

SVKM's NMMIS Mukesh Patel School of Technology, Management & Engineering (MPSTME), Mumbai

About MPSTME

Established in 2006, NMIMS Mukesh Patel School of Technology Management and Engineering (MPSTME) aims to bridge the gap between academia and industry needs. MPSTME's curriculum emphasises practical applications, preparing students to address complex societal and economic challenges. By integrating theoretical knowledge with hands-on research, the school nurtures critical 21st-century skills. The school offers a comprehensive range of programs from undergraduate to doctoral levels in engineering and technology management. This approach ensures students are well-equipped to meet the evolving demands of the technology-driven business world.

Detail about Diploma Engineering Program -

Diploma engineering is a technical education program that focuses on practical and foundational engineering skills. It's typically a 3-year course pursued after completing 10th grade (high school).

Key Features of NMMIS MPSTME – Mumbai Diploma Engineering Program:

- 1. Duration: 3 years
- 2. Eligibility: Students who have completed Class 10 with at least 70% aggregate marks
- 3. Selection Process: Based on merits of Class X exam
- 4. Diploma Streams:
 - > Mechanical Engineering
 - Computer Engineering
 - Information Technology
 - Computer Science and Engineering

5. Curriculum Focus:

The diploma program combines classroom instruction with practical, application-based, and hands-on learning in cutting-edge technologies. It includes lab work, workshops, and industrial training.

6. Career Path:

Diploma students who successfully complete the second year with a minimum CGPA of 6.5 are eligible to pursue the B.Tech program at MPSTME, Mumbai in the same

stream. They will be admitted directly into the first year of the B.Tech program without the need for an entrance examination. These students will receive a Diploma in Vocation certificate after completing two years of the program, which will be considered equivalent to Class XII as per the National Education Policy 2020.

- Students who will complete 3 years of Diploma program can also apply to 2nd year of engineering degree programs via lateral entry after successful completion of Diploma program.
- Students will also have an option to join workforce after the completion of Diploma program. MPSTME has a dedicated placement Cell to help these students to select right career.

6. Exit policy:

- After successful completion of 1st year of Diploma Engineering along with 4 -weeks internship (industrial training) related to the skill development course identified by the respective programs, students can Exit with Certificate of Vocation (C.Voc.).
- After successful completion of 2nd year of Diploma Engineering along with 4 -weeks internship (industrial training) related to the skill development course identified by the respective programs, students can Exit with Diploma of Vocation. However, students of Diploma in Computer Science & Engineering will be admitted to B.Tech Data Science.
- After successful completion of 3rd year students will be awarded Diploma Engineering.

Diploma in Mechanical Engineering

Program overview: Diploma in Mechanical Engineering is a 3-year technical program designed to provide students with foundational knowledge and practical skills in the field of mechanical systems, machines, tools, and manufacturing processes. prepares students for direct entry into technical roles or further studies.

Key Features of the Program

1. Core Subjects Covered:

- Engineering Mechanics
- Strength of Materials
- > Thermodynamics
- Fluid Mechanics
- Machine Design
- Manufacturing Technology
- CAD (Computer-Aided Design)
- Workshop Practice

2. Practical Training:

- > Hands-on training in labs and workshops
- Industrial visits and internships
- > Exposure to machine tools, lathe operations, welding, etc.

3. Skill Development:

- Technical drawing and AutoCAD
- Problem-solving and analytical skills
- > Teamwork and communication in engineering environments

4. Certifications and Add-ons:

- > Optional certifications in AutoCAD, SolidWorks, CATIA, Ansys
- Value-added courses in CNC, robotics, HVAC, or safety

Career Path After Diploma Mechanical

- Further Study: 1. Join BTech Mechanical Program at MPSTME after 2 years of Diploma 2. Lateral entry into 2nd year of B.Tech in Mechanical or allied branches.
- > **Job-Oriented**: Join as technician/supervisor in core industries or MNCs.
- **Entrepreneurship:** Start your own workshop, fabrication unit, or service center.
- **Government Exams:** Appear for RRB, SSC JE, PSU exams, State PSCs for higher roles.
- Abroad Opportunities: With work experience and certification (like IELTS), explore technical jobs in Gulf, Canada, Europe.

Program	Structure for Diploma in Mechanical	Engineerin	g (Batch	a 2025-28)	
Year of th	ne Programme: First Year AY 2025-20	6			
Semester	- I		Semeste	r -II	
S. No.	Course	Credits	S. No.	Course	Credits
1	Mathematics-I	4	1	Mathematics-II	4
2	Applied Physics-I	3	2	Applied Physics-II	3
3	Applied Chemistry	2	3	Introduction to Electrical and Electronics Engineering	3
4	Engineering Drawing	3	4	Engineering Mechanics	4
5	Computer Programming	3	5	Introduction to Object Oriented	3
	I I I I I I I I I I I I I I I I I I I	_	_	Programming	
6	Communication Skills	2	6	Applied Physics-II Lab	1
7	Engineering Workshop Practice	1	7	Introduction to Electrical and	1
				Electronics Engineering Lab	
8	Applied Physics-I Lab	1	8	Social and Life Skills	1
9	Applied Chemistry Lab	1			
	Total	20		Total	20
Year of th	ne Programme: Second Year AY 2026	-27			
Semester	- 111	r	Semeste	r -IV	1
S. No.	Course	Credits	S. No.	Course	Credits
1	Mathematics-III	4	1	Basic Manufacturing Processes	3
2	Elements of Mechanical Engineering	3	2	Engineering Metrology and Measurements	4
3	Basic Thermodynamics	4	3	Theory of Machines	4
4	Production Drawing	3	4	Fluid Mechanics and Hydraulic Machinery	4
5	Solid Mechanics	4	5	Entrepreneurship Development and Startups	2
6	Materials Engineering and Metallurgy	4	6	Manufacturing Workshop	1
7	Community Engagement	0	7	Internship	4
	Total	22		Total	22
Year of th	ne Programme: Third Year AY 2027-2	28			
Semester	- V	r	Semeste	r - VI	
S. No.	Course	Credits	S. No.	Course	Credits
1	Introduction to Hydraulics and Pneumatics	4	1	Machine Design	4
2	Computer Aided Design and	4	2	Refrigeration and Air	4
	Manufacturing			Conditioning	
3	Industrial Engineering and Quality	4	3	Modern Manufacturing	3
	Control			Processes	
4	Indian Constitution	0	4	Environmental Science and Sustainability	2
5	Automobile Engineering	3	5	Capstone Project Execution	4
6	Capstone Project Planning	2	6	Department Elective-II	3
7	Department Elective-I	3			
	Total	20		Total	20
	Total Credits	124			
	Total No of Courses	44			

Course Structure of Diploma in Mechanical Engineering

Diploma in Computer and allied streams

<u>Program overview</u>: MPSTME offer Diploma programs of 3-year in three computer related streams, namely, Diploma in Computer Engineering (CE), Diploma in Information Technology (IT) and Diploma in Computer Science and Engineering (CSE).

These technical programs are designed to provide students with foundational and practical knowledge in computer science along with exposure to related disciplines such as data science electronics and communication, and information technology. This diploma serves as a stepping stone for those aspiring to build a career in the ever-evolving field of IT and technology. These courses emphasize hands-on training and industry-relevant skills. The curriculum is structured to cover both theoretical concepts and practical applications, ensuring students are well-equipped to handle real-world technical challenges upon graduation.

		Diploma in CE	Diploma in IT	Diploma in CSE
	Focus	Hardware +	Application and	Data analysis,
		Software	management of	statistics, machine
Aspect		fundamentals	IT systems	learning
	Nature	Broad &	Applied &	Specialized &
		foundational	business-oriented	data-centric
	Programming	C, C++, Java	C, C++, Python	C, C++, Java, R
	Hardware &	Microprocessors,	Microprocessors,	Microprocessors,
	Electronics	Digital	Digital	Digital Electronics,
		Electronics,	Electronics, Basic	computer hardware
		computer	computer	& Maintenance
		hardware &	hardware &	
		Maintenance,	Maintenance,	
			Networking	
	Networks & OS	Computer	Computer	Basic OS
		Networks,	Networks, Cloud	knowledge only
Core		Operating	Basics	
subjects		Systems		
	Database	Relational	DBMS, Cloud	Advanced SQL,
	Systems	Databases, SQL	Storage, Web	NoSQL, Data
			Apps	Warehousing
	Web &	Web	Web	Limited; used for
	Application Dev.	technologies,	Development, E-	data dashboards
		GUI tools	commerce, App	
			development	
	Math & Logic	Applied Math,	Basic Math &	Statistics,
		Logic Design	Stats	Probability, Linear
				Algebra

Comparison among these specializations (Diploma in CE, IT, CSE)

	Data Analysis	No (optional	Optional	Core focus
	Tools	only)		(Pandas, NumPy,
				Matplotlib, etc.)
	Machine	Not covered or	Rarely included	Core modules
	Learning / AI	only introductory		(Regression,
	_			Clustering, NLP,
				etc.)
	System-level	Strong	Moderate	Minimal
	understanding			
	Software	Strong	Strong	Moderate
	Development			
Skill Focus	Data Handling &	Minimal	Basic	Strong
Skiil I Oeus	Modelling			
	Statistical	Rare	Limited	Core Skill
	Thinking			
	Business	No	Sometime	Core aspect
	Intelligence			
	Hardware	Yes	No	No
	enthusiasts			
	General software	Yes	Yes	Sometimes
Ideal For	careers			
lucal I of	Web/app	Yes	Yes	Not ideal
	developers			
	Data	Not sufficient	Some basics	Yes
	analysts/scientists			

Career Path After Diploma CE, Diploma IT, Diploma CSE

- Further Study: 1. Join BTech Program in the same stream at MPSTME after 2 years Diploma 2. Lateral entry into 2nd year of B.Tech in Computer Engineering or allied branches.
- Job-Oriented: After completing Diploma in Computer Engineering (CE), students can Join as Software Developer, Network Technician, System Analyst. Diploma in Information Technology (IT) students can become Web Developer, IT Support Head, Database Admin etc. Diploma in Computer Science and Engineering (CSE) students can start working as Data Analyst, Junior Data Scientist, ML Assistant.
- Entrepreneurship: Start a Web Development or IT Service Farm, Offer freelance programming, data analysis, or tech support.
- Government Exams: Appear for RRB JE / Technician, SSC JE, PSUs (like BHEL, NTPC, IOCL), SSC JE / CHSL / CGL (IT & Technical posts), DRDO, ISRO Technician roles, State govt. junior engineer/assistant roles
- Abroad Opportunities: After a diploma in Computer Engineering, IT, or Data Science, you can pursue higher studies abroad—like a Bachelor's or advanced diploma—in countries like Canada,

Australia, the UK, and Germany. With experience and certifications, job opportunities also exist in tech roles like developer, analyst, or IT support. Countries such as Canada and Australia offer good post-study work rights and PR pathways. Building a strong profile (projects, English skills, certifications) is key to success.

Summary

- If you are interested in both software development and understanding the hardware side of computing systems, **Diploma in Computer Engineering** is the ideal choice.
- If you are interested in building and managing software applications, working with databases, websites, and IT systems in a business environment, then **Diploma in Information Technology** is the ideal choice.
- If you are passionate about data, statistics, and machine learning, and want to build intelligent systems that analyze patterns and support decision-making, then **Diploma in Computer Science** and Engineering is the ideal choice.

Course Structure of Diploma in Computer Engineering

	Program Structure for I) Diploma in	Co	mputer l	Engineering (Batch 2025-28)	
	Year of the Progr	amme: Fii	rst Y	Year (Aca	ademic Year 2025-26)	
	Semester I				Semester II	
Sr. No.	Course Name	Credit /s		Sr. No.	Course Name	Credit /s
1	Mathematics-I	4		1	Mathematics-II	4
2	Applied Physics-I	3		2	Applied Physics-II	3
2				3	Introduction to Electrical and	
3	Applied Chemistry	2		5	Electronics Engineering	3
4	Engineering Drawing	3		4	Engineering Mechanics	4
5				5	Introduction to Object Oriented	
5	Computer Programming	3			Programming	3
6	Communication Skills	2		6	Applied Physics-II Lab	1
7	Engineering Workshop Practice	1		7	Introduction to Electrical and Electronics Engineering Lab	1
8	Applied Physics-I Lab	1		8	Social and Life Skills	1
9	Applied Chemistry Lab	1				
	Total	20			Total	20
	Year of the Program	mme: Seco	ond	Year (A	cademic Year 2026-27)	
	Semester III	-			Semester IV	-
Sr. No.	Course Name	Credit /s		Sr. No.	Course Name	Credit /s
1	Mathematics-III	4		1	Introduction to Database Management System	3
2	Data Structures	3		2	Website Designing	3
					Data Communication and Computer	
3	Digital Techniques	4		3	Networks	3
4	Java Programming	3		4	Microprocessor and Microcontrollers	4
	Basic Computer Hardware and					
5	Troubleshooting	1		5	Introduction to Operating Systems	3
6	Basics of Multimedia and Animation	2		6	Entrepreneurship Development and Startups	2
7	Computer System Architecture	2		7	Internship	4
8	Community Engagement	0		8	Data Analysis and Visualization	2
	Total	19			Total	24
	Year of the Progra	mme: Thi	ird	Year (Ac	ademic Year 2027-28)	
	Semester V	r			Semester VI	r
Sr. No.	Course Name	Credit /s		Sr. No.	Course Name	Credit/s
1	GUI and Mobile Application Development	3		1	System Security	3
2	Python Programming	3		2	Introduction to Cloud Computing	3
3	Software Engineering	3		3	Fundamentals of Artificial Intelligence and Machine Learning	4
4	Datamining Techniques	4		4	Environmental Science and Sustainability	2
5	Advanced Website Designing	3		5	Department Elective II	3
6	Capstone Project Planning	2	<u> </u>	6	Capstone Project Execution	4
7	Department Elective I	3		7	Emerging Trends in Computer Engineering	1
	Total	21			Total	20
	Total Credits for the Programme	124				
	Total no. of courses	46				

Course Structure of Diploma in Information Technology

Program Structure for Diploma in Information Technology (Batch 2025-28)							
Year of	the Programme: First Year (Acad	demic Year 2	2025-26)				
Semeste	er - I		Semeste	er - II			
S. No.	Course	Credits	S. No.	Course	Credits		
1	Mathematics-I	4	1	Mathematics-II	4		
2	Applied Physics-I	3	2	Applied Physics-II	3		
3	Applied Chemistry	2	3	Introduction to Electrical and Electronics Engineering	3		
4	Communication Skills	3	4	Introduction to Electrical and Electronics Engineering Lab	1		
5	Engineering Drawing	3	5	Engineering Mechanics	4		
6	Engineering Workshop Practice	2	6	Introduction to Object Oriented Programming	3		
7	Computer Programming	1	7	Social and Life Skills	1		
8	Applied Physics-I Lab	1	8	Applied Physics-II Lab	1		
9	Applied Chemistry Lab	1					
	Total	20		Total	20		
	Year of the Program	nme: Second	Year (Ac	cademic Year 2026-27)			
~	Semester - III		Semeste	er - IV	r		
S. No.	Course	Credits	S. No.	Course	Credits		
1	Mathematics-III	4	1	Introduction to Database Management System	3		
2	Data Structures	3	2	Website Designing	3		
3	Digital Techniques	4	3	Data Communication and Computer Networks	3		
4	Introduction to Software Development	3	4	Entrepreneurship Development and Startups	2		
5	Basic Computer Hardware and Troubleshooting	1	5	Python Programming Essentials	1		
6	Basics of Multimedia and Animation	2	6	Introduction to Operating Systems	3		
7	Computer System Architecture	2	7	Microprocessor and Microcontrollers	4		
8	Community Engagement	0	8	Data Analysis and Visualization	2		
			9	Internship	4		
	Total	19		Total	25		
Year of	the Programme: Third Year (Aca	ademic Year 2	2027-28)				
Semeste	er - V		Semeste	er - VI			
S. No.	Course	Credits	S. No.	Course	Credits		
1	Foundations of Linux	3	1	Introduction to Cloud Computing	3		
2	Mobile Application Development for Beginners	3	2	Introduction to Game Design	3		
3	Introduction to Data Warehouse	2	3	Introduction to Artificial Intelligence and Machine Learning	3		
4	Data Mining Techniques	4	4	Basics of Visual Analytics	1		
5	E-Commerce Basics	3	5	Department Elective-II	3		
6	Capstone Project Planning	2	6	Emerging Trends in IT	1		
7	Indian Constitution	0	7	Environmental Science and Sustainability	2		
8	Department Elective-I	3	8	Capstone Project Execution	4		
	Total	20		Total	20		
	Total no. of credits	124					
	Total no of courses	50	1				

Progran	n Structure for Diploma in Compute	er Science	and En	gineering (Batch 2025-28)	
Year of	the Programme: First Year (Acader	nic Year 2	2025-26)		
Semeste	r- I	1	Semeste	r- П	
S. No.	Course	Credits	S. No.	Course	Credits
1	Mathematics-I	4	1	Mathematics-II	4
2	Applied Physics-I	3	2	Applied Physics-II	3
3	Applied Chemistry	2	3	Introduction to Electrical and Electronics Engineering	3
4	Engineering Drawing	3	4	Engineering Mechanics	4
5	Computer Programming	3	5	Introduction to Object Oriented Programming	3
6	Communication Skills	2	6	Applied Physics-II Lab	1
7	Engineering Workshop Practice	1	7	Introduction to Electrical and Electronics Engineering Lab	1
8	Applied Physics-I Lab	1	8	Social and Life Skills	1
9	Applied Chemistry Lab	1			
	Total	20		Total	20
Year of	the Programme: Second Year (Acad	lemic Yea	r 2026-2	7)	
Semeste	r-Ш		Semeste	r- IV	
S. No.	Course	Credits	S. No.	Course	Credits
				Introduction to Database Management	
1	Mathematics-III	4	1	System	3
2	Data Structures	3	2	Website Designing	3
3	Digital Techniques	4	3	Data Communication and Computer Networks	3
4	Java Programming	3	4	Introduction to Optimization Techniques	3
5	Basic Computer Hardware and Troubleshooting	1	5	Introduction to Operating Systems	3
6	Introduction to Statistical Learning for Data Science	3	6	Entrepreneurship Development and Startups	2
7	Computer System Architecture	2	7	Internship	4
8	Community Engagement	0	8	Data Analysis and Visualization	2
	Total	20		Total	23
Year of	the Programme: Third Year (Acade	emic Year	2027-28)	
Semeste	r-V		Semeste	r- VI	
S. No.	Course	Credits	S. No.	Course	Credits
1	GUI and Mobile Application Development	3	1	System Security	3
2	Python Programming	3	2	Introduction to Cloud Computing	3
3	Software Engineering	3	3	Fundamentals of Artificial Intelligence and Machine Learning	4
4	Data Mining Techniques	4	4	Environmental Science and Sustainability	2
5	Advanced Website Designing	3	5	Department Elective - II	3
6	Capstone Project Planning	2	6	Capstone Project Execution	4
7	Indian Constitution	0	7	Emerging Trends in Computer Engineering	1
8	Department Elective - I	3			
	Total	21		Total	20
	Total Credits for the Program	mme	124		
	Total No of Courses		48		

Course Structure of Diploma in Computer Science and Engineering

<u>Note:</u> For the First Year (1st Semester and 2nd semester), all Diploma streams including Mechanical have same course curriculum.

The **comparison of course curriculum** of Diploma in Computer Engineering (CE), Diploma in Computer Science & Engineering (CSE) and Diploma in Information Technology (IT) are depicted below from the 3rd Semester onwards.

Sr. No.	Course Name	Credit/s	CE	CSE (DS)	IT
1	Mathematics-III	4	\checkmark		
2	Data Structures	3	\checkmark	\checkmark	\checkmark
3	Digital Techniques	4	\checkmark		
4	Java Programming	3	\checkmark	\checkmark	Х
5	Basic Computer Hardware and Troubleshooting	1	\checkmark	\checkmark	\checkmark
6	Basics of Multimedia and Animation	2		Х	\checkmark
7	Computer System Architecture	2	\checkmark	\checkmark	\checkmark
8	Community Engagement	0	\checkmark	\checkmark	\checkmark
9	Introduction to Statistical Learning for Data Science	3	X		X
10	Introduction to Software Development	3	Х	Х	

Semester - III

Semester - IV

Sr. No.	Course Name	Credit/s	CE	CSE (DS)	IT
1	Introduction to Database Management System	3	\checkmark	\checkmark	\checkmark
2	Website Designing	3	\checkmark	\checkmark	
3	Data Communication and Computer Network	3			\checkmark
4	Microprocessor and Microcontrollers	4	\checkmark	Х	
5	Introduction to Operating Systems	3	\checkmark	\checkmark	\checkmark
6	Entrepreneurship Development & Start-up	2	\checkmark	\checkmark	\checkmark
7	Internship	4	\checkmark	\checkmark	\checkmark
8	Data Analysis and Visualization	2	\checkmark	\checkmark	\checkmark
9	Introduction to Optimization Techniques	3	Х		Х

Semester - V

Sr. No.	Course Name	Credit/s	CE	CSE (DS)	IT
1	GUI and Mobile Application Development	3		\checkmark	Х
2	Python Programming	3	\checkmark	\checkmark	Х
3	Software Engineering	3			Х
4	Data Mining Techniques	4	\checkmark		
5	Advanced Website Designing	3	\checkmark	\checkmark	Х
6	Capstone Project Planning	2	\checkmark	\checkmark	\checkmark
7	Department Elective I	3	\checkmark		
8	Indian Constitution	0	\checkmark	\checkmark	\checkmark
9	Foundations of Linux	3	Х	Х	\checkmark
10	Mobile Application Development for Beginners	3	Х	Х	\checkmark
11	Introduction to Data Warehouse	2	X	X	\checkmark
12	E-Commerce Basics	3	Х	Х	

Semester - VI

Sr. No.	Course Name	Credit/s	CE	CSE (DS)	IT
1	System Security	3	\checkmark	\checkmark	
2	Introduction to Cloud Computing	3	\checkmark		\checkmark
3	Fundamentals of Artificial Intelligence and Machine Learning	4	\checkmark	\checkmark	\checkmark
4	Environmental Science and Sustainability	2	\checkmark	\checkmark	\checkmark
5	Department Elective II	3	\checkmark	\checkmark	
6	Capstone Project Execution	4	\checkmark	\checkmark	\checkmark
7	Emerging Trends in Computer Engineering	1	\checkmark	\checkmark	Х
8	Introduction to Game Design	3	Х	Х	\checkmark
9	Basics of Visual Analytics	1	Х	X	
10	Emerging Trends in IT	1	Х	Х	

Diploma syllabus of First Year

Semester – I (Common to all)

Program: Diploma in Engineering (All branches)					Semester: I		
Course: Mathematics-I				Code: 701BS0C018			
	Teaching So	cheme		Evaluation Scheme			
Lect (Hour wee	ure Practical s per (Hours per sk) week)	Tutorial (Hours per week)	Credit	t Internal Continuous Assessment (ICA) (Marks - 50) (Marks-		Internal Continuous Assessment (ICA) (Marks - 50) (Marks-10)	
3	0	1	4	Marks Scale	ed to 50	Marks Scal	ed to 50
Course The co in scie promo	Course Objective The course aims to acquaint students with elementary algebra, sets, functions and trigonometry used in in science, engineering and technology. It further fosters the development of critical thinking skills, promotes problem-solving abilities and prepares students for higher education.						
 Course Outcomes After completion of the course, students will be able to - 1. Define and relate basic notions of algebra, sets, functions and trigonometry 2. Demonstrate understanding of basic facts and concepts in algebra, sets, functions and trigonometry 3. Apply suitable formulae of algebra, sets, functions and trigonometry to solve related 							
Detaile	ed Syllabus						
Unit	Description						Duration
1.	Algebra						
	Logarithm: Definit	tion and laws	of logarith	nm, change of	base.		3
	Partial fraction: res	olving proper	and impro	per fractions in	nto partial	fractions.	4
	Matrices and Determinants: Algebra of matrices, transpose, determinant of 2x2 and 3x3 matrices, elementary properties of determinants upto 3 rd order, adjoint and inverse of matrices. Solution of simultaneous equations by matrix inversion method and Cramer's rule.						
2.	Sets Sets and their represents, subsets, subsets, subsets, subsets, subsets, subsets, subsets, power set.	esentations, united to be a set of a se	iversal set, real numb	, empty set, fin ers especially	ite and inf	inite sets, equal with notations),	5

	Venn diagrams, union and intersection of sets, difference of sets, complement of a set, properties of complement.	4
3.	Functions	
	Definition, domain, codomain, range; algebra of real functions; graphs of standard real	
	functions – constant, identity, modulus, polynomial, exponential and logarithmic	4
	One to one function, onto function, even and odd functions, composite functions, inverse function.	5
4.	Trigonometry	
	Measurement of angles in degrees, radians and their conversions; trigonometric ratios of allied angles, compound angles, multiple angles (2A, 3A, A/2), product formulae (transformation of product to sum and vice versa).	7
5.	Inverse Trigonometric Functions	
	Definition, properties of inverse trigonometric functions and related problems.	5
	Total	45
Text Bo	ooks	
1.	Mathematics Textbook for Class XI, NCERT Publication, Revised Edition Noveml	ber 2021,
2.	Mathematics Textbook for Class XII, NCERT Publication, Revised Edition Novem	lber
	2021.	
Referei	nce Books	
1.	H. K. Dass, <i>Applied Mathematics for polytechnics</i> , 11th edition, CBS Publishers & Distributors Pyt. Ltd., 2016.	
2.	Anthony Croft, Robert Davison, Martin Hargreaves, James Flint, <i>Engineering Mather</i> 5th Edition, Pearson Publication, 2017.	matics,
Tutoria	al Work	
Minimu	um 6-8 tutorial exercises based on syllabus.	

Program: Diploma in Engineering (All branches)				Semester: I	
Course: Applied Physics-I			Code: 701BS0C019		
Teaching Scheme			Evaluatio	n Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100)
2	0	1	3	Marks Scaled to 50	Marks Scaled to 50

Prequisite: Nil

Course Objective

Physics is the science from which all technologies have evolved. Engineers deal with various technologies which eventually leads to new innovations and improvements. This course is designed to impart a thorough knowledge of the basic principles along with the applied aspects of the same, which help students to understand, apply and contribute to evolving technologies

more effectively and thereby improve the standard of life and the society.

Course Outcomes

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

- 1. Classify and utilize international system of units (SI Units) of physical quantities in engineering solutions and make measurements with accuracy by minimizing different types of errors.
- 2. Explain basic laws and related formulae for understanding the relationship between nature and matter on scientific basis.
- 3. Define concepts of work, energy and power and apply them in solving engineering problems.
- 4. Apply the concepts of heat and thermometry to solve various engineering problems.

Detaile	ed Svllabus	
Unit	Description	Duration
1.	Units and measurements Unit, Physical quantities: fundamental and derived quantities and their units, system of units: CGS, MKS and SI. Dimensions of physical quantities, Dimensional formulae and dimensional equations, dimensional analysis and its applications.	5
	Errors, types of errors: instrumental, systematic and random error, estimation of errors: absolute, relative and percentage error, significant figures.	3
2.	Force and Motion Force & Inertia, Newton's laws of motion and their applications, Momentum, Conservation of momentum and its applications. Projectile Motion: trajectory, range of projectile, angle of projection and time of flight.	4
	Circular motion: angular displacement, angular velocity, angular acceleration, frequency, time period, Relation between linear and angular velocity, Centripetal and Centrifugal forces with examples, expression and applications such as banking of roads and bending of cyclist.	4

3.	Work energy and power	
	Work: Concept and units, work-energy theorem, work done by variable	
	force.	
	Energy and its units, kinetic energy, potential energy, mechanical energy, conservation of mechanical energy.	6
	Power and its units, power and work relationship, calculation of power (numerical problems)	
4.	Heat and Thermometry	
	Concept of heat and temperature, modes of heat transfer (conduction, convection and radiation with examples), specific heats.	4
	Expansion of solids, liquids and gases, Co-efficient of thermal conductivity, engineering applications.	4
	Total	30
Text E	Books	
1.	Physics Textbook for Class XI, NCERT Publication, (Part I & Part II) Revised E	dition
	November 2022	
	November 2022,	
2.	Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revi	sed Edition
2.	Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revi November 2022.	sed Edition
2. Refere	Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revi November 2022. ence Books	sed Edition
2. Refere 1.	Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revi November 2022. Ence Books Halliday and Resnick, <i>Fundamentals of Physics</i> , 12 th Edition, Wiley India, 2021.	sed Edition
2. Refere 1. 2.	Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revi November 2022. ence Books Halliday and Resnick, <i>Fundamentals of Physics</i> , 12 th Edition, Wiley India, 2021. H.C. Verma, <i>Concepts in Physics</i> , Vol. I & II, Bharti Bhawan Ltd., New Delhi, 2	sed Edition
2. Refere 1. 2. 3.	 Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revinovember 2022. Pance Books Halliday and Resnick, <i>Fundamentals of Physics</i>, 12th Edition, Wiley India, 2021. H.C. Verma, <i>Concepts in Physics</i>, Vol. I & II, Bharti Bhawan Ltd., New Delhi, 2 P. V. Naik, <i>Principles of Physics</i>, 5th Edition, Pearson Education Pvt. Ltd., New Part II) 	sed Edition 017. Delhi, 2012.

Minimum 6-8 Tutorial exercises based on the syllabus.

Program: Di	iploma in Engi	neering (All b	Semester: I		
Course: Applied Chemistry				Code: 701BS0C020	
Teaching Scheme				Evaluatio	n Scheme
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100)
2	0	0	2	Marks Scaled to 50	Marks Scaled to 50

Course Objective

Central science Chemistry is everywhere! Chemistry is a fundamental branch of natural sciences that study the matter, energy, properties, and their relationship. Chemistry is present in everyday life and few examples to illustrate this are various materials that we come across which are used in computers, mobile phones, chemical drugs, etc. Therefore, our future engineers should be

aware of, and appreciate the wonders Chemistry humbly offers us every single day.

Course Outcomes

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

- 1. Explain the basic structure of atom, periodicity of elements
- 2. Develop an understanding of chemical bonding and intermolecular forces
- 3. Analyze the fundamentals of mole concepts in solution chemistry
- 4. Apply the concepts of electrochemistry and acid-base catalysis in industry

Detaile	d Syllabus			
Unit	Description	Duration		
1	Atom structure and periodicity of elements			
	Structure of atom: Philosophy of atom by Acharya Kanad, Rutherford's Scattering	4		
	Experiment, Bohr's Theory of an atom, shapes of s, p, d orbitals and electronic	4		
	configuration			
	Effective nuclear charge, size of atoms and ions, ionization energy, electron	2		
	affinities, electronegativity, group trends	3		
2	Chemical bonding and intermolecular forces			
	Chemical bonding: Types and characteristics of electrovalent bond, covalent	3		
	bond, coordinate bond, metallic bond.			
	Intermolecular forces: Ionic, covalent, and van Der Waals interactions (with one	_		
	example for each type), co-ordination number and applications	2		
3	Concept of mole and solutions			
	Avogadro's number, molecular and equivalent weight, molar mass, concepts and	4		
	types of solutions and its characteristics, properties of aqueous solutions			
	Units for expressing concentration of solutions (normality, molarity) and			
	numericals based on normality, molarity. Determining the weight of substance	4		
	present from the given volume and concentration of the solution	4		
	containing the substance			

4	Acid-Base Theory and Catalysis	
	Theories of Acids and bases-Arrhenius theory, Bronsted-Lowry concept,	2
	Lewis theory, advantages of Lewis concept, Concept of pH, pH scale, and	3
	buffers. Numerical based on hydrogen ion and hydroxyl ion concentration.	
	Concept of catalysis, Types of catalysis - homocatalysis heterocatalysis,	2
	industrial applications of acid-base catalysis	2
5	Electro chemistry and application in electrolysis:	
	Introduction of Electrochemistry, Line notation, Redox reaction, Definition of	2
	electrolytes and non-electrolytes.	
	Introduction to electrolysis, Faraday's laws of electrolysis: Faraday's first and	
	second law, relation between electrochemical equivalent and chemical equivalent,	2
	Numericals based on it. Applications of electrolysis like Electro- refining of copper	3
	and Electroplating.	
	Total	30
Text]	Books	
1.	Chemistry Textbook for Class XI, NCERT Publication, (Part I & Part II) Revised Education	dition
	November 2022,	
2.	Chemistry Textbook for Class XII, NCERT Publication, (Part I & Part II) Revise	d Edition,
	November 2022.	
Refer	ence Books	
1.	Theodore E. Brown, <i>Chemistry: The Central Science</i> , H. Eugene LeMay, Bruce E. E	Bursten,
2	Catherine Murphy, Patrick Woodward, Matthew E. Stoltztus, 13th Edition 2019.	Co Now

P. C. Jain, M. Jain, *Engineering Chemistry*, 17th Edition, Dhanpat Rai Publishing Co. New Delhi, 2017

Program : Diploma in Engineering (All Branches)				Sem	ester: I
Course: Engineering Drawing				Cod	e:
Teaching Scheme				Evalu	ation Scheme
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks - 50)
2	2	0	3	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: -

Course Objective

Engineers communicate using engineering graphics. Graphical language is used to describe ideas and convey directions for tasks on the shop floor and other locations. This course will help students improve their drafting and drawing skills. It includes graphics theory, standards & conventions of drawing, the tools of drawing and the use of drawings in engineering applications. The curriculum aims at developing the ability to draw and read various engineering curves, projections and dimensioning styles.

Course Outcomes

After completion of the course, students would be able to -

- 1. Draw engineering curves, projection of lines and planes
- 2. Apply principles of orthographic projections for drawing given pictorial views and draw isometric views from orthographic projections using CAD software
- 3. Construct free hand sketches of given engineering elements

Detaile	ed Syllabus	
Unit	Description	Duration
1.	Basic Elements of Drawing Drawing instruments and supporting material: method to use them with applications, standard sizes of drawing sheets, convention of lines and their applications, dimensioning techniques - types and applications.	02
2.	Engineering Curves Concept and understanding of focus, directrix, vertex and eccentricity. Conic sections - methods to draw an ellipse by directrix-focus method, methods to draw a parabola by directrix-focus method, methods to draw a hyperbola by directrix-focus method, methods to draw involutes for circle and pentagon.	07
3.	Projection of Lines and Planes Projection of straight lines inclined to one plane and parallel to the other plane, Projection of plane surfaces inclined to one reference plane and parallel to the other plane.	07
4.	Orthographic Projections Introduction of projections - orthographic and isometric, concept and applications, first angle method of projection, conversion of pictorial view into orthographic views of simple objects – object containing plain surfaces, slanting surfaces, slots, ribs, cylindrical surfaces. Introduction to Computer Aided Drafting: concept, hardware and various CAD software available, draw basic entities like Line, Circle, Arc, Polygon, Ellipse, Rectangle and Polyline, Modify and edit commands like trim, delete, copy, offset, layers, Linear, Dimensioning: Horizontal Vertical, Aligned, Rotated Baseline, Continuous, Diameter, Radius, and Angular Dimensions, Text: Single line Text, Multiline text.	06

_		
5.	Isometric Projections	
	Principles of isometric projection - isometric scale, isometric views and isometric	
	projection isometric views of lines, planes, simple and compound solids; conversion of	06
	orthographic views to isometric models illustrative problems related to simple chiests	00
	of mographic views to isometric models, musuative problems related to simple objects	
	having plain, slanting, cylindrical surfaces and slots on slanting surfaces.	
6.	Free Hand Sketches of Engineering Elements	
	Free hand sketches of machine elements - Thread profiles, nuts, bolts, studs, set screws,	02
	washers locking arrangements	
	Tatal	• •
	Total	30
Text B	Books	
1.	N. D. Bhatt, V. M. Panchal and P. R. Ingle, <i>Elementary Engineering Drawing</i> , 53th Edition,	Charotar
	Publishing House, 2016.	
Refere	ence Books	
1.	K. Venugopal, Engineering Drawing and AutoCAD, 5th Edition, New Age International	1
	Publishers, 2020.	
2.	M. B. Shah and B. C. Rana, Engineering Drawing, Pearson Education, 2010.	
Labor	atory Work	
6 to 8 d	exercises based on the syllabus.	

Program: Diploma in Engineering (All Branches)					Semester:	I
Course: Enginee	Course: Engineering Workshop Practice				Code:	
Teaching Scheme Evaluation Scheme					tion Scheme	
Lecture (Hours per week)	Practical (Hour s per week)	Tutorials (Hours per week)	Credit	Internal (Assessm (Marl	Continuous ent (ICA) ks - 50)	Term End Examinations (TEE) (Marks- 100)
0	2	0	1	Marks Sc	caled to 50	

Prerequisite: Nil

Course Objective

To provide hands-on practical skills for effective participation in engineering workshop environments. Emphasizing safety protocols and basic workshop practices, the course aims to equip students with foundational competencies necessary for their academic and professional development in diverse engineering disciplines.

Course Outcomes

After completion of the course, students would be able to -

- 1. Proficiently apply fitting shop tools and techniques, hand tools for sheet metal fabrication, tools for soldering and domestic wiring and common electronic instruments, ensuring precision and quality in engineering tasks.
- 2. Understand the functioning of commonly used measuring instruments, tools, electrical materials, ARDUINO boards and sensors in simple applications.

Detai	led Syllabus	
Unit	Description	Duration
1.	Introduction to workshop trades and Safety measures: General instructions for safety in various Workshop Trades. Common accidents- causes and preventive measures. First Aid.	01
2.	Introduction to Workshop Trades and Safety Measures Fitting Shop : Introduction to fitting shop tools, common materials used in fitting shop. Description and demonstration of various types of safety precaution while work on benches, holding devices, files and hack-sawing.	08
3.	Sheet Metal Fabrication: Use of hand tools for sheet metal fabrication. Sheet metal fabrication of jobs involving cutting, shearing, bending, edge folding, soldering, brazing etc. Demonstration of modern tools.	06
4.	Familiarization and application of testing instruments and commonly used measuring instruments and tools Multimeter, Function generator, Power supply, Digital Storage Oscilloscope (DSO) etc. Soldering iron, De-soldering pump, Pliers, Cutters, Wire strippers, Tweezers, Crimping tool, Hot air soldering and de-soldering.	04
5.	Study, demonstration and identification of common electrical materials such as wires, cables, switches, fuses and connectors Wiring of fan, tube light, two-way control (staircase wiring), Earthing- Need, objectives and types – Plate, Pipe, Rod and maintenance free earthing.	06

6.	Study of ARDUINO boards (uno/mega), sensors				
	Temperature, Humidity, LDR, Smoke, Ultrasonic etc., Shields – Motor driver, wi-fi, IO,	05			
	DC gear motors, Stepper motor.	05			
	Total	30			
Text l	Books				
1.	K. C. John, <i>Mechanical Workshop Practice</i> , 2 nd Edition, PHI Learning Pvt. Ltd., 2010.				
2.	R.P. Singh, Electrical Workshop: Safety, Commissioning, Maintenance and Testing of Electrical				
	Equipment, 3rd Edition, IK International Publishing, 2012.				
Refer	ence Books				
1.	S. K. Hajra Choudhary, S. K. Bose, A. K. Hajra Choudhary, N. Roy, <i>Elements of Workshop Technology- Edition</i> , 15th Media promoters, Publications, 2013 and I.				
Labor	atory Work				
Minin	num two jobs as per the syllabus.				

Program	Program: Diploma in Engineering (All Branches)					Semester: II	
Course: I	Engineerir	ng Mechanics				Code:	
		Teaching Sch	eme	1	Eva	luation Schem	e
Lecture (Hours per week)		Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)		Term End Examinatio ns (TEE) (Marks – 100)
2 2		2	1	4	Marks Scaled t	o 50	Marks Scaled to 50
Course C The cours arises of c for diplon equilibriu	Course Objective The course is aimed at analysis of forces using principles of mechanics. The analysis of forces helps to prevent arises of defects, errors and subsequent failures in such elements under action of forces. This course is designed for diploma aspirants to get acquainted with the various systems of forces, effects of friction on equilibrium, the importance of centre of gravity and simple lifting machines.						
Course C After com 1. Anal 2. Appl 3. Deter	Course Outcomes After completion of the course, students would be able to - 1. Analyze the given force system to calculate resultant force 2. Apply the conditions of equilibrium and the laws of friction 3. Determine the centroid of the structural elements and evaluate the performance of lifting machines						
Detailed Syllabus Unit Description					Duration		
1	Analysi	s of Forces					Duration
	Analysis of Forces Introduction to Mechanics, Force system and its classification, characteristics of forces, Resolution of a force into components, Moment of force, Law of transmissibility of force, Law of polygon of forces, Varignon's theorem of moments, Law of parallelogram of forces, Polygon Law, Composition of coplanar forces using analytical method, Resultant of collinear, concurrent and non-concurrent force system, Resolution of a force into a force and a couple.						f f , 08 g
2.	Equilibrium of ForcesEquilibrium and its conditions, types of supports and support reactions, Free bodydiagram with different types of loads, equilibrium of a body subjected to two forcesand three forces, application of Lami's Theorem, Determination of Beam reactions forsimply supported beams.						
3.	FrictionIntroduction to friction; types and laws of friction, limiting friction, co-efficient of friction, angle of friction, angle of repose, Equilibrium of bodies on rough horizontal and inclined plane; Basic problems on friction involving blocks.05					f 05	
4.	Centroid and Centre of Gravity Concept of centroid, Significance of centroid and centre of Gravity, Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle), Centroid of composite plane figures (composed of not more than three simple geometrical figures). 05				f r 05		

5.	Simple Lifting Machines Introduction, Simple machines and definitions, ideal machines and Efficiency of a machine, reversible and non-reversible machine, Law of a machine, Friction of a machine, Important Lifting Machines- Simple wheel and axle, Differential wheel and axle, Worm and worm wheel.	05
	Total	30
T T	1-	

Text Book

- 1. S. S. Bhavikatti, Engineering Mechanics, New Age International Publications, 2021.
- 2. A. K. Tayal, Engineering Mechanics-Statics and Dynamics, Umesh Publication, 2008 (Classic). **Reference Books**

 - Beer & Johnston, *Engineering Mechanics*, Tata McGraw Hill, 2020.
 R C Hibbeler, *Engineering Mechanics*, 14th Edition, Pearson Education, 2017.

Laboratory Work

8 to 10 experiments based on the syllabus.

Program	1: Diploma in E	ngineering (All	branches)	Semester: I		
Course:	Communicat	ion Skills		Code: 701BS0C021		
	Teachi	ng Scheme		Evaluation Scheme		
Lecture (Hours per week)	e Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50) Term End Examination (TEE) (Marks		rm End ninations (Marks)
1	2	0	2	Marks Scaled to 50		-
Course Objective The objective of this course is to enhance students' abilities to comprehend, think through and articulate original responses to diverse reading material. The objective of the course is also to increase students' competence at the basic human skills of listening and speaking so that they may be excellent communicators (using the English Language) in all spheres of their life.						
Course Outcomes After completion of the course, students will be able to - 1. Read, comprehend and respond critically to extended 2. Write grammatically correct, meaningful, complete written responses 3. Speak confidently using the English language in formal and informal settings						
Unit	Description					Duration
OutDescription1.ReadingExposure to different styles and genres of writing such as descriptive, fictional, analytical and scientific Reading strategies such as close reading, critical reading and appreciative readingVocabulary enhancement Critical evaluation – understanding author intention, drawing inferences, appreciation of literary style					5	
 Writing Principles of written communication and the 7C's Outlining, idea expansion, sentence construction, paragraph writing Grammar and punctuation 5 						5
3. f i i e	Listening and Speaking Importance of good listening skills, barriers to effective listening, strategies for good listening, formal and informal conversations, importance of attention in communication, understanding 'dialogue', persuasive communication, introduction to public speaking, barriers to effective speaking, strategies to effective speaking, overcoming stage fright, understanding audiences.					
	Total					15

Text Books

1. Meenakshi Raman and Sangeeta Sharma, *Technical Communication*, New Delhi: Oxford University Press, (2015 3rd Ed. 2017 Reprint) (Unit 1, Unit 2, Unit 3, Unit 4)

Reference Books

1. Anjanee Sethi and Bhavana Adhikari, Business Communication, Tata McGraw Hill. 2010

Laboratory Work

Lab work based on the syllabus will cover following aspects:

- 1. Speeches
- 2. Blog writing
- 3. Book reading
- 4. Newspaper reading and presentation of news
- 5. Worksheets (Reading comprehension, writing and vocabulary)

Program: Diploma in Engineering (All Branches) Semester: I							
Course	e: Computer Pro	ogramming		Code: 701CO0C017			
	Teachin	g Scheme			Evaluation	n Schem	e En -l
Lectu (Hour per week	re Practica rs l (Hours per) week)	Tutorial (Hours per week)	Credit	Internal C Assessme (Mark	continuous ent (ICA) is - 50)	Ter Exan (TEE) 50) P	m End ninations (Marks - Practical yam
2	2	0	3	Marks S	caled to 50	Marks 50	Scaled to
Pre-ree	uisite: logic b	uilding skil	1.	I			
Course Enable Program Decisio knowle Functio Course After c 1. Form 2. Impl 3. Impl 4. Imp	 Course Objective Enable students understand the basic concepts of Programming and help them build Programming Logic. Develop problem-solving skills using basic Programming constructs, Decision Making and Looping. Enable students solve complex problems using the knowledge of Arrays, Functions, and Pointers. Course Outcomes Course Outcomes After completion of the course, students would be able to - 1. Formulate algorithms and draw flowcharts 2. Implement Decision Making, Nested Control Structures and Iterations. 3. Implement programs using Functions and concept of Recursion. 4.						
Detaile	d Syllabus						
Unit	Description						Duration
1	1 Introduction to Programming 5 Introduction to components of a computer system (disks, memory, processor, where a program is stored and executed, operating system, compilers etc.) 5 Introduction to Algorithm & Flowchart 5					5	
2	The Compone	ents of a C]	Program				5
	Program's Con Statements, Ex	mponents, xpressions	Variables, I and Operato	Data Types ors.	, Constants	,	
3	Basic Program Decision Mak Continue Sta Loops.	n Control king and E tements, I	Branching, S Looping: Fo	Switch State or, While,	ements, Br Do-While,	eak and Nested	4
4	Arrays One Dimension Accessing array Two-Dimension Accessing array	onal Array ay element onal Array ay elements	: Concept, s of one-dir : Concept, s of two-dir	Declaration nensional a Declaration rensional ar	and Initia rray. and Initia ray.	lization, lization,	5
5	Program Deco Introduction a in C, Functi Introduction t	omposition and need of ion calls a o recursive	in to modul e user defined and declara functions.	es d functions, ttion, Categ	Defining fu gory of fu	inctions nctions.	4

6	Strings	4				
	Introduction to strings, Declaring & initializing string variable,					
	Reading & writing strings, String handling functions.					
7	Understanding Pointers Idea of Pointer, defining Pointers, Call by value and call by reference.	3				
Total		30				
Text B	ooks					
1. Byre	on Gottfried, Schaum's Outline Programming with C, 3rd Edition, M	cGraw-Hill,				
2017	7.					
2. E. Balaguruswamy, <i>Programming in ANSI C</i> , 8th Edition, Tata McGraw Hill Education, 2019.						
Reference Books						
1. Brian W. Kernighan and Dennis M. Ritchie, <i>The C Programming Language</i> , 2nd Edition, Prentice Hall of India, 2015						
2. Seymour Lipschutz, Schaum's Outlines Data Structures, Revised 1st Edition, Tata						
McGraw Hill,2014.						
Laboratory Work						
8 to 10	8 to 10 experiments (and a practicum where applicable) based on the syllabus.					

Program: Diploma in Engineering (All branches)					Semester: I		
Cours	se: A	pplied Physics	s-I Lab		Code: 701BS0C022		
		Teaching	Scheme		Evaluation Scheme		
Lect (Hour we	ture rs per ek)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE Mark)	
()	2	0	1	Marks Scaled to 50		
Preree	quisite:	Nil					
Course Objective Physics is the science from which all technologies have evolved. Engineers deal with various technologies which eventually leads to new innovations and improvements. This course is designed to impart a thorough knowledge of the basic principles along with the applied aspects of the same, which help students to understand, apply and contribute to evolving technologies more effectively and thereby improve the standard of life and the society.							
 Course Outcomes After completion of the course, students will be able to- Identify the right type of measuring instrument and measure the dimensions of solid objects with accuracy and precision. Explain basic laws related to momentum and friction, and measure the coefficients using related formulae. Verify the laws of heat and thermometry and determine the thermal coefficient for the given material 							
Detail	ed Syll	abus					
Sr. No.	List of	f practical					
1.	To me Vernie	asure the volu r caliper.	me of a solid o	cylinder and in	ner volume of hollow cylin	ider using a	
2.	To mea	asure the diam	eter and thickr	ness of given o	bject using a micrometer sc	rew gauge.	
3.	To me	asure the radiu	s of curvature	of a given sph	erical surface using a spher	ometer.	
4.	To stu	dy time of flig	ht, maximum	height and ran	ge in a Projectile motion.		
5.	To mea	asure the coeff	icient of restitu	ution for differ	ent materials.		
6.	To mea	asure the coeff	icient of static	friction.			

7.	To study friction and its relationship with the angle of inclination θ by plotting a graph between applied force and sin θ .
8.	To study the variation in volume with pressure for a sample of air at constant temperature by plotting graph between P and 1/V.
9.	To measure the Thermal Conductivity of metal rod by Searle's Method.
10.	To find the force constant of a helical spring by plotting a graph between load and extension.
11.	To verify triangle and parallelogram law of forces.
12.	To verify law of conservation of mechanical energy (PE to KE).
Text I	Books
1. F	Physics Lab manual NCERT
2. 0	C. L. Arora, <i>Practical Physics</i> , S. Chand, 2001.
Refer	ence Books

- Halliday and Resnick, *Fundamentals of Physics*, Wiley India, 12th Edition, 2021.
 H.C. Verma, *Concepts in Physics*, Vol. I & II, Bharti Bhawan Ltd., New Delhi, 2017.
 P. V. Naik, *Principles of Physics*, 5th Edition, Pearson Education Pvt. Ltd., New Delhi, 2012.

Laboratory Work

8 to 10 experiments based on the syllabus.

Course: Applied Chemistry Lab Code: 701BS0C023 Teaching Scheme Evaluation Scheme Leture Tractical Tutorial Credit Internal Continuous Meek week Credit Marks Scaled to 50 0 2 0 1 Marks Scaled to 50 Course Objective The aim for student practical work is to support the learning of chemical concepts exprimentally. Practical and extend their theory knowledge and understanding of chemistry in novel engineering solutions. This also kindles curiosity in students and stimulates their interest to find better solutions. It helps continually to improvise existing product. Course Outcomes After completion of the course, students will be able to - 1. Identify the types of bonding in given samples and the strength of acids 2. Str. Lestimate EMF of Daniell cell and iodine content in salt Detailed Sylabus Str. List of practical No. 1 <	Progra	m: Diploma in Engi	ineering (All b	ranches)	Semester: I				
Teaching Scheme Evaluation Scheme Lecture (Hours per week) Tutorial (Hours per week) Tutorial (Hours per week) Internal Continuous Assessment (ICA) (Marks -50) Term End Examinations (TEE) 0 2 0 1 Marks Scaled to 50 Course Objective The aim for student practical work is to support the learning of chemical concepts experimentally. Practical activities enable students to apply and extend their theory knowledge and understanding of chemistry in novel engineering solutions. This also kindles curiosity in students and stimulates their interest to find better solutions. It helps continually to improvise existing product. Course Outcomes After completion of the course, students will be able to - 1. Identify the types of bonding in given samples and the strength of acids 2. Verify the relationship between concentration of ions and conductivity and volume and amount of solute Analyze the relation between surface area and adsorption 4. Estimate EMF of Daniell cell and iodine content in salt Detailed Syllabus Sr. List of practical No. Introduction to lab glassware, equipment and instruments and Safety Rules 2. Estimation of iodine content in table salt by iodometry	Course	Applied Chemi	stry Lab		Code: 701BS0C023				
Let Urbow (Hours per (Hours per 		Teaching	Scheme		Evaluation Scheme				
weekweekr-50(TEE)0201Marks Scaled to 50Course ObjectiveThe aim for student practical work is to support the learning of chemical concepts experimentally.Practical activities enable students to apply and extend their theory knowledge and understanding ofchemistry in novel engineering solutions. This also kindles curiosity in students and stimulates theirinterest to find better solutions. It helps continually to improviseexisting product.Course OutcomesAfter completion of the course, students will be able to -1. Identify the types of bonding in given samples and the strength of acids2. Verify the relationship between concentration of ions and conductivity and volume and amount of solute3. Analyze the relation between surface area and adsorption4.To study the stoichiometry of the reaction between in adit struments and Safety Rules2.Estimation of iodine content in table salt by iodometry3.To study the adsorption of methylene blue on activated charcoalCourse of ion ding in given samples and the strength of acids2.Verify the relationship between concentration of ions and conductivity and volume and amount of soluteStrength of pareticalStrength of pareticalStrength of pareticalStrength of paretic	Lectu (Hours	re Practical per (Hours per	Tutorial (Hours per	Credit	Internal ContinuousTerm EndAssessment (ICA) (MarksExaminations				
0 2 0 1 Marks Scaled to 50 Course Objective The aim for student practical work is to support the learning of chemical concepts experimentally. Practical activities enable students to apply and extend their theory knowledge and understanding of chemistry in novel engineering solutions. This also kindles curiosity in students and stimulates their interest to find better solutions. It helps continually to improvise existing product. Course Outcomes After completion of the course, students will be able to - 1. Identify the types of bonding in given samples and the strength of acids 2. Verify the relationship between concentration of ions and conductivity and volume and amount of solute 3. Analyze the relation between surface area and adsorption 4. Estimate EMF of Daniell cell and iodine content in salt Detailed Syllabus Sr. List of practical No. Introduction to lab glassware, equipment and instruments and Safety Rules 2. Estimation of iodine content in table salt by iodometry 3. To study the adsorption of methylene blue on activated charcoal 5. To set up the Daniell cell and calculate its EMF 6. To identify unknown solutions	week	x) week)	week)		- 50) (TE				
Course Objective The aim for student practical work is to support the learning of chemical concepts experimentally. Practical activities enable students to apply and extend their theory knowledge and understanding of chemistry in novel engineering solutions. This also kindles curiosity in students and stimulates their interest to find better solutions. It helps continually to improvise existing product. Course Outcomes After completion of the course, students will be able to - 1. Identify the types of bonding in given samples and the strength of acids 2. Verify the relationship between concentration of ions and conductivity and volume and amount of solute 3. Analyze the relation between surface area and adsorption 4. Estimate EMF of Daniell cell and iodine content in salt Detailed Syllabus Sr. List of practical No. Introduction to lab glassware, equipment and instruments and Safety Rules 2. Estimation of iodine content in table salt by iodometry 3. To study the adsorption of methylene blue on activated charcoal 5. To set up the Daniell cell and calculate its EMF 6. To identify unknown solutions based on relationship between concentration of ions and conductivity of a solution 7. To verify the concentration of a prepared solution	0	2	0	1	Marks Scaled to 50				
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8. To study characteristics of compounds with ionic and covalent bonds	7.	To verify the conce	ntration of a p	repared solut	ion by titration and calculate	% error			
	8.	To study characteri	stics of compo	ounds with io	nic and covalent bonds				

9.	To determine the strength of an acid by acid-base titration using pH metry				
10.	To determine the volume of stomach acid that can be neutralized by the given antacid ingredient				
11.	Preparation of solutions and classifying them as acid/ base/ neutral solution by pH				
12.	Viva				
13.	Repetition week				
14.	Submission of laboratory journal				
15.	Laboratory Practical examination				
Text B	ooks				
1.	Laboratory manual Chemistry course AY 2024-2025				
Refere	Reference Books				

- 1. Vogel's Textbook of Quantitative Chemical Analysis, Pearson Education, 6th Edition
- 2. S. A. Weiner, B. Harrison, *Introduction to Chemical Principles-A Laboratory Approach*, 7th edition, Cengage Learning, 2010

Laboratory Work

Minimum 8 to 10 exercises based on the syllabus.

<u>Semester – II (common to all)</u>

Program: Diploma in Engineering (All branches)					Semester: II		
Course	: Mathematics-II				Code: 70	1BS0C030	
	Teaching	g Scheme			Evaluati	on Scheme	
Lectur (Hour per wee	re Practical rs (Hours ek) per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)		Term Examinati (Marks	1 End ons (TEE) s- 100)
3	0	1	4	Marks Scale	ed to 50	Marks Sca	aled to 50
Course The cou geomet thinking	Course Objectives The course aims to acquaint students with basic counting techniques, binomial expansion, co- ordinate geometry, limits, continuity and derivatives of functions. It further fosters the development of critical thinking skills, promotes problem-solving abilities and prepares students for higher education.						
 Course Outcomes After completion of the course, students will be able to Demonstrate understanding of basic counting techniques and limits and continuity of functions. Solve problems based on straight lines, conic sections and limits of functions. Examine continuity of a function and find derivatives of functions. Apply binomial theorem to expand algebraic expressions and apply derivatives to analyse 							
Detaile	d Syllabus						
Unit	Description						Duration
1.	Permutations an Fundamental pr	nd Combinati inciple of cou	ons nting, permu	tations, combin	nations.		5
2.	Binomial TheoremBinomial theorem for positive integral index, binomial theorem for any index,simple applications.						
3.	Co-Ordinate GeometryEquation of straight line in various forms, intersection of two lines, angle between two lines, distance of a point from a line, distance between two parallel lines.4						
	Conic sections:	Circle, parab	ola, ellipse, h	nyperbola.			5
4.	Limits Definition and algebra of limits, limits of polynomial and rational functions – method of factorization and rationalization, limits of functions involving trigonometric, exponential and logarithmic functions. 7						

5.	Continuity Continuity of a function at a point, continuity of some standard functions, algebra of continuous functions.	5			
6.	Derivatives Definition, derivatives of standard functions, algebra of derivative of functions – derivative of sum, difference, product and quotient of functions.	5			
	Derivatives of composite functions (chain rule), derivatives of implicit functions, second order derivative.	5			
7.	Applications of derivatives Rate of change of quantities; increasing and decreasing functions, maxima and minima.	5			
	Total	45			
Text Bo	ooks				
 Mathematics Textbook for Class XI, NCERT Publication, Revised Edition November 2021, Mathematics Textbook for Class XII, NCERT Publication, Revised Edition November 2021. 					

Reference Books

- 1. H. R. Hass, C. E. Heil, M. D. Weir, *Thomas' Calculus*, 14th edition, Pearson, 2017.
- 2. H. K. Dass, *Applied Mathematics for polytechnics*, 11th edition, CBS Publishers & Distributors Pvt. Ltd., 2016.
- 3. Anthony Croft, Robert Davison, Martin Hargreaves, James Flint, *Engineering Mathematics*, 5th Edition, Pearson Publication, 2017.

Tutorial Work

Minimum 6 to 8 tutorial exercises based on syllabus.

Program: Diploma in Engineering (All branches)					Semester: II		
Course : Applied Physics-II					Code: 701BS0C031		
Teaching Scheme				Evaluation Scheme			
Lecture	Practical	Tutorial		Internal Continuous Term End			
(Hours per	(Hours per	(Hours per	Credit	Assessment (ICA) Examinations (7		Examinations (TEE)	
week)	week)	week)		(Marks - 50) (Marks-		(Marks- 100)	
2	0	1	3	Mar	ks Scaled to 50	Marks Scaled to 50	

Course Objectives

Physics is the science from which all technologies have evolved. Engineers deal with various technologies, materials and machines, which eventually leads to new innovations and improvements. This course is designed to impart a thorough knowledge of the basic principles along with the applied aspects of the same, which help students to understand, apply and contribute to evolving technologies more effectively and thereby improve the standard of life

and the society.

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

- 1. Describe waves and wave motion, simple harmonic motions and solve related engineering problems
- 2. Explain material properties and their utilization in engineering applications
- 3. Define the basic principles of electricity and magnetism utilize them to solve the related engineering problems

Detailed Syllabus

Dettaile		
Unit	Description	Duration
1.	Oscillations and Waves	5
	Periodic motion: time period, frequency, displacement as a function of time,	
	periodic functions.	
	Simple harmonic motion (S.H.M): definition, Uniform circular motion as	
	simple harmonic motion, expression for displacement, velocity, acceleration	
	in a simple harmonic motion, free and forced oscillations,	
	resonance.	
	Wave motion: Transverse and longitudinal waves, speed of wave motion,	3
	displacement relation for a progressive wave, principle of superposition of	
	waves, reflection of waves.	
2.	Properties of solids	6
	Deforming force, restoring force, elasticity, plasticity and rigidity.	
	Stress, strain and their types, Hooke's law, moduli of elasticity, stress-strain	
	curve, Poisson's ratio.	

3.	Properties of fluids	5			
	Pressure due to a fluid column, Pascal's law and its applications,				
	Viscosity: concept, units, Newton's law of viscosity, Stokes' law, terminal				
	velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem				
	and its applications.				
	Surface tension: concept, units, cohesive and adhesive forces, angle of contact,	3			
	capillary action, expression for surface tension by capillary rise method.				
	applications of surface tension, effect of temperature and impurity on surface				
	tension.				
4.	Electricity and Magnetism	5			
	Concept of electric Charge, Coulomb's law, Electric field, electric field lines,				
	Electric potential and potential difference, Electric flux.				
	Magnetic field and magnetic field intensity, magnetic lines of force and				
	magnetic flux.				
	Electric current, flow of electric charges in a metallic conductor, drift velocity,	3			
	mobility and their relation with e lectric current; Ohm's law, electrical				
	resistance.				
	Total	30			
Toyt D		50			
1 ext D	00KS Devices Texthools for Class VI NCEDT Dublication (Dort I & Dort II) Deviced F	dition			
1.	Physics Textbook for Class AI, INCERT Publication, (Part I & Part II) Revised Ed				
2	NOVERIDER 2022, Dississ Territorals for Class XII, NCEDT Deblication (Dart I, & Dart II), Daris				
Ζ.	Physics Textbook for Class XII, NCERT Publication, (Part I & Part II) Revis	sed Edition			
	November 2022.				
Refere	nce Books				
1.	Halliday and Resnick, Fundamentals of Physic', 12th Edition, Wiley India, 2021.				
2.	2. H.C. Verma, Concepts in Physics, Vol. I & II, Bharti Bhawan Ltd., New Delhi, 2017.				
3.	P. V. Naik, Principles of Physics, 5th Edition, Pearson Education Pvt. Ltd., New	Delhi,			
	2012.				
Tutori	al Work				
Minim	une (to 9 Testamial examples a hand on the availables				

Program: Diploma in Engineering (All branches)			Semester: II			
Course: Socia	l and Life Skill	S		Code: 701BS0C033		
T	eaching Schen	ne		Evaluation Scheme		
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal ContinuousTerm EndAssessment (ICA) (Marks - 50)Examinations		n End inations Marks)
1	0	0	1	Marks Scaled to 50		
Pre-requisite						
Course Objecti	ive					
The course aim challenges effec inter-personal r	s to develop li ctively; it encou elationships to	fe and social urages them ensure holis	skills to equip s to establish life tic development	tudents to deal with life goals and develop robu t of self.	e's demand st social ski	s and lls and
Course Outcon	nes					
After completion 1. Demonstr 2. Develop while we 3. Determin	 After completion of the course, students will be able to- Demonstrate self-awareness to deal with challenges, fears and insecurities effectively Develop interpersonal and leadership skills for self-empowerment and empowerment of others while working individually or in group. Determine appropriate life goals with managing stress and time effectively. 					
Detailed Syllab	ous					
Unit Descri	ption					Duration
1. Univers Love an Compas Truth (S Non-Vie Equality Mind m	al Human Val d Compassion (Prem an datya): Introduct olence (Ahims and Sensitivi apping as a too	ues (Prem and K d Karuna) etion, Practici a): Introduct ty: Introduction	Karuna): Introdu ng Truth (Satya ion, Practicing I ion, Practicing C the UHV conce	action, Practicing Love) Non-Violence (Ahimsa Gender Equality and Se pt.	and a) Gender ensitivity,	7
2. Value E Punctua Family Langua Team S Manage	 2. Value Education Punctuality, Introducing Self, The power of a Positive Attitude, Talking about one's Family Language Etiquette & Mannerism. Team Spirit, Workplace ethics, Leadership Skills Time Management and Stress Management 					
3. Financia Introduc Savings Govern	al Literacy ction - Life G and Investme ment schemes	oals and fina ents - Three , Mutual Fu	ancial goals pillars of inves nds, Securities	stments, Popular asset markets (Shares	classes,	3

	and bonds), Gold, Real Estate, Do's and Don'ts of investments Retirement	
	planning	
	Cashless transactions	
	Insurance – Types, Advantages, selection	
	Dos and Don'ts in Financial planning and Transactions	
	Total	15
Text	Books	
1.	Universal Human Values for Holistic, Value-based Education Realising the Aspirati	ons
	articulated in NEP 2020, All India Council for Technical Education, 2023.	
Refe	rence Books	
1.	RBI: https://www.rbi.org.in/FinancialEducation/content/GUIDE310113_F.pdf	
2.	UHV:	
	https://www.ugc.gov.in/pdfnews/4371304_LifeSKill_JeevanKaushal_2023.pdf	
Sugg	ested Activities:	
Role	play/Motivational talks by Practitioners/Case Study/Observations/Flipped	
Class	sroom/Presentations/Finance journal	

Program: Di	iploma in Engi	ineering (All b	Semester: II			
Course: A	pplied Physics	s-II Lab	Code: 701BS0C032			
Teaching Scheme				Evaluation Scheme		
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE Marks)	
0	2	0	1	Marks Scaled to 50		

Course Objective

Physics is the science from which all technologies have evolved. Engineers deal with various technologies, materials and machines, which eventually leads to new innovations and improvements. This course is designed to impart a thorough knowledge of the basic principles along with the applied aspects of the same, which help students to understand, apply and contribute to evolving technologies more effectively and thereby improve the standard of life and the society.

Course Outcomes

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

- 1. Apply the concept of vibrations and determine frequency, time period of vibrating objects
- 2. Understand the basic properties of material like Young's modulus, viscosity, surface tension and apply to measure the related coefficients
- 3. Understand uses of electrical components and meters and verify Ohm's law for flow of current
- 4. Explain radioactivity and measure the amount of radiation emitted using G M counter

Detailed Syllabus

Sr. No.	List of Practical
1	To study the relation between frequency and length of a given wire under constant
	tension using Sonometer.
2	To find the velocity of sound in air at room temperature using the resonance column.
3	To determine the acceleration due to gravity by using simple pendulum.
4	To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and material.
5	To measure the time period of compound pendulum and determine the acceleration due to gravity.
6	To determine the Young's modulus of elasticity of the material of a given wire using Searle's apparatus.
7	To determine and compare the Young's modulli of given materials of wires
8	To measure the coefficient of viscosity of a given viscous liquid using Stoke's law.
9	To measure the surface tension of water by capillary rise method.

10	To measure the dielectric constant K of a substance by resonance method.
11	To verify the ohm's law and hence determine the unknown resistance of the given
	material of the wire.
12	To study the characteristics of GM counter.
Text Bo	oks
1. Phy	vsics Lab manual NCERT
2. C.	L. Arora, Practical Physics, S. Chand, 2001.
Referen	ce Books
1. F	Ialliday and Resnick, <i>Fundamentals of Physic</i> ', 12 th Edition, Wiley India, 2021.
2. F	I.C. Verma, Concepts in Physics, Vol. I & II, Bharti Bhawan Ltd., New Delhi, 2017.
3. P	. V. Naik, <i>Principles of Physics</i> , 5 th Edition, Pearson Education Pvt. Ltd., New Delhi,
2	012.
Laborat	ory Work

Minimum 8 to 10 exercises based on the syllabus.

					w.(e.f. 2024-25	
Program: Diploma in Engineering (All branches)			Semester: I/II				
Course: Introduction to Electrical and Electronics		Code:					
	Teachi	ng Scheme		Evaluatio	n Scheme	2	
Lectur (Hour per week	re rs (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks-50)	Terr Exam (T (Mar	m End inations TEE) ks -100)	
2	0	1	3	Marks Scaled to 50	Marks S	caled to 50	
Pre-req	uisite: NIL						
Course	Objective						
The ma test sim a basic	ain objective of thi nple AC and DC e understanding of	is course is to e electrical circuit the working p	quip the stud s. Further, th principle and a	lents with the ability to e course also enables th applications of electron	solve, ass ne student ics device	semble and t to obtain es.	
Course	Outcomes						
After c	ompletion of the o	course, student	s will be able	to -	(
1. 1	Identify and use a	active and pass	ive electrical	components in circuits	for variou	15	
	applications.						
2. 1	Evaluate AC and	DC circuit para	ameters using	g network theorems.	1.00		
3.	Understand the co	onstruction and	d functionalit	y of transformers and c	lifferent t	ypes of	
1	motors.					T .	
4.	Understand the co	onstruction, we	orking princip	ple and applications of	electronic	s devices,	
	logic circuits and	operational an	plifiers.				
Detaile	ed Syllabus					Duration	
Unit	Description		201			Duration	
1	Circuit Elements	and Network	Theorems	in the second	and multip		
	Ohm's Law: Ohr	n's law, resista	ance, resistivi	ty, variation of resistan	nce with		
	temperature.	. Kinchhaffal	lavia (valtaga	and current law)			
	Network Analys	is: Kirchnoff S	a theorem N	and current law)			
	Network Theore	ms: Thevenin	s theorem, in	ductore inductore	mutual	08	
	Self and Mut	ual Inductan	pled coils in a	series counled coils in a	narallel		
	Inductance, dot c	lol plate capac	pieu cons in a	nce permittivity cana	citors in		
	Capacitors: Parallel plate capacitor, capacitance, permittivity, capacitors in						
2	Alternating volta	ge and curren	t				
2	Single Phase C	ircuits: Introd	uction, sinus	oidal functions -term	inology,		
	concept of phaso	rs, algebraic or	eration on pl	hasors, power and pow	er factor		
	with respect to si	ngle phase circ	uit.	1 1		07	
	Three Phase Circ	uits and Syste	ms: Introduc	tion, double subscript 1	notation,	00	
	concept of three p	ohase voltages,	generation o	f three phase voltages.			

3 Transformers and Motors Transformers: Introduction, principle of operation, construction of	
transformer DC Machines - Importance, construction, working and applications only for DC machine and DC motors (no mathematical treatment) Induction Motors, Fractional Horse Power Motors and Universal Motors - Construction, working and applications only, no mathematical treatment. Stepper motors, Servomotors, Brushless DC motors - Construction, working and applications only, no mathematical treatment.	10
4 Diodes and Transistors	
Semiconductor Diodes: Semiconductor diode, resistance, important terms, diode rectifiers – Half wave and Full wave - Center tap and Bridge rectifier, filter circuits-C, LC, CLC, Zener diode, Zener diode as a voltage stabilizer.	10
Bipolar Junction Transistor: Transistors, naming the transistor terminals, transistor action, symbols, transistor connections - CB, CC, and CE configuration, transistor as an amplifier and switch in CE configuration.	
5 Digital Electronics Analog and digital signal, binary number system, logic gates, three basic logic gates - NOT, AND, OR, combination of basic logic gates, NAND and NOR as universal gates, EX-OR Gates, Boolean algebra, Boolean theorems, DeMorgan's Theorems, developing logic circuit from Boolean expression.	07
6 Operational Amplifiers Operational amplifier, schematic symbol of op-amp, applications of op-amp - inverting, non-inverting, summing amplifier and comparators.	04
Total	45
Text Books	
 D. C. Kulshreshtha, Basic Electrical Engineering, 1st Edition, McGraw Hill Educe V. K. Mehta, Rohit Mehta, Principles of Electronics, 15th Edition, S. Chand & Control 	cation, 2017. 5., 2014.
Reference Book 1. B. L. Theraja, Fundamentals of Electrical Engineering and Electronics, 24 th Edition & Co. 2012.	1, S. Chand
Laboratory Work	

8 to 10 practical exercises (and a practicum) based on the syllabus.

Program: Diploma in Engineering (All Branches)				Semester: II				
Course: Website Designing					Code: 701CO0C019			
Teaching S	cheme			Evaluation	Scheme			
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Assessn (Mar	Continuous nent (ICA) rks- 50)	Exan (]	Term End ninations (TEE) Marks- 100)	
2	2	0	3	Marks S	caled to 50			
Prerequisi	te: NIL							
Course Ob	jective							
Web Page	Design is used	to develop o	nline appli	cations for v	arious organiza	tions su	ch as	
organizatio fields such page design a style shee written in a	organizational and educational websites, virtual learning environments, business applications in various fields such as products, sales, banking railways reservation, services etc. This course introduces web page design using HTML5 and also give emphasis on learning Cascading Style Sheets (CSS) which is a style sheet language used for describing the presentation of a document written in a markup language for formatting and styling of content.							
Course Ou	tcomes							
After comp	oletion of the co	ourse, student	s would be	able to –				
1. Design f	ront end of the	web applicat	tions using	HTML5				
2. Apply st	yling to the con	ntent using C	CSS.					
3. Design f	ront end of a re	eal time web	application	with CMS.				
4. Publish v	websites on inte	ernet or intran	iet.					
Detailed Sy	llabus							
Unit	Description						Duration	
	Introduction	to HTML						
	Terminologie	es used in We	eb Design:	World Wide	e Web (www),			
	HTML, Web	Pages, Web	Site, Web	Browsers, W	Veb Servers and	types		
	of sites, Stati	c vs. dynami	c web sites.	, Search Eng	ine, HTTP and			
	Web page of	mustures DC	Server Ard	ITMI TITI		N and		
1	other meta ta	os with attrik	ЮГІГЕ, Г. Nutes	111VIL, 111L	ε, πεαd, doi		5	
	Block Level	Elements: F	leadings. P	aragraphs. B	Breaks, Division	s.		
	Center Tag, B	Block Quotes	, Preformat	tted text, Ho	rizontal Rule, T	lext		
	Level Eleme	nts: Bold, I Superso	talic, Underint	erline, stron	lg, oblique,	pecial		
	characters, co	mments, abbi	reviation tag	g.	աշեւածուց օէ	, colui		

2	Lists and Links Lists: Ordered Lists, Unordered Lists, Definition Lists, Nested Lists. Links: Absolute, Relative and Inline links, use image as link, link to an email address, button as link, types of links, linking various documents for internal and external links, to link different web page of same site, link different location on the same web page, a specific location on different web page of same site, to specific section within the document, inserting E-mail link, map and area tag.	4
3	Images, Colors and Background Image: Types of image format, jpg, bmp, png, gif etc. IMG tag, alternate text, image alignment, HSPACE, VSPACE, wrapping text, height and width of images, Image as a link, map and area tags, Inserting Images, formatting image for sizing, alignment, Border and using other attributes with IMG tag. Colors and Backgrounds: FONT tag, setting background color of the webpage, changing link colors: link, alink, vlink attributes of BODY tag, Inserting image as page background	5
4	 Table, Frames and Forms Table: Table tag with attributes TABLE, >, >, tags, Border, cell spacing, cell padding, width, align, bgcolor attributes, Adding caption to the table, Formatting contents in the table cells: align, valign, bgcolor, height, width, nowrap attributes, Spanning rows and columns: rowspan and colspan attributes. Frames: Types of Frames with their attributes, Creating frames: FRAMESET tag – rows, cols attributes, FRAME tag – name, frame border, margin height, margin width, src, resize, scrolling Attributes, Use of NOFRAMES tag, Frame targeting, Inline frames Forms: Creating basic form: FORM tag, action and method attributes, Form fields: Single line text field, password field, multiple line text area, radio buttons, check boxes, date, time, email field, number field, Pull down menus: SELECT and OPTION tags, datalist, Buttons: submit, reset and generalized buttons, Formatting technique: Using table to layout form. 	6

5	 Cascading Style sheets Cascading Style Sheets: Different types of Style Sheets, Benefits of using CSS. Adding style to the document: Linking to style sheets, Embedding style sheets, Using inline style, Selectors: CLASS rules, ID rules. Style sheet properties: Font, text, box, color, background, border, margin, padding, form fields formatting, CSS Box Model 	5		
6	Content Management System (CMS): Introduction to CMS: Wordpress, Jhoomla, Drupal, Comparison of CMS.	2		
7	Website Hosting Concept of Internet and Intranet. Publishing website on Intranet, installing and configuring web server, uploading files on intranet site, access intranet based website, publishing website site on Internet, hiring web space, uploading files using FTP, virtual hosting, access internet based website.	3		
	Total	30		
Text Books 1. Kogent Learning Solutions Inc, HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML,				

AJAX, PHP, jQuery) Black Book, Dreamtech Press, 2nd Edition, 2016.

 Deane Barker, Web Content Management Systems: Features and Practices, O'Reily Media Inc, 1st Edition, 2016.

Reference Books

1. Ben Frain, Responsive Web Design with HTML5 and CSS, Packt Publishing, 3rd Edition, 2020

Laboratory Work

8 to 10 experiments (and a practicum where applicable) based on the syllabus.

Program: Diploma in Engineering (All branches) Semester: I / II Course: Introduction to Electrical and Electronics Code: Engineering Lab Credit Code: Lecture Practical Tutorial (Hours Internal Continuous per per per per per veek) Term End Examinations (TEE Mark) 0 2 0 1 Marks Scaled to 50 Pre-requisite: Nit Term End Examinations (TEE Mark) Course Objective To introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diodes, transistors, digital logic circuits and operational amplifiers. After this course students should have a strong insight of the dynamics of electrical and electronics components which can be further used to design practical circuits. Constructamplifier circuits using BJT and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2. Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers. 9. To be familiar with the functions of digital multi-meter (DMM). b) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM. d) To study breadboard and its connections.<							w.e.f. 2024-25	
Course: Introduction to Electrical and Electronics Engineering Lab Code: Evaluation Scheme Evaluation Scheme Credit Tutorial (Hours per per per per per verek) Credit Assessment (ICA) 0 2 0 1 Marks Scaled to 50 Pre-requisite: Nil Course Objective To introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diodes, transistors, digital logic circuits and operational amplifiers. After this course students should have a strong insight of the dynamics of electrical and electronics components which can be further used to design practical circuits. Course Outcomes After completion of the course, students will be able to- 1. Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2. Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers. 5r. List of practical 1. Introduction to the laboratory: a)	Program: Diploma in Engineering (All branches)				nes)	Semester: I/II		
Teaching Scheme Evaluation Scheme Lecture Practical (Hours per week) Tutorial (Per week) Tutorial (Per per week) Tutorial (Crediti Per week) Tutorial (Marks - 50) Term End Examinations (TEE Mark -) 0 2 0 1 Marks Scaled to 50 Pre-requisite: Nil Course Objective To introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diodes, transistors, digital logic circuits and operational amplifiers. After this course students should have a strong insight of the dynamics of electrical and electronics components which can be further used to design practical circuits. Course Outcomes After completion of the course, students will be able to- 1. Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2. Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers. 5r. List of practical No. Introduction to the laboratory: a) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DM	Course: Enginee	Course: Introduction to Electrical and Electronic Engineering Lab				Code:		
Lecture (Hours per week)Practical (Hours per week)Tutorial (Hours per per week)Internal Continuous Assessment (ICA) (Marks - 50)Term End Examinations (TEE Mark -)0201Marks Scaled to 50Pre-requisite: NilCourse ObjectiveTo introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diodes, transistors, digital logic circuits and operational amplifiers. After this course students should have a strong insight of the dynamics of electrical and electronics components which can be further used to design practical circuits.Course OutcomesAfter completion of the course, students will be able to- 1. Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems.2.Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers.1.Introduction to the laboratory: a) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM.2.Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM.3.To verify Ohm's Law.4.To verify Chm's Law.		Teaching	Scheme			Evalua	tion Scheme	
Weeky Weeky 0 1 Marks Scaled to 50 0 2 0 1 Marks Scaled to 50 Pre-requisite: Nil Course Objective To introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diodes, transistors, digital logic circuits and operational amplifiers. After this course students will be able to- 1 Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2 Explain the functioning and applications of a PN junction diode. 3 Construct amplifier circuits using BJT and measure various parameters. 4 Understand the working of basic logic gates and operational amplifiers. 5r. List of practical No. Introduction to the laboratory: a) To be familiar with the functions of digital multi-meter (DMM). b) To be familiar with the functions. 2. Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM. 3. To verify Ohm's Law. 4. To verify Chm's Law.	Lectur (Hour per	e Practical s (Hours per) week)	Tutorial (Hours per week)	Credit	Co Asse	Internal Continuous ssessment (ICA) (Marka 50)		
Pre-requisite: Nil Course Objective To introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diodes, transistors, digital logic circuits and operational amplifiers. After this course students should have a strong insight of the dynamics of electrical and electronics components which can be further used to design practical circuits. Course Outcomes After completion of the course, students will be able to- 1. Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2. Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers. Sr. List of practical No. 1. Introduction to the laboratory: a) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM. d) To study breadboard and its connections. 2. Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM. 3. To verify Ohm's Law. 4. To verify Kirchhoff's laws. <td>0</td> <td>2</td> <td>0</td> <td>1</td> <td>Mark</td> <td>s Scaled to 50</td> <td></td>	0	2	0	1	Mark	s Scaled to 50		
Course Objective To introduce the fundamental concepts of DC and AC circuits, and primary electrical equipment such as transformers and motors. Further, the course imparts knowledge about the diddes, transistors, digital logic circuits and operational amplifiers. After this course students should have a strong insight of the dynamics of electrical and electronics components which can be further used to design practical circuits. Course Outcomes After completion of the course, students will be able to- 1. Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2. Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers. Sr. List of practical No. Introduction to the laboratory: a) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM. d) To study breadboard and its connections. 2. Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM. a) To verify Ohm's Law. To verify Kirchhoff's laws.	Pre-rea	uisite: Nil						
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Sr. No.List of practical1.Introduction to the laboratory: a) To be familiar with the functions of digital multi-meter (DMM). b) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM. d) To study breadboard and its connections.2.Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM.Parallel Circuit: To connect resistors in parallel, calculate the total resistance, find the current through each branch of the parallel circuit and verify using a DMM.3.To verify Ohm's Law.4.To verify Kirchhoff's laws.	 After completion of the course, students will be able to- 1. Assemble an electrical circuit and measure the voltage, current, resistance etc. by applying basic laws and network theorems. 2. Explain the functioning and applications of a PN junction diode. 3. Construct amplifier circuits using BJT and measure various parameters. 4. Understand the working of basic logic gates and operational amplifiers. 							
 Introduction to the laboratory: a) To be familiar with the functions of digital multi-meter (DMM). b) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM. d) To study breadboard and its connections. Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM. Parallel Circuit: To connect resistors in parallel, calculate the total resistance, find the current through each branch of the parallel circuit and verify using a DMM. To verify Ohm's Law. To verify Kirchhoff's laws. 	Sr. No.	List of practical						
 Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM. Parallel Circuit: To connect resistors in parallel, calculate the total resistance, find the current through each branch of the parallel circuit and verify using a DMM. To verify Ohm's Law. To verify Kirchhoff's laws. 	1.	 Introduction to the laboratory: a) To be familiar with the functions of digital multi-meter (DMM). b) To be familiar with the functions of DC power supply. c) To measure the value of resistors using color coding and verify it using DMM. d) To study breadboard and its connections. 						
 To verify Ohm's Law. To verify Kirchhoff's laws. 	2.	 Series Circuit: To connect resistors in series, calculate the total resistance, find voltage across each resistor and verify using a DMM. Parallel Circuit: To connect resistors in parallel, calculate the total resistance, find the current through each branch of the parallel circuit and verify using a DMM. 						
4. To verify Kirchhoff's laws.	3.	To verify Ohm's Law.						
	4.	To verify Kirchhoff's laws.						

5.	To verify Thevenin's theorem.			
6.	To measure V_{avg} , V_{rms} , V_m , time period and frequency of single phase sinusoidal AC voltage using multimeter and CRO.			
7.	To plot the forward and reverse characteristics of a PN junction diode.			
8.	To measure and plot the output voltage of half and full wave rectifiers.			
9.	To measure and plot the output voltage of rectifiers with C, LC and CLC filters.			
10.	To verify the functioning of BJT as an amplifier in CE configuration.			
11.	To verify the truth table of NOT, AND, OR, NAND, NOT and EX-OR gates.			
12.	To implement an inverting and non-inverting amplifier using op-amp, and measure the output voltage and gain of the circuit.			
Text B	ooks			
1. 20	D. C. Kulshreshtha, <i>Basic Electrical Engineering</i> , 1 st Edition, McGraw Hill Education, 17.			
2 V. K. Mehta, Rohit Mehta, Principles of Electronics, 15th Edition, S. Chand & Co., 2014.				
Refere 1. B. L	nce Book Theraja <i>, Fundamentals of Electrical Engineering and Electronics,</i> 24 th Edition, S. Chand & Co, 2012.			

Program: Diploma in Engineering (All Branches)						Semester: II		
Course: Engineering Mechanics				Code:				
Teaching Scheme				Evaluation Scheme				
Lecture (Hours per week)		Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)		Term End Examination s (TEE) (Marks – 100)	
	2	2	1	4	Marks Scaled to 50		Marks Scaled to 50	
Cours The co arises for dip equilit	Course Objective The course is aimed at analysis of forces using principles of mechanics. The analysis of forces helps to prevent arises of defects, errors and subsequent failures in such elements under action of forces. This course is designed for diploma aspirants to get acquainted with the various systems of forces, effects of friction on equilibrium, the importance of centre of gravity and simple lifting machines.							prevent esigned
 Course Outcomes After completion of the course, students would be able to - 1. Analyze the given force system to calculate resultant force 2. Apply the conditions of equilibrium and the laws of friction 3. Determine the centroid of the structural elements and evaluate the performance of lifting machines 								
Detail Unit	Description							Duratio
Omt	Description	<u> </u>						n
1.	 Analysis of Forces Introduction to Mechanics, Force system and its classification, characteristics of forces, Resolution of a force into components, Moment of force, Law of transmissibility of force, Law of polygon of forces, Varignon's theorem of moments, Law of parallelogram of forces, Polygon Law, Composition of coplanar forces using analytical method, Resultant of collinear, concurrent and non-concurrent force system, Resolution of a force into a force and a couple. 						08	
2.	Equilibrium of Forces Equilibrium and its conditions, types of supports and support reactions, Free body diagram with different types of loads, equilibrium of a body subjected to two forces and three forces, application of Lami's Theorem, Determination of Beam reactions for simply supported beams.						07	
3.	Friction Introduction to friction; types and laws of friction, limiting friction, co-efficient of friction, angle of friction, angle of repose, Equilibrium of bodies on rough horizontal and inclined plane; Basic problems on friction involving blocks.						05	
4.	Centroid and Centre of Gravity Concept of centroid, Significance of centroid and centre of Gravity, Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle), Centroid of composite plane figures (composed of not more than three simple geometrical figures).					05		

5.	Simple Lifting Machines Introduction, Simple machines and definitions, ideal machines and Efficiency of a machine, reversible and non-reversible machine, Law of a machine, Friction of a machine, Important Lifting Machines- Simple wheel and axle, Differential wheel and axle, Worm and worm wheel.	05
	Total	30
Text I	Book	
1.	S. S. Bhavikatti, Engineering Mechanics, New Age International Publications, 2021.	
2.	A. K. Tayal, Engineering Mechanics-Statics and Dynamics, Umesh Publication, 2008 (Classic)	
Refer	ence Books	
1.	Beer & Johnston, Engineering Mechanics, Tata McGraw Hill, 2020.	

R C Hibbeler, *Engineering Mechanics*, 14th Edition, Pearson Education, 2017.
 Laboratory Work
 8 to 10 experiments based on the syllabus.