B.Tech. III - II Sem.	Th	Tu	C
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(13A52501) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

Course Objective:

The objective of this course is to equip the student with the basic inputs of Managerial Economics and Economic Environment of business and to enrich analytical skills in helping them take sound financial decisions for achieving higher productivity.

Learning Outcome*:*

The thorough understanding of Managerial Economics and Analysis of Financial Statements facilitates the Technocrats – cum – Entrepreneurs to take-up decisions effectively and efficiently in the challenging Business Environment.

UNIT I

INTRODUCTION TO MANAGERIAL ECONOMICS

Managerial Economics - Definition, nature and scope – contemporary importance of Managerial Economics - Demand Analysis: Determinants- Law of Demand - Elasticity of Demand. Significance – types – measurement of elasticity of demand - Demand forecasting- factors governing demand forecasting- methods of demand forecasting –Relationship of Managerial Economics with Financial Accounting and Management.

UNIT II

THEORY OF PRODUCTION AND COST ANALYSIS

Production Function – Short-run and long- run production - Isoquants and Isocosts, MRTS, least cost combination of inputs - Cobb-Douglas production function - laws of returns - Internal and External economies of scale - **Cost Analysis**: Cost concepts - Break-Even Analysis (BEA) - Managerial significance and limitations of BEA - Determination of Break Even Point (Simple Problems)

UNIT III

INTRODUCTION TO MARKETS AND NEW ECONOMIC ENVIRONMENT

Market structures: Types of Markets - Perfect and Imperfect Competition - Features, Oligopoly - Monopolistic competition. Price-Output determination - Pricing Methods and Strategies. Forms of Business Organization – Sole Proprietorship- Partnership – Joint Stock Companies – Public Sector Enterprises – New Economic Environment- Economic systems – Economic Liberalization – Privatization and Globalization

UNIT IV

CAPITAL AND CAPITAL BUDGETING

Concept of Capital - Over and Under capitalization – Remedial measures - Sources of Short term and Long term capital - Estimating Working Capital requirement – Capital budgeting – Features of Capital budgeting proposals – Methods and Evaluation of Capital budgeting – Pay Back Method – Accounting Rate of Return (ARR) – Net Present Value (NPV) – Internal Rate Return (IRR) Method (simple problems)

UNIT V

INTRODUCTION TO FINANCIAL ACCOUNTING AND ANALYSIS

Financial Accounting – Concept - emerging need and importance - Double-Entry Book Keeping- Journal - Ledger – Trial Balance - Financial Statements - - Trading Account – Profit & Loss Account – Balance Sheet (with simple adjustments). Financial Analysis – Ratios – Techniques – Liquidity, Leverage, Profitability, and Activity Ratios (simple problems).

Text Books:

1. *Aryasri: Managerial Economics and Financial Analysis, 4/e, TMH, 2009.*
2. *Varshney & Maheswari: Managerial Economics, Sultan Chand, 2009.*

Reference Books:

1. *Premchand Babu, Madan Mohan:Financial Accounting and Analysis,Himalaya, 2009*
2. *S.A. Siddiqui and A.S. Siddiqui: Managerial Economics and Financial Analysis, New Age International,. 2009.*
3. *Joseph G. Nellis and David Parker: Principles of Business Economics, Pearson, 2/e, New Delhi.*
4. *Domnick Salvatore: Managerial Economics in a Global Economy, Cengage, 2009.*
5. *H.L.Ahuja: Managerial Economics, S.Chand, 3/e, 2009*

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(13A04601) MICROPROCESSORS AND MICROCONTROLLERS

Course Objective:

- *To understand the architecture of 8086 MICROPROCESSOR.*
- *To learn various 8086 Instruction set and Assembler Directives.*
- *To become skilled in 8086 Assembly Language programming.*
- *To understand programmable peripheral devices and their Interfacing.*
- *To understand and learn 8051 microcontroller.*
- *To learn 8051 Assembly Language programming*

Learning Outcome:

- *Becomes skilled in various 8086 Instruction set and Assembler Directives*
- *Able to write8086 Assembly Language programs.*
- *Able to understand programmable peripheral devices and their Interfacing.*
- *Able to write 8051 assembly Language programs.*

UNIT I

8085 ARCHITECTURE

Introduction-8085 Architecture-Block Diagram, Flag Register, Pin Diagram, Timing and Control Signals, System Timing Diagram, Instruction Set of 8085- Instruction & Data Formats- Addressing Modes- Instructions.

UNIT II

8086 ARCHITECTURE

8086 Overview-Internal Architecture- Register Organization, Memory Segmentation, Flag Register, Pin Configuration, Physical Memory Organization, General Bus Operation- Minimum and Maximum Mode Signals, Timing Diagrams - Interrupts Of 8086.

UNIT III

INSTRUCTION SET AND ASSEMBLY LANGUAGE PROGRAMMING OF 8086

Instruction Formats -Addressing Modes-Instruction Set, Assembler Directives-Macros, Programs Involving Logical, Branch Instructions – Sorting and Evaluating Arithmetic Expressions - String Manipulations-Simple ALPs.

UNIT IV

INTERFACING DEVICES

8255 PPI- Block Diagram, Various Modes of Operation-Programmable Interval Timer 8254-Architecture,Operating Modes – Key Board/Display Controller 8279- Architecture, Modes of Operation, Command Words and Key Code and Status Data Formats-Programmable Communication Interface8251 USART-Architecture, Description Of Operating Modes-DMA Controller 8257-Internal Architecture and Signal Description .

UNIT V

INTRODUCTION TO MICRO CONTROLLERS 8051

Introduction, Architecture, Registers, Pin Description, Connections, I/O Ports, Memory Organization, Addressing Modes, Instruction Set, Architectural features of Intels 16 bit Micro Controller.

Text Books:

1. *A.K.Ray and Bhurchandi, "Advanced Microprocessors and Peripherals", 2nd Edition, TMH Publications.*
2. *Ajay V. Deshmukh, "Microcontrollers, Theory and applications", Tata McGraw-Hill Companies – 2005*

Reference Books:

1. *Douglas V.Hall, "Microprocessors and Interfacing", 2nd Revised Edition, TMH Publications.*
2. *Liu & Gibson, "Microcomputer Systems: The 8086/8088 Family: Architecture, Programming and Design", 2nd ed., PHI*
3. *Kenneth j.Ayala, Thomson, "The 8051 Microcontrollers", Asia Pte.Ltd*
4. *Krishna Kant, "Microprocessors and Microcontrollers", PHI Publishers*

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(13A04602) DIGITAL SIGNAL PROCESSING

***Course Objective**:*

- *To use Z transforms and discrete time Fourier transforms to analyze a digital system.*
- *To design and understand simple finite impulse response filters*
- *To understand stability of FIR filters*
- *To know various structures used in the implementation of FIR and IIR filters*
- *Window method design structure for implementation.*

***Learning Outcome**:*

At the end of the course, the student should be able to:

- *Describe the Sampling Theorem and how this relates to Aliasing and Folding.*
- *Determine if a system is a Linear Time-Invariant (LTI) System and Take the Z-transform of a LTI system.*
- *Find the frequency response of FIR and IIR filters through analysis.*
- *Understand the relationship between poles, zeros, and stability and determine the spectrum of a signal using the DFT, FFT, and spectrogram.*
- *Design, analyze, and implement various digital filters.*

UNIT I

Introduction: Review of discrete-time signals and systems – Time domain analysis of discrete-time signals & systems, Frequency domain analysis of discrete-time signals and systems.

Discrete Fourier Transform: Frequency-domain sampling and reconstruction of discrete-time signals, Discrete Fourier Transform (DFT), The DFT as a linear transformation, Relationship of the DFT to other transforms, Properties of DFT, Linear filtering methods based on DFT, Frequency analysis of signals using the DFT.

UNIT II

Fast Fourier Transform Algorithms (FFTA): Efficient computation of the DFT – Direct computation of DFT, Divide and conquer approach to computation of DFT, Radix-2, Radix-4, and Split radix FFT algorithms, Implementation of FFT algorithms, Applications of FFT algorithms – Efficient computation of the DFT of two real sequences, 2N point real sequences, Use of the FFT algorithm in linear filtering and correlation, A linear filtering approach to computation of the DFT-the Goertzel, and the Chirp-z transform algorithms, Quantization errors in the computation of DFT.

UNIT III

Implementation of Discrete-Time Systems: Structures for the realization of discrete-time systems, Structures for FIR systems - Direct form, Cascade form, Frequency sampling, and Lattice structures, Structures for IIR systems – Direct form, Signal flow graphs & Transposed, Cascade form, Parallel form and Lattice structures, Conversion from Lattice structure to direct form, lattice –Ladder structure.

UNIT IV

Design of Digital Filters: General considerations – Causality and its implications, Characteristics of practical Frequency Selective Filters, Design of Finite Impulse Response (FIR) filters – Symmetric and asymmetric FIR filters, Design of linear phase FIR filters using windows, Design of linear phase FIR filters by the frequency sampling method, Design of optimum equi-ripple linear phase FIR filters, Comparison of design methods for linear phase FIR filters, Design of Impulse Invariance Response (IIR) filters from analog filters – IIR filter design by approximation of derivatives, by Impulse invariance, and by bilinear transformation methods, Characteristics of commonly used analog filters,

Design examples of both FIR and IIR filters, Frequency transformation in the analog and digital domains, Illustrative problems.

UNIT V

Multirate Digital Signal Processing: Introduction, Decimation, and interpolation, Sampling rate conversion by a rational factor, Implementation of sampling rate conversion, Multistage implementation of sampling rate conversion, Sampling rate conversion of bandpass signals, Sampling rate conversion by arbitrary factor, Applications of multirate signal processing.

Text Books:

1. *John G. Proakis, Dimitris G. Manolakis, "Digital signal processing, principles, Algorithms and applications," Pearson Education/PHI, 4th ed., 2007.*
2. *Sanjit K Mitra, "Digital signal processing, A computer base approach," Tata McGraw Hill, 3rd edition, 2009.*

Reference Books:

1. *A.V.Oppenheim and R.W. Schaffer, & J R Buck, "Discrete Time Signal Processing," 2nd ed., Pearson Education, 2012.*
2. *B. P. Lathi, "Principles of Signal Processing and Linear Systems," Oxford Univ. Press, 2011.*
3. *Li Tan, Jean Jiang, "Digital Signal Processing, Fundamentals and Applications," Academic Press, Second Edition, 2013.*
4. *Andreas Antoniou, "Digital Signal Processing," TATA McGraw Hill, 2006.*
5. *Schaum's outlines M H Hayes, "Digital Signal Processing," TATA Mc-Graw Hill, 2007.*
6. *A. Anand Kumar, "Digital Signal Processing," PHI Learning, 2011.*

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(13A04603) MICROWAVE ENGINEERING

***Course Objective**:*

- *To analyze micro-wave circuits incorporating hollow, dielectric and planar waveguides, transmission lines, filters and other passive components, active devices.*
- *To Use S-parameter terminology to describe circuits.*
- *To explain how microwave devices and circuits are characterized in terms of their "S" Parameters.*
- *To give students an understanding of microwave transmission lines.*
- *To Use microwave components such as isolators, Couplers, Circulators, Tees, Gyrators etc..*
- *To give students an understanding of basic microwave devices (both amplifiers and oscillators).*
- *To expose the students to the basic methods of microwave measurements.*

***Learning Outcome**:*

At the end of the semester, students are provided learning experiences that enable them to:

- *Analyze micro-wave circuits incorporating hollow, dielectric and planar waveguides, transmission lines, filters and other passive components, active devices.*
- *Understand the various principles involved in various Microwave oscillators and amplifiers such as Klystron tubes, TWTs, Magnetrons, Gunn diode etc.*
- *Use S-parameter terminology & to describe the characteristics of microwave circuits through scattering parameters.*
- *Ability to understanding of microwave transmission lines and how to use microwave components such as isolators, Couplers, Circulators, Tees, Gyrators etc.*
- *Set up the microwave benches for measurement of various parameters such as microwave frequency, VSWR, Impedance of unknown load etc.*
- *Verify the characteristics of Microwave devices through measurements.*

UNIT I

Waveguides & Resonators: Introduction, Microwave spectrum and bands, applications of Microwaves, Rectangular Waveguides-Solution of Wave Equation in Rectangular Coordinates, TE/TM mode analysis, Expressions for fields, Cutoff frequencies, filter characteristics, dominant and degenerate modes, sketches of TE and TM mode fields in the cross-section, Mode characteristics - Phase and Group velocities, wavelengths and impedance relations, Circular Waveguides - Dominant mode (qualitative treatment only), Rectangular Waveguides – Power Transmission and Power Losses, Impossibility of TEM Modes, losses, Q-factor, Cavity resonators-introduction, Rectangular and cylindrical cavities, dominant modes and resonant frequencies, Q-factor and coupling coefficients, Illustrative Problems.

UNIT II

Waveguide Components: Scattering Matrix - Significance, Formulation and properties, Coupling mechanisms - Probe, Loop, Aperture types, Wave guide discontinuities - waveguide Windows, tuning screws and posts, matched loads, Waveguide attenuators - Resistive card, rotary vane Attenuators, waveguide phase shifters-dielectric, rotary vane phase shifters, Wave guide multiport junctions - E plane and H plane Tees, Magic Tee, Directional couplers-2 hole, Bothe hole types, Ferrites-composition and characteristics, Faraday rotation, Ferrite components - Gyrator, Isolator, Circulator, S Matrix calculations for 2-port junction, E plane and H plane Tees, Magic Tee, Directional coupler, circulator and Isolator, Illustrative Problems.

UNIT III

Linear beam Tubes: Limitations and losses of conventional tubes at microwave frequencies, Classification of Microwave tubes, O type tubes - 2 cavity klystrons-structure, Reentrant cavities, velocity modulation process and Applegate diagram, bunching process and small signal theory-Expressions for o/p power and efficiency, Reflex Klystrons-structure, Velocity Modulation, Applegate diagram, mathematical theory of bunching, power output, efficiency, oscillating modes and o/p characteristics, Effect of Repeller Voltage on Power o/p, Significance, types and characteristics of slow wave structures, structure of TWT and amplification process (qualitative treatment), Suppression of oscillations, Gain considerations.

UNIT IV

Cross-field Tubes & Microwave Semiconductor Devices: Introduction, Cross field effects, Magnetrons-different types, cylindrical travelling wave magnetron-Hull cutoff and Hartree conditions, modes of resonance and PI-mode operation, separation of PI-mode, O/P characteristics, Introduction to Microwave semiconductor devices, classification, applications, Transfer Electronic Devices, Gunn diode - principles, RWH theory, Characteristics, Basic modes of operation - Gunn oscillation modes, LSA Mode, Varactor diode, Parametric amplifier, Introduction to Avalanche Transit time devices (brief treatment only), Illustrative Problems.

UNIT V

Microwave Measurements: Description of Microwave bench-different blocks and their features, errors and precautions, Microwave power measurements, Measurement of attenuation, frequency, VSWR (low, medium, high), Measurement of 'Q' of a cavity, Impedance measurements.

Text Books:

1. *Samuel Y. Liao, "Microwave devices and circuits," Pearson, 3rd Edition, 2003.*
2. *Herbert J. Reich, J. G. Skalnik, P. F. Ordung and H. L. Krauss, "Microwave principles," CBS publishers and distributors, New Delhi, 2004.*

Reference Books:

1. *R. E. Collin, "Foundations for microwave engineering," IEEE press, John Wiley, 2nd Edition, 2002.*
2. *Om. P. Gandhi, "Microwave Engineering and Applications," Pergamon, 1981.*
3. *David M. Pozer, "Microwave Engineering," Wiley India Pvt. Ltd., 3rd Edition, 2010.*
4. *Rajeswari Chatterjee, "Elements of Microwave Engineering," Ellis Horwood Ltd., Publisher, 1986.*
5. *Peter A.Rizzi, "Microwave Engineering Passive Circuits," PHI, 1999.*
6. *F. E. Terman, "Electronic and Radio Engineering," McGraw-Hill, 4th Edition, 1995.*

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(13A04604) ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

Course Objective:

- *To study about functioning of different meters associated with measurements of signal characteristics*
- *To study and employ CRO for measuring Signal characteristics*
- *To study in detail about different bridges employed for Electronic measurements*
- *To study working of advanced measuring instruments such as logic analyzers and spectrum analyzers*

Learning Outcome:

After the completion of the course the students will be able to

- *Understand basic principles involved in the meters for measuring voltage, current, resistance, frequency and so on.*
- *Employ CRO for measuring voltage, current, resistance, frequency and so on.*
- *Understand principles of measurements associated with different bridges.*
- *Get complete knowledge regarding working of advanced instruments such as logic analyzers and spectrum analyzers.*

UNIT I

Performance characteristics of Instruments: Static characteristics, Accuracy, Precision, Resolution, Sensitivity, static and dynamic calibration, Errors in Measurement, and their statistical analysis, dynamic characteristics-speed of Response, fidelity, Lag and dynamic error. DC ammeters, DC voltmeters-multirange, range extension/solid state and differential voltmeters, AC voltmeters – multirange, range extension. Thermocouple type RF ammeter, ohm meters, series type, shunt type, multimeter for voltage, current and resistance measurements.

UNIT II

Oscilloscopes: Standard specifications of CRO,CRT features, derivation of deflection sensitivity, vertical and horizontal amplifiers, horizontal and vertical deflection systems, sweep trigger pulse, delay line, sync selector circuits, probes for CRO – active, passive, and attenuator type, triggered sweep CRO, and Delayed sweep, dual trace/beam CRO, Measurement of amplitude, frequency and phase (Lissajous method).Principles of sampling oscilloscope, storage oscilloscope, and digital storage oscilloscope, Digital frequency counters, time & Period measurements.

UNIT III

Signal generator-fixed and variable, AF oscillators, function generators, pulse, random noise, sweep, and arbitrary waveform generators, their standards, specifications and principles of working (Block diagram approach).Wave analyzers, Harmonic distortion analyzers, Spectrum analyzers, and Logic analyzers.

UNIT IV

Review of DC Bridges: Wheatstone bridge, Wein Bridge, errors and precautions in using bridges, AC bridges: Measurement of inductance-Maxwell's bridge, Anderson Bridge. Measurement of capacitance- Schearing Bridge. Kelvin Bridge, Q-meter, EMI and EMC, Interference and noise reduction techniques.

UNIT V

Sensors and Transducers - Active and passive transducers: Measurement of displacement (Resistance, capacitance, inductance; LVDT) Force (strain gauges) Pressure (piezoelectric transducers) Temperature (resistance thermometers, thermocouples, and thermistors), Velocity, Acceleration, Vibration, pH measurement Signal Conditioning Circuits.

Text Books:

1. *H.S.Kalsi, "Electronic instrumentation", second edition, Tata McGraw Hill, 2004.*
2. *K. Lal Kishore, "Electronic Measurements & Instrumentations", Pearson Education, 2009.*

Reference Books:

1. *A.D. Helfrick and W.D. Cooper, "Modern Electronic Instrumentation and Measurement Techniques", PHI, 5th Edition, 2002.*
2. *Ernest O Doebelin and Dhanesh N Manik, "Measurement Systems Application and Design", TMH, 5th Edition, 2009.*
3. *Oliver and Cage, "Electronic Measurement and Instrumentation", TMH.*
4. *Robert A.Witte, "Electronic Test Instruments, Analog and Digital Measurements", Pearson Education, 2nd Ed., 2004.*
5. *David A. Bell, "Electronic Instrumentation & Measurements", PHI, 2nd Edition, 2003.*

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3 **2**

(13A04605) MICROPROCESSORS & MICROCONTROLLERS LAB

***Course Objective*:**

- To become skilled in 8086 Assembly Language programming.
- To understand programmable peripheral devices and their Interfacing.
- To understand and learn 8051 microcontroller.
- To learn 8051 assembly Language programming

***Learning Outcome*:**

- Able to write 8086 Assembly Language programs.
- Able to understand programmable peripheral devices and their Interfacing.
- Able to write 8051 assembly Language programs.

Minimum **Ten** Experiments to be conducted (**Five** from each section)

I) 8086 Microprocessor Programs using MASM/8086 kit.

1. Introduction to MASM Programming.
2. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation, ASCII – arithmetic operation.
3. Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4. By using string operation and Instruction prefix: Move Block, Reverse string, Sorting, Length of the string, String comparison.

Interfacing:

1. 8259 – Interrupt Controller and its interfacing programs
2. 8255 – PPI and its interfacing programs (A /D, D/A, stepper motor,)
3. 7-Segment Display.

II) Microcontroller 8051 Trainer kit

1. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation.
2. Logic operations – Shift and rotate.
3. Sorting- Ascending and descending order.

Interfacing using 8051 Trainer kit:

1. Key board Interfacing
2. Seven Segment display
3. Switch Interfacing
4. Relay Interfacing
5. UART

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3 **2**

(13A04606) DIGITAL SIGNAL PROCESSING LAB

Course Objective:

- *To design real time DSP systems and real world applications.*
- *To implement DSP algorithms using both fixed and floating point processors.*
- *To generate the basis function of different transforms.*

Learning Outcome:

- *Able to design real time DSP systems and real world applications.*
- *Able to implement DSP algorithms using both fixed and floating point processors.*

List of Experiments: (Minimum of 5 experiments are to be conducted from each part)
Software Experiments (PART – A)

1. Generation of random signal and plot the same as a waveform showing all the specifications.
2. Finding Power and (or) Energy of a given signal.
3. Convolution and Correlation (auto and cross correlation) of discrete sequences without using built in functions for convolution and correlation operations.
4. DTFT of a given signal
5. N – point FFT algorithm
6. Design of FIR filter using windowing technique and verify the frequency response of the filter.
7. Design of IIR filter using any of the available methods and verify the frequency response of the filter.
8. Design of analog filters.

Using DSP Processor kits (Floating point) and Code Composure Studio (CCS) (PART – B)

1. Generation of random signal and plot the same as a waveform showing all the specifications.
2. Finding Power and (or) Energy of a given signal.
3. Convolution and Correlation (auto and cross correlation) of discrete sequences without using built in functions for convolution and correlation operations.
4. DTFT of a given signal
5. N – point FFT algorithm
6. Design of FIR filter using windowing technique and verify the frequency response of the filter.
7. Design of IIR filter using any of the available methods and verify the frequency response of the filter.
8. Design of analog filters.

Equipment/Software Required:

1. Licensed MATLAB software with required tool boxes for 30 users.
2. DSP floating Processor Kits with Code Composure Studio (8 nos.)
3. Function generators
4. CROs
5. Regulated Power Supplies.

B.Tech. III - II Sem. **L** **C**
3 **2**

(13A04607) DIGITAL COMMUNICATION SYSTEMS LAB

Course Objective:

- *To provide a real time experience for different digital modulation and demodulation schemes*

Learning Outcome:

- *After completion of the course the students will be able to experience real time behavior of different digital modulation schemes and technically visualize spectra of different digital modulation schemes*

Minimum of Ten experiments to be conducted (Five from each Part-A&B)
HARDWARE EXPERIMENTS (PART – A)

1. Sampling Theorem – verification.
2. Time division multiplexing.
3. Pulse code modulation.
4. Differential pulse code modulation.
5. Delta modulation.
6. Frequency shift keying.
7. Differential phase shift keying.
8. QPSK modulation and demodulation.

SOFTWARE EXPERIMENTS (PART-B)
Modeling of Digital Communications using MATLAB

1. Sampling Theorem – verification.
2. Pulse code modulation.
3. Differential pulse code modulation.
4. Delta modulation.
5. Frequency shift keying.
6. Phase shift keying.
7. Differential phase shift keying.
8. QPSK modulation and demodulation.

Equipment required for Laboratories:

1. RPS - 0 – 30 V
2. CROs - 0 – 20 M Hz.
3. Function Generators - 0 – 1 M Hz
4. RF Generators (3 Nos.) - 0 – 1000 M Hz.
5. Multimeters
6. Lab Experimental kit for Pulse Code Modulation (Experiment No.3 of part – A)
7. Required Electronic Components (Active and Passive) which include required ICs
8. Arbitrary Wave form generators/ PNS generators – 2 Nos. (to generate digital data at required data rates)
9. Licensed MATLAB software for 30 users with required tool boxes.

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(13A52502) ADVANCED ENGLISH LANGUAGE COMMUNICATION SKILLS LAB (Audit Course)

Introduction:

The introduction of the Advanced Communication Skills Lab is considered essential at 3rd year level. At this stage, the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be a laboratory course to enable students to use 'good' English and perform the following:

- *Gathering ideas and information to organise ideas relevantly and coherently.*
- *Engaging in debates.*
- *Participating in group discussions.*
- *Facing interviews.*
- *Writing project/research reports/technical reports.*
- *Making oral presentations.*
- *Writing formal letters.*
- *Transferring information from non-verbal to verbal texts and vice-versa.*
- *Taking part in social and professional communication.*

Course Objective:

This Lab focuses on using multi-media instruction for language development to meet the following targets:

- *To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.*
- *Further, they would be required to communicate their ideas relevantly and coherently in writing.*
- *To prepare all the students for their placements.*

Learning Outcome:

- *Accomplishment of sound vocabulary and its proper use contextually*
- *Flair in Writing and felicity in written expression.*
- *Enhanced job prospects.*
- *Effective Speaking Abilities*

The following course content to conduct the activities is prescribed for the Advanced English Language Communication Skills (AELCS) Lab:

UNIT I

COMMUNICATIVE COMPETENCY

1. Reading Comprehension
2. Listening comprehension
3. Vocabulary for competitive purpose
4. Spotting errors

UNIT II

TECHNICAL WRITING

1. Report writing
2. Curriculum vitae
3. Covering letter
4. E-mail writing

UNIT III
PRESENTATIONAL SKILLS

1. Oral presentation
2. Power point presentation
3. Poster presentation
4. Stage dynamics

UNIT IV
CORPORATE SKILLS

1. Dress code
2. Telephonic skills
3. Net Etiquettes

UNIT V
GETTING READY FOR JOB

1. Group discussions
2. Interview skills
3. Psychometric tests

MINIMUM REQUIREMENT:

The Advanced English Language Communication Skills (AELCS) Laboratory shall have the following infra-structural facilities to accommodate at least 60 students in the lab:

- Spacious room with appropriate acoustics.
- Round Tables with movable chairs
- Audio-visual aids
- LCD Projector
- Public Address system
- P – IV Processor, Hard Disk – 80 GB, RAM–512 MB Minimum, Speed – 2.8 GHZ
- T. V, a digital stereo & Camcorder
- Headphones of High quality

Suggested Software:

The software consisting of the prescribed topics elaborated above should be procured and used.

1. ***K-VAN SOLUTIONS-Advanced communication lab***
2. ***DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.***
3. ***TOEFL & GRE****(KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)*
4. ***Train2success.com***

References:

1. *Objective English For Competitive Exams, Hari Mohana Prasad, 4th edition, Tata Mc Graw Hill.*
2. *Technical Communication by Meenakshi Raman & Sangeeta Sharma, O U Press 2009.*
3. *Books on TOEFL/GRE/GMAT/CAT/ IELTS by Barron's/DELTA/Cambridge University Press.2012.*
4. *Soft Skills for Everyone, Butterfield Jeff, Cengage Publications, 2011.*
5. *Practice Psychometric Tests: How to familiarize yourself with genuine recruitment tests, 2012.*
6. *Management Shapers Series by Universities Press (India) Pvt Ltd., Himayatnagar, Hyderabad 2008.*
7. *Handbook for Technical Writing by David A McMurrey & Joanne Buckely CENGAGE Learning 2008.*
8. *English for Technical Communication for Engineering Students, Aysha Vishwamohan, Tata Mc Graw-Hill 2009.*
9. *Word Power Made Handy, Shalini Verma, S Chand Publications, 2011.*
10. *Effective Technical Communication, Ashrif Rizvi, TataMcGrahill, 2011.*