



Four Years B.Tech. Programme

Scheme of Teaching and Examination of B.Tech. First Semester

(Common to all Branches of Engineering)

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the Academic Year 2022-2023)

S.No.	Course Code	Course Title	Hours / Week			Credits	Maximum Marks			Sem End Exam Duration (Hrs)
			L	T	P		Continuous Evaluation	Sem End Exam	Total	
1	BT101T	Mathematics-I	3	1	-	4	30	70	100	3
2	BT102T	Engineering Drawing and Graphics	1	1	-	2	30	70	100	3
3	BT102P	Engineering Drawing and Graphics	-	-	4	2	15	35	50	-
4	BT103T	Professional Communication Skills	3	-	-	3	30	70	100	3
5	BT103P	Professional Communication Skills	-	-	2	1	15	35	50	-
6	BT104T	Engineering Physics	3	1	-	4	30	70	100	3
7	BT104P	Engineering Physics	-	-	2	1	15	35	50	-
8	BT105T	Environmental Science and Engineering	3	1	-	4	30	70	100	3
9	BT106T	Basics of Electrical Engineering	3	1	-	4	30	70	100	3
10	BT106P	Basics of Electrical Engineering	-	-	2	1	15	35	50	-
11	BT107P	Yoga/ Health (Audit)	-	-	2	-	-	-	-	-
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FACULTY OF ENGINEERING

B.TECH.FIRST SEMESTER

Course Title	Mathematics-I				
Course Code	BT101T				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	General Mathematics				
Course objectives	<ol style="list-style-type: none">1. Use of Matrices as a tool of Linear Algebra2. Use and importance of trigonometry.3. Apply the knowledge of consistency/inconsistency of a linear system.4. Understand the statistics.				
Course Contents	<p>Unit – I Matrices Rank & inverse by elementary transformation; system of linear equations; eigen values & eigen vectors; Caley-Hamilton Theorem.</p> <p>Unit – II Differential Calculus Successive differentiation, Leibnitz's theorem; expansion of functions in Taylor's & Maclaurin's series; tracing of simple curves.</p> <p>Unit – III Integral Calculus Reduction formula, application of integration to rectification, quadrature, volume of revolution, centre of gravity & moment of inertia.</p> <p>Unit – IV Partial Differentiation Partial derivatives, Euler's theorem on homogeneous functions, maxima & minima of functions of two variables, Lagrange's method of undetermined multipliers, Jacobians; differentiation under the integral sign.</p> <p>Unit – V Ordinary Differential Equations & Applications Exact differential equations, reducible to exact form; first order differential equations (non-linear); application to simple electrical circuits & heat flow.</p>				
Course outcomes	<p>At the end of this course student will be able to:</p> <ol style="list-style-type: none">1. Solve the problem related algebra, general quadratic equations2. Apply the matrices, calculus, trigonometry in various applications.3. Apply the knowledge of consistency/inconsistency of a linear system.3. Get the concept of solving vector equations.				
Text Books	<ol style="list-style-type: none">1. Higher Engineering Mathematics by B. S. Grewal2. Introduction to Engineering mathematics by H. K. Dass3. Applied Mathematics-I by Dr. Vikash Shinde-Deepak Prakashan.				



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**Reference
Books**

1. Higher Engg. Mathematics by B. S. Grewal (38th edition)-KhannaPublishers.
2. Differential Calculus by Gorakh Prasad – PothishalaPrivateLimited.



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B.TECH.FIRST SEMESTER

Course Title	Engineering Drawing & Graphics				
Course Code	BT102T				
Course Credits	L	T	P	Details	
	1	1	-	2	
Prerequisites	NIL				
Course objectives	<ol style="list-style-type: none"> To provide basic concepts in engineering drawing To impart knowledge about standards principle's of orthographic projection of object 				
Course Contents	<p align="center">UNIT – I</p> <p>Importance of Engineering Drawing, Lines, Lettering, Dimensioning, Scales: Representative Fraction, Type of Scale, Plain and Diagonal Scale.</p> <p align="center">UNIT – II</p> <p>Projection: Introduction, Principle of Projection, method of projection, planes of projection, four quadrants, first and third angle projection, reference line, symbols for methods of projection, Orthographic projection and Isometric Projection</p> <p align="center">UNIT – III</p> <p>Introduction to CAD software, merits and demerits of CAD, Application of CAD, GUI, limits and units, Basic co-ordinate system, setting of status bar option-snap, grid, O-snap, Dynamic input, ortho, polar, and etc. concept of block, viewports and layer.</p> <p align="center">UNIT – IV</p> <p>Drawing Tools: Circle, Arcs, Rectangle, Polygon, Ellipse, Spline, Poly-Line, and Multi-Line. Editing Tools: Trim, Move, Copy, Rotate. Geometry Modifying Tools: Fillet, Chamfer, Scale, Stretch. Copying Tools: Array, Mirror, and Offset. Dimensioning and Annotations.</p> <p align="center">UNIT – V</p> <p>Types of three dimensional model, basic primitives' tools: extrude, revolve, sweep, loft, wedge. Solid editing Tools: shell, round, taper faces, copy faces, chamfer edges, modifying tools: 3Dmove, 3D- copy, rotate, scale, align. Copying tools: array and its type,</p>				
Course outcomes	<p>At the completion of the course student shall be able to:</p> <ol style="list-style-type: none"> Importance of Engineering Drawing Projection Projections of planes Projections of Solids Development of Surfaces Computer Aided Drawing 				
Text and References	<p>Name of the Text Books:</p> <ul style="list-style-type: none"> Bhatt, N.D., "Elementary Engineering Drawing", Charotar Book Stall, Anand George Omura, " Mastering AutoCAD" B.P.B. Publication, New Delhi Engineering Graphics – Laxminarayanan& V. and VaishWanar, R.S. Jain Brothers, NewDelhi Engineering Graphics – Chandra, AM & Chandra Satish1998. 				



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| | <ul style="list-style-type: none">• Engineering Graphics – K.L. Narayan and P. Kannaih, Tata McGrawHill• A Text book of Engineering Drawing (Plane & Solid Geometry) – N.D. Bhatt & V.M. Panchal, CharotarPublishingHouse• The Fundamental of Engineering drawing and Graphics Technology – French and Vireck, McGrawHill.• AutoCAD: A problem solving approach- Tickoo, S. Delmar Cengage Learning2015.• Mastering AutoCAD and AutoCAD LT-George Omura, Brian C. Benton, Wiley publisher, 2018. |
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**SHRI RAWATPURA SARKAR UNIVERSITY, RAIPUR, CHHATTISGARH
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B.TECH.FIRST SEMESTER

Course Title	Professional Communication Skills				
Course Code	BT103T				
Course Credits	L	T	P	TC	
	3	-	-	3	
Prerequisites	General English				
Course Objectives	<ol style="list-style-type: none"> 1. Understand the behavioral needs for an effective communication. 2. Communicate effectively (Verbal and Non Verbal). 3. Develop skills on writing, reading, speaking, and grammar. 4. Make a report, write an application and frame a sentence. 				
Course Contents	<p align="center">UNIT – I</p> <p>Key Concepts: Process and Elements of Communication: context of communication; the speaker/writer and the listener/reader; Medium of communication; Principles of communication (7 C's of communication); Barriers in communication, effective communication; Communication in organization.</p> <p align="center">UNIT – II</p> <p>Writing: Selecting material for expository, descriptive, and argumentative pieces; Resume; covering letter, Elements of letter writing and style of writing, business letters; Quotation and Tenders; Basics of Informal and Formal Reports-technical report writing, lab report; Précis writing.</p> <p align="center">UNIT – III</p> <p>Reading: Effective Reading; reading different kinds of texts for different purposes; reading between the lines. Comprehension of Unseen Passages. Grammar in use: Errors of Accidence and syntax with reference to Parts of Speech; Agreement of Subject and Verb; Tense and Concord; Use of connectives, Question tags. Voice and Narration. Indianism in English: Punctuation and Vocabulary, Building (Antonym, Synonym, Verbal Analogy and One Word Substitution).</p> <p align="center">UNIT – IV</p> <p>Speaking: Achieving desired clarity and fluency; effective speaking; task-oriented, interpersonal, informal and semi-formal speaking. Meetings, Seminar, Conferences, Interviews, Presentation, Audio-visual communication.</p> <p align="center">UNIT – V</p> <p>Listening: Achieving ability to comprehend material delivered at relatively fast speed;</p>				



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	comprehending spoken material in Standard, Indian English, British English and American English; Intelligent listening in situations. Advantages of listening. Hearing and Listening; Essentials of Good Listening. Use of Modern Communication Devices; Telephonic Conversation.
Course outcomes	At the end of this course student will be able to: <ol style="list-style-type: none">1. Write a various kind of letters.2. Present him/her self with grammar as well as effective communication.3. Have a good word power and listening capability
Text Books	<ol style="list-style-type: none">1. Professional Communication Skills, Alok Jain, P S Bhatia & A M Shiekh, S. Chand & Company Ltd. 2005.2. Essentials of Business Communication, Rajendra Pal and JS Korlahalli, Sultan Chand & Sons, 1997.3. A Communicative Grammar of English, Geoffrey Leech & Jan Svartvik, ELBS Longman, England.4. The Skills of Communicating, Bill Scott, Jaico Publishing House, Mumbai, 2004.5. Speaking English Effectively, Krishna Mohan & N. P. Singh, MacMillan India, New Delhi; 2001.
Reference Books	<ol style="list-style-type: none">1. A guide to Correct English – Oxford University Press, Ely House, London W.I., Latest Edition. (For Unit III)2. Introduction to Communication Studies, Fiske, John, Rotledge London, 1990.3. Business Corresponding and Report Writing, Sharma RC & Mohan K, Tata McGraw Hill, New Delhi, 1994.4. 100 Tests in VOCABULARY; Indian Institute of Publishing, Chennai.



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B.TECH. FIRST SEMESTER

Course Title	Engineering Physics				
Course Code	BT104T				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Basic Science				
Course objectives	<ol style="list-style-type: none"> 1. To study of basic concept of physics. 2. Understand the concept of relativity, various principles. 3. 				
Course Contents	<p align="center">UNIT-I</p> <p>Theory of Relativity Space, time and motion, frame of reference, Galilean Transformation Outline of relativity, Michelson-Morley experiment, Special theory of Relativity, transformation of space and time, Time dilation, Doppler effect ,length contraction, addition of velocities, Relativistic mass: variation of mass with velocity, kinetic energy, equivalence of mass and energy, Relation between energy and momentum.</p> <p align="center">UNIT-II</p> <p>Nuclear Physics Controlled and uncontrolled chain reaction, criteria of critical mass, nuclear reactor and its site selection & numerical ,nuclear forces, Nuclear fusion in stars . Introduction of elementary particles. Electron ballistic: Motion of charged particles in electric and magnetic field. Aston and Bainbridge mass spectroscopy</p> <p align="center">UNIT-III</p> <p>Geometrical Optics Cardinal points of coaxial system of thin lenses, equivalent focal length, location and properties of cardinal points. eye piece (Ramsden & Hygen's), Magnetostriction oscillator and Piezo-electric oscillator for production of ultrasonic waves, wavelength of Ultrasonic waves and its engineering applications, Basic requirements for an acoustically good hall. Reverberation and Sabine's formula for reverberation time, Absorption coefficient and its measurement, Factors affecting architectural acoustics and their remedy.</p> <p align="center">UNIT-IV</p> <p>Wave Optics wedge shaped films, Interferences by division of amplitude: Newton's rings and its applications Interference by division of wave front: Fresnel's bi prism, fringe width, diffraction grating, resolving power of grating.</p> <p align="center">UNIT- V</p> <p>Lasers</p>				



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	<p>Temporal and spatial coherence of light wave Principle of laser, Laser characteristics, components of laser, Principle of Ruby, He-Ne & Nd -YAG lasers, application, basic concepts of Holography (only introductory part, No detail derivation) Fiber optics: Optical fibers; introduction & advantages, structure & classification, Option of propagation in fiber, attenuation & distortion, acceptance angle and cone, numerical aperture (only introductory part, No detail derivation).</p>
Course outcomes	<p>At the completion of the course student shall be able to understand:</p> <ol style="list-style-type: none">1. Theory of Relativity2. Nuclear Physics3. Geometrical Optics4. Wave Optics5. Lasers
Text and References	<p>Name of the Text Books:</p> <ul style="list-style-type: none">• Gaur and Gupta “Engineering Physics”• Avadhanulu and Kshirsagar “Engineering Physics”.• Jenkins and White: “Optics”, McGraw-Hill Book Company.• Singh R.B. : “Physics of Oscillations and Waves”• Ghatak A.K.: “Optics”• Mani and Mehta: “Modern Physics”, Affiliated East-West Press Pvt. Ltd, 1998.• Sanjeev Puri: Modern Physics, Narosa Pub. Co. 2004.• Kaplan: Nuclear Physics, Narosa Publishing, 1987.• Tyagrajan and Ghatak, “Laser”, Mac Millan, 2001• Brijlal and Subramaniam “Atomic and Nuclear Physics”



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B.TECH.FIRST SEMESTER

Course Title	Environmental Science & Engineering				
Course Code	BT105T				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Basic Science				
Course objectives	<ol style="list-style-type: none"> 1. Create the awareness about environmental problems among students. 2. Impart basic knowledge about the environment and its allied problems. 3. Develop an attitude of concern for the environment. 4. Motivate students to participate in environment protection and environment improvement. 				
Course Contents	<p align="center">UNIT – I</p> <p>General: Environmental segments, environmental degradation, environmental impact assessment.</p> <p>Concept of Ecosystem: Fundamental of Ecology and Ecosystem, components of ecosystem, food-chain, food- web, trophic levels, energy flow, cycling of nutrients, major ecosystem types (forest, grass land and aquatic ecosystem).</p> <p align="center">UNIT – II</p> <p>Air Pollution: Atmospheric composition, energy balance, classification of air pollutants, source and effect of pollutants – Primary (CO, SO_x, NO_x, particulates, hydrocarbons), Secondary [photochemical smog, acid rain, ozone, PAN (Peroxy Acetyl Nitrate)], green house effect, ozone depletion, atmospheric stability and temperature inversion, Techniques used to control gaseous and particulate pollution, ambient air quality standards.</p> <p align="center">UNIT – III</p> <p>Water Pollution: Hydrosphere, natural water, classification of water pollutants, trace element contamination of water, sources and effect of water pollution, types of pollutants, determination and significance of D.O., B.O.D.,C.O.D. in waste water, Eutrophication, methods and equipment used in waste water treatment preliminary, secondary and tertiary.</p> <p align="center">UNIT – IV</p> <p>Land Pollution & Noise Pollution: Lithosphere, pollutants (agricultural, industrial, urban waste, hazardous waste), their origin and effect, collection of solid waste, solid waste management, recycling and reuse of solid waste and their disposal techniques</p>				



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	<p>(open dumping, sanitary land filling, thermal, composting). Noise Pollution: Sources, effect, standards and control.</p> <p style="text-align: center;">UNIT – V</p> <p>Environmental Biotechnology: Definition, current status of biotechnology in environmental protection, bio-fuels, bio-fertilize, bio-surfactants, bio-sensor, bio-chips, bio-reactors. Pollution Prevention through Biotechnology: Tannery industry, paper and pulp industry, pesticide industry, food and allied industry.</p>
Course outcomes	<p>At the end of this course student will be able to:</p> <ol style="list-style-type: none">1. Acquire skills to help the concerned individuals in identifying and solving environmental problems.2. Strive to attain harmony with nature.3. Spread the various environment pollution awareness among the people.
Text Books	<ol style="list-style-type: none">1. Environment and Ecology by Piyush Kant Pandey and Dipti Gupta (Sum IndiaPublication)2. A Textbook of Environmental Chemistry and Pollution Control by S.S. Dara (S. Chand and Company)3. Introduction to Environment Engineering and Science, Masters, G.M. (Prentice Hall ofIndia).4. Environmental Chemistry by A.K. Dey (EasternLtd.).5. Environmental Chemistry by B.K. Sharma (KrishnaPrakashan).
Reference Books	<ol style="list-style-type: none">1. Environmental Science, Nebel B.J., Prentice Hall ofIndia-1987.2. Environmental Biotechnology by S.N. Jogdand, Himalaya PublishingHouse.3. Introduction to Environmental Biotechnology by A.K. Chatterji, Prentice Hall ofIndia.



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Course Title	Basics of Electrical Engineering				
Course Code	BT106T				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Basic Science				
Course objectives	5. Create the awareness about environmental problems among students. 6. Impart basic knowledge about the environment and its allied problems. 7. Develop an attitude of concern for the environment. 8. Motivate students to participate in environment protection and environment improvement.				
	<p>Unit – 1 D.C. Networks: Introduction, Classification of elements – active , passive, unilateral, bilateral, linear, nonlinear, lumped and distributed; Electric circuit, Ohm’s law, Kirchhoff’s laws, Mesh and Nodal analysis, Delta-Star and Star-Delta Transformations, Superposition theorem, Thevenin’s and Norton’s theorems, Maximum Power Transfer theorem (Only independent sources).</p> <p>Unit – 2 Single Phase A.C. Circuits: Production of ac voltage, waveforms and basic definitions, root mean square and average values of alternating currents and voltage, form factor and peak factor, phasor representation of alternating quantities, the j operator and phasor algebra, analysis of ac circuits, series circuits, parallel circuits, series parallel circuits, power in ac circuits.</p> <p>Unit – 3 Three Phase AC circuits: Introduction, Generation of Three-phase EMF, Phase sequence, Connection of Three-phase Windings - Delta and Star connection : Line and Phase quantities, phasor diagrams, Power equations in balanced conditions. Magnetic Circuits: Introduction, Magnetomotive force (MMF), Magnetic field strength, Reluctance, B-H curve, Comparison of the Electric and Magnetic Circuits, Series-Parallel Magnetic Circuit, Leakage flux and fringing, Magnetic Hysteresis, Eddy currents.</p> <p>Unit – 4 Single phase Transformers: Introduction, Principles of operation, Constructional details, Ideal Transformer and Practical Transformer, EMF equation, Rating, Phasor diagram on no load, Losses, Efficiency calculations. Direct current machines: Constructional details, Principle of operation of DC machines, e.m.f. equation, Torque production, classification of DC machines, Starting of DC motors. (Only elementary treatment with simple problems on all the topics in this unit)</p> <p>Unit – 5 Electrical Measuring Instruments: Introduction, classification of instruments – Indicating, Recording and Integrating type instruments; essential features of measuring instruments - deflecting torque, controlling torque, damping torque; Construction and</p>				



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<p>Course outcomes</p> <p>Text Books</p> <p>Reference Books</p>	<p>working of moving iron and PMMC instruments, Shunt and multipliers.</p> <p>At the end of this course student will be able to:</p> <ol style="list-style-type: none">4. Acquire skills to help the concerned individuals in identifying and solving environmental problems.5. Strive to attain harmony with nature.6. Spread the various environment pollution awareness among the people.6. Environment and Ecology by Piyush Kant Pandey and Dipti Gupta (Sum IndiaPublication)7. A Textbook of Environmental Chemistry and Pollution Control by S.S. Dara (S. Chand and Company)8. Introduction to Environment Engineering and Science, Masters, G.M. (Prentice Hall ofIndia).9. Environmental Chemistry by A.K. Dey (EasternLtd.).10. Environmental Chemistry by B.K. Sharma (KrishnaPrakashan).4. Environmental Science, Nebel B.J., Prentice Hall ofIndia-1987.5. Environmental Biotechnology by S.N. Jogdand, Himalaya PublishingHouse.6. Introduction to Environmental Biotechnology by A.K. Chatterji, Prentice Hall ofIndia.
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Course Title	Engineering Design and Graphics Lab				
Course Code	BT102T				
Course Credits	L	T	P	TC	
	-	-	2	1	
Prerequisites	NIL				
Course objectives	<ol style="list-style-type: none"> 1. To provide basic concepts in engineering drawing 2. To impart knowledge about standards principle's of orthographic projection of object 				
Course Contents	<p align="center">LIST OF EXPERIMENTS</p> <ol style="list-style-type: none"> 1. Study of any drafting software- GUI, limits and units, drawing tools, editing tools, annotations, etc. 2. Study of co-ordinates systems- Cartesian and polar (absolute and relative system of measurement) and Practice drawing by using following tools: Grid, snap, O-snap, Lines, Erase, Zoom. 3. Study and create drawing by using Drawing tools: Circle, arcs, rectangle, polygon, ellipse, Editing tools: trim, move, copy, rotate and practice of drawing using these commands. 4. Study and create drawing by using Geometry modifying tools: fillet, chamfer, scale, stretch 5. Study and create drawing by using copying tools like array, mirror, block and offset. 6. Study and detailing of drawing by using dimensioning and annotations tools. 7. Study and create drawing with different types of line by using Layer command 8. Create geometry by modify it by using Scales- plane and diagonal scale and create conicsections- ellipse, parabola, hyperbola, rectangular hyperbola, involutes. 9. Draw regular solids: Cube, Prism, Pyramid, Cylinder, Cones 10. Draw sectional views of solids- Cube, Prism, Pyramid, Cylinder, Cones. 				
Course outcomes	At the completion of the course student shall be able to: <ol style="list-style-type: none"> 1. Importance of Engineering Drawing 2. CAD-Auto CAD or Pro-E 				



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B.TECHFIRST SEMESTER

Course Title	Professional Communication Skills Lab				
Course Code	BT103P				
Course Credits	L	T	P	TC	
	-	-	2	1	
Prerequisites	NIL				
Course objectives	<ol style="list-style-type: none"> 1. Students should able to write a various kind of letters. 2. Students should able to present him/her self with grammar as well as effective communication. 3. Students should able to Have a good word power and listening capability 				
Course Contents	<p align="center">LIST OF EXPERIMENTS</p> <p>(Any ten experiments can be performed)</p> <p>List of exercises to be performed as practical work in language lab to train the students to be proficient in communication.</p> <ol style="list-style-type: none"> 1. Formal (Extempore and mock interviews) and Informal Speaking(Situational dialogues and Roleplay) 2. Elementary Phonetics (Pronunciation of words; Intonation and Word Accent) 3. Paralinguistic features of speaking (voice modulation, pitch, tone, etc.) 4. Paper Presentation (Non-Technical & current Affairs) 5. Use of Audio-Visual aids: Preparation of transparencies, slides, power point presentation etc. 6. Body Language (Gestures / Postures during Role Play/Speaking and JAM (Just-a-Minute) Session. 7. Exercises on Listening Comprehension. 8. Exercises on Reading Comprehension. 9. Effective Writing (Business Letters, Covering Letter, Resume on Word Document. 10. Telephoning (Telephonic Conversations) 11. Internet exploration. (learn to browse, download and save information) 				
Course outcomes	<p>At the completion of the course student shall be able to understand:</p> <ol style="list-style-type: none"> 1. 				



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B.TECHFIRST SEMESTER

Course Title	Engineering Physics Lab				
Course Code	BT104P				
Course Credits	L	T	P	TC	
	-	-	2	1	
Prerequisites	NIL				
Course objectives	Students should be able to 1. State various laws which they have studied through experiments. 2. Describe principles of LASER & Optical fibre.				
Course Contents	About 10 – 12 experiments to illustrate the concepts learnt in Physics. Suitable number of experiments from the following categories: 1. Mechanics 2. Optics and its applications 3. Electromagnetic 4. Semiconductor Physics 5. Laser & Optical fiber				
Course outcomes	At the completion of the course student shall be able to understand: 1. State various laws which they have studied through experiments. 2. Describe principles of LASER & Optical fibre.				



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Course Title	Basics of Electrical Engineering Lab				
Course Code	BT106P				
Course Credits	L	T	P	TC	
	-	-	2	1	
Prerequisites	NIL				
Course objectives	<ol style="list-style-type: none"> 1. Verify the basic laws and theorems of DC circuits. 2. Analysis the RLC series, parallel and series, parallel ac circuits. 3. Understand the construction and perform ratio test on a single phase transformer. 4. To plot and find out the characteristics of a diode in forward and reverse bias. 5. Top plot and find out the input and output characteristics of a transistor 				
Course Contents	<p>List of Experiments (To perform minimum 10 experiments)</p> <ol style="list-style-type: none"> 1. To verify Thevenin's theorem and Norton's theorem. 2. To verify Superposition theorem. 3. To verify Kirchhoff's Current Law and Kirchhoff's Voltage Law. 4. To verify Maximum Power Transfer theorem 5. To determine V– I characteristics of Incandescent lamp. 6. To study B-H curve. 7. To measure current, power, voltage and power factor of series RLC circuit. 8. To measure current, power, voltage of parallel RLC circuit. 9. To measure current, power, voltage of series parallel RLC circuit. 10. To measure R and L of choke coil. 11. To study construction of transformer. 12. To perform ratio test and polarity test of single phase transformer. 13. To calculate efficiency of single phase transformer by direct loading. 14. To study construction of D.C. machine. 15. To study charging and discharging of a capacitor. 16. To study the Wattmeter and Energy meter. 				
Course outcomes	<p>At the completion of the course student shall be able to understand:</p> <ol style="list-style-type: none"> 1. The basic laws and theorems with the practical applications. 2. Apply the knowledge in their daily life with electrical circuits. 3. Visualize the magnetic and electric circuits in a transformer. 4. Analyze diode circuits and to design and implement diode applications. 5. Analysis and design circuits using bipolar transistors. 				



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Course Title	Yoga/Health (Audit)				
Course Code	BT107P				
Course Credits	L	T	P	TC	
	-	-	2	-	
Prerequisites	NIL				
Course objectives	<ol style="list-style-type: none"> 1. To provide understanding the importance of health. 2. To provide insight into the hygiene aspect & quality of life. 				
Course Contents	<p>UNIT- I</p> <p>HEALTH & HYGIENE: Concept of health, Physical health and mentall health and wellbeing and how to achieve these, longevity and how to achieve it, concept and common rules of hygiene, cleanliness and its relation with hygiene; Overeating and underrating, amount of food intake required, intermittent fasting; adequate physical labour, sleep; consumption of junk fast food vs nutritious food; fruits, vegetables cereals and qualities of each of these.</p> <p>UNIT-II</p> <p>INTRODUCTORY KNOWLEDGE OF COMMON STREAMS OF MEDICINAL CURE: History, development, basic concepts, modes of operation of Alopathy, Ayurved, Homoeopathy, Biochemic, Unani, Siddha, Accurpressure, Accupunture, Naturopathy, Yogic and Herbal system of medicines, Introduction of Anatomy and Physiology concerned.</p> <p>UNIT- III</p> <p>YOGASANS: Meaning and concept of Yoga, Yogasans and its mode of operation, How to perform Yogasans, Common Yogasans with their benefits, such as, Padahastasan, Sarvangasan, Dhanurasan, Chakrasan, Bhujangasan, Paschimottasan, Gomukhasan, Mayurasan, Matsyasan, Matsyendrasan, Pawanmuktasan, Vajrasan, Shalabhasan, Sinhasan, Shashankasan, Surya Namaskar, Halasan, Janushirasan, Utshep Mudra.</p> <p>UNIT-IV</p> <p>YOGASANS FOR COMMON DISEASES: From Yogic Materia Medica with symptoms, causes, asans and herbal treatment. Modern silent killers: High blood pressure, diabetes and cancer, causes and cure; Common→ health problems due to stomache disorders, such as, indigestion, acidity, dycentry, piles and fissures, artheritis, its causes, prevention and cure. Asans for relaxation: Shavasan, Makarasan, Matsyakridasan, Shashankasan.→ Asans to increase memory and blood supply to brain: Shirsh padasan, Shashankasan.→ Asans for eye sight: Tratak, Neti Kriya .→ Pranayam: Definition and types: Nadi Shodhan, Bhastrik, Shitakari, Bhramari useful for→ students.</p> <p>Unit-V</p> <p>CONCENTRATION: concentration of mind and how to achieve it. Tratak, concentration on breath, jap, Ajapajap, internal silence, visualization in mental sky, concentration on point of light, concentration on feeling, concentration on figure.</p>				



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Course outcomes	At the completion of the course student shall be able to understand: 3. To study the concepts of various medical therapy. 4. To practice the various yogasans. 5. To provide knowledge about common diseases and its cure through yagasans and pranayam. 6. To develop concentration through various methods.
Text and References	Health, Hygiene & Yoga, Dr P B Deshmukh, Gyan Book Pvt Ltd. New Delhi. Reference Books: (1) Yogic Materia Medica (2) Asan, Pranayam and Bandh.