Yeshwantrao Chavan College of Engineering

Course Outcomes of all Courses of First Year

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	Students will be able to	
GE-2101-CO-1	Apply the knowledge of differentiation to develop the Mathematical equations and compute geometrical measures	PO-1,PO-2
GE-2101-CO-2	Determine the expansion and derivatives of functions of Multiple variables and use it to find extreme values of functions.	PO-1,PO-2
GE-2101-CO-3	Evaluate the integrals of single, multiple variables and use it to measure the dimensions of various geometrical figures.	PO-1,PO-2
GE-2101-CO-4	Discuss Calculus of Scalar and vector point function and use appropriate theorems to evaluate integrals of functions of single, multiple variables.	PO-1,PO-2

Course Name: Engineering Mathematics-I (Course Code: GE2101)

Course Name: Engineering Mathematics-II (Course Code: GE2102)

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	Students will be able to	
GE-2102 CO-1	Use appropriate Methods to solve first order and higher order differential equations and apply it to find solutions of engineering problems	PO-1,PO-2
GE-2102 CO-2	Analyse the functions of complex numbers and variables, prove Mathematical equations and evaluate the complex integrals	PO-1,PO-2

GE-2102 CO-3	Use Matrix method to solve linear equations, evaluate eigen values - eigen vectors and its applications.	PO-1,PO-2
GE-2102 CO-4	Measure the statistical parameters and derive the equations of best fit curves	PO-1,PO-2,PO-3

Course Name: Communication Skill (Course Code: GE2107)

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	Students will be able to	
GE-2107 CO-1	Explain the basics of communication process as well as identify the barriers in communication.	PO-10
GE-2107 CO-2	Classify and describe the different Speech Sounds of English Language.	PO-10
GE-2107 CO-3	Apply different strategies and techniques of presentations, interviews and group communication.	PO-10
GE-2107 CO-4	Prepare and draft reports, memos and emails with appropriate content and context.	PO-9, PO-10

Course Name: Social Science (Course Code: GE2108)

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	Students will be able to	
GE-2108 CO-1	Explain the basic concepts of Social Sciences.	PO-6,PO-12
GE-2108 CO-2	Describe the development of various Civilizations and their Culture.	PO-6

GE-2108 CO-3	Analyse the Impact of Industrialization on society and discuss the Fundamental Concepts of Society.	PO-6
GE-2108 CO-4	Explain Industrial Organization and Management.	PO-6, PO-11

Course Name: Engineering Physics (Course Code: GE2105)
Engineering Physics Lab (Course Code: GE2106)

Course Code and Course Outcome	**Statement of Course Outcome**	**Programme Outcome**
	Students will be able to	
GE-2105 & GE-2106 CO1	Examine the intensity variation of light due to interference, diffraction and its applications.	PO-1, PO-2
GE-2105 CO2	Explain fundamentals of quantum mechanics and its application to problems dealing with quantum particle.	PO-1, PO-2
GE-2105 & GE-2106 CO3	Develop ability to classify and analyze the characteristics of semiconductor materials in terms of crystal structures, charge carriers and energy bands for device applications.	PO-1, PO-2
GE-2105 & GE-2106 CO4	Analyze the motion of charged particle in electric and magnetic fields and its applications to electron optic devices.	PO-1, PO-2
GE-2105 & GE-2106 CO5	Illustrate working principle of lasers, ultrasonic waves and its properties for useful applications in the field of industry.	PO-1, PO-2

Course Name: Engineering Physics Lab (Course Code: GE2106)

List of Experiments Available

S.No.	Name of Experiment	CO-PO
1	To study variation of Hall voltage with current and magnetic field; and to determine Hall coefficient, concentration and polarity of charge carriers.	CO3 PO1, PO2
2	To measure the amplitude and frequency of sinusoidal voltage obtained from the secondary of a step down transformer using CRO.	CO4 PO1, PO2
3	To study the static characteristics of semiconductor diode; (Germanium and Silicon diode) in forward and reverse bias mode	CO3 PO1, PO2
4	To determine the forbidden energy gap of a semiconductor by studying the temperature variation of its receptivity using four probe method.	CO3 PO1, PO2
5	To measure the phase shift introduced by a phase shift network using dual beam CRO.	CO4 PO1,PO2
6	Determination of the velocity of ultrasonic waves in a non-electrolytic liquid by ultrasonic interferometer.	CO5 PO1,PO2
7	To determine the radius of curvature of Plano-convex lens by using Newton's Rings apparatus.	CO1 PO1,PO2
8	To determine the thickness of thin paper using Air Wedge arrangement.	CO1 PO1,PO2
9	To determine the wavelength of sodium light using Plane Transmission Grating.	CO1 PO1,PO2

Course Name: Engineering Chemistry (Course Code: GE-2103)

Engineering Chemistry Lab (Course Code: GE-2104)

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	Students will be able to	
GE-2103 & GE-2104 CO-1	Assess qualitative and quantitative aspects of water as a conventional material for industrial and domestic applications.	PO-1,PO-2,PO-4 PO-7
GE-2103 & GE-2104 CO-2	Apply the knowledge of basic electrochemistry to understand battery technology, corrosion process and preventive techniques.	PO-1
GE-2103 & GE-2104 CO-3	Know the basics and assess analytical aspects of industrial materials like fuels and lubricants for efficient utilization.	PO-1,PO-2,PO-4 PO-7
GE-2103 & GE-2104 CO-4	Recognise the significance of cement and advanced engineering materials in technological applications	PO-1, PO-7
GE-2103 & GE-2104 CO-5	Analyze and generate analytical and instrumental techniques	PO-1,PO-2,PO-4 PO-7

Engineering Chemistry Lab(Course Code: GE-2104)
List of Experiments

S.No.	Name of Experiment	CO-PO
1.	Estimation of hardness	CO-1, CO-5,PO1, PO2 PO4,PO7
2.	Estimation of alkalinity	CO-1 CO-5,PO1, PO2 PO4,PO7
3.	Estimation of copper	CO-5,PO1 PO2, PO4,PO7
4.	Estimation of iron	CO-5,PO1,PO2, PO4,PO7
5.	Determination of viscosity	CO-3, PO1 PO2 ,PO4,PO7
6.	Analysis of coal	CO-3, PO1, PO2 ,PO4,PO7
7.	Determination of Flash point by Pensky- Marten's apparatus	CO-3, PO1, PO2 ,PO4,PO7
8.	Determination of ion exchange capacity of resin	CO-1, PO1, PO2, PO4,PO7
9.	Determination of pH	CO-1,PO1, PO2, PO4,PO7
10.	Preparation of urea formaldehyde resin	CO-5,PO1 , PO2, PO4,PO7
11.	Workshop on analytical techniques	CO-1 PO1 ., PO2, PO4.PO7
12.	Mini project	CO-4, PO1 PO7
13.	Initial and final setting time of cement	CO-5, PO1 PO2 PO4, PO7

Course Name: Engineering Mechanics (Course Code: CV-2101) &

Engineering Mechanics LAB (Course Code: CV-2102)

Course Code and Course Outcome	**Statement of Course Outcome**	Programme Outcome
	Students will be able to	
CV-2101 CO-1	Describe the fundamental concepts of statics and dynamics.	PO1, PO-2, PO-11
CV-2101 CO-2	Apply the basic concepts of applied mechanics for solution of problems on planar force system.	PO1, PO-2, PO-11
CV-2101 CO-3	Determine the properties of surface like centroid, moment of inertia, etc. for planar surfaces and mass moment of inertia for rigid body	PO1, PO-2, PO-11
CV-2101 CO-4	Analyze pin jointed truss frame structure and beam structure analytically and graphically.	PO1, PO-2, PO-11
CV-2101 CO-5	Evaluate the dynamic variables of kinetics of particles and simple lifting machine	PO1, PO-2, PO-11

Name of Course: Engineering Mechanics Lab. (CV 2102) **List of Experiments**

S.No.	Name of Experiment	CO-PO
1	To determine support reactions of a Simply Supported Beam experimentally and analytically.	CO1 PO1,PO2,PO11
2	To determine the forces in the members of a Jib Crane Apparatus experimentally and graphically.	CO1, PO1,PO2,
3	To determine the coefficient of friction between two surfaces of different material on Plane Friction Apparatus.	CO1, CO-2 PO1,PO2,
4	To determine the coefficient of friction of Coil Friction Apparatus	CO1, PO1,PO2
5	To determine the mass moment of inertia of a fly wheel using Fly Wheel Apparatus	CO1,CO-3 PO1,PO2
6	To determine efficiency and law of machine of Differential Axel & Wheel machine.	CO1,CO-5 PO1,PO2
7	To determine efficiency and Law of machine of Single Purchase Crab machine.	CO1,CO-5 PO1,PO2
8	To determine efficiency and Law of machine of Double Purchase Crab machine.	CO1,CO-5 PO1,PO2
9	To find support reactions of a simply supported beam using graphical method and hand calculation.	CO1 PO1,PO2,PO11
10	To find the forces in the member of truss using graphical method and hand calculation	CO1,CO-4 PO1,PO2,PO11

Course Name: Basic Electronics (Course Code: EE 2101)

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	The students will be able to:	
EE 2101 CO-1	Characterize Number systems, semiconductors, diodes, transistors and operational amplifiers.	PO-1, PO2, PO-3
EE 2101 CO-2	Design simple analog circuits	PO-1, PO2, PO-3
EE 2101 CO-3	Design simple combinational and sequential logic circuits	PO-1, PO2, PO-3
EE 2101 CO-4	Identify functions of digital multimeter, Bridges and transducers in the measurement of physical variables	PO-1, PO2,

Course Name: Introduction to Computer Programming (Course Code: IT2101), Introduction to Computer Programming Lab (Course Code: IT2102)

Course Code and Course Outcome	Statement of Course outcomes	Programme Outcome
	Students are able to	
IT2101 CO1	Know about computer system, basics of algorithm & flowchart, and demonstrate straight line program using basic 'C' programming language constructs.	PO-1
IT2101 CO2	Implement basic Linux commands and simple programs using different constructs in C.	PO-1
IT2101 CO3	Design & Develop programs using different loop control structures, user defined functions, and Pointers.	PO-1, PO-2
IT2101 CO4	Analyze and apply concepts of different dimensional Arrays as a data structure & development of programs using the same.	PO-2, PO-3

IT2101 CO5	Design and develop programs using basics of Strings, Structures, union and Files in 'C' language.	PO-1 PO-2,PO-3

Course Name: Electrical Engineering (Theory) & Lab (Course Code: EL 2101& EL 2102)

Course Outcomes	Statement of Course Outcome	Programme Outcome
	Students are able to	
EL 2101& EL-2102 CO-1	Reproduce fundamentals of dc circuits, single phase, and three phase ac circuits.	PO-1
EL 2101& EL-2102 CO-2	Analyse dc circuits, single phase and three phase ac circuits for basic electrical quantities such as current, voltage, power etc.	PO-1, PO-2
EL 2101& EL-2102 EL 2101& EL-2102 CO-3	Explain construction, working, testing, and applications of various electrical machines.	PO-3
EL 2101& EL-2102 CO-4	Analyse performance of various electrical machines.	PO-1, PO-2
EL 2101& EL-2102 CO-5	Perform laboratory experiments and demonstrate competency in collecting, interpreting, analysing data, communicate and present effectively through laboratory journals.	PO-1, PO-2, PO-9, PO-10

Course Name: Engineering Graphics (Course Code: ME2101) & Engineering Graphics LAB (Course Code: ME 2102)

Course Code and Course Outcome	Statement of Course Outcome	Programme Outcome
	Students will be able to	

ME2101 CO1	Transform orthographic projections into isometric projections and vice versa.	PO-1, PO-2
ME2101 CO2	Evaluate Projections of various One Dimensional, Two dimensional, Three dimensional objects.	PO-1, PO-2
ME2101 CO3	Built the development of lateral surfaces of various solids and their cut section.	PO-1, PO-2
ME2101 CO4	Predict the intersections and intersections of various solid objects.	PO-1, PO-2
ME2101 CO5	Justify the use of software tools used for Two dimensional drawings.	PO-1, PO-2

Course Name: Engineering Graphics Lab. (Course Code: ME 2102)

List of Experiments Available

S.No.	Name of Experiment	CO-PO
1	Introduction of AutoCAD Basic Commands	CO5 PO1,PO2
2	Orthographic Projection	CO1,CO5 PO1,PO2
3	Isometric Projection	CO1,CO5 PO1,PO2
4	Projection of Straight Line	CO2,CO5 PO1,PO2
5	Projection of Planar Surface	CO2,CO5 PO1,PO2

6	Projection of Solid	CO2,CO5 PO1,PO2
7	Section and Development of Solid	CO3,CO5 PO1,PO2
8	Intersection of Surfaces	CO4,CO5 PO1,PO2
9	Drawing Sheet 1: Convention for various lines, Dimensioning and Orthographic Projection	CO1,CO2 PO1,PO2
10	Drawing Sheet 2: Projection of line, planar surface or solid. (Any one)	CO2 PO1,PO2

Course Name: Workshop Practice (Course Code: ME 2103)

Course Code and Course Outcome	**Statement of Course Outcome** **Students will be able to**	**Programme Outcome**
ME 2103 CO1	**Discuss** about various manufacturing process like smithy, carpentry, Assembling, welding etc. and different machines.	PO-6, PO-9, PO-12
ME 2103 CO2	**Operate** the various hand tools used in the basic mechanical engineering workshop sections-smithy, carpentry, assembling, welding etc.	PO-6, PO-9, PO-12
ME 2103 CO3	**Distinguish** different measuring devices according to the work.	PO-6, PO-9, PO-12
ME 2103 CO4	**Develop** various shapes through different manufacturing methods	PO-6, PO-9, PO-12

Course Name: Workshop Practice (Course Code: ME 2103)-List of Experiments

S.NO	Name of Experiments-WS	CO-PO
1	Study of Tools and Operations of different Welding techniques	CO-1- PO6 , PO9 PO12
2	Study of Tools and Operations of Arc Welding	CO-1- PO6 , PO9 PO12
3	Details of Arc Welding Operations	CO-1- PO6 , PO9 PO12
4	Details of Gas Welding Tools	CO-1- PO6 , PO9 PO12
5	Details of Gas Welding Operations	CO-1- PO6 , PO9 PO12
6	Types of joints	CO-1- PO6 , PO9 PO12
7	Study of Use and handling of common hand tools	CO-1- PO6 , PO9 PO12