Vth & VIth Semester B.E.
Electrical Engineering
(Electronics & Power)

Prospectus No. 121714

SANT GADGE BABA AMRAVATI UNIVERSITY

(FACULTY OF ENGINEERING & TECHNOLOGY)

PROSPECTUS

PRESCRIBED FOR

FOUR YEAR DEGREE COURSE

BACHELOR OF ENGINEERING

ELECTRICAL ENGINEERING (ELECTRONICS & POWER)

FIFTH & SIXTH SEMESTER

EXAMINATIONS, 2011-2012

SEMESTER PATTERN

2011

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SYLLABUS
PRESCRIBED FOR
B.E. ELECTRICAL ENGINEERING
(ELECTRONICS & POWER)
SEMESTER PATTERN
SEMESTER : FIFTH

5 SE 1   **MATHEMATICS-IV**
SECTION-A

Unit I :   a) Complex variables : analytic functions, Cauchy-Riemann conditions. Harmonic function, Harmonic conjugate functions, Milne's method.

b) Confirmed mapping : mapping by elementary functions of the type $W=z+c$, $W=cz$, $W=1/z$, $W=z^2$, $W=e^z$, $W=z+1/z$ and bilinear transformation.   (10 Hrs.)

Unit II :   Complex Integral : singular points, Taylor's series, Laurent's series, Cauchy's integral theorem and Cauchy's integral formula.
Residue : Cauchy's residue theorem. Contour integrals. Integration forms : $f(x)\,dx$, $f(\sin x, \cos x)\,dx$ (10 Hrs.)

Unit III: Patial differential equations : first order and first degree p.d. equation type.
(i) $f(p, q) = 0$, (ii) $f(p, q, z) = 0$, (iii) $f(p, q, x, y) = 0$ (iv) $f(p, q, x, y, z) = 0$ etc.
Lagrange's form $Pp + Qq = R$. Clarinet's form $Z = px + qv + f(p, q)$.
Equation reducible to standard form. Homogeneous P.D.E. of nth order.   (10 Hrs.)

SECTION-B

Unit IV: Special functions : solution of Legendre's and Bessel's equations by Frobensious method, Bessel's function Ist kind generating function, recurrence relating values of $J_{1/2(x)}$, $J_{-1/2(x)}$, $J_{3/2(x)}$ etc.
Legendre's function of Ist kind : generating function, Rodrigues function, recurrence relation, Legendre's polynomials and orthogonal properties.   (10 Hrs.)

Unit V :   Statistics & Probability : Axioms, conditional probability, Bay'e theorem, mathematical expectations, probability distributions : Binomial, Possion and Normal.   (10 Hrs.)

Unit VI: a) Curve fittings by method of Least Squares. Correlation and regression.

b) Matrix differential equation : solution and integrated solution, Sylvester's theorem, solution of differential equations by matrix method and Peano Baker method.   (10 Hrs.)

BOOKS RECOMMENDED :
1) Pipes : Mathematics for Engineers and Physicist.
2) P.N. Wartikar and J.N.Wartikar : A Text Book of Applied Mathematics.
3) B.S.Grewal : Advance Engineering Mathematics.
4) S.G.Gupta : Statistical Methods.
5) Speigal : Statistics (Schaum's series)
6) Speigal : Complexva (Schaum's series)

5 SE 2   **ELECTRIC & MAGNETIC FIELDS**

SECTION-A

Unit I :   Review of Vector Analysis : cartesian, cylindrical and spherical co-ordinate systems, vector algebra and vector calculas. Line integral and multiple integrals. Gauss theorem.   (10)

Unit II :   Electrostatics : Coulomb's law, electric field, Gauss flux theorem in integral and differential form. Electrostatics potential, Poison and Laplace equations.   (10)

Unit III: Electrostatics fields in dielectrics : electric dipole, polarization. P and D vectors, boundary conditions. Capacitance and electrical energy.   (10)

SECTION-B

Unit IV: Magnetic fields : Biot-Stewart law, Ampere's law in integral and differential form. Contunuity equation, time of relaxation. Vector and Scaler magnetic potential, electric current, J vector.   (10)

Unit V :   Magnetic fields in materials : magnetic dipole equivalent volume and plane section curve. H vector, magnetization vector M, boundary conditions between magnetic materials, inductance, Electromagnetic Energy.   (10)

Unit VI: Maxwell equations and wave equations : Displacement current, time varying fields and Maxwell's equations, plane uniform magnetic waves. Depth of penetration poynting vector.   (10)

TEXT BOOK :
W.H.Hayt : Engineering Electromagnetic, TMH Publication Co. Ltd., New Delhi.

REFERENCE BOOKS :
1) Plansycollin : Principles and Applications of Electro Magnetic Fields, McGraw Hill.
2) John Reitz, Mifford : Foundation of Electro Magnetic Theory, Addision Wesley Pub. Co.
3) Herbert Neelf : Basic Electro Magnetic Field, Harber International Education.
4) Derucy and Johnson : Instruction to Modern Electromagnetic, McGraw Hill (International Students Edn.)

5 SE 3   **CONTROL SYSTEM-I**

SECTION-A

Unit I :   Introduction to automatic control : open loop and closed loop system, servo-mechanisms, mathematical modeling of physical systems, transfer functionis, block diagrams and signal flow graphs.
Effect of feed back on sensitivity to parameter variation and reduction of the noise.

Unit II :   Control System Components : Electrical / Electro-mechanical components such as A.C./D.C. servomotors, stepper motors, synchors, potentiometers, tachogenerators, their functional analysis and operating characteristics and their application. Pneumatic controls devices.

Unit III: Time response analysis : time response of first and second order systems to standard inputs. Time response specifications, types of system, error analysis, error coefficients, steady state errors, dynamic error series.
Approximate methods for higher order system, proportional, derivative and integral control.

SECTION-B

Unit IV: Stability : stability of control systems, characteristics equation, impulse response, Routh-Hurwitz stability criterion, relative stability.
Root Locus : construction of root locus, determination of roots from root locus conditions on variable parameter for stability, effect of addition of poles and zeros.

Unit V :   Frequency response methods : frequency response of linear system, specification, Logarithmic frequency response (Bode) plots from transfer function for various systems. Polar plots for various systems. Estimation of approximate transfer function from the frequency response.

Unit VI :   Stability analysis from frequency response : Gain margin and phase margin; Stability analysis from Bode plots. Nyquist criterion, Nyquist plots and stability analysis. Effect of variation of gain, addition of plots and zeros. Relative stability. Stability from gain/phase angle plots.

TEXT BOOKS :
1. Nagrath I.J., Gopal M. : Control System Engineering, Wiley Eastern.'
2. Ogata K. : Modern Control Systems, Prentice Hall of India.
3. Kuo B.C. : Automatic Control Systems, Prentice Hall of India.

PRACTICALS :   minimum 10 no. of experiments are to be performed, based on above syllabus.

5 SE 4   **INTRODUCTION TO MICROPROCESSORS**

SECTION-A

Unit I :   8085 : architecture, register structure, addressing modes, instruction set of 8085, timing diagrams.

Unit II :   Assembly Language Programming of 8085, counters and time delays, stack and subroutines.

Unit III :   Memory mapped I/O and I/O mapped I/O, address decoding techniques. Interrupt system of 8085 (software and hardware interrupts). Data transfer schemes, serial data transfer through SOD and SID line.

SECTION-B

Unit IV :   Interfacing devices (I) : internal architecture and programming of PPI (8255), PIC (8259), USART (8251).

Unit V :   Interfacing devices (II) : architecture and programming of programmable interval timer (8253), floppy disc controller (8272), programmable CRT controller (8275), DMA controller (8237). Introduction to architecture 8086.

Unit VI :   Microprocessors applications : hardware & software developments : signal conditioning & data acquisation system components. Measurement of pulse width using parallel port, SID lines, interrupts and timer and counter. Magnitude measurement techniques : rectification, sampling etc.

Measurement of fundamental quantities (voltage, current, frequency, speed) and derived quantities (resistance, inductance, capacitance, phase angle, power factor).

PRACTICALS : Minimum 8 practicals based on above syllabus, preferably uniformly distributed.

BOOKS RECOMMENDED :
1) Gaonkar R.S. : Microprocessor Architecture Programming and Applications with the 8085, Penram International Pub. (IIIrd edition), 1997.
2) Hall D.V. : Microprocessor and Interfacing Programming and Hardware, McGraw Hill Co., New York, 1986.
3) B.Ram and B.N. Vishwkarma : Power System Protection and Switchgear, Tata McGraw Hill Pub. Co. Ltd., New Delhi.
4) B.Ram : Fundamentals of Microprocessors and Microcontrollers, Dhanpat Rai & Sons.
5) Gilmore : Microprocessors Principles and Applications, Tata McGraw Hill Pub. Co. (IInd edition)

5 SE 5   COMPUTER AIDED MACHINE DESIGN

SECTION-A

Unit I :   Introduction : transformers and three phase induction motors - types, specifications, constructional features, magnetic and insulating materials used; design approaches - analysis, synthesis and hybrid methods; design - variables, constraints and objectives; magnetization, loss and carter's coefficient curves - applications, representation using Piecewise Lineariasation and Least Square Error methods.

Unit II :   Transformer Design - Magnetic Circuit Specific electric and magnetic loadings selection, output equation, core and yoke cross sections, main   dimensions design, core loss from design data.

Unit III: Transformer Design :
A) Electric circuit : Winding types and design, magnetizing current calculation, primary and secondary winding resistances and leakage reactances from design data; mechanical forces - types, causes and calculations.
B) Thermal circuit cooling methods, Tank wall dimensions design. Design of tank with radiators.

SECTION-B

Unit IV: Induction motor stator design : specific electric and magnetic loadings selection, output equation, main dimensions design, winding - types and design, slot numbers and dimensions design.

Unit V :   Induction motor rotor design : Air gap length design, cage rotor winding design - slot numbers and shapes, bar and ring dimensions; slip ring rotor winding design - slot numbers and shapes, conductors per slot and its cross sections.

Unit VI :   Induction motor parameters : core loss from design data, magneto motive force calculation - air gap, stator and rotor cores and teethl; no load current - magnetizing and core loss components, stator and rotor winding resistances and leakage reactances from design data, parameters effect on performance.

BOOKS RECOMMENDED :
1. M.G.Say - The Performance and Design of Alternating Current Machines, C.B.S. Pub. and Distri., Delhi.
2. S.K.Sen - Principles of Electrical Machine Design with Computer Programs, Oxford and I.B.H. Company Pvt. Ltd., New Delhi.
3. S.S.Sastry - Introductory Methods of Numerical Analysis, Prentice Hall of India Pvt. Ltd., New Delhi.
4. R.K.Agrawal : Principles of Electrical Machine Design, S.K.Kataria and Sons, Delhi.

PRACTICALS : Minimum 8 practicals based on above syllabus,preferably with uniform distribution.

SEMESTER : SIXTH

6 SE 1   **ELECTRICAL POWER-I**

SECTION-A

Unit I :   Transmission line parameters : calculation of resistance, inductance and capacitance of single phase and three phase transmission lines, skin effect and proximity effect, transposition, G.M.D. & G.M.R. methods, double circuit lines, bundled conductors, effect of earth on inductance and capacitance, interference with communication lines. (10)

Unit II :   Electrical characteristics of transmission line : V-I characteristics of short, medium and long lines, A, B, C, D constants, nominal TI and equivalent T representations, Ferranti effect, corona phenomenon, effect of corona and power loss due to corona.
Representation of power systems : per unit system and one-line reactance diagrams. (10)

Unit III :   Voltage control and power factor improvement : receiving and sending end power circle diagrams, methods of voltage control and power factor improvement, use of static VAR generators and synchronous phase modifiers, analytical and graphical methods, automatic voltage control. (10)

SECTION-B

Unit IV :   Load flow studies : load flow problem, classification of buses, network modeling, Y-bus and Z-bus matrices, load flow equation, Gs and NR methods, comparison of methods used. (10)

Unit V :   Mechanical design : materials used, types of insulators, comparison of pin type and suspension type insulators, voltage distribution and string efficiency, methods of increasing string efficiency, grading rings and arcing horns. Introduction to insulator testing, line supports for LV, HV and EHV, Sag calculation, stringing charts.

Unit VI :   Underground cables : material used for conductor & insulation : different types of cables and their manufacture, parameters of underground cable, grading of cable losses, break down and rating, testing of cables.

BOOKS RECOMMENDED :
1) I.J.Nagrath and D.P.Kothari : Modern Power System Analysis, TMH.
2) C.L.Wadhwa : Electrical Power System, WEL.
3) Ashfaq Hussain : Electrical Power Systems, Vikas Pub. House, New Delhi.
4) Dr.S.L.Uppal : Electrical Power, Khanna Pub.
5) Hadi Saadat : Power System Analysis, McGraw Hill.
6) Stevenson W.D. : Elements of Power System Analysis, 2nd edition, McGraw Hill.

6 SE 2   **OPERATIONS RESEARCH AND MANAGEMENT**

SECTION-A

Unit I :   Introduction, engineering applications of optimization, statement of an optimization problem, optimization techniques, classical optimization problem, optimization techniques. Classical optimization techniques - single and multi variable optimization with and without constraints.

Unit II :   Linear programming I - standard form, definitions and theorems, graphical method, solution of system of linear simultaneous equations, simplex method, two phase simplex method, revised simplex method.

Unit III: Linear programming II - duality, theorems on duality, dual simplex method, decomposition principle, sensitivity analysis, balanced and unbalanced transportation problems.

SECTION-B

Unit IV: Non linear programming - unimodal function, unrestricted search, Fibonancci search method and Folden section method, unconstrained optimization, direct search methods - pattern search methods, simplex method, descent method - steepest descent method, conjugate gradient and variable metric method.

Unit V :   CPM and PERT introduction - Network representation of project, critical path, optimum scheduling by CPM, crashing of project.

Unit VI: Dynamic programming : multistage decision processes, principle of optimality, sub optimization, calculus and tabular method of solution, conversion of final value problem into initial value problem, solution of linear programming. Continuous dynamic programming.

BOOKS :
1)   S.S.Rao : Optimization - Theory & Application, Wiley Eastern Ltd.
2)   L.S.Srinath : PERT and CPM Principles & Application, Affiliated East West Pvt. Ltd., New Delhi.

REFERENCE BOOKS :
1)   Fredrick S.Hiller Gerald J.L. Lieberman : Introduction Operations Research, Tata McGraw Hill Pub. Co., New Delhi.
2)   H.A.Taha : Operations Research, PHI, New Delhi.
3)   P.K.Gupta & D.S.Hira : Operations Research, S.Chand & Co. Ltd, New Delhi.
4)   J.C.Pant : Introduction to Optimization, Jain Brothers, New Delhi.

6 SE 3   **POWER ELECTRONICS**

SECTION-A

Unit I :   SCR, triac, diac-construction, characteristics & applications, two transistor analogy for turning ON-OFF SCR, turn ON mechanism, different methods of turning ON-OFF SCR, turn OFF mechanism, thyristor firing circuits, introduction to GTO, power transistor, power MOSFET & IGBT & their construction & characteristics.

Unit II :   Series -parallel operation of SCRs, firing ckts. for series and parallel operation, static & dynamic equalising ckts., equalisation of current in parallel connected SCRs, string efficiency, derating factor, protection of SCRs against di/dt, dv/dt, radio freq. interference, over voltage, over current.

Unit III: Principle of phase control, half wave controlled rectifier, half controlled bridge & fully controlled bridge rectifier for resistive and RL load, derivation for output voltage and current, effect of free wheeling diode, single phase dual converters.
                Three phase half controlled bridge and fully controlled bridge rectifier. (only descriptive approach)

SECTION-B

Unit IV: Classification of ckt. for forced commutation, series inverter, improved series inverter, parallel inverter, out put voltage and waveform control, principle of operation for three phase bridge inverter in 120 deg. and 180 deg. mode, single phase transistorised bridge inverter.

Unit V: Basic principles of chopper, time ratio control and current limit control techniques, voltage commutated chopper ckt., Jones chopper, step-up chopper, step-down chopper and AC chopper.
                Basic principle of cycloconverters, single phase to single phase cycloconverter, voltage regulators.

Unit VI: Speed control of DC series motors using chopper, speed control of DC shunt motor using phase controlled rectifiers, speed control of three phase induction motor by stator voltage control, v/f control and slip power recovery scheme. Static ckt. braker, UPS, fan speed regulator, principle of soft start ckts. Zero Voltage Switch.

PRACTICALS : Minimum 8 practicals based on above syllabus, preferably uniformly distributed.

TEXT BOOKS :

1)   M.H.Rashid : Power Electronics Circuits Devices and Application, Prentice Hall of India (PHI) Pvt. Ltd., New Delhi.
2)   M.D.Singh & K.B.Khanchandani : Power Electronics, Tata McGraw Hill, New Delhi.
3)   M.Ramamoorthy : An Introduction to Thyristers and their Application, Affiliated East West Pvt. Ltd., New Delhi.

Reference books :
1)   Dr.P.S.Bimbhra : Power Electronics, Khanna Publisher, New Delhi.
2)   P.C.Sen : Power Electronics, TMH Publication Co. Ltd., New Delhi.
3)   H.C.Rai : Industrial and Power Electronics, Umesh Publication, New Delhi.
4)   G.K.Dubey, S.R.Doradia, A.Joshi, R.M.Sinha : Thyristerised Power Controllers, New Age International, New Delhi.

6 SE 4   **NUMERICAL METHODS & COMPUTER PROGRAMMING**

SECTION-A

Unit I :   Solution of Algebraic & Transcendental equations : Floating point number representation, errors, accuracy, stability of algorithms. Bracketing methods : bisection method and False Position method.
                Open methods : Newton-Raphson method, Secant method and Successive Approximation method.

Comparison of different iterative methods. Implementation of these methods in C.

Unit II : Solution of Simultaneous Algebraic equations : Iterative methods : Jacobi's method and Gauss-Seidel method. Direct methods : Gaussian elimination method & Matrix Inverse method. Finding Eigen values of a matirx, determination of largest Eigen value. Implementation of these methods in C.

Unit III : Interpolation : Evenly spaced points : formation of forward & backward difference table, Newton's forward & backward difference interpolation formulae. Unevenly spaced points : divided difference table and Newton's divided difference interpolation formula, Lagrange's method. Interpolation with Cubic splines. Implementation of these methods in C.

SECTION-B

Unit IV : Numerical Differentation and Integration : Numerical differentation : Taylor's series method, Richardson extrapolation method, numerical differentation using interpolation polynomial (first & second derivative near the begining & end of the table). Numerical Integration : Trapezoidal Rule, Simpson's Rules, Romberg method, Gaussian quadrature method. Implementation of these methods in C.

Unit V : Solution of ordinary differential equations : Initial value problem : Taylor's series method, Runge-Kutta methods - second & fourth order, Euler's method, Euler's modified method. Solution of simultaneous & higher order differential equations using Runge-Kutta fourth order method. Stiff differential equations and their solutions. Boundary value problem : Finite difference method and Cubic spline method. Implementation of these methods in C.

Unit VI : Principles of Object Oriented Programming : OOP paradigm, basic concepts of OOP, benefits of OOP, basic data types, users defined data types, derived data types, operators and control statements.

LABORATORY : Minimum eight programming assignments in C, covering each Unit. Students shall write, compile & test the C progrms and submit the report.

TEXT BOOKS :

1) Sastry S.S. : Introductory Methods of Numerical Analysis, Prentice Hall of India Pvt. Ltd.
2) Chapra S.S. & Canale R.P. : Numerical Methods for Engineers, 4th edition, McGraw Hill.
3) Balguruswami E. : Object Oriented Programming with C++, Tata McGraw Hill, New Delhi.

REFERENCE BOOKS :
1) Nakamura S. : Applied Numerical Methods in C, Prentice Hall.
2) Rajaraman V. : Computer Oriented Numerical Methods, Prentice Hall of India Pvt. Ltd.
3) Faires & Burden : Numerical Methods, 7th edition, Thomson Learning.

6 SE 5   ELECTRICAL ENERGY UTILIZATION

SECTION-A

Unit I : Concept of electrical drive, classification, advantages of electrical drive, selection criterion for electrical motor, size, specification and type of motor, mechanical features of motor, transmission of drive, industrial application, general workshop, Textile mill, Paper mill, Cement mill, Coal mining, Sugar mill, Printing industry.

Unit II: Types of duties, continues, intermittent and short time, heating and colling of motor, rating calculations for these duties, use of fly wheel and fly wheel calculations. Introduction for conducting and reporting the test on induction motors as per Indian standard.

Unit III: Characteristics of DC motors, three-phase induction motors, single-phase induction motors. Quadrantal diagram of speed-torque characteristics of motors, starting methods, different methods of speed control, braking of motors, plugging, rheostatic and regenerative braking.

SECTION -B

Unit IV: Requirement of ideal traction system, system of track electrification and their comparison, speed time curves, energy consumption calculation, calculation of tractive efforts.

Unit V : Traction motors, general features and types, characteristics, control of locomotive motor coaches, series-parallel control. Overhead equipments, collector gear for overhead equipments.

Unit VI: a) Nature of light-units, luminous efficiency, Glare production of light, Polar curves, control of light by reflection, refraction and diffusion. Lighting calculations, factory lighting, flood lighting, street lighting.

b) Methods of heating and welding furnaces

LARORATORY : Minimum eight experiments based on above syllabus.

TEXT BOOKS :

1) E.O.Taylor : Utilization of Electric Energy in SI Units, published by Orient Longman Ltd.
2) S.K.Pillai : A First Course in Electrical Drives, published by New Age International.

REFERENCE BOOKS :

1) Vedam Subrahmanyam : Electric Drives, published by Tata McGraw Hill Publishing Co. Ltd., New Delhi.
2) C.L.Wadhwa : Generation Distribution and Utilization of Electrical Energy, published by New Age International Pvt. Ltd.
3) Specification of Three Phase Induction Motors as per Indian Standard, published by Indian Standard Institute, New Delhi.
4) H.Pratap : Utilization of Electrical Energy.

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6 SULIMETX 6   COMMUNICATION SKILLS

Unit I : **Comprehension over an unseen passage :-**

Comprehension - A - word study :-

Synonym, antonym, meanings, matching words, adjectives, adverbs, prefix and suffix, correct forms of commonly misspelled words, understanding of the given passage.

Comprehension - B - Structure study :-

Simple and compound sentences, types of conjunctions, singular and plural, tenses and their effect on verb forms. Use of - not only - but also, if clause, since, may, can, could, would, too etc.

Active and passive forms, negative and interrogative, punctuation and capitalization.   (10 Hours)

Unit II : **Principles of Communication :-**

Theoretical background - importance of communication, its process, model of communication its components & barriers. Verbal communication, its significance, types of written communication and its style, organization of a text (Titles, summaries, headings, sequencing, signaling, cueing etc.), Important text factors (length of paragraph, sentences, words, clarification and text difficulty). Evaluation of written communication for its effectivity and subject content. Verbal and non-verbal objectives in interpersonal skills.

(10 Hours)

Unit III : **Aspects in professional communication :-**

Specific formats for written communication like - business correspondence, formal reports, technical proposals, research papers and articles, advertising and graphics. Format for day-to-day written communication like applications, notices, minutes, quotations, orders, enquiries etc.

Types of graphics and pictorial devices

Oral communications - face to face communications, group discussion and personal interviews.

Methodology of conduction of meetings, seminars, symposia, conference and workshop.   (10 Hours)

BOOKS RECOMMENDED :

1) Krishna Mohan, Meera Banerjee : Developing Communication Skills, MacMillan India Limited.
2) Chrissie Wright (Editor) : Handbook of Practical Communication Skills, Jaico Publishing House.
3) Curriculum Development Centre, TTTI WR, Bhopal : A Course in

Technical English, Somaiya Publication Pvt. Ltd.

4)   F.Frank Candlin : General English for Technical Students, University of London Press Ltd.

COMMUNICATION SKILLS LABORATORY

Objective :

On completion of this laboratory the candidate should be able to demonstrate adequate skills in oral and written communication for technical English language, actively participate in group discussions and interviews and exhibit the evidence of vocabulary building. Candidates should be assessed through continuous monitoring and evaluation.

The sample list of experiments is given below. This list can be used as guideline for problem statements but the scope of the laboratory should not be limited to the same. Aim of the list is to inform about minimum expected outcomes.

1.   Assignments and tests for vocabulary building
2.   Technical report writing
3.   Group discussions
4.   Interview techniques
5.   Projects and tasks such as class news letter
6.   Writing daily diaries and letters
7.   Interactive language laboratory experiments.

TEXT BOOK :   Norman Lewis : Word Power Made Easy
                      http://www.teachingenglish.org.uk

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* REGULATION NO. 17 OF 2002

Examinations leading to the Degree of Bachelor of Engineering [Electrical Engineering (Electronics & Power)] (Four Year Degree Course.... Semester Pattern) Regulation, 2002.

Whereas it is expedient to frame the Regulation in respect of Examinations leading to the Degree of Bachelor of Engineering [Electrical Engineering (Electronics & Power)] (Four Year Degree Course.......Semester Pattern) for the purposes hereinafter appearing the Management Council is hereby pleased to make a following Regulation.

1.   This regulation may be called "Examinations leading to the Degree of Bachelor of Engineering [Electrical Engineering (Electronics & Power)] (Four Year Degree Course.... Semester Pattern) Regulation, 2002.

2.   This Regulation shall come into force w.e.f. the Academic session-

   i)   2000-01 for Ist & IInd Semester B.E.,

   ii)   2005-06 for IIIrd & IVth Semester B.E.,

   iii)   2006-07 for Vth & VIth Semester B.E., and

   iv)   2007-08 for VIIth & VIIIth Semester B.E.

3.   The Schemes of Teachings and Examinations for Ist & IInd, IIIrd & IVth, Vth & VIth, and VIIth & VIIIth Semester in respect of Bachelor of Engineering [Electrical Engineering (Electronics & Power)] (Four Year Degree Course.... Semester Pattern) shall be as per Appendices A, B, C, and D appended with this Regulation respectively.

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* Latest amended vide regulation Nos.28 of 2005 & 42 of 2007.

APPENDIX-C

FOUR YEAR B.E. DEGREE COURSE

SEMESTER PATTERN

SEMESTER : FIFTH

BRANCH : ELECTRICAL ENGINEERING (ELECTRONICS & POWER)

L : Theory Lecture
T : Tutorial
P : Practical
D : Drawing / Design

BRANCH ABBRIVATIONS :-
S   - SEMESTER PATTERN
E   - Electrical Engg. (Electronics & Power)

Sr. No.	Sub. Code	SUBJECT	Teaching Scheme			Examination Scheme									
						Theory						Practical			
			L	T	P/D	Total Hours/ Week	Duration of Papers (Hrs)	Max. Marks Theory Papers	Maximum Marks College Assessment	Total	Min. Pass Marks	Max. Marks College Assessment	Max. Marks	Total	Mininum Pass Marks
1.	5SE1	Mathematics-IV	4	1	-	5	3	80	20	100	40	—	—	—	—
2.	5SE2	Electric & Magnetic Fields	4	1	-	5	3	80	20	100	40	—	—	—	—
3.	5SE3	Control System-I	4	1	2	7	3	80	20	100	40	25	25	50	25
4.	5SE4	Introduction to Microprocessors	4	1	2	7	3	80	20	100	40	25	25	50	25
5.	5SE5	Computer Aided Machine Design	4	1	2	7	3	80	20	100	40	25	25	50	25
		TOTAL	20	5	6	31				500				150	

GRAND TOTAL : 650

SEMESTER : SIXTH

Sr. No.	Sub. Code	SUBJECT	L	T	P/D	Total Hours/ Week	Duration of Papers (Hrs)	Max. Marks Theory Papers	Maximum Marks College Assessment	Total	Min. Pass Marks	Max. Marks College Assessment	Max. Marks	Total	Mininum Pass Marks
1.	6SE1	Electrical Power-I	4	1	-	5	3	80	20	100	40	—	—	—	—
2.	6SE2	Operations Research & Management	4	1	-	5	3	80	20	100	40	—	—	—	—
3.	6SE3	Power Electronics	4	1	2	7	3	80	20	100	40	25	25	50	25
4.	6SE4	Numerical Methods and Computer Programming	4	1	2	7	3	80	20	100	40	25	25	50	25
5.	6SE5	Electrical Energy Utilization	4	1	2	7	3	80	20	100	40	25	25	50	25
6.	6SULIMETX6	Communication Skills	2	1	-	3	2	40	10	50	20	10	15	25	12
		TOTAL	22	6	6	34				550				175	

GRAND TOTAL : 725