

Department of Telecommunication Engineering

SEMESTER : MTech II	NAME OF THE FACULTY : Ms. Shilpa S. Uttarkar
BRANCH : DCE	DATE OF COMMENCEMENT : 01.02.2016
SUBJECT : Advanced Embedded Systems	DATE OF CLOSING : 21.05.2016
SUBJECT CODE : 14ECS253	CLASS STRENGTH : 09
NO OF HRS/ WK : 5	TOTAL HRS : 53

Sessi on No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignm ents/ Tests planned for the chapter	Topics covered As per plan
1.	1/ 1	2-2-16	Unit 1: Typical embedded system: Core of the embedded system	LCD Projector, White Board & Marker Pen		
2.	2/ 1	3-2-16	General purpose and Domain specific processors	„		
3.	3/ 1	4-2-16	Memory	„		
4.	4/ 1	5-2-16	Memory	„	Assignm ent- I	
5.	5/ 1	8-2-16	Sensors	„		
6.	6/ 1	10-2-16	Actuators	„		
7.	7/ 1	11-16	Commutation interface: Onboard communication interface.	„		
8.	8/ 1	12-2-16	Commutation interface: External communication interface.	„		
9.	9/ 1	13-2-16	Embedded firmware and Other system components.	„		
10	1/ 2	15-2-16	Unit 2: Characteristics of Embedded Systems.	LCD Projector, White Board & Marker Pen		
11	2/ 2	17-2-16	Quality attributes of Embedded Systems.	„		
12	3/ 2	18-2-16	Hardware software co-design and program modeling: Fundamental issues in hardware software co-	„	Assignm ent -II	

			design.			
13	4/2	22-2-16	Computational models in embedded design: DFG, CDFG and FSM.	„		
14	5/ 2	23-2-16	Computational models in embedded design: Sequential, Concurrent and Object oriented model.	„		
15	6/ 2	26-2-16	Introduction to Unified modeling language	„		
16	7/ 2	29-2-16	Hardware software trade-offs.	„		
17	1/3	1-3-16	Unit 3: Embedded firmware design and development: Embedded firmware design approaches,	LCD Projector, White Board & Marker Pen	Assignm ent -III	
18	2/3	2-3-16	Embedded firmware development language: Assembly Language based development.	„		
19	3/3	3-3-16	Embedded firmware development language: High Level Language based development and Mixed Assembly and High Level Language.	„		
20	1/4	5-3-16	Unit 4: Real time operating system (RTOS) based embedded system design: Operating system basics, Types of OS.	LCD Projector, White Board & Marker Pen		
21	2/4	8-3-16	Basic functions of OS.	„		
22	3/4	9-3-16	Tasks, Process.	„		
23	4/4	10-3-16	Threads and types of threads.			
24	5/4	11-3-16	Multiprocessing and multitasking: Types of multitasking, Task scheduling.		Assignm ent -IV	
25	6/4	18-3-16	Non-preemptive scheduling: FCFS, SJF and priority.			
26	7/4	19-3-16	Preemptive scheduling: SJF, Priority and Round Robin.			
27	8/4	21-3-16	Threads, Processing and scheduling: Putting them altogether			
28	9/4	22-3-16	Task communication: Shared Memory, Message Passing	„		
29	10/4	23-3-16	Task communication: RPC	„		
30	11/4	28-3-16	Task synchronization: Racing,	„	Assignm	

			Deadlock.		ent –V	
31	12/4	29-3-16	Task synchronization: Dining Philosopher’s problem, Producer-Consumer problem	„		
32	13/4	30-3-16	Task synchronization: Priority Inversion and Priority ceiling.	„		
33	14/4	31-3-16	Task Synchronization techniques: Mutex, Semaphore.	„		
34	15/4	1-4-16	Device drivers	„		
35	16/4	4-4-16	How to choose an RTOS.	„		
36	1/5	5-4-16	Unit 5: The embedded system development environment: The Integrated development environment (IDE),	LCD Projector, White Board & Marker Pen		
37	2/5	6-4-16	The Integrated development environment (IDE)			
38	3/5	7-4-16	Types of files generated on cross compilation,	„		
39	4/5	11-4-16	Disassembler/ Decompilers, Emulators and debugging.	„	Assignment –VI	
40	5/5	13-4-16	Emulators and debugging.	„		
41	6/5	15-4-16	Emulators and debugging.	„		
42	7/5	16-4-16	Target hardware debugging.	„		
43	8/5	18-4-16	Boundary scan.	„		
44	1/6	20-4-16	Trends in the embedded industry: Processor trends in embedded system	„		
45	2/6	22-4-16	Embedded OS trends	„		
46	3/6	28-4-16	Development language trends	„		
47	4/6	29-4-16	Open standards	„		
48	5/6	30-4-16	Frameworks and alliances, Bottlenecks.	„		
49	1/7	3-5-16	Revision	„		
50	2/7	4-5-16	Revision	„		
51	3/7	5-5-16	Revision	„		
52	4/7	6-5-16	Revision	„		
53	5/7	7-5-16	Revision	„		

Literature:

Book Type	Code	Author & Title	Publication information	
			Edition & Publisher	ISBN #
Text Book	TB1	K. V. Shibu, " Introduction to Embedded Systems ".	TMH education Pvt. Ltd. 2009	--
Text Book	TB2	James K. Peckol, " Embedded systems- A contemporary design tool ".	John Wiley, 2008	--

#132, AECS Layout, IT Park Road, Kundalahalli, Bangalore – 560 037
T:+9180 28524466 / 77

CMR INSTITUTE OF TECHNOLOGY



Session-wise Course Plan

Department of Telecommunication

SEMESTER : II
BRANCH : TCE
SUBJECT : OCN
SUBJECT CODE : 14ECS24
NO OF HRS/WK : 5

NAME OF THE FACULTY : Dr. S. K. Routray
DATE OF COMMENCEMENT : 1.02.2016
DATE OF CLOSING : 16.5.2016
CLASS STRENGTH : 09
TOTAL HRS : 52

Sessi on No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignm ents/ Tests planned for the chapter	Topics cover ed As per plan
1	1/1	2.2.16	Unit-1-INTRODUCTION TO OPTICAL NETWORKS:	Board, chalk, duster		
2	2/1	3.2.16	Telecommunication networks,	„		
3	3/1	4.2.16	First generation optical networks,	„		
4	4/1	5.2.16	Multiplexing techniques, Second-generation optical networks,	„		
5	5/1	8.2.16	System and network evolution. Non-linear effects SPM	„		
6	6/1	10.2.16	CPM, four wave mixing, Solutions.	„		
7	1/2	11.02.16	Unit -2COMPONENTS:	„	Assignm ent- I	
8	2/2	12.02.16	Working of Couplers 3 and 4 port couplers	Board, chalk, duster		
9	3/2	13.02.16	Isolators and Circulators	„		
10	4/2	15.02.16	Working of an isolators and Circulators	„		
11	5/2	17.02.16	Working of wave length Multiplexes	„		
12	6/2	20.02.16	Filters and Optical amplifiers.	„		
13	7/2	22.02.16	Working of an Optical amplifiers.	„	Assignm ent -II	
14	1/3	23.02.16	Unit –3 Introduction	„		
15	2/3	24.02.16	Transmitters,			
16	3/3	26.02.16	Working principle of transmitters			
17	4/3	29.02.16	Working principle of detector			
18	5/3	1.03.16	Switches	„		
19	6/3	2.03.16	Wavelength converters.	„	Assignm ent –III	
20	7/3	3.03.16	Problems and solutions	„		

21	1/4	5.03.16	Unit-4 TRANSMISSION SYSTEM ENGINEERING:	„		
22	2/4	8.03.16	System model,	„		
23	3/4	9.03.16	Power penalty			
24	4/4	10.03.16	Transmitter, receiver	Board, chalk, duster		
25	5/4	11.03.16	optical amplifiers, Crosstalk	„		
26	6/4	18.03.16	Dispersion, Overall design Consideration	„		
27	1/5	21.03.16	Unit 5- First generation networks SONET/SDH	„	Assignment –IV	
28	2/5	22.03.16	Computer interconnects	„		
29	3/5	23.03.16	Mans,	„		
30	4/5	21.03.16	Layered architecture for SONET	„		
31	5/5	28.03.16	Second generation networks	„		
32	6/5	29.03.16	Problems and solutions	„		
33	1/6	30.03.16	Unit-6 WAVELENGTH ROUTING NETWORKS	Board, chalk, duster	Assignment -V	
34	2/6	31.03.16	Optical layer	„		
35	3/6	1.04.16	Node design	„		
36	4/6	4.04.16	Network design and operation,	„		
37	5/6	5.04.16	routing and wavelength	„		
38	6/6	6.04.16	Assignment architectural variations.	„		
39	7/6	7.04.16	Problems and solutions	„		
40	1/7	11.04.16	Unit-7 VIRTUAL TOPOLOGY DESIGN:	„		
41	2/7	13.04.16	Virtual topology design problem	„		

42	3/7	15.04.16	Combines SONET/WDM network design,	„		
43	4/7	16.04.16	an ILP formulation, Regular virtual	„		
44	5/7	18.04.16	Control and management, Network management configuration management	„		
45	6/7	20.04.16	Performance management, fault management.	„		
46	1/8	22.04.16	Unit-8 ACCESS NETWORKS:	„		
47	2/8	23.04.16	Network architecture overview, present and future access networks	„		
48	3/8	28.04.16	HFC, FTTC,	„		
49	4/8	29.04.16	Optical access networks Deployment	Board, chalk, duster		
50	5/8	30.04.16	Photonic packet switching	„		
51	6/8	3.05.16	OTDM, Multiplexing and demultiplexing	„		
52	7/8	4.05.16	Synchronisation.	„		
53		5.05.16	Revision of Unit -1	„		
54		6.05.16	Revision of Unit – 2	„		
55		7.05.16	Revision of Unit –3	„		
56		11.05.16	Revision of Unit –4	„		
57		12.05.16	Revision of Unit –5	„		
58		13.05.16	Revision of Unit –6	„		
59		14.05.16	Revision of Unit –7	„		
60		16.05.16	Revision of Unit -8	„		

Signature of faculty

Signature of HOD

Signature of Principal

#132, AECS Layout, IT Park Road, Kundalahalli, Bangalore – 560 037
T:+9180 28524466 / 77

**CMR INSTITUTE
OF TECHNOLOGY**



Session wise – Course Plan

Department of Telecommunication

SEMESTER :II
BRANCH : DC
SUBJECT : RF & MW
SUBJECT CODE :
NO OF HRS/WK : 5

NAME OF THE FACULTY : Mrs.Laxmi Sharma
DATE OF COMMENCEMENT : 1.02.2016
DATE OF CLOSING : 21.5.2016
CLASS STRENGTH : 9
TOTAL HRS : 53

Session No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignments/ Tests planned for the chapter	Topics covered As per plan
1	1/1	1.02.16	Unit-1-INTRODUCTION TO RF AND MICROWAVE CIRCUIT DESIGN	Board, chalk, duster		
2	2/1	2.02.16	Reasons for using RF/Microwaves, Applications,	„		

3			RF waves			
4	3/1	4.02.16	RF and MW circuit Design	„		
5	4/1	6.02.16	Introduction to component Basics	„		
6	5/1	8.02.16	Analysis of Circuit phasor domain	„		
7	6/1	8.02.16	RF impedance matching,			
8	7/1	9.02.16	Properties of waves			
9			Transmission media	„		
10	8/1	10.02.16	Formulation of S-Parameters,			
11			Properties			
12	9/1	12.02.16	Microstrip Lines,			
13	10/1	15.02.2016	High Frequency Parameters			
14	11/1	16.02.2016	Transmission Matrix,			
15	12/1	17.02.2016	Generalized S-Parameters			
16	1/2	18.02.16	Unit -2 PASSIVE CIRCUIT DESIGN:	„	Assignment- I	
17	2/2	22.02.16	Introduction, Smith chart	Board, chalk, duster		
18	3/2	24.02.16	Scales,	„		
			Applications of Smith Charts			
19	4/2	25.02.16	Design of matching networks	„		
20	5/2	26.02.16	Definition of impedance matching	„		
21	6/2	01.03.16	Matching using lumped elements	„		
22	7/2	03.03.16	Matching using distributive elements	„	Assignment -II	
23	1/3	03.03.16	Unit –3 Introduction	„		

24	2/3	04.03.16	Basic consideration in active network and design of amplifiers,oscillators,Detector			
25	3/3	05.03.16	Stability considerations			
26	4/3	09.03.16	Gain considerations,			
27			Noise considerations			
28	5/3	11.03.16	Linear & Nonlinear Design	„		
29	6/3	17.03.16	Type of Amplifier	„		
30			,Design of different type of amplifiers			
31	7/3	18.03.16	Multistage small signal amplifiers	„		
32	8/3	21.03.2016	Design of transistor oscillator,			
33	9/3	23.03.2016	Detector losses			
34			Detector Design		Assignment –III	
35	1/4	24.03.16	Unit-4 MIXER PHASE SHIFTER AND RF & MW IC DESIGN	„		
36	2/4	28.03.16	Introduction to mixer	„		
37	3/4	30.03.12	Mixer Types			
38	4/4	01.04.12	Conversion Loss for SSB Mixers	Board, chalk, duster		
39	5/4	02.04.12	One Diode Mixer	„		
40	6/4	04.04.12	Phase Shifters	„		
41	7/4	06.04.12	Digital Phase Shifters	„		
42	8/4	11.04.12	RF and MW IC Design	„		
43	9/4	12.04.12	MICs	„		
44	10/4	13.04.12	MIC Material	„		
45	11/4	16.04.12	Types of MICs.	„		

46	12/4	20.04.12	Hybrid vs Monolithic ICs	„		
47	13/4	22.04.12	Chip Material	Board, chalk, duster	Assignm nt –IV	
48	1	28.04.2016	Revision of Unit -1	„		
49	2	30.04.2016	Revision of Unit – 2	„		
50	3	02.05.2016	Revision of Unit –3	„		
51	4	07.05.2016	Revision of Unit –4	„		
52	5	11.05.2016	Discussion of Last Year University Papers	„		
53	6	21.05.2016	Solution of Sample Papers			

Signature of faculty

Signature of HOD

Signature of Principal

Department of Telecommunication

SEMESTER :II
BRANCH : DC
SUBJECT : WC
SUBJECT CODE :
NO OF HRS/WK : 4

NAME OF THE FACULTY : Mrs.Laxmi Sharma
DATE OF COMMENCEMENT : 1.02.2016
DATE OF CLOSING : 21.5.2016
CLASS STRENGTH : 9
TOTAL HRS : 52

Session No	Chapter no (No of hrs planed for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignments/ Tests planned for the chapter	Topics covered As per plan
1	1/1	3/2/2016	Unit-1-INTRODUCTION TO WIRELESS CHANNEL	Board, chalk, duster		
2	2/1	3/2/2016	Physical modeling for wireless channels	„		
3	3/1	4/2/2016	I/O Model of wireless channel			
4	4/1	4/2/2016	Time & Frequency Response	„		
5	5/1	5/2/2016	Statistical Models	„		
6	6/1	11/2/2016	Analysis of Problems	„		
7	1/2	12/2/2016	Unit-2 Point to point communication			
8	2/2	12/2/2016	Detection in Rayleigh Fading Channel			
9	2/3	13/2/2016	Time Diversity			

10	2/4	18/2/2016	Antenna Diversity	„		
11	2/5	22/2/2016	Frequency Diversity,			
12	2/6	23/2/2016	Impcat of the channel uncertainty		Assignm ent- I	
13	1/3	29/2/2016	Unit-3 DIVERSITY			
14	2/3	1/3/2016	Micro-Diversity			
15	3/3	1/3/2016	Micro-Diversity and simulcast combination of signals			
16	4/3	2/3/2016	Error Probability in fading channels with diversion reception			
17	5/3	8/3/2016	Transmit Diversity		Assignm ent- II	
18	1/4	8/3/2016	Unit 4 CAPACITY OF WIRELSS CHANNELS	„		
19	2/4	9/3/2016	AWGN Channel capacity	Board, chalk, duster		
20	3/4	9/3/2016	Resources of AWGN Channel	„		
21	4/4	10/3/2016	Linear Time variant Gaussian Channel			
22	5/4	19/3/2016	Capacity of Fading Channels	„		
23	6/4	19/3/2016	Analysis of Solution	„	Assignm ent -III	
24	1/5	21/3/2016	Unit-5MIMO Systems	„		
25	2/5	21/3/2016	Introduction	„		
26	3/5	22/3/2016	Space Diversity			
27	4/5	29/3/2016	System based diversity	„		
28	5/5	30/3/2016	Space Diversity			
29	6/5	31/3/2016	Smart Antenna systems			

30	7/5	5/4/2016	MIMO			
31	8/5	5/4/2016	MIMO based system architecture			
32	9/5	6/4/2016	MIMO exploits multipath	„		
33	10/5	6/4/2016	Space time processing	„		
34	11/5	7/4/2016	Antenna considerations for MIMO			
35	12/5	15/4/2016	MIMO channel modelling	„		
36	13/5	15/4/2016	MIMO channel measurements			
37	14/5	16/4/2016	MIMO channel capacity, CDD			
38	15/5	16/4/2016	Space time Coding			
39	16/5	18/4/2016	Advantage and applications of MIMO			
40	17/5	23/4/2016	MIMO applications in 3G		Assignment -IV	
42	1/6	28/4/2016	Unit-5 Spatial Multiplexing	„		
43	2/6	28/4/2016	Multiplexing capability of MIMO channels	„		
44	3/6	29/4/2016	Physical Modeling of MIMO channels			
45	4/6	29/4/2016	Modeling MIMO Fading Channel, Multi antenna systems	Board, chalk, duster		
46	5/6	4/5/2016		„		
47	6/6	4/5/2016	Smart antennas, MIMO systems	„		
48	7/6	5/6/2016		„		
49	8/6	5/5/2016	RF and MW IC Design	„	Assignment -V	
48		6/5/2016	Revision of Unit -1	„		
49		6/5/2016	Revision of Unit – 2	„		

50		11/5/2016	Revision of Unit –3	„		
51		11/5/2016	Revision of Unit –4	„		
52		11/5/2016	Discussion of Last Year University Papers	„		

Signature of faculty

Signature of HOD

Signature of Principal

Department of Telecommunication

SEMESTER : II
BRANCH : DC
SUBJECT : Modern DSP
SUBJECT CODE : 14ECS23
NO OF HRS/WK :6

NAME OF THE FACULTY : Dr. BinishFatimah
DATE OF COMMENCEMENT :02.01.2016
DATE OF CLOSING :11.05.2016
CLASS STRENGTH :24
TOTAL HRS :63

Session No	Chapter no (No of hrs planned for the chapter)	DATE	Topics planned for the session	Teaching Aids	Assignments/ Tests planned for the chapter	Topics covered As per plan
1	1/1	01 Feb. 2016	Introduction to the Subject	Board, chalk, duster	A1	
2	2/1	02 Feb. 2016	Classification of Signals	..		
3	3/1	05Feb. 2016	Elementary Signals	..		
4	4/1	09 Feb. 2016	Properties of Systems	..		
5	5/1	10 Feb. 2016	LTI system, Convolution Sum, convolution Integral	..	A2	
6	6/1	11 Feb. 2016	The concept of frequency in continuous time and discrete time signals	..		
7	7/1	13 Feb. 2016	Analog to digital and digital to analog conversion	..		
8	8/1	16 Feb. 2016	Frequency-domain sampling	..		

9	9/1	17 Feb. 2016	The discrete Fourier transform	„		
10	10/1	18 Feb. 2016	The discrete Fourier transform	„		
11	11/1	23 Feb. 2016	Properties of the DFT	„		
12	12/1	25 Feb. 2016	Properties of the DFT	„		
13	13/1	26 Feb. 2016	Properties of the DFT	„		
14	14/1	29 Feb. 2016	Circular Convolution	„	A3	
15	15/1	02Mar. 2016	Circular Convolution	„		
16	16/1	02Mar. 2016	Linear filtering methods based on the DFT	„		
17	17/1	04Mar. 2016	Linear filtering methods based on the DFT	„		
18	1/2	05Mar. 2016	Design of digital filters: General considerations	„		
19	2/2	05Mar. 2016	Design of FIR filters	„		
20	3/2	08Mar. 2016	Design of FIR filters	„		
21	4/2	10Mar. 2016	Design of FIR filters	„	A4	
22	5/2	10Mar. 2016	Design of IIR filters from analog filters	„		
23	6/2	17Mar. 2016	Design of IIR filters from analog filters	„		
24	7/2	18Mar. 2016	Design of IIR filters from analog filters	„		

25	8/2	18Mar. 2016	Frequency transformations.			
26	9/2	19Mar. 2016	Frequency transformations.	„		
27	1/3	22Mar. 2016	Multirate digital signal processing: Introduction	„		
28	2/3	22Mar. 2016	Decimation by a factor 'D'	„		
29	3/3	24Mar. 2016	Interpolation by a factor 'I'	„		
30	4/3	28Mar. 2016	Sampling rate conversion by a factor 'I/D'	„	A5	
31	5/3	28Mar. 2016	Implementation of sampling rate conversion	„		
32	6/3	29Mar. 2016	Multistage implementation of sampling rate conversion	„		
33	7/3	28Mar. 2016	Sampling rate conversion of band pass signals	„		
34	8/3	31Mar. 2016	Sampling rate conversion by an arbitrary factor	„		
35	9/3	31Mar. 2016	Applications of multirate signal processing	„		
36	10/3	02 Apr. 2016	Digital filter banks, two channel	„		
37	11/3	04 Apr. 2016	Digital filter banks, two channel	„		
38	12/3	05 Apr. 2016	Quadrature mirror filter banks,	„		
39	13/3	07 Apr. 2016	M-channel QMF bank.	„		
40	14/3	12 Apr. 2016	M-channel QMF bank.	„		

41	1/4	13 Apr. 2016	Adaptive filter: Introduction	„	A6	
42	2/4	18 Apr. 2016	Applications of adaptive filters,	„		
43	3/4	21 Apr. 2016	Applications of adaptive filters,	„		
44	4/4	22 Apr. 2016	Applications of adaptive filters,	„		
45	5/4	23 Apr. 2016	Adaptive direct form FIR filters	„		
46	6/4	29 Apr. 2016	Adaptive direct form FIR filters	„		
47	7/4	29 Apr. 2016	The LMS algorithm	„		
48	8/4	02 May 2016	The LMS algorithm	„		
49	9/4	03 May 2016	Adaptive direct form filters	„	A7	
50	10/4	03 May 2016	Adaptive direct form filters	„		
51	11/4	04May 2016	RLS algorithm	„		
52	12/4	06 May 2016	RLS algorithm	„		
53	1/5	06 May 2016	REVISION: PROBLEMS DISCUSSION	„		
54	2/5	10 May 2016	REVISION: PROBLEMS DISCUSSION	„		
55	3/5	11 May 2016	REVISION: PROBLEMS DISCUSSION	„		

Signature of faculty

Signature of HOD

Signature of Principal