



Veermata Jijabai Technological Institute (V.J.T.I.)

(Central Technological Institute, Maharashtra State, INDIA)

H. R. Mahajani Marg, Matunga, Mumbai 400019

Tel.No. +91 22 24198101-02 Fax: +91 22 24102874

Website: www.vjti.ac.in

Programme Name: Diploma in Civil Engineering

Programme Code	DCE	2023-24
Duration of Programme	With Effect From Academic Year	16 WEEKS
Semester	Second	R-2023

Sr No	Course Title	Abbreviation	Course Type	Course Code	Total IKS Hrs for Sem.	Actual Contact Hrs./Week			Learning Scheme			Assessment Scheme												
						CL	TL	LL	Self-Learning (Term Work + Assignment)	Notional Learning Hours /Week	Credits	Paper Duration (Hrs.)	Theory			Based on LL & TL			Based on Self Learning					
													FA-TH (MST)			FA-PR (CA)			SA-PR (PR/OR)			SLA		
						Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
1	MATHEMATICS II	MS-II	AEC	231MA21B	2	3	2	-	5	2.5	3	30	70	28	100	40	25	10	-	-	-	-	-	125
2	CHEMISTRY	CHM	DSC	231CH22	2	3	-	2	5	2.5	3	30	70	28	100	40	25	10	25@	10	-	-	-	150
3	BUILDING CONSTRUCTION	BC	DSC	231CE23	2	3	2	-	7	3.5	3	30	70	28	100	40	25	10	-	-	25	10	10	150
4	ENGINEERING MECHANICS	EM	DSC	231SE24	1	3	-	2	7	3.5	3	30	70	28	100	40	25	10	-	-	25	10	-	150
5	ENGINEERING DRAWING	CED	SEC	231CE25	3	2	-	4	6	3	2.5	25	50	20	75	30	25	10	-	-	-	-	-	100
6	C-PROGRAMMING	CP	SEC	231CE26	2	2	-	2	4	2	-	-	-	-	-	-	25	10	25@	10	-	-	-	50
7	CONSTRUCTION ENGINEERING WORKSHOP	CEW	SEC	231CE27	1	-	-	2	2	1	-	-	-	-	-	-	25	10	25@	10	-	-	-	50
8	ENGINEERING WORKSHOP	EW	SEC	231ME28	3	-	-	2	2	1	-	-	-	-	-	-	25	10	25@	10	-	-	-	50
9	SOCIAL AND LIFE SKILLS	SLS	VEC	231CE29	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	50	50
Total						16	16	4	14	6	40	20			475	200	100	100	100	100	100	100	100	875

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, FA - Formative Assessment, SA - Summative Assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, ** Online Examination, @\$ Internal Online Examination

Course Category: Discipline Specific Course Core (DSC): 2, Discipline Specific Elective (DSE): 0, Value Education Course (VEC): 1, Intern/Apprentice/Project/Community (INP): 0, Ability Enhancement Course (AEC): 2, Skill Enhancement Course (SEC): 2, Generic Elective (GE): 0

Signature
Curricular Coordinator

Signature
Head



Signature
Dean - Diploma

Diploma in Civil Engineering

DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: MATHEMATICS – II
COURSE CODE	:231MA21b

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME						EXAMINATION SCHEME											
C L	T L	L L	Self lear ning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self- learning		TOTAL MARKS
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max					Min	Max	Min	Max	Min	Max	
3	2	-	-	2.5	3	30	70	28	100	40	25	10	-	-	-	-	125

II. Rationale:

- To teach students basic facts, concepts and principles of mathematics as a tool to analyze engineering problems.
- To make students well versed in prerequisite for further studies in mathematics and engineering.

III. Course Outcomes:

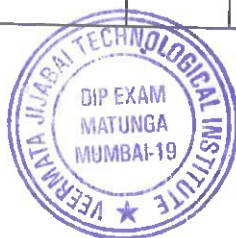
Student should be able to

CO1	Use derivatives in applications, apply formulae and different methods of integration in engineering concepts. Apply definite integral to find area under curve, mean and RMS
CO2	Use different methods to solve differential equations.
CO3	Apply basics of statistics to solve the problems.



IV. Course Contents with Specification Table

SECTION-I								
Unit & Sub-Unit	Topics/Sub-topics	Hrs	Marks	CO	R Level	U Level	A Level	
1	Higher ordered derivative	3	3	1	40%	40%	20%	
	1.1 Second ordered derivative of explicit functions							
2	Applications of Derivative	5	8	1	40%	40%	20%	
	2.1 Maxima and minima (simple numerical problems)							
	2.2 Tangent and normal							
3	Integration	17	24	1	40%	40%	20%	
	3.1 Definition of integration. Integration of standard functions.							
	3.2 Theorems of integration. Simple problems based on standard results.							
	3.3 Methods of Integration 3.3.1 Integration of rational functions. $\frac{1}{x^2 + a^2}$, $\frac{1}{\sqrt{x^2 + a^2}}$, etc. nine formulae 3.3.2 Integration by partial fractions. (linear and repeated linear factors) 3.3.3 Integration by parts.							
4	Indian knowledge system	6						
SECTION-II								
	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level	
5	Definite Integral	5	9	1	40%	40%	20%	
	5.1 Definition of definite integral.							
	5.2 Properties of definite integral with simple problems.							



	5.3	Applications of definite integral 4.3.1 Area under the curve. 4.3.2 Mean and RMS values						
6		Differential equations.	5	9	2	40%	40%	20%
	6.1	Order and degree of differential equations.						
	6.2	Method to solve differential equations of first order and first degree.						
		6.2.1 Variable separable method.						
		6.2.2 Linear differential equation.						
7	7.1	Statistics	15	17	3	40%	40%	20%
	7.2	Mean, Standard Deviation using step deviation Method						
	7.3	Elementary Probability						
		7.3.1 Sample space, Types of events						
		7.3.2 Definition of probability, simple problems						
		7.3.3 Conditional probability						
		7.3.4 Independent events						
		7.3.5 Multiplication theorem simple numerical problems						
		7.3.6 Addition theorem. simple numerical problems						



V. List of Assignments/Tutorials:

Sr. No.	Unit	Tutorials	Approx. Hours	CO
1	1,2	Higher ordered derivative, maxima and minima, tangent and normal	2	1
2	3	Integration using standard results	2	1
3	3	Integration of rational functions	2	1
4	3	Integration by partial fractions.	2	1
5	3	Integration by parts.	2	1
6	5	Definite integral. Area under the curve, mean, R.M.S.	2	1
7	6	Differential Equations	2	2
8	7	Mean, standard deviation, variance and coefficient of variation.	2	3
9	7	Elementary Probability, Multiplication Theorem, Addition Theorem	2	3

VI. Assessments Methodologies /Tools

Formative assessment (Assessment for Learning)

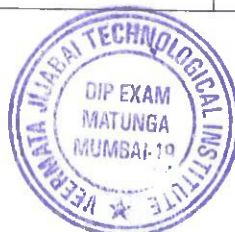
- Tutorials
- Mid Semester Test
- Term Work

Summative Assessment (Assessment of Learning)

- End Term Exam

VII. Reference Books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	B. M. Patel, J. M. Rawal	Applied Mathematics	Nirali Prakashan
2	S. P. Deshpande	Mathematics for Polytechnic	Pune Vidyarthi Griha Prakashan.
3	Deepak Singh	Mathematics-I	Khanna Book Publishing
4	Garima Singh	Mathematics-II	Khanna Book Publishing




VIII. Suggested Cos-Pos Matrix Form

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	1	1	1	-	-	1	1	-	-	-
CO2	2	1	1	1	-	-	1	1	-	-	-
CO3	2	1	1	1	-	-	1	1	-	-	-

Legends: - High:03, Medium:02, Low:01, No Mapping: -


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: CHEMISTRY
COURSE CODE	: 231CH22

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME											TOTAL MARKS	
CL	TL	LL	Self-learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)		TOTAL		Based on LL & TL Practical				Based on Self-learning		
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
						Max					Min	Max	Min	Max	Min		Max
3	-	2	-	2.5	3	30	70	28	100	40	25	10	25@	10	-	-	150

@: assessment by Internal Examiner

II. Rationale

Chemistry is a basic science subject which is essential to all engineering courses. It gives knowledge of basic chemistry, properties, related chemical reactions for engineering applications. This subject will generate curiosity of carrying out further development in engineering fields. The knowledge for the utilization of fundamentals of corrosion resistance is important in troubleshooting of the problems related material corrosion. Understanding of properties helps in selecting appropriate materials such as alloys and polymers for engineering applications.

III. Course Outcomes (Cos)

Students will be able to achieve the following COS on completion of course based learning

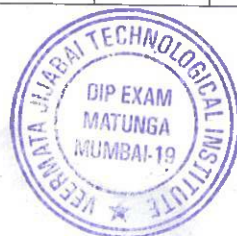
CO1	Define and identify various types of organic compounds & titrations, Concept of acids, bases, Describe methods of corrosion protections.
-----	--



CO2	Apply the knowledge of atomic structure, alloys, Organic Compounds and Polymers in engineering applications.
CO3	Demonstrate safe and proper use of chemicals, glass wares and equipment through laboratory experiment.

IV. Course Contents with Specification Table

SECTION - I							
Unit & Sub - Unit	Topics/Sub-topics	Hours	Marks	C OS	R Level	U Level	A Level
1	Solution	08	12	1	40%	40%	20%
1.1	Solution, Concentrations of solution: Grams per liter, Percentage by weight or volume, Normality, Molarity, Molality.						
1.2	Volumetric analysis, Titration, Acid-base titration, Acidimetry, alkalimetry, Redox titration, Iodometric titration, Complexometric titration, Precipitation titration, Numerical.						
2	Ionic Equilibrium:	6	08	1	40%	40%	20%
2.1	Definitions & Theories of acids & bases: Classical theory, Arrhenius theory, Lowry-Bronsted theory, Lewis's theory.						
2.2	pH, pOH, pH scale, Numericals, Basicity of an acid and acidity of a base, Numericals of Equivalent weight of acids, bases, Definition of salts.						
3	Atomic Structure and Chemical Bonding	10	15	2	40%	40%	20%
3.1	Definitions of Elements, atoms, Molecules, Fundamental particles of atom, their mass,						



	charge, location, Definition of atomic number, atomic mass number, Isotopes and Isobars, Electronic configuration based on Hund's Rule, Aufbau's principle, Pauli's exclusion principle (till atomic no. 25).						
3.2	Definitions: atomic weight, equivalent weights of an element, Molecular weight, Mole in terms of number, mass, volume, Definitions of equivalent weight and, Molecular weight of molecule,						
3.3	Chemical bond, octet rule, formation of various types of chemical bonds: Covalent, Ionic, Coordinate covalent bonds						

SECTION - II

Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Alloys	06	10	2	40%	40%	20%
4.1	Definition, purpose of alloy, Preparation methods, types: Ferrous & Non-Ferrous alloy, Ferrous alloy: Steel, Alloy steel, Composition, Properties and uses.						
4.2	Non-Ferrous alloy: Alloy of Cu, Zn, Al, Sn, Pb Composition, Properties and uses.						
5	Corrosion	08	12	1	40%	40%	20%
5.1	Introduction, Types of corrosion (dry and wet corrosion), factors affecting the corrosion, types and mechanism of Atmospheric corrosion, oxide films,						
5.2	Electrochemical corrosion, mechanism of electrochemical						



	corrosion, types of electrochemical corrosion: galvanic corrosion and concentration cell corrosion,						
5.3	Protective measures against corrosion: coatings (galvanic and zinc, organic coating agents, electroplating, metal cladding,).						
6	Organic Chemistry and introduction to polymers	10	13	2	40%	40%	20%
6.1	Introduction: Types of chemistry, Catenation property of Carbon element, Organic compounds, its properties and applications, Classification: by structure and functional group,						
6.2	Polymer, Monomer, classification of polymers, Polymerisation, Addition and condensation polymerisation						

V. List of Practical/Assignments/Tutorials:

Sr. No.	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COS
1	To study the use of indicators, for identification of acid, base and neutral solutions from the given set of solutions.	2	1,3
2	To standardize HCl solution using N/10 Na ₂ CO ₃ .	2	1, 3
3	To standardize KMnO ₄ solution using N/10 C ₂ H ₂ O ₄ solution.	2	1, 3
4	To standardize EDTA solution using N/10 ZnSO ₄ solution.	2	1, 3
5	To standardize AgNO ₃ solution using NaCl solution.	2	1, 3
6	To estimate amount of Iron in plain carbon steel	2	2, 3
7	To estimate amount of Zinc in brass	2	2, 3



8	Determination of strength of mixture of (H ₂ SO ₄ + H ₂ C ₂ O ₄) solution	2	2,3
9	To determine pH and hence identify the nature of given samples	2	2,3
10	Determination of molecular weight of a monobasic/dibasic acid by volumetric analysis	2	2,3

VI. Assessments Methodologies /Tools

Formative assessment (Assessment for Learning)

- Midterm Test Exam
- Term Work

Summative Assessment (Assessment of Learning)

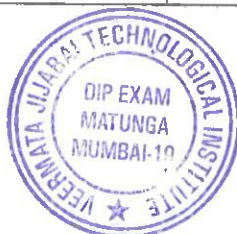
- End Term Exam
- Practical

VII. Reference Books and Websites:

Sr. No	Author	Title	Publisher
1	-	XI th standard Chemistry book	HSC Board, M.S. / NCERT
2	-	XII th standard Chemistry book	HSC Board, M.S. / NCERT
3	Shashi Chawla	A Text Book of Engineering Chemistry	Educational & Technical Publishers Dhanpat Rai & Co. (Pvt.) Ltd, Edition: Third (2005)
4	Jain & Jain	Engineering Chemistry	Dhanpat Rai & Co. (Pvt.), Delhi – 110006 Ltd. Edition: (2008)
5	S. S. Dara & S. S. Umare	A Text Book of Engineering Chemistry	S. Chand & Company Ltd. Ram Nagar, New Delhi – 110 055, Edition: Twelfth (2010)

VIII. Learning Websites & Portals

Sr. No	Link /Portal	Description
1	ww.onlinelibrary.wiley.com	Concepts of basic chemistry
2	https://www.chem1.com	Chemistry instruction and education



IX. Suggested Cos-Pos Matrix Form

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practice for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2	PSO- 3	PSO- 4
CO1	3	2	1	-	1	-	2	-	-	-	-
CO2	3	3	2	-	1	-	1	-	-	-	-
CO3	3	3	2	-	1	-	1	-	-	-	-

Legends: - High:03, Medium:02, Low:01, No Mapping:


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: BUILDING CONSTRUCTION
COURSE CODE	: 231CE23

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME						EXAMINATION SCHEME													
C L	T L	L L	Self- learn ing	CR	PAP ER HRS	FA-TH (MST)		SA-TH (ESE)			TOTAL		Based on LL & TL Practical				Based on Self- learning		TOTAL MARKS
						Max	Min	Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA			
												Max	Min	Max	Min	Max	Min		
3	2	-	2	3.5	3	30	70	28	100	40	25	10	-	-	25	10	150		

II. Rationale

This course essentially imparts the knowledge of construction technology for the construction of buildings and related components; at an introductory level. This course further introduces the student to interpreting the drawings and getting familiar with the functions and requirements of building components.

III. COURSE OUTCOMES (COS)

Student should be able to

CO1	Define the component of the building as per Indian Standard Code of Practices
CO2	Apply building construction principles and practices to construction work and draw the elements of building component
CO3	Identify, select and use the different elements of building components for the construction of the building
CO4	Identify the advancement in sustainable building materials



IV. Course Contents with Specification Table

SECTION I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1.	Building as Structure	10	12	1, 2, 3	40%	40 %	20 %
1.1	Definition of Building (NBC: SP:7-2005)						
1.2	Purpose of a building						
1.3	Types of building based on Occupancy (NBC of India 2005): Residential, Educational, Institutional, Assembly, Business, Mercantile, Industrial, Storage, Hazardous						
1.4	Load Bearing structure and framed structure. Comparison, Materials to be recommended for framed structure.						
1.5	Substructure (Foundation, Plinth & DPC) and Superstructure (Wall, Piers, Floor, Lintel, Sill, Opening in Walls, Chajjas, Ceiling, Beams, Roof, Staircase, Wall finishes, Skirting, Dado), neat sketch, its functions and requirement. (Sketches)						
1.6	Types of Loads acting on structure: Dead load, Live Load, Wind Load, Seismic Load						
2.	Foundation:	10	14	1, 2,3	20%	40%	40%
2.1	Definition of foundation						



	2.2	Purpose and function of foundation, Essential Requirement of Good Foundation						
	2.3	Shallow Foundation Spread footing, Combined Footings, Strap footings, Mat foundation. Concept of Deep Foundation (Sketches)						
	2.4	Suitability and Sketches of Strip Footing, Isolated footing, Eccentrically loaded footings, Grillage Foundation (Sketches)						
3.	Door, Window, Staircase		4	9	2, 3 & 4	40%	30%	30%
	3.1	Purpose and Requirement of Door, Window						
	3.2	Different Technical term related to Door, Window						
	3.3	Suitability of different types of Doors and window. Latest types of Door and windows suitably used in Construction Practices. Ventilators: combined with doors or windows (Sketches)						
	3.4	Stairs, component, types suitability, R.C.C staircase, Uses of Vertical and horizontal Circulation such as Lift, Ramp, Passage (Sketches)						
	Total		24	35				



SECTION-II

Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
4	Masonry Construction	9	14	1,2,3	20%	30%	50%
4.1	Different terms related to masonry Principles of masonry						
4.2	Construction Rules for bonds in brick work						
4.3	Different types of bonds, Stretcher, Header, English and Flemish bond (Sketches)						
4.4	Supervision of brick masonry construction, Tools for Laying of Brick masonry						
5	Floors & Roof	06	10	1,2,3	20%	30%	50%
5.1	Definition of a floor. Types of floors: Ground floor & suspended floor etc.						
5.2	Purpose and Requirement of Floor						
5.3	Component of floor						
5.4	Selection criteria of different types of Flooring material						
5.5	Types of flooring and its suitability						
5.6	Method of Construction of Cement concrete flooring						
5.7	Method of Construction of R.C.C Slab floor						



	5.8	Definition, Requirement of ideal roof, Concept of Truss and its different component. Suitability of different types of trusses, Steel truss. Different Connections using welding and bolting						
	5.9	Different types of Flat roof Significance of Flat roof						
6	Finishes: Plastering, Pointing:		06	7	1,2,3	40%	30%	30%
	6.1	Plastering: Definition, Object & requirement of good plaster						
	6.2	Types of mortar for plastering, Number of coats of plaster.						
	6.3	Different terminologies related to plastering work.						
	6.4	Tools for plastering special materials used in plastering.						
	6.5	Preparation of Background & Methods of cement plastering						
	6.6	Types of Plaster Finishes, pointing: Definition, Need, Types (Sketches)						
7	Advancement in Building Construction materials and practices		03	04	4	50%	25%	25%
	7.1	Non-Conventional materials and low-cost housing materials: Concept and its scope						



7.2	Different IS codes relating to construction						
7.3	Concept of High-Rise Building and current construction practices						
7.4	Concept of Building Information Modelling and its scope						
	Total	24	35				

V. List of Practical:

The practical/exercises should be properly designed and implemented with an attempt to develop different types of practical skills (Course Outcomes in psychomotor and affective domain) so that students are able to acquire the competencies (Programme Outcomes).

Sr. No.	Unit	Tutorials	Approx. Hours	CO
1	1	Making of quarter imperial sheet of at least 10 sketches and its photorepresentation	24	CO 2
	1.1	One sheet on Building Components	2	
	1.2	Two sheets on Any four sketches of Shallow foundation	2	
	1.3	Grillage Foundation	2	
	1.4	Four sheets on Brick masonry <ul style="list-style-type: none"> i. Elevation of Brick wall ii. Plan showing alternate courses of brick walls in different thickness as 1BT, 1 ½ BT, in English bond iii. Plan showing alternate courses of brick walls in different thickness as 1BT, 1 ½ BT, 2 BT in Single or Double Flemish bond iv. Brick laying tools 	8	



	1.5	Two sheets on types of Staircases and Dog legged stair case with quarter space landing and mid landing	6	
	1.6	Modern types of Doors and Windows (Any five)	4	
2.		Power point presentation on non-conventional materials and low-cost housing materials	4	CO4
	2.1	Non-Conventional materials: Plastics, fiberglass etc. Corrugated sheets, prefabricated brick panel, mud mortar. Ecofriendly materials.		
	2.2	Low-cost housing materials: Clay waste from Granite industry, Hollow concrete blocks and others		
3.		<u>Model Study of</u> i. King Post truss and Queen Post Truss, Photogenic representation with labeling ii. Different types of bonds	4	CO3
* Minimum 8 and maximum 10 practical/experiment sessions to be included in a course term				

VI. Text Book, Reference Books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1.	Sushil Kumar	Building Construction	Standard Publication, Edition 20th 2010
2.	B. C. Punmia	Building Construction	Laxmi Publication, Edition 11th 2015
3.	S. C. Rangawala	Building Construction	Charotar Publication, Edition 26th 2015
4.	S. P. Arora and Bindra	Building Construction	Dhanpat Rai Publication Edition 5th Latest Reprint 2010
5.	List of Software/Learning Websites a. http://www.constructionknowledge.net/		




	b. http://houseconstructiontips.com/ BIM software programs as Autodesk Revit
6.	Models for following: For various foundations, bonds in brickwork, different types of stairs, Trusses

VII. Suggested Cos-Pos Matrix Form

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2	PSO- 3	PSO- 4
CO1	3	-	-	-	-	-	3	3	3	-	2
CO2	3	-	3	3	2	-	3	3	3	3	3
CO3	3	-	2	2		-	3	3	3	2	2
CO4	2	-	2		3	-	3	-	-	-	3

Legends: - High:03, Medium:02, Low:01, No Mapping:


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: ENGINEERING MECHANICS
COURSE CODE	: 231SE24

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME													
CL	TL	LL	Self learning	CR	PAPER HRS	FA-TH (MST)	SA-TH(ESE)			TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
							Max	Min	Max	Min	FA-PR (CA)		SA-PR (PR/O)		SLA			
											Max	Min	Max	Min	Max	Min		
3	-	2	2	3.5	3	30	70	28	100	40	25	10	-	-	25	10	150	

II. Rationale

This course is designed to understand the principles of mechanics and its applications to Civil engineering. It develops the desired abilities, skills and attitude to analyze and solve the problems encountered in chemical engineering.

III. Course Outcomes (Cos)

Student should be able to

CO1	Explain the fundamental concepts of Engineering Mechanics, define important terms and apply the concepts of resolution, composition and equilibrium of forces to simple structures, analytically and graphically.
CO2	Compute position of centroid and center of gravity of composites and apply concept of equilibrium to centroid and center of gravity.
CO3	Explain existence of friction, Define important terms related to friction and solve problems on limiting frictional force, angle of repose etc.
CO4	Explain principles of simple machines, Define important terms related to it and to Draw Graphs for law of machines, maximum efficiency etc.



IV. Course Contents with Specification Table

SECTION – I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	C OS	R Level	U Level	A Level
1	Fundamental of Mechanics	02	03	1	40%	40%	20%
1.1	Statics, Dynamics, Kinematics, Kinetics, Concept of force, its SI unit. System of forces: Co-planar, Noncoplanar Concurrent, Non-concurrent, Parallel, Non-parallel, Collinear, Non-collinear Like and Unlike. Principle of transmissibility of a force.						
2	Resolution and Composition of forces	12	18	1	20%	40%	40%
2.1	Resolution of a force, Law related to forces: Law of polygon of forces, Varignon's theorem of moments, Law of moment, Law of parallelogram of forces, concept of a moment of a force, laws of moments and couples, Composition of co-planar, concurrent, non-concurrent, parallel forces, Resultant of a general system of co-planar forces.						
3	Equilibrium	10	14	1	20%	40%	40%
3.1	Definition, Relation between resultant & equilibrant, condition of equilibrium, Lami's Theorem and its applications, Concept of Free body diagram, Types of supports simple and special -conditions, roller, hinge & fixed. Free body diagram, Cantilever, simply supported & over						



	hanging beams beam subjected to vertical load, inclined load and uniformly distributed load (combination of any two types).						
SECTION - II							
4	Centre of Gravity and Centroid	08	11	2	40%	30%	30%
4.1	Definitions, Centroid of regular plane areas and their combinations, Centre of gravity of simple solids: Cube, Cylinder, Prism, Sphere, Cone and their combinations.						
5	Friction	08	13	3	20%	40%	40%
5.1	Laws of friction, terms used: Co-efficient of friction, angle of friction, repose, equilibrium of bodies on level and inclined planes, Ladder friction (Only Free body diagram)						
6	Simple Machines	08	11	4	40%	30%	30%
6.1	Definition of terms used: mechanical advantage, velocity ratio, efficiency, friction in the machine, law of machine, conditions of the reversibility, study of simple machines: simple screw jack, axle and wheel, differential axle and wheel, single purchase crab.						



V. List Of Practicals/Assignments/Tutorials

Sr. No.	Unit	Practical/Assignment/Tutorial Title	No. of Hours	Relevant COS
1	1	Law of polygon of forces	2	1
2	2	Reaction of Simply supported Beams.	2	1
3	3	Forces in jib crane.	2	1
4	4	Simple screw jack.	2	4
5	5	Differential axle and wheel	2	4
		Graphic Statics Sheets: Two half-imperial size drawingsheets (or A4 sheets with one problem each) in the graphic static with minimum three problems out of the following:		
6	6.1	Resultant of concurrent forces.	1	1
	6.2	Resultant of parallel forces	2	1
7	7.1	Resultant of non-concurrent, non-parallel forces.	2	1
	7.2	Reactions of a simply supported beam.	2	1
8	8.1	Equilibrium of bodies.	2	1

VI. Suggested Self Learning Assignments/Microproject/Activities

- Solve the examples on calculation of orthogonal or non-orthogonal components of a force.
- Solve the examples on calculation of resultant of a force for given force system from given problem statement or figure.
- Solve the examples on calculation of moments of a force, also calculation of unknown forces using Lami's theorem from given problem statement or figure.
- Solve the examples on calculation of support reactions of given beam from given problem statement or figure.
- Solve the examples on calculation of centroid of simple/composite plane figures, simple/composite solid bodies from given problem statement or figure.



- Solve the examples on calculation of coefficient of friction, normal reaction, force required to pull the block for given case of frictional bodies (horizontal or inclined plane).
- Solve the examples on calculation of values of MA, VR, η , P_i , P_f , W_i , W_f etc. for given type of machine.

VII. Assessments Methodologies /Tools

Formative assessment (Assessment for Learning)

- Midterm Test Exam
- Term Work

Summative Assessment (Assessment of Learning)

- End Term Exam
- Practicals

VIII. Suggested Learning Materials Textbooks/Reference Books/Websites

Sr. No	Author	Title	Publisher
1.	S.B. Junnarkar	Applied Mechanics	17th edition, Revised 2010, Publisher- Charotar Publishing House Pvt. Ltd.
2.	R. K. Bansal	Engineering Mechanics	3rd Revised Edition 2015, Laxmi Publication Pvt. Ltd.
3.	Dadhe, Jamdar and Walawalkar	Fundamentals of Applied Mechanics	Second edition 2006, Publisher- Sarita Prakashan
4.	websites	www.nptel.ac.in	IIT's




IX. Suggested Cos-Pos Matrix Form

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2	PSO- 3	PSO- 4
CO1	3	2	1	2	1	-	1	2	1	3	3
CO2	2	2	1	2	1	-	1	1	2	-	1
CO3	2	2	2	2	1	-	1	2	3	2	2
CO4	1	1	1	2	1	-	1	2	3	2	2

Legends: - High:03, Medium:02, Low:01, No Mapping:


Curricular Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: CIVIL ENGINEERING DRAWING
COURSE CODE	: 231CE25

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME												TOTAL MARKS
CL	TL	LL	Self learning	CR	PAPER HRS	FA-TH (MST)	SA-TH(ESE)		TOTAL		Based on LL & TL Practical				Based on Self-learning		
											FA-PR (CA)		SA-PR (PR/OR)		SLA		
											Max	Min	Max	Min	Max	Min	
2	-	4	-	3	2.5	25	50	20	75	30	25	10	-	-	-	-	100

II. Rationale

Civil Engineering Diploma holder has to supervise various construction processes and execute civil engineering structures such as buildings, roads, railways, dams, bridges; etc. He has to convert design parameters, process details into pictorial views. Therefore, he is required to understand and prepare the drawings, interpreted it so that he can execute the works smoothly. Drawing helps in detailing the structures processes with quality parameter and is essential for drafting specifications and tender documents. The knowledge of this subject is useful for building construction, estimation and costing, design of structure, surveying, projects etc.

III. Course Outcomes (Cos)

Student should be able to

CO1	Read, interpret and draw the building drawings.
CO2	Prepare submission and working drawings for the buildings.
CO3	Plan various types of buildings considering the functional requirements
CO4	Apply the building rules, regulations and bye-laws for planning the building

IV. Course Contents with Specification Table

Theory to be covered for practical purpose:

Unit & Sub-Unit	Topics/Sub-topics	Hours	COS	R Level	U Level	A Level
1.0	<p>Introduction</p> <ul style="list-style-type: none"> • Purpose of drawing. Requirement of good drawing. Different types of drawing. Difference between Layout plan and Site plan. • Symbols- Symbols of different materials and construction members used in construction, building components. • Detailed description of requirement of essential particulars for drawing a sheet. • Reading of working drawings of residential buildings. 	10	1& 3	20	30	50
2.0	<p>Planning Of Building</p> <ul style="list-style-type: none"> • Principles of planning of Residential and Public building as per BIS: 7662 (Load bearing and RCC framed structures). • Space requirements and norms for various units of Residential and Public building. Recommended space standards for Public building (school building) as per IS 8827-1978. • Rules and bye-laws of local governing authorities for construction. e.g. Building line, open spaces, FSI, Headroom, minimum room dimensions etc. • Introduction to design criteria for planning 	12	4&5	10	40	50



	public building. <ul style="list-style-type: none"> Drawing of line plans for residential and public building. 					
3.0	Types of Drawing <ul style="list-style-type: none"> Development of line plan, Elevation, Section, Site Plan, Location Plan, Foundation Plan, Area statement and other details. Significance of Submission drawing and working drawing. 	10	2	10	20	70

V. List Of Practical/Assignments/Tutorials

Sr. No.	Name of the Topic	Hrs.	CO
1)	Drawing Book Work- <ul style="list-style-type: none"> Draw neat dimensional sketch- Plan & Sectional elevation of Isolated Column Footing along with details of flooring. Difference between LB and Framed Structures King Post and Queen post truss drawing 	08	CO1
2)	On Full Imperial size drawing sheet <ul style="list-style-type: none"> Lettering and numbers, Symbols of different materials, doors and windows used in construction, Different levels in a building Details of any one typical door and window 	08	CO 1 & 2
3)	Measured Drawing of an existing residential building (Load bearing) with flat terrace , showing Plan, Elevation, Sections, Construction notes, area statement, Schedule of doors and windows on Full Imperial size drawing sheet.	08	CO2



4)	Foundation Plan of Load Bearing structure on Full Imperial Sheet	04	CO2, CO3, CO4
5)	<p>Draw the line plans on full imperial size graph paper for the Project work for planning of building in a group of 5-6 students may be given for different data.</p> <ul style="list-style-type: none"> Public building (G+1) Framed Structure: Hospital, Bank, Library, School, Auditorium, etc. Foundation Plan of Load Bearing Structure of Measured Drawing. 	12	CO2, CO3
6)	<p>Measured Drawing of an existing G+2 residential building (Framed structure Type) with following views <i>on Full Imperial size</i> drawing sheet.</p> <ul style="list-style-type: none"> Typical Floor Plan Elevation Section passing through either kitchen or WC & bathroom and passing through staircase. Roof plan & Site Plan Foundation plan on Full Imperial Size Graph paper 	24	CO2, CO3, CO4

VI. Assessments Methodologies /Tools

Formative assessment (Assessment for Learning)

- Midterm Test Exam
- Term Work

Summative Assessment (Assessment of Learning)

- End Term Exam
- Practicals



VII. Suggested Learning Materials Textbooks/Reference Books/Websites

Sr. No.	Author	Title	Publisher and Edition
1	Shah, Kale, Patki,	Text Book of Building Drawing	Edition 4th, Publisher-Tata McGraw- Hill.
2	Shahane,	Civil engineering drawing and design	Edition 3rd, publisher-Poona Allies Book stall.
3	Malik & Mayo,	Civil Engineering Drawing	Edition 1972, Publisher-New Asian Publishers New Delhi.
4	M. Chakraborty,	Civil Engineering Drawing	Edition 3 rd 1999, Publisher-Bhakti Vedant Book Trust.
5	National Building Code of India, BIS		Edition 2002, publisher- BIS.

VIII. Suggested Cos-Pos Matrix Form

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PS O-1	PS O-2	PS O-3	PSO-4
CO1	3	-	-	-	-	-	1	2	-	-	-
CO2	3	1	1	2	1	-	1	2	1	-	-
CO3	3	1	2	2	1	-	2	2	2	-	-
CO4	2	2	2	1	1	1	2	2	2	-	-

Legends: - High:03, Medium:02, Low:01, No Mapping: -


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



II DCE R23, VJTI
BOS approved dated 05/03/2024

DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: C-PROGRAMMING
COURSE CODE	: 231CE26

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME											
CL	TL	LL	Self learning	CR	PAPER HRS	FA-TH (MST)	SA-TH (ESE)	TOTAL		Based on LL & TL Practical				Based on Self-learning		TOTAL MARKS
						Max	Max	Max	Min	FA-PR (CA)		SA-PR (PR/OR)		SLA		
										Max	Min	Max	Min	Max	Min	
2	-	2	-	2	-	-	-	-	-	25	10	25@	10	-	-	50

@: assessment by Internal Examiner

II. Course Objectives:

This course is essentially designed to build the logic and introduce the programming fundamentals to the students as C is the basic language of all advanced computer languages.

III. Course Outcomes (Cos)

Student should be able to

CO1	Instill programming logic skills using basic C constructs
CO2	Conceptualize data declaration, control structure.
CO3	Choose decision making and loop concept for different problem

IV. Course Contents with Specification Table

Unit & Sub-Unit	Topics/Sub-topics
1.	Introduction to C programming
1.1	Introduction to computing, History and importance of C programming
1.2	Algorithms and flowcharts in C programming



2.	Overview of C	
	2.1	Introduction of Character set, C Tokens
	2.2	Keywords and Identifiers, Constants, Variables
	2.3	Data types, Declaration of variables, Assigning values to variables, Symbolic constants.
3.	Input and output operations in C programming	
	3.1	Reading and Writing a Character, Formatting Input- Output, File, Different Operators
	3.2	Management in C: opening, closing, saving files, Handling of Error
4.	Control structures	
	4.1	Decision Making and Branching
	4.2	Types of statements such as If, If-Else, Else-if, formation of LOOPS in C programming

V. List of Practical:

The practical/exercises should be properly designed and implemented with an attempt to develop different types of practical skills (Course Outcomes in psychomotor and affective domain) so that students are able to acquire the competencies (Programme Outcomes).

Sr. No.	Unit	Practical/Assignment	Approx. Hours	CO
1	1	4 practical problems to frame flowchart	6	CO1
2	2	To implement the working of library functions. a. Identifier b. Constant c. Variables	6	CO1
3	3	To implement the working of operators a. Arithmetic, Relational, Logical b. Conditional, Assignment, Bitwise	8	CO2
4	4	To implement the concept of conditional statements (two problems each) a. if, if... else, b. nested if, & c. else if... ladder	6	CO3
5	5	To implement the concept of Loops (two problems each) a. while b. do-while	6	CO3

* Minimum 5 and maximum 8 practical/experiment sessions to be included in a course term.

VI. Text Books:

Sr. No	Author	Title	Publisher and Edition
1	Pradeep Dey and Manas Ghosh	Computer fundamentals and programming in C	Oxford University Press.
2	K. R. Venugopal and F. R. Prasad	Master in C	Tata McGraw Hill



3	Vikash K. Gupta	A textbook of Basics of C Programming	Khanna Publishers
---	-----------------	---------------------------------------	-------------------

VII. Reference books and Websites:

Sr. No	Author	Title	Publisher and Edition
1	Dr. Guruprasad Nagraj	C Programming for Problem Solving	Himalaya Publishing House
2	Yashavant P. Kanetkar	Let Us C: Guide to C programming language	19th Edition BPB Publication

VIII. Suggested Cos-Pos Matrix For

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	2	2	2	-	-	2	-	-	-	-
CO2	2	2	2	2	-	-	2	-	-	-	-
CO3	2	2	2	2	-	-	2	-	-	-	-

Legends: - High:03, Medium:02, Low:01, No Mapping: -


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



II DCE R23, VJTI

BOS approved dated 05/03/2024

DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: CONSTRUCTION ENGINEERING WORKSHOP
COURSE CODE	: 231CE27

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME														
C	L	T	L	L	Sel f-le arn ing	CR	PAP ER HRS	FA-T H (MST)	SA-TH (ESE)			Based on LL & TL Practical				Based on Self-learn ing		TOTAL MARK S	
									Max	Mi n	Max	Mi n	FA-PR (CA)		SA-PR (PR/OR)		SLA		
								Max					Min	Max	Min	Max	Min		Max
-	-	-	2	-	1	-	-	-	-	-	-	-	25	10	25@	10	-	-	50

@: assessment by Internal Examiner

II. Rational

General Civil Engineering Practices represent a cornerstone in engineering education. Through the Construction Engineering Workshop course, Diploma holders gain insight into essential construction procedures vital for their roles. They learn to oversee various construction tasks like brick masonry and plumbing, grasp the utilization of fundamental construction materials such as tor steel bars, all while upholding stringent standards of quality control and safety for themselves, colleagues, and the structural elements of buildings. This course equips students with the requisite abilities to supervise construction endeavors, implement quality control methodologies, and ensure the safe usage and maintenance of tools and equipment, benefiting not only themselves but also their peers and the integrity of the structures being built. Furthermore, this serves as a valuable platform for fostering teamwork skills and promoting safety consciousness through hands-on experience in the field.



III. Course Outcomes (Cos)

Student should be able to

CO1	Understand the use of basic construction materials and the safety equipment for construction site.
CO2	Perform the different brick masonry work and undertake different construction activities at site.
CO3	Identify and explain the plumbing fittings, different tor steel bars for construction purpose.
CO4	Carry out a site visit and market survey competently.
CO5	Use the different types of fire-fighting equipment proficiently.

IV. List Of Practicals/Assignments/Tutorials

Sr. No.	Name of the Topic	Hrs.	CO
1.	Demonstration of Different Basic Tools Used at Construction Site <ul style="list-style-type: none">• Overview of commonly used tools such as hammers, saws, levels, tape measures, pliers, screwdrivers, etc.• Demonstration of proper handling and usage of each tool.	2	1
2.	Demonstration of Safety Equipment Used at Construction Site <ul style="list-style-type: none">• Introduction to safety equipment like helmets, gloves, goggles, harnesses, etc.• Practical demonstration of how to use each equipment properly.	2	1
3.	Demonstration of Different Materials Used in Construction	2	1



	<ul style="list-style-type: none"> • Introduction to various construction materials: brick, cement, sand, aggregates, tiles, roofing tiles, paving blocks, etc. • Brief explanation of properties, uses, and handling precautions for each material. 		
4.	<p>Conduct Various Field Tests on Brick, Cement, etc.</p> <ul style="list-style-type: none"> • Demonstration of field tests on bricks and cement. 	2	1
5.	<p>Construct a Corner Wall Using English Bond/Flemish Bond (No Mortar Required)</p> <ul style="list-style-type: none"> • Step-by-step demonstration of laying bricks in English or Flemish bond without mortar. • Construction of a 50 cm high wall with 1½ brick width. 	2	2
6	<p>Conduct Measurement of a Given Structure and Prepare a Drawing and Report</p> <ul style="list-style-type: none"> • Field measurement of a given structure using appropriate tools. • Preparation of a drawing indicating measurements and relevant details. • Compilation of a comprehensive report including findings and recommendations 	4	2
7.	<p>Setting Out of a Building (Single Room Only)</p> <ul style="list-style-type: none"> • Explanation of setting out procedures for marking the foundation layout of a single room building. • Demonstration of using strings, pegs, and levels for accurate setting out. 	4	2



8.	<p>Understanding Different Tor Steel Bars Used in Construction</p> <ul style="list-style-type: none"> • Explanation of different sizes and types of tor steel bars commonly used in construction. • Discussion on their applications and properties 	2	3
9.	<p>Demonstration of Different Plumbing Fittings</p> <ul style="list-style-type: none"> • Overview of various plumbing fittings such as pipes, valves, faucets, etc. • Demonstration of proper installation techniques and maintenance tips. 	2	3
10.	<p>Conduct Market Survey for Basic Construction Materials and Submit a Report</p> <ul style="list-style-type: none"> • Conducting a market survey for basic construction materials, to collect information on prices, availability, and quality of construction materials. • Analysis and compilation of the gathered data into a comprehensive report. 	4	4
11.	<p>Site Visit</p> <ul style="list-style-type: none"> • Organizing and conducting a visit to an ongoing construction site. • Observation and documentation of various construction activities and processes 	4	4
12.	<p>Fire Safety</p> <ul style="list-style-type: none"> • Introduction to fire classification, common causes of fire at construction sites, and firefighting equipment. • Demonstration of basic fire extinguishing techniques and proper usage of fire extinguishers. 	2	5



V. Suggested Learning Materials Textbooks/Reference Books/Websites

Sr. No.	Author	Title	Publisher and Edition
1	Mantri Sandeep	A to z of Practical Building Construction & its Management	Satya Prakashan, New Delhi: 2015; ISBN 9788176842051


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



DIPLOMA PROGRAMME	: DIPLOMA IN CIVIL ENGINEERING
PROGRAMME CODE	: DCE
SEMESTER	: SECOND
COURSE TITLE	: ENGINEERING WORKSHOP
COURSE CODE	: 231ME28

I. Teaching, Learning and Examination Scheme:

TEACHING SCHEME					EXAMINATION SCHEME												
C L	T L	L L	Self - lea rni ng	CR	PAPE RHR S	FA- TH(M ST)	SA- TH(E SE)		TOTAL		Based on LL & TL Practical				Based on Self- learning		TOTAL MARKS
						Max	Max	Min	Max	Min	FA-PR(CA)		SA- PR(PR/ OR)		SLA		
											Max	Min	Max	Min	Max	Min	
-	-	2	-	1	-	-	-	-	-	-	25	10	@25	10	-	-	50

@: assessment by Internal Examiner

II. Course Objectives:

- To lay a strong foundation in study and practice of basic workshop processes this is the backbone in Engineering.
- To make students well versed to identify, select and use various marking, measuring, holding, striking and cutting tools & equipment.

III. Course Outcomes (Cos)

Student should be able to

CO1	Adopt safety practices while operating different equipment and working on various machines.
CO2	Operate, control different machines and equipments.
CO3	Inspect and produce the job as per specified dimensions.



IV. List Of Practicals/Assignments/Tutorials

Sr. No.	Practical	Approx.Hours	CO
1.	<p>Carpentry Shop Introduction to safety Precaution in carpentry shop. Demonstration of different wood working tools / machines. Demonstration of different wood working processes, like planing, marking, chiseling, grooving, turning of wood etc. One simple job involving any one joint like mortise and tenon, dovetail, bridle, half lap etc.</p>	10	2,3
2.	<p>Fitting Shop: Introduction to safety Precaution in Fitting Shop. Demonstration of different fitting tools and drilling machines and power tools. Demonstration of different operations like chipping, filing, drilling, tapping, cutting etc. One simple fitting job involving practice of chipping, filing, drilling, tapping, cutting etc.</p>	12	2,3
3.	<p>Smithy shop: Introduction to safety Precaution in Smithy Shop. Demonstration of different forging tools and Power Hammer. Demonstration of different forging processes like shaping, caulking, fullering, setting down operation etc. One job like hook peg, flat chisel or any hardware item.</p>	10	

V. Suggested Self Learning Assignments/Micro project/Activities

Assignments (if any)

- Write down the assignments on each practical as per instructions.

VI. Assessments Methodologies /Tools

Formative assessment (Assessment for Learning)

- Midterm Test Exam
- Term Work

Summative Assessment (Assessment of Learning)

- End Term Exam
- Practicals



VII. Suggested Learning Materials Textbooks/Reference Books/Websites

Sr. No.	Author	Title	Publisher and Edition
1	K.C. John	Mechanical Workshop Practice	PHI Learning Pvt Ltd. EEE 2010
2	B.S. Raghuwanshi	Workshop Technology	Dhanpat Rai and sons, New Delhi, 9 th Edition, 2002
3	S.K. Chaudhary Hajra	Workshop Technology Vol I & II	Media Promoters and Publisher, New Delhi. 8th edition, 1986

VIII. Suggested Cos-Pos Matrix Form

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)			
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	-	-	3	-	-	2	-	-	-	-
CO2	2	-	-	2	-	-	1	-	-	-	-
CO3	3	-	2	2	-	-	-	-	-	-	-

Legends: - High:03, Medium:02, Low:01, No Mapping: -


Curriculum Coordinator


Head of the Department


Dean Diploma

BOS approved dated 05/03/2024



