

## LESSON PLAN

Name of Faculty : PRAVEEN RATHI  
 Discipline : ECE  
 Semester : 2<sup>ND</sup> M.TECH  
 Subject : **Computer Fundamentals**  
 Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

\*\*Workload (lecture) per week (in hours): lectures (3).

Weeks	Theory	
	Lecture day	Topic ( including assignment/test)
1 <sup>st</sup>	1 <sup>st</sup>	Overview of Data Processing, History of Computing
	2 <sup>nd</sup>	Computer Generations; Characteristics of Computer
2 <sup>nd</sup>	1 <sup>st</sup>	Anatomy of Computer, Classification of Computers.
	2 <sup>nd</sup>	Introduction, Number Systems and its types, and inter-conversion of Number Systems
3 <sup>rd</sup>	1 <sup>st</sup>	ASCII and EBCDIC codes., Concept of Input/Output
	2 <sup>nd</sup>	Types of Input Devices; Output Devices – Printers, Plotters and Monitors.
4 <sup>th</sup>	1 <sup>st</sup>	Characteristics of memory systems, memory hierarchy
	2 <sup>nd</sup>	Types of Memory – RAM, ROM, etc.; Magnetic Disks, Magnetic Tapes, Optical Disks
5 <sup>th</sup>	1 <sup>st</sup>	Concept of Cache Memory and Virtual Memory.
	2 <sup>nd</sup>	Introduction, Software Types, Language translators, System Utility Software
6 <sup>th</sup>	1 <sup>st</sup>	Application Software; Operating System – Characteristics, its functions, and its classification
	2 <sup>nd</sup>	User Interfaces – CUI and GUIs. DOS and Windows operating systems.
7 <sup>th</sup>	1 <sup>st</sup>	Opening and Closing of documents, Text creation and Manipulation
	2 <sup>nd</sup>	Moving Around in a Document, Formatting of text
8 <sup>th</sup>	1 <sup>st</sup>	Table handling, Spell check, language setting and thesaurus
	2 <sup>nd</sup>	Handling Multiple Documents, Printing of word document.
9 <sup>th</sup>	1 <sup>st</sup>	Basics of Spreadsheet; Manipulation of cells, Formulas and Functions,

	2 <sup>nd</sup>	Editing of Spread Sheet, Page setups header and footer
10 <sup>th</sup>	1 <sup>st</sup>	printing of Spread Sheet, Basics of powerpoint
	2 <sup>nd</sup>	Preparation and Presentation of Slides, Slide Show
11 <sup>th</sup>	1 <sup>st</sup>	Formatting and Clip Arts, Taking printouts of presentation / handouts
	2 <sup>nd</sup>	Data Communication, Transmission Modes, Basics of Computer networks
12 <sup>th</sup>	1 <sup>st</sup>	types of computer network - LAN, MAN, WAN; Network Topologies
	2 <sup>nd</sup>	Applications of Computer Networks., Concept of Internet
13 <sup>th</sup>	1 <sup>st</sup>	Application of Internet, WWW, Web-sites and URLs, Search Engine
	2 <sup>nd</sup>	Using Electronic mails, Instant Messaging
14 <sup>th</sup>	1 <sup>st</sup>	Web Browsing software, Surfing the Internet.
	2 <sup>nd</sup>	Positive and Negative Impacts of Computer Technology, Computer Crimes,
15 <sup>th</sup>	1 <sup>st</sup>	Computer Virus: Definition, Types of viruses, Characteristics of viruses, antivirus software.
	2 <sup>nd</sup>	Data Analysis, Sports, Research, Education, Business, Medicines & Health Care, Weather Forecasting, Military

## LESSON PLAN

Name of Faculty : AMARDEEP  
 Discipline : ECE  
 Semester : 2<sup>ND</sup> M.TECH  
 Subject : **Fundamental of Management**  
 Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

\*\*Workload (lecture) per week (in hours): lectures (3).

Weeks	Theory	
	Lecture day	Topic ( including assignment/test)
1 <sup>st</sup>	1 <sup>st</sup>	Introduction of management
	2 <sup>nd</sup>	concept and nature of management
	3 <sup>rd</sup>	evolution of management thoughts – traditional, behavioural
2 <sup>nd</sup>	1 <sup>st</sup>	Revision
	2 <sup>nd</sup>	evolution of management thoughts – system and contingency viewpoints
	3 <sup>rd</sup>	Planning
3 <sup>rd</sup>	1 <sup>st</sup>	Revision
	2 <sup>nd</sup>	decision making and organizing: nature and elements of planning
	3 <sup>rd</sup>	Class test-1
4 <sup>th</sup>	1 <sup>st</sup>	planning types and models
	2 <sup>nd</sup>	strategic planning – an overview
	3 <sup>rd</sup>	Revision
5 <sup>th</sup>	1 <sup>st</sup>	basic issues in organizing – work specialization
	2 <sup>nd</sup>	chain of common delegation, decentralization
	3 <sup>rd</sup>	Revision
6 <sup>th</sup>	1 <sup>st</sup>	Class test- 2
	2 <sup>nd</sup>	span of management
	3 <sup>rd</sup>	bases for departmentation
7 <sup>th</sup>	1 <sup>st</sup>	Revision
	2 <sup>nd</sup>	Leading: recognition of human factor
	3 <sup>rd</sup>	motivation models/approaches
8 <sup>th</sup>	1 <sup>st</sup>	Revision
	2 <sup>nd</sup>	Class test- 3
	3 <sup>rd</sup>	leadership styles/behaviours
9 <sup>th</sup>	1 <sup>st</sup>	personal characteristics of effective leaders
	2 <sup>nd</sup>	Revision
	3 <sup>rd</sup>	leadership development
10 <sup>th</sup>	1 <sup>st</sup>	Management control– concept and process
	2 <sup>nd</sup>	Revision
	3 <sup>rd</sup>	Class test- 4
11 <sup>th</sup>	1 <sup>st</sup>	overview of control techniques
	2 <sup>nd</sup>	effective control system
	3 <sup>rd</sup>	Revision

12 <sup>th</sup>	1 <sup>st</sup>	evaluating corporate social performance
	2 <sup>nd</sup>	managing company ethics
	3 <sup>rd</sup>	Revision
13 <sup>th</sup>	1 <sup>st</sup>	Class test- 4
	2 <sup>nd</sup>	social responsibility
	3 <sup>rd</sup>	Revision
14 <sup>th</sup>	1 <sup>st</sup>	Revision
	2 <sup>nd</sup>	Revision
	3 <sup>rd</sup>	Revision
15 <sup>th</sup>	1 <sup>st</sup>	Revision
	2 <sup>nd</sup>	Revision
	3 <sup>rd</sup>	Revision

## LESSON PLAN

Name of Faculty : **Meenu Manchanda**  
 Discipline : **ECE**  
 Semester : **2<sup>nd</sup> (M.Tech)**  
 Subject : **Wireless Mobile Communication**  
 Lesson Plan Duration : **15 weeks (From Jan 2018 to Apr 2018)**

\*\*Workload (lecture) per week (in hours): lectures (4).

Weeks	Theory	
	Lecture day	Topic ( including assignment/test)
1 <sup>st</sup>	1 <sup>st</sup>	Introduction to mobile radio systems, Examples of wireless communication systems: paging systems, cordless telephone system, cellular telephone systems
	2 <sup>nd</sup>	Cellular telephone systems- Cellular concept, frequency reuse
	3 <sup>rd</sup>	Channel assignment strategies
	4 <sup>th</sup>	Interference and system capacity: Co-channel interference and system capacity, channel planning for wireless systems
2 <sup>nd</sup>	1 <sup>st</sup>	Interference and system capacity: adjacent channel interference, power control for reducing interference.
	2 <sup>nd</sup>	HO strategies: prioritizing handoffs and practical handoff considerations
	3 <sup>rd</sup>	Improving coverage and capacity in cellular systems :Cell splitting and sectoring, repeaters for range extension, a microcell zone concept
	4 <sup>th</sup>	Trunking and grade of service
3 <sup>rd</sup>	1 <sup>st</sup>	Class test
	2 <sup>nd</sup>	Mobile radio propagation and three basic propagation mechanisms
	3 <sup>rd</sup>	Free space path loss, log-distance path loss models , log-normal shadowing
	4 <sup>th</sup>	Outdoor propagation models: Okumara model, Hata model, PCS model, Wideband PCS microcell model
4 <sup>th</sup>	1 <sup>st</sup>	Indoor propagation models
	2 <sup>nd</sup>	Jake's channel model
	3 <sup>rd</sup>	Assignment
	4 <sup>th</sup>	Small scale multipath propagation: factors affecting small scale multipath propagation and Doppler shift
5 <sup>th</sup>	1 <sup>st</sup>	Multi path characteristics of radio waves, Time dispersion parameters
	2 <sup>nd</sup>	Doppler spread, coherence bandwidth, coherence time
	3 <sup>rd</sup>	Types of small scale fading: fading effects due to multipath time delay spread

	4 <sup>th</sup>	Fading effects due to Doppler spread
6 <sup>th</sup>	1 <sup>st</sup>	LCR, fading statistics
	2 <sup>nd</sup>	Signal fading
	3 <sup>rd</sup>	Diversity techniques
	4 <sup>th</sup>	Derivation of selection diversity improvement
7 <sup>th</sup>	1 <sup>st</sup>	Derivation of maximal ratio combining improvement
	2 <sup>nd</sup>	Practical space diversity considerations
	3 <sup>rd</sup>	Rake receiver
	4 <sup>th</sup>	Assignment
8 <sup>th</sup>	1 <sup>st</sup>	1 <sup>st</sup> Sessional Exam
	2 <sup>nd</sup>	1 <sup>st</sup> Sessional Exam
	3 <sup>rd</sup>	1 <sup>st</sup> Sessional Exam
9 <sup>th</sup>	1 <sup>st</sup>	Introduction to spread spectrum communication
	2 <sup>nd</sup>	Multiple access techniques used in mobile wireless communication: FDMA/TDMA/CDMA
	3 <sup>rd</sup>	Spread spectrum multiple access
	4 <sup>th</sup>	Cellular CDMA
10 <sup>th</sup>	1 <sup>st</sup>	Assignment
	2 <sup>nd</sup>	Packet radio protocols: Pure ALOHA and slotted ALOHA
	3 <sup>rd</sup>	Carrier Sense Multiple Access protocols
	4 <sup>th</sup>	Reservation protocols: reservation ALOHA , packet reservation multiple access
11 <sup>th</sup>	1 <sup>st</sup>	Capacity of cellular systems: capacity of cellular CDMA and CDMA with multiple calls
	2 <sup>nd</sup>	Capacity of space division multiple access
	3 <sup>rd</sup>	Soft HO
	4 <sup>th</sup>	Class Test
12 <sup>th</sup>	1 <sup>st</sup>	Global System for Mobile (GSM): services and features, system architecture
	2 <sup>nd</sup>	GSM radio subsystem and channel types
	3 <sup>rd</sup>	Frame structure for GSM and signal processing in GSM
	4 <sup>th</sup>	Signaling and call control
13 <sup>th</sup>	1 <sup>st</sup>	Mobility management, location tracing
	2 <sup>nd</sup>	Assignment
	3 <sup>rd</sup>	CDMA (IS-95): frequency and channel specifications
	4 <sup>th</sup>	Forward CDMA channel
14 <sup>th</sup>	1 <sup>st</sup>	Reverse CDMA channel
	2 <sup>nd</sup>	Performance analysis of link and transport layer protocols over wireless channels
	3 <sup>rd</sup>	Wireless data services: CDPD, ARDIS, RMD
	4 <sup>th</sup>	mobile data networking (mobile IP)
15 <sup>th</sup>	1 <sup>st</sup>	Wireless data networking,
	2 <sup>nd</sup>	Packet error modeling on fading channels
	3 <sup>rd</sup>	GPRS
	4 <sup>th</sup>	Assignment

## LESSON PLAN

Name of Faculty : DHEERAJ KAPOOR  
 Discipline : Electronics & Communication Engineering  
 Semester : M Tech 2nd semester  
 Subject : VLSI DESIGN AND VLSI DESIGN LAB  
 Lesson Plan Duration : January to April  
 Work Load ( Lecture/Practical) : Lecture - 04 Practical - 02

Week		Theory		Practical
	Lecture Day		Practical Day	
1st	1st	Basic MOS Transistors 1st	1st	Write a spice programme for CMOS inverter with following details.  pmos L = .8ym W=12.0um, nmos = 8um W=2.4um, nmos (kp=60u Vto=0.6v)  pmos(kp=20u Vto=-0.8v)
	2 <sup>nd</sup>	Enhancement and Depletion mode transistors		
	3 <sup>rd</sup>	N MOS and C MOS process		
	4 <sup>th</sup>	thermal aspects of processing		
2 <sup>ND</sup>	1st	Production of masks.	2 <sup>ND</sup>	Write a spice programme for CMO pmos (kp=25u Vto=-1.2v)
	2 <sup>nd</sup>	Parameters of MOS transistors		
	3 <sup>rd</sup>	pass transistors, N MOS inverter		
	4 <sup>th</sup>	Pull-up to pull down ratio for an N MOS inverter		
3 <sup>RD</sup>	1st	C MOS inverters	3 <sup>RD</sup>	Design a half adder using nand gates with following specifications :  for n-mos : L=20 W=100U, for p-mos L=2U W=650U, for n-mosKn'=600 Vto=0.6V)
	2 <sup>nd</sup>	MOS transistor circuit model		
	3 <sup>rd</sup>	Latch up on C MOS circuits.		
	4 <sup>th</sup>	MOS Layers.		

4 <sup>TH</sup>	1st	stick diagrams	4 <sup>TH</sup>	Design a full adder using half adder designed above
	2 <sup>nd</sup>	Design rules		
	3 <sup>rd</sup>	AWA OX C MOS process DESCRIPTION  Description		
	4 <sup>th</sup>	double metal single poly silicon		
5 <sup>TH</sup>	1st	C MOS process	5 <sup>TH</sup>	Design the layout for PMOS in layout editor.
	2 <sup>nd</sup>	Sheets resistance		
	3 <sup>rd</sup>	area capacitance, delay unit		
	4 <sup>th</sup>	Inverter delay, super BUFFERS  Buffers		
6 <sup>TH</sup>	1st	propagation delays.	6 <sup>TH</sup>	Design the Layout for NMOS in layout editor
	2 <sup>nd</sup>	Architectural issues in VLSI		
	3 <sup>rd</sup>	Switch logic		
	4 <sup>th</sup>	gate logic		
7 <sup>TH</sup>	1st	Examples of Combinational logic	7 <sup>TH</sup>	Design the layout for CMOS inverter with equal rise and fall time in layout
	2 <sup>nd</sup>	Clocked sequential circuits		
	3 <sup>rd</sup>	other system consideration		
	4 <sup>th</sup>	other system consideration		
8 <sup>TH</sup>	1st	Scaling factor	8 <sup>TH</sup>	Design the layout for 2-Input NAND gate.
	2 <sup>nd</sup>	Limitations		
	3 <sup>rd</sup>	scaling of wires and interconnection,		
	4 <sup>th</sup>	interconnection,		
9 <sup>TH</sup>	1st	PLA and Finite state Machines	9 <sup>TH</sup>	Design the layout for 2-Input NOR gate. fiber
	2 <sup>nd</sup>	PLA and Finite state Machines		
	3 <sup>rd</sup>	Design of an ALU subsystems		
	4 <sup>th</sup>	carry look ahead address		
	1st	parallel.		Design the layout for

10 <sup>TH</sup>	2 <sup>nd</sup>	Revision	10 <sup>TH</sup>	clocked S-R flip-flop. link
	3 <sup>rd</sup>	Revision		
	4 <sup>th</sup>	Revision		
11 <sup>TH</sup>	1st	Revision	11 <sup>TH</sup>	Revision
	2 <sup>nd</sup>	Revision		
	3 <sup>rd</sup>	Revision		
	4 <sup>th</sup>	Revision		
12 <sup>TH</sup>	1st	Revision	12 <sup>TH</sup>	Revision
	2 <sup>nd</sup>	Revision		
	3 <sup>rd</sup>	Revision		
	4 <sup>th</sup>	Revision		
13 <sup>TH</sup>	1st	Revision	13 <sup>TH</sup>	Revision
	2 <sup>nd</sup>	Revision		
	3 <sup>rd</sup>	Revision		
	4 <sup>th</sup>	Revision		
14 <sup>TH</sup>	1st	Revision	14 <sup>TH</sup>	Internal Exam      Practical
	2 <sup>nd</sup>	Revision		
	3 <sup>rd</sup>	Revision		
	4 <sup>th</sup>	Revision		
15 <sup>TH</sup>	1st	Revision	15 <sup>TH</sup>	Internal exam      Practical
	2 <sup>nd</sup>	Revision		
	3 <sup>rd</sup>	Revision		
	4 <sup>th</sup>	Revision		

## LESSON PLAN

Name of Faculty : PAWAN KUMAR  
 Discipline : Electronics & Communication Engineering  
 Semester : M Tech 2nd semester  
 Subject : OPTICAL COMMUNICATION , OPTICAL COMMUNICATION LAB  
 Lesson Plan Duration : January to April  
 Work Load ( Lecture/Practical) : Lecture - 04 Practical - 02

Week		Theory		Practical
	Lecture Day	Topic ( Including Assignment/Test)	Practical Day	
1st	1st	Advantage of optical fiber communication	1 <sup>st</sup>	Study of optical devices
	2 <sup>nd</sup>	Elements of fiber communication link		
	3 <sup>rd</sup>	Ray theory and electromagnetic mode theory for optical propagation		
	4 <sup>th</sup>	Step index and graded index fibers, Numerical Aperture		
2 <sup>ND</sup>	1st	Attenuation, Absorption, Linear and non-linear scattering losses	2 <sup>ND</sup>	Study of fiber optical
	2 <sup>nd</sup>	Dispersion, overall fiber dispersion 1st		
	3 <sup>rd</sup>	Polarization, fiber bending losses		
	4 <sup>th</sup>	Single mode fiber		
3 <sup>RD</sup>	1st	Plastic clad and all- plastic fibers,	3 <sup>RD</sup>	Study of fiber optical detector
	2 <sup>nd</sup>	Optical fiber cables, dispersion shifted		
	3 <sup>rd</sup>	Dispersion flattered fibers		
	4 <sup>th</sup>	Practical fiber profiles.		
4 <sup>TH</sup>	1st	Optical Sources - Basic concepts, LED for Optical Communication	4 <sup>TH</sup>	Study of characteristics of LED
	2 <sup>nd</sup>	Burrus type double hetro structure		
	3 <sup>rd</sup>	Surface emitting LEDs, Shape geometry,		

	4 <sup>th</sup>	Edge emitting LEDs		
5 <sup>TH</sup>	1st	LED to fiber launch systems	5 <sup>TH</sup>	Study of characteristics of LASER diode
	2 <sup>nd</sup>	Semiconductor Lasers Theory		
	3 <sup>rd</sup>	Modulation and characteristics		
	4 <sup>th</sup>	Fabry Perot lasers		
6 <sup>TH</sup>	1st	Quantum well lasers	6 <sup>TH</sup>	Setting a fiber optic analog link
	2 <sup>nd</sup>	Distributed feedback lasers		
	3 <sup>rd</sup>	P.I.N Photo Diodes- Theory and their characteristics		
	4 <sup>th</sup>	P.I.N Photo Diodes- Theory and their characteristics		
7 <sup>TH</sup>	1st	Avalanche photo diode detectors	7 <sup>TH</sup>	Setting a fiber optic digital link
	2 <sup>nd</sup>	Avalanche photo diode detectors		
	3 <sup>rd</sup>	Bandwidth noise in APD		
	4 <sup>th</sup>	Numerical and revision		
8 <sup>TH</sup>	1st	Optical transmitter circuit	8 <sup>TH</sup>	Study of Propagation loss
	2 <sup>nd</sup>	LED drive circuits		
	3 <sup>rd</sup>	laser drive circuits		
	4 <sup>th</sup>	Optical receiver circuit		
9 <sup>TH</sup>	1st	Structure, Pre amplifier	9 <sup>TH</sup>	Bending losses in optical fiber
	2 <sup>nd</sup>	AGC, Equalization		
	3 <sup>rd</sup>	Optical power budgeting		
	4 <sup>th</sup>	Line loading		
10 <sup>TH</sup>	1st	Analog systems	10 <sup>TH</sup>	Set up WDM optical fiber
	2 <sup>nd</sup>	Analog modulation		
	3 <sup>rd</sup>	Direct modulation ,		
	4 <sup>th</sup>	Sub carrier modulation		
	1st	Distribution system		Revision
	2 <sup>nd</sup>	Optical TDM sub-carrier multiplexing		

11 <sup>TH</sup>	3 <sup>rd</sup>	WDM	11 <sup>TH</sup>	
	4 <sup>th</sup>	Revision of chapter		
12 <sup>TH</sup>	1st	Coherent receiver	12 <sup>TH</sup>	Revision
	2 <sup>nd</sup>	Homodyne detection		
	3 <sup>rd</sup>	Heterodyne detection		
	4 <sup>th</sup>	Noise in coherent receiver		
13 <sup>TH</sup>	1st	Polarization control	13 <sup>TH</sup>	Revision
	2 <sup>nd</sup>	Homodyne receiver		
	3 <sup>rd</sup>	Homodyne receiver		
	4 <sup>th</sup>	Reusability and laser linewidth		
14 <sup>TH</sup>	1st	Heterodyne receiver	14 <sup>TH</sup>	Internal exam      Practical
	2 <sup>nd</sup>	Heterodyne receiver		
	3 <sup>rd</sup>	Synchronous demodulation		
	4 <sup>th</sup>	Asynchronous demodulation		
15 <sup>TH</sup>	1st	Self synchronous demodulation	15 <sup>TH</sup>	Internal exam      Practical
	2 <sup>nd</sup>	Phase diversity receivers		
	3 <sup>rd</sup>	Phase diversity receivers		
	4 <sup>th</sup>	Revision		