

• Department Name :- Sciences and Humanities

Sr. No.	Semester	Course Code	Course Name	Course Outcome
1.	I	SH 131	Engineering Physics (Auto, Civil and Mech.)	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Use the principles of interference, diffraction and polarization in thin reflecting films, diffraction gratings and polarimeter. 2. Apply the knowledge of architectural acoustics for acoustically good halls and principle of magnetostriction and piezoelectric methods for production of ultrasound. 3. Apply the Newton's laws of motion to calculate forces acting on objects. 4. Describe the behavior of a damped and driven harmonic oscillator. 5. Use the knowledge of semiconducting materials in semiconductor devices. 6. Explain the basics of LASER production and its applications.
2.	I	SH 1053	Engineering Mathematics I	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Sketch the curve with full justification. 2. Apply the properties of special functions to evaluate integral. 3. Evaluate double integral and change the order of the integration. 4. Evaluate area bounded between two curves, mass of Lamina, moment of inertia. 5. Prove the results of partial differentiation. 6. Apply partial differentiation for evaluating and proving the results based on Errors and approximations, maxima and minima.

3.	I/II	SH 1132	Engineering Graphics	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Determine the location and orientation of point, line, and plane with respect to reference planes to draw their projection. 2. Develop the projection of various types of solids in various conditions. 3. Develop section views and true shape section of various types of solids 4. Identify the need of development of lateral surfaces and apply the same in engineering drawing. 5. Develop orthographic views of an object to convert pictorial view into two-dimension (2D) view. 6. Develop isometric view to convert two-dimension (2D) view to pictorial view.
4.	I	SH187	Engineering Physics Lab (Auto, Mech. & Civil)	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Apply the theory of semiconductors to calculate band gap energy and carrier concentration 2. Apply theory of interference and grating to calculate radius of curvature of plano convex lens and wavelength of light. 3. Compare B-H curve for different ferromagnetic materials and measure hysteresis loss in it. 4. Use ultrasonic interferometer to calculate velocity of ultrasound in given liquid. 5. Use Laurent's half shade polarimeter to calculate specific rotation of optically active solution. 6. Verify Newton's laws of motion and phenomena of resonance in forced oscillations.
		SH1552	Engineering Graphics Lab	<p>After successful completion of the course, student will be able to,</p> <ol style="list-style-type: none"> 1. Determine the location and orientation of point, line, and

5.	I/II			<p>plane with respect to reference planes to draw their projection.</p> <p>2. Develop the projection of various types of solids in various conditions.</p> <p>3. Develop section views and true shape section of various types of solids</p> <p>4. Identify the need of development of lateral surfaces and apply the same in engineering drawing.</p> <p>5. Develop orthographic views of an object to convert pictorial view into two-dimension (2D) view.</p> <p>6. Develop isometric view to convert two-dimension (2D) view to pictorial view.</p>
6.	I	SH1831	English Proficiency Lab - I	<p>After successful completion of the course, students will be able to,</p> <p>1. Demonstrate reception skills of language</p> <p>2. Communicate using oral and written modes.</p> <p>3. Make use of English language with grammatical accuracy.</p> <p>4. Articulate correctly the frequently used words using phonemic transcriptions</p>
7.	I	SH1582	Japanese Language Lab Level - I	<p>After successful completion of the course, students will be able to,</p> <p>1. Demonstrate Japanese scripts through oral and written communication.</p> <p>2. Express themselves by using simple sentences and responses to questions.</p> <p>3. Demonstrate effective listening.</p> <p>4. Make use of Japanese etiquette</p>
8	I	SH1601	German Language Lab Level - I	<p>After successful completion of the course, students will be able to,</p> <p>1. Make use of familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type.</p> <p>2. Express him/herself and others and can ask and answer questions</p>

				<p>about personal details such as where he/she lives, people he/she knows and things he/she has.</p> <p>3. Interact in a simple way provided the other person talks slowly and clearly and is prepared to help.</p> <p>4. Make use of the basic grammar concepts correctly.</p> <p>5. Demonstrate reading and writing skills.</p>
9.	I	SH185	Engineering practice Lab I	<p>After successful completion of the course, students will be able to,</p> <p>1. Acquire skills in basic engineering practice.</p> <p>2. Use of hand tools and power tools.</p> <p>3. Develop sheet metal model for specific application.</p> <p>4. Understand the various operations performed in machine shop.</p> <p>5. Perform different joining operations</p> <p>6. Perform pipe fittings operations.</p>
10.	I/II	SH189	Engineering Exploration & Design Project	<p>After successful completion of the course, students will be able to,</p> <p>1. Explain the role of an Engineer as a problem solver.</p> <p>2. Design engineering solutions to complex problems utilizing multi-disciplinary systems approach.</p> <p>3. Examine a given problem using process of engineering problem analysis.</p> <p>4. Build simple systems/prototypes using engineering design and development process.</p> <p>5. Analyze engineering solutions from ethical and sustainability perspectives.</p> <p>6. Apply basics of engineering project management skills in project development.</p>
11.	I/II	SH1033	Engineering Chemistry	<p>After successful completion of the course, students will be able to,</p> <p>1. Understand basic concepts of Chemistry.</p>

				<p>2. Select the correct instrumental techniques for the examination of materials.</p> <p>3. Demonstrate knowledge of science behind normal polluting influences in water and strategies to treat them.</p> <p>4. Utilize the electrochemical principle for selection of proper batteries.</p> <p>5. Apply the science for understanding corrosion and its prevention.</p> <p>6. Compare types and quality of fuels by different instruments and select the proper lubricant and lubrication method.</p>
12.	II	SH1023	Engineering Mathematics - II	<p>After successful completion of the course, students will be able to,</p> <p>1. Use the concepts of matrices that serve as an essential basis for several computational techniques.</p> <p>2. Solve the differential equations by choosing proper method of solution.</p> <p>3. Solve the problems on orthogonal trajectories, simple electrical circuits, and heat flow by applying the methods of Ordinary Differential Equations.</p> <p>4. Use the relevant method for solving simultaneous algebraic linear equations.</p> <p>5. Apply the relevant numerical method for interpolating the polynomial.</p> <p>6. Apply appropriate numerical method to compute the solution of ordinary differential equations.</p>
13.	I/II	SH1291	Electrical Engineering	<p>After successful completion of the course, students will be able to,</p> <p>1. Solve Magnetic circuits, D.C. and A.C. electric circuits</p> <p>2. Describe construction, working and application of transformers</p> <p>3. Describe construction, working and application of different types of commonly used rotating machines.</p> <p>4. Classify power converters on the basis of application.</p>

				5. Suggest suitable capacity of wires, cables switchgear and illumination system for low-voltage electrical installations.
14.	I/II	SH133	Programming for Problem Solving	After successful completion of the course, students will be able to, 1. Explain the basic terminology and concepts of C programming language. 2. Write Algorithm and draw flow chart for the given problem. 3. Write a C Programs for given problems 4. Analyze the given C Program to predict the output. 5. Evaluate the C program to resolve the errors.
15.	I/II	SH1532	Engineering Chemistry Lab	After successful completion of the course, students will be able to, 1. Examine the materials by using analytical instruments. 2. Identify the quality of water for industrial and domestic purposes. 3. Apply the knowledge of electrochemistry for design of various cells and batteries. 4. Select proper Lubricant for different machines according to working condition. 5. Inspect the quality of fuel.
16.	I/II	SH1791	Electrical Engineering Lab	After successful completion of the course, students will be able to, 1. Acquaint with the basic concepts and properties of electrical circuits and awareness about safety precautions. 2. Select proper meter/s for measuring electrical quantities during experiments. 3. Explain various electrical circuits (DC, AC) and magnetic circuits through laboratory practices. 4. Demonstrate various power converters for desired application. 5. Choose circuit breakers for specific application
17.	I/II	SH191	Programming for Problem Solving Lab	After successful completion of the course, students will be able to,

				<ol style="list-style-type: none"> 1. Describe orally the basic terminology and concepts of C programming language. 2. Write an Algorithm and draw the flow chart for the given problem 3. Write a 'C' programs for a given problem 4. Compile, execute and debug the 'C' programs for a given problem
18.	II	SH162	English Proficiency Lab II	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Demonstrate writing skills through letters, circulars, notices, memos, and emails. 2. Apply report writing skills. 3. Organize message in appropriate structures. 4. Prepare job application addressing requirements of the post.
19.	II	SH1661	Japanese Language Lab Level II	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Converse in Standard Japanese to perform basic communicative tasks (e.g., exchange greetings/personal information, give time/directions/daily activities) 2. Make use of Japanese vocabulary effectively. 3. Demonstrate reading comprehension
20.	II	SH168	German Language Lab Level II	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. 2. Express him/her and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. 3. Interact in a simple way provided the other person talks slowly and clearly and is prepared to help. 4. Make use of basic grammar concepts correctly.

				5. Demonstrate reading and writing skills.
21	II	SH164	Engineering practice- Lab II	After successful completion of the course, students will be able to, 1. Make wooden job. 2. Make Sheet metal job. 3. Make job by various machining processes. 4. Make job by joining processes.
22.	II	SH106	Engineering Physics (CSE, Elect., ETC & IT)	After successful completion of the course, students will be able to, 1. Use the knowledge of architectural acoustics in the proper design of a Hall/Auditorium. 2. Apply the knowledge of Piezoelectric and Magnetostriction effect for production of ultrasonic waves and its application in various fields. 3. Select appropriate magnetic materials depending on its properties for various applications 4. Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles 5. Apply the knowledge of semiconducting materials in semiconductor devices. 6. Use different optoelectronic devices as per need.
23.	II	SH1512	Engineering Physics Lab (CSE, Elect. ETC & IT)	After successful completion of the course, students will be able to, 1. Apply the theory of semiconductors to calculate band gap energy and carrier concentration 2. Apply theory of interference and grating to calculate radius of curvature of plano convex lens and wavelength of light. 3. Compare B-H curve for different ferromagnetic materials and measure hysteresis loss in it. 4. Determine resolving power of telescope and numerical aperture of optical fiber.

				<p>5. Use ultrasonic interferometer to calculate velocity of ultrasound in given liquid.</p> <p>6. Use Laurent's half shade polarimeter to calculate specific rotation of optically active solution.</p>
24.	I/II	SE1011	Basics of Electronics Engineering	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Select basic electronic components and devices used for different electronic applications. 2. Apply fundamentals of diode, transistor, OPAMP to build their applications. 3. Compute the conversions of different number systems like Binary, Decimal, Hex, Oct. 4. Simplify the logic expression using Boolean algebra & Karnaugh Map.
25.	I/II	SE1511	Basics of Electronics Engineering Lab	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Demonstrate use of various electronic components & equipments for building applications. 2. Build the circuits using Diode, Transistor Electronics Devices. 3. Construct various applications using Operational Amplifier like Amplifiers. 4. Test the basic logic gates, adders & subtractors.
26.	I/II	SE1051	Basics of Civil Engineering	<p>After successful completion of this course, student will be able to:</p> <ol style="list-style-type: none"> 1. Apply fundamental knowledge of civil engineering. 2. Identify building components and materials used in construction along with concepts of sustainability and safety of buildings. 3. Use basic principles of planning in the building design and processes involved in the property transactions. 4. Determine horizontal and vertical distances using modern surveying instruments.

				5. Describe various components of transportation system.
27.	I/II	SE1551	Basics of Civil Engineering Lab	After successful completion of the course, student will be able to, 1. Draw dimensioned sketch/plan of building. 2. Plan building using principles and bye laws. 3. Perform horizontal and vertical measurement. 4. Use modern surveying techniques.
28.	I/II	SE1071	Thermodynamics	After successful completion of the course, students will be able to, 1. Apply thermodynamics principles to mechanical engineering applications 2. Describe entropy, change in entropy and increase of entropy principle. 3. Differentiate between available and unavailable energy with examples. 4. Apply mathematical fundamental to study the properties of steam, gas and gas mixtures.
29.	I/II	SE1571	Thermodynamics Lab	After successful completion of the course, students will be able to, 1. Conduct test to find properties of oils 2. Explain boilers and mountings 3. Estimate the properties of steam, interpret and comment on the results.
30.	I/II	SE1091	Engineering Materials	After successful completion of the course, students will be able to, 1. Illustrate stress strain diagram for different materials. 2. Explain evaluation of mechanical properties using destructive testing methods. 3. Select suitable non destructive testing method for flaw detection in component. 4. Select suitable material for different components.
		SE1591	Engineering Materials Lab	After successful completion of the course, students will be able to, 1. Illustrate stress strain diagram for different materials.

31.	I/II			<p>2. Use Rockwell Hardness testing machine to measure hardness of material.</p> <p>3. Measure impact strength of the metals</p> <p>4. Determine fatigue strength of metals.</p> <p>5. Determine flaws in the component using non destructive testing methods.</p> <p>6. Explain working principle of emission spectrometer.</p>
32.	I/II	SE1131	Green Technology	<p>After successful completion of the course, student will be able to,</p> <p>1. Explain the basic principles of green chemistry and ecology.</p> <p>2. Discuss different waste processing techniques.</p> <p>3. Describe various Green innovations for sustainability.</p> <p>4. Discuss concept of green buildings and green management.</p> <p>5. Prepare energy and water budget for a building.</p>
33.	I/II	SE1631	Green Technology Lab	<p>After successful completion of the course, students will be able to,</p> <p>1. Explain the concept of green technology/green building.</p> <p>2. Prepare energy and water budget for a building.</p> <p>3. Design rainwater harvesting for a small catchment area.</p> <p>4. Analyze air quality by using HC/CO analyzer.</p>
34.	I/II	SE143	Basics of Mechanical Engineering	<p>After successful completion of the course, students will be able to,</p> <p>1. Explain different power generation systems.</p> <p>2. Select appropriate energy conversion device for the given application.</p> <p>3. Classify vehicles on the basis of different parameters.</p> <p>4. Compare two stroke and four stroke IC engines.</p> <p>5. Describe different transmission devices in a given system.</p> <p>6. Choose suitable materials and manufacturing processes for a given application.</p>

35.	I/II	SE165	Basics of Mechanical Engineering Lab	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Explain the different components of power generation systems. 2. Identify the systems and components of vehicle. 3. Distinguish between two stroke and four stroke engines. 4. Carry out day to day life maintenance of machines. 5. Explain the different components of power generation systems.
36.	I/II	SE145	Creativity, Design Thinking and Entrepreneurial Mindset	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Learn structured approach to creativity, problem identification and problem solving in a new venture context 2. Apply design thinking approach to identify innovation opportunities and develop solutions 3. Identify, validate and define specific innovation opportunities through Jobs-to-be-Done methodology 4. Develop mindset of a successful entrepreneur
37.	I/II	SE167	Creativity, Design Thinking and Entrepreneurial Mindset Lab	<p>After successful completion of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Learn structured approach to creativity, problem identification and problem solving in a new venture context. 2. Apply design thinking approach to identify innovation opportunities and develop solutions. 3. Develop mindset of a successful entrepreneur.