



SCHOOL OF ENGINEERING

**MECHANICAL
ENGINEERING**

SYLLABUS BOOK

AY 2026-27

INSTITUTE VISION

To emerge as an Institute of Excellence by imparting value-based education aided with Research, Innovation and Entrepreneurial skills.

INSTITUTE MISSION

1	To impart the holistic engineering education of highest quality & prepare socially responsible professionals with entrepreneurial skills.
2	To prepare value-aided engineering professionals to meet up global industry requirements by imparting cutting edge professional education.
3	To inculcate the attitude of research and innovation among the stake holders through experiential and project-based teaching-learning pedagogy.
4	To acquire global talent pool by providing world class amenities for teaching, learning & research.

Graduates will demonstrate ability to:

PEO No	PROGRAMME EDUCATIONAL OBJECTIVES
PEO 1	Solve real-world engineering problems, design and develop innovative and cost-effective solutions exhibiting engineering skills/fundamentals to cater needs of society.
PEO 2	Excel in Industry/technical profession, higher studies, and entrepreneurship exhibiting comprehensive competitiveness.
PEO 3	Exhibit professional ethics & values, effective communication, teamwork, multidisciplinary approach, and ability to relate engineering issues to broader societal framework.

PO No	PROGRAMME OUTCOMES
PO 1	Engineering Knowledge: Apply foundational math, science, and engineering principles.
PO 2	Problem Analysis: Identify and solve well-defined engineering problems.
PO 3	Design/Development: Design solutions for technical problems with safety and environmental considerations.
PO 4	Investigation: Conduct investigations and experiments on technical problems.
PO 5	Modern Tool Usage: Apply appropriate techniques, resources, and modern IT tools.
PO 6	Engineer & Society: Analyze societal, health, safety, and legal responsibilities.
PO 7	Environment & Sustainability: Understand the impact of solutions on the environment and sustainability.
PO 8	Ethics: Apply ethical principles to professional practices.
PO 9	Individual & Teamwork: Function effectively as an individual or in a team.
PO 10	Communication: Communicate effectively with the engineering community and society.
PO 11	Project Management & Finance: Demonstrate knowledge of management and finance in projects.

PSO No	PROGRAMME SPECIFIC OUTCOMES (PSO)
PSO 1	Analyse, interpret and provide solutions to real life Mechanical Engineering problems.
PSO 2	Develop an attitude to accept global challenges and apply Mechanical Engineering knowledge for solving problems related to design, production, thermal and interdisciplinary fields.
PSO 3	Attain excellence in using managerial tools and techniques for effective and efficient manufacturing and in developing research & leadership skills with ethical and environmental practices.

Credit Guidelines (General)

One (1) credit represents 30 hours of learning, comprising an appropriate combination of Theory, Practical, Tutorial, Project, Group Discussion, Case Study, Field Visit, Presentation, Assignment, Term Work, Self-Learning, and other curriculum-approved learning activities.

CO-PO Mapping Guidelines

Mapping Level	%age Mapping	Indicator
0	0	No Mapping
1	0-33	Low Level (Slightly Mapped)
2	33-66	Medium Level (Moderately Mapped)
3	>66	High Level (Strongly Mapped)

Syllabus Book



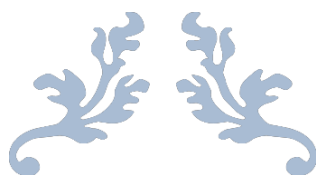
P P Savani University
School of Engineering

Effective From: 2026-27

Authored by: P P Savani University

CONTENT

Sr. No.	Content	Page No
1	Syllabi of FIRST YEAR (2026-27)	1-42



FIRST YEAR DIPLOMA (2026-27)



P P SAVANI UNIVERSITY																							
SCHOOL OF ENGINEERING																							
TEACHING & EXAMINATION SCHEME FOR FIRST YEAR DIPLOMA MECHANICAL ENGINEERING PROGRAMME AY: 2026-27																							
Sem	Course Code	Course Title	Offered By	Teaching Scheme										Examination Scheme									
				Direct Contact Hours			Indirect Contact Hours					Total	Credit	Theory	Practical	Tutorial	Project	GD/CS/FV/PPT	Assignment	Term Work	Self Learning	Total	
				Theory	Practical	Tutorial	Project	GD/CS/FV/PPT	Assignment	Term Work	Self Learning			CE/ESE	CE/ESE	CE/ESE	CE/ESE	CE/ESE	CE/ESE	CE/ESE	CE/ESE	CE/ESE	
1	IDSSH1010	Fundamentals of Mathematics	S & H	45	0	30	0	0	30	0	15	120	4	30/50	0/0	30/50	0/0	0/0	20/0	0/0	20/0	100/100	
	IDSIT1010	Digital Literacy	IT	30	60	0	0	15	0	0	15	120	4	30/50	30/50	0/0	0/0	20/0	0/0	0/0	20/0	100/100	
	IDSSH1030	Fundamentals of Physics	S & H	45	30	0	0	0	30	0	15	120	4	30/50	30/50	0/0	0/0	0/0	20/0	0/0	20/0	100/100	
	IDSCV1010	Basics of Civil Engineering	CV	45	0	30	30	0	15	0	0	120	4	30/50	0/0	30/50	20/0	0/0	20/0	0/0	0/0	100/100	
	IDSME1020	Workshop Fundamentals	ME	0	30	0	0	0	0	0	0	30	1	0/0	50/0	0/0	0/0	0/0	0/0	0/0	0/0	50/00	
	CFLS2110	Elementary Communicative English-I	CFLS	45	0	0	0	0	45	0	0	90	3	100/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	100/00	
Total												600	20										950
2	IDSSH1020	Mathematics for Engineers	S & H	45	0	30	0	0	30	0	15	120	4	30/50	0/0	30/50	0/0	0/0	20/0	0/0	20/0	100/100	
	IDSCE1010	Programming with C	CE	45	60	0	0	0	15	0	0	120	4	30/50	30/50	0/0	0/0	0/0	40/0	0/0	0/0	100/100	
	IDSCH1010	Fundamentals of Chemistry	CH	45	30	0	30	0	0	0	15	120	4	30/50	30/50	0/0	20/0	0/0	0/0	0/0	20/0	100/100	
	IDSME1010	Basics of Mechanical Engineering	ME	45	0	30	30	0	15	0	0	120	4	30/50	0/0	30/50	20/0	0/0	20/0	0/0	0/0	100/100	
	IDSIT1020	Introduction to AI Tools	IT	30	0	0	0	0	0	30	0	60	2	30/50	0/0	0/0	0/0	0/0	0/0	20/0	0/0	50/50	
	CFLS2120	Elementary Communicative English-II	CFLS	30	0	0	0	0	30	0	0	60	2	100/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	100/00	
Total												600	20										1000

P P Savani University
School of Engineering
Offered by: Department of Science & Humanities

COURSE DETAILS:

Course Code	IDSSH1010
Course Name	Fundamentals of Mathematics
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	FV	Assignment	Term Work	Self-Learning
4	120	45	0	30	0	0	30	0	15

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		FV		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	0	0	30	50	0	0	0	0	20	0	0	0	20	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- outline logarithm properties.
- implement concepts of Determinants and Matrices for solving science and engineering problems.
- present usefulness of trigonometry.
- acquire knowledge of co-ordinate geometry and ability to work with applications to Engineering

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Logarithm: Basic concept of logarithm, Rules and related examples, Applications of logarithm.	7	16
2	Determinants and Matrices: Basic concept of trigonometry, Units of angles (degree and radian), Allied & compound angles, Multiple-submultiples angles, Graph of sine and cosine, Periodic function, Sum and factor formulae, Inverse trigonometric function, Applications of trigonometry	7	16
3	Trigonometry: Basic concept of trigonometry, Units of angles (degree and radian), Allied & compound angles, Multiple-submultiples angles, Graph of sine and cosine, Periodic function, Sum and	7	16

	factor formulae, Inverse trigonometric function, Applications of trigonometry		
4	Co-ordinate geometry: Introduction, Point, Distance formula, Mid-point, Locus of a point, Straight lines, Slope of a line, Equation of a straight line, The general equation, Angle between two lines, Circle, Tangent and normal, Equation of tangent and normal	7	16
5	Vectors: Basic concept of vector and scalar, Addition and subtraction, Product of vectors, Geometric meaning of scalar and vector product, Angle between two vectors, Applications of dot and cross product, Work done and moment of force.	7	16
6	Mensuration: Basic concept of Mensuration, Area of Triangle, Square, Rectangle, Trapezium, Parallelogram, Rhombus and Circle surface, Volume of Cuboids, Cone, Cylinder and Sphere.	10	20
	TOTAL	45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Logarithm-1	2
2	Logarithm-2	2
3	Determinants and Matrices-1	2
4	Determinants and Matrices-2	2
5	Determinants and Matrices-3	2
6	Trigonometry-1	2
7	Trigonometry-2	2
8	Trigonometry-3	2
9	Co-ordinate geometry-1	2
10	Co-ordinate geometry-2	2
11	Vectors-1	2
12	Vectors-2	2
13	Mensuration-1	2
14	Mensuration-2	2
15	Mensuration-3	2
	TOTAL	30

SELF-LEARNING ONLINE RESOURCES:

Sr. No	Link / Description	Self-Learning Hours
1	NPTEL (National Programme on Technology Enhanced Learning)/ Video lectures and certification courses on Engineering Mathematics, Matrices, Trigonometry, Vectors, and Coordinate Geometry by IIT faculty	3
2	SWAYAM / Government of India MOOC platform offering free courses in Mathematics and Engineering Fundamentals with assessments and certificates.	3
3	Khan Academy Mathematics/ Interactive lessons and practice exercises on logarithms, trigonometry, geometry, vectors, and algebra.	3

4	MIT OpenCourseWare (Mathematics)/ Free access to high-quality mathematics lecture notes, videos, assignments, and problem-solving resources.	3
5	Wolfram MathWorld/ Comprehensive reference resource for mathematical concepts, formulas, definitions, and applications related to engineering mathematics.	3

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Tutorial	CE	Performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	30	0
	ESE	Quiz / Practical Performance – 25Marks External Viva Voce – 25 Marks	50	20
Assignment	CE	Assignment Evaluation Rubrics Content Accuracy – 5 Marks Presentation & Organization – 5 Marks Problem Solving & Calculations – 5 Marks Timely Submission & Originality – 5 Marks	20	0
Self Learning	CE	40 MCQ questions based on self-study resources and online learning 0.5 marks per question Total = 20 marks	20	0
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Advanced Mathematics for Polytechnic	Dr. N. R. Pandya	Macmillan Publication
Engineering Mathematics - 3rd Edition	Anthony croft & others	Pearson Education Publication

REFERENCE BOOK(S):

Title	Author/s	Publication
Basic Mathematics	G.C. Patel and Ami C. Shah	Atul Prakashan
Applied Mathematics for Polytechnics - 10th Edition	H. K. Dass	H. K. Dass
Applied Mathematics	W. R. Neelkanth	Sapna Publication

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSSH1010	Fundamentals of Mathematics
CO 1	Explain logarithmic properties and solve exponential expressions.
CO 2	Demonstrate the ability to crack engineering related problems based on determinant and matrices.
CO 3	Define properties of trigonometry and vectors in construction.
CO 4	Establish the knowledge of coordinate geometry, and ability to solve engineering problems.
CO 5	Explain the surface area and volume of different shapes and bodies.

MAPPING OF CO WITH PO:

IDSSH1010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2									
CO 2	3	3	2		1						
CO 3	3	2	3		1						
CO 4	3	3	2	1	1						
CO 5	3	2	3				1				

MAPPING OF CO WITH PSO:

IDSSH1010	PSO1	PSO2	PSO3
CO 1	2	1	2
CO 2	2	1	1
CO 3	1	1	1
CO 4	1	1	1
CO 5	1	1	1

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Logarithm	1,2,3,5
2	Determinants and Matrices	2,3,4,5
3	Trigonometry	2,3,4,5,6
4	Coordinate geometry	2,3,5
5	Vectors	2,3,5
6	Mensuration	1,2,3,5

P P Savani University
School of Engineering
Offered by: Department of Information Technology

COURSE DETAILS:

Course Code	IDSIT1010
Course Name	Digital Literacy
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	30	60	0	0	15	0	0	15

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	30	50	0	0	0	0	20	0	0	0	0	0	20	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Understand the fundamentals of computers, digital devices, and operating systems.
- Use internet and digital communication tools effectively and responsibly.
- Create and manage documents, spreadsheets, and presentations using productivity tools.
- Apply cybersecurity practices, digital ethics, and safe online behavior.
- Utilize digital services and emerging technologies for academic, professional, and career development.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Computer Fundamentals & Digital Devices: : Basics of computer systems, hardware and software, input/output devices, storage, operating systems, file management, number systems, and digital devices used in daily life and engineering.	06	20
2	Internet, Web Technologies & Digital Communication: :	06	20

	Internet fundamentals, web browsing, search techniques, e-mail usage, cloud services, online communication tools, social media awareness, and professional digital communication.		
3	Office Productivity & Engineering Documentation Tools: Document creation and formatting, spreadsheets, charts, presentations, collaborative tools, cloud storage, PDF creation, and digital signatures.	06	20
4	Cyber Security, Digital Ethics & Professional Responsibility: : Cybersecurity fundamentals, password management, online threats, data privacy, digital ethics, intellectual property rights, netiquette, and responsible technology use.	06	14
5	Digital Services, e-Governance & Digital Payments: : Digital India services, DigiLocker, UMANG, Aadhaar-enabled services, UPI, online banking safety, e-commerce, and government e-service portals.	03	14
6	Emerging Technologies & Career Readiness: : Introduction to AI, ML, IoT, cloud computing, Generative AI, digital tools for engineering, resume building, LinkedIn and GitHub profiles, and future technology trends.	03	12
	TOTAL	30	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Study of computer hardware components, peripheral devices, and system configuration.	04
2	Installation and basic operations in Windows/Linux; file and folder management.	04
3	Working with number systems and basic binary conversions using digital tools.	04
4	Internet browsing, advanced search techniques, and evaluation of online information sources.	04
5	Creation and management of e-mail accounts; use of e-mail features, etiquette, and security settings.	04
6	Using cloud storage services for file sharing, synchronization, and backup.	04
7	Preparation of a technical report using a word processor (formatting, tables, references, mail merge).	04
8	Spreadsheet applications: formulas, functions, data sorting/filtering, and chart creation.	04
9	Preparation and delivery of a technical presentation using presentation software.	04
10	Collaborative document creation and editing using Google Workspace or Microsoft 365.	04
11	PDF creation, document conversion, and application of digital signatures.	04
12	Cybersecurity practices: strong passwords, MFA setup, phishing identification, and malware awareness.	04
13	Use of DigiLocker, UMANG, Aadhaar-enabled services, and demonstration of secure digital payment methods.	04
14	Creating professional profiles on LinkedIn and GitHub; preparation of a digital resume and portfolio.	04

15	Exploring AI and Generative AI tools for academic and engineering applications; mini-project demonstrating responsible use of digital technologies.	04
TOTAL		60

SELF-LEARNING ONLINE RESOURCES:

Sr. No	Link / Description	Self-Learning Hours
1	https://www.simplilearn.com/free-digital-literacy-skills-course-skillup?utm_source	5
2	https://www.coursera.org/learn/digital-literacy-introduction-to-using-computers	5
3	https://www.youtube.com/watch?v=y2kg3M0k1sY	5

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	00
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Practical	CE	Performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	30	00
	ESE	Quiz / Practical Performance – 25Marks External Viva Voce – 25 Marks	50	20
Case Study	CE	Case Study (CS) Evaluation Rubrics Problem Identification & Understanding – 5 Marks Relevance of AI Application – 5 Marks Creativity & Innovation – 5 Marks Presentation Quality – 5 Marks	20	00
Self Learning	CE	40 MCQ questions based on self-study resources and online learning 0.5 marks per question Total = 20 marks	20	00
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Computer Fundamentals	P. K. Sinha & Priti Sinha	BPB Publications
Digital Literacy	Faithe Wempen	Wiley Publications

REFERENCE BOOK(S):

Title	Author/s	Publication
Digital Literacy for Dummies	Faithe Wempen	Wiley
Cyber Security Essentials	Charles J. Brooks	Wiley

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSIT1010	Digital Literacy
CO 1	Understand computer fundamentals and digital devices
CO 2	Use internet and digital communication tools effectively for academic and professional activities.
CO 3	Create and manage digital documents, spreadsheets, and presentations.
CO 4	Apply cybersecurity practices and digital ethics for safe and responsible use of technology.
CO 5	Utilize digital services and emerging technologies for learning, communication, problem-solving and career growth.

MAPPING OF CO WITH PO:

IDSIT1010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	1	-	-	2	-	-	-	-	-	-
CO 2	1	2	-	-	3	-	-	-	-	-	-
CO 3	1	2	1	-	3	-	-	-	-	-	-
CO 4	1	2	-	1	2	3	1	3	-	-	-
CO 5	1	1	1	-	3	2	2	2	1	1	1

MAPPING OF CO WITH PSO:

IDSIT1010	PSO1	PSO2	PSO3
CO 1	2	3	1
CO 2	2	1	3
CO 3	3	1	2
CO 4	2	2	2
CO 5	2	1	3

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Computer Fundamentals & Digital Devices	1,2
2	Internet, Web Technologies & Digital Communication	2,3
3	Office Productivity & Engineering Documentation Tools	3,4
4	Cyber Security, Digital Ethics & Professional Responsibility	2,3,5
5	Digital Services, e-Governance & Digital Payments	3,4
6	Emerging Technologies & Career Readiness	2,3,5,6

P P Savani University
School of Engineering
Offered by: Department of Science & Humanities

COURSE DETAILS:

Course Code	IDSSH1030
Course Name	Fundamentals of Physics
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	45	30	0	0	0	30	0	15

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	30	50	0	0	0	0	0	0	20	0	0	0	20	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Develop a strong foundation in fundamental concepts of physics and their significance in engineering and science.
- Understand the principles of mechanics, energy, elasticity, fluid properties, and heat transfer and their engineering applications.
- Gain knowledge of measurement techniques, systems of units, and error analysis for accurate scientific observations.
- Develop analytical and problem-solving skills by applying physical principles to real-life and engineering problems.
- Acquire practical skills through laboratory experiments and cultivate scientific temper and lifelong learning abilities.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Introductory concepts: Need of measurement and unit in engineering and science, definition of unit, requirements of standard unit, systems of units-CGS, MKS and SI, fundamental and derived quantities and their units Definition of accuracy, precision and error, estimation of errors -absolute error, relative error and	8	20

	percentage error, rules and identification of significant figures; Numericals.		
2	Mechanics: The concept of Force, Newton's 1st law of motion, Newton's 2nd law of motion, Newton's 3rd law of motion, Conservation of momentum, Applications of Conservation of linear momentum, Impulse; Numericals.	8	20
3	Work, Energy and Power: Work done by a constant force and a variable force, Kinetic energy, Work-energy theorem, Power, Notion of potential energy, Potential energy of a spring, Conservative forces, Conservation of mechanical energy (kinetic and potential energies), Non-conservative forces; Numericals.	8	20
4	Mechanical properties of solids: Deforming force, Restoring force, Elastic and plastic body, Stress and Strain with their types, Elastic limit, Hooke's law, Young's modulus, Bulk modulus, Modulus of rigidity and Relation between them (no derivation), Stress- Strain diagram, Yield point, Ultimate stress, Breaking stress, Factor of safety; Numericals.	8	14
5	Properties of fluids: Pascal's law and its applications (hydraulic lift and hydraulic brakes), Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its applications, Surface energy and surface tension, angle of contact; Numericals.	7	14
6	Heat transfer: Introduction to thermodynamics, Temperature and Heat, Transmission of heat - Conduction, Convection and Radiation, Law of thermal conductivity, Coefficient of thermal conductivity and its S.I. unit, Heat capacity and Specific heat of materials, Celsius, Fahrenheit and Kelvin temperature scales and their conversion formula; Numericals.	6	12
TOTAL		45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	To study about basic unit conversion and dimension analysis.	4
2	To measure diameter and the dimension of regular body of known mass using Vernier Calipers.	4
3	To measure the thickness of a sheet and diameter of a wire with the help of Micrometer Screw Gauge.	4
4	To determine the radius of curvature of a given spherical surface by a spherometer.	4
5	To verify ohm's law by using ammeter and voltmeter.	2
6	To determine the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of a given spherical body.	4
7	To determine the value of 'g' using simple pendulum.	4

8	To study the relationship between the temperature of a hot body and time by plotting a cooling curve.	4
TOTAL		30

SELF-LEARNING ONLINE RESOURCES:

Sr. No	Link / Description	Self-Learning Hours
1	https://youtu.be/buPuKAcKqZw?si=1FtK-zMlhKHTqxP - Kinetic Theory of Gases & Equation of Ideal Gas	3
2	https://youtu.be/0kzvyEtW9QA?si=rt5X1V2_nyzyrZXR - Work and Energy: Basic Concepts related to Constant and Variable Forces; Kinetic Energy	3
3	https://youtu.be/JR-L2CS8DGc?si=yGx-fngdNdI2Cf-K Hydrostatics, Archimedes' Principle, Bernoulli's Equation	3
4	https://youtu.be/tNpuTx7UQbw?si=PuNKWDorHhbbhXlf7 Hooke's Law, Springs, Pendulums, Simple Harmonic Motion	3
5	https://youtu.be/O_HQklhlwQ?si=F7MH0DZXBs5MqyMc Fluid Mechanics, Hydrostatics, Pascal's Principle, Atmosph. Pressure	3

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Practical	CE	Performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	30	0
	ESE	Quiz / Practical Performance – 25Marks External Viva Voce – 25 Marks	50	20
Assignment	CE	Understanding of Concepts – 5 Marks Problem Solving & Accuracy – 5 Marks Presentation & Organization – 5 Marks Timeliness & Originality – 5 Marks	20	0
Self Learning	CE	40 MCQ questions based on self-study resources and online learning 0.5 marks per question Total = 20 marks	20	0
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Concept of Physics	H.C. Verma	Bharati Bhawan

REFERENCE BOOK(S):

Title	Author/s	Publication
Physics Part-I and II	Resnick and Haliday	Wiley Eastern Publication
Concept of the Modern Physics	A. Beiser	Tata McGraw-Hill Education
Fundamentals of Physics	Gomber and Gogia	Pradeep publications
NCERT Physics part 1 & 2		NCERT

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSSH1030	Fundamentals of Physics
CO 1	Identify physical quantities, different systems of units and make measurements with accuracy by minimizing different types of errors to solve real life relevant problems.
CO 2	Analyze type of motions and apply the knowledge to solve equation of motion and conservation of momentum principle to describe motion of rocket, recoil of gun etc.
CO 3	Define scientific work, energy and power and their units. Derive relationships for work, energy and power and solve related problems.
CO 4	Learn about the concept of elasticity, it's types and applications from engineering perspectives.
CO 5	Describe the properties of fluids, understand the concepts of viscosity and surface tension and their respective applications.

MAPPING OF CO WITH PO:

IDSSH1030	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2	1	2	2	1	-	-	-	1	2
CO 2	3	3	2	2	1	1	-	-	-	1	2
CO 3	3	2	2	2	1	1	-	-	-	1	2
CO 4	2	2	2	2	1	1	1	-	-	1	2
CO 5	2	3	2	2	2	2	1	-	-	1	2

MAPPING OF CO WITH PSO:

IDSSH1030	PSO1	PSO2	PSO3
CO 1	2	1	-
CO 2	2	1	1
CO 3	2	1	1
CO 4	3	2	1
CO 5	2	2	1

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
-----------	---------	-----------

1	Introductory Concepts	3,5
2	Mechanics	1,4
3	Work, Energy and Power	1,3
4	Mechanical properties of solids	2,6
5	Properties of fluids	1,5
6	Heat transfer	3,4

P P Savani University
School of Engineering
Offered by: Department of Civil Engineering

COURSE DETAILS:

Course Code	IDSCV1010
Course Name	Basics of Civil Engineering
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	45	0	30	30	0	15	0	0

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	0	0	30	50	20	0	0	0	20	0	0	0	0	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Understand the fundamentals and applications of Artificial Intelligence in daily life and engineering domains.
- Develop awareness about emerging AI technologies and future industry trends.
- Explore AI tools, machine learning concepts, and generative AI platforms through hands-on learning.
- Apply AI concepts ethically and responsibly for solving real-world problems.
- Build confidence in using AI-enabled tools for academics, research, communication, and innovation.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Introduction to Civil Engineering: Branches of Civil Engineering, Scope of Civil Engineering, Role of Civil Engineer in Society. Impact of infrastructural development on the economy of a country.	4	8
2	Surveying and Levelling: Definition of Surveying, Aims and applications, Fundamental principles of surveying, Classification of surveying, Plans and maps, Scales, and Units of measurement, Introduction to linear and angular measurements, Types of compass. Introduction to levelling, Aims and application of levelling, Methods of levelling.	10	22

3	Overview of Construction Material: Scope of construction materials in Building Construction, Selection of materials for different civil engineering structures based on strength, durability, Eco friendly and economy.	9	20
4	Building Construction: Introduction, Classification of buildings (types of buildings), Types of loads acting on buildings, Building Components and their functions and nominal dimensions, Bonds in brickwork.	6	13
5	Disaster Management and Sustainable Infrastructure: Introduction to disasters and hazards; types, causes, effects, and mitigation of earthquakes, floods, cyclones, and droughts; disaster management cycle; role of government and community in disaster management; concepts of sustainable development, green buildings, rainwater harvesting, climate-resilient infrastructure, and smart cities.	8	19
6	Advancements in Civil Engineering: Smart city and its features, Solid waste management systems, Mass transport systems, Bus Rapid Transit System (BRTS), Metro, Green Building, Features of earthquake resistance structures.	8	18
TOTAL		45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Units of Conversion exercise	4
2	Preparation of sketches on Conventional signs, symbols and abbreviations	2
3	Assignment of Surveying and levelling	2
4	Chart preparation of various materials. Collection of rate and sample.	4
5	Preparation of sketchbook showing various bonds.	4
6	Preparation sketch of various building components.	4
7	Assignment based upon house drainage system.	2
8	Assignment based on green building.	2
9	Case studies on smart cities.	2
10	Case study on BRTS and metro.	4
TOTAL		30

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Tutorial	CE	Tutorial writing should be evaluated out of 10 marks for each tutorial, and the average of all tutorial marks will be converted to 30 marks.	30	0

	ESE	Tutorial Book – 25Marks External Viva Voce – 25 Marks	50	20
Model	CE	Model Preparation Evaluation Rubrics Planning and Concept Development – 5 Marks Design Accuracy– 5 Marks Creativity & Innovation – 5 Marks Presentation and Explanation – 5 Mark	20	0
Assignment	CE	Five assignment questions shall be given from each module. Each assignment shall be evaluated out of 10 marks, and the average marks obtained in all assignments shall be converted to 20 marks for final assessment.	20	0
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Elements of Civil Engineering	Anurag Kandya	Charotar Publication

REFERENCE BOOK(S):

Title	Author/s	Publication
Basic Civil Engineering	M.S.Palanichamy	McGraw Hill
Engineering Material	S.C. Rangwala	Charotar Publication

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSCV1010	Basics of Civil Engineering
CO 1	Explain the scope, branches, and societal role of Civil Engineering and its contribution to infrastructure development.
CO 2	Describe the fundamental principles, methods, and applications of surveying and levelling used in civil engineering projects.
CO 3	Identify and select appropriate construction materials and explain the basic components and construction practices of buildings.
CO 4	Explain the concepts of disaster management, sustainable development, and resilient infrastructure for safe and environmentally responsible construction.
CO 5	Describe recent advancements in civil engineering, including smart cities, solid waste management, mass transportation systems, green buildings, and earthquake-resistant structures.

MAPPING OF CO WITH PO:

IDSCV1010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	1	1			2			1		1
CO 2	3	2		1	2						1
CO 3	2	1	3		1	1		1		1	
CO 4	1	1	2			3	2				1

CO 5	2	1	1	1	3	2			1	2	2
------	---	---	---	---	---	---	--	--	---	---	---

MAPPING OF CO WITH PSO:

IDSCV1010	PSO1	PSO2	PSO3
CO 1	3	1	1
CO 2	3	2	
CO 3	3	2	1
CO 4	2	1	3
CO 5	2	3	2

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Civil Engineering	1,2
2	Surveying and Levelling	1,2, 3
3	Overview of Construction Material	1,2, 3
4	Building Construction	1,2, 3
5	Disaster Management and Sustainable Infrastructure	1,2, 3
6	Advancements in Civil Engineering	1,2

P P Savani University
School of Engineering
Offered by: Department of Mechanical Engineering

COURSE DETAILS:

Course Code	IDSME1020
Course Name	Workshop Fundamentals
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
1	30	0	30	0	0	0	0	0	0

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	50

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Introduce essential tools and machines used in workshops, emphasizing their functions, handling, and maintenance.
- Provide practical training in machining, fitting, carpentry, and other foundational manufacturing techniques.
- Instill the importance of workshop safety protocols to prevent accidents and ensure a secure working environment.
- Bridge the gap between classroom learning and real-world applications by implementing engineering principles in practical tasks.
- To familiarize students with modern manufacturing technologies such as CNC machining and Additive Manufacturing.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Introduction to Workshop Practice: Workshop Layout, Overview of workshop safety rules and regulations, Importance of various sections/shops in workshop, Understanding tools, materials, and machinery.	0	20
2	Measurement and Metrology:	0	20

	Introduction to measuring tools: Vernier calipers, micrometers, and gauges, Precision and accuracy in measurements.		
3	Carpentry, Fitting and Bench work: Basic wood types and their properties, Tools: saws, chisels, planes, hammer, and clamps, Preparation of Job as per Drawing including Marking and other Performing Operations Tools: files, hammers, punches, and measuring instruments, Techniques: filing, drilling, tapping, and sawing.	0	20
4	Welding Shop: Demonstration of tools and equipment for welding, safety practices and general guidelines. Demonstration of different welding tools / machines. Demonstration on Arc Welding, Gas Welding. Study of different kind of Joints	0	20
5	Machine Shop: Demonstration of tools and equipment for Machine, general guidelines. Study of construction and working of all machine tools like Lathe Machine, Drill machine, Milling Machine, Shaper machine.	0	10
6	Modern Manufacturing Processes and Automation: Future trends in Manufacturing, Introduction to Computer Aided Manufacturing Demonstration of the operations performed by 3D printers. Study CNC Milling and Laser Cutting Machine.	0	10
TOTAL		0	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Introduction and Demonstration of Safety Norms used for various shops.	2
2	Study of Different Measuring and other tools used in different shops.	2
3	To Perform a Job of Fitting Shop.	8
4	To Perform a Job of Carpentry Shop.	4
5	Preparation of a Welded joint by Electric Arc Welding method. (In groups)	4
6	Introduction to Different Machine Tools.	4
7	Demonstration of Operations on CNC Milling Machine.	2
8	Introduction to 3D printer and its working.	2
9	Demonstration of operations performed on CNC Laser Cutting Machine.	2
TOTAL		30

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Practical	CE	Performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 20 marks.	10	00
	CE	Quiz / Practical Performance & Viva Voce of 30Marks	40	00

TOTAL MARKS	50	20
--------------------	-----------	-----------

TEXT BOOK(S):

Title	Author/s	Publication
Elements of Workshop Technology - Vol 1 & 2	Hajra Choudhury, Nirjhar Roy	Media Promoters & Publishers Pvt Ltd

REFERENCE BOOK(S):

Title	Author/s	Publication
A Textbook of Workshop Technology	Deepak Dhouchak and Lalit Kumar Biban	White Falcon Publishing; 1st edition
An Introduction to NC/CNC Machine	S. Vishal	S.K. Kataria & Sons.

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSME1020	Workshop Fundamentals
CO 1	Identify workshop tools, materials, measuring instruments, and safety practices required for engineering workshop operations.
CO 2	Perform basic measurement, marking, fitting, carpentry, drilling, sawing, and bench work operations using appropriate tools and techniques.
CO 3	Demonstrate fundamental welding and machining processes while following standard safety procedures and workshop practices.
CO 4	Explain the construction, working principles, and applications of common machine tools such as lathe, drilling, milling, and shaping machines.
CO 5	Describe the principles and industrial applications of CNC machining, 3D printing, laser cutting, and computer-aided manufacturing in modern production systems.

MAPPING OF CO WITH PO:

IDSME1020	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	1	-	2	2	-	1	3	-	-	-
CO 2	3	2	3	3	2	1	1	2	2	1	1
CO 3	3	2	3	3	2	-	-	3	1	1	1
CO 4	3	2	2	2	1	-	1	1	-	-	-
CO 5	3	2	2	3	2	1	2	1	-	-	1

MAPPING OF CO WITH PSO:

IDSME1020	PSO1	PSO2	PSO3
CO 1	2	3	2
CO 2	-	1	-
CO 3	2	3	2
CO 4	3	3	3
CO 5	3	2	1

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Workshop Practice	1,2
2	Measurement and Metrology	3,4
3	Carpentry, Fitting and Bench work	6
4	Welding Shop	2,3
5	Machine Shop	4
6	Modern Manufacturing Processes and Automation	3

P P Savani University
School of Engineering
Offered by: Department of Science & Humanities

COURSE DETAILS:

Course Code	IDSSH1020
Course Name	Mathematics for Engineers
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	45	0	30	0	0	30	0	15

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	0	0	30	50	0	0	0	0	20	0	0	0	20	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Develop a comprehensive understanding of Limits, Differentiation, Integration, Differential Equations, Statistics, and Interpolation at an introductory level.
- Apply mathematical concepts and computational techniques to solve engineering, scientific, and real-life problems involving optimization, motion, data analysis, and estimation.
- Analyze and interpret engineering data using statistical methods and interpolation techniques for effective decision-making and prediction.
- Build logical thinking and problem-solving skills through mathematical modeling and analytical methods required in engineering and technology.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Limit: Limit of a Function, Properties of limit Standard formulae of Limit and related simple examples. Limit of a function, Properties of limit, Standard limits, limit of trigonometric functions.	5	10
2	Differentiation and its Applications: Concept and Definition of Differentiation, Working rules: Sum, Product, Division, Chain Rule, Derivative of Implicit functions, Logarithmic Differentiation, Successive Differentiation up to	11	23

	second order Applications: Velocity, Acceleration, Maxima & Minima of given simple functions.		
3	Integration and its Applications: Concept and Definition of Integration, Working rules and Integral of standard functions, Method of substitution, Integration by parts, Definite Integral and its properties, Applications: Area and volume. (Simple problems)	9	20
4	Differential Equations: Concept and Definition, Order and Degree of differential equation, Solution of DE of first degree and first order by Variable Separable method, Solution of linear Differential equation.	7	17
5	Statistics: Introduction, Central tendency: Mean, Median and Mode for ungrouped and grouped data, Mean deviation and Standard deviation about Mean for ungrouped and grouped data.	7	17
6	Interpolation: Finite differences (Forward, Backward, and Central differences), Newton Forward and Backward Method.	6	13
	TOTAL	45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Functions and Limits-1	2
2	Functions and Limits-2	2
3	Differentiation-1	2
4	Differentiation-2	2
5	Application of Differentiation-3	2
6	Integration-1	2
7	Integration-2	2
8	Application of Integration-3	2
9	Differential Equations of First order and Firstdegree-1	2
10	Differential Equations of First order and Firstdegree-2	2
11	Differential Equations of First order and Firstdegree-3	2
12	Statistics-1	2
13	Statistics-2	2
14	Interpolation-1	2
15	Interpolation-2	2
	TOTAL	30

SELF-LEARNING ONLINE RESOURCES:

Sr. No	Link / Description	Self-Learning Hours
1	https://www.youtube.com/results?search_query=3Blue1Brown+Essence+of+Calculus+Essence+of+Calculus+(Limits+Derivatives)	3

2	https://www.youtube.com/results?search_query=NPTEL+Applications+of+Derivatives/ Applications of Derivatives	3
3	https://www.youtube.com/results?search_query=NPTEL+Definite+Integration/ Definite Integration Applications	3
4	https://www.youtube.com/results?search_query=NPTEL+Engineering+Statistics/ Engineering Statistics	3
5	https://www.youtube.com/results?search_query=NPTEL+Newton+Forward+Interpolation/ Interpolation	3

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Tutorial	CE	Performance of Tutorial which should be evaluated out of 10 marks for each tutorial and average of the same will be converted to 30 marks.	30	0
	ESE	Tutorial Performance – 30 Marks External Viva Voce – 20 Marks	50	20
Assignment	CE	Assignment Evaluation Rubrics Understanding of Concepts – 5 Marks Problem Solving & Accuracy – 5 Marks Presentation & Organization – 5 Marks Timeliness & Originality – 5 Marks	20	0
Self Learning	CE	40 MCQ questions based on self-study resources and online learning 0.5 marks per question Total = 20 marks	20	0
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Advanced Mathematics for Polytechnic	Dr. N. R. Pandya	Macmillan Publication
Elementary Engineering Mathematics	B. S. Grewal	Khanna Publishers.s
Elementary Mathematical Statistics	S. C. Gupta and V. K. Gup	S. Chand and Sons

REFERENCE BOOK(S):

Title	Author/s	Publication
Advanced Engineering Mathematics	Krezig, Ervin	Wiley Publication
Calculus and Its Applications	Marvin L. Bittinger David J. Ellenbogen Scott A. Sargent	Addison-Wesley 10th Edition
Engineering Mathematics (Third edition).	Croft, Anthony	Pearson Education

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSSH1020	Mathematics for Engineers
CO 1	Demonstrate the ability to analyse and illustrate the Functions using the concept of Limit.
CO 2	Demonstrate the ability to solve engineering related problems based on applications of differentiation.
CO 3	Demonstrate the ability to solve engineering related problems based on applications of integration.
CO 4	Develop the ability to apply differential equations to significant applied problems.
CO 5	Analyze data using statistical measures and determine unknown values using interpolation techniques to support engineering decision-making.

MAPPING OF CO WITH PO:

IDSSH1020	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2	1								
CO 2	3	3	2	1							
CO 3	3	3	1	2	1						
CO 4	2	3	3	2	1						
CO 5	3	3	2	2	2	1					

MAPPING OF CO WITH PSO:

IDSSH1020	PSO1	PSO2	PSO3
CO 1	2	1	1
CO 2	3	1	2
CO 3	2	1	2
CO 4	1	1	2
CO 5	3	2	2

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Limit	1,2,3
2	Differentiation and its Applications	1,2,3,4,6
3	Integration and its Applications	1,2,3,4,6
4	Differential Equations	2,3,4
5	Statistics	1,2,3,4
6	Interpolation	2,3,4

P P Savani University
School of Engineering
Offered by: Department of Computer Engineering

COURSE DETAILS:

Course Code	IDSCE1010
Course Name	Programming with C
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	45	60	0	0	0	15	0	0

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	30	50	0	0	0	0	0	0	40	0	0	0	0	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Build confidence in reading, writing, and fixing simple computer programs, starting from zero prior coding background.
- Understand how a computer solves a problem step-by-step using algorithms and flowcharts, before writing any code.
- Learn the core building blocks of the C language - variables, decisions, loops, functions, arrays, pointers and structures through small, real, everyday examples.
- Build the confidence and foundation needed for higher-level subjects in programming and emerging technology domains

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Flowchart and Algorithm: Flowchart, Definition and Importance of flowchart, Symbols of Flowchart, Flow lines, Terminals, Input/Output, Processing Decision, Connection off-page connectors, Guidelines for preparing Flowchart, Flowchart structure, Sequence, selection, repetition, Limitation of flowchart, Algorithm, Developing and writing algorithm using pseudo codes.	6	12
2	Basics of 'C' Programming:	8	20

	General structure of 'C' program and standard directories, Advantages of C language, Character set, 'C' tokens, Keywords and Identifiers, Constants and Variables, Data Types in 'C', Rules for defining variables, Declaration and Initialization, Dynamic initialization, Type modifiers and type conversion, Constant and volatile variable, Input and Output statements in 'C', Write, compile, execute a simple 'C' program.		
3	Operators and Expression: Introduction of different types of operators and their symbolic representation, Properties of operator, Priority of operator and their clubbing, Comma and conditional operator, Arithmetic operators, Relational operators, Assignment operators and expressions, Logical operators, Bitwise operators, Formatted input and output in 'C'.	8	20
4	Decision Statements: Unconditional branching: goto statement, Conditional branching statements: If statement, If-else statement, Nested If-else statement, If-else-if Ladder statement, break, continue and goto statements, switch statements, Real applications: eligibility checker (voting age, loan approval), Connecting to AI: how chatbots use decision logic.	8	16
5	Loop Control Statements: for loop, Nested for loop, While loop, Do-while loop, Real applications: electricity bill for N users, monthly salary calculator	8	16
6	Introduction of Arrays: Array Terminology, A characteristics of an array, Array Declaration, Array initialization, accessing an array, Storing value in an array (Bubble Sort).	7	16
TOTAL		45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Study of C Programming Environment: Create, Compile, Execute and Debug simple C programs using IDE/Compiler.	4
2	Programs using Variables, Data Types, Input (scanf) and Output (printf) Statements.	6
3	Programs using Arithmetic, Relational, Logical and Mathematical Operators.	6
4	Programs to Evaluate Mathematical Expressions and Perform Floating-Point Calculations.	6
5	Programs using Decision-Making Statements (if, if-else, nested if, else-if ladder).	8
6	Programs using switch-case and break Statements for Menu-Driven Applications.	6
7	Programs using Looping Statements (while, do-while, for) with break and continue.	6
8	Programs using User-Defined Functions, Library Functions, Pointers and Structures.	6

9	Programs for File Handling: Create, Read and Write Data in ASCII Text Files.	6
10	Programs using One-Dimensional, Two-Dimensional and Character Arrays.	6
	TOTAL	60

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Practical	CE	Performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	30	0
	ESE	Quiz / Practical Performance – 25Marks External Viva Voce – 25 Marks	50	0
Assignment	CE	Assignment Evaluation Rubrics Problem Understanding & Logic Development – 10 Marks Program Design (Algorithm/Flowchart) – 10 Marks Correctness of C Program – 10 Marks Output and Documentation – 10 Marks	40	0
TOTAL MARKS			200	20

TEXT BOOK(S):

Title	Author/s	Publication
Programming in ANSI C	E. Balagurusamy	McGraw Hill Education

REFERENCE BOOK(S):

Title	Author/s	Publication
The C Programming Language	Brian W. Kernighan and Dennis M. Ritchie	Pearson Education
Programming with C	Byron S. Gottfried	McGraw Hill Education

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSCE1010	Programming with C
CO 1	Develop algorithms and flowcharts to represent logical solutions for simple real-world problems.
CO 2	Write, compile, execute, and debug basic C programs using variables, data types, operators, and input/output statements.

CO 3	Apply decision-making and looping constructs in C to solve computational problems involving conditions and repetition.
CO 4	Develop C programs using arrays and basic problem-solving techniques for data storage, processing, and manipulation.
CO 5	Build and test structured C programs using functions, pointers, structures, and file handling concepts to solve simple applications.

MAPPING OF CO WITH PO:

IDSCE1010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	3	2	1	1					1	
CO 2	3	3	2	2	3					1	
CO 3	3	3	2	2	3						
CO 4	2	3	2	2	3						
CO 5	3	3	3	2	3				1	1	

MAPPING OF CO WITH PSO:

IDSCE1010	PSO1	PSO2	PSO3
CO 1	3		2
CO 2	3	1	2
CO 3	3		2
CO 4	3	1	2
CO 5	3	2	3

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Flowchart and Algorithm	1,2
2	Basics of C Programming	3
3	Operators and Expressions	3
4	Decision Statements	5
5	Loop Control Statements	4
6	Introduction of Arrays	6

P P Savani University
School of Engineering
Offered by: Department of Chemical Engineering

COURSE DETAILS:

Course Code	IDSCH1010
Course Name	Fundamentals of Chemistry
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	45	30	0	30	0	0	0	15

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	30	50	0	0	20	0	0	0	0	0	0	0	20	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Understand the fundamentals of atomic structure, molecular structure, and chemical bonding.
- Apply the principles of acids, bases, solutions, and colloids in chemical calculations and industrial processes.
- Understand electrochemical phenomena and their industrial applications.
- Develop practical skills in conducting chemistry experiments and chemical analysis safely.
- Relate chemical concepts to engineering applications while promoting professional ethics, teamwork, and safety practices.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Atomic Mass and Molecular Structure: Atom, Fundamental particles of Atom their Mass, Charge and Location. Atomic number and Mass number, Octet Rule, Isotopes and Isobars with suitable examples, Formation of Cation and Anion by electronic concept of oxidation and reduction, Molecule, Molecular Formula, Molecular Mass, Mole, Avogadro Number, Avogadro's Hypothesis – Relationship between Molecular Mass and Vapour Density, Simple calculations.	9	20
2	Chemical Bonding:	9	20

	Chemical Bond, Valence, Valence Electrons, Bonding and Non Bonding Electrons, Lewis Symbols. Condition for Formation of Ionic Bond, Factors Governing Formation of Ionic Bond, Metallic Bond, Covalent Bond and Co-ordinate Covalent Bond: Hydrogen Bonding.		
3	Acids and Bases: Theories of Acids and Bases, Arrhenius Theory, Lowry – Bronsted Theory, Lewis Theory, pH and pOH, Indicator, Buffer solution, Types of buffer solution with examples, Application of pH in Industries, Numerical	9	20
4	Solutions and Colloids: Methods of expressing concentration of a solution Molarity, Molality, Normality, Mole fraction and Percentage Mass – Simple problems. True solution and Colloidal solution, Definition, Differences, Types of colloids – Lyophilic and Lyophobic colloids. Industrial applications of colloids.	7	14
5	Electrochemistry: Electrolyte, Strong and Weak electrolytes, Electrolysis, Industrial application of Electrolysis, Electroplating, Preparation of surface, Process Factors affecting the stability of the coating, Applications of Electro plating.	7	14
6	Electrochemical-Cell: Electrochemical Cell definition, Representation of a Cell, Single Electrode Potential definition, Galvanic Cell, Formation of Daniel Cell, Electrochemical Series, Definition and Significance, Electrolytic Concentration Cell definition and Formation.	4	12
	TOTAL	45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Using a chemical balance.	4
2	Introduction to chemistry laboratory – Molarity, Normality, Primary, Secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis etc.	4
3	Demonstration: Preparation of solutions of different concentrations	4
4	Preparation of standard solution of Oxalic acid and Sodium Carbonate.	4
5	Determination of strength of a given solution of Sodium Hydroxide by titrating it against standard solution of Oxalic acid.	2
6	Determination of strength of a given solution of Hydrochloric acid by titrating it against standard Sodium Carbonate solution.	4
7	Determination of temporary and permanent hardness in water sample using EDTA as standard solution.	4
8	Determination of pH	4
	TOTAL	30

SELF-LEARNING ONLINE RESOURCES:

Sr. No	Link / Description	Self-Learning Hours
--------	--------------------	---------------------

1	https://www.youtube.com/watch?v=Vf0I_207zUA ; https://youtu.be/UyYIH8n8Uyg?si=w4eUzKsmlL4lNNGz ; https://youtu.be/0UqHoagKXts?si=bWKgjYl5kzobKhmu ; Atomic Mass and Molecular Structure	3
2	https://youtu.be/qlc-q0CxtJk?si=HY-N5cJ0CoTZEJoj ; Chemical Bonding	3
3	https://youtu.be/qKl4mieovu0?si=rKxsftV-4t0wWnlt ; https://youtu.be/5bSXX0QttdY?si=F9cAJ0qFMNoCXUJc ; https://youtu.be/Bt1c00WRKsl?si=tjoLbwKZq6CLWU30 ; Acids and Bases	3
4	https://youtu.be/CHSPxhew0Bg?si=mE-mhNbYWJ7PNdw8 ; https://youtu.be/fDTLrhclWx0?si=xnpQtDmlGhVZO4Py ; https://www.youtube.com/live/utvVpouc3ZA?si=xUiaFpWVJtwQK45B ; Solutions and Colloids	3
5	https://youtu.be/bxV40U4YEqM?si=_Sg0SR3PUuq05d4W ; https://youtu.be/8RAhIFtABhU?si=-yVhnsYHWUj_E5bi ; Electrochemistry and Electrochemical-Cell	3

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Practical	CE	Performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	30	0
	ESE	Quiz / Practical Performance – 25Marks External Viva Voce – 25 Marks	50	20
Project/ Model	CE	Project/ Model Evaluation Rubrics Conceptual Understanding– 5 Marks Practical Performance – 5 Marks Creativity & Innovation – 5 Marks Presentation Quality – 5 Marks	20	0
Self Learning	CE	40 MCQ questions based on self-study resources and online learning 0.5 marks per question Total = 20 marks	20	0
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Text Book of Engineering Chemistry	Chawla S.	Dhanpat Rai & Co. Pvt. Ltd., Delhi, 2003.

REFERENCE BOOK(S):

Title	Author/s	Publication
Concise Inorganic Chemistry	J.D. Lee	Wiley India
Textbook of Engineering Chemistry (4th Edition)	R. Gopalan, D. Venkappaya, S. Nagarajan	Vikas Publishing house Ltd.

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSCH1010	Fundamentals of Chemistry
CO 1	Explain basic atomic structure, chemical bonding, and periodic trends.
CO 2	Apply principles of acids, bases, solutions, and electrochemistry to solve problems.
CO 3	Perform chemistry laboratory experiments safely using standard techniques.
CO 4	Analyze electrochemical processes and industrial applications of chemistry.
CO 5	Practice professional ethics, teamwork, and safety in laboratory and industrial work.

MAPPING OF CO WITH PO:

IDSCH1010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	2	1									1
CO 2	2	2	1		1						1
CO 3	1	1		2	2	1	2	2	1		1
CO 4	2	2	2	2	1	2	1		1		1
CO 5							2	2	2	1	1

MAPPING OF CO WITH PSO:

IDSCH1010	PSO1	PSO2	PSO3
CO 1	2	1	
CO 2	2	2	1
CO 3	3	2	1
CO 4	3	2	1
CO 5	3	3	1

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Atomic Mass and Molecular Structure	1, 2, 5
2	Chemical Bonding	1, 2, 3

3	Acids and Bases	2, 3, 4
4	Solutions and Colloids	2, 3, 4, 5
5	Electrochemistry	1, 2, 5
6	Electrochemical-Cell	1, 2, 5

P P Savani University
School of Engineering
Offered by: Department of Mechanical Engineering

COURSE DETAILS:

Course Code	IDSME1010
Course Name	Basics of Mechanical Engineering
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
4	120	45	0	30	30	0	15	0	0

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	00	00	30	50	0	0	20	0	20	0	0	0	0	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Use relevant mechanical power and hand tools in real life applications.
- Explore the working principles of different prime movers like IC Engine and Boilers.
- Select relevant power transmission mode in simple engineering situations.
- Identify and comprehend various hydro-pneumatic devices/equipment, brakes, clutch and couplings.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Introduction and Basic Mechanical Applications: Concept of Force, Pressure, Energy, Work, Power, System, Heat, Temperature, Specific heat capacity, Prime movers and its types. Basic Mechanical Components and its applications like bolts, nuts, washers, bearings, valves, bushes, springs, levers, rivets, keys, shafts, axles	7	15
2	Steam Generators: Introduction, I.B.R, Classification of boilers, Cochran and Babcock and Wilcox boiler, only Functioning of different mountings (Only Purposes) and accessories.	7	16
3	Pumps: Types, Construction and working of Reciprocating, Centrifugal pumps and Rotary pumps.	7	16

4	Internal Combustion Engines: Introduction, Difference between I.C. Engine and E.C. Engine, Classification of I.C. Engine, Main Components of Engine and their functions, working four- stroke cycle Petrol/Diesel engines, Comparison between Petrol cycle and diesel cycle. Basic concept of CNG and EV. (No Numericals).	8	18
5	Transmission of Motion and Power: Shaft and axle, Various types of Belt drive, Chain drive, Friction drive, Gear drive.	8	20
6	Couplings, Clutches and Brakes: Concept and applications of Couplings (Box; Flange; Pin type flexible; Universal and Oldham), Clutches (Disc and Centrifugal), and Brakes (Block; Shoe; Band, and Disc).	8	15
TOTAL		45	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
1	Demonstration of various types of boilers.	4
2	Demonstration of different boiler mountings and accessories.	4
3	Demonstration of four stroke petrol/diesel engines.	4
4	Demonstration of centrifugal, reciprocating, and rotary pump.	4
5	Demonstration of various belt drives and chain drive.	4
6	Demonstration of various gear drives.	4
7	Demonstration of various couplings.	2
8	Demonstration of various brakes.	2
9	Demonstration of various clutches.	2
TOTAL		30

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0
	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Tutorial	CE	Performance of tutorial which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	30	0
	ESE	Performance of tutorial which should be evaluated out of 10 marks for each practical and average of the same will be converted to 30 marks.	50	20
Model/ Project	CE	Case Study (CS) Evaluation Rubrics Problem Identification & Understanding – 5 Marks Relevance of AI Application – 5 Marks Creativity & Innovation – 5 Marks	20	0

		Presentation Quality – 5 Marks		
Assignment	CE	10 Theory assignments will be provided from each module based study resources and online learning 2 marks per questions Total = 20 marks.	20	0
TOTAL MARKS			200	40

TEXT BOOK(S):

Title	Author/s	Publication
Elements of Mechanical Engineering	Sadhu Singh	S. Chand Publication

REFERENCE BOOK(S):

Title	Author/s	Publication
Elements of Mechanical Engineering	P. S. Desai and S. B. Soni	Atul Prakashan
Basic Mechanical Engineering	Pravin Kumar	Pearson Education

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSME1010	Basics of Mechanical Engineering
CO 1	Use relevant mechanical power and hand tools in real life applications
CO 2	Explain the working principles of different prime movers like IC Engine, Boilers
CO 3	Explain relevant power transmission mode in simple engineering situation.
CO 4	Summarize various power transmission elements and their industrial applications.
CO 5	Summarize various hydro-pneumatic devices/equipment, brakes, clutch and couplings.

MAPPING OF CO WITH PO:

IDSME1010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2	1	-	2	-	-	-	1	-	1
CO 2	1	2	2	-	3	-	-	-	2	-	2
CO 3	2	3	3	2	3	2	-	1	1	1	2
CO 4	-	1	1	-	-	3	3	-	2	-	1
CO 5	2	2	3	2	3	2	1	2	2	2	3

MAPPING OF CO WITH PSO:

IDSME1010	PSO1	PSO2	PSO3
CO 1	2	2	2
CO 2	2	2	2
CO 3	3	2	2
CO 4	3	2	2
CO 5	2	2	2

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction and Basic Mechanical Applications	1,2,3
2	Steam Generators	1,2,3
3	Pumps	1,2,3
4	Internal Combustion Engines	1,2,3,4
5	Transmission of Motion and Power	1,2,3,4
6	Couplings, Clutches and Brakes	1,2,3,4

P P Savani University
School of Engineering
Offered by: Department of Information Technology

COURSE DETAILS:

Course Code	IDSIT1020
Course Name	Introduction to AI Tools
Prerequisite Course/s	None

TEACHING SCHEME:

Credit	Total Learning Hours	Direct Contact Hours			Indirect Contact Hours				
		Theory	Practical	Tutorial	Project	CS	Assignment	Term Work	Self-Learning
2	60	30	0	0	0	0	0	30	0

GD = Group Discussion | CS = Case Study | FV = Field Visit | PPT = Presentation

EXAMINATION SCHEME:

Theory		Practical		Tutorial		Project		CS		Assignment		Term Work		Self-Learning		Total
CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	CE	ESE	
30	50	0	0	0	0	0	0	0	0	0	0	20	0	0	0	100

CE: Continuous Evaluation, ESE: End Semester Exam

OBJECTIVE OF THE COURSE:

To help learners to:

- Understand the basic concepts of Artificial Intelligence and its applications in everyday life and different industries.
- Identify and use commonly available AI tools for learning, communication, content creation, and productivity.
- Develop hands-on experience with AI-powered applications to perform academic and professional tasks more efficiently.
- Understand the importance of ethical and responsible use of AI tools, including data privacy and digital safety.
- Build confidence in using AI technologies to solve simple real-world problems and enhance creativity, innovation, and career readiness.

COURSE CONTENT:

Module No.	Content	Hours	Weightage in%
1	Introduction to Artificial Intelligence tools: Definition of Artificial Intelligence and AI Tools; Evolution of AI and AI Tools; AI Tools vs Traditional Software; Types of AI Tools (Text, Image, Video, Audio, Coding, and Productivity Tools); Popular AI Tools and Their Features; Applications of AI Tools in Education, Engineering, Business, Healthcare, and Daily Life; Benefits and Limitations of AI Tools; Responsible	06	20

	and Ethical Use of AI Tools; Future Scope of AI and Career Opportunities.		
2	AI-Powered Content Creation and Productivity Tools: AI Tools for Text Creation; AI Tools for Image Creation; AI Tools for Video Creation; AI Tools for Presentations and Documents; AI Tools for Learning and Research; AI Tools for Coding Support; Basics of Prompt Writing; Effective Use of AI Tools; Applications of AI Tools in Academics and Daily Tasks; Advantages and Limitations of AI Tools; Safe and Responsible Use of AI Tools.	06	20
3	Applications of AI Tools in Various Fields: Introduction to AI Applications; AI Tools in Education and Learning; AI Tools in Civil Engineering; AI Tools in Mechanical Engineering; AI Tools in Electrical and Electronics Engineering; AI Tools in Computer and Information Technology; AI Tools in Healthcare and Biotechnology; AI Tools in Manufacturing and Industry; AI Tools in Business and Communication; AI Tools in Smart Devices and Daily Life; Future Applications of AI Tools.	06	20
4	Safe and Responsible Use of AI Tools: Introduction to AI Ethics; Responsible Use of AI Tools; Data Privacy and Security; Cyber Safety and Online Risks; Deepfakes and Fake Information; Human-AI Collaboration; Legal and Social Impact of AI; Good Practices for Safe AI Usage.	04	14
5	Practical Applications of AI Tools: Hands-on Introduction to AI Tools; AI Chatbots for Learning and Communication; AI-Based Content and Image Creation; AI Tools for Presentations and Research; Real-Life Applications of AI Tools; Mini Case Studies on AI Usage; Group Discussion on the Impact of AI; Best Practices for Effective Use of AI Tools.	04	14
6	Future of AI and Career Opportunities: Future Trends in AI; Emerging AI Technologies; AI in Education, Industry, and Daily Life; AI for Innovation and Problem Solving; AI and Sustainable Development; Career Opportunities in AI and Related Fields; Skills Required for Future AI Careers; Entrepreneurship Opportunities Using AI Tools.	04	12
TOTAL		30	100%

LIST OF PRACTICAL / TUTORIAL:

Sr. No	Practical / Tutorial	Hours
	TOTAL	0

COURSE EVALUATION & ASSESSMENT RUBRICS:

Component	CE/ESE	Evaluation Methodology / Rubrics	Marks	Passing Marks
Theory	CE	Two Internal Tests of 30 marks each shall be conducted during the semester. The average of both tests will be converted to 30 marks.	30	0

	ESE	Comprehensive written examination covering all modules of the course. Duration: 2 Hours	50	20
Term Work	CE	Term Work (TW) Evaluation Rubrics Problem Identification & Understanding – 5 Marks Relevance of AI Application – 5 Marks Creativity & Innovation – 5 Marks Presentation Quality – 5 Marks	20	0
TOTAL MARKS			100	20

TEXT BOOK(S):

Title	Author/s	Publication
AI Basics: A Non-Technical Introduction	Tom Taulli	Apress / Springer

REFERENCE BOOK(S):

Title	Author/s	Publication
Artificial Intelligence: A Modern Approach (4th Edition)	Stuart Russell and Peter Norvig	Pearson Education
Generative AI Fundamentals	Bernard Marr	Wiley

COURSE OUTCOME(S):

After the completion of the course, the students will be able to:

IDSIT1020	Introduction to AI Tools
CO 1	Describe the fundamentals of Artificial Intelligence and AI tools.
CO 2	Use AI tools for generating text, images, presentations, and other learning resources.
CO 3	Apply AI tools to complete academic, communication, and productivity-related tasks.
CO 4	Follow ethical, safe, and responsible practices while using AI technologies.
CO 5	Identify future trends and career opportunities related to AI and emerging technologies.

MAPPING OF CO WITH PO:

IDSIT1020	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2	1	-	2	-	-	-	1	-	1
CO 2	1	2	2	-	3	-	-	-	2	-	2
CO 3	2	3	3	2	3	2	-	1	1	1	2
CO 4	-	1	1	-	-	3	3	-	2	-	1
CO 5	2	2	3	2	3	2	1	2	2	2	3

MAPPING OF CO WITH PSO:

IDSIT1020	PSO1	PSO2	PSO3
CO 1	1	2	3
CO 2	2	2	1
CO 3	2	2	2
CO 4	2	-	-
CO 5	-	1	1

LEVEL OF REVISED BLOOM'S TAXONOMY IN ASSESSMENT

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Artificial Intelligence tools	1,2,3
2	AI-Powered Content Creation and Productivity Tools	2,3
3	Applications of AI Tools in Various Fields	2,3,4,
4	Safe and Responsible Use of AI Tools	3,4
5	Practical Applications of AI Tools	2,3,4
6	Future of AI and Career Opportunities	3,4,5