	LESSON PLAN	
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE** **Year:IV. B.Tech** **Semester : VII**	**Date: 20/6/2016** **EWD: 9/11/2016**

P859 : MOBILE COMMUNICATIONS LAB

Lecture	**: 3 Periods/week**	**Internal Marks**	**: 40**
Tutorial		**External Marks**	**: 60**
Credits	**: 2**	**External Examination**	**: 3**
Hrs			

Implementing and verifying the performance of protocols using Network Simulator 2 (ns2) and OPNET Simulator.

1. Installation of ns2 in linux
2. Installation of OPNET simulator
3. Testing ns2 working
4. Performance evaluation of wireless networks
5. Performance Evaluation 802.11
6. Performance Evaluation of AODV protocol
7. Performance Evaluation of DSDV Protocol
8. Using Directional Antennas in Wireless Communication
9. Performance Evaluation of DVCS in ns2.
10. Performance Evaluation of Routing Protocols in ns2.

	LESSON PLAN	
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE Year:IV. B.Tech Semester : VII**	**Date: 20/6/2016** **EWD: 9/11/2016**

COURSE OBJECTIVES:

- ✓ The first objective of this course is to give basic concepts relating to wireless and mobile communications and development of cellular communication infra structure.
- ✓ The second objective is to describe the basic working and engineering techniques of Optical Fiber Communications

COURSE OUTCOMES:

CO1: Apply the pre-processing and post processing steps in ns2 simulator

CO2: Evaluate the various result analysis methods in ns2 sim

	LESSON PLAN	Date: 20/6/2016
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE-Asec Year:IV. B.Tech Semester : VII**	**EWD: 9/11/2016**

CYCLE-I

Program: 1

Session No	Topics to be covered	Date	Teaching Method	Remarks
1	Installation of ns2 in linux	23/06/16 30/06/16	BB	

Program: 2

Session No	Topics to be covered	Date	Teaching Method	Remarks
2	Installation of OPNET simulator	7/07/16 14/07/16	BB	

Program: 3

Session No	Topics to be covered	Date	Teaching Method	Remarks
3	Testing ns2 working	21/07/16	BB	

		28/07/16		

Program:4

Session No	Topics to be covered	Date	Teaching Method	Remarks
4	Performance evaluation of wireless networks	4/08/16 25/08/16	BB	

	LESSON PLAN	
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE** **Year:IV. B.Tech** **Semester : VII**	**Date: 20/6/2016** **EWD: 9/11/2016**

Program: 5

Session No	Topics to be covered	Date	Teaching Method	Remarks
5	Performance Evaluation 802.11	1/09/16 8/09/16	BB	

Program: 6

Session No	Topics to be covered	Date	Teaching Method	Remarks
6	Performance Evaluation of AODV protocol	15/09/16 22/09/16	BB	

Program: 7

Session No	Topics to be covered	Date	Teaching Method	Remarks
7	Performance Evaluation of DSDV Protocol	22/09/16 29/09/16	BB	

Program: 8

Session No	Topics to be covered	Date	Teaching Method	Remarks
8	Using Directional Antennas in Wireless Communication	06/10/16 13/10/16	BB	

	LESSON PLAN	Date: 20/6/2016
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE Year:IV. B.Tech Semester : VII**	**EWD: 9/11/2016**

Program: 9

Session No	Topics to be covered	Date	Teaching Method	Remarks
9	Performance Evaluation of DVCS in ns2.	20/10/16 27/10/16	BB	

Program: 10

Session No	Topics to be covered	Date	Teaching Method	Remarks
10	Performance Evaluation of Routing Protocols in ns2.	3/10/16 10/10/16	BB	

	Prepared by	Approved by
Signature		
Name	**G.BALU NARASIMHARAO**	**HOD/CSE**
Designation	**Asst. Professor**	**Professor**
Date	**25/6/2016**	

	LESSON PLAN	Date: 20/6/2016
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE Year:IV. B.Tech Semester : VII**	**EWD: 9/11/2016**

P859 : MOBILE COMMUNICATIONS LAB

Lecture	**: 3 Periods/week**	**Internal Marks**	**: 40**
Tutorial		**External Marks**	**: 60**
Credits	**: 2**	**External Examination**	**: 3**
Hrs			

Implementing and verifying the performance of protocols using Network Simulator 2 (ns2) and OPNET Simulator.

11. Installation of ns2 in linux
12. Installation of OPNET simulator
13. Testing ns2 working
14. Performance evaluation of wireless networks
15. Performance Evaluation 802.11
16. Performance Evaluation of AODV protocol
17. Performance Evaluation of DSDV Protocol
18. Using Directional Antennas in Wireless Communication
19. Performance Evaluation of DVCS in ns2.
20. Performance Evaluation of Routing Protocols in ns2.

	LESSON PLAN	
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE** **Year:IV. B.Tech** **Semester : VII**	**Date: 20/6/2016** **EWD: 9/11/2016**

COURSE OBJECTIVES:

- ✓ The first objective of this course is to give basic concepts relating to wireless and mobile communications and development of cellular communication infra structure.
- ✓ The second objective is to describe the basic working and engineering techniques of Optical Fiber Communications

COURSE OUTCOMES:

CO1: Apply the pre-processing and post processing steps in ns2 simulator

CO2: Evaluate the various result analysis methods in ns2 simulator

	LESSON PLAN	Date: 20/6/2016
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE-Bsec Year:IV. B.Tech Semester : VII**	**EWD: 9/11/2016**

CYCLE-I

Program: 1

Session No	Topics to be covered	Date	Teaching Method	Remarks
1	Installation of ns2 in linux	20/06/16 27/06/16	BB	

Program: 2

Session No	Topics to be covered	Date	Teaching Method	Remarks
2	Installation of OPNET simulator	4/07/16 11/07/16	BB	

Program: 3

Session No	Topics to be covered	Date	Teaching Method	Remarks
3	Testing ns2 working	18/07/16	BB	

		25/07/16		

Program:4

Session No	Topics to be covered	Date	Teaching Method	Remarks
4	Performance evaluation of wireless networks	8/08/16 29/08/16	BB	

	LESSON PLAN	
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE** **Year:IV. B.Tech** **Semester : VII**	**Date: 20/6/2016** **EWD: 9/11/2016**

Program: 5

Session No	Topics to be covered	Date	Teaching Method	Remarks
5	Performance Evaluation 802.11	5/09/16	BB	

Program: 6

Session No	Topics to be covered	Date	Teaching Method	Remarks
6	Performance Evaluation of AODV protocol	12/09/16 19/09/16	BB	

Program: 7

Session No	Topics to be covered	Date	Teaching Method	Remarks
7	Performance Evaluation of DSDV Protocol	26/09/16 03/10/16	BB	

Program: 8

Session No	Topics to be covered	Date	Teaching Method	Remarks
8	Using Directional Antennas in Wireless Communication	17/10/16 24/10/16	BB	

	LESSON PLAN	Date: 20/6/2016
	Sub Code &Name: T859 & Mobile Communications Lab **Branch: CSE Year:IV. B.Tech Semester : VII**	**EWD: 9/11/2016**

Program: 9

Session No	Topics to be covered	Date	Teaching Method	Remarks
9	Performance Evaluation of DVCS in ns2.	31/10/16 7/11/16	BB	

Program: 10

Session No	Topics to be covered	Date	Teaching Method	Remarks
10	Performance Evaluation of Routing Protocols in ns2.	14/11/16	BB	

	Prepared by	Approved by
Signature		
Name	**G.BALU NARASIMHARAO**	**HOD/CSE**

Designation	**Asst. Professor**	**Professor**
Date	**25/6/2016**	

	LESSON PLAN **Sub Code & Sub Name: T258 & Mobile Communications** **Branch: CSE Year:IV. B.Tech Semester : VII**	**Date: 20/6/2016** **EWD: 9/11/2016**

SUBJECT / PAPER PATTERN:

Subject Code	Subject / Paper	Scheme of Instruction			Scheme of Examination		Total	Credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab	Internal	External		
T258	Mobile Communications	4	1	--	25	75	100	4
P859	Mobile Communications Lab	--	--	3	25	75	100	2

DISTRIBUTION AND WEIGHTAGE OF MARKS:

1) The performance of a student in each semester shall be evaluated subject wise with a maximum of **100** marks for **theory** and **100** marks for **practical** subject.
2) For each subject the marks distribution and evaluation shall be as follows

	THEORY	**PRACTICALS**
INTERNAL(Sessional)	**25** (20 = Subject + 5 = Attendance)	**25** (10 = Day to Day Work + 10 = Internal Test + 5 = Attendance)
EXTERNAL(End Semester)	**75**	**75**
TOTAL	**100**	**100**

The question paper for internal examinations shall contain 5 questions, Out of five questions given, student has to answer all questions.

3) For each theory subject, during each semester there shall be 2 tests, for a duration of 90 minutes.
    a) One descriptive test to be conducted in 1 – 2 units and
    b) Second descriptive test be conducted in 3 – 5 units thereby.
4) However,75% weightage for the **best** and 25% for the other test shall be considered for awarding sessional marks
5) The question paper for External (End Semester) examinations shall contain 5 questions (one question from each unit with internal choice) and each question carries 12 Marks, total 75 Marks(i.e., 5x12=60)

	LESSON PLAN	
	Sub Code & Sub Name: T258 & Mobile Communications	**Date: 20/6/2016**
	Branch: CSE Year: IV. B.Tech Semester : VII	**EWD: 9/11/2016**

T258 – MOBILE COMMUNICATIONS

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs.**

UNIT - I

The Cellular Concept: Cellular Architecture, The First Generation Cellular Systems, Second Generation Cellular Systems, Third Generation Cellular Systems, Wireless Local Loop, IEEE 802.16

UNIT - II

Ad Hoc Wireless Networks: Introduction, Issues in Ad Hoc Wireless networks. **Medium Access Control:** Issues in MAC, Design Goals of MAC, Classification of MAC protocols. **Contention Based MAC Protocols:** MACAW, Floor Acquisition Multiple Access Protocol, Busy Tone Multiple Access protocols. **Reservation Mechanisms:** D-PRMA, CATA. Scheduling Mechanisms: DPS

UNIT - III

Routing in Ad hoc Wireless networks: Issues in Routing, Classification of Routing Protocols. **Table Driven:** DSDV, WRP, STAR. On Demand: AODV, DSR, LAR. **Hybrid Routing**: ZRP, CEDAR. **Hierarchical Routing:** HSR, FSR.

UNIT - IV

Hybrid Wireless Networks: Introduction. **Next Generation Hybrid Network Architectures:** MCN, HWN, iCAR, SOPRANO, TWILL, A-GSM, UCAN, Open Issues in Next Generation Hybrid Architectures, Pricing in Hybrid Wireless Networks.

UNIT - V

Recent Advances: Ultra Wide Band Radio Communication (UWB), Wireless Fidelity Systems, Optical Wireless Networks, Multimode 802.11.

TEXT BOOK

C. Siva Ram Murthy, B.S. Manoj, " Ad Hoc Wireless Networks: Architectures and Protocols", Pearson Education, 2004

REFERENCES

1. Stefano Basagni, Marco Conti, Silvia Giordano, Ivan Stojmenović, "Mobile ad hoc networking", IEEE Press, Wiley InterScience, 2004
2. Garg, "Wireless Networks Evolution: 2G to 3G", Pearson Education, 2002

Course Description:

The course provides an overview of the latest developments and trends in wireless mobile communications, and addresses the impact of wireless transmission and user mobility on the design and management of wireless mobile systems, network architectures: cellular networks, ad hoc networks; access protocols; radio and network resource management; quality of service; mobility and location management; routing; mobile-IP; current wireless technologies for personal, local and satellite networks.

Course Objectives:

- To study the technical issues and state-of-the-art techniques in the operation and management of mobile communications networks;
- To learn the engineering principles and system evaluation methods used in the design of mobile communications networks.
- To understand the issues involved in mobile communication system design and analysis.
- To give the student an understanding of digital cellular systems (GSM, CDMA)

Course Outcomes (CO's)

After the completion of the course, students should be able to

CO1: Investigate the Evolution of Cellular System and Protocols

CO2: Analyze MAC Protocols in Adhoc Wireless network

CO3: Analyze the Routing Protocols of Adhoc Wireless networks

CO4: Explore various hybrid network architectures

CO5: Analyze recent advances in the field of wireless communication

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: **Mobile Communications**
	Programme: B.Tech	Unit No: 1 to 5
	Year &Sem: IV & VII Sem	Section: A

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
	UNIT I					
1	**Introduction** The Cellular Concept	20/6/2016 24/6/16		2	1	1,3,5,7
2	Cellular Architecture	25/6/16		2	1	
	TUTORIAL HOUR	27/6/16		2, 3	1	
3	The First Generation Cellular Systems	28/6/16		2, 3	1	
4	Second Generation Cellular Systems,	29/6/16 30/6/16		2, 3	1	
5	Third Generation Cellular Systems	2/7/16 11/7/16		2	1	

6	CRT	4/7/16 TO 9/7/16				
7	TUTORIAL HOUR	12/7/16				
8	Wireless Local Loop	13/7/16 14/7/16		2	1	
9	IEEE 802.16	16/7/16 18/7/16		2	1	
10	**Tutorial-2**	19/7/16				
		UNIT II				
1	Introduction	20/7/16		2, 3	1	
12	Issues in Ad Hoc Wireless networks	21/7/16 23/7/16		2, 3	1	
13	**Medium Access Control:** Issues in MAC	25/7/16 26/7/16		2, 3	1	1,3,5,7
14	TUTORIAL HOUR	27/7/16		2, 3	1	
15	Design Goals of MAC	28/7/16		2, 3	1	
16	Classification of MAC protocols	30/7/16		2, 3	1	
17	**Contention Based MAC Protocols:** MACAW	1/8/16 2/8/16		2, 3	1	
18	TUTORIAL HOUR	3/8/16		1, 2, 3	1	
19	Floor Acquisition Multiple Access Protocol	4/8/16 6/8/16				
20	Busy Tone Multiple Access protocols	8/8/16 9/8/16		2, 3	1	
21	TUTORIAL HOUR	10/8/16		2, 3	1	
22	**Reservation Mechanisms:** D-PRMA,	11/8/16 13/8/16		2, 3	1	
23	CATA	16/8/16 17/8/16		2, 3	1	
24	Scheduling Mechanisms: DPS	18/8/16 22/8/16		2, 3	1	

25	TUTORIAL HOUR	23/8/16				
26	**MID – I EXAMS**	24/8/16 TO 27/8/16				
27						
28						
	UNIT- III					
29	Issues in Routing	29/8/16 30/8/16		2	1	
30	Classification of Routing Protocols	31/8/16		2	1	
31	**Table Driven:** DSDV	1/9/16 3/9/16		2	1	
32	WRP	6/9/16 7/9/16		2	1	
33	TUTORIAL HOUR	8/9/16		2	1	1,3,5,7
34	STAR-protocol	10/9/16		2	1	
35	On Demand: AODV	13/9/16 14/9/16		2	1, 2	
36	DSR	15/9/16 17/9/16		2	1, 2	
37	TUTORIAL HOUR	19/9/16		2	1, 2	
38	LAR protocol	20/9/16		2	1, 2	
	UNIT –IV					
39	**Hybrid Wireless Networks:** Introduction	21/9/16 22/9/16		2	1,2	
40	**Next Generation Hybrid Network Architectures:** MCN	24/9/16 26/9/16		2	1,2	
41	HWN	27/9/16		2	1, 2	
42	TUTORIAL HOUR	28/9/16		2	1, 2	1,3,5,7
43	iCAR	29/9/16		2, 3	1, 2	
44	SOPRANO,	1/10/16		2, 3	1, 2	
45	TWILL	3/10/16		2	1,2	
46	A-GSM	4/10/16		2	2	
47	TUTORIAL HOUR	5/10/16		2	2	

48	UCAN	6/10/16 8/10/16				
49	Open Issues in Next Generation Hybrid	3/10/16				
50	Pricing in Hybrid Wireless Networks.	4/10/16 5/10/16				
UNIT –V						
51	**Recent Advances** Introduction	6/10/16		2	1,2	1,3,5,7
52	TUTORIAL HOUR	8/10/16		2, 3	1,2	
53	Ultra Wide Band Radio Communication (UWB)	17/10/16 18/10/16		2, 3	1,2	
54	Wireless Fidelity Systems: Introduction	19/10/16 20/10/16		2, 3	1,2	
55	Fidelity Systems	22/10/16		2, 3	1,2	
56	TUTORIAL HOUR	24/10/16		2, 3	1,2	
57	Optical Wireless Networks	25/10/16 26/10/16		2, 3	1,2	
58	TUTORIAL HOUR	27/10/16		2	1,2	
59	Multimode 802.11.(PART-1)	29/10/16 1/11/16		2	1,2	
60	TUTORIAL HOUR	2/11/16		2	1,2	
61	Multimode 802.11.(PART-2)	2/11/16 5/11/16		2	1,2	
62	**II MID EXAMS**	7/11/16 TO 9/11/16				
63						
64						

Resources Used:

TEXT BOOK

C. Siva Ram Murthy, B.S. Manoj, " Ad Hoc Wireless Networks: Architectures and Protocols", Pearson Education, 2004

REFERENCES

1. Stefano Basagni, Marco Conti, Silvia Giordano, Ivan Stojmenović, "Mobile ad hoc networking", IEEE Press, Wiley InterScience, 2004
2. Garg, "Wireless Networks Evolution: 2G to 3G", Pearson Education, 2002
3. Rappaport, " Wireless Communications: Principles and Practice" Second Edition, Pearson Education,2009

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	--					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	05					
Total	100					

Relation of course outcomes to Program Outcomes and Program Specific Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1		1		3									2	1	
CO2		3		2									1	3	
CO3		3		2									1	3	
CO4				1	2									3	
CO5		3		3									1	3	
S=3=STRONGLY AGREE (100%), M=2= MODERATELY (66%), L=1=LIGHTLY (33%)															

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	G BALU NARASIMHARAO			
Sign with Date				

Unit-Wise Question Bank

UNIT-I

1. Explain Cellular architecture?
2. Explain Second-generation cellular systems?
3. Briefly explain about Handoffs?
4. Explain about Wireless Local Loop?
5. Explain the concept of Capacity Enhancement?

UNIT-II

1. What is AdHoc Wireless networks and explain their applications?
2. Differences between cellular network and AdHoc Wireless networks?
3. Briefly explain Classification of MAC protocols?
4. Explain Busy Tone Multiple Access (BTMA) protocol?
5. Explain the Scheduling Mechanism of DPS?
6. Explain D-PRMA protocol?

UNIT-III

1. What are the issues in designing a routing protocol for AdHoc wireless networks?
2. Explain about Destination Sequenced Distance-Vector Routing protocol?
3. Explain Dynamic Source Routing (DSR) protocol?
4. Explain Fisheye State Routing (FSR) protocol?
5. Explain Classification of Routing protocols?
6. Explain ZRP Hybrid protocol?

UNIT-IV

1. Explain TWILL architecture?

2. What are the open issues in Next Generation Hybrid Architectures?
3. Explain MCN architecture?
4. Explain SOPRANO architecture?
5. Explain iCAR architecture?
6. Explain about pricing in Hybrid wireless Networks?

UNIT-V

1. Explain about UWB (Ultra Wide Band) Radio communication?
2. Explain the concept of optical wireless WDM?
3. Explain about operation of Multimedia 802.11?
4. Explain issues and service provider models of Wi-Fi systems?

	LESSON PLAN	Date: 20/6/2016
	Sub Code & Sub Name: T258 & Mobile Communications **Branch: CSE Year:IV. B.Tech Semester : VII**	**EWD: 9/11/2016**

SUBJECT / PAPER PATTERN:

Subject Code	Subject / Paper	Scheme of Instruction			Scheme of Examination		Total	Credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab	Internal	External		
T258	Mobile Communications	4	1	--	25	75	100	4
P859	Mobile Communications Lab	--	--	3	25	75	100	2

DISTRIBUTION AND WEIGHTAGE OF MARKS:

6) The performance of a student in each semester shall be evaluated subject wise with a maximum of **100** marks for **theory** and **100** marks for **practical** subject.
7) For each subject the marks distribution and evaluation shall be as follows

	THEORY	**PRACTICALS**
INTERNAL(Sessional)	**25** (20 = Subject + 5 = Attendance)	**25** (10 = Day to Day Work + 10 = Internal Test + 5 = Attendance)
EXTERNAL(End Semester)	**75**	**75**
TOTAL	**100**	**100**

The question paper for internal examinations shall contain 5 questions, Out of five questions given, student has to answer all questions.

8) For each theory subject, during each semester there shall be 2 tests, for a duration of 90 minutes.
    c) One descriptive test to be conducted in 1 – 2 units and
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	LESSON PLAN	
	Sub Code & Sub Name: T258 & Mobile Communications	**Date: 20/6/2016**
	Branch: CSE Year: IV. B.Tech Semester : VII	**EWD: 9/11/2016**

T258 – MOBILE COMMUNICATIONS

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs.**

UNIT - I

The Cellular Concept: Cellular Architecture, The First Generation Cellular Systems, Second Generation Cellular Systems, Third Generation Cellular Systems, Wireless Local Loop, IEEE 802.16

UNIT - II

Ad Hoc Wireless Networks: Introduction, Issues in Ad Hoc Wireless networks. **Medium Access Control:** Issues in MAC, Design Goals of MAC, Classification of MAC protocols. **Contention Based MAC Protocols:** MACAW, Floor Acquisition Multiple Access Protocol, Busy Tone Multiple Access protocols. **Reservation Mechanisms:** D-PRMA, CATA. Scheduling Mechanisms: DPS

UNIT - III

Routing in Ad hoc Wireless networks: Issues in Routing, Classification of Routing Protocols. **Table Driven:** DSDV, WRP, STAR. On Demand: AODV, DSR, LAR. **Hybrid Routing**: ZRP, CEDAR. **Hierarchical Routing:** HSR, FSR.

UNIT - IV

Hybrid Wireless Networks: Introduction. **Next Generation Hybrid Network Architectures:** MCN, HWN, iCAR, SOPRANO, TWILL, A-GSM, UCAN, Open Issues in Next Generation Hybrid Architectures, Pricing in Hybrid Wireless Networks.

UNIT - V

Recent Advances: Ultra Wide Band Radio Communication (UWB), Wireless Fidelity Systems, Optical Wireless Networks, Multimode 802.11.

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- To study the technical issues and state-of-the-art techniques in the operation and management of mobile communications networks;
- To learn the engineering principles and system evaluation methods used in the design of mobile communications networks.
- To understand the issues involved in mobile communication system design and analysis.
- To give the student an understanding of digital cellular systems (GSM, CDMA)

Course Outcomes (CO's)

After the completion of the course, students should be able to

CO1: Investigate the Evolution of Cellular System and Protocols

CO2: Analyze MAC Protocols in Adhoc Wireless network

CO3: Analyze the Routing Protocols of Adhoc Wireless networks

CO4: Explore various hybrid network architectures

CO5: Analyze recent advances in the field of wireless communication

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: **Mobile Communications**
	Programme: B.Tech	Unit No: 1 to 5
	Year &Sem: IV & VII Sem	Section: B

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
	UNIT I					
1	**Introduction** The Cellular Concept	20/6/2016 24/6/16		2	1	1,3,5,7
2	Cellular Architecture	25/6/16		2	1	
	TUTORIAL HOUR	27/6/16		2, 3	1	
3	The First Generation Cellular Systems	28/6/16		2, 3	1	
4	Second Generation Cellular Systems,	29/6/16 30/6/16		2, 3	1	
5	Third Generation Cellular Systems	2/7/16 11/7/16		2	1	

6	CRT	4/7/16 TO 9/7/16				
7	TUTORIAL HOUR	12/7/16				
8	Wireless Local Loop	13/7/16 14/7/16		2	1	
9	IEEE 802.16	16/7/16 18/7/16		2	1	
10	**Tutorial-2**	19/7/16				
		UNIT II				
1	Introduction	20/7/16		2, 3	1	
12	Issues in Ad Hoc Wireless networks	21/7/16 23/7/16		2, 3	1	
13	**Medium Access Control:** Issues in MAC	25/7/16 26/7/16		2, 3	1	1,3,5,7
14	TUTORIAL HOUR	27/7/16		2, 3	1	
15	Design Goals of MAC	28/7/16		2, 3	1	
16	Classification of MAC protocols	30/7/16		2, 3	1	
17	**Contention Based MAC Protocols:** MACAW	1/8/16 2/8/16		2, 3	1	
18	TUTORIAL HOUR	3/8/16		1, 2, 3	1	
19	Floor Acquisition Multiple Access Protocol	4/8/16 6/8/16				
20	Busy Tone Multiple Access protocols	8/8/16 9/8/16		2, 3	1	
21	TUTORIAL HOUR	10/8/16		2, 3	1	
22	**Reservation Mechanisms:** D-PRMA,	11/8/16 13/8/16		2, 3	1	
23	CATA	16/8/16 17/8/16		2, 3	1	
24	Scheduling Mechanisms: DPS	18/8/16 22/8/16		2, 3	1	

25	TUTORIAL HOUR	23/8/16				
26	**MID – I EXAMS**	24/8/16 TO 27/8/16				
27						
28						
	UNIT- III					
29	Issues in Routing	29/8/16 30/8/16		2	1	
30	Classification of Routing Protocols	31/8/16		2	1	
31	**Table Driven:** DSDV	1/9/16 3/9/16		2	1	
32	WRP	6/9/16 7/9/16		2	1	
33	TUTORIAL HOUR	8/9/16		2	1	1,3,5,7
34	STAR-protocol	10/9/16		2	1	
35	On Demand: AODV	13/9/16 14/9/16		2	1, 2	
36	DSR	15/9/16 17/9/16		2	1, 2	
37	TUTORIAL HOUR	19/9/16		2	1, 2	
38	LAR protocol	20/9/16		2	1, 2	
	UNIT –IV					
39	**Hybrid Wireless Networks:** Introduction	21/9/16 22/9/16		2	1,2	
40	**Next Generation Hybrid Network Architectures:** MCN	24/9/16 26/9/16		2	1,2	
41	HWN	27/9/16		2	1, 2	
42	TUTORIAL HOUR	28/9/16		2	1, 2	1,3,5,7
43	iCAR	29/9/16		2, 3	1, 2	
44	SOPRANO,	1/10/16		2, 3	1, 2	
45	TWILL	3/10/16		2	1,2	
46	A-GSM	4/10/16		2	2	
47	TUTORIAL HOUR	5/10/16		2	2	

48	UCAN	6/10/16 8/10/16				
49	Open Issues in Next Generation Hybrid	3/10/16				
50	Pricing in Hybrid Wireless Networks.	4/10/16 5/10/16				
UNIT –V						
51	**Recent Advances** Introduction	6/10/16		2	1,2	1,3,5,7
52	TUTORIAL HOUR	8/10/16		2, 3	1,2	
53	Ultra Wide Band Radio Communication (UWB)	17/10/16 18/10/16		2, 3	1,2	
54	Wireless Fidelity Systems: Introduction	19/10/16 20/10/16		2, 3	1,2	
55	Fidelity Systems	22/10/16		2, 3	1,2	
56	TUTORIAL HOUR	24/10/16		2, 3	1,2	
57	Optical Wireless Networks	25/10/16 26/10/16		2, 3	1,2	
58	TUTORIAL HOUR	27/10/16		2	1,2	
59	Multimode 802.11.(PART-1)	29/10/16 1/11/16		2	1,2	
60	TUTORIAL HOUR	2/11/16		2	1,2	
61	Multimode 802.11.(PART-2)	2/11/16 5/11/16		2	1,2	
62	**II MID EXAMS**	7/11/16 TO 9/11/16				
63						
64						

Resources Used:

TEXT BOOK

C. Siva Ram Murthy, B.S. Manoj, " Ad Hoc Wireless Networks: Architectures and Protocols", Pearson Education, 2004

REFERENCES

1. Stefano Basagni, Marco Conti, Silvia Giordano, Ivan Stojmenović, "Mobile ad hoc networking", IEEE Press, Wiley InterScience, 2004
2. Garg, "Wireless Networks Evolution: 2G to 3G", Pearson Education, 2002
3. Rappaport, " Wireless Communications: Principles and Practice" Second Edition, Pearson Education,2009

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	--					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	05					
Total	100					

Relation of course outcomes to Program Outcomes and Program Specific Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1		1		3									2	1	
CO2		3		2									1	3	
CO3		3		2									1	3	
CO4				1	2									3	
CO5		3		3									1	3	
S=3=STRONGLY AGREE (100%), M=2= MODERATELY (66%), L=1=LIGHTLY (33%)															

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	G BALU NARASIMHARAO			
Sign with Date				

Unit-Wise Question Bank

UNIT-I

6. Explain Cellular architecture?
7. Explain Second-generation cellular systems?
8. Briefly explain about Handoffs?
9. Explain about Wireless Local Loop?
10. Explain the concept of Capacity Enhancement?

UNIT-II

7. What is AdHoc Wireless networks and explain their applications?
8. Differences between cellular network and AdHoc Wireless networks?
9. Briefly explain Classification of MAC protocols?
10. Explain Busy Tone Multiple Access (BTMA) protocol?
11. Explain the Scheduling Mechanism of DPS?
12. plain D-PRMA protocol?

UNIT-III

7. What are the issues in designing a routing protocol for AdHoc wireless networks?
8. Explain about Destination Sequenced Distance-Vector Routing protocol?
9. Explain Dynamic Source Routing (DSR) protocol?
10. Explain Fisheye State Routing (FSR) protocol?
11. Explain Classification of Routing protocols?
12. Explain ZRP Hybrid protocol?

UNIT-IV

7. Explain TWILL architecture?
8. What are the open issues in Next Generation Hybrid Architectures?
9. Explain MCN architecture?
10. Explain SOPRANO architecture?
11. Explain iCAR architecture?
12. Explain about pricing in Hybrid wireless Networks?

UNIT-V

5. Explain about UWB (Ultra Wide Band) Radio communication?
6. Explain the concept of optical wireless WDM?
7. Explain about operation of Multimedia 802.11?
8. Explain issues and service provider models of Wi-Fi systems?

	LESSON PLAN	Date:
	Sub. Name : INFORMATION SECURITY	20/06/2016
	Branch: CSE, Semester & Sections: VI & B	To 09/11/2016

T223 – INFORMATION SECURITY

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs**

UNIT - I

Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs Conventional Encryption Principles, Conventional encryption algorithms(DES, Triple DES), cipher block modes of operation(CBC,CFB), location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC.

UNIT - II

Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management, Kerberos, X.509 Directory Authentication Service.

UNIT - III

Email privacy: Pretty Good Privacy (PGP) and S/MIME. IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations

UNIT - IV

Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT - V

Intruders, Viruses and related threats. Firewall Design principles, Trusted Systems

Text Books:

1. **Network Security Essentials by William Stallings Pearson Education**

Reference Books:

1. **Cryptography & Network Security , Third edition by William Stallings**
2. **Principles of Information Security, Thomson, Whitman**

Pre requisite: knowledge in Computer networks, Security issues.

Course Educational Objectives:

- To introduce various types of algorithms for Encryption & Decryption, Message Authentication, Digital Signature.
- To know different ways to protect the data over a network using Email & IP security and during the financial transactions.
- To know Network security, virus, worms and firewall.

Course Outcomes (CO's)

After completion of the course, a student can:

1. Demonstrate the use of encryption algorithm for achieving data confidentiality
2. Apply Secure hash functions for attaining data integrity
3. Analyze the security mechanisms for achieving authentication
4. Analyze the protocols for achieving availability, access control to resources and protocols for non-repudiation
5. Explore the threats and remedial measures for system security

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: Information Security
	Programme: B.Tech	Unit No: 1 to 5
	Year & Sem: IV & I (VII sem)	Section: A

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT –I						
1	Introduction To Information Security	20/06/16		2	1,2	1,3,5,7
2	OSI Security Architecture & Security Attacks	21/06/16		2	1,2	
3	Security Services & Security Mechanisms	22/06/16		2	1,2	
4	Model For N/W Security	24/06/16		2	1,2	
5	Internet Standards and RFC	25/06/16		2	1,2	
6	**Tutorial**	27/06/16		2		
7	Conventional Encryption Principles	28/06/16		2	1,2	
8	Convention Encryption Algorithms:DES	29/06/16		2	1,2	
9	Convention Encryption Algorithms:DES	01/07/16		2	1,2	
10	Triple DES	02/07/16		2	1,2	

11	Cipher block modes of Operations	04/07/16		2	1,2	
12	Cipher block modes of Operations	05/07/16		2	1,2	
13	Location Of Encryption Devices	08/07/16		2	1,2	
14	Key Distribution	09/07/16		2	1,2	
15	Approaches Of Message Authentication & Hash functions	11/07/16		2	1,2	
16	SHA-512	12/07/16		2	1,2	
17	HMAC	13/07/16		2	1,2	
18	**Tutorial**	15/07/16				
UNIT –II						
19	Public Key Cryptographic Principles	16/07/16		2	1,2	
20	Public Key Cryptographic Principles	18/07/16		2	1,2	
21	Public Key Cryptographic Algorithms	19/07/16		2	1,2	
22	Public Key Cryptographic Algorithms	20/07/16		2	1,2	
23	Digital Signatures, Digital certificates	22/07/16		2	1,2	
24	**Tutorial**	23/07/16		2		
25	Certificate Authority	25/07/16		2	1,2	1,3,5,7
26	Key Management	26/07/16		2	1,2	
27	Kerberoes-version4	27/07/16		2	1,2	
28	Kerberoes-version5	29/07/16		2	1,2	
29	X.509version2	30/07/16		2	1,2	
30	X.509version3	01/08/16		2	1,2	
31	Directory Authentication Process	02/08/16		2	1,2	
32	**Tutorial**	03/08/16				
33	I MID EXAMS	24/08/16				
34		26/08/16				
35		27/08/16				
UNIT –III						
36	Email Privacy	29/08/16		2	1,2	
37	Pretty Good Privacy	30/08/16		2	1,2	1,3,5,7
38	General format of PGP message	31/08/16		2	1,2	
39	PGP Services	02/09/16		2	1,2	

40	MIME	03/09/16		2	1,2	
41	S/MIME	06/09/16		2	1,2	
42	S/MIME Certificate Processing	07/09/16		2	1,2	
43	**Tutorial**	09/09/16				
44	IP Security Overview	10/09/16		2	1,2	
45	IP Authentication Architecture	13/09/16		2	1,2	
46	Authentication Header	14/09/16		2	1,2	
47	Encapsulating Security Payload	16/09/16		2	1,2	
48	Combining Security Associations	17/09/16		2	1,2	
49	**Tutorial**	19/09/16				
UNIT –IV						
50	Introduction to Web Security	20/09/16		2	1,2	
51	Web Security Requirements	21/09/16		2	1,2	
52	SSL	23/09/16		2	1,2	
53	SSL	24/09/16		2	1,2	
54	TLS	26/09/16		2	1,2	
55	TLS	27/09/16		2	1,2	1,3,5,7
56	**Tutorial**	28/09/16				
57	Dual Signature	30/09/16		2	1,2	
58	SET	01/10/16		2	1,2	
59	SET	03/10/16		2	1,2	
60	**Tutorial**	04/10/16				
UNIT –V						
61	Intruders	17/10/16		2	1,2	
62	Intrusion Detection Systems	18/10/16		2	1,2	
63	Intrusion Prevention Systems	19/10/16		2	1,2	
64	Viruses	21/10/16		2	1,2	
65	Related Threats and worms	22/10/16		2	1,2	1,3,5,7
66	**Tutorial**	24/10/16				
67	Firewall Design Principles	25/10/16		2	1,2	
68	Trusted Systems	26/10/16		2	1,2	
69	Review of Model papers	28/10/16		2	1,2	

70	Tutorial/ Review of Model papers	29/10/16		2	1,2	
71	**Tutorial**	31/10/16				
72	Review of Model papers	01/11/16				
73	Review of Model papers	02/11/16				
74	Review of Model papers	04/11/16				
75	II MID EXAMS	05/11/16				
76		07/11/16				
77		08/11/16				
78		09/11/16				

Resources Used:

Text Book:

Compilers Principles, Techniques and Tools Aho, Ullman, Ravisethi, Pearson Education.

References:

1. Modern Compiler Construction in C, Andrew W.Appel Cambridge University Press.
2. Compiler Construction, LOUDEN, Thomson.

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	--					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	05					
Total	100					

Mapping Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Code	Unit	Course Outcomes	Program Outcomes	Program Specific Outcomes

		1	2	3	4	5	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
T141	I	×					2	2	1										2		
	II		×				2	2											2		
	III			×			2	2	1										2		
	IV				×			2	1										2		
	V					×		2				1							2		

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	D. Veeraiah	Dr. N. Ravi Shankar		Dr. N. Ravi Shankar
Sign with Date				

	LESSON PLAN	Date:
	SUBJECT NAME : ARTIFICIAL INTELLIGENCE	20/6/2016 To 9/11/2016
	BRANCH: CSE SEM & SECTION: VII & B	

T122 – ARTIFICIAL INTELLIGENCE

Lecture	**: 5 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**:**	**External Marks**	**: 75**
Credits	**: 3**	**External Examinations**	**: 3 Hrs**

UNIT - I

Introduction: Overview of Artificial intelligence- Problems of AI, AI technique, Tic-Tac-Toe problem.

Intelligent Agents: Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents. Problem Solving: Problems, Problem Space &search: Defining the problem as state space search, production system, problem characteristics, and issues in the design of search programs.

UNIT – II

Search techniques: Solving problems by searching: problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bi-directional search, comparing uniform search strategies.

Heuristic search strategies: Greedy best-first search, A* search, memory bounded heuristic search, local search algorithms & optimization problems, Hill climbing search, simulated annealing search, local beam search, genetic algorithms, constraint satisfaction problems, local search for constraint satisfaction problems.

UNIT – III

Knowledge: Knowledge representation issues, representation & mapping, approaches to knowledge representation, issues in knowledge representation.

Using predicate logic: Representing simple fact in logic, representing instant & ISA relationship, computable functions &predicates, resolution, natural deduction.

UNIT - IV

Representing knowledge using rules: Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

UNIT - V

Reasoning: Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafertheory, Fuzzy sets & fuzzy logics.

TEXT BOOK

Artificial Intelligence, Ritch & Knight, TMH

REFERENCES

1. Artificial Intelligence a Modern Approach, Stuart Russell & Peter Norvig Pearson
2. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
3. Artificial Intelligence A new Synthesis, Neil J. Nilsson, Morgan Kaufman
4. Artificial Intelligence, John. F. Lugar, Pearson Ed.
5. Artificial Intelligence, Winston, Pearson Ed.

Pre requisite: Student should possess the knowledge of Theory of Computation, Probability statistics, Design Analysis of Algorithms, inference rules, logic programming, fuzzy sets & fuzzy logics, basic mathematics.

Course Educational Objectives:

1. Different types of AI techniques and their implementation.
2. Types of agents and activities of agents.
3. Different problem solving techniques and problem characteristics.
4. Various searching strategies and their implementations.
5. Representation of knowledge using predicate logic.
6. Representation of knowledge using prepositional logic.
7. Knowledge rules using reasoning.
8. Knowledge rules using matching.
9. Reasoning using fuzzy sets and fuzzy logics.

Course Outcomes: After completion of this course a student can able to

CO1: Understand about AI techniques and different ways to implement them as well as types of AI agents and their structures in order to solve the problems.

CO2: Know various AI search algorithms (uninformed, informed, heuristic, constraint satisfaction, genetic algorithms) to solve the real world problems.

CO3: Understand the fundamentals of knowledge representation (logic-based, frame-based, semantic nets), inference and theorem proving.

CO4: Know how to build simple knowledge-based systems by using logic programming (PROLOG), various reasoning techniques to solve the given problems.

CO5: Understand the working knowledge of reasoning in the presence of incomplete and/or uncertain information, present efficient techniques to remove uncertainty in knowledge domain.

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: Artificial Intelligence
	Programme: B.Tech	Unit No: 1 to 5
	Year & Sem: IV & VII Sem	Section: B

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT I: Introduction to Artificial Intelligence						
1	Introduction to Artificial Intelligence	20/6/16		2	1	1,3,5,7
2	Overview of Artificial Intelligence	21/6/16		2	1	
3	Problems of AI	22/6/16		2, 3	1	
4	AI Techniques	23/6/16		2, 3	1	
5	Tic-Tac-Toe Problem	25/6/16		2, 3	1	
6	Introduction to Agents, Agents & Environment	27/6/16		2	1	
7	Nature of Environment, Structure of Agents	28/6/16		2	1	
8	Reflex agents, Goal based agents	29/6/16		2	1	
9	Utility based agents, Learning agents	30/6/16		2	1	
10	Problem solving, Problem Space & search	2/7/16		2, 3	1	

11	Define Problem as state space search	11/7/16		2, 3	1	
12	Water Jug problem	12/7/16		2, 3	1	
13	Production system	13/7/16		2, 3	1	
14	Problem characteristics	14/7/16		2, 3	1	
15	Problem characteristics	16/7/16		2	1	
16	Issues in the design of search programs	18/7/16		2	1	
17	**Tutorial-1**	19/7/16				
UNIT II: Search Techniques						
18	Solving problems by searching	20/7/16		2, 3	1	
19	Problem solving agents	21/7/16		2, 3	1	
20	Uninformed searching strategies	23/7/16		2, 3	1	
21	BFS (Breadth first search)	25/7/16		2, 3	1	
22	Depth first search(DFS)	26/7/16		2, 3	1	
23	Depth Limited Search(DLS)	27/7/16		2, 3	1	
24	Bi-directional Search	28/7/16		2, 3	1	
25	comparing uninform search strategies	30/7/16		2, 3	1	
26	Introduction to Heuristic search strategies	1/8/16		2, 3	1	
27	Greedy best-first search	2/8/16		2, 3	1	
28	A* search	3/8/16		2, 3	1	
29	A* search example	4/8/16		2, 3	1	
30	Uniform cost search	6/8/16		1, 2, 3	1	1,3,5,7
31	**Tutorial - 2**	8/8/16				
32	Memory bounded heuristic search	9/8/16		2, 3	1	
33	Local search algorithms & optimization problems	10/8/16		2, 3	1	
34	Hill climbing search	11/8/16		2, 3	1	
35	Simulated annealing search	13/8/16		2, 3	1	
36	Local beam search	16/8/16		2, 3	1	
37	Genetic algorithms	17/8/16		2, 3	1	
38	Constraint satisfaction problems	18/8/16		2, 3	1	
39	Local search for constraint satisfaction problems	20/8/16		2, 3	1	

40	constraint satisfaction problem example	22/8/16		2, 3	1	
41	**Tutorial - 3**	23/8/16				
42	**MID – I EXAMS**	24/8/16				
43		26/8/16				
44		27/8/16				
UNIT- III Knowledge using Predicate Logic						
45	Introduction to Knowledge	29/8/16		2	1	
46	Knowledge representation issues	30/8/16		2	1	
47	Representation & Mapping	31/8/16		2	1	
48	Approaches to Knowledge representation	1/9/16		2	1	
49	Issues in Knowledge representation	3/9/16		2	1	
50	Introduction to Predicate Logic	6/9/16		2	1	
51	Representing simple fact in logic	7/9/16		2	1, 2	
52	Representing simple fact in logic	8/9/16		2	1, 2	1,3,5,7
53	Representing instant	10/9/16		2	1, 2	
54	ISA relationship	13/9/16		2	1, 2	
55	Computable functions & predicates	14/9/16		2	1, 2	
56	Resolution	15/9/16		2, 3	1, 2	
57	Natural deduction	17/9/16		2	1, 2	
58	Revision	19/9/16		2	1, 2	
59	**Tutorial - 4**	20/9/16				
UNIT –IV: Representing Knowledge using Rules						
60	Introduction to knowledge	21/9/16		2	1,2	
61	Representing knowledge using rules	22/9/16		2	1,2	
62	Procedural vs. declarative knowledge	24/9/16		2	1, 2	
63	Logic programming	26/9/16		2	1, 2	
64	PROLOG Examples	27/9/16		2	1, 2	1,3,5,7
65	Forward reasoning	28/9/16		2, 3	1, 2	
66	Backward reasoning	29/9/16		2, 3	1, 2	
67	Forward vs Backward reasoning	1/10/16		2, 3	1, 2	
68	Matching	3/10/16		2	1,2	

70	Control knowledge	4/10/16		2	2	
71	**Tutorial - 5**	5/10/16				
UNIT –V: Reasoning						
72	Introduction to reasoning	6/10/16		2	1,2	
73	Probabilistic reasoning	8/10/16		2, 3	1,2	
74	Introduction to uncertain domain	17/10/16		2, 3	1,2	
75	Representing knowledge in an uncertain domain	18/10/16		2, 3	1,2	
76	The semantics of Bayesian networks	19/10/16		2, 3	1,2	
77	The semantics of Bayesian networks	20/10/16		2, 3	1,2	
78	Dempster-Shafertheory example	22/10/16		2, 3	1,2	
79	Introduction to Fuzzy sets	24/10/16		2	1,2	1,3,5,7
80	Fuzzy set examples	25/10/16		2	1,2	
81	Introduction to Fuzzy Logics	26/10/16		2	1,2	
82	Revision	27/10/16		2	1,2	
83	Revision	29/10/16		2	1,2	
84	Previous question papers discussion	1/11/16		2	1,2	
85	Revision	2/11/16		2	1,2	
86	Revision	3/11/16		2	1,2	
87	**Tutorial – 6**	5/11/16				
88	**II MID EXAMS**	7/11/16				
89		8/11/16				
90		9/11/16				

Resources Used:

TEXT BOOK

Artificial Intelligence, Ritch & Knight, TMH

REFERENCES

1. Artificial Intelligence a Modern Approach, Stuart Russell & Peter Norvig Pearson
2. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
3. Artificial Intelligence A new Synthesis, Neil J. Nilsson, Morgan Kaufman
4. Artificial Intelligence, John. F. Lugar, Pearson Ed.
5. Artificial Intelligence, Winston, Pearson Ed.

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	--					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	05					
Total	100					

Mapping Course Outcomes with Programme Outcomes:

Course Code	Unit	Course Outcomes					Programme Outcomes															
		1	2	3	4	5	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
T122	I	×					1	1													1		
	II		×				1	1	3												1		
	III			×			1	1													1		
	IV				×		1	1											2		1		
	V					×	1	1													1		

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	N. SrinivasaRao	D. SrinivasaRao		Dr. N. Ravi Shankar
Sign with Date				

T101 –ADVANCED COMPUTER ARCHITECTURE

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs**

UNIT- I

Fundamentals of computer design.-technology trends-cost-measuring and reporting Performance. Quantitative principles of computer design.

UNIT – II

Instruction set principles and examples- classifying instruction set- memory addressing- type and size of Operands- addressing modes for signal processing-operations in the instruction set- instructions for control Flow- encoding an instruction set.-the role of compiler

UNIT- III

Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs –high performance instruction delivery- hardware based speculation- ILP software approach- compiler techniques- static branch protection - VLIW approach

UNIT- IV

Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate – virtual memory- protection and examples of VM.

UNIT- V

Multiprocessors and thread level parallelism- symmetric shared memory architectures- distributed shared memory- Synchronization- multi threading.

TEXT BOOK

Computer Architecture A quantitative approach 3rd edition
John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier)

REFERENCES

1. Advanced Computer Architectures, Dezso Sima, Terence Fountain, Peter Kacsuk, Pearson.

2. Parallel Computer Architecture, A Hardware / Software Approach, David E. Culler, Jaswinder Pal singh with Anoop Gupta, Elsevier

3. H. Stone.Advanced Computer Architecture, Addison Wesley, 1989.

4. H. J. Siegel.Interconnection Network for Large Scale Parallel Processing, McGraw Hill, 1990.

5. K. Hwang and F. A. Briggs.Computer Architecture and Parallel Processing, McGraw Hill, 1985

ADVANCED COMPUTER ARCHITECTURE

Course Educational Objectives and Outcomes (CEOs & Cos)

Course Educational objectives (CEOs):

1. How computer systems work & its basic principles.
2. How to analyse the system performance.
3. Concepts behind advanced pipelining techniques.
4. The current state of art in memory system design.
5. How I/O devices are being accessed and its principles.
6. To provide the knowledge on instruction level parallelism
7. To provide the knowledge on memory hierarchy design
8. To provide the knowledge on multiprocessor and thread level parallelism

Course Outcomes (Cos):

After completion of the course, students will able to:

CO1: To apply knowledge of performance metrics to find performance of systems

CO2: To design a hardware component for an embedded system and learn different types of Computers

CO3: To Identify high performance architecture design and problems in components of Computer

CO4: To develop independent learning skills in different computer architectures and hardware.

CO5: To learn and use the new technologies in computers and use knowledge of Microprogramming in the field of speech processing.

LESON PLAN

S.No.	Date (Tentative)	Topics to be covered	Unit No.	Teaching Method/ Aid	R Remarks /Sign
1	22-06-2015	**Unit I:introduction**	1	DM6	
2	23-06-2015	History of computer and basics	1	DM1	
3	25-06-2015	Fundamental of computers	1	DM1	
4	26-06-2015	Design of fundamental computers	1	DM1	
5	27-06-2015	Changing phases of computer	1	DM1	
6	**29-06-2015**	***Campus Recruitment Training(CRT) Classes***			
7	**01-07-2015**				
8	**02-07-2015**				
9	**03-07-2015**				
10	**04-07-2015**				
11	**06-07-2015**				
12	08-07-2015	Trends in technology	1	DM2	
13	09-07-2015	**Tutotial-1**	1	DM1	
14	10-07-2015	Impact of time volume and commodification			
15	11-07-2015	Cost of integrated circuit	1	DM2	
16	15-07-2015	Measuring and reporting performance	1	DM1	
17	16-07-2015	**Tutotial-2**	1	DM1	

18	17-07-2015	Choosing programs to evaluate performance	1		
19	20-07-2015	Quantitative principals of computer design	1		
19	22-07-2015	Amdahl's law	1	DM2	
20	23-07-2015	Cpu performance equation	1		
21	24-07-2015	**Unit 2:** classifying instruction set architecture	2	DM1	
22	25-07-2015	Interpreting memory addressing	2	DM1	
23	27-07-2015	Addressing modes	2	DM6	
24	29-07-2015	Frequency of addressing modes	2	DM1	
25	30-07-2015	Type and size of operands			
26	31-07-2015	Operations on type and size of operands		DM1	
27	01-08-2015	Operations in the instruction set	2	DM1	
28	03-08-2015	Instructions control flow	2	DM1	
29	07-08-2015	Procedure call/returns	2	DM1	
30	10-08-2015	**Tutorial 3**	2	DM2	
31	12-08-2015	Encoding an instruction set	2	DM1	
32	13-08-2015	The role of the compiler	2	DM1	
33	14-08-2015	**Tutorial 4**	2	DM2	
34	17-08-2015	**MID I**			
35	18-08-2015				
36	19-08-2015				
37	20-08-2015				
38	21-08-2015				
39	22-08-2015				
40	24-08-2015	**UNIT 3 :**overcoming data hazards	3	DM1	
41	26-08-2015	Reducing branch costs	3	DM1	
42	27-08-2015	High performance instruction delevery	3	DM1	

43	28-08-2015	**Tutorial 5**	3	DM2	
44	29-08-2015	Hardware based speculation	3	DM6	
45	31-08-2015	ILP software approach	3	DM1	
46	02-09-2015	Compiler techniques	3	DM1	
47	03-09-2015	Static branch protection	3	DM6	
48	04-09-2015	Vlip approach	3	DM1	
49	05-09-2015	Vlip app	3	DM1	
50	07-09-2015	**Tutorial 6**	3	DM2	
51	09-09-2015	Revision of unit 3	3	DM1	
52	10-09-2015	Revision of unit3	3	DM1	
53	11-09-2015	**Tutorial 7**	3	DM2	
54	12-09-2015	**UNIT 4: introduction**	4	DM6	
55	14-09-2015	Memory hierarchy design	4	DM6	
56	16-09-2015	Cache performance	4	DM2	
57	18-09-2015	Reducing caches	4	DM1	
58	19-09-2015	Misses penalty and rate	4	DM1	
59	21-09-2015	**Tutorial 8**	4	DM2	
60	23-09-2015	Virtual memory	4	DM1	
61	24-09-2015	Protection	4	DM1	
62	26-09-2015	Examples of virtual memory	4	DM6	
63	28-09-2015	**Tutorial 9**	4	DM2	
64	30-09-2015	Revision of unit 4	4	DM1	
65	01-10-2015	Revision of unit 4	4	DM1	
66	03-10-2015	**Unit 5:introduction**	5	DM1	
67	05-10-2015	Multiprocessors and thread level parallelism	5	DM6	
68	07-10-2015	Symmetric shared memory	5	DM6	
69	08-10-2015	Architecture	5	DM1	
70	09-10-2015	Types of architecture	5	DM1	
71	10-10-2015	Distributed shared memory	5	DM1	

72	12-10-2015	Distrusted shared memory	5	DM1	
73	14-10-2015	Synchronization	5	DM1	
74	15-10-2015	Continuing synchronization	5	DM1	
75	16-10-2015	Multi-threading	5	DM1	
76	17-10-2015	Multi-threading contd	5	DM1	
77	26-10-2015	**Tutorial 10**	5	DM2	
78	28-10-2015	Revision unit 5	5	DM1	
79	29-10-2015	Discussions of previous papers		DM1	
80	30-10-2015	Discussions of previous papers		DM1	
81	31-10-2015	Test1 on model papers		DM4	
82	02-11-2015	**II MID EXAMINATIONS**			
83	03-11-2015				
84	04-11-2015				
85	05-11-2015				
86	06-11-2015				
87	07-11-2015				

NOTE: ***DELIVERY METHODS*** :

DM1: Lecture interspersed with discussions/BB,

DM2: Tutorial, **DM3:** Lecture with a quiz, **DM4**: Assignment/Test,

DM5:Demonstration(laboratory, field visit), **DM6:** Presentations/PPT

At the End of the course, students attain the

Course Outcomes:CO1,CO2,CO3, CO4,CO5 & sample proofs are enclosed at the end of the Course file(After Completion of the Course)

Course Delivery:

UNIT	1		2				3	4					5			
WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

	Prepared by	Approved by
Signature		
Name	N V NAIK	HOD/CSE
Designation	Asst.Professor/CSE	Dr.N.Ravi Sankar
Date	20.06.2015	

T101 –ADVANCED COMPUTER ARCHITECTURE

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs**

UNIT- I

Fundamentals of computer design.-technology trends-cost-measuring and reporting Performance. Quantitative principles of computer design.

UNIT – II

Instruction set principles and examples- classifying instruction set- memory addressing- type and size of Operands- addressing modes for signal processing-operations in the instruction set- instructions for control Flow- encoding an instruction set.-the role of compiler

UNIT- III

Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs –high performance instruction delivery- hardware based speculation- ILP software approach- compiler techniques- static branch protection - VLIW approach

UNIT- IV

Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate – virtual memory- protection and examples of VM.

UNIT- V

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ADVANCED COMPUTER ARCHITECTURE

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16. To provide the knowledge on multiprocessor and thread level parallelism

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CO2: To design a hardware component for an embedded system and learn different types of Computers

CO3: To Identify high performance architecture design and problems in components of Computer

CO4: To develop independent learning skills in different computer architectures and hardware.

CO5: To learn and use the new technologies in computers and use knowledge of Microprogramming in the field of speech processing.

LESON PLAN

S.No.	Date (Tentative)	Topics to be covered	Unit No.	Teaching Method/ Aid	R Remarks /Sign
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2	24-06-2015	Fundamentals of computer design	1	DM1	
3	25-06-2015	Fundamental of computers	1	DM1	
4	26-06-2015	Changing phases of computer	1	DM1	
5	27-06-2015	Trends in technology	1	DM1	
6	**29-06-2015**	***Campus Recruitment Training(CRT) Classes***			
7	**30-07-2015**				
8	**02-07-2015**				
9	**03-07-2015**				
10	**04-07-2015**				
11	**06-07-2015**				
12	**07-07-2015**				
13	09-07-2015	Cost and price**Tutotial-1**	1	DM1	
14	10-07-2015	Impact of time volume and commodification			
15	11-07-2015	Cost of integrated circuit	1	DM2	
16	14-07-2015	Measuring and reporting performance	1	DM1	
17	16-07-2015	**Tutotial-2**	1	DM1	
18	17-07-2015	Choosing programs to evaluate performance	1		

19	20-07-2015	Quantitative principals of computer design	1		
20	21-07-2015	Amdahl's law	1	DM2	
21	23-07-2015	Cpu performance equation	1		
22	24-07-2015	**Unit 2:** classifying instruction set architecture	2	DM1	
23	25-07-2015	Interpreting memory addressing	2	DM1	
24	30-07-2015	Type and size of operands			
25	31-07-2015	Operations on type and size of operands			
26	01-08-2015	Operations in the instruction set	2	DM1	
27	03-08-2015	Instructions control flow	2	DM1	
28	04-08-2015				
29	06-08-2015				
30	07-08-2015	Procedure call/returns	2	DM1	
31	10-08-2015	**Tutorial 3**	2	DM2	
32	12-08-2015	Encoding an instruction set	2	DM1	
33	13-08-2015	The role of the compiler	2	DM1	
34	14-08-2015	**Tutorial 4**	2	DM2	
35	17-08-2015	**MID I**			
36	18-08-2015				
37	19-08-2015				
38	20-08-2015				
39	21-08-2015				
40	22-08-2015				
41	24-08-2015	**UNIT 3 :**overcoming data hazards	3	DM1	
42	25-08-2015	Reducing branch costs	3	DM1	
43	27-08-2015	High performance instruction delevery	3	DM1	
44	28-08-2015	**Tutorial 5**	3	DM2	
45	29-08-2015	Hardware based speculation	3	DM6	

46	31-08-2015	ILP software approach	3	DM1	
47	01-09-2015	Compiler techniques	3	DM1	
48	03-09-2015	Static branch protection	3	DM6	
49	04-09-2015	Vlip approach	3	DM1	
50	05-09-2015	Vlip app	3	DM1	
51	07-09-2015	**Tutorial 6**	3	DM2	
52	08-09-2015	Revision of unit 3	3	DM1	
53	10-09-2015	Revision of unit3	3	DM1	
54	11-09-2015	**Tutorial 7**	3	DM2	
55	12-09-2015	**UNIT 4: introduction**	4	DM6	
56	14-09-2015	Memory hierarchy design	4	DM6	
57	16-09-2015	Cache performance	4	DM2	
58	17-09-2015	Reducing caches	4	DM1	
59	19-09-2015	Misses penalty and rate	4	DM1	
60	21-09-2015	**Tutorial 8**	4	DM2	
61	22-09-2015	Virtual memory	4	DM1	
62	24-09-2015	Protection	4	DM1	
63	26-09-2015	Examples of virtual memory	4	DM6	
64	28-09-2015	**Tutorial 9**	4	DM2	
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66	01-10-2015	Revision of unit 4	4	DM1	
67	03-10-2015	**Unit 5:introduction**	5	DM1	
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69	08-10-2015	Architecture	5	DM1	
70	09-10-2015	Types of architecture	5	DM1	
71	10-10-2015	Distributed shared memory	5	DM1	
72	12-10-2015	Distrusted shared memory	5	DM1	
73	13-10-2015	Synchronization	5	DM1	
74	15-10-2015	Continuing synchronization	5	DM1	

75	16-10-2015	Multi-threading	5	DM1	
76	17-10-2015	Multi-threading contd	5	DM1	
77	26-10-2015	**Tutorial 10**	5	DM2	
78	27-10-2015	Revision unit 5	5	DM1	
79	29-10-2015	Discussions of previous papers		DM1	
80	30-10-2015	Discussions of previous papers		DM1	
81	31-10-2015	Test1 on model papers		DM4	
82	02-11-2015	**II MID EXAMINATIONS**			
83	03-11-2015				
84	04-11-2015				
85	05-11-2015				
86	06-11-2015				
87	07-11-2015				

NOTE: ***DELIVERY METHODS*** :

DM1: Lecture interspersed with discussions/BB,

DM2: Tutorial, **DM3:** Lecture with a quiz, **DM4**: Assignment/Test,

DM5:Demonstration(laboratory, field visit), **DM6:** Presentations/PPT

At the End of the course, students attain the

Course Outcomes:CO1,CO2,CO3, CO4,CO5 & sample proofs are enclosed at the end of the Course file(After Completion of the Course)

ourse Delivery:

UNIT	**1**		**2**				**3**	**4**					**5**			
WEEK	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**

	Prepared by	Approved by
Signature		
Name	N V NAIK	HOD/CSE
Designation	Asst.Professor/CSE	Dr.N.Ravi Sankar
Date	20.06.2015	

	LESSON PLAN	Date:
	SUBJECT NAME:ARTIFICIAL INTELLIGENCE **BRANCH: CSESEM& SECTION: VII &A**	**--/--/2016** **To --/--/2016**

CS7064 – ARTIFICIAL INTELLIGENCE

Lecture : 5 Periods/week **Internal Marks : 25**

Tutorial : **External Marks : 75**

Credits : 3 **External Examinations: 3 Hrs**

UNIT - I

Introduction: Overview of Artificial intelligence- Problems of AI, AI technique, Tic-Tac-Toe problem.

Intelligent Agents: Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents. Problem Solving: Problems, Problem Space &search: Defining the problem as state space search, production system, problem characteristics, and issues in the design of search programs.

UNIT – II

Search techniques: Solving problems by searching: problem solving agents, searching forsolutions; uniform search strategies: breadth first search, depth first search, depth limitedsearch, bi-directional search, comparing uniform search strategies.

Heuristic search strategies: Greedy best-first search, A* search, memory bounded heuristic search, local search algorithms &optimization problems, Hill climbing search, simulated annealing search, local beam search, genetic algorithms, constraint satisfaction problems, local search for constraint satisfaction problems.

UNIT – III

Knowledge: Knowledge representation issues, representation & mapping, approaches to knowledge representation, issues in knowledge representation.

Using predicate logic: Representing simple fact in logic, representing instant & ISA relationship, computable functions &predicates, resolution, natural deduction.

UNIT - IV

Representing knowledge using rules: Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

UNIT - V

Reasoning: Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafertheory, Fuzzy sets & fuzzy logics.

TEXT BOOK

Artificial Intelligence, Ritch & Knight, TMH

REFERENCES

1. Artificial Intelligence a Modern Approach, Stuart Russell & Peter Norvig Pearson
2. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
3. Artificial Intelligence A new Synthesis, Neil J. Nilsson, Morgan Kaufman
4. Artificial Intelligence, John. F. Lugar, Pearson Ed.
5. Artificial Intelligence, Winston, Pearson Ed.

Pre requisite:Student should possess the knowledge of Theory of Computation, Probability statistics, Design Analysis of Algorithms, inference rules, logic programming, fuzzy sets & fuzzy logics, basic mathematics.

Course Educational Objectives:

1. Different types of AI techniques and their implementation.
2. Types of agents and activities of agents.
3. Different problem solving techniques and problem characteristics.
4. Various searching strategies and their implementations.
5. Representation of knowledge using predicate logic.
6. Representation of knowledge using prepositional logic.
7. Knowledge rules using reasoning.
8. Knowledge rules using matching.
9. Reasoning using fuzzy sets and fuzzy logics.

Course Outcomes: After completion of this course a student can able to

CO 1	Formulate AI problems and apply the techniques to find solutions in problem solving.
CO 2	Identify the searching strategies in terms of informed, uninformed and heuristic techniques.
CO 3	Identify approaches and issues in knowledge representation, formulate simple facts of logic in terms of propositional and predicate logic and apply them in unification, resolution.
CO 4	Evaluate the knowledge based on the rules in terms of reasoning, matching and control knowledge.
CO 5	Identify the knowledge in uncertainty domain and apply it in Bayes rule, belief networks and fuzzy logic etc.

Prerequisites: Student should possess the knowledge of Theory of Computation, Probability statistics, Design Analysis of Algorithms, inference rules, logic programming, fuzzy sets & fuzzy logics, basic mathematics.

Mapping Course Outcomes with Programme Outcomes

PO->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1	3	3		1								
CO2	3	3		1								
CO3	3	3		2								
CO4	3	3		2								
CO5	3	3		1								

Mapping Course Outcomes with Program Specific Outcomes

CO'S	**PSO1**	**PSO2**	**PSO3**
CO1	**2**		
CO2	**2**		
CO3	**2**		
CO4	**2**		
CO5	**2**		

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: Artificial Intelligence
	Programme: B.Tech	Unit No: 1 to 5
	Year & Sem: IV & VII Sem	Section: A

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT I: Introduction to Artificial Intelligence						
1	Introduction to Artificial Intelligence	23-6-16		2	1	1,3,5,7
2	Overview of Artificial Intelligence	24-6-16		2	1	
3	Problems of AI	25-6-16		2, 3	1	
4	AI Techniques	27-6-16		2, 3	1	
5	Tic-Tac-Toe Problem	28-6-16		2, 3	1	
6	Introduction to Agents, Agents & Environment	29-6-16		2	1	
7	Nature of Environment, Structure of Agents	2-7-16		2	1	
8	Reflex agents, Goal based agents	4-7-16		2	1	
9	Utility based agents, Learning agents	7-7-16		2	1	
10	Problem solving, Problem Space & search	8-7-16		2, 3	1	

11	Define Problem as state space search, Water Jug problem	9-7-16		2, 3	1	
12	Production system, Problem characteristics	14-7-16		2	1	
13	Issues in the design of search programs	15-7-16		2	1	
14	**Tutorial-1**	16-7-16				
UNIT II: Search Techniques						
15	Solving problems by searching	18-7-16		2, 3	1	1,3,5,7
16	Uninformed searching strategies, BFS (Breadth first search)	21-7-16		2, 3	1	
17	Depth first search(DFS)	22-7-16		2, 3	1	
18	Depth Limited Search(DLS)	23-7-16		2, 3	1	
19	Bi-directional Search, comparing uninform search strategies	25-7-16		2, 3	1	
20	Introduction to Heuristic search strategies	27-7-16		2, 3	1	
21	Greedy best-first search	28-7-16		2, 3	1	
22	A* search	30-7-16		1, 2, 3	1	
23	**Tutorial – 2**	1-8-16				
24	Memory bounded heuristic search	3-8-16		2, 3	1	
25	Local search algorithms & optimization problems	4-8-16		2, 3	1	
26	Hill climbing search, simulated annealing search	5-8-16		2, 3	1	
27	Local beam search, Genetic algorithms	8-8-16		2, 3	1	
28	Constraint satisfaction problems	9-8-16		2, 3	1	
29	Local search for constraint satisfaction problems	24-8-16		2, 3	1	
30 31 32 33 34 35	**MID – I EXAMS**	29-8-2016 to 31-8-2016				
UNIT- III Knoledge using Predicate Logic						
36	Introduction to Knowledge	1-9-2016		2	1	

37	Knowledge representation issues	2-9-2016		2	1	1,3,5,7
38	Representation & Mapping	3-9-2016		2	1	
39	Approaches to Knowledge representation	7-9-2016		2	1	
40	Issues in Knowledge representation	8-9-2016		2	1	
41	Introduction to Predicate Logic	9-9-2016		2	1	
42	Representing simple fact in logic	12-9-2016		2	1, 2	
43	Representing instant	14-9-2016		2	1, 2	
44	ISA relationship	15-9-2016		2	1, 2	
45	Computable functions & predicates	16-9-2016		2	1, 2	
46	Resolution, natural deduction	17-9-2016		2, 3	1, 2	
47	Revision	19-9-2016		2	1, 2	
48	**Tutorial – 3**	21-9-2016		2	1, 2	
UNIT –IV: Representing Knowledge using Rules						
49	Introduction to knowledge	22-9-2016		2	1,2	1,3,5,7
50	Representing knowledge using rules	23-9-2016		2	1,2	
51	Procedural vs. declarative knowledge	24-9-2016		2	1, 2	
52	Logic programming	26-9-2016		2	1, 2	
53	Forward reasoning	28-9-2016		2, 3	1, 2	
54	Backward reasoning	29-9-2016		2, 3	1, 2	
55	Matching	30-9-2016		2	1,2	
56	Control knowledge	1-10-2016		2	2	
57	**Tutorial – 4**	3-10-2016		2	2	
UNIT –V: Reasoning						
58	Introduction to reasoning	5-10-2016		2	1,2	1,3,5,7
59	Probabilistic reasoning	6-10-2016		2, 3	1,2	
60	Introduction to uncertain domain	7-10-2016		2, 3	1,2	
61	Representing knowledge in an uncertain domain	8-10-2016		2, 3	1,2	
62	The semantics of Bayesian networks	13-10-2016		2, 3	1,2	
63	The semantics of Bayesian networks	14-10-2016		2, 3	1,2	
64	Dempster-Shafertheory example	15-10-2016		2, 3	1,2	
65	Introduction to Fuzzy sets	17-10-2016		2	1,2	

66	Fuzzy set examples	18-10-2016		2	1,2	
67	Introduction to Fuzzy Logics	26-10-2016		2	1,2	
68	Revision	31-10-2016		2	1,2	
69	Revision	4-11-2016		2	1,2	
70	Previous question papers discussion	6-11-2016		2	1,2	
71	Revision	7-11-2016		2	1,2	
72	Revision	8-11-2016		2	1,2	
73	**Tutorial – 5**	8-11-2016				
74 76 77 78 79 80	**II MID EXAMS**	14-11-2016 to 19-11-2016				

NOTE: DELIVERY METHODS :**DM1**: Lecture interspersed with discussions/BB, **DM2:** Tutorial, **DM3:** Lecture with a quiz, **DM4**: Assignment/Test, **DM5**: Demonstration (laboratory, field visit), **DM6:** Presentations/PPT

Name and sign	**Instructor**	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	M.Sri Bala			Dr. N. Ravi Shankar
Sign with Date				

	LESSON PLAN	Date:
	SUBJECT NAME:DATA MINING AND DATA WARE HOUSE **BRANCH: CSE SEM & SECTION: VII &B**	**20/6/2016** **To** **9/11/2016**

T152 – DATA MINING AND DATA WAREHOUSING

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs**

UNIT - I

Introduction, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Implementation, Further Development, Data Warehousing to Data Mining

UNIT - II

Why Preprocessing, Cleaning, Integration, Transformation, Reduction, Discretization, Concept Hierarchy Generation, Data Mining Primitives, Query Language, Graphical User Interfaces, Architectures, Concept Description, Data Generalization, Characterizations, Class Comparisons, Descriptive Statistical Measures

UNIT - III

Association Rule Mining, Single-Dimensional Boolean Association Rules from Transactional Databases, Multi-Level Association Rules from Transaction Databases

UNIT - IV

Classification and Prediction, Issues, Decision Tree Induction, Bayesian Classification, Association Rule Based, Other Classification Methods, Prediction, Classifier Accuracy, Cluster Analysis, Types of data, Categorisation of methods, Partitioning methods, Outlier Analysis.

UNIT - V

Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial Databases, Multimedia Databases, Time Series and Sequence Data, Text Databases, World Wide Web, Applications and Trends in Data Mining

TEXTBOOK

J. Han, M. Kamber, "Data Mining: Concepts and Techniques", Harcourt India / Morgan Kauffman, 2001.

REFERENCES

1. SamAnahory,DennisMurry, "DataWarehousing in the real world", Pearson Education 2003.
2. DavidHand,HeikkiManila,PadhraicSymth,"Principles of Data Mining", PHI 2004.
3. W.H.Inmon,"Building the Data Warehouse", 3rd Edition, Wiley, 2003.
4. Paulraj Ponniah, "Data Warehousing Fundamentals", Wiley-Interscience Publication, 2003.

Course Educational Objectives and Outcomes (CEOs & Cos)

Course Educational objectives (CEOs):

17. Define a Data warehouse and Data Mining system
18. Understand the basic concepts of data mining
19. Interpret the contribution of data warehousing and data mining to the decision support level of the organizations.
20. Evaluate different models used for OLAP and data pre-processing
21. Introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication.
22. Core topics like classification, clustering and association rules are exhaustively dealt with.
23. To introduce the concept of data warehousing with special emphasis on architecture and design.
24. Categorise and carefully differentiate between different data mining frequent pattern, Association, correlation, Classification, prediction, and cluster analysis.
25. Design and implement systems for data mining.
26. Evaluate the performance of different data mining algorithms
27. Propose data mining solutions for different applications

Course Outcomes (Cos):

By the completion of the course, the students should be able to:

1. Understand the concept of Data Mining, Data Warehouse.
2. Apply data pre-processing techniques and generalization techniques.
3. Ability to identify Associations in large databases using different techniques.
4. Understand various classification and clustering techniques for large databases
5. Apply data mining techniques to complex data objects.

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: Data mining and data warehouse
	Programme: B.Tech	Unit No: 1 to 5
	Year & Sem: IV & VII Sem	Section: B

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
	UNIT I					
1	Syllabus overview - Introduction	20/6/2016		2	1	1,3,5,7
2	Introduction-Data, Info. Importance of DMDW	24/6/16		2	1	
3	Data warehouse briefing	25/6/16		2, 3	1	
4	Data warehouse Need	27/6/16		2, 3	1	
5	OLTP vs OLAP	28/6/16		2, 3	1	
6	Multidimensional data model s	29/6/16		2	1	
	Tutorial-1	29/6/16				
7	Multidimensional data models contd...	30/6/16		2	1	

8	Data Cube, Lattice of Cuboid, Schemas Types	2/7/16		2	1	
9	CRT	4/7/16 TO 9/7/16				
10	Concept Hierarchy, OLAP Operations	11/7/16		2	1	
11	DWH Architecture	12/7/16		2, 3	1	
12	Types of OLAP servers, Meta Data Repository	13/7/16		2, 3	1	
13	DWH Implementation	14/7/16		2	1	
14	Further Development	16/7/16		2	1	
15	DWH to Data Mining	18/7/16		2	1	
16	**Tutorial-2**	19/7/16				
UNIT II						
17	Why preprocessing	20/7/16		2, 3	1	1,3,5,7
18	Cleaning	21/7/16		2, 3	1	
19	Noisy data and missing values	23/7/16		2, 3	1	
20	Integration	25/7/16		2, 3	1	
21	Integration cont.…	26/7/16		2, 3	1	
22	Transformation	27/7/16		2, 3	1	
23	**Tutorial-3**	28/7/16		2, 3	1	
24	Chi square	30/7/16		1, 2, 3	1	
25	Data reduction	1/8/16				
26	Discretization	2/8/16		2, 3	1	
27	Concept hierarchy generation	3/8/16		2, 3	1	
28	Data mining primitives	4/8/16		2, 3	1	
29	Graphical user interfaces	6/8/16		2, 3	1	
30	Mining architecture	8/8/16		2, 3	1	
31	Concept Description	9/8/16				
32	Data generalization	10/8/16				
33	**Tutorial - 4**	11/8/16				
34	Data generalization cont.…	13/8/16				
35	Characterizations	16/8/16				

36	Class comparisons	17/8/16				
37	Class comparisons cont……	18/8/16				
38	Descriptive statistical measures	22/8/16				
39	Descriptive statistical measures …	23/8/16				
40	**MID – I EXAMS**	24/8/16 TO 27/8/16				
41						
42						
	UNIT- III					
43	Association rule mining	29/8/16		2	1	1,3,5,7
44	Apriori algrithem	30/8/16		2	1	
45	FP growth algorithm	31/8/16		2	1	
46	Single dimensional Boolean association from transitional database	1/9/16		2	1	
47	Single dimensional Boolean association from transitional database …	3/9/16		2	1	
48	Single dimensional Boolean association from transitional database ….	6/9/16		2	1	
49	**Tutorial-5**	7/9/16		2	1, 2	
50	Multi-level association rules from transitional databases	8/9/16		2	1, 2	
51	Multi-level association rules from transitional databases cont….	10/9/16		2	1, 2	
52	Multi-level association rules from transitional databases contd...	13/9/16		2	1, 2	
53	Multi-level association rules from transitional databases cont….	14/9/16		2, 3	1, 2	
54	Multi-level association rules from transitional databases cont….	15/9/16		2	1, 2	
55	**Tutorial - 6**	17/9/16		2	1, 2	
	UNIT –IV					
56	Classification and prediction	19/9/16		2	1,2	1,3,5,7
57	Issues and decision tree induction	20/9/16		2	1,2	
58	Bayesian classification	21/9/16		2	1, 2	
59	Association rule based	22/9/16		2	1, 2	

60	**Tutorial-7**	24/9/16		2, 3	1, 2	
61	Other classification methods	26/9/16		2, 3	1, 2	
62	Prediction	27/9/16		2	1,2	
63	Classifier accuracy ,cluster analysis	28/9/16		2	2	
64	Types of data	29/9/16		2	2	
		UNIT –V				
65	Categorization of methods	1/10/16		2	1,2	1,3,5,7
66	Partitioning methods	3/10/16		2, 3	1,2	
67	Outlayer analysis	4/10/16		2, 3	1,2	
68	Multi-dimensional analysis and descriptive mining of complex data objects	5/10/16		2, 3	1,2	
69	Multi-dimensional analysis and descriptive mining of complex data objects contd...	6/10/16		2, 3	1,2	
70	Spatial databases	8/10/16		2, 3	1,2	
71	Spatial databases contd...	17/10/16		2, 3	1,2	
72	Multimedia databases	18/10/16		2	1,2	
73	Multimedia databases contd...	19/10/16		2	1,2	
74	**Tutorial-8**	20/10/16		2	1,2	
75	Time series and sequence of data	22/10/16		2	1,2	
76	Text databases	24/10/16		2	1,2	
77	Text databases cont.…	25/10/16		2	1,2	
78	World wide web	26/10/16		2	1,2	
79	Applications and trends in data mining	27/10/16		2	1,2	
80	Applications and trends in data mining contd...	29/10/16				
81	Applications and trends in data mining cont...	1/11/16				
82	**Tutorial – 9**	2/11/16				
83	Revision of the syllabus	2/11/16				
84	Revision of the syllabus	5/11/16				
85	**II MID EXAMS**	7/11/16 TO 9/11/16				
86						
87						

Resources Used:

TEXTBOOK

J. Han, M. Kamber, "Data Mining: Concepts and Techniques", Harcourt India / Morgan Kauffman, 2001.

REFERENCES

1. SamAnahory,DennisMurry, "DataWarehousing in the real world", Pearson Education 2003.
2. DavidHand,HeikkiManila,PadhraicSymth,"Principles of Data Mining", PHI 2004.

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	--					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	05					
Total	100					

Mapping Course Outcomes with Programme Outcomes:

Course Code	Unit	Course Outcomes					Programme Outcomes															
		1	2	3	4	5	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
T152	I							L												S		L	
	II						M	L		L										S	M	L	
	III						M	M	M	M										S	M	M	M
	IV						L		M	S										S	L		M
	V								S	S										S			S

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	N V NAIK	G V RAJYA LAKSHMI		Dr. N. Ravi Shankar
Sign with Date				

	LESSON PLAN	Date:
	Sub. Name : INFORMATION SECURITY	20/06/2016
	Branch: CSE, Semester & Sections: VI & B	To 09/11/2016

T223 – INFORMATION SECURITY

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1**	**External Marks**	**: 75**
Credits	**: 4**	**External Examination**	**: 3 Hrs**

UNIT - I

Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs Conventional Encryption Principles, Conventional encryption algorithms(DES, Triple DES), cipher block modes of operation(CBC,CFB), location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC.

UNIT - II

Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management, Kerberos, X.509 Directory Authentication Service.

UNIT - III

Email privacy: Pretty Good Privacy (PGP) and S/MIME. IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations

UNIT - IV

Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT - V

Intruders, Viruses and related threats. Firewall Design principles, Trusted Systems

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Text Books:

2. **Network Security Essentials by William Stallings Pearson Education**

Reference Books:

3. **Cryptography & Network Security , Third edition by William Stallings**
4. **Principles of Information Security, Thomson, Whitman**

Pre requisite: knowledge in Computer networks, Security issues.

Course Educational Objectives:

- To introduce various types of algorithms for Encryption & Decryption, Message Authentication, Digital Signature.
- To know different ways to protect the data over a network using Email & IP security and during the financial transactions.
- To know Network security, virus, worms and firewall.

Course Outcomes (CO's)

After completion of the course, a student can:

- **CO1:** Acquire knowledge on security attacks and security Mechanisms used to provide security services and understands conventional encryption algorithms & Message authentication approaches.
- **CO2**: Able to understand Public key cryptography algorithms, digital signatures & Kerberos..
- **CO3**: Able to understand how security is implemented at Network layer by analyzing IPSec protocol & how security is implemented at Application layer by analyzing PGP and S/MIME.
- **CO4:** Able to understand how security is implemented at Application layer by analyzing SSL/TLS and SET protocol.
- **CO5**: Able to understand how security is provided to computer system by Intrusion detection system and study various design principles of Firewalls.

	Lakireddy Bali Reddy College of Engineering	
	Department of CSE	
	Outcome based lesson plan	
	Academic year: 2016-17	Course: Information Security
	Programme: B.Tech	Unit No: 1 to 5
	Year & Sem: IV & I (VII sem)	Section: B

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT –I						
1	Introduction To Information Security	20/06/16		2	1,2	1,3,5,7
2	OSI Security Architecture & Security Attacks	21/06/16		2	1,2	
3	Security Services & Security Mechanisms	22/06/16		2	1,2	
4	Model For N/W Security	23/06/16		2	1,2	
5	Internet Standards and RFC	25/06/16		2	1,2	
6	**Tutorial**	27/06/16		2		
7	Conventional Encryption Principles	28/06/16		2	1,2	
8	Convention Encryption Algorithms:DES	29/06/16		2	1,2	
9	Convention Encryption Algorithms:DES	01/07/16		2	1,2	
10	Triple DES	02/07/16		2	1,2	

11	Cipher block modes of Operations	03/07/16		2	1,2	
12	Cipher block modes of Operations	05/07/16		2	1,2	
13	Location Of Encryption Devices	08/07/16		2	1,2	
14	Key Distribution	09/07/16		2	1,2	
15	Approaches Of Message Authentication & Hash functions	12/07/16		2	1,2	
16	SHA-512	12/07/16		2	1,2	
17	HMAC	13/07/16		2	1,2	
18	**Tutorial**	14/07/16				
UNIT –II						
19	Public Key Cryptographic Principles	16/07/16		2	1,2	
20	Public Key Cryptographic Principles	18/07/16		2	1,2	
21	Public Key Cryptographic Algorithms	19/07/16		2	1,2	
22	Public Key Cryptographic Algorithms	20/07/16		2	1,2	
23	Digital Signatures, Digital certificates	21/07/16		2	1,2	
24	**Tutorial**	23/07/16		2		
25	Certificate Authority	25/07/16		2	1,2	1,3,5,7
26	Key Management	26/07/16		2	1,2	
27	Kerberoes-version4	27/07/16		2	1,2	
28	Kerberoes-version5	28/07/16		2	1,2	
29	X.509version2	30/07/16		2	1,2	
30	X.509version3	01/08/16		2	1,2	
31	Directory Authentication Process	02/08/16		2	1,2	
32	**Tutorial**	03/08/16				
33	I MID EXAMS	24/08/16				
34		26/08/16				
35		27/08/16				
UNIT –III						
36	Email Privacy	29/08/16		2	1,2	
37	Pretty Good Privacy	30/08/16		2	1,2	1,3,5,7
38	General format of PGP message	31/08/16		2	1,2	
39	PGP Services	02/09/16		2	1,2	

40	MIME	03/09/16		2	1,2	
41	S/MIME	06/09/16		2	1,2	
42	S/MIME Certificate Processing	07/09/16		2	1,2	
43	**Tutorial**	08/09/16				
44	IP Security Overview	10/09/16		2	1,2	
45	IP Authentication Architecture	13/09/16		2	1,2	
46	Authentication Header	14/09/16		2	1,2	
47	Encapsulating Security Payload	15/09/16		2	1,2	
48	Combining Security Associations	17/09/16		2	1,2	
49	**Tutorial**	19/09/16				
UNIT –IV						
50	Introduction to Web Security	20/09/16		2	1,2	
51	Web Security Requirements	21/09/16		2	1,2	
52	SSL	22/09/16		2	1,2	
53	SSL	24/09/16		2	1,2	
54	TLS	26/09/16		2	1,2	
55	TLS	27/09/16		2	1,2	1,3,5,7
56	**Tutorial**	28/09/16				
57	Dual Signature	29/09/16		2	1,2	
58	SET	01/10/16		2	1,2	
59	SET	03/10/16		2	1,2	
60	**Tutorial**	04/10/16				
UNIT –V						
61	Intruders	17/10/16		2	1,2	
62	Intrusion Detection Systems	18/10/16		2	1,2	
63	Intrusion Prevention Systems	19/10/16		2	1,2	
64	Viruses	20/10/16		2	1,2	
65	Related Threats and worms	22/10/16		2	1,2	1,3,5,7
66	**Tutorial**	24/10/16				
67	Firewall Design Principles	25/10/16		2	1,2	
68	Trusted Systems	26/10/16		2	1,2	
69	Review of Model papers	27/10/16		2	1,2	

70	Tutorial/ Review of Model papers	29/10/16		2	1,2	
71	**Tutorial**	31/10/16				
72	Review of Model papers	01/11/16				
73	Review of Model papers	02/11/16				
74	Review of Model papers	03/11/16				
75	II MID EXAMS	05/11/16				
76		06/11/16				
77		08/11/16				
78		09/11/16				

Resources Used:

Text Book:

Compilers Principles, Techniques and Tools Aho, Ullman, Ravisethi, Pearson Education.

References:

1. Modern Compiler Construction in C, Andrew W.Appel Cambridge University Press.
2. Compiler Construction, LOUDEN, Thomson.

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	--					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	05					
Total	100					

Mapping Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Code	Unit	Course Outcomes					Program Outcomes											Program Specific Outcomes					
		1	2	3	4	5	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
T141	I	×						1		1											**2**		3	
	II		×					1		1											**2**		3	
	III			×				1		1											**2**		3	
	IV				×				**2**												**2**		3	
	V					×			1			1									**2**		3	

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	Dr. N. Ravi Shankar	Dr. N. Ravi Shankar	G.V. Suresh	Dr. N. Ravi Shankar
Sign with Date				

	LESSON PLAN	Date: 20.06.16
	SubName: Software Project Management Branch: CSE Semester & Section: VII (A&B-Sections)	To 09.11.16

T310 – SOFTWARE PROJECT MANAGEMENT

Lecture	**: 4 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**: 1 P/week**	**External Marks**	**: 75**
Credits	**: 4**	**External Examinations**	**: 3 Hrs**

UNIT - I

Conventional Software Management: The waterfall model, conventional software Management performance. **Evolution of Software Economics:** Software Economics, pragmatic software cost estimation. **Improving Software Economics:** Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections. **The old way and the new:** The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT - II

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases. **Artifacts of the process:** The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts. **Model based software architectures:** A Management perspective and technical perspective.

UNIT - III

Work Flows of the process: Software process workflows, Iteration workflows.

Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.

Iterative Process Planning: Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning. Use of Software (Microsoft Project) to Assist in Project Planning Activities

UNIT - IV

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations. **Process Automation:** AutomationBuilding blocks, The Project Environment. **Project Control and Process instrumentation:** The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

UNIT - V

Tailoring the Process: Process discriminants.**Future Software Project Management:** Modern Project Profiles, Next generation Software economics, modern process transitions. **Case Study:** The command Center Processing and Display system- Replacement (CCPDS)

TEXT BOOK

Software Project Management, Walker Royce: Pearson Education, 2009.

REFERENCES :

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
2. Software Project Management, Joel Henry, Pearson Education.
3. Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.

Prerequisites: Knowledge on Software engineering concepts & Object Oriented analysis & design.

Objective(s):

1. Define and highlight importance of software project management.
2. To Describe and understand the software project management activities
3. To implement project plans through managing people, communications and change
4. To Select and employ mechanisms for tracking your software projects
5. Control your software projects Development
6. Learn how to apply the techniques and develop the documents related to IT project management.

Course Outline:

1. Pitfalls of conventional software project management.

2. Parameters that affect Software Economics

3. Life cycle phases and Artifacts produced for effective Project Management

4. Software process workflows and milestones for Project Management.

5.Roles and Responsibilities in a Software organization involved in Project Management.

6. Next generation Project Management.

Course Outcomes:

CO1: To understand the basic concepts and issues of software project management &parameters to be considered to improve the software economics.

CO2: Apply SDLC methodology (4 lifecycle phases) for development & identification of artifacts for lifecycle phases.

CO3: To conduct activities necessary to successfully complete and close the Software projects & identification of checkpoints in development process.

CO4: Apply the metrics for assessing the quality & cost, to know about automation building blocks & Organization structure.

CO5: Understands how different management and development practices affect software and process quality.

Detailed Lesson Plan:

S.NO	DATE	TOPIC TO BE COVERED	Actual Date	No.of HOURS	Content delivery Methods
	UNIT-I				
1	21/06/16	**Conventional software management**		1	DM1
2	22/06/16	The waterfall model		1	DM1
3	23/06/16	Conventional software management performance		1	DM6

4	24/06/16	Evolution of software economics, Software economics		1	DM6
5	25/06/16	Pragmatic software cost estimation		1	DM1
6	28/06/16	**Improving software economics**: Size		1	DM1
7	29/06/16	TUTORIAL		1	DM2
8	30/06/16	Improving software processes & team effectiveness		1	DM6
9	01/07/16	Improving automation, peer inspections		1	DM1
10	02/07/16	**The old way and the new way**: principles of conventional software engineering		1	DM6
11	05/07/16	Principles of modern software management		1	DM1
12	06/07/16	Transitioning to an iterative process		1	DM1
	UNIT-II				
13	07/07/16	**Life cycle phases**: engineering and production stages		1	DM6
16	08/07/16	Inception ,elaboration		1	DM1
15	09/07/16	construction & Transition phases		1	DM1
16	12/07/16	**Artifacts of the process**: the artifact sets		1	DM6
17	13/07/16	Management artifacts		1	DM1
18	14/07/16	Engineering artifacts		1	DM6
19	15/07/16	Pragmatic artifacts		1	DM6
20	16/07/16	**Model based software architecture**		1	DM6
21	19/07/16	TUTORIAL		1	DM2
22	20/07/16	Architecture: management perspective		1	DM1
23	21/07/16	Architecture: technical perspective		1	DM6
24	22/07/16	Review of unit II		1	DM6
	UNIT-III				
25	23/07/16	**Workflows of the process**		1	DM1
26	25/07/16	Software process workflows		1	DM1
27	26/07/16	Software process workflows		1	DM1
28	28/07/16	Iteration workflows		1	DM6

29	25/0816	I MID EXAMS			
30	26/08/16				
31	27/08/16				
	UNIT-III				
32	08/08/16	**Checkpoints of the process**: major milestones		1	DM1
33	11/08/16	Minor mile stones		1	DM1
34	12/08/16	Periodic status assessments		1	DM6
35	13/08/16	**Iterative process planning**: work breakdown structures		1	DM6
36	16/08/16	TUTORIAL		1	DM2
37	18/08/16	Panning guidelines, cost and schedule estimating		1	DM6
38	19/08/16	Iteration planning process		1	DM6
39	20/08/16	Pragmatic planning		1	DM1
	UNIT-IV				
40	22/08/16	**Project organizations and responsibilities**:		1	DM1
41	23/08/16	Line of business organizations		1	DM6
42	25/08/16	Project organizations, evolution of organizations		1	DM1
43	26/08/16	Process automation: automation building blocks		1	DM6
44	27/08/16	The project environment		1	DM1
45	29/08/16	TUTORIAL		1	DM2
46	30/08/16	**Project control and process instrumentation**: the seven core metrics		1	DM1
47	01/09/16	Management indicators		1	DM6
48	02/09/16	Quality indicators		1	DM6
49	03/09/16	Life cycle expectations		1	DM6
50	05/09/16	Pragmatic software metrics, metrics automation		1	DM6
	UNIT-V				
51	06/09/16	**Tailoring the process**		1	DM6

52	08/09/16	Process discriminants		1	DM1
53	09/09/16	**Future software project management**: modern project profiles		1	DM6
54	10/09/16	Next generation software economics		1	DM6
55	12/09/16	Modern process transitions		1	DM1
56	15/09/16	Modern process transitions		1	DM1
57	16/09/16	CCPDS-R Case Study		1	DM6
58	17/09/16	CCPDS-R Case Study		1	DM6
59	19/09/16	TUTORIAL		1	DM2
60	20/09/16	Review of Unit -V		1	DM6
61	22/09/16	Review of Unit -IV		1	DM6
62	23/09/16	Review of Unit -III		1	DM6
63	24/09/16	Additional Topics: SPM tools in open source		1	DM6
64	26/09/16	Open work bench tool		1	DM6
65	27/09/16	Old papers		1	DM1
66	29/09/16	Old papers		1	DM1
67	07/11/16	II MID EXAMS			
68	08/11/16				
69	09/11/16				

NOTE: DELIVERY METHODS: **DM1**: Lecture interspersed with discussions/BB, **DM2:** Tutorial, **DM3:** Lecture with a quiz, **DM4**: Assignment/Test, **DM5**: Demonstration (laboratory, field visit), **DM6:** Presentations/PPT

At the End of the course, students attained the **Course Outcomes: CO1, CO2, CO3, CO4, CO5**&CO6, and sample proofs are enclosed in Course file.

Signature			
	Name of the Faculty	**Name of Course Co-ordinator**	**HOD**

Faculty Name	:	**M.SRI BALA .**			
Subject Name	:	**STM LAB**	**Code**	:	P-786
Year	:	2016-2017	**Semester**	:	VII
Degree	:	B.Tech	**Programme**	:	**C.S.E**

COURSE EDUCATIONAL OBJECTIVES

1. Demonstrate the UML diagrams with system descriptions.

2. Study of testing tools- like Selenium.

COURSE OUTCOMES

CO 1	Execute standard automated testing tools on sample applications
CO 2	Develop data design experiments in Rational Rose
CO3	Develop data modeling experiments in Rational Rose

At the end of the course the student will be able to

.**Prerequisites**: Fundamentals of Software Engineering and UML

Mapping Course Outcomes with Programme Outcomes

PO->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1			1							2		3
CO2			1							2		3
CO3			1							2		3

Mapping Course Outcomes with Program Specific Outcomes

CO'S	**PSO1**	**PSO2**	**PSO3**
CO1			**3**
CO2			**3**
CO3			**3**

S No.	**Tentative Date**	**Experiments to be covered**	**Actual Date**	**Num. of classes**	**Content Delivery Methods**

1.	24-6-2016	Data modelling diagram		3	DM5
2.	01-7-2016	Forward engg of databases in UML		3	DM5
3.	08-7-2016	Reverse engg of databases in UML		3	DM5
4.	15-7-2016	Data modelling using ATM		3	DM5
5.	22-7-2016	Data modelling using online library system		3	DM5
6.	29-7-2016	Introduction to winrunner		3	DM5
7.	5-8-2016	Winrunner experiment-1 recording test scripts in 2 modes		3	DM5
8.	26-8-2016	Winrunner experiment-2recording test scripts in 2 modes		3	DM5
9.	**I MID EXAMINATIONS FROM 26-8-2016 TO 29-8-2016**				
10.	02-9-2016	Create initial and end conditions		3	DM5
11.	09-9-2016	Create initial and end conditions		3	DM5
12.	16-9-2016	Synchronization test-1		3	DM5
13.	23-9-2016	Synchronization test-11		3	DM5
14.	30-9-2016	Bitmap verification		3	DM5
15.	07-10-2016	Text verification		3	DM5
16.	14-10-2016	GUI check points		3	DM5
17.	21-10-2016	Database check points		3	DM5
18.	28-10-2016	Test plan for sample application-1		3	DM5
19.	11-11-2016	Test plan for sample application-11		3	DM5
II MID EXAMINATIONS FROM 15-11-2016 TO 18-11-2016					

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Signature			
	Name of the Faculty	**Name of Course Co-ordinator**	**HOD**
	M.SRI BALA		Dr.N.RAVI SHANKAR

Faculty Name	:	**M.SRI BALA .**			
Subject Name	:	**STM LAB**	**Code**	:	P-786
Year	:	2016-2017	**Semester**	:	VII
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Mapping Course Outcomes with Programme Outcomes

PO->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1			1							2		3
CO2			1							2		3
CO3			1							2		3

Mapping Course Outcomes with Program Specific Outcomes

CO'S	**PSO1**	**PSO2**	**PSO3**
CO1			**3**
CO2			**3**
CO3			**3**

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38.	11-11-2016	Test plan for sample application-11		3	DM5
II MID EXAMINATIONS FROM 15-11-2016 TO 18-11-2016					

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	Name of the Faculty	**Name of Course Co-ordinator**	**HOD**
	D.VEERIAH		Dr.N.RAVI SHANKAR