LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)
L.B.REDDY NAGAR, MYLAVARAM-521 230, A.P. INDIA
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi
NAAC Accredited with "A" grade, Accredited by NBA
New Delhi & Certified by ISO 9001:2008
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
http://www.lbrce.ac.in, ecedept4@gmail.com Phone: 08659-222933, Fax: 08659-222931

LESSON PLAN

COURSE : M.Tech, (I- Sem.,)
A.Y : 2016-17
BRANCH : VLSI and EMBEDDED SYSTEMS
SUBJECT : Embedded Real Time Operating Systems (Code: MTVL104)
FACULTY : M.Ramya Harika

Process of Teaching, Learning, Delivery and Assessment Methods:

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	

UNIT-I: INTRODUCTION TO UNIX OPERATING SYSTEM

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
1.	Introduction to Embedded Real Time Operating System	1	3-8-16	3-8-16	2	1	
2.	Introduction to the Unix	1	4-8-16	4-8-16	2	1	
3.	Unix Architecture	1	5-8-16	5-8-16	2	2	
4.	Kernel and its sub systems	1	8-8-16	8-8-16	2	2	
5.	Unix shells and shell scripts	1	9-8-16	9-8-16	2	1	
6.	Library Routines and system calls in Unix	1	10-8-16	9-8-16	1	1	
7.	Unix Directories	1	11-8-16	10-8-16	2	2	
8.	Unix File Management	1	24-8-16	11-8-16	2	2	
9.	Unix File Permissions	1	25-8-16	24-8-16	2	1	
10.	Environment Variables and Basic utilities	1	26-8-16	29-8-16	1	1	
11.	Unix-Process Control	1	29-8-16	30-8-16	1	1	
12.	Commands related to Process control	1	30-8-16	30-8-16	2	2	

	commands	1	31-8-16	31-8-16	2	2	
14.	Wait, wait pid and exit commands	1	1-9-16	1-9-16	2	2	
15.	**Assignment-I**	1	2-9-16	2-9-16	—	—	1
No. of classes required to complete UNIT-I		15	No. of classes taken				15

UNIT-II: INTRODUCTION TO REAL TIME OPERATING SYSTEMS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
16.	History of OS and RTOS	1	6-9-16	6-9-16	2	1	
17.	Scheduler of RTOS	1	8-9-16	6-9-16	2	2	
18.	Objects and Services of RTOS	1	9-9-16	8-9-16	2	1	
19.	Characteristics of RTOS	1	12-9-16	9-9-16	2	1	
20.	Task definition and its states	1	13-9-16	12-9-16	2	1	
21.	Task Scheduling	1	15-9-16	13-9-16	1	2	
22.	Operations of Tasks	1	16-9-16	13-9-16	2	2	
23.	Types of Semaphores	1	19-9-16	15-9-16	2	2	
24.	Operations of Semaphores	1	20-9-16	16-9-16	2	1	
25.	Semaphore Uses	1	22-9-16	19-9-16	1	1	
26.	Message Queues and its states in detail	1	23-9-16	20-9-16	1	1	
27.	Operations and uses of Message Queues	1	26-9-16	22-9-16	2	2	
28.	**Assignment-II**	1	27-9-16	23-9-16	—	—	1
No. of classes required to complete UNIT-II		13	No. of classes taken				13

UNIT-III: OBJECTS AND SERVICES OF RTOS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
29.	Other RTOS objects –pipes introduction	1	29-9-16	26-9-16	2	1	
30.	Pipes control block and its states	1	30-9-16	29-9-16	2	2	
31.	Operations and uses of pipes	1	6-10-16	29-9-16	1	1	
32.	Signals and its control block	1	7-10-16	30-9-16	1	1	
33.	Operations and uses of Signals	1	13-10-16	6-10-16	1	2	
34.	Condition variable and its control block	1	14-10-16	7-10-16	2	2	
35.	Operations and uses of Condition variable	1	17-10-16	17-10-16	2	1	
36.	Other RTOS Services- TCP/IP Protocol Stack	1	18-10-16	18-10-16	2	2	
37.	File System Component, Remote Procedure Call	1	20-10-16	18-10-16	2	1	
38.	Command Shell, Target Debug Agent	1	24-10-16	20-10-16	2	2	
39.	Component Configuration	1	25-10-16	24-10-16	2	2	
44.	I/O Sub System-Basic I/O Concepts	1	27-10-16	25-10-16	1	1	
45.	Character-Mode vs. Block-Mode	1	28-10-16	27-10-16	1	1	

	I/O Functions						
47.	Mapping Generic Functions and associated devices to Driver Functions,	1	31-10-16	28-10-16	1		
48.	**Assignment-III**	1	1-11-16	31-10-16	1	1	
No. of classes required to complete UNIT-III		1	3-11-16	1-11-16	2	2	
		16	No. of classes taken		—	—	1
							16

UNIT-IV: EXCEPTIONS AND TIMERS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
49	What are Exceptions and Interrupts	1	4-11-16	3-11-16	2	1	
50	Programmable Interrupt Controllers and External Interrupts	1	07-11-16	4-11-16	2	2	
51	Classification of General Exceptions General Exception Priorities	1	08-11-16	7-11-16	1	2	
52	Processing General Exceptions Saving Processor States	1	10-11-16	7-11-16	1	1	
53	Loading and Invoking Exception Handlers	1	11-11-16	8-11-16	2	1	
54	Exception Handlers and Exception Timing	1	14-11-16	10-11-16	2	2	
55	Introduction to timers and different types	1	15-11-16	14-11-16	2	2	
56	Timer Interrupt Service Routines	1	17-11-16	15-11-16	1	1	
57	A Model for Implementing the Soft-Timer Handling Facility	1	18-11-16	17-11-16	1	1	
58	Implementation Considerations and Timing Wheels	1	21-11-16	18-11-16	2	2	
59	Soft Timers and their operations	1	22-11-16	21-11-16	1	2	
60	**Assignment-IV**	1	24-11-16	21-11-16	—	2	1
No. of classes required to complete UNIT-IV		12	No. of classes taken				12

UNIT-V: DIFFERENT TYPES OF OPERATING SYSTEMS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
61	Introduction to RT Linux	1	25-11-16	22-11-16	2	2	
62	Features and applications of RT Linux	1	28-11-16	25-11-16	2	2	
63	Introduction to MicroC/OS-II	1	29-11-16	28-11-16	2	2	
64	Features and applications of MicroC/OS-II	1	30-11-16	29-11-16	1	1	
65	Introduction to Vx Works	1	1-12-16	30-11-16	2	2	
66	Features and applications of Vx Works	1	2-12-16	1-12-16	1	2	

67	Introduction to Embedded Linux	1	4-12-16	4-12-16	2	2	
68	Features and applications of Embedded Linux	1	5-12-16	6-12-16	1	2	
69	Introduction to Tiny OS	1	6-12-16	8-12-16	2	1	
70	Features and applications of Tiny OS	1	8-12-16	8-12-16	1	1	
71	Basic Concepts of Android OS.	1	9-12-16	9-12-16	1	2	
72	**Assignment-V**	1	10-12-16	10-12-16	—	—	1
No. of classes required to complete UNIT-V		12	No. of classes taken				12

M.Ramya Harika	Y. Anwar Bah	Y. Anwar Bah	Prof.B.Ramesh Reddy
Subject Teacher	**Course Coordinator**	**Module Coordinator**	**HOD**

L.B. REDDY COLLEGE OF ENGINEERING (Autonomous)
L.B. REDDY NAGAR, MYLAVARAM-521 230, A.P. INDIA
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi
NAAC Accredited with "A" grade Accredited by NBA
New Delhi & Certified by ISO 9001:2008
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
http://www.lbrce.ac.in, ecedeptlb@gmail.com Phone: 08659-222933, Fax: 08659-222931

LESSON PLAN

COURSE : M. Tech., (I-Sem.,)-VLSI&ES
A.Y : 2016-17
BRANCH : ELECTRONICS&COMMUNICTION ENGINEERING
SUBJECT : VLSI TECHNOLOGY & DESIGN (Code: MTVL101)
FACULTY : K..RANI RUDRAMA

Process of Teaching, Learning, Delivery and Assessment Methods:

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	

UNIT-I REVIEW OF MICROELECTRONICS AND INTRODUCTION TO MOS TECHNOLOGIES

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
1.	Introduction vlsi design	1	03/8/16	3/8/16	2	1	
2.	List of Different IC technologies, basics	1	04/8/16	4/8/16	2	1	
3.	Working of NMOS enhancement mode	1	05/8/16	5/8/16	2	1	
4.	NMOS fabrication steps	1	08/8/16	8/8/16	2	2	
5.	CMOS, Bi-CMOS fabrication	1	09/8/16	9/8/16	2	2	
6.	Comparison between cmos, bi-cmos	1	10/8/16	10/8/16	1	1	
7.	Basic Electrical properties of MOS, Current(I_{ds}) vs Voltage(V_{ds})	1	24/8/16	24/8/16	2	1	
8.	Thresh hold voltage Vt, body effect	1	25/8/16	25/8/16	2	1	
9.	Trans conductance(g_m),output conductance(g_{ds}),figure of merit(ω_o)	1	26/8/16	26/8/16	2	1	
10.	Pass transistor, nmos,cmos,Bi-cmos	1	29/8/16	29/8/16	2	1	
11.	Pull-up to pull-down ratio for an nmos inverter driven by another nmos	1	30/8/16	30/8/16	2	1	
12.	Pull-up to pull-down ratio for an nmos inverter driven through one or more	1	31/8/16	31/8/16	2	1	
13.	Alternate forms of pull-ups	1	01/9/16	1/9/16	2	1	
14.	CMOS inverter load current analysis	1	02/9/16	2/9/16	2	1	
15.	MOS transistor equivalent circuit	1	06/9/16	6/9/16	2	1	
16.	Latch up currents in CMOS inveter	1	07/9/16	7/9/16	2	2	
17.	Remedies for Latch up currents	1	08/9/16	8/9/16	2	1	
18.	ASSIGNMENT -I	1	9/9/16	9/9/16	4/9	-	1
	No. of classes required to complete UNIT-I	18		**No. of classes taken**			18

UNIT-II: LAYOUT DESIGN AND TOOLS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
19.	Introduction, VLSI design flow, MOS layers	1	12/9/16	12/9/16	2	1	
20.	Stick diagrams NMOS, CMOS transistors	1	13/9/16	13/9/16	2	1,2	
21.	Stick diagrams NMOS, CMOS Inverters	1	14/9/16	14/9/16	2	1,2	
22.	lambda based design rules	1	15/9/16	15/9/16	2	1,2	
23.	CMOS design rules for wire and contact cuts, vias	1	16/9/16	16/9/16	2	1,2	
24.	NMOS & CMOS inverter layout diagrams	1	19/9/16	19/9/16	2	2	
25.	Stick diagram and layout diagram for NAND,NOR gates	1	22/9/16	22/9/16	2	2	
26.	Static complementary gates	1	23/9/16	23/9/16	2	2	
27.	**Switch logic, pass transistor logic**	1	03/10/16	3/10/16	2	1	
28.	TG(Transmission Gate) based multiplexer	1	04/10/16	4/10/16	2	1	
29.	Alternative gate circuit, Pseudo nmos logic	1	05/10/16	5/10/16	2	1	
30.	DCVSL, Domino logic	1	06/10/16	6/10/16	2	1	
31.	Low power gates	1	7/10/16	7/10/16	2	1	
32.	MTCMOS,VTCMOS	1	18/10/16,	18/10/16	2	1	
33.	Delay through an RC Transmission line	1	19/10/16	20/10/16	2	1	
34.	Delay through inductive interconnect Transmission line	1	20/10/16	24/10/16	2	1	
35.	ASSIGNMENT-II	1	21/10/16	25/10/16	~~2~~	~~1~~	1
	No. of classes required to complete UNIT-II	**16**			**No. of classes taken**		17

UNIT-III : Combinational Circuit Design

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
36.	Delay Estimation	1	24/10/16	27/10/16	2	1	
37.	**RC delay models**	1	25/10/16	28/10/16			
38.	**Linear delay models**	1	26/10/16		2	1	
39.	Parasitic delay	1	27/10/16	31/10/16			
40.	Logical effort	1	28/10/16		2	1	
41.	Transistor sizing	1	31/10/16	1/11/16			
42.	**Choosing the Best Number of stages**	1	01/11/16		2	1	
43.	**Power dissipation**	1	02/11/ 16	2/11/16			
44.	Low power Design	1	03/11/16		2	1	

45.	Circuit pitt falls	1	04/11/16	4/11/16	2	1	
46.	Comparision of circuit families	1	07/11/16	7/11/16	2	1	
47.	**Historical perspective ASSIGNMENT TEST**	1	08/11/16	8/11/16	–	–	1
No. of classes required to complete UNIT-III		**12**			**No. of classes taken**		8

UNIT-IV : SEQUENTIAL CIRCUITS DESIGN

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
48.	Sequencing static circuit	1	09/11/16	10/11/16	2	1	
49.	Conventional CMOS latches	1	10/11/16	11/11/16	2	1	
50.	Conventional CMOS flip-flops	1	11/11/16	14/11/16	2	1	
51.	Pulsed latches	1	14/11/16	15/11/16	2	1,2	
52.	Resettable latches and flip-flops	1	15/11/16				
53.	Enabled latches and flip-flops	1	16/11/16				
54.	Static sequencing element methodology	1	17/11/16	17/11/16	2	1	
55.	Choice of elements	1	181/1/16	18/11/16	2	1	
56.	Lowpower sequential design	1	21/11/16	22/11/16	2	1	
57.	Simple synchronizer, Arbiter	1	22/11/16				
58.	**ASSIGNMENT TEST**	1	23/11/16	29/11/16	2	1	
No. of classes required to complete UNIT-IV		**11**	**No. of classes taken**		8		

UNIT-V : FLOOR PLANNING AND SYSTEM DESIGN

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
59.	Floor planning method	1	24/11/16	1/12/16			
60.	Block placement and channel definition	1	25/11/16	2/12/16			
61.	Global routing, switch box routing	1	28/11/16	5/12/16			
62.	Power distribution, clock distribution	1	29/11/16				
63.	Floor planning tips	1	30/11/16	6/12/16			
64.	Off chip connections	1	01/12/16				
65.	**Pad design**	1	02/12/16	7/12			
66.	Register transfer design	1	05/12/16				

67.	ASM chart design	1	06/12/16	8/12			
68.	Implementation as data path and controller	1	07/12/16				
69.	Pipelining	1	08/12/16	9/12			
70.	**ASSIGNMENT TEST**	1	09/12/16	9/12			
No. of classes required to complete UNIT-V		11	No. of classes taken 8				
	Total Classes	**70**					

Signature of faculty

Signature of HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)
L.B.REDDY NAGAR, MYLAVARAM-521 230, A.P. INDIA
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi
NAAC Accredited with "A" grade, Accredited by NBA
New Delhi & Certified by ISO 9001:2008
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
http://www.lbrce.ac.in, ecedept4l@gmail.com Phone: 08659-222933, Fax: 08659-222931

COURSE : M.Tech., (I-Sem)
A.Y : 2016-17
SPECILIZATION : VLSI design and Embedded systems
SUBJECT : Modern DSP (Code:)
FACULTY : V.V.Rama Krishna

Process of Teaching, Learning, Delivery and Assessment Methods:

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	

UNIT-I

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
1.	Signals	1	03-08-16	4/8/16	1,2,3	1,2	
2.	Systems	1	04-08-16	5/8/16	1,2,3	1,2	
3.	Processing of signals and systems	1	05-08-16	8/8/16	1,2,3	1,2	
4.	Classification of Signals	1	08-08-16	10/8/16	1,2,3	1,2	
5.	The Concept of Frequency in Continuous-Time	1	10-08-16	24/8/16	1,2,3	1,2	
6.	The Concept of Frequency in Discrete-Time Signals	1	24-08-16	25/8/16	1,2,3	1,2	
7.	Properties of DTFT		25-08-16	26/8/16	1,2,3	1,2	
8.	Tutorial-1		26-08-16	29/8/16	1,2,3	1,2	1
9.	Digital-to-Analog Conversion	1	29-08-16	29/8/16	1,2,3	1,2	

10.	Frequency-Domain Sampling	1	29-08-16	31/8/16	1,2,3	1,2	
11.	The Discrete Fourier Transform	1	31-08-16	1/9/16	1,2,3	1,2	
12.	Properties of the DFT	1	01-09-16	2/9/16	1,2,3	1,2	
13.	Linear Filtering Methods Based on the DFT	1	02-09-16	7/9/16	1,2,3	1,2	
14.	Tutorial-2	1	07-09-16	8/9/16	1,2,3	S	1
No. of classes required to complete UNIT-I		14	No. of classes taken				

UNIT-II

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
15.	General Considerations	1	08-09-16	9/9/16	1,2,3	1,2	
16.	Characteristics of FIR filters	1	09-09-16	12/9/16	1,2,3	1,2	
17.	Design using fourier series method	1	12-09-16	12/9/16	1,2,3	1,2	
18.	Windowing techniques	1	12-09-16	14/9/16	1,2,3	1,2	
19.	Windowing tecniques	1	14-09-16	15/9/16	1,2,3	1,2	
20.	Design of FIR filters using window techniques	1	15-09-16	16/9/16	1,2,3	1,2	
21.	Design of FIR filters using window techniques	1	16-09-16	19/9/16	1,2,3	1,2	
22.	Impulse invariance method	1	19-09-16	19/9/16	1,2,3	1,2	
23.	Bilinear transformation	1	19-09-16	21/9/16	1,2,3	1,2	
24.	Butterworth filter characteristics	1	21-09-16	22/9/16	1,2,3	1,2	
25.	Butterworth filter design	1	22-09-16	23/9/16	1,2,3	1,2	
26.	Problems on the design of butterworth filter	1	23-09-16	26/9/16	1,2,3	1,2	
27.	Tutorial-3	1	26-09-16	26/9/16	1,2,3	S	1
28.	Characteristic of Chebyshev filter	1	26-09-16	28/9/16	1,2,3	1,2	
29.	Design of Chebyshev filter	1	28-09-16	29/9/16	1,2,3	1,2	
30.	Problems on chebyshev design	1	29-09-16	30/9/16	1,2,3	1,2	
31.	Problems on chebyshev design	1	30-09-16	30/9/16	1,2,3	1,2	
32.	Frequency transformation	1	06-10-16	3/10/16	1,2,3	1,2	
33.	Tutorial-4	1	07-10-16	3/10/16	1,2,3	S	

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
34.	Introduction	1	13-10-16	5/10/16	2,3,4	1,2	
35.	Dimation by a factor 'D'	1	14-10-16	6/10/16	2,3,4	1,2	
36.	Dimation problems	1	17-10-16	7/10/16	2,3,4	1,2	
37.	Interpolation by a factor 'I'	1	17-10-16	19/10/16	2,3,4	1,2	
38.	Interpolation problems	1	19-10-16	20/10/16	2,3,4	1,2	
39.	Sampling rate Conversion by a factor 'I/D'	1	20-10-16	21/10/16	2,3,4	1,2	
40.	Tutorial-5	1	21-10-16	24/10/16	2,3,4	9	1
41.	Multistage implementation of Sampling rate conversion	1	24-10-16	24/10/16	2,3,4	1,2	
42.	Multistage implementation of Sampling rate conversion	1	24-10-16	26/10/16	2,3,4	1,2	
43.	Tutorial-6	1	26-10-16	27/10/16	2,3,4	1,2	1
No. of classes required to complete UNIT-III		19	No. of classes taken				

UNIT-IV

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
44.	Sampling rate conversion of Band Pass Signals	1	27-10-16	31/10/16	2,3,4	1,2	
45.	Sampling rate conversion by an arbitrary factor	1	28-10-16	31/10/16	2,3,4	1,2	
46.	Applications of Multirate Signal Processing	1	31-10-16	2/11/16	1,2,3	1,2	
47.	Applications of Multirate Signal Processing	1	31-10-16	10/11/16	2,3,4	1,2	
48.	Applications of Multirate Signal Processing		02-11-16	11/11/16	2,3,4	1,2	
49.	Tutorial-7	1	03-11-16	14/11/16	2,3,4	9	1
50.	Digital Filter banks	1	04-11-16	16/11/16	2,3,4	1,2	
51.	Two Channel Quadrature Mirror		07-11-16	18/11/16	2,3,4	1,2	

	Filter banks						
52.	Digital Filter banks, Two Channel Quadrature Mirror Filter banks	1	09-11-16	24/11/16	2,3,4	1,2	
53.	M-Channel QMF bank	1	10-11-16	25/11/16	2,3,4	1,2	
54.	M-Channel QMF bank	1	11-11-16	25/11/16	2,3,4	1,2	
55.	Tutorial-8	1	14-11-16	28/11/16	2,3,4	9	1
No. of classes required to complete UNIT-IV			No. of classes taken				

UNIT-V

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
56.	Applications of Adaptive Filters, s-,	1	16-11-16	29/11/16	2,3,4	1,2	
57.	Adaptive Direct Form FIR Filter	1	17-11-16	30/11/16	2,3,4	1,2	
58.	Adaptive Direct Form FIR Filter	1	18-11-16	30/11/16	2,3,4	1,2	
59.	The LMS Algorithm	1	21-11-16	1/12/16	2,3,4	1,2	
60.	The LMS Algorithm	1	23-11-16	1/12/16	2,3,4	1,2	
61.	Tutorial-9	1	24-11-16	5/12/16	2,3,4	1,2	1
62.	Adaptive Direct Form Filters-RLS Algorithm	1	25-11-16	5/12/16	2,3,4	9	
63.	Adaptive Direct Form Filters-RLS Algorithm	1	28-11-16	6/12/16	2,3,4	1,2	
64.	Adaptive Direct Form Filters-RLS Algorithm	1	30-11-16	6/12/16	2,3,4	1,2	
65.	Tutorial-10	1	01-12-16	7/12/16	2,3,4	1,2	1
66.	Revision of unit-I		02-12-16	8/12/16	2,3,4	1,2	
67.	Revision of unit-II		05-12-16	9/12/16	2,3,4	1,2	
68.	Revision of unit-III		07-12-16	9/12/16	2,3,4	9	
69.	Revision of unit-IV		08-12-16	9/12/16	2,3,4	9	
70.	Revision of unit-V		09-12-16	9/12/16	2,3,4	9	
No. of classes required to complete UNIT-V		11	No. of classes taken				

V.V Rama Krishna — Subject Teacher

Course Coordinator

Module Coordinator

Prof.B.Ramesh Reddy — HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)
L.B.REDDY NAGAR, MYLAVARAM-521 230, A.P. INDIA
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi
NAAC Accredited with "A" grade. Accredited by NBA
New Delhi & Certified by ISO 9001:2008
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
http://www.lbrce.ac.in, ecedept4@gmail.com Phone: 08659-222933, Fax: 08659-222931

COURSE	: M.Tech, (I- Sem.,)	FACULTY	: Mr. P. Venkat Rao
BRANCH	: VLSI & ED	Academic Year	: 2016 – 17
SUBJECT	: Wireless Communication & Networks	SUBJECT CODE	: MTVL1051

LESSON PLAN

Process of Teaching, Learning, Delivery and Assessment Methods:

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	

UNIT-I : wireless communications & system fundamentals

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
1.	Introduction to wireless Communication	1	03-08-16	3-8-16	2	1	1,5
2.	Examples of wireless Communications systems	1	04-08-16	4-8-16	2	2	1,5,7
3.	Comparison and trends	1	08-08-16	8-8-16	2,7	2	1,5
4.	Evolution of cellular networks	1	09-08-16	9-8-16	2	1,2	1,5
5.	Introduction to cellular concepts	1	24-08-16	24-8-16	2	1,2	1,5
6.	Frequency re-use and strategies	1	25-08-16	25-8-16	2	2	1,2,5
7.	Interference and system capacity	1	29-08-16	29-8-16	2,3	1,2	1,2,5
8.	Trucking and grade of service	1	30-08-16	30-8-16	2	2,6	1,5
9.	Improving coverage in cellular systems	1	31-08-16	31-8-16	2	2	1,5
10.	Methods for improving coverage	1	01-09-16	1-9-16	2	2	1,5
11.	Capacity in cellular systems	1	06-09-16	6-9-16	1,2	2,6	1,5
12.	Assignment - 01	1	06-09-16	6-9-16	2,9	9	1
	No. of classes required to complete UNIT-I	12		No. of classes taken			12

UNIT-II: Multiple access techniques for wireless communications

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
13.	Introduction to multiple access techniques	1	07-09-16	7-9-16	2	1	1,5
14.	FDMA	1	08-09-16	8-9-16	2	1,2	1,5
15.	TDMA	1	13-09-16	13-9-16	2	1,2	1,2

16.	SSMA- FHMA, SSMA	1	14-09-16	14-9-16	2	2	1,5
17.	CDMA	1	15-09-16	15-9-16	2,7	2	1,2,5
18.	SDMA and hybrid techniques	1	19-09-16	19-9-16	2	1,2	1,5
19.	Problems on multiple access techniques	1	20-09-16	20-9-16	3	9	1,9
20.	Packet radio access protocols	1	21-09-16	21-9-16	2,7	1,2	1,2,5
21.	CSMA protocols	1	22-09-16	22-9-16	2,7	1,2	1,5
22.	Reservation protocols	1	26-09-16	26-9-16	2	2	1,2,5
23.	Capture effect in packet radio	1	27-09-16	27-9-16	1,2	2	1,5
24.	Capacity of cellular systems	1	27-09-16	27-9-16	2	2,6	1,5
25.	Assignment- 02	1	28-09-16	28-9-16	2,9	9	1
	No. of classes required to complete UNIT-II	**13**				**No. of classes taken**	13

UNIT-III: Wireless networking and data services							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**DM**	**AM**
26.	Introduction to wireless networking	1	29-09-16	29-9-16	2	1	1,5
27.	Differences in wireless and fixed telephone networks	1	03-10-16	4-10-16	2	1	1,5
28.	Traffic routing in wireless networks	1	04-10-16	5-10-16	2	1	1,5
29.	Circuit switching	1	05-10-16	6-10-16	2,7	1,2	1,5
30.	Packet switching	1	06-10-16	13-10-16	2,7	1,2	1,2,5
31.	X.25 protocol	1	13-10-16	14-10-16	2	1	1,5
32.	Introduction to Wireless data services-examples	1	14-10-16	15-10-16	2	1,2	1,5
33.	Cellular data packet data(CDPD)	1	15-10-16	15-10-16	2	1,2	1,5
34.	Advanced radio data information systems (ARDIS), RMD	1	18-10-16	18-10-16	2	2	1,5
35.	Common channel signaling	1	19-10-16	19-10-16	2	2	1,5
36.	ISDN	1	20-10-16	20-10-16	7	2	1,25
37.	B-ISDN , ATM	1	22-10-16	22-10-16	2	2	1,2,5
38.	SS7 protocols, services	1	25-10-16	25-10-16	2	2	1,9,5
39.	Assignment -03	1	26-10-16	26-10-16	2,9	9	1
	No. of classes required to complete UNIT-III	**14**				**No. of classes taken**	14

UNIT-IV: Mobile IP, WAP and wireless LAN technology							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**DM**	**AM**
40.	Operation of mobile IP	1	27-10-16	27-10-16	2	1	1,5
41.	Collocated address, tunnelling and registration	1	31-10-16	31-10-16	2	1,2	1,5

42.	WAP architecture- overview	1	03-11-16	3-11-16	2	1	2,5
43.	WML scripts, WAP services	1	07-11-16	7-11-16	1,2	1,2	2,5
44.	WAP session protocol	1	08-11-16	8-11-16	2	2	1,2,5
45.	Wireless transaction, wireless datagram protocol	1	09-11-16	9-11-16	2	2	1,5
46.	Introduction wireless LAN technology	1	10-11-16	10-11-16	2	1,2	1,2,5
47.	Types of wireless LANs- infrared, spread spectrum and microwave	1	14-11-16	14-11-16	2,7	1	1,5
48.	IEEE 802.11 protocol architecture	1	15-11-16	15-11-16	2	1,2	1,2,5
49.	System architecture and sevices	1	16-11-16	16-11-16	2	1	1,5
50.	IEEE 802.11 medium access control	1	17-11-16	21-11-16	1,2	1	2,5
51.	IEEE 802.11 physical layer	1	21-11-16	22-11-16	2	1,2	1,5
52.	Assignment -04	1	22-11-16	23-11-16	2,9	9	1
	No. of classes required to complete UNIT-IV	**13**				**No. of classes taken**	13

UNIT-V: Mobile data networks and adhoc wireless networks							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**DM**	**AM**
53.	Introduction to mobile data networks	1	23-11-16	23-11-16	2	1	1,5
54.	Data oriented CDPD network	1	23-11-16	24-11-16	1,2	1	1,5
55.	GPRS and higher data rates	1	24-11-16	28-11-16	2	2	1,5
56.	Short messaging services in GSM	1	28-11-16	29-11-16	2	2	1,5
57.	Mobile application protocol	1	29-11-16	29-11-16	2	1,2	1,5
58.	Adhoc wireless networks	1	30-11-16	1-12-16	2	2	1,2,5
59.	Comparison of cellular and adhoc wireless network	1	01-12-16	3-12-16	7	1	1,5
60.	Applications and MAC protocols	1	03-12-16	5-12-16	2	1	1,5
61.	Routing and multicasting	1	05-12-16	6-12-16	1,2	1,2	1,2,5
62.	Transport layer protocols	2	06-12-16	7-12-16	2	1,2	2,5
63.	Quality of service browsing	2	07-12-16	8-12-16	2	1,2	2,5
64.	Deployment considerations, Adhoc wireless internet	2	08-12-16	8-12-16	7	1,2	1,2,5
65.	Assignment -05	1	09-12-16	8-12-16	2,9	9	1
	No. of classes required to complete UNIT-V	**16**				**No. of classes taken**	16

P Venkatrao	P Venkatrao	A. Narendra Babu	
Mr.P.Venkat Rao	Mr. P. Venkat Rao	Dr. A. Narendra Babu	Prof.B.Ramesh Reddy
Subject Teacher	**Course Coordinator**	**Module Coordinator**	**HOD**

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)
L.B.REDDY NAGAR, MYLAVARAM-521 230, A.P. INDIA
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi
NAAC Accredited with "A" grade, Accredited by NBA
New Delhi & Certified by ISO 9001:2008
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
http://www.lbrce.ac.in, ecedept@gmail.com Phone: 08659-222933, Fax: 08659-222931

LESSON PLAN

COURSE : M. Tech., (I-Sem.,)-VLSI&ES

A.Y : 2016-17

BRANCH : ELECTRONICS&COMMUNICTION ENGINEERING

SUBJECT : CPLD and FPGA Architectures and Applications (Code: MTVL102)

FACULTY : Mr.G.Venkat Rao

Process of Teaching, Learning, Delivery and Assessment Methods:

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	

UNIT-I INTRODUCTION TO PROGRAMMABLE LOGIC DEVICES

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
1.	Introduction to programmable logic devices	1	03/8/16	3/8/16			
2.	Simple programmable logic devices	1	04/8/16	4/8/16			
3.	Simple programmable logic devices	1	05/8/16	5/8/16			
4.	Read only Memories	1	08/8/16	8/8/16			
5.	Programmable logic arrays	1	10/8/16	10/8/16			
6.	Programmable logic arrays	1	24/8/16	24/8/16			
7.	Programmable array logic	1	25/8/16	25/8/16			
8.	Programmable array logic	1	26/8/16	26/8/16			
9.	Comparison of PLDs	1	29/8/16	29/8/16			
10.	Programmable logic devices	1	31/8/16	31/8/16			
11.	Generic Array logic	1	01/9/16	1/9/16			
12.	Sequential Programmable logic devices	1	02/9/16	2/9/16			
13.	Sequential Programmable logic devices	1	07/9/16	7/9/16			
14.	Complex Programmable logic devices	1	08/9/16	8/9/16			

15.	Complex Programmable logic devices	1	09/9/16	09/9/16			
16.	Architecture of Xilinx Cool runner	1	12/9/16	12/9/16			
17.	XCR3064XL CPLD	1	14/9/16	14/9/16			
18.	Implementation of a parallel adder with Accumulation		15/9/16	15/9/16			
19.	ASSIGNMENT –I		16/9/16	16/9/16			
	No. of classes required to complete UNIT-I	**19**			**No. of classes taken**		19

UNIT-II: FIELD PROGRAMMABLE GATE ARRAYS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
20.	Organization of FPGAs	1	19/9/16	19/9/16			
21.	FPGA Programming Technologies	1	21/9/16	22/9/16			
22.	Programmable Logic Block Architectures	1	22/9/16	23/9/16			
23.	Programmable Logic Block Architectures	1	23/9/16	23/9/16			
24.	Programmable Inter connects	1	26/9/16	26/9/16			
25.	Programmable I/O blocks in FPGAs	1	28/9/16	28/9/16			
26.	Dedicated Specialized Components of FPGAs	1	29/9/16	3/10/16			
27.	Applications of FPGAs	1	30/9/16	5/10/16			
28.	ASSIGNMENT-II	1	3/10/16	7/10/16			
	No. of classes required to complete UNIT-II	**9**			**No. of classes taken**		9

UNIT-III : SRAM Programmable FPGAs

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
29.	**SRAM Programmable FPGAs**	1	5/10/16	17/10/16			
30.	Introduction	1	6/10/16	19/10/16			
31.	Programming Technology	1	7/10/16	20/10/16			
32.	Device Architecture	1	17/10/16	21/10/16			
33.	Advantages of SRAM FPGAs	1	19/10/16	24/10/16			
34.	Disadvantages of SRAM FPGAs	1	20/10/16	26/10/16			
35.	Configurable logic block :LUT	1	21/10/ 16	27/10/16			
36.	Programmable Interconnect Point, MUX	1	24/10/16	28/10/16			
37.	The Xilinx XC2000 Architecture	1	26/10/16	31/10/16			
38.	The XC2000 CLB	1	27/10/16	2/11/16			
39.	The XC2000 IOB,Wiring Architecture	1	28/10/16	3/11/16			
40.	The XC3000 CLB Architecture	1	31/10/16	4/11/16			
41.	The XC3000 IOB,Wiring Architecture	1	2/11/16	7/11/16			
42.	The Xilinx XC4000 Architecture	1	3/11/16	9/11/16			
43.	The XC4000 CLB Architecture	1	4/11/16	10/11/16			
44.	The XC4000 IOB,Wiring Architecture	1	7/11/16	11/11/16			
45.	ASSIGNMENT-III	1	09/11/16	11/11/16			
	No. of classes required to complete UNIT-III	**17**			**No. of classes taken**		17

UNIT-IV : ANTI-FUSE PROGRAMMED FPGAs

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
46.	Introduction	1	10/11/16	14/11/16			
47.	Programming Technology	1	11/11/16	16/11/16			
48.	Device Architecture	1	14/11/16	17/11/16			
49.	Major elements of the Actel FPGA	1	16/11/16	18/11/16			
50.	Logic Module, Simple Logic Module	1	17/11/16	21/11/16			
51.	Combinatorial logic module	1	18/11/16	23/11/16			
52.	The Actel1 Architecture	1	211/1/16	24/11/16			
53.	The Actel2 Architecture	1	23/11/16	30/11/16			
54.	The Actel3 Architecture	1	24/11/16	1/12/2016			
55.	**ASSIGNMENT TEST**	1	30/11/16	1/12/2016			
No. of classes required to complete UNIT-IV		**10**	**No. of classes taken**				10

UNIT-V: DESIGN APPLICATIONS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
56.	General Design issues	1	1/12/16	2/12/16			
57.	Counter Examples	1	2/12/16	5/12/16			
58.	A Fast Video Controller	1	4/12/16	5/12/2016			
59.	A position Tracker for a Robot Manipulator	1	6/12/16	7/12/2016			
60.	A Fast DMA controller	1	7/12/16	7/12/2016			
61.	Designing Counters with ACT devices	1	8/12/16	8/12/2016			
62.	Designing Adders and Accumulators with the ACT Architecture	1	9/12/16	9/12/2016			
63.	**ASSIGNMENT TEST**	1	9/12/16	9/12/2016			
No. of classes required to complete UNIT-V		08	No. of classes taken				08
	Total Classes	**63**					63

Subject Teacher

Head of the Departm

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)
L.B.REDDY NAGAR, MYLAVARAM-521 230, A.P. INDIA
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi
NAAC Accredited with "A" grade, Accredited by NBA
New Delhi & Certified by ISO 9001:2008
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
http://www.lbrce.ac.in, ecedept4@gmail.com Phone: 08659-222933, Fax: 08659-222931

COURSE : M.Tech., (I-Sem)
A.Y : 2016-17
SPECILIZATION : VLSI design and Embedded systems
SUBJECT : Microcontrollers for Embedded System Design (Code: MTVL103)
FACULTY : K.V.Ashok

Process of Teaching, Learning, Delivery and Assessment Methods:

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	

UNIT-I : Introduction to Embedded Systems

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
1.	Overview of Embedded Systems	1	03-08-16	4/8/16	2	1	1,5
2.	Processor Embedded into a system	2	08-08-16	9/8/16	2	1	1,5
3.	Embedded Hardware Units and Devices in system	2	10-08-16	25/8/16	2	1,2	1,5
4.	Embedded Software	2	24-08-16	6/9/16	2	1,2	1,5
5.	Complex System Design	2	26-08-16	8/9/16	4	1,2	1,5
6.	Design Process in Embedded System,	3	10-08-16	12/9/16	2	1,2	1,5
7.	Formalization of System Design,	2	31-08-16	15/9/16	2	1	1,5
8.	Classification of Embedded Systems.	1	02-09-16	21/9/16	2	1	1,5
9.	Assignment UNIT-I	1	06-09-16	22/9/16	–	–	
No. of classes required to complete UNIT-I		15	No. of classes taken				24

UNIT-II : Microcontrollers and Processor Architecture & Interfacing

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
10.	8051 Architecture. Real world interfacing	4	06-09-16	22/9/16	2	1,2	1,5
11.	Introduction to advanced architecture	3	13-09-16	28/9/16	2	1	1,5
12.	Processor & memory organization,	4	16-09-16	29/9/16	2	1,2	1,5
13.	Instruction-level parallelism	2	22-09-16	4/10/16	2	1,2	1,5
14.	Performance Metrics	2	26-09-16	6/10/16	2	1	1,5
15.	Assignment UNIT-II	1	27-09-16	28/9/16		–	1
No. of classes required to complete UNIT-II		15	No. of classes taken				16

UNIT-III : PIC Microcontroller Hardware

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
16.	Introduction	1	05-12-16	1/12/16	2	1	1,5
17.	Architectural overview	2	06-12-16	1/12/16	2	1,2	1,5
18.	Memory organization	1	07-12-16	5/12/16	2	1	1,5
19.	Interrupts and reset	1	08-12-16	6/12/16	2	1,2	1,5
20.	I/O ports	1	09-12-16	7/12/16.	2	1,2	1,5
21.	Timers	2	10-12-16	8/12/16	2	1,2	1,5
22.	Assignment UNIT-III	1	10-12-16	8/12/16		–	1
No. of classes required to complete UNIT-III		08	No. of classes taken				08

UNIT-IV : ARM Architecture

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
23.	ARM Design Philosophy	1	06-10-16	19/10/16	2	1	1,5
24.	Registers	1	07-10-16	20/10/16	2	1,2	1,5
25.	Program Status Register	2	17-10-16	24/10/16	2	1,2	1,5
26.	Instruction Pipeline,	2	19-10-16	25/10/16	2	1,2	1,5
27.	Interrupts and Vector Table,	1	21-10-16	26/10/16	2	1,2	1,5
28.	Architecture Revision	2	24-10-16	27/10/16	2	1	1,5
29.	ARM Processor Families.	3	26-10-16	31/10/16	2	1,2	1,5
30.	Assignment UNIT-IV	1	27-10-16	31/10/16	–	–	1
No. of classes required to complete UNIT-IV		12	No. of classes taken				10