architecture, and Treatment of Protocols of all Layers	2-(PPT/Projector)	1,2,3,4
	22.04.2023	Holiday		
	23.04.2023	Sunday		
13	24.04.2023	-		
	25.04.2023	-		
	26.04.2023	-		
	27.04.2023	Bluetooth (User Scenarios)	1	1,2,3,4
	28.04.2023	Physical Layer, MAC Layer, Networking, Security, Link Management)	2-(PPT/Projector)	1,2,3,4
	29.04.2023	J2ME	2-(PPT/Projector)	1,2,3,4
	30.04.2023	Sunday		

	Teacher Incharge	Head of the Department
Name	Harjinder Kaur	Dr. Girdhar Gopal
Sign with Date		