



Government Polytechnic Mumbai

(Academically Autonomous Institute of Maharashtra Government)

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Computer Engineering

First Year

First Semester

Course Code	Course Title	Teaching Scheme				Credits	Examination Scheme					
		L	P	TU	Total		Theory		PR	OR	TW	
							TH	TS				
HU16101	Basics of Communication	02	----	01	03	03	70	30	---	--	--	
SC16107	Mathematics I	03	----	01	04	04	70	30	---	---	--	
SC16104	Engineering Physics	03	02	----	05	05	70	30	---	---	50	
EE16201	Fundamentals of Electrical Engineering	03	02	----	05	05	70	30	---	25	25	
ME16201	Engineering Drawing I	02	04	----	06	06	---	---	50	---	50	
CO16203	Computer Workshop		02	----	02	02	---	---	50	---	---	
CO16204	Basics of Computer Engineering	01	04	----	05	05	---	---	50*	---	50	
NC16101	Yoga	--	02	---	02	--	---	---	---	---	--	
NC16102	Social Service	---	03	---	03	--	---	---	---	---	--	
	Total	14	19	02	35	30	280	120	150	25	175	
											750	

Abbreviations: L-Theory Lecture; P-Practical; TU-Tutorial; TH-Theory Paper; TS-Term Tests(02); PR-Practical Exam; OR-Oral Exam; TW-Term Work

Note: - * indicates assessment by External and Internal examiners


Academic Coordinator


Head of Department


Principal

Programme : CE/ME/EE/IS/EC/CO/IF/LG/LT/RT									
Course Code: HU16101			Course Title: Basics of Communication						
Compulsory / Optional: Compulsory									
Teaching Scheme and Credits				Examination Scheme					
TH	TU	PR	Total	TH	TS	PR	OR	TW	Total
2	1	-	3	70 (3 Hrs.)	30	---	---	---	100

Rationale:

English is the global language today. The basic knowledge of this language is essential for everyone. It is necessary for the Engineering and Technology related students to cope up with the challenges of the modern world with the help of English. The major part of their work experience needs certain knowledge of this language. At worksite, on the shop floor or fields, they might be required to take the instructions from superiors and to pass them on to subordinates. To write letters, circulars, memos, notice and reports will be an important task for them. While designing the curriculum of communication skills and communication practice the probable needs of the future technicians are kept in view.

Course Outcomes:

Student should be able to

CO1	Make use of the basic concepts of grammar and communication techniques.
CO2	Interpret positive feedback at various situations by using appropriate body language.
CO3	Write letters circulars, memos, notices and reports to communicate.
CO4	Apply proper communication technique to cope up with the challenges of the modern world.
CO5	Adopt appropriate approach to take instructions from seniors and pass it on to the subordinates.



Course Content Details:

Unit No	Topics / Sub-topics
1	Basics of Grammar: Articles, Tense, Transformation of Sentences, Affirmative and negative, Interrogative and assertive , Exclamatory and assertive , Degrees of comparison, Direct indirect speech, Voice, Types of sentences
2	Theory and methods of communication: Meaning and definitions of communication, Elements of communication, Communication cycle, Methods of communication, verbal: Oral, Written, Non verbal: Body language ii) Visuals
3	Types and Barriers of communication: Formal - upward, downward, vertical, horizontal, diagonal. Informal, grapevine, Barriers of communication: Mechanical, Physical, Language, Semantic, Psychological, Status
4	Application Letters: Job application, Resume / CV / Bio-Data, Application for loan, (home loan, car loan, education loan)
5	Business correspondence & Office drafting: Memorandum, notice, circular, Enquiry and quotation, Order and complaint
6	Report writing : Need of report writing, Principles of effective report writing, Types of reports: Individual & committee report, Accident report Feasibility and survey report, Report on fall in sales and production

Unit No	Topic Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Basics of Grammar:	06	4	4	4	12
2	Theory and methods of communication	06	2	4	6	12
3	Types and Barriers of communication	04	2	4	6	12
4	Application Letters	06	4	4	6	14
5	Business correspondence & Office drafting	04	2	4	6	12
6	Report writing	06	2	2	4	08
Total		32	16	22	32	70

Legends: R- Remember; U-Understand; A- Apply and above levels (Bloom's revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.



Sr. No.	Unit	Experiment/Assignment	Approx. Hours
1	1	Grammar related written worksheet.	02
2	2	Dialogue between two students (observing the basics of grammar.) on a formal situation	02
3	2	Dialogue between two students (observing the basics of grammar.) on a informal situation	02
4	2,3	Presentation of communication cycle (4 students)	02
5	3	Presentation on different types of barriers and remedies. (04 students)	02
6	3	Presentation on the given situation with the help of body language and visuals (4 students)	02
7	4	Writing a letter to the editor of a newspaper for social cause.	01
8	4	Writing a job application with bio data.	01
9	5	Activity on business correspondence and office drafting	01
10	6	Report writing	01
Total			16

References/Books

Sr.No.	Author	Title	Publication
1	Meenakshi Raman Sangita Sharma	Communication Skills	Oxford Higher Education
2	Homai Pradhan D.S.Bhende Vijaya Thakur	Business Communication	Himalaya Publishing House
3	Curriculum Development Centre	A Course in Technical English	Somaiya Publications Pvt.Ltd.

Course Curriculum Development Committee:

a. Internal Faculty

- 1) Simt. S.S. Kulkarni *AP*
- 2) Mrs. K.S. Pawar

b. External Faculty :- 1) Mr. Sandeep Barde

[Signature]
Academic Coordinator
(R.A. Pathi)

[Signature]
Head of Department
(Science)

[Signature]
Principal
Government Polytechnic
Mumbai



Programme : CE/ME/EE/IS/EC/CO/IF/LG/LT/RT									
Course Code: SC16107	Course Title: Mathematics-1								
Compulsory / Optional: Compulsory									
Teaching Scheme and Credits				Examination Scheme					
TH	TU	PR	Total	TH	TS	PR	OR	TW	Total
3	1	-	4	70 (3 Hrs.)	30	-	-	-	100

Rationale:

This subject is kept under the branch of science. This subject intends to teach student basic facts, concepts, principle and procedure of mathematic as a tool to analyze Engineering problems and as such lays down foundation for understanding the engineering and core technology subjects.

Course Outcomes:

Student will be able to:

CO1	Identify the basic principles of mathematics about the field analysis of any engineering problem.
CO2	Apply rules, concept and properties to solve the basic problems.
CO3	Establish the relation between two variables.

Course Content Details:

Unit No	Topics / Sub-topics
1	Logarithms: 1.1 Definition of logarithm(Natural and Common logarithm) 1.2 Laws of logarithm 1.3 Change of base rule& simple examples based on laws. 1.4 Application of concept.
2	Determinants: 2.1 Definition of determinant 2.2 Expansion of determinant of order 2&3 2.3 Crammer's rule to solve simultaneous equations in 3 unknowns 2.4 Application of concept.
3	Matrices: 3.1 Definition of a matrix of order m x n 3.2 Types of matrices 3.3 Algebra of matrices - equality, addition, subtraction, multiplication & scalar multiplication. 3.4 Transpose of matrix. 3.5 Minor , co-factor of an element.



	3.6 Adjoint & inverse of a matrix by adjoint method. 3.7 Solution of a simultaneous equations by matrix inversion method. 3.8 Application of concept.
4	Trigonometry: 4.1 Trigonometric ratios of allied angles, compound angles, multiple angles (2A, 3A), Sub multiple angles 4.2 Factorization and De-factorization Formulae 4.3 Inverse Circular function (definition and simple problems).
5	Straight line: 5.1 Slope & intercept of straight line. 5.2 Equation of straight line in slope point form, slope intercept form, two point form, two intercept form, General equation of straight line. 5.3 Angle between 2 straight lines; condition of parallel & Perpendicular lines. 5.4 Intersection of two lines. 5.5 Length of perpendicular from a point on the line & Perpendicular distance between parallel lines.
6	Vectors: 6.1 Definition of vector , position vector 6.2 Algebra of vectors(Equality, addition ,subtraction and scalar multiplication) 6.3 Dot (Scalar) product & Vector (Cross) product with properties.

Suggested Specifications Table with Hours and Marks (Theory):

Unit No.	Topic Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Logarithms	03	02	04	00	06
2	Determinants	03	00	04	00	04
3	Matrices	14	06	08	06	20
4	Trigonometry	14	06	08	06	20
5	Straight line	10	04	04	06	14
6	Vectors	04	00	02	04	06
		Total	48	18	30	22
70						

Legends: R- Remember; U-Understand; A- Apply and above levels (Bloom's revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.



List of Tutorials:

Note: 1) Tutorials are to be used to get enough practice.
 2) Make group of 20 student and for each group minimum 10 problems are to be given.

Sr. No.	Unit	Tutorials	Approx. Hours
1	1	Logarithms	02
2	2	Determinants	02
3	3	Matrices(Algebra of matrices)	02
4	3	Matrices(Adjoint , inverse& solution of equation using matrix inversion method)	02
5	4	Trigonometric ratio of allied, compound, multiple and sub multiple angles.	02
6	4	Factorization and De-factorization formulae	02
7	4	Inverse trigonometric ratios	01
8	5	Straight line	02
9	6	Vectors	01
Total			16

References/ Books:

Sr.No.	Name of Book	Author	Publisher
1	Mathematics for polytechnic students	S.P. Deshpande	Pune Vidyarthi Graha Prakashan
2	Mathematics for polytechnic students (Volume I)	H. K. Das	S.Chand Prakashan
3	Companions to basic math's	G. V. Kumbhojkar	Phadke Prakashan
4	Applied Math's	N. Raghvendra Bhatt Late Shri R Mohan Singh	Tata McGraw Hill Publication

Course Curriculum Development Committee:**a. Internal Faculty**

- i. Miss.J.J.Ratnanai.
- ii. Mr.V.S.Patil

b. External Faculty

- i. Prof.P.S.Dave

Academic Coordinator
(R. A. Patil)

Head of Department
(Science)

Principal
Govt. polytechnic, Mumbai

Programme : Diploma in CE/EE/EC/ME/CO/IF/IS/LG/LT/RT Engineering									
Course Code: SC16104			Course Title: Engineering Physics						
Compulsory / Optional: Compulsory									
Teaching Scheme and Credits				Examination Scheme					
TH	TU	PR	Total	TH	TS	PR	OR	TW	Total
3	-	2	5	70 (3 Hrs.)	30	-		50	150

Rationale:

The subject is included under the category of science. The special feature of the subject is to develop the laboratory skill using principles of scientific phenomenon. This course will serve to satisfy the need of the technical student for his development in technical field. Deep thought is given while selecting the topics related to all programmes which will develop intellectual skills of the students. Ultimately the focus of the course is on psychomotor skill.

Course Outcomes:

After the completion of course, students will be able to

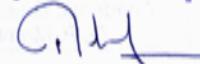
CO1	Know the physical quantities accurately, to measure using different instruments and to interpret the results from observations and calculations.
CO2	Know the physical properties of the various materials that are used by the engineer and to understand the principle and laws of physics.
CO3	Know the basic facts in Physics viz, force, elasticity, viscosity, surface tension, waves and light and to apply the knowledge to correlate the properties of materials, their engineering uses and applications.
CO4	Classify and develop laboratory skills including the use of variety of physics apparatus, the compilation of data, its interpretation and analysis.
CO5	Achieve refined presentation skills through the presentation of coherent and comprehensible written accounts of laboratory work.



Course Content Details:

Unit No	Topics / Sub-topics
1	<p>Physical Measurements and Units</p> <p>1.1 Fundamental Physical quantities, examples. 1.2 Derived physical quantities, examples. 1.3 Definition and requirements of unit 1.4 System of units, C. G. S., M. K. S. and S. I. units. 1.5 Rules to write the unit and conventions of units and numerical. 1.6 Error – Definition, types of errors and minimization of errors.</p>
2	<p>Motions:</p> <p>2.1 Linear motion –Definition, equation of motions: $v = u + at$, $s = ut + \frac{1}{2}at^2$, $v^2 = u^2 + 2as$ and numerical.</p> <p>2.2 Periodic motions- a) Oscillatory motion, b) Vibratory motion, c) Spin motion, d) S.H.M. (only definition and examples), e) Circular motion.</p> <p>2.3 Circular motion :</p> <p>a) Introduction of the terms: Time period, frequency, amplitude, wavelength, phase. Uniform circular motion, Radius vector, linear velocity, Angular velocity , Angular acceleration,</p> <p>b) Relation between linear velocity and angular Velocity, Radial or centripetal acceleration (derivation), Three equations of motion (no derivations) Centripetal and Centrifugal force, examples and applications.</p> <p>c) Banking of Roads, its necessity and applications. Numericals based on the topic</p>
3	<p>General Properties of Matter:</p> <p>3.1 Elasticity:</p> <p>3.1.1 Elastic, plastic and rigid substances, their examples. 3.1.2 Types of deformations. 3.1.3 Definition of elasticity, stress, strain and its types. 3.1.4 Hooke's Law and elastic limit. 3.1.5 Stress versus Strain curve when the wire is under continuously increasing stress, yield point, breaking point. 3.1.6 Young's Modulus, bulk modulus and modulus of rigidity – Definition, explanation and numerical.</p>

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Academic Co-ordinator
G. P. Mumbai

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	<ul style="list-style-type: none"> 3.1.7 Factor of safety. 3.1.8 Applications of elasticity. <p>3.2 Viscosity :</p> <ul style="list-style-type: none"> 3.2.1 Concept and Definition of viscosity, velocity gradient. 3.2.2 Newton's law of viscosity, Co-efficient of viscosity, unit of viscosity 3.2.3 Stokes' law, terminal velocity, derivation of Stokes' formula. 3.2.4 Streamline flow, turbulent flow, critical velocity, examples. 3.2.5 Reynolds' number and its significance. 3.2.6 Applications of viscosity and numerical. <p>3.3 Surface Tension :</p> <ul style="list-style-type: none"> 3.3.1 Concept of surface tension. 3.3.2 Adhesive and cohesive forces, examples. 3.3.3 Laplace's Molecular theory of surface tension 3.3.4 Angle of contact, its significance. 3.3.5 Expression for surface tension by capillary rise method. 3.3.6 Effect of impurity and temperature. 3.3.7 Applications of surface tension. 3.3.8 Numericals.
4	<p>Sound and Acoustic :</p> <p>4.1 Sound Waves :</p> <ul style="list-style-type: none"> 4.1.1 Wave motion, types of waves – progressive, longitudinal and transverse waves. 4.1.2 Characteristics of longitudinal and transverse waves and comparison. 4.1.2 Free or natural vibrations and forced vibrations, resonance – definition and examples. 4.1.3 Newton's formula for velocity of sound and Laplace's correction. 4.1.4 Effect of temperature , pressure & humidity on velocity of sound and numerical. 4.1.5 Determination of velocity of sound by resonance method. <p>4.2 Acoustics :</p> <ul style="list-style-type: none"> 4.2.1 Definition of echo, reverberation , reverberation time and acoustic 4.2.2 Sabine's formula for reverberation time no (derivation) 4.2.3 Factors affecting acoustics of sound. 4.2.4 Acoustical planning of building. 4.2.5 Numericals.

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5	<p>Optics and Optical Fibers :</p> <p>5.1 Optics :</p> <ul style="list-style-type: none"> 5.1.1 Revision of reflection and refraction of light. 5.1.2 Laws of refraction, Snell's law. 5.1.3 Determination of refractive index. 5.1.4 Dispersion, dispersive power, Prism formula (no derivation) 5.1.5 Critical angle, Total internal reflection. Examples and applications. 5.1.6 Numericals. <p>5.2 Optical Fibers :</p> <ul style="list-style-type: none"> 5.2.1 Principle of propagation of light through optical fiber. 5.2.2 Structure of optical fiber. 5.2.3 Concept of numerical aperture and acceptance angle (formula). 5.2.4 Types of optical fiber. 5.2.5 Method of production of optical fiber. 5.2.6 Applications (electronics and medical) and comparison with electrical cable for communication.
6	<p>Nanotechnology, Laser and Ultrasonic:</p> <p>6.1 Nanotechnology :</p> <ul style="list-style-type: none"> 6.1.1 Introduction to nanotechnology. 6.1.2 Definition of nanoscale, nanometer and nanoparticles, nanotechnology. 6.1.3 Definition and examples of nanostructured materials. 6.1.4 Methods of production of nanomaterial- <ul style="list-style-type: none"> a. Top down approach. b. Bottom up approach. 6.1.5 Techniques for the measurement of nanoparticles. 6.1.6 Applications of nanotechnology in different fields - <ul style="list-style-type: none"> a. electronics, b. automobile, c. medical, d. textile, e. cosmetics, e. environmental, f. space and defense. <p>6.2 LASER and Ultrasonic :</p> <p>a) LASER</p> <ul style="list-style-type: none"> 6.2.1a) LASER introduction, 6.2.1b) Properties of laser, 6.2.1c) Spontaneous and stimulated emission, 6.2.1d) Population inversion, Optical pumping, 6.2.1e) Types of LASER, He-Ne Laser- construction and method of production. 6.2.1f) Applications of LASER.



	<p>b) Ultrasonic:</p> <p>6.2.2a) Ultrasonic waves and infrasonic waves.</p> <p>6.2.2b) Audible range of soundwave,</p> <p>6.2.2c) Piezoelectric effect and magnetostriction effect.</p> <p>6.2.2d) Methods for the production of ultrasonic wave (any one),</p> <p>6.2.2e) Properties of ultrasonic wave.</p> <p>6.2.2f) Applications for distance measurement, hidden flaws detection, signaling, drilling holes, metal cutting.</p>
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Suggested Specifications Table with Hours and Marks (Theory):

Unit No	Topic Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Physical Measurements and Units	6	2	2	4	8
2	Motion	8	2	4	2	12
3	General properties of matter	10	3	3	2	15
4	Optics and Fiber optics	8	3	3	2	12
5	Sound and Acoustics	6	3	3	2	8
6	Nano Technology, Laser and Ultrasonic.	10	3	3	2	15

Legends: R- Remember; U-Understand; A- Apply and above levels (Bloom's revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of experiments/Assignments:
(Minimum TEN experiments should be completed by each student)

Sr. No.	Unit	Experiment/Assignment	Approx. Hours
1	1	To measure the dimensions of given objects and to determine their volume using Vernier caliper.	2
2	1	To measure the dimensions of given objects and to determine their volume using micrometer screw gauge.	2
3	2	To determine Acceleration due to gravity by simple pendulum	2
4	3	To determine coefficient of viscosity of liquid by Stokes' method.	2
5	3	To determine coefficient of viscosity of liquid by Poiseuille's method.	2
6	3	To determine the surface tension of liquid using capillary rise method.	2
7	3	To determine the Young's modulus of elasticity of wire using Young's apparatus.	2
8	4	To determineref refractive index by pin method.	2



9	4	To determine refractive index by total internal reflection.	2
10	4	To determine refractive index using spectrometer	2
11	5	To determine velocity of sound by resonance method.	2
12	5	To determine sound absorption coefficient of different materials.	2
13	6	Flaws detection using ultrasonic waves.	2
14	6	Experiments on LASER	2
15	6	To plot the characteristics of photo cell.	2
16	All	Showing Video on different applications related to units,	2
Total			32

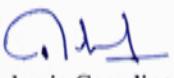
Notes: If possible videos should be shown on different topics- especially on topics – LASER, Ultrasonic, TIR, Refractive index and on spectra.

References/ Books:

Sr.No.	Name of Book	Author	Publisher
1	Applied Physics	Manikpure&Deshpan de	S.Chand& Company
2	Applied Physics	B.G.Bhandarkar	Vrinda Publication
3	Optics & Optical Fibers	BrijlalSubhramanyan	
4	Engineering Physics	Gaur and S.L.Gupta	S.Chand& Company
5	Resnick and Halliday	Physics	Tata McGraw Hills
6	H.C.Varma	Physics part I & II	
7	D.S.Mathur	Properties of Matter	
8	Dr. A. U. Warad	Basic Physics	

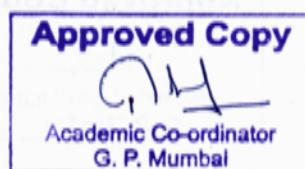
Course Curriculum Development Committee:

- i. Internal Faculty:- Dr. A. U. Warad.
- ii. External Faculty :- Mrs. S. A. Thorat


Academic Coordinator
(R. A. Patil)


Head of Department
(Science)


Principal
Govt. Polytechnic, Mumbai



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Programme : Diploma in CO/EC/IS/IT									
Course Code: EE16201			Course Title: Fundamentals of Electrical Engineering						
Compulsory / Optional: Compulsory									
Teaching Scheme and Credits			Examination Scheme						
TH	TU	PR	Total	TH	TS	PR	OR	TW	Total
3	-	2	5	70 (3 Hrs.)	30	-	25	25	150

Rational:

All the equipment related to electronics, instrumentation, computer and information technology utilizes electrical energy for their operations. Diploma holders from these branches, comes across various types of electrical circuits. The purpose of this subject is to give fundamental knowledge of electrical engineering so that they will be able to handle electrical equipments, circuits and analyze simple DC/AC circuits.

Course Outcomes:

Students should be able to

CO1	Define basic terminologies related to, Generation, AC/DC circuits and transformer.
CO2	State various laws related to Magnetism, Electromagnetism, Circuits and Energy generation.
CO3	Solve simple DC/AC circuits
CO4	Analyse response of various types of simple AC circuits when applied to AC excitation.
CO5	Utilize electrical energy for simple applications confidently and with attention to safety.

Unit No	Topics/subtopics
1	Power Generation: 1.1 Basic block diagram of generating station, Generator principle. 1.2 Conventional and Nonconventional energy sources. 1.3 Types of power stations in Maharashtra and their list with capacities. 1.4 Current energy scenario in India and Maharashtra.
2	Basic Concepts : 2.1 Electric Current: Definition, Direction of current, unit, Electric potential, Potential difference, Concept of EMF and Potential difference. 2.2 Resistance: Definition, unit, Factors on which resistance depends Effect of temperature on resistance. (<i>simple numerical</i>) 2.3 Conductance, Ohms Law .(<i>simple numerical</i>) 2.4 Electric power and energy concept and unit. (<i>simple numerical</i>) 2.5 Measurement of voltage, current, power and energy.



	2.6 Effects of Electric Current: Heating Effect, Magnetic Effect and Chemical Effect. <i>(Only Introduction)</i>
3	<p>DC Circuits:</p> <p>3.1 Introduction to concept.</p> <p>3.2 DC series circuit: Concept, Equation for equivalent resistance connected in series, Main Characteristics, Advantages, Disadvantage, Application of series circuit.</p> <p>3.3 DC Parallel circuit: Concept, Equation for equivalent resistance connected in parallel, Main Characteristics, Advantages, Application of Parallel circuit, Current divider rule.</p> <p>3.4 Series parallel circuit, Application of series parallel circuit.</p> <p>3.5 Definition of: Circuit, Parameter, Liner circuit, Nonlinear circuit, Bilateral circuit, Unilateral circuit, Electric network, Passive-Network, Active network, Node, Branch, Loop, Mesh.</p> <p>3.6 Kirchhoff's current law, Kirchhoff's voltage law, sign convention. <i>(simple numerical limited up to two variables on above)</i></p>
4	<p>Magnetism and Electromagnetic induction:</p> <p>4.1 Definition of Magnetic field, Magnetic flux, Magnetic flux Density, Magnetic Intensity, absolute and Relative permeability, relation between B and H.</p> <p>4.2 Magnetic effect of electric current, Right hand rule, cork screw rule, Current carrying conductor in magnetic field, Fleming's left hand rule.</p> <p>4.3 Magnetic circuit, mmf, Reluctance, permeance, comparison between Magnetic and Electric circuit.</p> <p>4.4 Magnetisation curve for magnetic and non magnetic material, Magnetic Hysteresis, Hysteresis Loop, Hysteresis Loops for Hard & Soft Magnetic Materials, residual flux, retentivity, coercive force, Hysteresis loss.</p> <p>4.5 Electromagnetic induction , Faradays laws of electromagnetic Induction , Lenzs law, Flemings right hand rule , Dynamically induced EMF, Statically induced EMF ,self inductance , mutual inductance , coefficient of coupling. <i>(Only equations , No derivation of equations and numerical on unit 4)</i></p>
5	<p>AC Fundamentals :</p> <p>5.1 Difference between AC and DC quantity.</p> <p>5.2 Advantages of AC Over DC.</p> <p>5.3 Generation of A.C. Voltage and current.</p> <p>5.4 Mathematical Expression of alternating quantity & its derivation.</p> <p>5.5 Definition of Waveform, Instantaneous value ,Cycle, Time period, Frequency, Amplitude, Peak value , Average value and RMS value, Form factor and Peak factor for sinusoidal</p> <p>5.6 Phase, Phase difference , Phasor representation of sinusoidal quantities</p>
6	<p>AC series circuit :</p> <p>6.1 Circuit diagram, phasor diagram and wave form of a.c. circuits through pure Resistance, Pure Inductance and pure Capacitance. Concept of inductive reactance and capacitive reactance .</p> <p>6.2 Circuit diagram, phasor diagram and wave form of a.c. circuits RL, RC and RLC circuit. Impedance and Impedance Triangle.</p> <p>6.3 Active power, Reactive power and apparent power, power factor.</p>
7	<p>Transmission Distribution and Transformer:</p> <p>7.1 Single line diagram of electrical system. Definition of transmission, distribution and</p>

	their voltage levels. 7.2 Working Principle of transformer. E.M.F. equation (<i>No derivation</i>) 7.3 Transformation ratio. (<i>Simple numerical problems</i>) 7.4 Transformer rating. Construction of transformer. 7.5 Types of transformer based on transformation ratio and construction with their applications.
8	Electrical wiring: 8.1 Types of wiring for Domestic Installation : Conduit , Casing and Capping and Concealed (<i>brief information and application</i>) 8.2 Concept of lighting circuit and power circuit. 8.3 Electric wiring - wiring accessories, switches, sockets, ICDP, ICTP, Ratings of Wires, switches, sockets used for lighting and power circuit. 8.4 Fuses, importance and types for domestic applications .MCB, their ratings for domestic applications. 8.5 One lamp controlled by one switch. Staircase wiring. 8.6 Earthing, necessity and types. 8.7 Safety precautions in electrical indoor & outdoor installations.

Suggested specification table with Hours and Marks (Theory)

Unit No	Topic Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Power Generation	2	02	02	00	04
2	Basic Concepts	5	02	04	02	08
3	DC Circuits	6	02	04	06	12
4	Magnetism and Electromagnetic induction	8	02	04	06	12
5	AC Fundamentals	5	02	04	06	10
6	AC series circuit	10	02	06	00	08
7	Transmission Distribution and Transformer	6	02	04	00	08
8	Electrical wiring	6	02	02	04	08
Total		48	16	30	24	70

Legends: R- Remember; U-Understand; A- Apply and above levels (Bloom's revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of Experiment (Any Eight)

Sr. No	Unit	Experiment/Assignment	Approx. Hours
1	8	Safety precautions to be observed for indoor and outdoor installations and know first aid practice also refer artificial respiration chart.	04
2	3	Measure voltages and currents in series and parallel resistive circuit.	04
3	3	Verify Kirchhoff's current & voltage laws.	04



4	4	Observe that EMF is induced in coil when magnetic lines of force move across winding and observe its polarity	04
5	5	Observe AC waveform and measure AC voltage & DC voltage with oscilloscope.	04
6	6	Observe the phase relationship between voltage and current in pure resistive, inductive and capacitive circuit.	04
7	6	Observe the phase relationship between voltage and current in R-L series circuit.	04
8	2, 6	Measure Power and Energy consumed by Resistive circuit and purely inductive circuit.	
9	7	Measure the transformation ratio of transformer.	04
10	2, 6	Prepare the list of household electrical equipments and write down their wattage. Estimate the total energy consumed in a month by the household appliances listed above.	04
11	8	Identify different types of wires and accessories switch, fuse, socket outlet used in wiring and write their rating	04
12	8	Prepare extension board with three pin sockets.	04
13	8	Measure Earth resistance using earth tester. Observe procedure of plate earthing.	04

Reference Books:

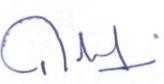
Sr. No	Author	Title	Publication
01	B. L. Thereja and A. K. Thereja	Electrical Technology (Volume I)	S. Chand and Co. Ltd.
02	V. K. Mehta and Rohit Mehta	Basic Electrical Engineering	S. Chand and Co. Ltd.
03	Edward Hughes	Electrical Technology	ELBS Publications.

Course Curriculum Development Committee:**a. Internal Faculty**

- i. Mrs. V.U. Bhosale
- ii. Mrs. J.D. Waghmare
- iii. Mr. P. N. Padghan

b. External Faculty

- i. Mrs Jyoti Naik (Lecturer, Government Polytechnic , Pune)


Academic Coordinator
(R. A. Patil)


Head of Department
(Electrical Engineering)


Principal
Govt. Polytechnic, Mumbai



Programme : ME/CE/EC/CO/IF/IS/EE/RT/LT/LGFT											
Course Code: ME16201	Course Title: Engineering Drawing - I										
Compulsory / Optional: Compulsory											
Teaching Scheme and Credits			Examination Scheme								
TH	TU	PR	Total	TH	TS	PR	OR	TW	Total		
2	-	4	6	-	-	50	-	50	100		

Rationale:

Engineering drawing is the graphical language. Engineers, designers, planners, supervisors and technician to express their thoughts, ideas and concepts use it. Engineering drawing offers students an insight into the methods of exploring engineering problems. It imbibe the principles of accuracy and exactness with regard to the information necessary for the production of an engineering component. This preliminary course aims at building a foundation for the further course in drawing and other allied subjects. This subject is useful in developing imagination, drafting and sketching skills of students.

Course Outcomes: Student should be able to,

CO1	Effectively use drawing instruments for enhancing speed and accuracy in drawing.
CO2	Construct different engineering curves and know their applications.
CO3	Draw Orthographic Projections of line, planes and solids with given orientation.
CO4	Visualize three dimensional objects and draw Isometric Projections.
CO5	Draw the free hand sketches of different thread forms, bolts, screws and nuts.

Course Content Details:

Unit No	Topics / Sub-topics
1	Principles of Drawing : Drawing Instruments and their uses, Standard sizes of drawing sheets (ISO-A series), Letters and numbers (single stroke vertical), Convention of lines and their applications, Scale (reduced, enlarged & full size), Dimensioning as per SP-46 (Latest edition), Simple geometrical constructions, Redrawing figures using above geometrical construction.



2	Engineering curves & Loci of Points: To draw an ellipse by Arcs of circle method & Concentric circles method, To draw a parabola and hyperbola by Directrix and focus method. To draw involutes of circle & pentagon, To draw a cycloid, epicycloids, hypocycloid, Loci of points on any link of (i) 4 bar mechanism and (ii) Single slider crank mechanism with given specifications.
3	Orthographic projections: Introduction to Orthographic projections, Conversion of pictorial view into Orthographic Views (First Angle Projection Method Only) – elevation, plan and end view, Types of sections and Conversion of pictorial view into sectional orthographic views. (complete object involving slots, threads, ribs etc)
4	Isometric projections: Isometric scale, comparison of true scale with isometric scale, Conversion of orthographic views into isometric View/projection. (complete object involving slots, ribs, holes etc)
5	Projection of Lines and planes: Line inclined to one reference plane (HP or VP) and limited to both ends in one quadrant. Projection of simple planes of circular, square, rectangular, rhombus, pentagonal, and hexagonal, inclined to one reference plane and perpendicular to the other.
6	Freehand Sketches: Draw neat & proportionate free hand sketches of given elements and understands its function and use. Different types of thread forms, nuts, bolts, screws and Foundation bolts (Rag, Eye and Lewis type).

Suggested Specifications Table with Hours and Marks (Theory):

Unit No	Topic Title	Teaching Hours	Distribution of Practical Marks			
			R Level	U Level	A Level	Total Marks
1	Principles of Drawing	04	06	-	-	06
2	Engineering curves & Loci of Points	06	-	06	-	06
3	Orthographic projections	06	-	-	12	12
4	Isometric projections	06	-	-	12	12
5	Projection of Lines and planes	06	-	-	06	06
6	Freehand Sketches	04	08	-	-	08
Total		32	18	06	30	50

Legends: R- Remember; U-Understand; A- Apply and above levels (Bloom's revised Taxonomy).



Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of Sheets/Assignments:

Sr. No.	Unit	Sheets /Assignment	Approx. Hours
1	1	Drawing types of lines, problems on redraw figures & geometrical construction.	08
2	2	Engineering curves (four problems)	08
3	3	Orthographic projection of objects uses first angle method of projection. (Minimum two problems)	08
4	3	Orthographic projection with section of objects using first angle method of projection. (Minimum two problems)	08
5	4	To draw Isometric planes, Isometric projections with Isometric scale. (Two objects)	08
6	4	To draw Isometric views of objects including slots, holes and sloping faces. (Two objects)	08
7	5	Two problems on projection of lines and two problems on projection of planes	08
8	6	Different types of thread forms, nuts, bolts and screws.	08
Total			64

Assignment:- Assignment on above topic based on the question bank provided for the practical examination.

Note: Practical examination will be conducted based on the question bank provided.

References/ Books:

1. Books:

Sr. No.	Name of Book	Author	Publisher
1	Engineering Drawing	N. D. Bhatt	Charotar Publishing House 2010
2	Engineering Drawing	Amar Pathak	Dreamtech Press, 2010
3	Engineering Drawing	D. Jolhe	Tata McGraw Hill Edu., 2010
4	Text Book on Engineering	K. L. Narayan,	Scitech Publications, 24th



	Drawing	P. Kannaiah	Reprint August 2011
5	Engineering Drawing and Graphics + AutoCAD	K. Venugopal	New Age Publication, Reprint 2006.
6	Engineering Drawing practice for schools and colleges	IS Codes SP - 46.	-

2. Video Cassettes / CD's

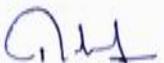
1. Instructional / Learning CD developed by ARTADDICT.

Course Curriculum Development Committee:**a. Internal Faculty**

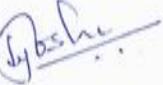
1. Dr. S. B. Mahagaonkar 
 2. Mr. K. B. Salunke 
 3. Mr. S. P. Kadam

b. External Faculty

1. Mr. K. V. Patil



Academic Coordinator
(R. A. Patil)



Head of Department
(Mechanical Engineering)
S. V. Joshi



Principal
Govt. polytechnic Mumbai

Programme Code: Computer Engineering																
Course Code: C016203				Course Title: Computer Workshop												
Compulsory / Optional: C																
Teaching Scheme and Credits				Duration of Examination			Examination Scheme									
TH	TU	PR	Total	TH	TS	PR	TH	TS	PR	OR	TW	Total				
--	----	02	02	---	----	02	-----	-----	50		--	50				
(*) indicates assessment by Internal and External examiners																

Rationale

The aim of the subject is to teach the basic working of Electronic and computer components .The students will be able to select the proper peripheral as per their specification and requirement. The subject is practical oriented and its will help to student identify Electronic and Computer Components.

Course Outcomes:

CO1	Identify and test various electronic components.
CO2	Handle different electronic instruments
CO3	Identify computer peripherals.
CO4	Interface peripherals with computer system.



Unit No	Topic/ Sub-topics
01	Introduction To Electronic Components and Instruments <ul style="list-style-type: none"> 1.1 Computer workshop lab. Electronic Tools & instruments. safety precaution, soldering and de- soldering technique etc. 1.2 Use of analog and digital multi- meters for measurement Of voltage, current & resistance. 1.3 Identification of active and passive components with color codes and Verifying their values with multi-meters / LCR meters.
02	Study of CROs <ul style="list-style-type: none"> 2.1 To study Front Panel of CRO. 2.2 Testing of Component using CRO. 2.3 To observe Different waveform using Function Generator
03	Introduction to Computer Hardware <ul style="list-style-type: none"> 3.1 Block diagram of a computer <ul style="list-style-type: none"> • Identification of Mother Board ,Components and slots • Types of Processors and their specifications(Xeon, and -AMD ,dual core, core2 duo,i3,i5,i7) • RAM(DDR, DDR1,DDR2,DDR3) • ROM • Cache memory (hard disk drive and processor) 3.2 Type Interfaces/connectors <ul style="list-style-type: none"> • IDE connector ,SATA connector, ps/2 connector, serial (com)port, usb connector , parallel (lpt) port
04	Components of Computer System <ul style="list-style-type: none"> 4.1SMPS 4.2Motherboard 4.3CD/ DVD ROM Drive 4.4HDD(Internal/External)
05	Peripherals : (Input /Output Devices) of Computer Systems Plug and Play Devices - <ul style="list-style-type: none"> 5.1Display Systems (Monitor) <ul style="list-style-type: none"> • Types and Features of CRT, TFT, LCD, LED 5.2Keyboard <ul style="list-style-type: none"> • Introduction



	<ul style="list-style-type: none"> • Classification <p>5.3 Mouse</p> <ul style="list-style-type: none"> • Introduction • Types <p>5.4 Joystick</p> <p>5.5 Light Pen</p>
06	<p>Peripherals : (Input /Output Devices) of Computer Systems Installable Devices -</p> <p>6.1 Printer</p> <ul style="list-style-type: none"> • Introduction • Types of Printer (Dot Matrix , Laser, Network printer, High speed printer, Color printer) <p>6.2 Scanner</p> <ul style="list-style-type: none"> • Introduction • Scanner Types • Hand held scanner • Flatbed scanner • Special scanner(ICR/OMR technology) • Application • Characteristics
07	<p>Storage Devices</p> <p>7.1 HARD DISK(PATA,SATA)</p> <p>7.2 CD /DVD Drives,Blue-ray disks</p> <p>7.3 External device (Pen drive , Memory card ,External HD, NIC)</p> <p>7.4 Different latest Add on Cards and Installation -(eg. LAN Card, Sound card ,VGA card, Firewire card ,TV Tuner Card, etc.)</p>



3

Suggested Specification Table with Hours and Marks (Practical)

Unit No	Topic Title	Teaching Hours	Distribution of Practical Marks
01	Introduction To Electronic Components and Instruments	05	
02	Study of CROs	04	
03	Introduction to Computer Hardware	05	
04	Components of Computer System	04	
05	Peripherals : (Input /Output Devices) of Computer Systems Plug and Play Devices -	05	
06	Peripherals : (Input /Output Devices) of Computer Systems Installable Devices	05	
07	Storage Devices	04	
Total		32	Not Applicable

List of Practical's:-

1.	Identification and Demonstration Electronic Components.
2.	Identification and Demonstration Electronic Instruments.
3.	Prepare charts for symbols of components, devices, Electromechanical switches, connectors.
4.	Demonstration of Multi-Meters.
5.	Demonstration of CRO.
6.	Demonstration of Function Generator.
7.	Identification Components of Computer System.
8.	Demonstration of monitor.
9.	Demonstration of different keyboards.
10.	Demonstration of different Mouse.



11.	Demonstration & Installation of Printer.
12.	Demonstration & Installation of Scanner.
13.	Demonstration of Storage Devices (Internal/External) .
14.	Select a small Electronic Circuit for a group 3-4 students Solder the component on PCB and Test the circuit.
15.	Identification Components on Motherboard.

Reference Books:

Sr. No.	Book Title	Author	Publication
01	Electronic Component And Materials	Madhuri Joshi	Shroff Publication
02	Hardware And Networking	Vikas Gupta	Comdex Publication
03	Electronic Components	Dr. K. Padamanabhan, P. Swaminathan	Laxmi Publications
04	Modern Computer Hardware	Manahar Lotia	BPB Publications

Course Curriculum Development Committee:

a) Internal Faculty:

- i) Aswar Varsha M. (Lecturer in Computer Engineering)
- ii) Kalyankar A. D. (Lecturer in Computer Engineering)
- iii) Nagargoje S.R. (Lecturer in Computer Engineering)

b) External Faculty:

- i) Bangal Satish V. (HOD SV Polytechnic, Borivali)



Academic Coordinator
(R. A. Patil)

Head of Department
(Computer Engineering)

5

Principal
Govt. Polytechnic Mumbai

Programme Code: Computer Engineering													
Course Code: CO16204			Course Title: Basics of Computer Engineering										
Compulsory / Optional: C													
Teaching Scheme and Credits				Duration of Examination			Examination Scheme						
TH	TU	PR	Total	TH	TS	PR	TH	TS	PR	OR	TW	Total	
01	----	04	05	---	----	03	-----	-----	50		50	100	
(*) indicates assessment by Internal and External examiners													

Rationale

A course designed to assure a basic level of computer applications literacy to include word processing, spreadsheet, presentation software, database, LAN, e-mail, and Internet utilization. It also covers application software data management, which helps for documentation, calculation, presentation purpose etc.

This course gives the introduction of computer System

Course Outcomes:

CO1	Identify/ Classify Computer peripherals
CO2	Understand concept of networking, memory
CO3	Aware basic concept of programming
CO4	Create Document using word
CO5	Prepare Sheet/chart for different mathematical calculation
CO6	Develop PowerPoint presentation on topics
CO7	Create Database in Ms-Access



Unit No	Topic/ Sub-topics
01	Basics of Computer <ul style="list-style-type: none"> 1.1 Introduction <ul style="list-style-type: none"> 1.1.1 Block Diagram of Computer System 1.1.2 Basic Operation(Startup ,shut Down ,log off ,restart) 1.1.3 Users privileges (Administrator ,Guest) 1.2 Software <ul style="list-style-type: none"> 1.2.1 System Software(Operating System) 1.2.2 Application Software 1.3 Application: Industry, Education, Communication, Media, R&D
02	Peripherals (Input /Output Devices) <ul style="list-style-type: none"> 2.1 Keyboard <ul style="list-style-type: none"> 2.1.1 Introduction 2.1.2 Classification 2.1.3 Keyboard Organization, Debouncing 2.2 Monitor <ul style="list-style-type: none"> 2.2.1 Introduction 2.2.2 Features of CRT/TFT/LCD 2.3 Mouse <ul style="list-style-type: none"> 2.3.1 Introduction 2.3.2 Types 2.4 Printer <ul style="list-style-type: none"> 2.4.1 Introduction 2.4.2 Types of Printer 2.5 Scanner <ul style="list-style-type: none"> 2.5.1 Introduction 2.5.2 Working Principle of Scanner 2.5.3 Scanner Types <ul style="list-style-type: none"> • Hand held scanner • Flatbed scanner • Special scanner(ICR/OMR technology) 2.6 Joystick 2.7 Light Pen
03	Memory and Storage Devices <ul style="list-style-type: none"> 3.1 Internal <ul style="list-style-type: none"> 3.1.1 RAM(Static & Dynamic) 3.1.2 ROM, EPROM 3.2 External <ul style="list-style-type: none"> 3.2.1 Hard Disk 3.2.2 Portable Hard Disk, 3.2.3 Pen Drives, 3.3.CD/DVD and Types of CD's/ DVD's 3.4 ZIP drive
04	Networking Devices <ul style="list-style-type: none"> 4.1 Devices



	4.1.1 Modem 4.1.2 Hub/Switch 4.1.3 Router 4.1.4 Connectors 4.1.5 Network Interface Card 4.2 Application of Computer Networks(Printer Sharing, File Sharing) 4.3 Types of Network :LAN,WAN,MAN
05	Introduction To Programming Language and features 5.1 Procedural Oriented Programming Language 5.2 Object Oriented Programming Language
06	Number System 6.1 Binary 6.2 Decimal 6.3 Octal 6.4 Hexadecimal 6.5 Conversion Binary to Decimal, Decimal to binary
07	word 7.1 Introduction to Microsoft word: Introduction to toolbar, advantages and features of Ms word. 7.2 Working with word document. 7.2.1 Edit menu: go to, replace, find, select all, and cut, copy, paste. 7.2.2 View: document and map, header and footer, all tool bars. 7.2.3 Insert: hyperlink, foot note, end note, comment, picture, chart, date and time, page number, etc... 7.2.4 Format: tab setting, font, borders and shedding, bullets and numbering, background, etc... 7.2.5 Tools: printing envelopes and labels, mail merge, etc... 7.2.6 Table: draw table, insert table, formula, convert, sort, etc... 7.2.7 Window: use of split. 7.3 Printing Document 7.3.1 Page Setup 7.3.2 Page Formatting 7.3.3 Mirror Margin 7.3.4 Line Numbers 7.3.5 Print Preview 7.3.6 Printing Document
08	Excel 8.1 Introduction to Microsoft Excel: Advantages of Microsoft excel, Features of Microsoft excel 8.2 Working with worksheet: Entering data, Creating a series, Editing worksheet. 8.3 File handling. 8.3.1 Saving a new unnamed document 8.3.2 Saving a named work book 8.3.3 Closing a work book 8.3.4 Creating a new work book 8.3.5 Opening an existing work book 8.4 Creating formulas and auditing work sheet. 8.4.1 Creating formula

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	<p>8.4.2Creating a simple worksheet6 8.4.3Creating auto sum method 8.4.4Automatic calculation method</p> <p>8.5 Formatting worksheet</p> <p>8.5.1Text, number, currency, date and time 8.5.2 Alignment and orientation 8.5.3Font, font size, text color. 8.5.4 Border.</p> <p>8.6 Printing workbook</p> <p>8.6.1 Page set up 8.6.2 Page formatting. 8.6.3Margins 8.6.4Header and footer 8.6.4 Sheet 8.6.5 Print preview 8.6.6 Making final formatting adjustments 8.6.7 Printing a work sheet.</p> <p>8.7 Concept of Macro</p> <p>8.7.1 Creation of Macro 8.7.2 Run created macro</p>
09	<p>Power Point</p> <p>9.1Introduction to Microsoft PowerPoint: 9.1.1 What is the use of PowerPoint? 9.1.1 What is slide show?</p> <p>9.2 Starting PowerPoint.</p> <p>9.2.1 Understanding the PowerPoint Window, Title bar, and Menu bar. 9.2.2Using Toolbars, Rulers, status bar 9.2.3Using basic drawing tools, using auto shape tools, inserting text into object</p> <p>9.3Understanding the various views in power point.</p> <p>9.3.1 Slide view 9.3.2 Outline view 9.3.3 Slide sorter view 9.3.4 Notes page view 9.3.5 Slide show view.</p> <p>9.4 Changing Font color and applying effects.</p> <p>9.4.1 Font color. 9.4.2Line style, Dash style, Arrow style 9.4.3Using lines style, dash style, and arrow for objects. 9.4.4 Applying color fill, Gradient effect, Texture effect, Pattern effect, Picture effect.</p> <p>9.4.5Applying shadow effect, Applying 3d effect.</p> <p>9.5 Slide Transition</p> <p>9.6 Custom animation.</p> <p>9.6.1 Slide objects without animation. 9.6.2Animation orders, Timing. 9.6.3 Start animation On mouse click or Automatically</p> <p>9.7 Power point presentation Methods:</p>

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Academic Co-ordinator

4

CO16204

	9.7.1 Using Auto Content Wizards 9.7.2 Using Template method 9.7.3 Using Blank Presentation method
10	Access 10.1 Introduction to Ms-Access 10.1.1 How to create table in Ms-Access? 10.1.2 How to Create a database? 10.2 Operation on Table Queries: Select, Insert ,Delete, Add, Update 10.3 Import report from Excel to MS Access and view.

Suggested Specification Table with Hours and Marks (Theory)

Unit No	Topic Title	Teaching Hours	Distribution of Theory Marks
01	Basics of Computer	01	Not Applicable
02	Peripherals (Input /Output Devices)	02	
03	Memory and Storage Devices	02	
04	Networking Devices	01	
05	Introduction To Programming Language and features	01	
06	Number System	01	
07	Word	02	
08	Excel	03	
09	Power Point	03	
10	Access	02	
Total		16	



List of Practical's:-

1.	Demonstration of different keyboards			
2.	Demonstration & Installation of Printer.			
3.	Demonstration of monitor.			
4.	Demonstration of Scanner.			
5.	Demonstration of various Network Devices.			
6.	Creating files, icons and folders.			
7.	Working with Notepad, Calculator window.			
8.	Working with Word Window: Preparation of BIO-DATA, printing Documents, Preparation of application. Preparation of student information table, Use of Mail Merge to send and receive Mail.			
9.	Prepare an Excel-sheet for storing students' data having following columns- First name, Last-name, Address, Ph.no., Email_id, SSC percent., Cell no, Dept.			
10.	Create a following chart using Excel <table border="1"> <tr> <td>Student Name</td> <td>Percentage</td> <td>Grade</td> </tr> </table> Calculate the grade of students by using following conditions. <ul style="list-style-type: none"> If the percentage is more than or equal to 85 the grade is "excellent" If the percentage is more than or equal to 70 the grade is "distinction" If the percentage is more than or equal to 60 the grade is "first class" If the percentage is more than or equal to 50 the grade is "second class" Otherwise the grade is "fail" 	Student Name	Percentage	Grade
Student Name	Percentage	Grade		
11.	Prepare an Excel sheet which has: company sales figures for 12 months as Column and branches as rows. Using formula find Total sale in every month and total sale for every branch.			
12.	Prepare an Excel sheet for payroll System. Calculate HRA as =10% of basic. Calculate DA =15% of basic. Calculate Conveyance=5% of basic. Calculate total as = basic salary +HRA+DA+ Conveyance. Calculate PF as =5% of total			

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Academic Co-ordinator

	Determine designation as = if the employees net salary is more than 5000/- his designation is 'Executive' otherwise he is 'Clerk'.
13.	Prepare a power point presentation to Display objectives and contents of the Subject "Computer Fundamentals".
14.	Prepare a power point presentation to display information of our institute.
15.	Prepare a power point presentation to display information of your department.
16.	Working with Database

Reference Books:

Sr. No.	Book Title	Author	Publication
01	IBM PC & Clones	Govindrajalu	BPB Publication
02	Hardware and Networking	Vikas Gupta	Comdex Publication
03	MS Office 2007/2010	Courter & Marquis	BPB Publication

Required Software:

Open Source /Any data Management software

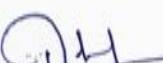
Course Curriculum Development Committee:

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b) External Faculty:

i) Bangal Satish V.(HOD SV Polytechnic,Borivali)



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