VEL TECH MULTI TECH
Dr RANGARAJAN Dr.SAKUNTHALA ENGINEERING COLLEGE

(An ISO 9001: 2008 Certified Institution)
(Owned by 'VEL Shree R. Rangarajan
Dr. Sakunthala Rangarajan Educational Academy)
(Approved by AICTE, New Delhi &
Govt. of Tamil Nadu and affiliated to Anna University)

SYLLABUS

WEEKLY SCHEDULE

VI SEMESTER 2015-16

DEPARTMENT OF ECE

IV YEAR DEGREE COURSE

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WEEKLY SCHEDULE

ACADEMIC YEAR: 2015-16

Sl.No	WEEKS	DATE	
		FROM	TO
1	WEEK1	18.01.16	23.01.16
2	WEEK2	25.01.16	30.01.16
3	WEEK3	01.02.16	06.02.16
4	WEEK4	08.02.16	13.02.16
5	WEEK5	15.02.16	20.02.16
6	WEEK6	22.02.16	27.02.16
7	WEEK7	29.02.16	05.03.16
8	WEEK8	07.03.16	12.03.16
9	WEEK9	16.03.16	20.03.16
10	WEEK10	22.03.16	26.03.16
11	WEEK11	27.03.16	02.04.16
12	WEEK12	03.04.16	09.04.16
13	WEEK13	11.04.16	16.04.16
14	WEEK14	18.04.16	23.04.16
15	WEEK 15	25.04.16	30.04.16

SUBJECT CONTENTS

SL.NO	SUBJECT CODE	SUBJECT NAME
THEORY		
1	MG6851	Principles of Management
2	EC6601	VLSI Design
3	EC6602	Antenna and Wave Propagation
4	CS6551	Computer Networks
5	CS6303	Computer Architecture
6	EC6001	Medical Electronics
PRACTICAL		
7	EC6611	Computer Networks Lab
8	EC6612	VLSI Design Lab
9	GE6674	Communication & Soft Skill Lab

TEST / EXAM SCHEDULE

SL. NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	PRE MODEL EXAM	MODEL EXAM
1	MG6851	Principles of Management	01.02.16	15.02.16	29.02.06	01.04.16
2	EC6601	VLSI Design	02.02.16	16.02.16	01.03.16	04.04.16
3	EC6602	Antenna and Wave Propagation	03.02.16	17.02.16	02.03.16	06.04.16
4	CS6551	Computer Networks	04.02.16	18.02.16	03.03.16	08.04.16
5	CS6303	Computer Architecture	05.02.16	19.02.16	04.03.16	11.04.16
6	EC6001	Medical Electronics	06.02.15	20.02.16	05.03.16	13.04.16

MG6851 PRINCIPLES OF MANAGEMENT

WEEK: 1 - UNIT I INTRODUCTION TO MANAGEMENT AND ORGANIZATIONS

Definition of Management – Science or Art – Manager Vs Entrepreneur - types of managers -managerial roles and skills – Evolution of Management – Scientific, human relations , system and contingency approaches

WEEK: 2 Types of Business organization - Sole proprietorship, partnership, company-public and private sector enterprises - Organization culture and Environment – Current trends and issues in Management.

WEEK: 3 – UNIT TEST I

UNIT II PLANNING

Nature and purpose of planning – planning process – types of planning – objectives – setting objectives – policies

WEEK: 4

Planning premises – Strategic Management – Planning Tools and Techniques

WEEK: 5

Decision making steps and process

WEEK: 6 UNIT TEST II

WEEK: 6 – UNIT III ORGANISING

Nature and purpose – Formal and informal organization – organization chart – organization structure – types –

WEEK: 7

Line and staff authority – departmentalization – delegation of authority – centralization and decentralization –

WEEK: 8

Job Design - Human Resource Management – HR Planning, Recruitment, selection, Training and Development, Performance Management , Career planning and management

WEEK: 9 UNIT TEST III

WEEK: 10 - UNIT IV DIRECTING

Foundations of individual and group behaviour – motivation – motivation theories – motivational techniques – job satisfaction – job enrichment – leadership – types and theories of leadership –communication

WEEK: 11

Process of communication – barrier in communication – effective communication –communication and IT

WEEK: 12 UNIT TEST IV

WEEK: 13 - UNIT V CONTROLLING

System and process of controlling – budgetary and non-budgetary control techniques – use of computers and IT in Management control

WEEK: 14

Productivity problems and management – control and performance – direct and preventive control – reporting

WEEK: 15 UNIT TEST V

WEEK: 16 MODEL EXAMS

WEEK: 17 MODEL EXAMS

TEXT BOOKS:

1. Stephen P. Robbins & Mary Coulter, "Management", Prentice Hall (India)Pvt. Ltd., 10th Edition, 2009.
2. JAF Stoner, Freeman R.E and Daniel R Gilbert "Management", 6th Edition, Pearson Education, 2004.

REFERENCES:

1. Stephen A. Robbins & David A. Decenzo & Mary Coulter, "Fundamentals of Management" 7th Edition, Pearson Education, 2011.
2. Robert Kreitner & Mamata Mohapatra, " Management", Biztantra, 2008.
3. Harold Koontz & Heinz Weihrich, "Essentials of Management", Tata McGraw Hill, 1998.
4. Tripathy PC & Reddy PN, "Principles of Management", Tata Mcgraw Hill, 1999

CS6303 COMPUTER ARCHITECTURE

WEEK 1 UNIT I OVERVIEW & INSTRUCTIONS

Eight ideas – Components of a computer system – Technology – Performance – Power wall

WEEK-2 Uniprocessors to multiprocessors; Instructions – operations and operands – representing instructions – Logical operations – control operations – Addressing and addressing modes.

WEEK-3

UNIT TEST-1

WEEK-4 UNIT II ARITHMETIC OPERATIONS

ALU - Addition and subtraction – Multiplication

WEEK-5

Division – Floating Point operations – Subword parallelism.

WEEK-6

UNIT TEST-2

UNIT III PROCESSOR AND CONTROL UNIT

WEEK-7

Basic MIPS implementation – Building datapath – Control Implementation scheme – Pipelining

WEEK-8
Pipelined datapath and control – Handling Data hazards & Control hazards – Exceptions
WEEK-9
UNIT TEST-3

UNIT IV PARALLELISM
WEEK-10
Instruction-level-parallelism – Parallel processing challenges
WEEK-11
Flynn's classification – Hardware multithreading – Multicore processors
WEEK-12
UNIT TEST-4

UNIT V MEMORY AND I/O SYSTEMS
WEEK-13
Memory hierarchy - Memory technologies – Cache basics – Measuring and improving cache performance
WEEK-14
Virtual memory, TLBs - Input/output system, programmed I/O, DMA and interrupts, I/O processors
WEEK-15
UNIT TEST 5

WEEK-16
MODEL EXAMINATION-I (5 UNITS)
WEEK-17
MODEL PRACTICAL EXAMINATION

TEXT BOOKS

1. David A. Patterson and John L. Hennessey, "Computer Organization and Design", Fifth edition, Morgan Kauffman / Elsevier, 2014.

REFERENCE BOOKS

1. V.Carl Hamacher, Zvonko G. Varanesic and Safat G. Zaky, "Computer Organisation", VI edition, Mc Graw-Hill Inc, 2012.
2. William Stallings "Computer Organization and Architecture", Seventh Edition , Pearson Education, 2006.
3. Vincent P. Heuring, Harry F. Jordan, "Computer System Architecture", Second Edition, Pearson Education, 2005.

4. Govindarajalu, “Computer Architecture and Organization, Design Principles and Applications", first edition, Tata Mc Graw Hill, New Delhi, 2005.
5. John P. Hayes, “Computer Architecture and Organization”, Third Edition, Tata Mc Graw Hill, 1998.
6. http://nptel.ac.in/.

CS6551 COMPUTER NETWORKS

WEEK-1 UNIT I FUNDAMENTALS & LINK LAYER

Building a network – Requirements - Layering and protocols - Internet Architecture

WEEK-2

Network software – Performance ; Link layer Services - Framing - Error Detection - Flow control

WEEK-3

UNIT TEST-1

WEEK-4 UNIT II MEDIA ACCESS & INTERNETWORKING

Media access control - Ethernet (802.3) - Wireless LANs – 802.11 – Bluetooth

WEEK 5

Switching and bridging – Basic Internetworking (IP, CIDR, ARP, DHCP,ICMP)

WEEK-6

UNIT TEST-2

UNIT III ROUTING

WEEK-7

Routing (RIP, OSPF, metrics) – Switch basics – Global Internet (Areas, BGP, IPv6),

WEEK-8

Multicast – addresses – multicast routing (DVMRP, PIM)

WEEK-9

UNIT TEST-3

UNIT IV TRANSPORT LAYER

WEEK-10

Overview of Transport layer - UDP - Reliable byte stream (TCP) - Connection management - Flow control - Retransmission

WEEK-11

TCP Congestion control - Congestion avoidance (DECbit, RED) – QoS – Application requirements

WEEK-12

UNIT TEST-4

UNIT V APPLICATION LAYER

WEEK-13

Traditional applications -Electronic Mail (SMTP, POP3, IMAP, MIME)

WEEK-14

HTTP – Web Services – DNS - SNMP

WEEK-15

UNIT TEST 5

WEEK-16

MODEL EXAMINATION-I (5 UNITS)

WEEK-17

MODEL PRACTICAL EXAMINATION

TEXT BOOKS

1. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", Fifth Edition, Morgan Kaufmann Publishers, 2011.

REFERENCE BOOKS

1. James F. Kurose, Keith W. Ross, "Computer Networking - A Top-Down Approach Featuring the Internet", Fifth Edition, Pearson Education, 2009.
2. Nader. F. Mir, "Computer and Communication Networks", Pearson Prentice Hall Publishers, 2010.
3. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, "Computer Networks: An Open Source Approach", Mc Graw Hill Publisher, 2011.
4. Behrouz A. Forouzan, "Data communication and Networking", Fourth Edition, Tata McGraw – Hill, 2011.

EC6601 VLSI DESIGN

UNIT I MOS TRANSISTOR PRINCIPLE

WEEK-1

NMOS and PMOS transistors, Process parameters for MOS and CMOS, Electrical properties of CMOS circuits and device modeling,

WEEK-2

Scaling principles and fundamental limits, CMOS inverter scaling, propagation delays, Stick diagram, Layout diagrams

WEEK-3

UNIT TEST-1

UNIT II COMBINATIONAL LOGIC CIRCUITS

WEEK-4

Examples of Combinational Logic Design, Elmore‟s constant, Pass transistor Logic

WEEK 5

Transmission gates, static and dynamic CMOS design, Power dissipation – Low power design principles

WEEK-6

UNIT TEST-2

UNIT III SEQUENTIAL LOGIC CIRCUITS

WEEK-7

Static and Dynamic Latches and Registers, Timing issues, pipelines, clock strategies, Memory architecture and memory control circuits

WEEK-8

Low power memory circuits, Synchronous and Asynchronous design

WEEK-9

UNIT TEST-3

UNIT IV DESIGNING ARITHMETIC BUILDING BLOCKS

WEEK-10

Data path circuits, Architectures for ripple carry adders, carry look ahead adders, High speed adders, accumulators

WEEK-11

Multipliers, dividers, Barrel shifters, speed and area tradeoff

WEEK-12

UNIT TEST-4

UNIT V IMPLEMENTATION STRATEGIES

WEEK-13

Full custom and Semi custom design, Standard cell design and cell libraries

WEEK-14
FPGA building block architectures, FPGA interconnect routing procedures
WEEK-15
UNIT TEST-5

WEEK-16
MODEL EXAMINATION-I (5 UNITS)
WEEK-17
MODEL PRACTICAL EXAMINATION

TEXT BOOKS
1. Jan Rabaey, Anantha Chandrakasan, B.Nikolic, "Digital Integrated Circuits: A Design Perspective", Second Edition, Prentice Hall of India, 2003.
2. M.J. Smith, "Application Specific Integrated Circuits", Addisson Wesley, 1997

REFERENCE BOOKS
1. N.Weste, K.Eshraghian, "Principles of CMOS VLSI Design", Second Edition, Addision Wesley 1993
2. R.Jacob Baker, Harry W.LI., David E.Boyee, "CMOS Circuit Design, Layout and Simulation", Prentice Hall of India 2005
3. A.Pucknell, Kamran Eshraghian, "BASIC VLSI Design", Third Edition, Prentice Hall of India, 2007.

EC6602 ANTENNA AND WAVE PROPAGATION

UNIT I FUNDAMENTALS OF RADIATION
WEEK-1
Definition of antenna parameters – Gain, Directivity, Effective aperture, Radiation Resistance, Band width, Beam width, Input Impedance Matching
WEEK-2
Baluns, Polarization mismatch, Antenna noise temperature, Radiation from oscillating dipole, Half wave dipole. Folded dipole, Yagi array
WEEK-3
UNIT TEST-1

WEEK-4
UNIT II APERTURE AND SLOT ANTENNAS
Radiation from rectangular apertures, Uniform and Tapered aperture, Horn antenna , Reflector antenna ,
WEEK-5
Aperture blockage , Feeding structures , Slot antennas ,Microstrip antennas – Radiation mechanism – Application ,Numerical tool for antenna analysis
WEEK-6

UNIT TEST-2

UNIT III ANTENNA ARRAYS
WEEK 7
N element linear array, Pattern multiplication, Broadside and End fire array – Concept of Phased arrays
WEEK-8
Adaptive array, Basic principle of antenna Synthesis-Binomial array
WEEK-9
UNIT TEST-3

UNIT IV SPECIAL ANTENNAS
WEEK-10
Principle of frequency independent antennas –Spiral antenna, Helical antenna, Log periodic. Modern antennas- Reconfigurable antenna, Active antenna, Dielectric antennas, Electronic band gap structure and applications
WEEK-11
Antenna Measurements-Test Ranges, Measurement of Gain, Radiation pattern, Polarization, VSWR **WEEK-12**
UNIT TEST-4

UNIT-V PROPAGATION OF RADIO WAVES
WEEK-13
Modes of propagation , Structure of atmosphere , Ground wave propagation , Tropospheric propagation , Duct propagation, Troposcatter propagation , Flat earth and Curved earth concept Sky wave propagation
WEEK-14
Virtual height, critical frequency , Maximum usable frequency – Skip distance, Fading , Multi hop propagation
WEEK-15
UNIT TEST-5

WEEK-16
MODEL EXAMINATION-I (5 UNITS)
WEEK-17
MODEL PRACTICAL EXAMINATION

TEXT BOOKS
1. John D Kraus," Antennas for all Applications", 3rd Edition, Mc Graw Hill, 2005.

REFERENCE BOOKS

1. Edward C.Jordan and Keith G.Balmain" Electromagnetic Waves and Radiating Systems" Prentice Hall of India, 2006
2. R.E.Collin,"Antennas and Radiowave Propagation", Mc Graw Hill 1985.
3. Constantine.A.Balanis "Antenna Theory Analysis and Design", Wiley Student Edition, 2006.
4. Rajeswari Chatterjee, "Antenna Theory and Practice" Revised Second Edition New Age International Publishers, 2006.
5. S. Drabowitch, "Modern Antennas" Second Edition, Springer Publications, 2007.
6. Robert S.Elliott "Antenna Theory and Design" Wiley Student Edition, 2006.
7. H.Sizun "Radio Wave Propagation for Telecommunication Applications", First Indian Reprint, Springer Publications, 2007.

EC6001 MEDICAL ELECTRONICS

UNIT I ELECTRO-PHYSIOLOGY AND BIO-POTENTIAL RECORDING

WEEK-1

The origin of Bio-potentials; biopotential electrodes, biological amplifiers, ECG, EEG, EMG

WEEK-2

PCG, lead systems and recording methods, typical waveforms and signal characteristics.

WEEK-3

UNIT TEST-1

UNIT II BIO-CHEMICAL AND NON ELECTRICAL PARAMETER MEASUREMENT WEEK-4

pH, PO2, PCO2, colorimeter, Auto analyzer, Blood flow meter, cardiac output, respiratory measurement,

WEEK-5

Blood pressure, temperature, pulse, Blood Cell Counters

WEEK -6

UNIT TEST-2

UNIT III ASSIST DEVICES

WEEK-7

Cardiac pacemakers

WEEK-8

DC Defibrillator, Dialyser, Heart lung machine

WEEK -9

UNIT TEST-III

UNIT IV PHYSICAL MEDICINE AND BIOTELEMETRY
WEEK-10
Diathermies- Shortwave, ultrasonic and microwave type and their applications
WEEK-11
Surgical Diathermy Telemetry principles, frequency selection, biotelemetry, radiopill, electrical safety
WEEK -12
UNIT TEST-IV

UNIT V RECENT TRENDS IN MEDICAL INSTRUMENTATION
WEEK-13
Thermograph, endoscopy unit, Laser in medicine
WEEK-14
Cryogenic application, Introduction to telemedicine
WEEK-15
UNIT TEST-V

WEEK-16
MODEL EXAMINATION-I (5 UNITS)
WEEK-17
MODEL PRACTICAL EXAMINATION

TEXT BOOKS

1. Leslie Cromwell, "Biomedical Instrumentation and Measurement", Prentice Hall of India, New Delhi, 2007.
2. John G.Webster, "Medical Instrumentation Application and Design", 3rd Edition, Wiley India Edition, 2007

REFERENCE BOOKS

1. Khandpur, R.S., "Handbook of Biomedical Instrumentation", TATA Mc Graw-Hill, New Delhi, 2003.
2. Joseph J.Carr and John M.Brown, "Introduction to Biomedical Equipment Technology", John Wiley and Sons, New York, 2004.

EC6611 COMPUTER NETWORKS LAB

LIST OF EXPERIMENTS:
1. Implementation of Error Detection / Error Correction Techniques
2. Implementation of Stop and Wait Protocol and sliding window

3. Implementation and study of Goback-N and selective repeat protocols
4. Implementation of High Level Data Link Control
5. Study of Socket Programming and Client – Server model
6. Write a socket Program for Echo/Ping/Talk commands.
7. To create scenario and study the performance of network with CSMA / CA protocol and compare with CSMA/CD protocols.
8. Network Topology - Star, Bus, Ring
9. Implementation of distance vector routing algorithm
   Implementation of Link state routing algorithm
10. Study of Network simulator (NS) and simulation of Congestion Control Algorithms using NS
11. Encryption and decryption

EC6612 VLSI DESIGN LAB

LIST OF EXPERIMENTS FPGA BASED EXPERIMENTS.

1. HDL based design entry and simulation of simple counters, state machines, adders (min 8 bit) and multipliers (4 bit min).
2. Synthesis, P&R and post P&R simulation of the components simulated in (I) above. Critical paths and static timing analysis results to be identified. Identify and verify possible conditions under which the blocks will fail to work correctly.
3. Hardware fusing and testing of each of the blocks simulated in (I). Use of either chipscope feature (Xilinx) or the signal tap feature (Altera) is a must. Invoke the PLL and demonstrate the use of the PLL module for clock generation in FPGAs.

IC DESIGN EXPERIMENTS: (BASED ON CADENCE / MENTOR GRAPHICS / EQUIVALENT)

4. Design and simulation of a simple 5 transistor differential amplifier. Measure gain, ICMR, and CMRR
5. Layout generation, parasitic extraction and resimulation of the circuit designed in (I)
6. Synthesis and Standard cell based design of an circuits simulated in 1(I) above. Identification of critical paths, power consumption
7. For expt (c) above, P&R, power and clock routing, and post P&R simulation.
8. Analysis of results of static timing analysis

GE6674 COMMUNICATION SKILLS – LABORATORY BASED

UNIT I LISTENING AND SPEAKING SKILLS 12

Conversational skills (formal and informal) – group discussion and interview skills – making presentations. Listening to lectures, discussions, talk shows, news programmes, dialogues from TV/radio/Ted talk/Podcast – watching videos on interesting events on Youtube

UNIT II READING AND WRITING SKILLS 12

Reading different genres of tests ranging from newspapers to philosophical treatises – reading strategies such as graphic organizers, summarizing and interpretation Writing job applications – cover letter – resume – emails – letters – memos – reports – blogs – writing for publications.

UNIT III ENGLISH FOR NATIONAL AND INTERNATIONAL EXAMINATIONS AND PLACEMENTS 12

International English Language Testing System (IELTS) – Test of English as a Foreign Language (TOEFL) – Graduate Record Examination (GRE) – Civil Service (Language related) – Verbal ability.

UNIT IV SOFT SKILLS (1) 12

Motivation – self image – goal setting – managing changes – time management – stress management – leadership traits – team work – career and life planning.

UNIT V SOFT SKILLS (2) 12

Multiple intelligences – emotional intelligence – spiritual quotient (ethics) – intercultural communication – creative and critical thinking – learning styles and strategies

REFERENCES:

1. Business English Certificate Materials, Cambridge University Press.
2. Graded Examinations in Spoken English and Spoken English for Work downloadable materials from Trinity College, London.
3. International English Language Testing System Practice Tests, Cambridge University Press.
4. Interactive Multimedia Programs on Managing Time and Stress.
5. Personality Development (CD-ROM), Times Multimedia, Mumbai.
6. Robert M Sherfield and et al. "Developing Soft Skills" 4th edition, New Delhi: Pearson Education, 2009.

WEB SOURCES:

http://www.slideshare.net/rohitjsh/presentation-on-group-discussion
http://www.washington.edu/doit/TeamN/present_tips.html
http://www.oxforddictionaries.com/words/writing-job-applications
http://www.kent.ac.uk/careers/cv/coveringletters.htm
http://www.mindtools.com/pages/article/newCDV_34.htm

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