

Shree Santkrupa Institute of Engineering and Technology

Department of Mechanical Engineering

Academic Year: 2019-20

Semester: III

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTMEC303	Fluid Mechanics	3	1		4
2	BTMES302	Material Science and Metallurgy	3	1		4
3	BTMEC305	Thermodynamics	3	1		4
4	BTMEC304	Machine Drawing & CAD	2			2
5	BTBSC301	Engineering Mathematics -III	3	1		4
6	BTHM3401	Basic Human Rights	2			Audit
7	BTMEL307	Material Science and Metallurgy Lab			2	1
8	BTMEL308	Fluid Mechanics Lab			2	1
9	BTMEL309	Machine Drawing & CAD Lab			4	2
10	BTMEF310	Industrial Training-I				1

Semester: IV

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTMEC401	Manufacturing Process-I	2	1		3
2	BTMEC402	Theory of Machine-I	3	1		4
3	BTMEC403	Strength of Materials	3	1		4
4	BTMEC404	Numerical Methods in Mechanical Engineering	2	1		3
5	BTID405	Product Design Engineering	2			2
6	BTHM3402	Inter Personal Communication Skills and Self Development	3			3
7	BTMEL407	Manufacturing Process Lab-I			2	1
8	BTMEL408	Theory of Machine Lab-I			2	1
9	BTMEL409	Strength of Materials Lab			2	1
10	BTMEL410	Numerical Method Lab			2	1

Semester: V

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTMEC501	Heat Transfer	3	1		4
2	BTMEC503	Machine Design-I	2	1	2	3
3	BTMEC504	Theory of Machine-II	3	1		4
4	BTMEC502	Applied Thermodynamics-I	2	1		3
5	BTMEC505	Metrology & Quality Control	2	1	-	3
6	BTID506	Product Design Engineering-II	1		2	2
7	BTMEC506A	Automobile Engineering	3			Audit
8	BTMEL507	Heat Transfer Lab			2	1
9	BTMEL508	Applied Thermodynamics Lab			2	1
10	BTMEL509	Machine Design Practice-I			2	1
11	BTMEL510	Theory of Machine Lab-II			2	1
12	BTMEF511	Industrial Training-II				1

Semester: VI

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTMEC601	Manufacturing Process-II	2	1		4
2	BTMEC602	Machine Design-II	3	1		3
3	BTMEC603	Applied Thermodynamics-II	2	1		3
4	BTMEC604B	IC Engine	2	1		3
5	BTMEC605C	Renewable energy Sources	3			3
6	BTMEC606C	Human Resource management	3	-	-	3
7	BTMEL607	Metrology & Quality Control Lab	-	-	2	1
8	BTMEL608	Machine Design Practice-II			2	1
9	BTMEL609	IC Engine Lab			2	1
10	BTMEL610	Refrigeration & Air conditioning Lab			2	1
11	BTMEM611	Technical Project for community Service			4	2

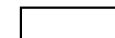
Course Outcomes

Semster : III		
Course Name	Engineering Mathematics – III	
Course Code	BTBSC301	
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:

CO 1	Explain the application of the Laplace Transform to find solutions of system of linear equations arising in many engineering problem
CO 2	Demonstrate and apply the concept Laplace Transform
CO 3	Interpret Computation of Fourier Transform and their applications to engineering problems
CO 4	Identify Partial Differential Equations and Their Applications.
CO 5	Evaluate Functions of Complex Variables.
Semster : III	
Course Name	Material Science and Metallurgy
Course Code	BTMES302
Course Outcome No	Course Outcome Statement
	By the end of the course, students will be able to:
CO 1	identify the properties of metals with respect to crystal structure and grain size.
CO 2	acquire the knowledge of solidification, phase & equilibrium diagram for different materials
CO 3	describe the concept of heat treatment of steels & strengthening mechanisms.
CO 4	prepare samples of different materials for metallography
CO 5	explain the failure theory, fracture, fatigue properties and NDT testing for different materials.
Semster : III	
Course Name	Thermodynamics
Course Code	BTMEC305
Course Outcome No	Course Outcome Statement
	By the end of the course, students will be able to:
CO 1	Define the terms like system, boundary, properties, equilibrium, work, heat, ideal gas, entropy etc. used in thermodynamics
CO 2	Discuss different laws of thermodynamics and use these to simple thermal systems like balloon, piston-cylinder arrangement, compressor, pump, refrigerator, heat exchanger, etc. to study energy balance.
CO 3	Interpret various types of processes like isothermal, adiabatic, etc. considering system with ideal gas and represent them on p-v and T-s planes.
CO 4	Describe phase diagram of pure substance (steam) on different thermodynamic planes like p-v, T-s, h-s, etc. & show various constant property lines on them.
Semster : III	
Course Name	Machine Drawing & CAD
Course Code	BTMEC304
Course Outcome No	Course Outcome Statement
	By the end of the course, students will be able to:
CO 1	Interpret the object with the help of given sectional and orthographic views.
CO 2	Construct the curve of intersection of two solids
CO 3	Outline the machine element using keys, cotter, knuckle, bolted and welded joint.
CO 4	Organize details of any given part. i. e. valve, pump, machine tool part etc.
CO 5	Make use of tolerances and level of surface finish on production drawings
Semster : III	
Course Name	Fluid Mechanics
Course Code	BTMEC303

Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Define fluid and various properties of fluid.	
CO 2	Determine hydrostatic forces on the plane and curved surfaces and explain stability of floating bodies.	
CO 3	Explain several types of flow and determine the acceleration of fluid particles.	
CO 4	Apply Bernoulli's equation and Navier-Stokes equation to simple problems in fluid mechanics.	
CO 5	Explain and solve simple problems related to the use of dimensional analysis, boundary layer theory, drag and lift force.	
Semster : III		
Course Name		Basic Human Rights
Course Code		BTHM3401
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Explain the history of human rights.	
CO 2	Recall responsibilities of others caste, religion, region and culture.	
CO 3	Remember the importance of groups and communities in the society.	
CO 4	Analyse the philosophical and cultural basis and historical perspectives of human	
CO 5	Aware of their responsibilities towards the nation.	
Semster : III		
Course Name		Material Science and Metallurgy Lab
Course Code		BTMEL307
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Identify the properties of metals with respect to crystal structure and grain size.	
CO 2	Acquire the knowledge of solidification, phase & equilibrium diagram for different materials.	
CO 3	Describe the concept of heat treatment of steels & strengthening mechanisms.	
CO 4	Prepare samples of different materials for metallography.	
CO 5	Explain the failure theory, fracture, fatigue properties and NDT testing for different materials.	
Semster : III		
Course Name		Fluid Mechanics Lab
Course Code		BTMEL308
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Utilize manometers for pressure measurement, Explain laminar and Turbulent flow.	
CO 2	Apply Bernoulli's theorem, determine the metacentric height of the floating body.	
CO 3	Determine pressure drop in flow through pipes, pipe fittings, and critical Reynolds number using Reynolds apparatus.	
CO 4	Interpret momentum equation using impact of jet apparatus.	

CO 5	Determine viscosity using viscometer.	
Semster : III		
Course Name		Machine Drawing & CAD Lab
Course Code		BTMEL309
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Illustrate conventional representation of standard machine components, welds, materials etc.	
CO 2	Develop sectional view of a given machine component.	
CO 3	Develop Assemble view from details of given component i.e. valve, pump, machine tool part, etc.	
CO 4	Build a assembled view by combining details of given machine component and	
CO 5	Make use of various Auto-Cad commands to draw orthographic projection and sectional view from pictorial view of given machine component.	
Semster : IV		
Course Name		Manufacturing Process-I
Course Code		BTMEC401
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	identify castings processes, working principles and applications and list various defects in metal casting.	
CO 2	acquire the knowledge the various metal forming processes, working principles and applications.	
CO 3	classify the basic joining processes and demonstrate principles of welding, brazing and soldering.	
CO 4	study center lathe and its operations including plain, taper turning, work holding devices and cutting tool.	
CO 5	describe milling machines operations, cutters ,indexing mechanism and their types and related tooling's.	
Semster : IV		
Course Name		Theory of Machine-I
Course Code		BTMEC402
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Define basic terminology of kinematics of mechanisms.	
CO 2	Classify planar mechanisms and calculate its degree of freedom.	
CO 3	Perform kinematic analysis of a given mechanism using ICR and RV methods.	
CO 4	Perform kinematic analysis of a given mechanism analytically using vector or complex algebra method.	
CO 5	Perform kinematic analysis of slider crank mechanism using Klein's construction and analytical approach.	
Semster : IV		
Course Name		Strength of Materials
Course Code		BTMEC403
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:



CO 1	Define the fundamental terms such as axial load, eccentric load, stress, strain, E, μ , etc.
CO 2	Compare the various stress types and determine the value of stress developed in the component in various load cases.
CO 3	Distinguish between uniaxial and multiaxial stress situations and determine principal stresses, max. shear stress, their planes, and max. normal and shear stresses on a given plane.
CO 4	Analyze given beam for calculations of SF and BM, Explain the use of C- Programming in the strength of materials.
CO 5	Determine slope and deflection at a point on cantilever /simply supported beam using various methods.
Semster : IV	
Course Name	BTMEC404
Course Code	Numerical Methods in Mechanical Engineering
Course Outcome No	Course Outcome Statement
	By the end of the course, students will be able to:
CO 1	Discuss the concept of error.
CO 2	Illustrate the concept of various Numerical Techniques.
CO 3	Interpret the given Engineering problem using the suitable Numerical Technique.
CO 4	Develop the computer programming based on the Numerical Techniques.
Semster : IV	
Course Name	Product Design Engineering
Course Code	BTID405
Course Outcome No	Course Outcome Statement
	By the end of the course, students will be able to:
CO 1	Create simple mechanical designs.
CO 2	Create design documents for knowledge sharing.
CO 3	Illustrate own work to meet design requirements.
CO 4	Discuss various ways for effective work with colleagues.
Semster : IV	
Course Name	Inter Personal Communication Skills and Self Development
Course Code	BTHM3402
Course Outcome No	Course Outcome Statement
	By the end of the course, students will be able to:
CO 1	Demonstrates the skills to manage and express their emotions, thoughts, impulses and stress in effective ways.
CO 2	Apply various time management techniques in productive manner.
CO 3	Build performance, enhanced wellbeing, personal growth, or a sense of purpose
CO 4	Develop interpersonal communication skills to establish and enhance personal and work-based relationships.
CO 5	Design an effective Presentation and speak with greater control in front of others.
Semster : IV	
Course Name	Manufacturing Process-I Lab
Course Code	BTMEL407

Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	identify castings processes, working principles and applications and list various defects in metal casting.	
CO 2	acquire the knowledge the various metal forming processes, working principles and applications.	
CO 3	classify the basic joining processes and demonstrate principles of welding, brazing and soldering.	
CO 4	study center lathe and its operations including plain, taper turning, work holding devices and cutting tool.	
CO 5	describe milling machines operations, cutters ,indexing mechanism and their types and related tooling's.	
Semster : IV		
Course Name		Theory of Machine Lab-I
Course Code		BTMEL408
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Perform graphically kinematic analysis of any planar mechanism using ICR and RV methods.	
CO 2	Perform graphically kinematic analysis of slider crank mechanism using Klein's construction.	
CO 3	Demonstrate use of graphical differentiation method for kinematic analysis of slider crank mechanism or any other planar mechanism with a slider.	
CO 4	Sketch polar diagram for a Hooke's joint.	
Semster : IV		
Course Name		Strength of Materials Lab
Course Code		BTMEL409
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Analyze the tensile and compressive strength of a specimen for applying in apractical design based project work.	
CO 2	Determine the impact strength, fatigue strength to analyze the application of a specific material for a given design requirements for different loading conditions of structures or machines.	
CO 3	Analyze given beam for calculations of SF and BM, Explain the use of C- Programming in the strength of materials.	
CO 4	Evaluate the capacity of a material to withstand torsional stresses for a safe and sustainable design of machine elements.	
CO 5	Determine principal stresses, max. shear stress, their planes and max. normal and shear stresses on a given plane by analytical and Mohr's circle method.	
Semster : IV		
Course Name		BTMEL410
Course Code		Numerical Method Lab
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Discuss the concept of error.	
CO 2	Illustrate the concept of various Numerical Techniques.	
CO 3	Interpret the given Engineering problem using the suitable Numerical Technique.	
CO 4	Develop the computer programming based on the Numerical Techniques.	
Semster : V		

Course Name		Heat Transfer
Course Code		BTMEC501
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Explain the laws of heat transfer and deduce the general heat conduction equation and to explain it for 1-D steady state heat transfer in regular shape bodies.	
CO 2	Describe the critical radius of insulation, overall heat transfer coefficient, thermal conductivity and lumped heat transfer	
CO 3	Illustrate the boundary layer concept, dimensional analysis, forced and free convection under different conditions	
CO 4	Describe the boiling heat transfer, mass transfer and evaluate the heat exchanger and examine the LMTD and NTU methods applied to engineering problems.	
CO 5	Explain the thermal radiation black body, emissivity and reflectivity and evaluation of view factor and radiation shields	
Semster : V		
Course Name		Machine Design-I
Course Code		BTMC503
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Formulate the problem by identifying customer need and convert into design Specification	
CO 2	Understand component behavior subjected to loads and identify failure criteria	
CO 3	Design of machine component using theories of failures	
CO 4	Design of component for finite life and infinite life when subjected to fluctuating load	
CO 5	Design of components like shaft, key, coupling, screw and spring	
Semster : V		
Course Name		Theory of Machines-II
Course Code		BTMEC504
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	identify and select type of belt and rope drive for a particular application.	
CO 2	evaluate gear tooth geometry.	
CO 3	select appropriate gears & gear trains for a particular application.	
CO 4	suggest an appropriate governor and characterize flywheels as per engine requirement.	
CO 5	illustrate the gyroscopic effects in ships, aeroplanes, and road vehicles.	
Semster : V		
Course Name		Applied Thermodynamics-I
Course Code		BTMEC502
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Define the terms like calorific value of fuel, stoichiometric air-fuel ratio, excess air, equivalent evaporation, boiler efficiency, etc. Calculate minimum air required for combustion of fuel.	
CO 2	Discuss and compare gas power cycles and vapour power cycles like Otto, Diesel, dual, Joule and Rankine cycles and derive expressions for the performance parameters like thermal efficiency.	

CO 3	Classify various types of boiler, nozzle, steam turbine and condenser used in steam power plant. Classify various types of IC engines. Sketch the cut-off of typical diesel engine and label its components.	
CO 4	Sketch P-v diagram of single-stage reciprocating air compressor, with and without clearance volume, and evaluate its performance. Differentiate between reciprocating and rotary air compressors.	
Semster : V		
Course Name		Metrology & Quality Control
Course Code		BTMEC505
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Identify methods and devices for measurement of length, angle, and gear and thread parameters, surface roughness and geometric features of parts	
CO 2	Choose limits for plug and ring gauges.	
CO 3	Explain methods of measurement in modern machineries.	
CO 4	Select quality control techniques and its applications.	
CO 5	Plot quality control charts and suggest measures to improve the quality of product and reduce cost using Statistical tools.	
Semster : V		
Course Name		Product Design Engineering-II
Course Code		BTID506
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Create prototypes.	
CO 2	Discuss various principles and technologies used for the preparation of prototype.	
CO 3	Examine the prototypes.	
CO 4	Summarize the product life cycle management.	
CO 5	Use structural approach to concept generation, selection and testing.	
Semster : V		
Course Name		Automobile Engineering
Course Code		BTMEC506A
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Identify and Explain the working of the different parts of the automobile.	
CO 2	Demonstrate various types of drive systems.	
CO 3	Apply vehicle troubleshooting and maintenance procedures.	
CO 4	Analyze the environmental implications of automobile emissions and suggest suitable regulatory modifications.	
CO 5	Evaluate future developments in the automobile technology.	
Semster : V		
Course Name		Heat Transfer Lab
Course Code		BTMEL507

Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Interpret the various heat transfer mode of heat transfer and its application and verify	
CO 2	Utilize the experimental methodology	
CO 3	Explain the concept of terms like least count, calibration of the instruments	
Semster : V		
Course Name		Applied Thermodynamics Lab
Course Code		BTMEL508
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Demonstrate test on Bomb calorimeter, nozzle, steam turbine, condenser, compressor etc. to study their performance.	
CO 2	Sketch performance curves of these machines.	
CO 3	Conclude the results of the experiments	
CO 4	Sketch the layout and write the specifications of the Industrial visit.	
Semster : V		
Course Name		Machine Design Practice-I
Course Code		BTMEL509
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Apply design process to an open ended problems.	
CO 2	Determine suitable material and size for structural component of machine/system.	
CO 3	Apply iterative technique in design including making estimate of unknown values for first computation and checking or revising and re-computing.	
CO 4	Design of components for given part/system i.e shaft, keys, coupling, links, screws, springs etc.	
Semster : V		
Course Name		Theory of Machines-II Lab
Course Code		BTMEL510
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	identify and select type of belt and rope drive for a particular application.	
CO 2	evaluate gear tooth geometry.	
CO 3	select appropriate gears & gear trains for a particular application.	
CO 4	suggest an appropriate governor and characterize flywheels as per engine requirement.	
CO 5	illustrate the gyroscopic effects in ships, aeroplanes, and road vehicles.	
Semster : VI		
Course Name		Manufacturing Process-II
Course Code		BTMEC601

Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	illustrate the process of powder metallurgy and its applications.	
CO 2	calculate the cutting forces in orthogonal and oblique cutting.	
CO 3	evaluate the machinability of materials.	
CO 4	study various abrasive processes.	
CO 5	explain the different precision machining processes.	
Semster : VI		
Course Name		Machine Design-II
Course Code		BTMEC602
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Define function of bearing and classify bearings and Understanding failure of bearing and their influence on its selection.	
CO 2	Classify the friction clutches and brakes and decide the torque capacity and friction disk parameter.	
CO 3	Discuss & use materials and configuration for machine element like gears, belts and chain.	
CO 4	Design of elements like gears, belts and chain for given power rating also Design thickness of pressure vessel using thick and thin criteria.	
Semster : VI		
Course Name		Applied Thermodynamics-II
Course Code		BTMEC603
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Discuss the working principles of IC Engine.	
CO 2	Interpret the combustion process occurred in IC engine.	
CO 3	Summarize with concepts of thermodynamics Cycles used in various power plants and gas turbines.	
CO 4	Make use of knowledge on working principle of Air conditioning, refrigeration, nozzles and turbines.	
Semster : VI		
Course Name		I C Engine
Course Code		BTMEC604B
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Explain various types of I.C. Engines and Cycles of operation.	
CO 2	Explain normal and abnormal combustion phenomena in SI and CI engines.	
CO 3	Explain the Various Engine Systems like Starting, fuel supply, engine cooling, ignition system, engine lubrication systems, and governing systems.	
CO 4	Evaluate performance analysis of IC Engine and justify the suitability of IC Engine for different applications, relate the effects of emission	
CO 5	Illustrate the traditional and non-conventional fuels for internal combustion engines, as well as the layout and vehicle dynamics of electric and hybrid vehicles.	
Semster : VI		

Course Name		Renewable energy Sources
Course Code		BTMEC605C
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Distinguish between renewable and non-renewable energy	
CO 2	Explain working of solar collectors	
CO 3	Illustrate various applications of solar energy	
CO 4	Explain working of other renewable energies such as wind, biomass	
Semster : VI		
Course Name		Human Resources & Management
Course Code		BTMEC606C
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Describe trends in the labor force composition and how they impact human resource management practice.	
CO 2	Discuss how to strategically plan for the human resources needed to meet organizational goals and objectives.	
CO 3	Compare and contrast methods used for selection and placement of human resources.	
CO 4	Summarize the activities involved in evaluating and managing employee performance.	
CO 5	Identify and explain the issues involved in establishing compensation systems.	
Semster : VI		
Course Name		Metrology & Quality Control Lab
Course Code		BTMEL607
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Identify methods and devices for measurement of length, angle, and gear and thread parameters, surface roughness and geometric features of parts	
CO 2	Explain methods of measurement in modern machineries	
CO 3	Select quality control techniques and its applications	
CO 4	Plot quality control charts and suggest measures to improve product quality and reduce cost using Statistical tools.	
Semster : VI		
Course Name		Machine Design Practice-II
Course Code		BTMEL608
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Use design process to an open ended problems.	
CO 2	Choose suitable material and size for structural component of machine/system.	
CO 3	Apply iterative technique in design including making estimate of unknown values for first computation and checking or revisiting and re-	
CO 4	Design of components for given part/system i.e shaft, keys, coupling, links, screws, springs etc.	

Semster : VI		
Course Name	I C Engine Lab	
Course Code	BTMEL609	
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Illustrate the practical operation of 2-stroke and 4-stroke I.C engines using a valve timing diagram.	
CO 2	Demonstrate the performance of IC Engines, draw performance curves of these machines/systems.	
CO 3	Interpret the various engine systems like starting, fuel supply, engine cooling, ignition system etc.	
CO 4	Outline conclusions based on the results of the experiments, and Analyse the results obtained from the tests.	
CO 5	Estimate the constituents of combustion products for emission characteristics related to public safety.	
Semster : VI		
Course Name	Refrigeration & Air Conditioning Lab	
Course Code	BTMEL610	
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Demonstrate test on Refrigeration and air conditioning test units to study their performance.	
CO 2	Sketch performance curves of these machines/systems.	
CO 3	Analyse the results obtained from the tests	
CO 4	Conclude the results of the experiments.	
Semster : VI		
Course Name	Technical Project for community services	
Course Code	BTMEM611	
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
CO 1	Find the problems of the community. by visiting nearby places.	
CO 2	Select one of the problems for the study, state the exact title of the project and define scope of the problem & explain the motivation, objectives and scope of the project	
CO 3	Evaluate possible solutions of the problem.	
CO 4	Design, produce, test and analyze the performance of product/system/process.	