Syllabus Book

First Year B. Tech.

Civil Engineering | Mechanical Engineering | Chemical Engineering
Computer Engineering | Information Technology
Computer Science Engineering (ML&AI) |
Computer Science & Engineering |
Information Technology & Engineering |
Pharmaceutical Engineering

P P Savani University

School of Engineering

Effective From: 2021-22
Authored by: P P Savani University

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. CIVIL ENGINEERING PROGRAMME AY:2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SEME1010	Engineering Graphics	ME	3	4	0	7	5	40	60	40	60	0	0	200
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	20	14							650
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SESH1240	Electrical & Electronics Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECV1080	Mechanics of Solids	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1010	Basics of Computer & Programming	CE	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	26	22							750

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. MECHANICAL ENGINEERING PROGRAMME AY:2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SEME1010	Engineering Graphics	ME	3	4	0	7	5	40	60	40	60	0	0	200
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	**20**	**14**							**650**
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SESH1240	Electrical & Electronics Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECV1080	Mechanics of Solids	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1010	Basics of Computer & Programming	CE	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	50	0	20	30	0	0	100
						Total	**26**	**22**							**750**

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. CHEMICAL ENGINEERING PROGRAMME AY:2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SEME1010	Engineering Graphics	ME	3	4	0	7	5	40	60	40	60	0	0	200
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SESH1230	Fundamentals of Chemistry & Chemical Engineering	SH	3	2	0	5	4	40	60	20	30	0	0	150
	SEHV1010	Universal Human Values - I	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	20	14							650
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SESH1240	Electrical & Electronics Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECV1080	Mechanics of Solids	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1010	Basics of Computer & Programming	CE	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	26	22							750

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. COMPUTER ENGINEERING PROGRAMME AY: 2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1050	Programming for Problem Solving	CE	3	4	0	7	5	40	60	40	60	0	0	200
	SESH1240	Electrical & Electronics Workshop	SH	0	2	0	2	1	0	0	50	0	0	0	50
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	21	15							650
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SEIT1030	Object Oriented Programming with Java	IT	3	4	0	7	5	40	60	40	60	0	0	200
	SEIT1010	Introduction to Web Designing	IT	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1040	Concepts of Engineering Drawing	ME	2	2	0	4	3	40	60	20	30	0	0	150
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	27	21							850

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. INFORMATION TECHNOLOGY PROGRAMME AY: 2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1050	Programming for Problem Solving	CE	3	4	0	7	5	40	60	40	60	0	0	200
	SESH1240	Electrical & Electronics Workshop	SH	0	2	0	2	1	0	0	50	0	0	0	50
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	21	15							650
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SEIT1030	Object Oriented Programming with Java	IT	3	4	0	7	5	40	60	40	60	0	0	200
	SEIT1010	Introduction to Web Designing	IT	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1040	Concepts of Engineering Drawing	ME	2	2	0	4	3	40	60	20	30	0	0	150
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	27	21							850

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. COMPUTER SCIENCE ENGINEERING (ML& AI) AY: 2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1050	Programming for Problem Solving	CE	3	4	0	7	5	40	60	40	60	0	0	200
	SESH1240	Electrical & Electronics Workshop	SH	0	2	0	2	1	0	0	50	0	0	0	50
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	**21**	**15**							**650**
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SEIT1030	Object Oriented Programming with Java	IT	3	4	0	7	5	40	60	40	60	0	0	200
	SEIT1010	Introduction to Web Designing	IT	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1040	Concepts of Engineering Drawing	ME	2	2	0	4	3	40	60	20	30	0	0	150
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	**27**	**21**							**850**

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. COMPUTER SCIENCE & ENGINEERING PROGRAMME AY: 2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1050	Programming for Problem Solving	CE	3	4	0	7	5	40	60	40	60	0	0	200
	SESH1240	Electrical & Electronics Workshop	SH	0	2	0	2	1	0	0	50	0	0	0	50
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	21	15							650
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SEIT1030	Object Oriented Programming with Java	IT	3	4	0	7	5	40	60	40	60	0	0	200
	SEIT1010	Introduction to Web Designing	IT	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1040	Concepts of Engineering Drawing	ME	2	2	0	4	3	40	60	20	30	0	0	150
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	27	21							850

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. INFORMATION TECHNOLOGY & ENGINEERING PROGRAMME AY: 2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						Total
				Contact Hours				Credit	Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	2	0	2	4	4	40	60	0	0	50	0	150
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1050	Programming for Problem Solving	CE	3	4	0	7	5	40	60	40	60	0	0	200
	SESH1240	Electrical & Electronics Workshop	SH	0	2	0	2	1	0	0	50	0	0	0	50
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	**21**	**15**							**650**
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SEIT1030	Object Oriented Programming with Java	IT	3	4	0	7	5	40	60	40	60	0	0	200
	SEIT1010	Introduction to Web Designing	IT	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SEME1040	Concepts of Engineering Drawing	ME	2	2	0	4	3	40	60	20	30	0	0	150
	SESH1210	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	**27**	**21**							**850**

P P SAVANI UNIVERSITY

SCHOOL OF ENGINEERING

TEACHING & EXAMINATION SCHEME FOR B. TECH. PHARMACEUTICAL ENGINEERING PROGRAMME AY:2021-22

Sem	Course Code	Course Title	Offered By	Teaching Scheme				Credit	Examination Scheme						Total
				Contact Hours					Theory		Practical		Tutorial		
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SESH1070	Fundamentals of Mathematics	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SESH1220	Applied Physics	SH	3	2	0	5	4	40	60	20	30	0	0	150
	SEME1010	Engineering Graphics	ME	3	4	0	7	5	40	60	40	60	0	0	200
	SEME1020	Engineering Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SEPE1010	Basics of Pharmaceutical Sciences	PE	3	2	0	5	4	40	60	20	30	0	0	150
	SEHV1010	Universal Human Values	SH	2	0	0	2	0	100	0	0	0	0	0	100
						Total	**26**	**19**							**800**
2	SESH1080	Linear Algebra & Calculus	SH	3	0	2	5	5	40	60	0	0	50	0	150
	SESH1240	Electrical & Electronics Workshop	ME	0	2	0	2	1	0	0	50	0	0	0	50
	SECV1040	Basics of Civil & Mechanical Engineering	CV	4	2	0	6	5	40	60	20	30	0	0	150
	SESH1250	Microbiology & Biochemistry	SH	4	2	0	6	5	40	60	20	30	0	0	150
	SECE1010	Basics of Computer & Programming	CE	3	2	0	5	4	40	60	20	30	0	0	150
	CFLS1010	Linguistic Proficiency	CFLS	2	0	0	2	2	40	60	0	0	0	0	100
						Total	**26**	**22**							**750**

CONTENT

P P Savani University
School of Engineering

Department of Civil Engineering

Course Code: SECV1040
Course Name: Basics of Civil & Mechanical Engineering
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
4	2	0	5	40	60	20	30	0	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
- study the fundamentals of mechanical systems.
- study and appreciate significance of mechanical engineering in different fields of engineering.
- carry out simple land survey and recent trends in civil engineering.
- understand components of building, building terminology and construction materials.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Civil Engineering: An Overview** Introduction, Branches, Scope, Impact, Role of Civil Engineer, Unit of Measurement, Unit Conversion (Length, Area, Volume)	03	04
2.	**Introduction to Surveying and Levelling:** Introduction, Fundamental Principles, Classification **Linear Measurement:** Instrument Used, Chaining on Plane Ground, Offset, Ranging **Angular Measurement:** Instrument Used, Meridian, Bearing, Local Attraction **Levelling:** Instrument Used, Basic Terminologies, Types of Levelling, Method of Levelling **Modern Tools:** Introduction to Theodolite, Total Station, GPS	07	12
3.	**Building Materials and Construction:** Introduction (Types and Properties) to Construction Materials Like Stone, Bricks, Cement, Sand, Aggregates, Concrete, Steel. Classification of Buildings, Types of Loads	10	14

Module No.	Content	Hours	Weightage in %
	Acting on Buildings, Building Components and their Functions, Types of Foundation and Importance, Symbols Used in Electrical Layout, Symbols Used for Water Supply, Plumbing and Sanitation		
4.	**Construction Equipment:** Types of Equipment- Functions, Uses. Hauling Equipment- Truck, Dumper, Trailer. Hoisting Equipment- Pulley, Crane, Jack, Winch, Sheave Block, Fork Truck. Pneumatic Equipment-Compressor. Conveying Equipment- Package, Screw, Flight/scrap, Bucket, Belt Conveyor. Drill, Tractor, Ripper, Rim Pull, Dredger, Drag Line, Power Shovel, JCB, HOE.	04	08
5.	**Recent Trends in Civil Engineering:** Mass Transportation, Rapid Transportation, Smart City, Sky Scarper, Dams, Rain Water Harvesting, Batch Mix Plant, Ready Mix Concrete Plant, Green Building, Earth Quake Resisting Building, Smart Material	06	12
Section II			
Module No.	Content	Hours	Weightage in %
1.	**Basic Concepts of Thermodynamics:** Prime Movers - Meaning and Classification; the Concept of Force, Pressure, Energy, Work, Power, System, Heat, Temperature, Specific Heat Capacity, Internal Energy, Specific Volume; Thermodynamic Systems, All Laws of Thermodynamics	04	06
2.	**Fuels and Energy:** Fuels Classification: Solid, Liquid and Gaseous; their Application, Energy Classification: Conventional and Non-Conventional Energy Sources, Introduction and Applications of Energy Sources like Fossil Fuels, Solar, Wind, and Bio-Fuels, LPG, CNG, Calorific Value	04	06
3.	**Basics of Steam Generators:** Introduction, Classification, Cochran, Lancashire and Babcock and Wilcox Boiler, Functioning of Different Mountings and Accessories	LAB	12
4.	**Basics of I.C Engines:** Construction and Working of 2 Stroke & 4 Stroke Petrol and Diesel Engines, Difference Between 2-Stroke - 4 Stroke Engine & Petrol-Diesel Engine, Efficiency of I. C. Engines	12	14
5.	**Power Transmission Elements:** Construction and Applications of Couplings, Clutches and Brakes, Difference Between Clutch and Coupling, Types of Belt Drive and Gear Drive	10	12

List of Practical:

Sr. No.	Name of Practical	Hours
1.	Unit conversation Exercise and Chart preparation of building components	02
2.	Linear measurements	02
3.	Angular measurements	02
4.	Determine R. L of given point by Dumpy level. (Without Change Point)	02
5.	Determine R. L of given point by Dumpy level. (With Change Point)	02
6.	Presentation on various topics as in module about recent trends	04
7.	To understand construction and working of various types of boilers	04
8.	To understand construction and working of mountings	04
9.	To understand construction and working of accessories	04
10.	To understand construction and working 2 –stroke & 4 –stroke Petrol Engines	02
11.	To understand construction and working 2 –stroke & 4 –stroke Diesel Engines	02

Text Book(s):

Title	Author(s)	Publication
Elements of Mechanical Engineering	S. B. Mathur, S. Domkundwar	Dhanpat Rai & Sons Publications
Elements of Mechanical Engineering	Sadhu Singh	S. Chand Publications
Elements of Civil Engineering	Anurag A. Kandya	Charotar Publication
Surveying Vol. I & II	Dr. B. C. Punamia	Laxmi Publication

Reference Book(s):

Title	Author(s)	Publication
Thermal Engineering	R. K. Rajput	Laxmi Publications
Basic Mechanical Engineering	T.S. Rajan	Wiley Eastern Ltd., 1996.
Surveying and Levelling	N. N. Basak	Tata McGraw Hill
Surveying Vol. I	S. K. Duggal	Tata McGraw Hill
Surveying and Levelling	R. Subramanian	Oxford University
Building Construction and Construction Material	G. S. Birdie and T. D. Ahuja	Dhanpat Rai Publishing
Engineering Material	S.C. Rangwala	Charotar Publication

Web Material Link(s):
- http://nptel.ac.in/course.php
- http://nptel.ac.in/courses/105107157/
- http://nptel.ac.in/courses/105101087/
- http://nptel.ac.in/courses/105107121/
- http://nptel.ac.in/courses/105104100/

Course Evaluation:

Theory:
- Continuous evaluation consists of two tests each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination will consist of 60 marks.

Practical:
- Continuous Evaluation consists of performance of practical which will be evaluated out of 10 marks for each practical and average of the same will be converted to 10 marks.
- Internal viva consists of 10 marks.
- Practical performance/quiz/drawing/test of 15 marks during End Semester Exam.
- Viva/Oral performance of 15 marks during End Semester Exam.

Course Outcome(s):

After completion of the course, the student will be able to
- know the principles and working of basic mechanical systems.
- comprehend importance of mechanical engineering in various fields of engineering.
- know about different civil engineering fields with an overview of building material, building construction and recent developments in civil engineering.

Department of Civil Engineering

Course Code: SECV1080
Course Name: Mechanics of Solid
Prerequisite Course(s): -

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	2	0	4	40	60	20	30	0	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to

● understand different types of forces, systematic evaluation of effect of these forces, behavior of rigid and deformable bodies subjected to various types of forces at the state of rest or motion of the particles.
● understand the stresses developed under the application of force.
● understand the physical and mechanical properties of materials.
● understand behavior of structural element under the influence of various loads.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction:** Definition of Rigid Body, Deformable Body, Scalar and Vector Quantities, Fundamental Principles of Mechanics: Principle of Transmissibility, Principle of Superposition, Law of Parallelogram of Forces.	3	6
2.	**Fundamental of Static:** Force, Types of Forces, Characteristics of a Force, System of Forces, Composition and Resolution of Forces. **Concurrent Forces:** Resultant of Coplanar Concurrent Force System by Analytical Method, Law of Triangle of Forces, Law of Polygon of Forces, Equilibrium Conditions for Coplanar Concurrent Forces. **Non-Concurrent Forces:** Moments & Couples, Characteristics of Moment And Couple, Varignon's Theorem, Resultant of Non-Concurrent Forces by Analytical Method, Equilibrium Conditions of Coplanar Non-Concurrent Force System.	10	22
3.	**Centroid and Centre of Gravity:**	5	11

Module No.	Content	Hours	Weightage in %
	Centroid of Lines, Plane Areas and Volumes, Examples Related to Centroid of Composite Geometry, Pappus –Guldinus Theorems.		
4.	**Moment of Inertia:** Parallel and Perpendicular Axis Theorems, Polar Moment of Inertia, Radius of Gyration of Areas, Examples related to moment of Inertia of Composite geometry.	5	11

	Section II		
Module No.	Content	Hours	Weightage in %
1.	**Mechanical Properties of Materials:** Introduction, Classification of Materials, Properties Related to Axial, Bending, and Torsional & Shear Loading, Toughness, Hardness, Ductility, Brittleness. Proof stress, Factor of Safety, Working Stress, Load Factor.	2*	5
2.	**Simple Stress and Strain:** Definition of Stress and Strain, Tensile & Compressive Stresses: Shear and Complementary Shear Strains, Linear, Shear, Lateral, Thermal and Volumetric. Hooke's Law, Stresses and Strain in bars of Varying, Tapering & Composite Section, Principle of Superposition. Elastic Constant, Relation between Elastic Constants.	10	21
3.	**Shear Force and Bending Moment:** Introduction, Types of Loads, Supports and Beams, Shear Force, Bending Moment, Sign Conventions for Shear Force & Bending Moment. Statically Determinate Beam, Support Reactions, SFD and BMD for Concentrated Load and Uniformly Distributed Load, Uniformly Varying Load, Point of Contra-flexure.	12	24

*(To be covered during lab hours)

List of Practical (Any Ten):

Sr. No	Name of Practical	Hours
1.	Equilibrium of coplanar concurrent forces	02
2.	To verify the law of parallelogram of forces	02
3.	To verify the law of polygon of forces	02
4.	To verify the Lami's theorem	02
5.	Equilibrium of parallel force system – simply supported beam	02
6.	Tensile test on Ductile materials.	02
7.	Compression test on Ductile materials	02
8.	Compression test on Brittle Materials	02
9.	Determination of hardness of metals (Brinell/ Rockwell hardness test)	02
10.	Determination of impact of metals (Izod/ Charpy impact test)	02
11.	Tutorial on concurrent & Non-concurrent forces	04
12.	Tutorials on C. G & MI	02
13.	Tutorials on SFD & BMD	04

Text Book(s):

Title	Author(s)	Publication
Applied Mechanics	S. B. Junnarkar & H. J. Shah	Charotar Publication
Strength of Materials (SI Units)	R S Khurmi, N Khurmi	S. Chand & Company Pvt. Ltd.

Reference Book(s):

Title	Author(s)	Publication
Engineering Mechanics,	Meriam and Karaige,	Wiley-India
Engineering Mechanics: Statics and Dynamics	S Rajsekaran	Vikas Publication
Engineering Mechanics of Solids	Popov E.P	Prentice Hall of India
Strength of Materials (SI Units)	Er. R . K. Rajput	S. Chand & Company Pvt. Ltd.
Mechanics of Structure-Vol.I	Dr. H.J. Shah & S. B. Junarkar	Charotar Publishing House Pvt. Ltd.
Strength of materials	R. Subramanian	Oxford Publications
Strength of materials	S. Ramamrutham	DhanpatRai Publishing
Strength of Materials (SI Units)	Er. R . K. Rajput	S. Chand & Company Pvt. Ltd.

Web Material Link(s):
- http://nptel.ac.in/courses/122104014/
- http://nptel.ac.in/courses/112103108/

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination will consist of 60 marks.

Practical:
- Continuous Evaluation consists of performance of practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 10 marks.
- Internal viva consists of 10 marks.
- Practical performance/quiz/drawing/test consists of 15 marks during End Semester Exam.
- Viva/Oral performance consists of 15 marks during End Semester Exam.

Course Outcome(s):
After the completion of the course, the student will be able to
- understand fundamental principles of mechanics, equilibrium, statics reactions and internal forces in statically determinate beams.
- apply principles of statics for determine C.G and M.I of a different geometrical shape and Understand basics of friction and its importance.
- critically analyze problem and solve the problem related to mechanical elements and analyze the deformation behavior for different types of loads.
- understand the different types of stresses and strains developed in the member subjected to axial, bending, shear & torsional effects.
- understand the physical properties of materials.

P P Savani University
School of Engineering

Department of Mechanical Engineering

Course Code: SEME1010
Course Name: Engineering Graphics
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	04	00	05	40	60	40	60	00	00	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
- know conventions and the methods of engineering drawing.
- interpret engineering drawings using fundamental technical mathematics.
- construct basic and intermediate geometry.
- improve their visualization skills so that they can apply these skills in developing new products.
- improve their technical communication skill in the form of communicative drawings.
- comprehend the theory of projection.

Course Content:

Section I			
Modul e No.	Content	Hour s	Weightag e in %
1.	**Introduction:** Importance of the Course; Use of Drawing Instruments and accessories; BIS – SP – 46; Lettering, Dimensioning and Lines; Representative Fraction; Types of Scales (Plain and Diagonal Scales); Construction of Polygons.	03	05%
2.	**Engineering Curves:** Classification and Application of Engineering Curves; Construction of Conics, Cycloidal Curves, Involutes and Spiral along with Normal and Tangent to each.	06	15%
3.	**Principles of Projections:** Types of Projections; Introduction of Principle Planes of Projections. **Projection of Points & Line:** Projection of Points in all four Quadrants; Projection of Lines with its inclination to one Referral Plane & two Referral Planes. **Projection of Plane:**	14	30%

Modul e No.	Content	Hours	Weightage in %
	Projection of Planes (Circular and Polygonal) with inclination to one Referral Plane and two Referral Planes; Concept of Auxiliary Projection Method.		

Section II			
Modul e No.	Content	Hour s	Weightag e in %
4.	**Projection and Section of Solids:** **Projection of solids:** Polyhedral, Prisms, Pyramids, Cylinder, Cone, Auxiliary Projection Method, One View, Two View and Three View Drawings. Missing View, Rules for Selection of Views; Sectional View, Section Plane Perpendicular to the HP & VP and other Various Positions, True Shape of Sections.	08	14%
5.	**Orthographic Projection:** Types of Projections: Principle of First and Third Angle Projection -Applications & Difference; Projection from Pictorial view of Object, View from Front, Top and Sides; Full Section View.	07	18%
6.	**Isometric Projections and Isometric Drawing:** Isometric Scale, Conversion of Orthographic views into Isometric Projection, Isometric View or Drawing.	07	18%

List of Practical:

Sr. No.	Name of Practical	Hour s
1.	Introduction sheet (dimensioning methods, different types of line, construction of different polygon, divide the line and angle in parts, use of stencil, lettering)	08
2.	Plane scale and diagonal scale	04
3.	Engineering curves	08
4.	Projection of Points & Lines	06
5.	Projection of Planes	08
6.	Projection of solid & Section of solid	10
7.	Orthographic projection	08
8.	Isometric projection	08

Text Book(s):

Title	Author(s)	Publication
A Text Book of Engineering Graphics	P J Shah	S. Chand & Company Ltd., New Delhi
Engineering Drawing	N D Bhatt	Charotar Publishing House, Anand

Reference Book(s):

Title	Author(s)	Publication
Engineering Drawing	P.S.Gill	S. K. Kataria & sons, Delhi
Engineering Drawing	B. Agrawal & C M Agrawal	Tata McGraw Hill, New Delhi
Engineering Drawing made Easy	K. Venugopal	Wiley Eastern Ltd

Web Material Link(s):
- http://nptel.ac.in/courses/105104148/

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination will consist of 60 marks.

Practical:
- Continuous Evaluation consists of Performance of Practical/Tutorial which will be evaluated out of 10 for each practical/Tutorial and average of the same will be converted to 20 Marks.
- Internal Viva consists of 20 Marks.
- Practical performance/quiz/drawing/test will consist of 30 Marks during End Semester Exam.
- Viva/Oral performance will consist of 30 Marks during End Semester Exam.

Course Outcome(s):

After the completion of the course, the student will able to
- know and understand "Drawing is a language of Engineers."
- interpret general assembly technical drawing.
- create traditions and the strategies for Engineering Drawing.
- evaluate basic and intermediate geometry.
- apply the knowledge of principles of projections.
- develop their hallucination/imagination skills.
- enhance their technical communication skill in the form of talkative drawings.

P P Savani University
School of Engineering

Department of Mechanical Engineering

Course Code: SEME1020
Course Name: Engineering Workshop
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
0	2	0	1	0	0	50	0	0	0	50

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
- learn about the safety measures required to be taken while using working in workshop.
- learn about how to select the appropriate tools required for specific operation.
- learn about different manufacturing technique for production out of the given raw material.
- understand applications of machine tools, hand tools, power tools and welding process.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction:** Introduction to Various Shops / Sections and Workshop Layouts, Safety Norms to be Followed in a Workshop.	-	-
2.	**Fitting Shop:** Introduction of Fitting Shop; Safety; Making a Job as per Drawing including Marking and other Performing Operations.	-	-
3.	**Carpentry and Drilling Shop:** Introduction of Carpentry Shop; Preparation of Job as per Drawing including Marking and other Performing Operations.	-	-
4.	**Sheet Metal Shop:** Introduction of Sheet Metal Shop; Preparation of Job as per Drawing including Marking and other Performing Operations	-	-
5.	**Smithy Shop:** Introduction of Sheet Metal Shop; Preparation of Job as per Drawing including Marking and other Performing Operations	-	-
6.	**Introduction to Machine Tools:** Introduction and Demonstration of various Machine Tools like Lathe, Drilling, Grinding, Hack Saw Cutting etc.	-	-

7.	**Introduction to Welding & Plumbing:** Introduction and Demonstration of Welding process. Introduction and Demonstration of Plumbing Shop.	-	-

List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction and Demonstration of Safety Norms. Different Measuring Instruments.	02
2.	To Perform a Job of Fitting Shop.	06
3.	To Perform a Job of Carpentry Shop.	06
4.	To Perform a Job of Sheet Metal Shop.	06
5.	To Perform a Job of Black Smithy Shop.	04
6.	Introduction and Demonstration of Grinding & Hacksaw Cutting Machine.	02
7.	Introduction and Demonstration of Plumbing Shop & Welding Process.	04

Text Book(s):

Title	Author(s)	Publication
Elements of Workshop Technology Vol. I	Hajra Chaudhary S. K.	Media promoters & Publishers
Workshop Technology Vol. I and II	Raghuvanshi B.S.	Dhanpat Rai & Sons

Reference Book(s):

Title	Author(s)	Publication
Workshop Technology Vol. I	W.A.J. Chapman	Edward Donald Publication
Workshop Practices	H S Bawa	Tata McGraw-Hill
Basic Machine Shop Practice Vol. I, II	Tejwani V. K.	Tata McGraw-Hill

Web Material Link(s):
● http://nptel.ac.in/course.php

Course Evaluation:
Practical:
● Continuous Evaluation Consist of Performance of Practical which will be evaluated out of 10 for each practical/Tutorial and average of the same will be converted to 30 Marks.
● Internal Viva consists of 20 Marks.

Course Outcome(s):
After the completion of the course, the student will be able to
● use various measuring instruments.
● know the importance of safety norms required in workshop.
● understand the application of various tools required for different operation.
● understand how to manufacture product from given raw material.
● know the use of machine tools, hand tools and power tools.

P P Savani University
School of Engineering

Department of Mechanical Engineering

Course Code: SEME1040
Course Name: Concepts of Engineering Drawing
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	2	0	4	40	60	20	30	0	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
● know conventions and the methods of engineering drawing.
● interpret engineering drawings using fundamental technical mathematics.
● construct basic and intermediate geometry.
● improve their visualization skills so that they can apply these skills in developing new products.
● improve their technical communication skill in the form of communicative drawings.
● comprehend the theory of projection.

Course Content:

Section I			
Modul e No.	Content	Hour s	Weightag e in %
1.	**Introduction:** Importance of the course; Use of Drawing Instruments and Accessories; BIS – SP – 46; Lettering, Dimensioning and Lines; Representative Fraction; Types of Scales (Plain and Diagonal Scales); Construction of Polygons	07	15
2.	**Engineering Curves:** Classification and Application of Engineering Curves; Construction of Conics, Cycloidal Curves, Involutes and Spiral along with Normal and Tangent to each.	12	25
3.	**Principles of Projections:** Types of Projections; Introduction of Principle Planes of Projections. Projection of Points in all four Quadrants	04	10

Section II			
Modul e No.	Content	Hour s	Weightag e in %
1.	**Projection of Plane:** Projection of Planes (Circular and Polygonal) with inclination to one Referral Plane and two Referral Planes	07	15
2.	**Orthographic Projection:** Types of Projections: Principle of First and Third Angle Projection -Applications & Difference; Projection from Pictorial View of Object, View from Front, Top and Sides.	08	20
3.	**Isometric Projections and Isometric Drawing:** Isometric Scale, Conversion of Orthographic Views into Isometric Projection, Isometric View or Drawing.	07	15

List of Practical:

Sr. No	Name of Practical	Hour s
1.	Introduction sheet (dimensioning methods, different types of line, construction of different polygon, divide the line and angle in parts, use of stencil, lettering)	04
2.	Plane scale and Diagonal scale	04
3.	Engineering curves	06
4.	Projection of Points and Plane	04
5.	Orthographic Projection	06
6.	Isometric Projection	06

Text Book(s):

Title	Author(s)	Publication
A Text Book of Engineering Graphics	P J Shah	S. Chand & Company Ltd., New Delhi
Engineering Drawing	N D Bhatt	Charotar Publishing House, Anand

Reference Book(s):

Title	Author(s)	Publication
Engineering Drawing	P.S.Gill	S. K. Kataria & sons, Delhi
Engineering Drawing	B. Agrawal & C M Agrawal	Tata McGraw Hill, New Delhi
Engineering Drawing made Easy	K. Venugopal	Wiley Eastern Ltd

Web Material Link(s):

● http://nptel.ac.in/courses/105104148/

Course Evaluation:
Theory:
● Continuous Evaluation consists of two tests each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.

- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination will consist of 60 marks.
  Practical:
- Continuous Evaluation Consist of Performance of Practical which should be evaluated out of 10 for each practical Tutorial and average of the same will be converted to 10 Marks.
- Internal Viva consists of 10 Marks.
- Practical performance/quiz/drawing/test of 15 Marks during End Semester Exam.
- Viva/Oral performance of 15 Marks during End Semester Exam.

Course Outcome(s):
After completion of the course, the student will be able to
- know and understand "Drawing is a language of Engineers."
- interpret general assembly technical drawing.
- create traditions and the strategies for Engineering Drawing.
- evaluate basic and intermediate geometry.
- apply the knowledge of principles of projections.
- develop their hallucination/imagination skills.
- enhance their technical communication skill in the form of talkative drawings.

P P Savani University
School of Engineering

Department of Computer Engineering

Course Code: SECE1010
Course Name: Basics of Computer and Programming
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/ Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	2	0	4	40	60	20	30	0	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
- understand basic components of computer system.
- identify appropriate approach to computational problems.
- develop logic building and problem solving skill.

Course Content:

Section I			
Modul e No.	Content	Hour s	Weightag e in %
1.	**Introduction to Computer and its Architecture:** Introduction and Characteristics, Generation, Classification, Applications, Central Processing Unit, Communication between Various Units, Processor Speed, Various Input and Output Devices.	03	10
2.	**Memory and Operating Systems:** Introduction to Memory, Memory Hierarchy, Primary Memory and its Type, Secondary Memory, Classification of Secondary Memory, Various Secondary Storage Devices and their Functioning, their Merits and Demerits, Evolution of Operating System, Types and Functions of Operating Systems,	06	15
3.	**Recent Advances in Computer:** Introduction to Emerging Areas like Artificial Intelligence, IoT tools, Data Science, Sensors, 3D Printing, Automization in the field of Civil, Mechanical and Chemical.	05	10
4.	**Computer Programming Language:** Introduction to different types of Programming Languages, Flowcharts and Algorithms. Introduction to C Programming Language, Features of C, Structure of C Program, Development of Program, Types of Errors, Debugging and Tracing Execution of Program.	08	15
Section II			

Module No.	Content	Hours	Weightage in %
1.	**Constants, Variables and data Types:** Character Set, C tokens, Keyword, Constants and Variables, Data Types - Declaration and Initialization, User define type Declarations Typedef, Enum, Basic Input and Output Operations, Symbolic Constants	05	10
2.	**Operators and Expression and Managing I/O operations:** Introduction to Operators and its Types, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expressions, Operator Precedence and Associativity. Managing Input and Output, Reading a Character, Writing a Character, Formatted Input, Formatted Output.	07	16
3.	**Conditional statement and branching:** Decision Making & Branching: Decision Making with If & If ... Else Statements, If - Else Statements (Nested Ladder), The Switch & go - to Statements, The Ternary (?:) Operator Looping: The While Statement, The Break Statement & The Do. While Loop, The FOR Loop, Jump Within Loops - Programs.	06	12
4.	**Arrays and Strings:** Introduction to Array, One Dimensional Array, Two Dimensional Arrays, Declaring and Initializing String Variables, Arithmetic Operations on Characters, Putting Strings Together, Comparison of Two Strings, Basic String Handling Functions	05	12

List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction to Basic Command	04
2.	Word Processing, Spreadsheets and Presentation Exercises	06
3.	Introduction to Octave Environment	04
4.	Implementation in C for conditional statement and branching Implementation of if, if...else, nested if...else and switch statements Implementation of while loop, do...while loop and for loop	06
5.	Implementation of 1-D and 2-D array	06
6.	Implementation of in built string functions, application programs of array and strings	04

 # Use of different libraries will be covered in Practical Assignments.

Text Book(s):

Title	Author(s)	Publication
Programming in ANSI C	E. Balagurusamy	Tata McGraw Hill
Introduction to Computer Science	ITL Education Solutions Limited	Pearson Education

Reference Book(s):

Title	Author(s)	Publication
Programming in C	Ashok Kamthane	Pearson
Let Us C	Yashavant P. Kanetkar	Tata McGraw Hill
Introduction to C Programming	Reema Thareja	Oxford Higher Education
Programming with C	Byron Gottfried	Tata McGraw Hill

Course Evaluation:

Theory:
● Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
● Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
● End Semester Examination consists of 60 marks.

Practical:
● Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 10 marks.
● Internal viva consists of 10 marks.
● Practical performance/quiz/test consists of 15 marks during End Semester Examination.
● Viva/Oral performance consists of 15 marks during End Semester Examination.

Course Outcome(s):
After completion of the course, the student will be able to
● explore new emerging areas of the field.
● apply programming fundamentals to solve real time problems.

P P Savani University
School of Engineering

Department of Computer Engineering

Course Code: SECE1050
Course Name: Programming for Problem Solving
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	4	0	5	40	60	40	60	0	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
- understand the basic components of a computer system.
- identify an appropriate approach to computational problems.
- develop logic building and problem-solving skills.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction to Computers:** Introduction, Central Processing Unit, Main Memory Unit, Interconnection of Units, Communication between Units of a Computer System. Memory Representation and Hierarchy, Random Access Memory, Read-only Memory, Classification of Secondary Storage Devices, Types of I/O Devices. Classification of Programming Languages, Generations of Programming Languages - Machine Language, Assembly Language, High-Level Language, 4GL.	04	10
2.	**Introduction to C, Constants, Variables and Data Types:** Features of C Language, the Structure of C Program, Flow Charts and Algorithms Types of Errors, Debugging, Tracing the Execution of the Program, Watching Variables Values in Memory. Character Set, C Tokens, Keyword and Identifiers, Constants and Variables, Data Types - Declaration and Initialization, User Define Type Declarations - Typedef, Enum, Basic Input, and Output Operations, Symbolic Constants, Overflow and Underflow of Data.	06	15

	Operators, Expressions, and Managing I/O Operations:		
3.	Introduction to Operators and its Types, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expressions, Operator Precedence and Associatively. Introduction to Reading a Character, Writing a Character, Formatted Input and Output.	05	10
4.	**Conditional Statements:** Decision Making & Branching: Decision Making with If and If - else Statements, Nesting of If-else Statements, The Switch and go-to statements, Ternary (?:) Operator. Looping: The while Statement, The Break Statement & The Do. While loop, The FOR loop, Jump within loops - Programs.	07	15

Section II			
Module No.	Content	Hours	Weightage in %
1.	**Arrays:** Introduction, One-dimensional Arrays, Two-dimensional Arrays, Concept of Multidimensional Arrays.	05	12
2.	**Strings:** Declaring and Initializing String Variables, Arithmetic Operations on Characters, Putting Strings Together, Comparison of Two Strings, String Handling Functions.	04	10
3.	**User-Defined Functions:** Concepts of User-defined Functions, Prototypes, function Definition, Parameters, Parameter Passing, Calling a Function, Recursive Function, Macros and Macro Substitution	04	10
4.	**Structure and Unions:** Introduction, Structure Definition, Declaring and Initializing Structure Variables, Accessing Structure Members, Copying & Comparison of Structures, Arrays of Structures, Arrays within Structures, Structures within Structures, Structures and Functions, Unions.	04	08
5.	**Pointers and File Management:** Basics of Pointers, a Chain of Pointers, Pointer and Array, Pointer to an Array, an Array of Pointers, Pointers and Functions, Dynamic Memory Allocation. Introduction to file Management and its Functions.	06	10

List of Practical:

Sr. No.	Name of Practical	Hours
1.	Introduction to Unix Commands (creating a folder, creating a file, deleting a file, renaming files, copy a file from one location to another, listing entire directories and files, list directories, listing files, moving files from one location to another)	02
2.	Introduction to C programming environment, compiler, Linker, loader, and editor.	02

3.	Working with basic elements of C languages (different input functions, different output functions, different data types, and different operators)	06
4.	Working with C control structures (if statement, if-else statement, nested if-else statement, switch statement, break statement, goto statement)	06
5.	Working with C looping constructs (for loop, while loop, do-while and nested for loop)	10
6.	Working with the array in C (1-D array, and 2-D array)	04
7.	Working with strings in C (input, output, different string inbuilt functions)	04
8.	Working with user-defined functions in C (function with/without return type, function with/without argument, function and array)	06
9.	Working with recursive function in C	02
10.	Working with structure and union in C (structure declaration, initialization, an array of structures, structure within structure, structure and functions, an array within structure and union)	08
11.	Working with pointer in C (initialization, pointer to pointer, pointer and array, an array of pointer, pointer and function)	06
12.	Working with files in C (opening a file, data insertion, and extraction from file, file management functions)	04

Text Book(s):

Title	Author/s	Publication
Programming in ANSI C	E. Balagurusamy	Tata McGraw Hill
Introduction to Computer Science	ITL Education Solutions Limited	Pearson Education

Reference Book(s):

Title	Author(s)	Publication
Programming in C	Ashok Kamthane	Pearson
Let Us C	Yashavant P. Kanetkar	Tata McGraw Hill
Introduction to C Programming	ReemaThareja	Oxford Higher Education
Programming with C	Byron Gottfried	Tata McGraw Hill

Web Material Link(s):
- http://www.digimat.in/nptel/courses/video/106104128/L01.html
- https://www.youtube.com/watch?v=3QiItmIWmOM

Course Evaluation:
Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Practical:

- Continuous Evaluation consists of practical performance which should be evaluated out of 10 for each practical and average of the same will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks during End Semester Exam.
- Viva-voce consists of 30 marks during End Semester Exam.

Course Outcome(s):

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

- learn the fundamentals of programming.
- develop efficient programs with their own logic & capabilities.
- understand the syntax and semantics of the C language.

Department of Information Technology

Course Code: SEIT1010
Course Name: Introduction to Web Designing
Course Prerequisite(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
0	2	0	1	0	0	50	0	0	0	50

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help the learners to
● understand basic components of internet.
● learn basic web technologies such as HTML, JavaScript and CSS.
● develop basic knowledge of website designing.

Course Content:

Module No.	Content	Hours	Weightage in %
1.	Introduction to World Wide Web, Web Server, Website, Website design Principles, Planning the Website, Navigation, Introduction to HTML, CSS, Java Script	30	100%

List of Practical:

Sr. No	Name of Practical	Hours
1.	Implementation of HTML tags	12
2.	Designing Websites with basic CSS	4
3.	Designing of Responsive Website Designs using Java Script	4
4.	Development of mini project based on HTML, CSS and Java Script	10

Reference Book:

Title	Author/s	Publication
HTML Black Book	Steven Holzner	Dreamtech press

Web Material Link(s):
● https://www.w3schools.com/

Course Evaluation:
Practical:
- Continuous Evaluation consist of performance of practical which will be evaluated out of 10 for each practical and average of the same will be converted to 20 marks.
- Prepared project during practical hours will be evaluated as a part of final submission which carries 30 marks.

Course Outcome(s):
After the completion of the course, the student will be able to
- learn the fundamentals of website designing.
- apply knowledge of HTML, CSS, and JavaScript to build static and dynamic websites.

Department of Information Technology

Course Code: SEIT1030
Course Name: Object Oriented Programming with Java
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	4	0	5	40	60	40	60	0	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
● understand basics of object-oriented programming.
● identify appropriate approach to computational problems.
● develop logic building and problem-solving skills.

Course Content:

Section I			
Modul e No.	Content	Hour s	Weightag e in %
1.	**Introduction** Programming language Types and Paradigms, Flavors of Java, Java Designing Goal, Features of Java Language, JVM –The heart of Java, Java's Magic Bytecode.	03	05
2.	**Object-Oriented Programming Fundamentals** Class Fundamentals, Object and Object reference, Object Lifetime and Garbage Collection, Creating and Operating Objects, Constructor and initialization code block, Access Control, Modifiers, Nested class, Inner Class, Anonymous Classes, Abstract Class and Interfaces, Defining Methods, Method Overloading, Dealing with Static Members, Use of "this" reference, Use of Modifiers with Classes & Methods, Generic Class Types.	06	15
3.	**Java Environment and Data types** The Java Environment: Java Program Development, Java Source File Structure, Compilation Executions; Basic Language Elements: Lexical Tokens, Identifiers, Keywords, Literals, Comments, Primitive Data-types, and Operators.	05	10

Module No.	Content	Hours	Weightage in %
4.	**Class and Inheritance** Use and Benefits of Inheritance in OOP, Types of Inheritance in Java, Inheriting Data Members and Methods, Role of Constructors in inheritance, Overriding Super Class Methods, Use of "super", Polymorphism in inheritance, Type Compatibility and Conversion, Implementing interfaces.	07	15
5.	**Java Packages** Organizing Classes and Interfaces in Packages, Package as Access Protection, Defining Package, CLASSPATH Setting for Packages, Making JAR Files for Library Packages, Import and Static Import, Naming Convention for Packages.	02	05
Section II			
Module No.	Content	Hours	Weightage in %
1.	**Array and String Concepts** Defining an Array, Initializing & Accessing Array, Multi-Dimensional Array, Operation on String, Using Collection Bases Loop for String, tokenizing a String, Creating Strings using String Buffer.	04	10
2.	**Exception Handling** The Idea behind Exception, Exceptions & Errors, Types of Exception, Control Flow In Exceptions, JVM reaction to Exceptions, Use of try, catch, finally, throw, throw in Exception Handling, In-built and User Defined Exceptions, Checked and Un-Checked Exceptions.	05	10
3.	**Thread** Understanding Threads, Needs of Multi-Threaded Programming, Thread Life-Cycle, Thread Priorities, Synchronizing Threads, InterCommunication of Threads.	06	15
4.	**Applet** Applet & Application, Applet Architecture, Parameters to Applet.	03	05
5.	**Input-Output Operations in Java** Streams and the new I/O Capabilities, Understanding Streams, The Classes for Input and Output, The Standard Streams, Working with File Object, File I/O Basics, Reading and Writing to Files, Buffer and Buffer Management, Read/Write Operations with File, Channel, Serializing Objects.	04	10

List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction to Java Environment and Netbeans	02
2.	Implementation of Java programs with classes and objects	04

3.	Implementation of Java programs to create functions, constructors with overloading and overriding	04
4.	Implementation of Java programs to demonstrate different access specifiers	04
5.	Implementation of Java programs using the concept of inner classes	02
6.	Implementation of Java programs for variables, data types, operators	04
7.	Implementation of Java programs for inheritance (single, multilevel, hierarchical)	04
8.	Implementation of Java programs to demonstrate the use of super keyword	02
9.	Implementation of Java programs for anonymous and abstract classes	02
10.	Implementation of Java programs for Interface	02
11.	Implementation of Java programs to demonstrate Java packages	02
12.	Implementation of Java programs to use arrays and string	06
13.	Implementation of Java programs for exception handling using all keywords (try, catch, throw, throws and finally)	04
14.	Implementation of Java programs to demonstrate the life cycle of thread	02
15.	Implementation of Java programs for the concepts of thread priority, synchronization, inter-thread communication	06
16.	Implementation of Applets, AWT and Web Servers	06
17.	Implementation of file handling operations	04

Text Book(s):

Title	Author/s	Publication
Core Java Volume I – Fundamentals	Cay Horstmann and Gray Cornell	Pearson

Reference Book(s):

Title	Author/s	Publication
Java the complete reference	Herbert Schildt	McGraw Hill
Thinking in Java	Bruce Eckel	Pearson
Learning Java	Patrick Niemeyer & Jonathan Knudsen	O'Reilly Media

Web Material Link(s):
- https://www.coursera.org/learn/object-oriented-java
- https://www.javatpoint.com/java-tutorial
- https://www.tutorialspoint.com/java/index.htm

Course Evaluation:
Theory:
- Continuous Evaluation consists of two tests each of 30 marks and 1 Hour of duration, which will be converted out of 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the course coordinator.
- End Semester Examination consists of 60 marks.

Practical:

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical and average of the same will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.

Course Outcome(s):

After completion of the course, the student will be able to
- learn the fundamentals of object-oriented programming.
- develop efficient programs with their own logic & capabilities.
- understand the syntax and semantics of the 'Java' language.

P P Savani University
School of Engineering

Department of Pharmaceutical Engineering

Course Code: SEPE1010
Course Name: Basics of Pharmaceutical Sciences
Prerequisite Course(s): ---

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	2	0	4	40	60	20	30	-	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective of the Course:

To help learners to
● Explain the gross morphology, structure and functions of various organs of the human body.
● Describe the various homeostatic mechanisms and their imbalances.
● Identify the various tissues and organs of different systems of human body.
● Perform the various experiments related to special senses and nervous system.
● Appreciate coordinated working pattern of different organs of each system

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction to Human body, cells, tissues, organs and systems** Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminology Structure and functions of cell, transport across cell membrane, cell division, cell junctions. General principles of cell communication, intracellular signalling pathway activation Classification of tissues, structure, location and functions of epithelial, muscular and nervous and connective tissues **Systems: Introduction, classification, structure of organs involved, electrophysiology and functions of** ● Nervous systems ● Endocrine system ● Circulatory system ● Cardiovascular system ● Digestive system	23	50

	● Respiratory system		
	● Excretory system		
	● Reproductive system		
	● Skeleton system		
Section II			
Module No.	Content	Hours	Weightage in %
2.	**Pathophysiology of various diseases** Basic principles of Cell injury, inflammation and repair Hypertension, congestive heart failure, ischemic heart disease (angina, myocardial infarction, atherosclerosis and arteriosclerosis) Asthma, Chronic obstructive airways diseases Acute and chronic renal failure Iron deficiency, megaloblastic anemia (Vit B12 and folic acid), sickle cell anemia, thalasemia, hereditary acquired anemia, hemophilia. Diabetes, thyroid diseases, disorders of sex hormones Epilepsy, Parkinson's disease, stroke, psychiatric disorders: depression, schizophrenia and Alzheimer's disease. Peptic Ulcer, Inflammatory bowel diseases, jaundice, hepatitis (A, B, C, D, E, F) alcoholic liver disease. Rheumatoid arthritis, osteoporosis, and gout classification, etiology and pathogenesis of cancer Rheumatoid Arthritis, Osteoporosis, Gout Classification, etiology and pathogenesis of Cancer Meningitis, Typhoid, Leprosy, Tuberculosis Urinary tract infections AIDS, Syphilis, Gonorrhea	12	30
3.	**Natural medicines and holistic approaches of management of diseases.** Role of natural medicines in allopathy and traditional systems of medicines like Ayurveda, Unani, Siddha, and Homeopathy systems of medicine. Cultivation, Collection, Processing and storage of drugs of natural origin and Conservation of medicinal plants. Concept of Tridosha and Ayurvedic principles of treatment of diseases.	10	20

List of Practical/Tutorial:

Sr. No	Name of Practical	Hours
1.	Study of compound microscope.	2
2.	Microscopic study of epithelial and connective tissue	3
3.	Microscopic study of muscular and nervous tissue	3

4.	Recording of body temperature, blood pressure, heart rate and lung vital capacity.	3
5.	Determination of bleeding time, clotting time, Hb content and blood group.	3
6.	Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.	3
7.	Recording of basal mass index	2
8.	Demonstration of total blood count by cell analyser.	3
9.	Permanent slides of vital organs and gonads.	4
10.	Determination of cloud point of a surfactant in the presence of salts.	4
	Total	**30**

Text Book(s):

Title	Author/s	Publication
Essentials of Medical Physiology	K. Sembulingam and P. Sembulingam	Jaypee brother's medical publishers, New Delhi.
Anatomy and Physiology in Health and Illness	Kathleen J.W. Wilson, Churchill Livingstone	New York Publishers
Text book of Medical Physiology	Arthur C, Guyton and John.E. Hall	Miamisburg, OH, U.S.A.
Practical workbook of Human Physiology	K. Srinageswari and Rajeev Sharma	Jaypee brother's medical publishers, New Delhi.

Reference book:

Title	Author/s	Publication
Physiological basis of Medical Practice-Best and Tailor	Williams & Wilkins Co	Riverview, MI USA
Textbook of Medical Physiology	Arthur C, Guyton and John. E. Hall.	Miamisburg, OH, U.S.A.
Human Physiology (vol 1 and 2)	Dr. C.C. Chatterrje	Academic Publishers Kolkata

Course Evaluation:

Theory:
- Continuous Evaluation consists of two internal exams which carry 30 marks each and the final evaluation will be counted with average of 30 Marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the course coordinator.
- End semester examination consists of 60 marks.

Practical:
- Continuous Evaluation consist of performance based on practical which should be evaluated out of 10 marks each in the next turn and average of the same will be converted to 10 marks.
- Internal viva component carries 10 marks of evaluation.
- Practical performance/quiz/drawing/test consists of 15 marks evaluation during end semester exam.
- Viva/Oral performance consists of 15 marks evaluation during end semester examination.

Course Outcome(s):

After the successful completion of the course, the students will

- Understand basics functions of cells, tissues, organs and systems involved in normal functioning of human body
- summarize functional characteristics of various systems
- describe the fundamental physiological mechanism involves in demonstrated practical
- interlinking various systems in terms of Feedback mechanisms and perform various tests related to blood cells counts which relates with the diagnosis of various disease conditions
- understand and appreciate the value of indigenous medicinal systems of India like Ayurveda in treatment of various diseases.
- analyze the problem, communicate suggested solution and interpret the results.

P P Savani University
School of Engineering

Department of Applied Science and Humanities

Course Code: SESH1070
Course Name: Fundamentals of Mathematics
Prerequisite Course(s): Algebra, Geometry, Trigonometry &Pre-Calculus till 12th Standard level

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	0	2	4	40	60	0	0	50	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
- summarize concept of calculus to enhance ability of analysing mathematical problems.
- acquire knowledge and ability to work with differentiation and integration for
- applications of mathematical techniques in engineering.
- develop the tool of power series for learning advanced Engineering Mathematics.
- analyse and solve system of linear equations and understand characteristics of Matrices.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1	**Calculus** Limits, Continuity, Types of Discontinuity, Successive Differentiation, Rolle's Theorem, LMVT, CMVT, Maxima and Minima.	8	28
2	**Sequence and Series-I** Convergence and Divergence, Comparison Test, Integral Test, Ratio Test, Root Test, Alternating Series, Absolute and Conditional Convergence.	6	20
Section II			
Module No.	Content	Hours	Weightage in %
1	**Sequence and Series-II** Power series, Taylor and Macluarin series, Indeterminate forms and L'Hospitals Rule.	6	20
2	**Matrix Algebra** Elementary Row and Column operations, Inverse of matrix, Rank of matrix, System of Linear Equations, Characteristic	10	32

	Equation, Eigen values and Eigen vector, Diagonalization, Cayley Hamilton Theorem, Orthogonal Transformation		

List of Tutorial:

Sr. No.	Name of Tutorial	Hours
1.	Calculus-1	2
2.	Calculus-2	2
3.	Integration	2
4	Sequence and Series-1	2
5.	Sequence and Series-2	2
6.	Sequence and Series-3	2
7.	Matrix Algebra-1	2
8.	Matrix Algebra-2	2
9.	Matrix Algebra-3	2
10.	Matrix Algebra-4	2

Text Book(s):

Title	Author/s	Publication
Thomas' Calculus	George B. Thomas, Maurice D. Weir & Joel Hass	Pearson
Elementary linear Algebra	Howard Anton and Chrish Rorres	Wiley

Reference Book(s):

Title	Author(s)	Publication
Advanced Engineering Mathematics	E Kreyszig	John Wiley and Sons
A textbook of Engineering Mathematics	N P Bali and Manish Goyal	Laxmi
Higher Engineering Mathematics	B S Grewal	Khanna
Engineering Mathematics for First Year	T Veerarajan	Tata Mc Graw Hill
Engineering Mathematics-1 (Calculus)	H. K. Dass, Dr. Rama Verma	S. Chand

Course Evaluation:
Theory:
● Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
● Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
● End Semester Examination consists of 60 marks.

Tutorial:
● Continuous Evaluation consists of performance of tutorial which will be evaluated out of 10 marks for each tutorial and average of the same will be converted to 30 marks
● MCQ based examination consists of 10 marks.
● Internal Viva consists of 10 marks.

Course Outcome(s):

After completion of the course, the student will be able to

- make use of concepts of limit, continuity and differentiability for analyzing mathematical problems.
- use concepts of Limit, Derivatives and Integrals.
- examine series for its convergence and divergence.
- solve linear system using matrices.

P P Savani University
School of Engineering

Department of Applied Science and Humanities

Course Code: SESH1080
Course Name: Linear Algebra & Calculus
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	0	2	5	40	60	-	-	50	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
● learn about and work with vector space, linear transformation and inner product space.
● apply concepts of linear algebra for solving science and engineering problems.
● introduce the concept of improper integral and Beta-Gamma Function.
● develop the tool of Fourier series for learning advanced Engineering Mathematics.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Vector Space** Concept of vector space, Subspace, Linear Combination, Linear Dependence and Independence, Span, Basis and Dimension, Row Space, Column Space and Null Space, Rank and Nullity.	9	20
2.	**Linear Transformation** Introduction of Linear Transformation, Kernal and Range, Rank and Nullity, Inverse of Linear Transformation, Rank Nullity Theorem, Composition of Linear Maps, Matrix associated with linear map.	7	15
3.	**Inner Product Space** Inner Product, Angle and Orthogonality, Orthogonal projection, Gram- Schmidt process and QR Decomposition, Least square decomposition, Change of basis.	7	15

		Section II		
Module No.		Content	Hours	Weightage in %
1.	**Beta and Gamma function** Improper Integrals, Convergence, Properties of Beta and Gamma Function, Duplication Formula (without proof)		6	14
2.	**Fourier Series** Periodic Function, Euler Formula, Arbitrary Period, Even and Odd function, Half Range Expansion, Parseval's Theorem		8	18
3.	**Curve tracing** Tracing of Cartesian Curves, Polar Coordinates, Polar and Parametric Form of Standard Curves, Areas and Length in Polar co-ordinates		8	18

List of Tutorial:

Sr. No.	Name of Tutorial	Hours
1.	Vector Space-1	4
2.	Vector Space-2	2
3.	Linear Transformation-1	2
4	Linear Transformation-2	2
5.	Inner Product-1	2
6.	Inner Product-2	2
7.	Beta and Gamma Function-1	2
8.	Beta and Gamma Function-2	2
9.	Curve tracing-1	2
10.	Curve tracing-2	2

Text Book(s):

Title	Author/s	Publication
Thomas' Calculus	George B. Thomas, Maurice D. Weir and Joel Hass	Pearson
Elementary Linear Algebra	Howard Anton and Chrish Rorres	Wiley

Reference Book(s):

Title	Author(s)	Publication
Advanced Engineering Mathematics	E Kreyszig	John Wiley & Sons
A textbook of Engineering Mathematics	N P Bali and Manish Goyal	Laxmi
Higher Engineering Mathematics	B S Grewal	Khanna
Engineering Mathematics for First Year	T Veerarajan	Tata Mc Graw Hill
Engineering Mathematics-1 (Calculus)	H. K. Dass and Dr. Rama Verma	S. Chand

Course Evaluation:
Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 Marks for each tutorial and average of the same will be converted to 30 marks.
- MCQ based examination consists of 10 marks.
- Internal Viva consists of 10 marks.

Course Outcome(s):
After completion of the course, the student will be able to
- understand the concepts of Vector Space, Linear Transformation and inner product
- space.
- evaluate functions like Gamma, Beta functions & their relation which is helpful to evaluate some definite integral arising in various branch of engineering.
- understand the concept of Fourier series.

P P Savani University
School of Engineering

Department of Applied Science & Humanities

Course Code: SESH1210
Course Name: Applied Physics
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	2	0	4	40	60	20	30	0	0	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to

- prepare students for career in engineering where physics principles can be applied for the advancement of technology.
- think in core concept of engineering application by studying various topics involved in branch specific application.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Quantum Mechanics:** Wave-Particle Duality, De-Broglie Matter Wave, Phase and Group Velocity, Heisenberg Uncertainty Principle and its Applications, Wave Function and its Significance, Schrodinger's Wave Equation, Particle in One Dimensional Box	06	15
2.	**Acousic and Ultrasonic:** Introduction, Classification and Characterization of Sound, Absorption Coefficients, Sound Absorbing Materials, Sound Insulation, Ultrasonic, Properties of Ultrasonic, Generation of Ultrasonic Applications of Ultrasonic.	05	10
3.	**Solid State Physics** Introduction, Lattice Points and Space Lattice, Unit Cells and Lattice Parameters, Primitive Cell, Crystal Systems. The Bravais Space Lattices. Miller Indices, X-Ray Properties, Diffraction and Bragg's Law, Bragg's X-Ray Spectrum	06	10
4.	**Nanophysics** Nanoscale, Surface to Volume Ratio, Surface Effects on Nanomaterials, Quantum Size Effects, Nanomaterials and Nanotechnology, Unusual Properties of Nanomaterials, Synthesis of Nanomaterials, Applications of Nanomaterials	06	15

Section II			
Module No.	Content	Hours	Weightage in %
1.	**Non-Linear Optics:** Laser, Spontaneous and Stimulated Emission of Light, Applications of Laser. Fundamental Ideas about Optical Fibre, Advantages of Optical Fibre of Optical Fibre, Applications of Optical Fibre.	07	12
2.	**DC and AC Circuits Fundamentals** Introduction of Electrical Current, Voltage, Power and Energy; Sources of Electrical Energy Inductor and Capacitor, Fundamental Laws of Electric Circuits – Ohm's Law and Kirchhoff's Laws; Analysis of Series, Parallel and Series-Parallel Circuits. Alternating Voltages and Currents and their Vector and Time Domain Representations, Average and Rms Values, From Factor, Phase Difference, Power and Power Factor, Purely Resistive Inductive and Capacitive Circuits, R-L, R-C, R-L-C Series Circuits, Impedance and Admittance, Circuits in Parallel, Series and Parallel Resonance.	08	25
3.	**Electronics:** Semiconductors, Intrinsic and Extrinsic Semiconductor Advantages of Semiconductor Devices, Diodes, Transistors, Types of Bipolar Junction Transistor, Unijunction Junction Transistor, FET and MOSFETS.	07	13

List of Practical:

Sr. No.	Name of Practical	Hours
1.	Volt-Ampere Characteristics of Light Emitting Diode	02
2.	Volt-Ampere Characteristics of Zener Diode	02
3.	To determine value of Planck's constant (h) using a photovoltaic cell	02
4.	To determine the Hall coefficient (R) and carrier concentration of a given material (Ge) using Hall effect.	04
5.	To study the Capacitors in series and parallel DC circuit.	04
6.	To determine velocity of sound in liquid using Ultrasonic Interferometer	04
7.	To study RLC Series circuit.	02
8.	To determine numerical aperture of an optical fiber.	02
9.	Determination of Young's Modulus of given material.	02
10.	Analysis of errors.	02

Text Book(s):

Title	Author/s	Publication
Concept of the Modern Physics	A. Beiser	Tata McGraw-Hill Education
Basic electrical engineering	Kothari and Nagrath	Tata McGraw-Hill Education
Quantum Mechanics	P.M. Mathew, K. Venkatesan	Tata McGraw-Hill Education
Waves and Acoustics	Pradipkumar Chakrabarti Satyabrata Chawdhary	New Central Book Agency
Lasers and Nonlinear Optics	G.D. Baruah	Pragati Prakashan
Solid State Physics: Basic Electronics:	S.O. Pillai	New Age Internation Publishers
Basic Electronics for Scientists and Engineers	Dennis L. Eggleston	Cambridge University Press

Web Material Link(s):
- http:/nptel.ac.in/course.php

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Practical:
- Continuous Evaluation Consist of Performance of Practical which will be evaluated out of 10 marks for each practical and average of the same will be converted to 10 marks.
- Internal Viva consists of 10 marks.
- Practical performance/quiz/drawing/test of 20 marks during End Semester Exam.
- Viva/Oral performance of 10 marks during End Semester Exam.

Course Outcome(s):

After completion of the course, the student will be able to
- use appropriate mathematical techniques and concepts to obtain quantitative solutions to problems in physics & electrical.
- perform a literature search, to make use of appropriate computational of laboratory skill, and to make an effective written or oral presentation of the results of the project.

Department of Science & Humanities

Course Code: SESH1230
Course Name: Fundamentals of Chemistry & Chemical Engineering
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
4	2	0	5	40	60	20	30	-	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective of the Course:

To help learners to
● present sound knowledge of chemistry fundamentals, enriching students to understand the role of Chemistry in the field of science and engineering.
● inculcate habit of scientific reasoning to do the task rationally.
● give an introduction of chemical engineering & various unit operations to make aware the students about the role of chemical engineer in various chemical industries.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Chemical Bonding and Structure of Molecules** **General terms**: Chemical bond, valence, valence electrons, Bonding and Non-bonding electrons, Lewis symbols, Octet rule. **Ionic bond**: Definition, Condition for formation of ionic bond, Factors governing formation of ionic bond, examples (NaCl, $MgCl_2$, CaO, Al_2O_3), Characteristics of ionic compounds. **Covalent bond:** Definition, conditions for covalent bond formation, examples [(single covalent bond: H_2, Cl_2, H_2O, NH_3, CH_4) (multiple covalent bond: O_2, N_2, CO_2)], General characteristics of covalent compounds, valence bond approach, formation of H_2 molecule, Concept of hybridization, Hybridization and shape of molecules, Shape of water, ammonia, PCL_5 and SF_6, Limitations of Valence bond theory, VSEPR theory, Fajan's rules. **Co-ordinate covalent bond:** Definitions, examples (NH_4^+, H_3O^+, BF_4^-, CH_3NO_2, SO_3, $AlCl_3$, SO_4^{-2}, O_3 and CO. **Hydrogen bonding:** Definition, conditions for H-bond formation, examples (HF, H_2O, NH_3, 2-nitrophenol), Types of H-bonds, Characteristics of H-bonded compounds.	12	20

	Metallic bond: Definition, The Electron sea model, explanation to the physical characteristics of metal based on the electron sea model.		
2.	**Electrochemistry** Introduction, Arrhenius ionic theory, De-bye Huckel theory of strong electrolytes, activity and activity co-efficient, Conductivity of electrolytes, Kohlrausch's law of independent migration of ions, Ostwald's dilution law, Acids and bases, Concept of pH and pOH, Buffer solutions, Solubility product, common-ion effect, hydrolysis of salts, conductometric titration, transport number.	08	15
3.	**Water Technology and Colloids** Introduction, Source of water, Impurities of water, Hard and Soft water, Degree of hardness, Scale and Sludge formation in boiler, Boiler Corrosion, Caustic Embrittlement, Priming and Forming, Softening of water, Potable Water, Break point of chlorination, Desalination of Brackish Water. Lyophilic and Lyophobic colloids, Characteristics of lyophilic and lyophobic sols, preparation of sols, Dispersion methods, Aggregation methods, Purification of sols, Dialysis, optical properties of sols: Tyndall effect.	10	15

Section II

Module No.	Content	Hours	Weightage in %
1.	**Introduction to Unit Operation** Systematic analysis to chemical process, flow sheet symbols for various operations, Forms of Energy, Overall balances, Mass balance and Momentum Balance, total energy balance, Introduction to modes of heat transfer, Introduction to the concepts of mass transfer, Numerical	08	7.5
2.	**Introduction to Reaction Kinetics** Introduction to types of reaction, reaction rate, order of reaction, reaction mechanism, Numerical	08	7.5
3.	**Thermodynamics** Introduction & basic concepts, Equilibrium, Laws of Thermodynamics, Heat Reservoir & Heat Engines, Energy Balances.	14	14

List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction to chemistry laboratory – Molarity, Normality, Primary, Secondary standard solutions, Volumetric titrations, Quantitative analysis, Quantitative analysis etc.	02
2.	Demonstration: Preparation of solutions of different concentrations	04
3.	Determination of alkalinity in the given water sample	02
4.	Determination of temporary and permanent hardness in water sample using EDTA as standard solution	04
5.	Conduct metric titration of strong acid vs. strong base	02
6.	Determination of critical micelle concentration of a surfactant using conductometry	04
7.	Determination of concentration of unknown solution spectrophotometrically	02
8.	Determining the strength of ferrous ammonium sulfate with the help of $K_2Cr_2O_7$	04
9.	Determination of dissociation constant of strong acid by pH metric method	02
10.	Determination of cloud point of a surfactant in the presence of salts	04
	Total	**30**

Text Book(s):

Title	Author/s	Publication
Engineering Chemistry (16th Edition)	P.C. Jain and Monika Jain	Dhanpat Rai publishing company
Introduction to Chemical Engineering	W. Badger	Tata McGraw Hill Education
A textbook of Chemical Engineering Thermodynamics	K. V. Narayan	PHI Learning Pvt. Ltd.
An Introduction to Chemical Engineering Kinetics and Reactor Design	Charles Hill	Wiley India

Reference Book(s):

Title	Author/s	Publication
Textbook ofEngineering Chemistry (4th Edition)	R. Gopalan, D. Venkappaya, S. Nagarajan	Vikas Publishing house Ltd.
A textbook of Chemical technology (Volume-1)	G. N. Pandey	Vikas Publishing house Ltd.
Essentials of Physical Chemistry	A.Bahl, B.S. Bahl and G.D. Tuli	S. Chand Publishing
Concise Inorganic Chemistry	J.D. Lee	Wiley India
Organic Reaction Mechanisms	V. K. Ahluwalia, R. K. Parashar	Norasa Publishing House
Organic Chemistry (6th edition)	Robert Thornnton Morrison Robert Neilson Boyd	Pearson Education
Introduction to Chemical Engineering.	L. B. Andersen & L. A. Wenzel	Mc Graw Hill Kogakusha Company Ltd

Web Material Link(s):

- https://books.google.co.in/books?id=Z3033BGuMBEC&printsec=frontcover&dq=engineering+chemistry+ebook&hl=en&sa=X&ved=0ahUKEwj9xoiNv3UAhVEL48KHYg7Ak0Q6AEIITAA#v=onepage&q&f=false

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination will consist of 60 marks.

Practical:
- Continuous Evaluation consist of performance based on practical which should be evaluated out of 10 marks each in the next turn and average of the same will be converted to 10 marks.
- Internal viva component carries 10 marks of evaluation.
- Practical performance/quiz/drawing/test consists of 15 marks evaluation during end semester exam.
- Viva/Oral performance consists of 15 marks evaluation during end semester examination.

Course Outcome(s):

After completion of the course, the students will be able to
- understand the relevance of fundamentals and applications of chemical sciences and chemistry in the field of engineering.
- apply the knowledge of thermodynamics in studying different chemical systems.
- apply the knowledge of Colloids, metals and alloys, their types and their properties.
- have sound knowledge on Electrochemistry.
- give an introduction of chemical engineering to make aware the students about the role of chemical engineer in various chemical industries.
- acquire knowledge on unit processes and unit operations, and to train how to apply mass balance and energy balance on them.

P P Savani University
School of Engineering

Department of Applied sciences & Humanities

Course Code: SESH1240
Course Name: Electrical & Electronics Workshop
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
0	2	0	1	0	0	50	0	0	0	50

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
● identify basic fundamental electronic components in circuits.
● learn to use common electronic component on breadboard.
● understand components of instruments, terminology and applications.

List of Practical:

Sr No	Name of Practical	Hours
1	Understanding of electronic component with specification.	2
2	Understanding of Galvanometer, Voltmeter, Ammeter, Wattmeter and Multimeter	2
3	Understanding of breadboard connections	2
4	Drawing and wiring of basic circuits on breadboard	2
5	Verification of Ohm's law	2
6	Half wave, full wave using centre tap transformer and full wave bridge rectifier	3
7	Kirchhoff's laws (KVL,KCL).	3
8	Faraday's laws of Electromagnetic Induction and Electricity Lab	4
9	LDR characteristics	2
10	Study of CRO, measurement of amplitude (voltage) & time period (frequency)	4
11	PCB designing	4

Text Book:

Title	Author/s	Publication
Electronic Principles	Albert Malvino and David J Bates	Mc Graw Hill(7th Edition)

Reference Book:

Title	Author/s	Publication
Electronic Devices	Thomas L. Floyd	Pearson (7th Edition)
Electronic Devices and Circuits	David A. Bell	Oxford Press (5th Edition)
Integrated Electronics	Jacob Millman, Christos	Tata McGraw Hill (2nd Edition)

Course Evaluation:

Practical:
- Continuous Evaluation Consist of Performance of Practical which should be evaluated out of 10 for each practical in the next turn and average of the same will be converted to 20 Marks.
- Internal viva consists of 20 marks.

Course Outcome(s):
- After completion of the course, the students will be able to design elementary combinational and sequential circuits.

Department of Science & Humanities

Course Code: SESH1250
Course Name: Microbiology & Biochemistry
Prerequisite Course(s): ---

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
4	2	0	5	40	60	20	30	-	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
● understand methods of identification, cultivation and preservation of various microorganisms
● learn importance of sterilization in microbiology. and pharmaceutical industry
● learn sterility testing of pharmaceutical products.
● understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
● understand the metabolism of nutrient molecules in physiological and pathological conditions.
● understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

Course Content:

Section-I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction to Microbiology** Introduction, history of microbiology, its branches, scope and its importance. Introduction to Prokaryotes and Eukaryotes Study of ultra-structure and morphological classification of bacteria, nutritional requirements, raw materials used for culture media. Study of different types of phase contrast microscopy, dark field microscopy and electron microscopy	10	15
2.	**Sterilization** Study of principle, procedure, merits, demerits and applications of Physical, chemical and mechanical method of sterilization. Evaluation of the efficiency of sterilization methods, Equipment employed in large scale sterilization. Sterility indicators. Sterility testing of products (solids, liquids, ophthalmic and other sterile products) according to IP, BP and USP.	12	15
3.	**Pharmaceutical Microbiology**	8	20

	Types of spoilage, factors affecting the microbial spoilage of pharmaceutical products, sources and types of microbial contaminants, assessment of microbial contamination and spoilage. Preservation of pharmaceutical products using antimicrobial agents, evaluation of microbial stability of formulations. Growth of animal cells in culture, general procedure for cell culture, Primary, established and transformed cell cultures. Application of cell cultures in pharmaceutical industry and research.		
Section-II			
Module No.	Content	Hours	Weightage in %
1.	**Carbohydrate, lipid and Amino acid metabolism** Glycolysis – Pathway, energetics and significance Citric acid cycle- Pathway, energetics and significance, HMP shunt and its significance; Glucose-6-Phosphate dehydrogenase (G6PD) deficiency, Glycogen metabolism Pathways and glycogen storage diseases (GSD) Gluconeogenesis- Pathway and its significance, Hormonal regulation of blood glucose level and Diabetes mellitus. Electron transport chain (ETC) and its mechanism. β-Oxidation of saturated fatty acid (Palmitic acid), Formation and utilization of ketone bodies; Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and vitamin D.	10	15
2.	**Biomolecules and Bioenergetics** Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins. Concept of free energy, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy; Redox potential. Energy rich compounds; classification; biological significances of ATP and cyclic AMP	8	15
3.	**Enzymes** Introduction, properties, nomenclature and IUB classification of enzymes Enzyme kinetics Enzyme inhibitors with examples, Regulation of enzymes: enzyme induction and repression, allosteric enzymes regulation Therapeutic and diagnostic applications of enzymes and isoenzymes Coenzymes –Structure and biochemical functions	6	10
4.	**Nucleic acid metabolism and genetic information transfer** Biosynthesis of purine and pyrimidine nucleotides Catabolism of purine nucleotides and Hyperuricemia and Gout Disease Organization of mammalian genome	6	10

	Structure of DNA and RNA and their functions DNA replication (semi conservative model) Transcription or RNA synthesis Genetic code, Translation or Protein synthesis and inhibitors		

List of Practical/Tutorial:

Sr. No	Name of Practical	Hours
1.	Introduction and study of different equipment and processing, e.g., B.O.D. incubator, laminar flow, aseptic hood, autoclave, hot air sterilizer, deep freezer, refrigerator, microscopes used in experimental microbiology.	3
2.	Sterilization of glassware, preparation and sterilization of media.	3
3.	Sterility testing of pharmaceuticals	3
4.	Staining methods- Simple, Grams staining and acid-fast staining (Demonstration with practical).	3
5.	Bacteriological analysis of water	3
6.	Qualitative analysis of carbohydrates (Glucose, Fructose, Lactose, Maltose, Sucrose and starch)	3
7.	Identification tests for Proteins (albumin and Casein)	3
8.	Determination of blood creatinine	3
9.	Determination of blood sugar	3
10.	Determination of serum total cholesterol	3
	Total	**30**

Text Book:

Title	Author/s	Publication
Principles of Biochemistry	Lehninger	WH Freeman
Harper's Biochemistry	Robert K. Murry, Daryl K. Granner and Victor W. Rodwell.	Wiley India Edition
Pharmaceutical Microbiology	W.B. Hugo and A.D. Russel	Blackwell Scientific publications, Oxford

Reference Book:

Title	Author/s	Publication
Industrial Microbiology, 4th edition	Prescott and Dunn.	CBS Publishers & Distributors, Delhi
Microbiology	Pelczar, Chan Kreig Rodwell.	Tata McGraw Hill
Cooper and Gunn's: Tutorial Pharmacy	Cooper and Gunn	CBS Publisher and Distribution.

Course Evaluation:
Theory:
● Continuous Evaluation consists of two internal exams which carry 30 marks each and the final evaluation will be counted with average of 30 Marks.
● Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.

● End semester examination consists of 60 marks.

Practical:
● Continuous Evaluation consist of performance based on practical which should be evaluated out of 10 marks each in the next turn and average of the same will be converted to 10 marks.
● Internal viva component carries 10 marks of evaluation.
● Practical performance/quiz/drawing/test consists of 15 marks evaluation during end semester exam.
● Viva/Oral performance consists of 15 marks evaluation during end semester examination.

Course Outcome:
After the successful completion of the course, the students will be able to
● sterilize consumables to be used in microbial experiments
● perform sterility testing and microbial assay of pharmaceutical products
● describe applications of equipment used in microbiology laboratory.
● describe biochemical aspects of cell metabolism, importance of enzyme and enzymatic reactions.
● summarize metabolic pathway of important biomolecules.
● summarize role of DNA and RNA in protein synthesis.

Course Code: CFLS1010
Course Name: Linguistic Proficiency **(A2 Elementary)**
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	0	0	2	40	60	0	0	0	0	100

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
● raise, or ask questions about surrounded information and give answers about themselves and family.
● understand very simple and daily routine information.
● read and understand the very simple texts.
● form simple sentences.
● identify the usage of grammar and vocabulary.

Course Content:

Module No.	Content	Hours	Weightage in %
1.	**Grammar & Vocabulary** **Grammar** ● Present Tense (Simple, Continue, Perfect) ● Past Tenses (Simple, to be) ● Future (Simple) ● Modals (Can, could, may, might, must, should, would) ● -ing and the infinitive (Verbs + to + infinitive and verbs + -ing) ● Identification of parts of speech there and it ● Questions and word Order ● **Vocabulary** ● Numbers (cardinal/ordinal) and money • Countries, nationalities and languages • Times • Days, dates, months, years and seasons • Shops and places • Interests, sports and activities • Jobs • Rooms and furniture • Colours • Size and weight • Body parts and appearance • Food, meals, cooking • Weather • Transport • Health • Feelings and emotions • Street directions • Clothes (any 4 of these)	09	20
2.	**Listening** ● Listening to my last holiday ● Listening to my family, ● Listening to my flat, ● Listening to daily routine ● Listening to shopping habits	04	20
3.	**Speaking** ● Giving and taking introductions, personal information and	06	20

	family, getting to know each other, greetings, asking for directions and giving directions ● Raising or asking and answering simple questions		
4.	**Reading** ● Reading of the content of the simpler texts like labels, posters, catalogs, ads, menus, schedules, and guess the unknown words on a contextual basis. ● Reading of information around us such as announcements, simple advertising, places and activities, job vacancies, etc.	04	20
5.	**Writing** ● Write about themselves ● Form basic sentences ● Write about hobbies ● Writing short personal letters	07	20

Course Evaluation:

Theory:
● Continuous Evaluation consists 20 marks of Speaking and 20 marks of Listening Test.
● End Semester Examination consists of 60 marks.

Text Book (s):

Title	Author/s	Publication
Basic English Grammar	Murphy Raymond	Cambridge University Press

Reference Book (s):

Title	Author/s	Publication
English Vocabulary in Use Pre-Intermediate and Intermediate	Stuart Redman	Cambridge University Press
Technical Communication (2nd Edition, 2011)	Meenakshi Raman, Sangeet Sharma	Oxford University Press

Course outcome(s):

After completion of the course, the student will be able to
● understands familiar words and phrases that are directly related to everyday communication situations (family, shopping, home, work), when people speak slowly and clearly.
● understands short, simple texts and personal messages, can find information from simple daily texts (labels, posters, directories, ads, job offers, menus, schedules).
● can ask questions about others and answer questions on themselves, can communicate in a simple language, if a partner helps her/him, can describe her/his family and other people, living conditions, education and work in a very simple way.
● can write a very simple personal message or sentences.

Course Code: CFLS1010
Course Name: Linguistic Proficiency **(A2)**
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	0	0	2	40	60	0	0	0	0	100

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
- communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities.
- handle very short social exchanges.
- read and understand the main ideas of simple texts.
- structure ideas logically in writing.
- develop accuracy in the usage of grammar and vocabulary.

Course Content:

Module No.	Content	Hours	Weightage in %
1.	**Grammar & Vocabulary** **Grammar** ● Asking Questions—Question forms ● Present simple vs present continuous ● Past simple—Form and use ● However, although, because, so, and time connectors ● Will vs be going to—future ● Present perfect or past simple? ● Much, many, little, few, some, any—quantifiers ● Subject and object pronouns, possessive pronouns and adjectives ● Prepositions of movement **Vocabulary** ● Families, Restaurants and leisure venues, Personality, Biographical information, Buildings and monuments, Weather, Clothes and accessories, large numbers, Hobbies, sports and interests, Education, Life changes and events, Animals, Descriptions of people, health, fitness, and illnesses (any 4 of these)	09	20
2.	**Listening** ● Listening to factual information	04	20

	● Listening to the weather forecast ● Listening to the content of guidelines ● Listening to everyday communication situation of the family, shopping, home, work. ● Listening to simple pair or group talks.		
3.	**Speaking** ● Giving and taking introductions, personal information and family, getting to know each other, simpler personal information, greetings, asking for directions and giving directions, accommodation establishments, booking a room, describing weather, seasons, birds, animals, plants, ● Descriptions of Food and drink including Cafes, restaurants, and other catering establishments; booking a table, ordering, etc.	06	20
4.	**Reading** ● Reading of the content of the simpler texts like labels, posters, catalogs, ads, menus, job offers, schedules, and guess the unknown words on a contextual basis. ● Reading of information around us such as announcements, advertising, places and activities, job vacancies, etc.	04	20
5.	**Writing** ● Description of the day ● Writing messages & experiences ● Writing on familiar topics ● Writing short personal letters	07	20

Course Evaluation:

Theory:
● Continuous Evaluation consists 20 marks of Speaking and 20 marks of Listening Test.
● End Semester Examination consists of 60 marks.

Text Book (s):

Title	Author/s	Publication
Basic English Grammar	Murphy Raymond	Cambridge University Press

Reference Book (s):

Title	Author/s	Publication
English Vocabulary in Use Pre-Intermediate and Intermediate	Stuart Redman	Cambridge University Press
Technical Communication (2nd Edition, 2011)	Meenakshi Raman, Sangeet Sharma	Oxford University Press

Course outcome(s):

After completion of the course, the student will be able to
● understand main points or phrases or ideas on everyday communication situations.

- understand common, basic or job-related language, events, short simple texts, personal letters and can find information from simple daily texts.
- can handle everyday typical communication tasks, can take and give introductions, can contribute to the conversation, and can describe themselves, their family, other people, food & drink.
- can write short messages, notes, & personal letters and can also write on simply about familiar topics.
- show an adequate degree of grammatical control and do not make major mistakes and show an understanding of sufficient vocabulary to conduct routine, everyday communications involving used to situations and topics.

P P Savani University
Centre for Language Studies

Course Code: CFLS1010
Course Name: Linguistic Proficiency **(B1)**
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
02	0	0	02	40	60	00	0	0	0	100

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
● demonstrate a greater knowledge of linguistic styles and norms.
● read and understand the main ideas of a variety of texts.
● structure ideas logically in writing.
● write clearly and in detail about a wide range of subjects.
● develop accuracy in the usage of grammar and vocabulary.

Course Content:

Module No.	Content	Hours	Weightage in %
1.	**Grammar & Vocabulary** **Grammar** ● Functional use of parts of speech ● Questions—different types ● Auxiliary verbs ● Comparatives using the…the… ● Narrative tenses—all past tenses ● Position of adverbs and adverb phrases ● Gerund or infinitive—verb patterns **Vocabulary** ● Buildings, Appliances, Clothes, Education, Entertainment, Environment, Food and drink, Nature, Personal Feelings, Technology, Weather, Sport (any 3 of these)	09	20
2.	**Listening Skills** ● Note Taking & Making ● Audio Comprehension ● Movie Clips, News, documentaries	04	20
3.	**Speaking Skills** ● Speaking in various contexts: ● Expressing Result, talking about People/Place/Thing in Relation to Something, Expressing Manner of an Action, Making Supposition about an Action, Describing the process,	06	20

	Connecting Information, Offering Suggestion/Advice, Expressing Choice and Alternative Choice		
4.	**Reading Skills** ● Reading Newspaper, Books ● Summarizing ● Paraphrasing	04	20
5.	**Writing Skills** ● Technical Writing: Application, Report Writing, Dialogue Writing, Movie Review, Book Review, Letter Writing	07	20

Course Evaluation:

Theory:
● Continuous Evaluation consists 20 marks of Speaking and 20 marks of Listening Test.
● End Semester Examination consists of 60 marks.

Text Book (s):

Title	Author/s	Publication
Basic English Grammar	Murphy Raymond	Cambridge University Press

Reference Book (s):

Title	Author/s	Publication
English Vocabulary in Use Pre-Intermediate and Intermediate	Stuart Redman	Cambridge University Press
Technical Communication (2nd Edition, 2011)	Meenakshi Raman, Sangeet Sharma	Oxford University Press

Course Outcome(s):

After completion of the course, the student will be able to
● speak confidently and discuss the familiar topics with native speakers in brief.
● understand lengthy speech and lectures and follow complex arguments of the familiar topic.
● understand most TV news, the majority of films and current affairs programs in common accents.
● read articles and reports about common topics, read literature in English.
● write clearly and in detail about a wide range of subjects as well as essays, reports, and letters.

P P Savani University
Centre for Language Studies

Course Code: CFLS1010
Course Name: Linguistic Proficiency **(B2)**
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
02	0	0	02	40	60	00	0	0	0	100

 CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:
To help learners to
● Demonstrate a greater knowledge of linguistic styles and norms.
● Read and understand the main ideas of a variety of texts.
● Structure ideas logically in writing.
● Write clearly and in detail about a wide range of subjects.
● Develop accuracy in the usage of grammar and vocabulary.

Course Content:

Module No.	Content	Hours	Weightage in %
1.	**Grammar & Vocabulary** **Grammar** ● Clauses of contrast, purpose, reason, and result ● Reflexive and reciprocal pronouns ● 'There and it' – preparatory subjects ● Speculation and deduction – modal verbs and expressions ● Conditionals ● Gerunds and infinitives ● Functions **Vocabulary** Travel and Tourism, Health and Medicine, Crime and Law, Education, Personality Adjectives, Collocations and Phrases (any 3 of these)	09	20
2.	**Listening Skills** ● Understanding the difference between Hearing and Listening and Critical Listening. ● Understanding the various texts in the context of the tone and emotion they portray. ● Exploring domain-general audio clips and deriving an understanding of the embedded message.	04	20

	● Developing the ability to understand the context of a given situation in a conversation/audio clip.		
3.	**Speaking Skills** ● Exploration of various forms of speech like extempore, elocution, short speech, etc. ● Conversational Role Plays and Skits. ● Elocution to express one's opinion on various subjects given by the Teacher. ● Collaborative discussion to generate different opinions and responses. ● Sustaining an interaction; exchanging ideas, expressing and justifying opinions, agreeing and/or disagreeing, suggesting, speculating, evaluating, reaching a decision through negotiation, etc.	06	20
4.	**Reading Skills** ● Introduction to Reading Vs Critical Reading. ● Reading and discussion of Short Prose with different writing styles. ● Understanding vivid descriptions of texts. ● Description of genres and writing styles that showcase the varying tones and features. ● Develop an understanding to read between the lines.	04	20
5.	**Writing Skills** ● Summarizing vs. Paraphrasing ● Understanding the various texts in the context of the tone and emotion they portray. ● Understanding the various forms of written documentation like reports and summary. ● Writing activities that assist students in expressing their emotions and feelings. ● Writing tasks to generate contrasting ideas, letters for suggestions, letters for the recommendation, essays.	07	20

Course Evaluation:

Theory:
● Continuous Evaluation consists 20 marks of Speaking and 20 marks of Listening Test.
● End Semester Examination consists of 60 marks.

Text Book (s):

Title	Author/s	Publication
Basic English Grammar	Murphy Raymond	Cambridge University Press

Reference Book (s):

Title	Author/s	Publication
English Vocabulary in Use Pre-Intermediate and Intermediate	Stuart Redman	Cambridge University Press
Technical Communication (2nd Edition, 2011)	Meenakshi Raman, Sangeet Sharma	Oxford University Press

Course Outcome(s):

After completion of the course, the student will be able to

- developing an understanding of specific information, text organization features, tone, and text structure.
- develop an ability to write regular/common/casual text types such as an article, an essay, a letter, an email, a report, a review, or a short story, with a focus on advising, apologizing, comparing, describing, explaining, expressing opinions, recommending, suggesting.
- demonstrate an understanding of attitude, detail, function, genre, gist, main idea, opinion, place, purpose, situation, specific information, relationship, topic, agreement, etc.
- ability to develop and respond to questions and to interact in conversational English.

Course Code: SEHV1010
Course Name: Universal Human Values I
 Prerequisite Course (s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
02	00	00	00	100	00	00	00	00	00	100

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
- become familiar with the ethos and culture of the new surroundings.
- develop bond with peers, seniors, faculty and staff.
- provide an exposure to a holistic vision of life
- develop healthy lifestyle and ethical professional discipline
- connect and appreciate the diversity of cultures.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction to UHV I** ● Getting to know each other ● Aspiration and Concerns	02	13
2.	**Self-Management** ● Self-confidence, peer pressure ● Time management, anger/stress management ● Personality development, self-improvement ● Fixing one's goals	06	25
3.	**Health** ● Health issues ● Healthy diet ● Healthy lifestyle ● Hostel life	02	12
Section II			
4.	**Relationships & Society** ● Home sickness ● Gratitude towards parents, teachers and others ● Ragging and interaction ● Competition and cooperation ● Participation in society	06	24

	Natural Environment and Self Evaluation		
5.	● Participation in nature ● Review role of education ● Need for holistic perspective ● Sharing and feedback	04	26

Reference Link(s):
- https://www.youtube.com/watch?v=OgdNx0X923I&list=PLYwzG2fd7hzer-n_sVjmtFnuSs_Mph4Bi
- https://fdp-si.aicte-india.org/3dayUHV_download.php

Course Evaluation:
Theory:
- Continuous Evaluation consists of 100 marks as per the guidelines provided by Course Coordinator.

Course Outcome(s):
After completion of the course, the student will be able to
- understand possibility to reach to their full potential as a human being.
- develop holistic perspective of life.
- sensitise about the scope of life – individual, family, society and nature.
- develop more confidence and commitment to understand, learn and act accordingly.