

GANPAT UNIVERSITY



FACULTY OF ENGINEERING & TECHNOLOGY

APPENDIX - II

DETAILED SYLLABUS

FOR

B.Tech First Year (CE/IT/EC/BM/MC/ME) Programme

Note:

1. A teacher may mark out topics of the Syllabus which are left for self-learning by each individual student. This may be followed by interaction with the teacher in small groups.
2. A teacher may list out additional topics, beyond the scope of the laid down syllabus, for industrial relevance and futuristic significance in consultation with the Head of the Department. The Institute shall make suitable arrangements to cater to these needs.
3. Home assignments shall be so designed as to inspire individual effort, creativity and usage of Library and Internet resources.

GANPAT UNIVERSITY
Faculty of Engineering & Technology

Teaching and Examination Scheme
for
B.Tech First Year (CE/IT/EC/BM/MC/ME)

Sub. Code	Subject	Teaching Scheme (Hrs.)			Examination Scheme (Marks)							Grand Total
					Theory				Practical			
		L	P	Total	Int. Asses s	Sem. End Marks	Hrs	Total	Int. Asses s	Sem. End	Total	
101	Language & Communication Skill	2	1	3	30	70	3	100	25	25	50	150
102	Engineering Mathematics - I	4	-	4	30	70	3	100	-	-	-	100
103	Engineering Science	2	-	2	30	70	3	100	-	-	-	100
104	Engineering Graphics	2	2	4	30	70	4	100	25	25	50	150
105	Engineering Mechanics	2	1	3	30	70	3	100	25	25	50	150
106	Elements of Civil & Mechanical Engineering	2	2	4	30	70	3	100	25	25	50	150
107	Elements of Electrical Engineering	2	1	3	30	70	3	100	25	25	50	150
108	Computer Programming	2	2	4	30	70	3	100	25	25	50	150
109	Work shop Practice											
(A)	Workshop of Mechanical	-	1	1	-	-	-	-	50	50	100	100
(B)	Workshop of Electrical & Electronics	-	1	1	-	-	-	-				
Total		18	11	29	240	560		800	200	200	400	1200

Note:

- Internal Assessment** shall consist of Quiz programmes, Home assignments and one or more written tests as decided by the Head of the Department with the approval of the Principal.
- Laboratory Work Assessment** up to Semester VI shall be done continuously followed by assessment by viva based on Term Work finally submitted; however, for Semesters VII and VIII continuous assessment of Laboratory Work shall be given internally as A, B & C which may partly form the basis of assessment of Laboratory work as deemed fit.

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

101: Language & Communication Skills

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory			Practical			
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
2	1	3	30	70	3	100	25	25	50

1. Introduction to Communication:

Process of Communication
 Language as a tool of Communication
 Importance of Communication for Technical Students

2. Skill of Written Communication:

- i. **Building Blocks:** Vocabulary, Phrases & Idiomatic Expressions, Sentence Construction & Tense, Paragraph Development, Art of Condensation, English Phonetic Signs and Symbols for Correct Pronunciation
- ii. **Technical Writing:** Technical Description of Simple Engineering Objects and Processes (Write-ups), Instructional Manuals
- iii. **Precis Writing:** Note Writing, Advertising, Slogan Writing, Journalistic Reporting, Drafting of Public Speaking
- iv. **Report Writing:** Agenda and Minutes of Meetings, Technical Reports of Observation, Survey Report, Laboratory Report, Trouble Reporting, Project Reports on Engineering Subjects, Technical Proposals, Research Papers, Dissertation, Thesis
- v. **Letters and Applications:** Personal and Social Letters, Official Letters, Business Letters – Inquiry, Calling Quotations, Tenders, Orders, Complaints and Claims, Applications for Jobs, Preparation of Resumes, Interview Calls, Acceptance and Non-acceptance of Offers
- vi. **Introduction to Professional Oral & Written English Tests**

3. Skill of Verbal Communication:

- i. **Art of Listening:** Good Listener, Active and Passive Listening, Effective Listening, Practice of Listening of Oral Speech / Recorded Speech, Correct Pronunciation
- ii. **Effective Presentation:** Purpose, Assessment of Class and Type of Audience, Arranging Contents, Use of Visual Aids, Kinesics and Para linguistics, Practice of Public Speaking by a Sample Speech
- iii. **Group Discussion:** Organisational Group Discussion, Group Discussion as a Part of Selection Process, Meetings, Conferences, Debates, Presentation / Demonstration using Power Point Package
- iv. **Interviews:** Objective and Types of Interviews, Job Interviews, Interviews to Media, Practice by a Mock Interview

- v. **Conversation & Dialogue:** Face-to-face Communication, Telephonic Talk, Speaking on Social, Cultural and Technical Events among Friends, Colleagues and Relatives, Conversational Practice
- vi. **Audio-visual Inputs:** Use of Films and Documentaries for Development of Communication Skills

References:

- (1) Technical Communication – Principles and Practice by Meenaksi Raman & Sangeeta Sharma (Oxford University Press)
- (2) English Communication, 2nd Edition by T.T.T.I., Southern Region, Chennai (Oxford University Press)
- (3) Spoken English for India by R. K. Bansal & J. B. Harrison (Orient Longman)
- (4) Testing English as a Second Language by David P. Harris (Tata Mc-Graw Hills Publishing Company Limited)
- (5) New International Business English by Jones & Alexander (Oxford University Press)
- (6) Effective English Communication by Krishna Mohan & Meenakshi Raman (Tata Mc-Graw Hills Publishing Company Limited)
- (7) Business Correspondence and Report Writing by R. C. Sharma & Krishna Mohan (Tata Mc-Graw Hills Publishing Company Limited)
- (8) English Conversation Practice by Grant Taylor (Oxford University Press)

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

102: Engineering Mathematics - I

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
4	-	4	30	70	3	100	-	-	-

1. Differential Calculus:

Successive differentiation, Leibnitz theorem, Taylor's & Maclaurin's expansions, Indeterminate forms. Partial differentiation-- Partial and total differential coefficient, Eulers theorem, Transformations, Geometrical interpretation of partial derivatives, Tangent plane and Normal line, Jacobians, Taylors expansion for two variables, Errors and approximations, Maxima and Minima of functions of two variables, Lagranges method of undetermined multipliers to determine stationary values.

2. Integral Calculus:

Reduction formulae, Beta - Gamma & Error functions, Elliptic functions. Application of integration-- Area of a bounded region, Length of a curve, Volume & surface area of a solid of revolution for Cartesian, parametric & polar curves.

Multiple integrals: Double integral, change of order of integration, transformation of variables by Jacobian only for double integration, change to polar co-ordinates in double integrals only, Triple integral, Application of multiple integration to find areas, volumes, C.G., M.I. and mean values.

3. Complex Numbers:

DeMoivres theorem & its applications, functions of complex variables Exponential, hyperbolic & inverse hyperbolic, trigonometric & logarithmic

4. Infinite Series:

Definition, Comparison test, Cauchey's integral test, ratio test, root test, Leibnitz rule for alternating series, power series, range of convergence, uniform convergence.

5. Matrix Algebra:

Elementary transformations & rank, inverse by elementary transformation, normal form of a matrix, consistency of system of linear equations, solution of systems of equations, Linear dependent vectors in R³, Linear & orthogonal transformations, Eigen values and Eigen vectors.

6. Differential Equations & Modeling:

Modeling of engineering system (leading to ODE of first order, first degree, including orthogonal trajectories). Exact differential equations and integrating factors, unified approach to solve first order equations, Linear, Reducible to linear, Applications including modeling, solution of first order and higher degree differential equations (Clairaut's equation only).

Reference Books:

(1) Elementary Engineering Mathematics by Dr.B.S.Grewal

- (2) Higher Engineering Mathematics by Dr. B. S. Grewal
- (3) Higher Engineering Mathematics by G. C. Patel, Dr. T. A. Desai, P.A.Patel
- (4) Engineering Mathematics - I & II by G. V. Kumbhojkar
- (5) Higher Engineering Mathematics Vol. I & II by Dr. K. R. Kachot

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

103 – Engineering Science

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
2	-	2	30	70	3	100	-	-	-

1. Thermal Physics:

Introduction, Joule-Thomson Effect, Thermometry, Conduction, Convection, Radiation, Thermal Conductivity of material, Concept of heat and work, Laws related to thermodynamic radiation, Thermo dynamical quantities, Entropy.

2. Optics:

Introduction, Different theories based on the properties of light, Reflection, Refraction, Dispersion, Absorption, Interference, Lasers and Fiber Optics- Introduction and applications, Photoelectric effects and its applications, Luminescence.

3. Acoustics:

Introduction, Parameters associated with sound wave, Nature of Sound, Doppler effects, Introduction to Ultrasonic and its applications.

4. Magnetism:

Introduction, Magnetic dipole, Magnetic field, Classification of magnetic materials, Ferromagnetism, Diamagnetism, Application of magnetic materials.

5. Modern Physics:

Introduction, General properties of nucleus, Introduction to cosmic rays, Introduction to X- rays and its applications, Nuclear magnetic resonance, Introduction to Nano-materials, Introduction and applications of Plasma Physics.

6. Semiconductors

Conductors, Semiconductors, silicon crystals, intrinsic semiconductors, two type of flow, doping in semiconductor, two types of extrinsic semiconductors, unbiased diode, forward bias, reverse bias, breakdown, energy levels, energy hill, barrier potential and temperature, reverse biased diode

7. Diode Theory

Basic ideas, ideal diode, second approximation, third approximation, trouble shooting, up down circuit analysis, reading a data sheet, bulk resistance, dc resistance of a diode, load line, transition and diffusion capacitances, diode testing, surface mount diodes.

8. Diode Circuits

Half wave rectifier, transformer, full wave rectifier, bridge rectifier, choke input filter, capacitor input filter, peak inverse voltage and surge, other power supply topics, trouble shooting, clippers and limiters, clampers, voltage multipliers.

9. Bipolar Transistors

Transistor construction, transistor operation, Unbiased transistor, biased transistor, transistor currents, CE, CB and CC configuration, base curve, collector curves, transistor approximation, reading data sheets, trouble shooting, transistor testing.

Reference Books:

- (1) Modern Engineering Physics by A.S.Vasudeva Pub: S. Chand
- (2) Fundamentals of Physics by Halliday, Resnik, Walker Pub: Willey
- (3) A Text book of Engineering Physics by M.N. Avadhanuly , P.G.Kshirsagar Pub: S.Chand
- (4) Modern Physics by G. Aruldhas, P.Rajagopal Pub: PHI Pub.
- (5) University Physics by Harris Benson Pub: Willey Pub.
- (6) Electronics Principles by A.P. Malvino (TMG)
- (7) Electronics Devices and Circuit Theory by Robert L. Boylestad and Louis Nashelsky

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

104 - Engineering Graphics

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
2	2	4	30	70	4	100	25	25	50

OBJECTIVE

Engineering Graphics is a language of all persons involved in engineering activity generally engineering ideas are recorded by preparing drawings and execution of work is also carried out on the basis of this drawing. In short drawing does communication in engineering field.

The subject will help the student in many ways for making images, describing the shape, size, finish, colour, and construction of any object.

In the subject student will develop his skill in three phase of technical drawing.

- He will draw clearly and rapidly the freehand technical sketches by symbol, freehand sketch and machine drawing
- He will proficient in graphics to scale the instrumental graphics by scale and line, dimensions, views, projections, sections and development of surfaces of solid.
- He will able to use the present drafting software to make the same graphics more rapidly and accurately by Auto CAD Introductory.

Part- 1: Engineering Drawing:

i. Sectional View:

Conversion of pictorial views into orthographic views, type of sections (full, half, offset, broken, removed, revolved) Section views, orthographic reading, missing views and missing line problems.

ii. Isometric View:

Conversion of orthographic views into isometric views / isometric projection

iii. Fastening and Connecting Methods:

Screw threads, bolts, nut, stud, locking devices, simple riveted and welded joints, pipe fitting, couplings, cotter joints, pin joints.

Part- 2: Solid Geometry:

i. Projection of Point, Line and Plane:

Position of point, system of notation, Projection of point in different Quadrants, Projection of line inclined to both the planes (Considering first Quadrant only), True length of straight line and its inclination with reference planes. Projections of perpendicular and oblique planes. Location of Plane, Types of Plane, Perpendicular to one plane and parallel to the other plane, Perpendicular to both plane, perpendicular to one plane and inclined to other plane, inclined to both plane.

ii. Projection of Solid and Section Solids:

Classification of solids. Projection of right and regular solids with their axis inclined to both the reference planes. Section of pyramid, cone, prism and cylinder. with sectional top view, side view, front view, section plane perpendicular to one plane and parallel to other plane, Section plane perpendicular to one plane and inclined to other plane.

iii. Development of Surfaces:

Parallel line development, Radial line development.

Term work:

Based on above syllabus. each candidate shall submit a set of the following Graphics sheets and Sketch book certified by the principal of the college that they have been executed in a satisfactory manner in the graphics halls of the college. All the problems of sheet to be drawn in sketchbook.

1. Introduction to Engineering Graphics* & Use of graphics instrument with Types of lines, Dimensioning, polygon title block and lettering.
2. Introduction & One sheet on engineering curves.
3. Introduction & One sheet on Loci of points.
4. One sheet on projections of points, and line.
5. One sheet on projections of plane surfaces
6. One sheet on orthographic view with section.
7. One sheet on reading of orthographic views and missing lines/missing views.
8. One sheet on projections of solids and sections of solids.
9. One sheet on isometric projections/views.
10. Practice on drafting software++.

Textbooks:

- (1) Engg. Graphics. I & II by P. J. Shah
- (2) Engg. Graphics by N. D. Bhatt

Reference books:

- (1) Machine Graphics by N.D. Bhatt
- (2) Engg. Graphics by R.K.Dhawan
- (3) Engg. Graphics by Venugopal
- (4) Engg. Graphics by P.S. Gill
- (5) Instant AutoCAD 2000 by George Omara

* Introduction to Engineering Graphics includes Principles of projection lines and dimensioning. B.I.S. code of practice (SP 46) Scale, Representative factor, Plane scale, diagonal scale, Venire scale and scale of chords.

++ Introduction to drafting software and hardware, Graphics Entities, Modify Commands, Plotting

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

105: Engineering Mechanics

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory			Practical			
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
2	1	3	30	70	3	100	25	25	50

1. Introduction:-

Scalar and vector quantities, absolute and derived units, the science of mechanics, fundamental principles, SI units.

2. Forces & Force Systems:-

Force and force systems, composition and resolution of forces, moment of a force, law of parallelogram, resultant of different force systems, Varignon's principle.

3. Centre of gravity:-

Center of gravity of curves, plane areas and bodies, Pappus Guldinus theorem I & II, method of integration.

4. Moment of Inertia:-

Area moment of inertia, mass moment of inertia, M.I. of flywheel, different methods of M.I., law of parallel axis, law of perpendicular axis.

5. Support Reaction:-

Types of supports, Types of beams, Types of loads, determinate and indeterminate beams.

6. Equilibrium:-

Equilibrium of a particle, resultant and equilibrant, free body and free body diagram, Lami's theorem, equilibrium of human body joints.

7. Friction:-

Theory of friction, Types of friction, inclined plane friction, ladder friction, wedge friction, belt and rope friction.

8. Simple Lifting Machines:-

Velocity ratio, mechanical advantage, efficiency, reversibility, law of machines, simple wheel & axle, differential wheel & axle, single purchase crab winch, differential wheel & axle, pulley & pulley block.

9. Kinematics:-

Rectilinear, motion of rotation, relative motion & dependent motion, simple harmonic motion, single degree free vibration, instantaneous center.

10. Kinetics:-

Newton's law of motion, mass inertia, De-Alembert's principle, motion of connected bodies, motion along inclined planes, impulse and momentum, work, power & energy, conservation of energy.

11. Stresses & Strains:-

Classification of materials, types of stresses, relation between stress & strain.

Reference Books:

- (1) Engineering Mechanics by Beer & Johnston
- (2) Engineering Mechanics by H. J. Shah & Junarker
- (3) Engineering Mechanics by P.J.Shah
- (4) Engineering Mechanics by A. K. Tayal
- (5) Engineering Mechanics by S. Ramamrutham
- (6) Engineering Mechanics by Kumar
- (7) Strength of Materials by Timo Shenko
- (8) Strength of Materials by S. Ramamrutham

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

106: Elements of Civil and Mechanical Engineering

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
2	2	4	30	70	3	100	25	25	50

(A) Civil Engineering:

1. Water Resources and Hydraulics:

Importance of Hydrology, Classification of Water resources & Requirement of water for various uses, Water Management Strategies, Water Resources Development in India. Introduction of Dams, Introduction of water supply and Drainage System

2. Surveying:

Chain Survey: Linear measurements, Errors in chaining, problems on obstacle

Directions and Bearings: Types of Bearings and Meridians, Whole Circle Bearing and Quarter Circle Bearings, Compuations of Angles from bearings and bearings from angle, Magnetic Declination, Local Attraction, Various Problems

Elevation Measurements: Introduction of Level Machine, Methods of leveling, Recording and Reducing of levels, Contour Survey.

Area measurement by Planimeter

3. Building Materails:

Introduction, Masonry Materials: Stones, Bricks, Blocks, Tiles; Binding Materials: Lime & Cement; Aggregates, Mortar & Concrete, Timber, Specification of all Building Materials as per IS Standards, Method of Drawing Plan, Elevation and Section of Building

Reference Books:

- (1) Chemistry for environmental engineering- By Clair N. Sawyer & Parry Mc Carty
- (2) A Text Book of Environmental Chemistry and Pollution Control by S. S. Dara S Chand & Co.
- (3) Irrigation and water power Engineering- By Dr. B.C.Punmia
- (4) Hydrology and Water Resources Engineering- By Santosh Kumar Garg
- (5) Building Construction – By B. C. Punmia
- (6) Surveying – I By H. T. Kanetkar
- (7) Materials of Construction By D. N. Ghose

(B) Mechanical Engineering:

Objective:

The Subject will help the fresher to engineering course in having broad overview of Mechanical Engineering.

Students admitted in engineering first year will have pre knowledge about fundamental of thermodynamics and material structure.

In this subject student will learn about:

- i. Sources of energy and its importance.
- ii. Concept of thermodynamics, fossil fuels, power plant equipments and their mounting and accessories.
- iii. Thermal prime movers.
- iv. Power transmission system and their elements.

The study of above topic areas will grow the students to appreciate various applications of mechanical equipments with consciousness about energy sources and its economical use in various field of engineering.

Theory:

1. Properties of Steam:

Steam formation - Enthalpy - Specific volume of steam - Steam tables - Internal energy - Non-flow processes - Throttling - Measurement of dryness fraction - Throttling calorimeter – Separating calorimeter - Combined calorimeter

2. Steam Boilers:

Introduction - Classification – packed boilers- Cochran type - Lancashire boiler - Locomotive boiler - Marine boiler (Scotch type) - Babcock and Wilcox boiler - High pressure boilers - Boiler details - Boiler performance. Functioning of different mountings and accessories

3. Internal Combustion Engines:

Introduction - Classification - Engine details- Otto cycle - Diesel cycle - otto four-stroke cycle - Diesel-four-stroke cycle - Difference between otto cycle and Diesel cycle- Two-stroke cycle - Difference between two-stroke and four-stroke cycle - indicated power (ip) - Efficiencies.

4. Pumps:

Different types-Positive displacement pumps- Reciprocating pumps- Rotary pumps- Centrifugal pumps- Types of centrifugal pumps - Rotary pumps – Priming-Applications

5. Air Conditioners:

Introduction - Reciprocating compressors - Operation of a compressor -Work for compression - Power required - Reciprocating compressor efficiency - Multistage reciprocating compressors.

6. Refrigeration and Air Conditioning:

Refrigerant-Vapour compression cycle- Domestic refrigerator- Window air conditioners-vapour absorption cycle-electrolux refrigerator

Reference Books:

- (1) Elements of Mechanical Engineering by S. B. Soni and P.S.Desai
- (2) Elements of Mechanical Engineering by S. B. Mathur and S. Domkundwar
- (3) Elements of Heat Engine –1 by R. C. Patel
- (4) Elements of Mechanical Engineering by Roy K. P. and Hajra Chaudhary

Note: Term Work/ Practical/Oral will be based on above syllabus.

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

107: Elements of Electrical Engineering

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	
				Marks	Hrs			Marks	Hrs
2	1	3	30	70	3	100	25	25	50

1. D.C. Circuits

Source Transformation- Star-Delta Transformation- Application of Kirchhoff's Law, Superposition Theorem- Thevenin's Theorem-Norton's & Maximum Power Transfer Theorem.

2. Capacitor

Types of Capacitor- Capacitance of Multiple Parallel Plate Capacitor- Energy stored in a Capacitor- Charging & Discharging of Capacitor & Time constant

3. Magnetic circuit

Law of Magnetic Circuit - Series & parallel Magnetic Circuits and Calculation, Comparison of magnetic & Electric Circuit- Magnetization Curves.

4. Electromagnetic Induction

Review of Faraday's Law- Lenz's Law- Self & Mutual Inductance- Inductance of coupled circuits- Rise and Decay of Current in Inductive circuit & Time Constant- Magnetic Hysteresis-Hysteresis Loss- Eddy Current Loss- Magnetic Materials.

5. Work, Power, Energy

Heating Effect of Electric Current and Joule's law - Thermal Efficiency- Electrical Units of Power and Energy - Mechanical Units of Force- Torque & Power - Calculation of Power & Energy - Energy Bill.

6. Batteries and Cells:

Primary and Secondary cells- Lead acid, Nickel Cadmium secondary cells-Charging of Lead acid Batteries- Lithium primary and secondary cells- Dry button cells- UPS: Block schematic diagram and its working.

7. A.C.Circuits

Generation of A.C. Voltage - Equation of A.C. Voltage- Average value, R.M.S. Value , Form Factor, Peak Factor, Phase & Phase Difference - Vector Representation of A.C. Voltage and Current. Addition and Subtraction of Vectors- Mathematical Representation of Vectors- Complex Algebra- Polar & Exponential form- Pure Resistive, Pure Inductive, Pure Capacitive and combination of R-L-C Circuits- Active -Reactive and Apparent power & Power Factor-Power Factor Improvement by Capacitor bank- Resonance in R-L-C Series Circuit- Q-factor, Bandwidth-Solution of Parallel circuit

by Admittance, Phasor & Complex Algebra methods-Resonance in Parallel circuit- Q-factor , Bandwidth.

9. 3-Phase Circuits

Generation of 3-phase voltage-Phase Sequence - Interconnection as Star – Delta- Voltage ,Current & Power relationship in balanced 3-Phase Circuits- Measurement of power in 3-phase circuit and Effect of power factor on Wattmeter readings.

10. Economic Aspects:

Load curve and related factors- Tariff & its types – Causes and effects of low power factor – Methods of improving power factor

11. Measuring Instrument

Operating system of Indicating instrument- Constructional and working of PMMC – MI – Dynamometer instruments- shunts and multiplier- multimeter and megger.

12. Domestic Appliances and Electrical Wiring

Basic principle, construction and working of different types of domestic appliances as Domestic oven, Electric Iron, Geyser, Room Heater

Different types of wires used in wiring and installation- Fuses, MCCB, ELCB and their application- Domestic and Industrial wiring circuits- Stair case wiring and Godown wiring- Tube light wiring, Fan wiring with speed regulator- Testing of wiring installation using Megger & Multimeter.

Laboratory work

At least 10 Practicals to be performed based on above syllabus.

Tutorials

At least 10 Assignments and Tutorials to be solved.

Reference Books:

- (1) Fundamentals of Electrical & Electronics Engineering by H.T.Kashipara, Pub. By Akshat Publication
- (2) Elements of Electrical & Electronics Engineering by U.A.Patel & R.P.Ajawalia, Pub. By Atul Prakashan
- (3) Electrical Technology Volume-I by B.L.Thereja, Pub. By S.Chand
- (4) Electrical Wiring ,Estimating and Costing by S.L.Uppal, Pub. By Khanna Publication
- (5) Electrical appliance by J.B.Bhatia

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

108: Computer Programming

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End	Total	Int. Assess	Sem. End	Total	
				Marks			Hrs		1
2	2	4	30	70	3	100	25	25	50

Course Objectives

This course teaches the principles of programming. Topics covered include: Fundamentals of C programming. The course involves substantial programming assignments and problem sets as well as a significant amount of reading.

1. Introduction:

Evolution of computers, Organization of Computer,

Introduction to Single user Operating Systems-Multi users Operating Systems, Types of programming languages
Fundamentals of Internet

2. C” Programming:

Constants, Variables and Data types in C -Operators and expression, - Data Input-Output,- Control Statement, -Looping – arrays –strings - Dynamic Memory Allocation,- Functions. - Structures, Union, - Pointers,- Graphics Programming – File Management. - Linked List

Reference Books:

- (1) Programming in ANSI C , E.Balagurusami, TMH
- (2) Let us C, Y. P. Kanitkar, BPB
- (3) Working with C, Y. P. Kanitkar, BPB
- (4) Introduction to Compo Introduction to Computers and Communication, D. Ravichandran,TMH

GANPAT UNIVERSITY
B.Tech FIRST YEAR (CE/IT/EC/BM/MC/ME)

109: Work Shop Practical

Teaching Scheme (Hrs.)			Examination Scheme (Marks)						
			Theory				Practical		
L	P	Total	Int. Assess	Sem. End		Total	Int. Assess	Sem. End	Total
				Marks	Hrs				
-	2	2	-	-	-	-	50	50	100

Objective:

To make the students familiar with various operations and processes like joining, machining and use of different tools of common use. This will develop various hand skills and impart working knowledge of various Machines, devices, tools, instruments etc. and safe practices, and to make them familiar with different machines of common use and domestic appliances.

(A) Mechanical

1. Study of commercial forms of materials and their BIS designation.

2. Instruction / Demonstration:

Instruction should be given for each of following shops / trade which include importance of the shop / trade in engineering. New materials available, tools / equipments required indicating the use of each tool / equipment. Methods of processing any special machines, power required etc.

- (1) Joining Processes (Temporary joining & permanent joining)
- (2) Sheet metal work & PCB working
- (3) Plumbing – metallic and non metallic pipe fitting
- (4) Manufacturing of plastic products
- (5) Metal machining – Turning, drilling, grinding, shaping, CNC
- (6) Carpentry / Pattern making
- (7) Fitting / Assembly practice
- (8) Smithy and Forming

3. Exercises and Term Work:

Each student is necessary to prepare simple exercises in following so as to have a feeling of how the jobs / parts are prepared and use of tools / equipments (Any Seven)

- (1) Arc Welding / Gas Welding / Spot Welding – 1 No.
- (2) Soldering / Brazing – 1 No
- (3) Sheet metal part – 1 No
- (4) Plumbing – 1 No
- (5) Drilling / Tapping Practice – 1 No
- (6) Carpentry Practice – 1 No
- (7) Fitting / Assembly – 1 No
- (8) Forging Practice – 1 No
- (9) Painting of Metal Piece

(B) ELECTRICAL/ ELECTRONICS.

1. Identification of electrical and electronics components.

Resistors, Capacitors, Inductors, Diodes, Transistors, Thyristors

2. Soldering.

Different electrical and electronics components on PCB

3. Domestic and Industrial wiring practices.

Types of wiring, controlling of lamp and tube-light wiring

4. Working and fault finding of following domestic devices.

- a. Mixer Grinder
- b. Washing Machine
- c. Domestic Floor Mill
- d. Electric Iron
- e. Oven Toaster Griller
- f. Geyser

5. Types of Earthing.

Measurement of Earth resistance, Earthing methods and insulation resistance measurement by Megger

6. ICs and Data Sheet.

Identification of ICs and data sheet reading.

7. Operation of Passive Devices

- a. Relays.
- b. Optoelectronic devices.
- c. Switches.
- d. Conductors.

8. Assembly of A.C & D.C Motors.

Over and above these exercises each student is required to prepare a laboratory report on instruction / demonstration and exercises prepared by him / her as a part of term work of (A & B) above.

Term Work

Term Work will be based on above syllabus. Students will be given creative mini project under fun module.

Reference Books:

- (1) Elements of Mechanical Engineering by Hajra Chaudhary
- (2) Elements of Mechanical Engineering by Mathur & Mehta
- (3) Work shop technology by Hajra Chaudhary
- (4) Work shop technology by Chapman
- (5) Electrical Engineering by S.L.Bhatia.