

Syllabus for B.Tech(Electrical Engineering) Second Year

Revised Syllabus of B.Tech in EE (To be followed from the academic session, July 2011, i.e. for the students who were admitted in Academic Session 2010-2011)



3rd Semester

Theory:

Sl. No.	CODE	Paper	Contacts periods Per weeks			Total Contact Hrs	Credits
			L	T	P		
1	M (CS) 301	Numerical Methods	2	1	0	3	2
2	M302	Mathematics-III	3	1	0	4	4
3	EC(EE)301	Analog Electronic circuits	3	0	0	3	3
4	EC(EE)302	Digital Electronic circuit	3	0	0	3	3
5	EE-301	Electric Circuit theory	3	1	0	4	4
6	EE-302	Field theory	3	1	0	4	4
						21	20

Practical / Sessional:

Sl. No.	CODE	Paper	Contacts periods Per weeks			Total Contact Hrs	Credits
			L	T	P		
1	EC(EE)391	Analog & Digital Electronic circuit	0	0	3	3	2
2	M (CS)391	Numerical Methods	0	0	2	2	1
3	EE-391	Electric Circuit Theory	0	0	3	3	2
4	HU-381	TECHNICAL REPORT WRITING & LANGUAGE LABORATORY PRACTICE	0	0	3	3	2
Total of Practical / Sessional						11	7
TOTAL OF SEMESTER:						32	27

4th Semester

Theory:

Sl. No.	CODE	Paper	Contacts periods Per weeks			Total Contact Hrs	Credits
			L	T	P		
1	HU-401	Values and Ethics in Profession	3	0	0	3	3
2	PH-401	Physics-II	3	1	0	4	4
3	ME(EE)401	Thermal Power Engineering	3	0	0	3	3
4	CH-401	Basic Environmental Engineering & Elementary Biology	3	0	0	3	3
5	EE-401	Electric Machine-I	3	1	0	4	4
6	EE-402	Electrical & Electronic measurement	3	1	0	4	4
						21	21

Practical / Sessional:

Sl. No.	CODE	Paper	Contacts periods Per weeks			Total Contact Hrs	Credits
			L	T	P		
1	PH-491	Physics-II	0	0	3	3	2
2	ME(EE)491	Thermal power Engineering	0	0	3	3	2
3	EE-491	Electric Machine-I	0	0	3	3	2
4	EE-492	Electrical & Electronic measurement	0	0	3	3	2
Total of Practical / Sessional						12	8
TOTAL OF SEMESTER:						33	29

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III Semester

NUMERICAL METHODS

Code : M(CS) 301

Contacts : 2L+1T

Credits :2

Approximation in numerical computation: Truncation and rounding errors, Fixed and floating-point arithmetic, Propagation of errors. (4)

Interpolation: Newton forward/backward interpolation, Lagrange's and Newton's divided difference Interpolation. (5)

Numerical integration: Trapezoidal rule, Simpson's 1/3 rule, Expression for corresponding error terms. (3)

Numerical solution of a system of linear equations:
Gauss elimination method, Matrix inversion, LU Factorization method, Gauss-Seidel iterative method. (6)

Numerical solution of Algebraic equation:
Bisection method, Regula-Falsi method, Newton-Raphson method. (4)

Numerical solution of ordinary differential equation: Euler's method, Runge-Kutta methods, Predictor-Corrector methods and Finite Difference method. (6)

Text Books:

1. C.Xavier: C Language and Numerical Methods.
2. Dutta & Jana: Introductory Numerical Analysis.
3. J.B.Scarborough: Numerical Mathematical Analysis.
4. Jain, Iyengar, & Jain: Numerical Methods (Problems and Solution).

References:

1. Balagurusamy: Numerical Methods, Scitech.
2. Baburam: Numerical Methods, Pearson Education.
3. N. Dutta: Computer Programming & Numerical Analysis, Universities Press.
4. Soumen Guha & Rajesh Srivastava: Numerical Methods, OUP.
5. Srimanta Pal: Numerical Methods, OUP.

MATHEMATICS

Code: M 302

Contacts: 3L +1T = 4

Credits: 4

Note 1: The entire syllabus has been divided into four modules.

Note 2: Structure of Question Paper

There will be two groups in the paper:

Group A: Ten questions, each of 2 marks, are to be answered out of a total of 15 questions, covering the entire syllabus.

Group B: Five questions, each carrying 10 marks, are to be answered out of (at least) 8 questions. Students should answer at least one question from each module.

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[At least 2 questions should be set from each of Modules II & IV.

At least 1 question should be set from each of Modules I & III. Sufficient questions should be set covering the whole syllabus for alternatives.]

Module I: Fourier Series & Fourier Transform [8L]

Topic: Fourier Series:

Sub-Topics: Introduction, Periodic functions: Properties, Even & Odd functions: Properties, Special wave forms: Square wave, Half wave Rectifier, Full wave Rectifier, Saw-toothed wave, Triangular wave.

(1)

Euler's Formulae for Fourier Series, Fourier Series for functions of period 2π , Fourier Series for functions of period $2l$, Dirichlet's conditions, Sum of Fourier series. Examples. (1)

Theorem for the convergence of Fourier Series (statement only). Fourier Series of a function with its periodic

extension. Half Range Fourier Series: Construction of Half range Sine Series, Construction of Half range Cosine Series. Parseval's identity (statement only). Examples. (2)

Topic: Fourier Transform:

Sub-Topics: Fourier Integral Theorem (statement only), Fourier Transform of a function, Fourier Sine and Cosine Integral Theorem (statement only), Fourier Cosine & Sine Transforms. Fourier, Fourier Cosine & Sine Transforms of elementary functions. (1)

Properties of Fourier Transform: Linearity, Shifting, Change of scale, Modulation. Examples. Fourier Transform of Derivatives. Examples. (1)

Convolution Theorem (statement only), Inverse of Fourier Transform, Examples. (2)

Module II : Calculus of Complex Variable [13L]

Topic: Introduction to Functions of a Complex Variable.

Sub-Topics: Complex functions, Concept of Limit, Continuity and Differentiability. (1)

Analytic functions, Cauchy-Riemann Equations (statement only). Sufficient condition for a function to be analytic. Harmonic function and Conjugate Harmonic function, related problems. (1)

Construction of Analytic functions: Milne Thomson method, related problems. (1)

Topic: Complex Integration.

Sub-Topics: Concept of simple curve, closed curve, smooth curve & contour. Some elementary properties of complex Integrals. Line integrals along a piecewise smooth curve. Examples. (2)

Cauchy's theorem (statement only). Cauchy-Goursat theorem (statement only). Examples. (1)

Cauchy's integral formula, Cauchy's integral formula for the derivative of an analytic function, Cauchy's integral formula for the successive derivatives of an analytic function. Examples. (2)

Taylor's series, Laurent's series. Examples (1)

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Topic: Zeros and Singularities of an Analytic Function & Residue Theorem.

Sub-Topics: Zero of an Analytic function, order of zero, Singularities of an analytic function. Isolated and non-isolated singularity, essential singularities. Poles: simple pole, pole of order m.
Examples on determination of singularities and their nature. (1)

Residue, Cauchy's Residue theorem (statement only), problems on finding the residue of a given function, evaluation of definite integrals: $\int_0^\infty \frac{\sin x}{x} dx$, $\int_0^{2\pi} \frac{d\theta}{a + b \cos \theta + c \sin \theta}$, $\oint_C \frac{P(z)}{Q(z)} dz$ (elementary cases, P(z) & Q(z) are polynomials of 2nd order or less). (2)

Topic: Introduction to Conformal Mapping.

Sub-Topics: Concept of transformation from z-plane to w-plane. Concept of Conformal Mapping. Idea of some standard transformations. Bilinear Transformation and determination of its fixed point. (1)

Module III: Probability [8L]

Topic: Basic Probability Theory

Sub-Topics: Classical definition and its limitations. Axiomatic definition.

Some elementary deduction: i) P(O)=0, ii) $0 \leq P(A) \leq 1$, iii) $P(A') = 1 - P(A)$ etc. where the symbols have their usual meanings. Frequency interpretation of probability. (1)

Addition rule for 2 events (proof) & its extension to more than 2 events (statement only). Related problems. Conditional probability & Independent events. Extension to more than 2 events (pairwise & mutual independence). Multiplication Rule. Examples. Baye's theorem (statement only) and related problems. (3)

Topic: Random Variable & Probability Distributions. Expectation.

Sub-Topics: Definition of random variable. Continuous and discrete random variables. Probability density function & probability mass function for single variable only. Distribution function and its properties (without proof). Examples. Definitions of Expectation & Variance, properties & examples. (2)

Some important discrete distributions: Binomial & Poisson distributions and related problems.

Some important continuous distributions: Uniform, Exponential, Normal distributions and related problems. Determination of Mean & Variance for Binomial, Poisson & Uniform distributions only. (2)

Module IV: Partial Differential Equation (PDE) and Series solution of Ordinary Differential Equation (ODE) [13L]

Topic: Basic concepts of PDE.

Sub-Topics: Origin of PDE, its order and degree, concept of solution in PDE. Introduction to different methods of solution: Separation of variables, Laplace & Fourier transform methods. (1)

Topic: Solution of Initial Value & Boundary Value PDE's by Separation of variables, Laplace & Fourier transform methods.

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Sub-Topics:

- PDE I: One dimensional Wave equation. (2)
- PDE II: One dimensional Heat equation. (2)
- PDE III: Two dimensional Laplace equation. (2)

Topic: Introduction to series solution of ODE.

- Sub-Topics:** Validity of the series solution of an ordinary differential equation.
 General method to solve $P_0 y'' + P_1 y' + P_2 y = 0$ and related problems. (2)

Topic: Bessel's equation.

- Sub-Topics:** Series solution, Bessel function, recurrence relations of Bessel's Function of first kind. (2)

Topic: Legendre's equation.

- Sub-Topics:** Series solution, Legendre function, recurrence relations and orthogonality relation. (2)

TOTAL LECTURES : 42

Text Books:

2. Brown J.W and Churchill R.V: Complex Variables and Applications, McGraw-Hill.
3. Das N.G.: Statistical Methods, TMH.
4. Grewal B S: Higher Engineering Mathematics, Khanna Publishers.
5. James G.: Advanced Modern Engineering Mathematics, Pearson Education.
6. Lipschutz S., and Lipson M.L.: Probability (Schaum's Outline Series), TMH.

References:

1. Bhamra K. S.: Partial Differential Equations: An introductory treatment with applications, PHI
2. Dutta Debashis: Textbook of Engineering Mathematics, New Age International Publishers.
3. Kreyzig E.: Advanced Engineering Mathematics, John Wiley and Sons.
4. Potter M.C, Goldberg J.L and Aboufadel E.F.: Advanced Engineering Mathematics, OUP.
5. Ramana B.V.: Higher Engineering Mathematics, TMH.
6. Spiegel M.R. , Lipschutz S., John J.S., and Spellman D., : Complex Variables, TMH.

ANALOG ELECTRONIC CIRCUITS EC (EE)-301

Credit: 3

Contact: 3L

Module	Content	Hour
1	Filters & Regulators: Capacitor filters, π -section filter, ripple factor, series and shunt voltage regulator, percentage regulation, Concept of SMPS.	4
2	Transistor biasing & stability: Q point, Self Bias-CE, Compensation techniques, h-model of Transistor, Expression of voltage gain, current gain, input & output impedance, Trans-resistance & Trans-conductance, Emitter follower circuits, High frequency model of Transistor.	5
3	Transistor amplifier: RC coupled amplifier, Function of all components, Equivalent circuit, derivation of voltage gain, Current gain, Input impedance & output impedance, Frequency response characteristics, Lower & upper half frequencies, Bandwidth, Concept of Wide band amplifier.	5

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4	Feed back amplifier & Oscillators: Concept of Feed back, Negative & Positive feedback, Voltage/Current, Series/Shunt feedback, Berkhausen criterion, Colpitts, Hartley's, Phase shift, Wien bridge, & Crystal oscillators.	4
5	Operational amplifier: Ideal OPAMP, Differential amplifier, Constant current source (Current mirror etc), Level shifter, CMRR, Open & closed loop circuits, importance of feedback loop (positive & negative), inverting & non-inverting amplifiers, Voltage follower/Buffer circuits.	5
6	Application of Operational amplifiers: Adder, Integrator & Differentiator, Comparator, Schmitt Trigger, Instrumentation Amplifier, Log & Antilog amplifier, Trans-conductance multiplier, Precision rectifier, Voltage to current & Current to voltage converter.	5
7	Power amplifier: Class A, B, AB, C, Conversion efficiency, Tuned amplifier.	4
8	Multivibrator: Monostable, Bistable multivibrator, Monostable & Astable operation using 555 timer.	2
9	Special function circuits: VCO & PLL	2

Text Books:

1. Microelectronic Circuits, Sedra & Smith, Oxford University Press.
2. Integrated Electronics, Milman & Halkias, Mc Graw Hill Company.
3. Electronic devices & Circuits, Balbir Kumar & Shail B. Jain, PHI.
4. Op-amps and Linear IC's, R.A. Gayakwad, PHI.

Reference Books:

1. Microelectronic Circuit- Analysis & Design, Rashid, Cengage Learning.
2. Electronic Circuits: Discrete & Integrated, 3rd Edition, Schilling & Belove, Mc Graw Hill Company.
3. Electronic principles, 6th Edition, Malvino, Mc Graw Hill Company.
4. Operational Amplifier & Linear IC's, Bell, Oxford University Press.
5. 2000 Solved Problems in Electronics, Jimmie J. Cathey, Mc Graw Hill Inc.
6. Electronic Devices -System & Application, Robert Diffenderfer, Cengage Learning.
7. Op- Amps & Linear Integrated Circuits, Ravi Raj Dudeja & Mohan Dudeja, Umesh Publication.

DIGITAL ELECTRONICS CIRCUITS EC (EE)-302

Credit: 3

Contact: 3L

Module	Content	Hour
1	Data and number system: Binary, Octal and Hexadecimal representation and their conversion, BCD, ASCII, EBCDIC, Gray codes and their conversion, Signed binary numbers representation with 1's and 2's complement methods, Binary arithmetic.	5
2	Boolean algebra: Various logic gates and their truth tables and circuits, Representation in SOP and POS forms, Minimization of logic expressions by algebraic method, K-map method.	5
3	Combinational circuits: Adder and subtractor circuit, Circuit of Encoder, Decoder, Comparator, Multiplexer, De-Multiplexer and parity Generator.	5
4	Memory systems: RAM, ROM, EPROM, EEPROM	4
5	Sequential circuits: Basic memory elements, S-R, J-K, D, and T Flipflop, various types of Registers, Counters & their design, Irregular counter, State table & State transition diagram, Sequential circuit design methodology.	6

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6	Different types of A/D and D/A conversion techniques.	4
7	Logic families: TTL, ECL, MOS & CMOS, their operation and specification.	5

Text Books:

1. Digital Principles & Application, 5th Edition, Leach & Malvino, Mc Graw Hill Company.
2. Modern Digital Electronics, 2nd Edition, R.P. Jain. Tata Mc Graw Hill Company Limited
3. Fundamental of Digital Circuits, A. Anand Kumar, PHI.

Reference Books:

1. Digital Logic Design, Morris Mano, PHI.
2. Digital Integrated Electronics, H. Taub & D. Shilling, Mc Graw Hill Company.
3. Digital Electronics, James W. Bignell & Robert Donovan, Thomson Delman Learning.
4. Fundamental of logic Design, Charles H. Roth, Thomson Delman Learning.

ELECTRIC CIRCUIT THEORY EE-301

Credit: 4

Contact: 3L+1T

Module	Content	Hour
1	Introduction: Continuous & Discrete, Fixed & Time varying, Linear and Nonlinear, Lumped and Distributed, Passive and Active networks and systems. Independent & Dependent sources, Step, Ramp, Impulse, Sinusoidal, Square, Saw tooth signals.	3
2	Coupled circuits: Magnetic coupling, Polarity of coils, Polarity of induced voltage, Concept of Self and Mutual inductance, Coefficient of coupling, Modeling of coupled circuits, Solution of problems.	3
3	Laplace transforms: Impulse, Step & Sinusoidal response of RL, RC, and RLC circuits. Transient analysis of different electrical circuits with and without initial conditions. Concept of Convolution theorem and its application. Solution of Problems with DC & AC sources.	8
4	Fourier method of waveform analysis: Fourier series and Fourier Transform (in continuous domain only). Application in circuit analysis, Solution of Problems	8
5	Network equations: Formulation of network equations, Source transformation, Loop variable analysis, Node variable analysis. Network theorem: Superposition, Thevenin's, Norton's & Maximum power transfer theorem. Millman's theorem and its application in three phase unbalanced circuit analysis. Solution of Problems with DC & AC sources.	6
6	Graph theory and Networks equations: Concept of Tree, Branch, Tree link, Incidence matrix, Tie-set matrix and loop currents, Cut set matrix and node pair potentials. Duality, Solution of Problems	4
7	Two port networks analysis: Open circuit Impedance & Short circuit Admittance parameter, Transmission parameters, Hybrid parameters and their inter relations. Driving point impedance & Admittance. Solution of Problems	4
8	Filter Circuits: Analysis and synthesis of Low pass, High pass, Band pass, Band reject, All pass filters (first and second order only) using operational amplifier. Solution of Problems	4

Text Books:

1. Networks and Systems, D. Roy Chowdhury, New Age International Publishers

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2. Network Analysis and Synthesis, C.L. Wadhwa, New Age International Publishers
3. Circuit and Networks: Analysis and synthesis, A. Sudhakar & S.S. Palli
4th edition. Tata Mc Graw Hill Education Pvt. Ltd.
4. Circuit theory, Dr. Abhijit Chakrabarty, Dhanpat Rai & Co Pvt. Ltd.

Reference Books:

1. Network Analysis, M.E. Valkenburg, Pearson Education .
2. Fundamental of Electric circuit theory, D. Chattopadhyay & P.C. Rakshit, S. Chand.
3. Engineering Circuit Analysis, W.H. Hyat, J.E. Kemmerly & S.M. Durbin, The Mc Graw Hill Company.
4. Electric Circuit, M. Nahvi & J.A. Edminister, Schum's outline series, The Mc Graw Hill Company.
5. Electric Circuit Analysis, S. Sivanagaraju, G. Kishor, C.Srinivasa Rao, Cengage Learning
6. Fundamental of Electric Circuits, Charles K. Alexander, Mathew. N.O. Sadiu, Tata Mc Graw Hill Educaton.
7. Engineering Circuit Analysis, W.H. Hayt, J.E. Kemmerly, S.M. Durbin, The Mc Graw Hill Companies
8. Introduction to Electric Circuits, Richard C. Dorf, James A. Svoboda, Wiley India Edition.
9. Electric Circuits, Syed A. Nasar, Schaum's solved problem series, Tata Mc Graw Hill Publishing Company Limited.

FIELD THEORY EE-302

Credit: 4

Contact: 3L+1T

Module	Content	Hour
1	Introduction: Co-ordinate systems and transformation, Cartesian coordinates, Circular cylindrical coordinates, Spherical coordinates & their transformation. Differential length, area and volume in different coordinate systems. Solution of problems	3
2	Introduction to Vector calculus: DEL operator, Gradient of a scalar, Divergence of a vector & Divergence theorem, Curl of a vector & Strokes theorem, Laplacian of a scalar, Classification of vector fields, Helmholtz's theorem. Solution of problems	3
3	Electrostatic field: Coulomb's law, field intensity, Gauss's law, Electric potential and Potential gradient, Relation between E and V, an Electric dipole and flux lines. Energy density in electrostatic field. Boundary conditions: Dielectric-dielectric, Conductor –dielectric, Conductor-free space. Poisson's and Laplace's equation, General procedure for solving Poisson's and Laplace's equation. Solution of problems	8
4	Magneto static fields: Biot- savart law, Ampere's circuit law, Magnetic flux density, Magnetic static and Vector potential, Forces due to magnetic field, Magnetic torque and moments, Magnetisation in material, Magnetic boundary condition, Inductor and Inductances, Magnetic energy, Force on magnetic material. Solution of problems	8
5	Electromagnetic fields: Faraday's law, Transformer and motional emf, Displacement current, Maxwell's equations, Time varying Potential, Time harmonic fields. Solution of problems	5

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6	Electromagnetic wave propagation: Wave equation, Wave propagation in lossy dielectric, Plane waves in loss less dielectric, Plane wave in free space, Plane wave in good conductor, Skin effect, Skin depth, Power & Poynting vector, Reflection of a plane wave at normal incidence, reflection of a plane wave at oblique incidence, Polarisation. Solution of problems	6
7	Transmission line: Concept of lump & distributed parameters, Line parameters, Transmission line equation & solutions, Physical significance of solutions, Propagation constants, Characteristic impedance, Wavelength, Velocity of propagation. Solution of problems	4

Text Books:

1. Elements of Electromagnetic, Mathew N.O. Sadiku, 4th edition, Oxford university press.
2. Engineering Electromagnetic, W.H. Hyat & J.A. Buck, 7th Edition, TMH
3. Theory and problems of Electromagnetic, Edminister, 2nd Edition, TMH
4. Electromagnetic field theory fundamentals, Guru & Hizroglu, 2nd edition, Cambridge University Press.

Reference Books:

1. Electromagnetic with application, Krause, 5th Edition, TMH.
2. Elements of Engineering Electromagnetic, N.N. Rao, 6th Edition, Pearson Education.

Practical Analog & Digital Electronic Circuit EC (EE)-391

Credit: 2

Contact: 3

1. Study of Ripple and Regulation characteristics of full wave rectifier with and without capacitor filter.
2. Study of Zener diode as voltage regulator.
3. Construction of two stage R-C coupled amplifier & study of its gain and Bandwidth.
4. Study of class A, C & Push pull amplifier.
5. Realisation V-I & I-V converter using Operational Amplifier.
6. Study of timer circuit using NE 555 and configuration of Monostable and Astable Multivibrator.
7. Study of DAC & ADC
8. Realisation of basic gates using Universal logic gates.
9. Realisation of RS-JK & D flipflop using logic gates.
10. Design of Combinational circuit for BCD to decimal conversion to drive 7-segment display using Multiplexer.
11. Realisation of Synchronous Up/Down counter.
12. Construction of simple Decoder & Multiplexer circuits using logic gates.
13. Construction of adder circuit using Shift register & Full adder.

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NUMERICAL METHODS

Code : M(CS) 391

Credits :1

1. Assignments on Newton forward /backward, Lagrange's interpolation.
2. Assignments on numerical integration using Trapezoidal rule, Simpson's 1/3 rule, Weddle's rule.
3. Assignments on numerical solution of a system of linear equations using Gauss elimination and Gauss-Seidel iterations.
4. Assignments on numerical solution of Algebraic Equation by Regular-falsi and Newton Raphson methods.
5. Assignments on ordinary differential equation: Euler's and Runge-Kutta methods.
6. Introduction to Software Packages: Matlab / Scilab / Labview / Mathematica.

ELECTRIC CIRCUIT THEORY LABORATORY

EE-391

Credit: 2

Contact: 3

1. Transient response of R-L and R-C network: simulation with PSPICE /Hardware
2. Transient response of R-L-C series and parallel circuit: Simulation with PSPICE/ Hardware
3. Determination of Impedance (Z) and Admittance (Y) parameter of two port network: Simulation / Hardware.
4. Frequency response of LP and HP filters: Simulation / Hardware.
5. Frequency response of BP and BR filters: Simulation /Hardware.
6. Generation of Periodic, Exponential, Sinusoidal, Damped Sinusoidal, Step, Impulse, Ramp signal using MATLAB in both discrete and analog form.
7. Determination of Laplace transform and Inverse Laplace transform using MATLAB.
8. Amplitude and Phase spectrum analysis of different signals using MATLAB.
9. Verification of Network theorem using SPICE

PAPER NAME : TECHNICAL REPORT WRITING & LANGUAGE LABORATORY PRACTICE

PAPER CODE: HU 381

CONTACT: 1L+2P

CREDIT : 2

Guidelines for Course Execution:

Objectives of this Course: This course has been designed:

1. **To inculcate a sense of confidence in the students.**
2. **To help them become good communicators both socially and professionally.**
3. **To assist them to enhance their power of Technical Communication.**

Detailed Course Outlines:

A. **Technical Report Writing :**

2L+6P

1. Report Types (Organizational / Commercial / Business / Project)
2. Report Format & Organization of Writing Materials
3. Report Writing (Practice Sessions & Workshops)

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B. Language Laboratory Practice

I. Introductory Lecture to help the students get a clear idea of Technical Communication & the need of Language Laboratory

Practice Sessions **2L**

2. Conversation Practice Sessions: (To be done as real life interactions)

2L+4P

a) Training the students by using Language Lab Device/Recommended Texts/cassettes /cd's to get their Listening Skill & Speaking Skill honed

b) Introducing Role Play & honing over all Communicative Competence

3. Group Discussion Sessions: **2L+6P**

a) Teaching Strategies of Group Discussion

b) Introducing Different Models & Topics of Group Discussion

c) Exploring Live /Recorded GD Sessions for mending students' attitude/approach & for taking remedial measure

Interview Sessions; **2L+6P**

a) Training students to face Job Interviews confidently and successfully

b) Arranging Mock Interviews and Practice Sessions for integrating Listening Skill with Speaking Skill in a formal situation for effective communication

4. Presentation: **2L+6P**

a) Teaching Presentation as a skill

b) Strategies and Standard Practices of Individual /Group Presentation

c) Media & Means of Presentation: OHP/POWER POINT/ Other Audio-Visual Aids

5. Competitive Examination: **2L+2P**

a) Making the students aware of Provincial /National/International Competitive Examinations

b) Strategies/Tactics for success in Competitive Examinations

c) SWOT Analysis and its Application in fixing Target

Books – Recommended:

Nira Konar: English Language Laboratory: A Comprehensive Manual

PHI Learning, 2011

D. Sudharani: Advanced Manual for Communication Laboratories & Technical Report Writing

Pearson Education (W.B. edition), 2011

References:

Adrian Duff et. al. (ed.): Cambridge Skills for Fluency

A) Speaking (Levels 1-4 Audio Cassettes/Handbooks)

B) Listening (Levels 1-4 Audio Cassettes/Handbooks)

Cambridge University Press 1998

Mark Hancock: English Pronunciation in Use

4 Audio Cassettes/CD'S OUP 2004