

**SIRC.R.REDDY COLLEGE OF ENGINEERING**  
**FIRST YEAR ENGINEERING DEPARTMENT**

COURSE OUTCOME NUMBER	COURSE OUTCOMES
<b>I-Year Semester– I</b> <b>EEE</b>	
<b>COURSENAME: ENGLISH</b>	
HS1101	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
	Employ knowledge of grammatical structures and vocabulary in speech and writing.
	Apply effective communication skills to enhance professional possibilities.
	Develop acceptable personality traits suitable for chosen profession.
<b>COURSENAME: MATHEMATICS - I</b>	
BS1101	Examine the convergence of series and apply mean value theorem to real life problem.
	Solve the Differential Equations of first and higher order related to various engineering applications.
	Apply the partial differentiation technique to solve physical problem
	Apply double and triple integrals to find areas and volumes
<b>COURSENAME: APPLIED CHEMISTRY</b>	
BS1106	Identify the advantages and limitations of plastic materials, elastomers and their use in day to day life.
	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
	Recognize the need of nano materials, liquid crystals, semiconductors and super conductors.
	Obtain the knowledge of computational chemistry and molecular machines.
	Obtain the knowledge of generation of electricity from various non-Conventional energy sources.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C**

ES1101	Describe the concept of computer system, analyze a given problem, develop an algorithm, fundamental programming constructs, identify data representation formats, describe operators and their precedence, associativity.
	Understand branching and loop statements.
	Describe the concept of homogeneous derived data types, strings and functions.
	Understand pointers and heterogeneous data types.
	Describe the concept of file system and functions.

**COURSENAME:ENGINEERING DRAWING**

ES1103	Construct polygons, scales and draw curves used in engineering applications, draw orthographic projection of points
	Apply concept of orthographic projection to project lines inclined to both reference planes
	Produce orthographic projections of planes inclined to both the reference planes.
	Produce orthographic projections of regular solids inclined to both the reference planes.
	Construct isometric view from orthographic views and vice versa.

**COURSENAME:ENGLISH LANGUAGE LAB**

HS1102	Recognize the sounds of English with the help of audio visual aids
	Build confidence and overcome inhibitions while speaking in English.
	Demonstrate acquired language skills in performing the designated activity.

**COURSENAME:APPLIED CHEMISTRY LAB**

BS1107	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, $KMnO_4$ and Copper using different indicators.
	Obtain the knowledge of complexometric titrations to determine the hardness of given water sample by EDTA method.
	Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C LAB**

ES1102	Describe the basics of computer and understand the problem-solving aspect.
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	Design and develop C program to evaluate simple expressions and logical operations.
	Develop & Implement C programs with suitable modules to solve the given problem.
	Demonstrate the concept of pointer and perform I/O operations in files
<b>Semester– II</b>	
<b>COURSENAME: MATHEMATICS - II</b>	
BS1202	Solve system of linear algebraic equations and apply eigen value computation technics to reduce a given quadratic to canonical form
	Solve algebraic and Transcendental equations by using Numerical methods
	Apply Newton 's forward and backward interpolation and Lagrange's formula for equal and unequal intervals.
	Compute numerical solutions of differential equations
<b>COURSENAME: MATHEMATICS - III</b>	
BS1203	Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux
	Apply Laplace Transforms to solve the ordinary differential equations
	Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function.
	Solve the first and higher order partial differential equations and apply to various physical problems
<b>COURSENAME: APPLIED PHYSICS</b>	
BS1204	Analyze the intensity variation of light due to interference & diffraction and illustrate the resolving power of various optical instruments
	Explain fundamental concepts of quantum mechanics and apply to one dimensional motion of particles.
	Explain various electron theories and summarize various types of solids based on band theory.
	Understand how electrons & holes behave in semiconductor and explain how they conduct current.
	Summarize magnetic & dielectric material properties and recognize their need in engineering applications.
<b>COURSENAME:FUNDAMENTALS OF COMPUTERS</b>	
BS1212	Interpret how the computer is works
	Implement appropriate methods for solving problems
	Examine the computer networks, types of network and topologies.
	Demonstrate the concepts of Operating systems and Computer Systems Development
	Demonstrate the concepts of Databases.

**COURSENAME:ELECTRICAL CIRCUIT ANALYSIS-I**

ES1217	Study the concepts of passive elements, types of sources and various network reduction techniques.
	Understand the concept of Understand the concept of magnetic coupled circuit.
	Solve given RLC network with variation of any one of the parameters i.e. R, L, C and f for sinusoidal input.
	Apply the applications of network

**COURSENAME:ELECTRICAL ENGINEERING WORKSHOP**

ES1218	To understand the limitations, tolerances, safety aspects of electrical systems and wiring
	Ability to Select wires/cables and other accessories used in different types of wiring.
	To understand the basic concepts of electrical circuits and able to measure current, voltage power in a circuit

**COURSENAME:APPLIED PHYSICS LAB**

BS1205	Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments.
	Analyze various electronic circuits and study the temperature dependence of semiconductors.
	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments

**COURSENAME:ENGLISH COMMUNICATION SKILLS LAB**

HS1203	Recognize the sounds of English with the help of audiovisual aids.
	Build confidence and overcome inhibitions while speaking in English
	Demonstrate acquired language skills in performing the designated activity.

<b>COURSE OUTCOME NUMBER</b>	<b>COURSE OUTCOMES</b>
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<b>I-Year Semester– I MECHANICAL ENGINEERING</b>
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**COURSENAME:MATHEMATICS - I**

BS1101	Examine the convergence of series and apply mean value theorem to real life problem.
	Solve the Differential Equations of first and higher order related to various engineering applications.
	Apply the partial differentiation technique to solve physical problem
	Apply double and triple integrals to find areas and volumes

**COURSENAME: MATHEMATICS - II**

BS1102	Solve system of linear algebraic equations and apply Eigen value computation techniques to reduce a given quadratic to canonical form
	Solve algebraic and Transcendental equations by using Numerical methods
	Apply Newton 's forward and backward interpolation and Lagrange's formula for equal and unequal intervals
	Computer numerical solutions of differential equations.

**COURSENAME: ENGINEERING PHYSICS**

BS1108	Computer numerical solutions of differential equations.
	Improve the acoustic quality of concert halls and apply Ultrasonic waves concept in Non-Destructive Testing.
	Explain the concepts of elasticity & plasticity and distinguish different types of moduli
	Distinguish between laser sources and conventional sources and identify different types of sensors
	Summarize magnetic & dielectric material properties and recognize their need in engineering applications.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C**

ES1101	Describe the concept of computer system, analyze a given problem, develop an algorithm, fundamental programming constructs, identify data representation formats, describe operators and their precedence, associativity.
	Understand branching and loop statements.
	Describe the concept of homogeneous derived data types, strings and functions.
	Understand pointers and heterogeneous data types.
	Describe the concept of file system and functions.

**COURSENAME:ENGINEERING DRAWING**

ES1103	Construct polygons, scales and draw curves used in engineering applications, draw orthographic projection of points
	Apply concept of orthographic projection to project lines inclined to both reference planes
	Produce orthographic projections of planes inclined to both the reference planes.
	Produce orthographic projections of regular solids inclined to both the reference planes.
	Construct isometric view from orthographic views and vice versa.
	Drawing practice on AUTO-CAD

**COURSENAME:ENGLISH LAB**

	Recognize the sounds of English with the help of audiovisual aids.
	Build confidence and overcome inhibitions while speaking in English
	Demonstrate acquired language skills in performing the designated activity.

**COURSENAME: ENGINEERING PHYSICS LAB**

BS1109	Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments.
	Verify the laws of thermo dynamics, electro magnetism and stretched string.
	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments

**COURSENAME:PROGRAMMING FOR PROBLEM SOLVING USING C LAB**

ES1102	Describe the basics of computer and understand the problem-solving aspect.
	Design and develop C program to evaluate simple expressions and logical operations.
	Develop & Implement C programs with suitable modules to solve the given problem
	Demonstrate the concept of pointer and perform I/O operations in files.

**Semester– II**

**COURSENAME: ENGLISH**

HS1201	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
	Employ knowledge of grammatical structures and vocabulary in speech and writing
	Apply effective communication skills to enhance professional possibilities.
	Develop acceptable personality traits suitable for chosen profession.

**COURSENAME: ENGINEERING CHEMISTRY**

BS1210	Identify the advantages and limitations of Plastic materials, Elastomers and their use in day to day life.
	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
	Identify the advantages and limitations of building materials and their use in day to day life and select the various lubricants for engineering machines.
	Identify the fuels which are commonly used and their advantages and limitations.
	Select the various methods used for purification of water for domestic and industrial purposes.

**COURSENAME:ENGINEERING MECHANICS**

ES1204	

<b>COURSENAME: ELECTRICAL &amp; ELECTRONICS ENGINEERING</b>	
ES1206	Solve problems on electric networks using active and passive elements
	Analyze the concept of DC electrical machines and apply them for practical problems.
	Understand the basic concepts of Transformers and their applications.
	Analyze the concept of AC electrical machines and apply them for practical problems.
	To acquire the knowledge about the characteristics and working principles of semiconductor diodes, Bipolar Junction Transistor
<b>COURSENAME: COMPUTER AIDED ENGINEERING DRAWING</b>	
ES1207	Produce orthographic projections of regular solids using auxiliary projection method.
	Generate sectional views and develop lateral surfaces of regular solids.
	Draw curves of intersection for interpenetration of solids.
	Produce geometric models of simple solids and machine components using AUTO CAD.
<b>COURSENAME: ENGLISH COMMUNICATION SKILLS LAB</b>	
HS1203	Recognize the sounds of English with the help of audio visual aids
	Build confidence and overcome inhibitions while speaking in English.
	Demonstrate acquired language skills in performing the designated activity.
<b>COURSENAME: ENGINEERING CHEMISTRY LAB</b>	
BS1211	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, KMnO <sub>4</sub> and Copper using different indicators.
	Obtain the knowledge of complexometric titrations to determine the hardness of given water sample by EDTA method.
	Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.
<b>COURSENAME: ELECTRICAL &amp; ELECTRONICS ENGINEERING LAB</b>	
ES1208	Describe the basic characteristics of transformers and electrical machine.
	Analyze the performance characteristics of AC & DC electrical machines.
	Analyze the characteristics of various types of Diodes & Rectifiers without and with Filters.
	Compare the input and output characteristics of BJT and UJT in different configurations.

**COURSENAME: WORKSHOP PRACTICE LAB**

ES1219	Make simple wood joints by applying wood working knowledge
	Make sheet metal objects by applying development of surfaces concept
	Prepare simple fitting joints with the use of proper fitting tools
	Analyze the basic house wiring circuits.

**COURSENAME: ENGINEERING EXPLORATION PROJECT**

PR1201	Build mindsets & foundations essential for designers.
	Learn about the Human- Centered Design methodology and understand their real-world applications.
	Use Design Thinking for problem solving methodology for investigating ill-defined problems.
	Undergo Several design challenges and work towards the final design challenge

<b>COURSE OUTCOME NUMBER</b>	<b>COURSE OUTCOMES</b>
<b>I-Year Semester– I ECE</b>	
<b>COURSENAME: ENGLISH</b>	
HS1101	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
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	Apply effective communication skills to enhance professional possibilities.
	Develop acceptable personality traits suitable for chosen profession.
<b>COURSENAME: MATHEMATICS - I</b>	
BS1101	Examine the convergence of series and apply mean value theorem to real life problem.
	Solve the Differential Equations of first and higher order related to various engineering applications.
	Apply the partial differentiation technique to solve physical problem
	Apply double and triple integrals to find areas and volumes
<b>COURSENAME: APPLIED CHEMISTRY</b>	

BS1106	Identify the advantages and limitations of plastic materials, elastomers and their use in day-to-day life.
	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
	Recognize the need of nano materials, liquid crystals, semiconductors and super conductors.
	Obtain the knowledge of computational chemistry and molecular machines.
	Obtain the knowledge of generation of electricity from various non-Conventional energy sources.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C**

ES1101	Describe the concept of computer system, analyze a given problem, develop an algorithm, fundamental programming constructs, identify data representation formats, describe operators and their precedence, associativity.
	Understand branching and loop statements.
	Describe the concept of homogeneous derives data types, strings and functions.
	Understand pointers and heterogeneous data types.
	Describe the concept of file system and functions.

**COURSENAME: ENGINEERING DRAWING**

ES1103	Construct polygons, scales and draw curves used in engineering applications, draw orthographic projection of points
	Apply concept of orthographic projection to project lines inclined to both reference planes
	Produce orthographic projections of planes inclined to both the reference planes.
	Produce orthographic projections of regular solids inclined to both the reference planes.
	Construct isometric view from orthographic views and vice versa.

**COURSENAME: ENGLISH LANGUAGE LAB**

HS1102	Recognize the sounds of English with the help of audio-visual aids
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	Demonstrate acquired language skills in performing the designated activity.

**COURSENAME: APPLIED CHEMISTRY LAB**

BS1107	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, $KMnO_4$ and Copper using different indicators.
	Obtain the knowledge of complexometric titrations to determine the hardness of given water sample by EDTA method.

Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C LAB**

ES1102

Describe the basics of computer and understand the problem-solving aspect.

Design and develop C program to evaluate simple expressions and logical operations.

Develop & Implement C programs with suitable modules to solve the given problem.

Demonstrate the concept of pointer and perform I/O operations in files.

**Semester– II**

**COURSENAME: MATHEMATICS - II**

BS1202

Solve system of linear algebraic equations and apply eigen value computation technics to reduce a given quadratic to canonical form

Solve algebraic and Transcendental equations by using Numerical methods

Apply Newton 's forward and backward interpolation and Lagrange's formula for equal and unequal intervals.

Compute numerical solutions of differential equations

**COURSENAME:MATHEMATICS - III**

BS1203

Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux

Apply Laplace Transforms to solve the ordinary differential equations

Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function.

Solve the first and higher order partial differential equations and apply to various physical problems

**COURSENAME: APPLIED PHYSICS**

BS1204

Analyze the intensity variation of light due to interference & diffraction and illustrate the resolving power of various optical instruments

Explain fundamental concepts of quantum mechanics and apply to one dimensional motion of particles.

Explain various electron theories and summarize various types of solids based on band theory.

Understand how electrons & holes behave in semiconductor and explain how they conduct current.

Summarize magnetic & dielectric material properties and recognize their need in engineering applications.

**COURSENAME:NETWORK ANALYSIS**

Gain the knowledge on basic network elements.

will analyze the RLC circuits behavior in detailed.

ES1209	Analyze the performance of periodic waveforms.
	Gain the knowledge in characteristics of two port network parameters (Z, Y, ABCD, h & g).
	Analyze the dc excitation concepts in real world applications.
<b>COURSENAME: BEE</b>	
ES1206	Explain principle and operation of AC&DC machines
	Analyze characteristics of DC & AC machines
	Analyze performance of DC&AC machines by conducting various tests.
	Solve the problems on DC &AC machines
	Identify various applications of DC & AC machines
<b>COURSENAME: ELECTRONIC WORKSHOP</b>	
ES1215	Examine characteristics and performance of AC and DC components
	Analyze the behavior of various measuring instruments
	Describe the working of soldering and PCB layout
<b>COURSENAME: BEE LAB</b>	
ES1206	Analyze characteristics & performance of dc shunt and series machines
	Analyzing behavior of 1- $\Phi$ transformer at various loads and power factor conditions
	Analyze performance of 3- $\Phi$ induction motor and alternator
<b>COURSENAME: APPLIED PHYSICS LAB</b>	
BS1205	Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments.
	Analyze various electronic circuits and study the temperature dependence of semiconductors.
	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments
<b>COURSENAME: COMMUNICATION SKILLS LAB</b>	
HS1203	Recognize the sounds of English with the help of audio-visual aids
	Build confidence and overcome inhibitions while speaking in English.
	Demonstrate acquired language skills in performing the designated activity.



<b>COURSE OUTCOME NUMBER</b>	<b>COURSE OUTCOMES</b>
<b>I-Year Semester– I CSE</b>	
<b>COURSENAME: ENGLISH</b>	
<b>HS1101</b>	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
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	Apply effective communication skills to enhance professional possibilities.
	Develop acceptable personality traits suitable for chosen profession.
<b>COURSENAME: MATHEMATICS - I</b>	
<b>BS1101</b>	Examine the convergence of series and apply mean value theorem to real life problem.
	Solve the Differential Equations of first and higher order related to various engineering applications.
	Apply the partial differentiation technique to solve physical problem
	Apply double and triple integrals to find areas and volumes
<b>COURSENAME: APPLIED CHEMISTRY</b>	
<b>BS1106</b>	Identify the advantages and limitations of plastic materials, elastomers and their use in day-to-day life.
	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
	Recognize the need of nano materials, liquid crystals, semiconductors and super conductors.
	Obtain the knowledge of computational chemistry and molecular machines.
	Obtain the knowledge of generation of electricity from various non-Conventional energy sources.

**COURSENAME: FUNDAMENTALS OF COMPUTER SCIENCE**

ES1112	Interpret how the computer works.
	Implement appropriate methods for solving problems
	Examine the computer networks, types of network and topologies.
	Demonstrate the concepts of Operating systems and Computer Systems Development
	Organize the advanced computer technologies like distributed computing & wireless networks

**COURSENAME: ENGINEERING DRAWING**

ES1103	Construct polygons, scales and draw curves used in engineering applications, draw orthographic projection of points
	Apply concept of orthographic projection to project lines inclined to both reference planes
	Produce orthographic projections of planes inclined to both the reference planes.
	Produce orthographic projections of regular solids inclined to both the reference planes.
	Construct isometric view from orthographic views and vice versa.

**COURSENAME: ENGLISH LANGUAGE LAB**

HS1102	Recognize the sounds of English with the help of audio-visual aids
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**COURSENAME: APPLIED CHEMISTRY LAB**

BS1107	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, $KMnO_4$ and Copper using different indicators.
	Obtain the knowledge of complexometry titrations to determine the hardness of given water sample by EDTA method.
	Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.

**COURSENAME: IT WORKSHOP**

ES1105	Assemble and disassemble components of a PC
	Construct a fully functional virtual machine, Summarize various Linux operating system commands.

Recognize characters & extract text from scanned images, Create audio files and podcasts

Create video tutorials and publishing, Use office tools for documentation, Build interactive presentations, Build websites, Create quizzes & analyze responses.

## Semester– II

### COURSENAME: MATHEMATICS - II

BS1202

Solve system of linear algebraic equations and apply eigen value computation technics to reduce a given quadratic to canonical form

Solve algebraic and Transcendental equations by using Numerical methods

Apply Newton 's forward and backward interpolation and Lagrange's formula for equal and unequal intervals.

Compute numerical solutions of differential equations

### COURSENAME: MATHEMATICS - III

BS1203

Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux

Apply Laplace Transforms to solve the ordinary differential equations

Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function.

Solve the first and higher order partial differential equations and apply to various physical problems

### COURSENAME: APPLIED PHYSICS

BS1204

Analyze the intensity variation of light due to interference & diffraction and illustrate the resolving power of various optical instruments

Explain fundamental concepts of quantum mechanics and apply to one dimensional motion of particles.

Explain various electron theories and summarize various types of solids based on band theory.

Understand how electrons & holes behave in semiconductor and explain how they conduct current.

Summarize magnetic & dielectric material properties and recognize their need in engineering applications.

### COURSENAME:PROGRAMMING FOR PROBLEM SOLVING USING C

ES1201

Interpret how the computer is works

Implement appropriate methods for solving problems

Examine the computer networks, types of network and topologies.

Demonstrate the concepts of Operating systems and Computer Systems

Demonstrate the concepts of Databases.

### COURSENAME: DIGITAL LOGIC DESIGN

Describe various number systems, their conversions & various codes

Apply minimization techniques to simplify Boolean functions.

ES1213	Apply the combinational logic to solve the Digital Design problems
	Evaluate Digital Design problems using sequential logic.
	Design Synchronous & Asynchronous circuits using combinational & sequential logic

**COURSENAME: APPLIED PHYSICS LAB**

BS1205	Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments.
	Analyze various electronic circuits and study the temperature dependence of semiconductors.
	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments

**COURSENAME: COMMUNICATION SKILLS LAB**

HS1203	Recognize the sounds of English with the help of audio visual aids
	Build confidence and overcome inhibitions while speaking in English.
	Demonstrate acquired language skills in performing the designated activity.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C LAB**

ES1202	Understand various computer components, Installation of software. C programming development environment, compiling, debugging, and linking and executing a program using the development environment.
	Analyzing the complexity of problems, Modularize the problems into small modules and then convert them into programs.
	Construct programs that demonstrate effective use of C features including arrays, strings, structures, pointers and files.
	Apply and practice logical ability to solve the real world problems.

COURSE OUTCOME NUMBER	COURSE OUTCOMES
<b>I-Year Semester– I INFORMATION TECHNOLOGY</b>	
<b>COURSENAME: ENGLISH</b>	
HS1101	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
	Employ knowledge of grammatical structures and vocabulary in speech and writing
	Apply effective communication skills to enhance professional possibilities.
	Develop acceptable personality traits suitable for chosen profession.
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BS1102	Examine the convergence of series and apply mean value theorem to real life problem.
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	Apply double and triple integrals to find areas and volumes
<b>COURSENAME: APPLIED CHEMISTRY</b>	
BS1106	Identify the advantages and limitations of plastic materials, elastomers and their use in day-to-day life.
	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
	Recognize the need of nano materials, liquid crystals, semiconductors and super conductors.
	Obtain the knowledge of computational chemistry and molecular machines.
	Obtain the knowledge of generation of electricity from various non-Conventional energy sources.
<b>COURSENAME: FUNDAMENTALS OF COMPUTER SCIENCE</b>	
ES1112	Understand how the computer is works.
	Able to interpret methods appropriate for solving problems.
	Able to choose the types of Computer network and topologies.
	Able to interpret the Operating system Processes and scheduling
	Able to employ the various schemas and models of Database Systems
	Able to relate advanced computer technologies like distributed computing & wireless networks.
<b>COURSENAME: ENGINEERING DRAWING</b>	

ES1103	Construct polygons, scales and draw curves used in engineering applications, draw orthographic projection of points
	Apply concept of orthographic projection to project lines inclined to both reference planes
	Produce orthographic projections of planes inclined to both the reference planes.
	Produce orthographic projections of regular solids inclined to both the reference planes.
	Construct isometric view from orthographic views and vice versa.

### COURSENAME: ENGLISH LANGUAGE LAB

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	Build confidence and overcome inhibitions while speaking in English.
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### COURSENAME: APPLIED CHEMISTRY LAB

BS1107	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, $KMnO_4$ and Copper using different indicators.
	Obtain the knowledge of complexometric titrations to determine the hardness of given water sample by EDTA method.
	Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.

### COURSENAME: IT WORKSHOP

ES1105	Assemble and disassemble components of a PC
	Construct a fully functional virtual machine, Summarize various Linux operating system commands.
	Recognize characters & extract text from scanned images, Create audio files and podcasts
	Create video tutorials and publishing, Use office tools for documentation, Build interactive presentations, Build websites, Create quizzes & analyze responses.

## Semester– II

### COURSENAME: MATHEMATICS - II

BS1202	Solve system of linear algebraic equations and apply eigen value computation technics to reduce a given quadratic to canonical form
	Solve algebraic and Transcendental equations by using Numerical methods
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	Compute numerical solutions of differential equations

### COURSENAME: MATHEMATICS - III

BS1203	Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux
	Apply Laplace Transforms to solve the ordinary differential equations
	Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function.
	Solve the first and higher order partial differential equations and apply to various physical problems

### COURSENAME: APPLIED PHYSICS

BS1204	Analyze the intensity variation of light due to interference & diffraction and illustrate the resolving power of various optical instruments
	Explain fundamental concepts of quantum mechanics and apply to one dimensional motion of particles.
	Explain various electron theories and summarize various types of solids based on band theory.
	Understand how electrons & holes behave in semiconductor and explain how they conduct current.
	Summarize magnetic & dielectric material properties and recognize their need in engineering applications.

### COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C

ES1201	Able to understand the fundamental concepts of computers and C language constructs
	Able to apply the concepts of C constructs Homogeneous and heterogeneous data types and pointers for solving the given problems
	Able to divide a given problem into modules using c constructs and functions to develop modular reusable code.
	Able to analyze the problem, choose appropriate C constructs and use the file system to solve mathematical and engineering problems accordingly.

### COURSENAME: DIGITAL LOGIC DESIGN

ES1213	Describe various number systems, their conversions & various codes
	Apply minimization techniques to simplify Boolean functions.
	Apply the combinational logic to solve the Digital Design problems
	Evaluate Digital Design problems using sequential logic.
	Design Synchronous & Asynchronous circuits using combinational & sequential logic

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	Analyze various electronic circuits and study the temperature dependence of semiconductors.
	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments

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	Build confidence and overcome inhibitions while speaking in English.
	Demonstrate acquired language skills in performing the designated activity.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C LAB**

ES1202	Able to understand the concepts of C language
	Able to apply the C language constructions for simple problems
	Able to apply C constructs like homogeneous, heterogeneous data for a given mathematical problem
	Able to analysis a given scenario using functions & file concepts

**COURSENAME: ENGINEERING EXPLORATION PROJECT**

PR1201	Explore multiple fields of engineering
	Ability to recognize basic requirements of project work
	Apply the engineering design process to investigate and solve ill defined problems

COURSE OUTCOME NUMBER	COURSE OUTCOMES
<b>I-Year Semester– I CIVIL ENGINEERING</b>	
<b>COURSENAME: MATHEMATICS - I</b>	
BS1101	Examine the convergence of series and apply mean value theorem to real life problem.
	Solve the Differential Equations of first and higher order related to various engineering applications.
	Apply the partial differentiation technique to solve physical problem
	Apply double and triple integrals to find areas and volumes
<b>COURSENAME: MATHEMATICS - II</b>	
BS1102	Solve system of linear algebraic equations and apply Eigen value computation techniques to reduce a given quadratic to canonical form
	Solve algebraic and Transcendental equations by using Numerical methods
	Apply Newton 's forward and backward interpolation and Lagrange's formula for equal and unequal intervals
	Computer numerical solutions of differential equations.
<b>COURSENAME: ENGINEERING PHYSICS</b>	
BS1108	Computer numerical solutions of differential equations.
	Improve the acoustic quality of concert halls and apply Ultrasonic waves concept in Non-Destructive Testing.
	Explain the concepts of elasticity & plasticity and distinguish different types of moduli
	Distinguish between laser sources and conventional sources and identify different types of sensors
	Summarize magnetic & dielectric material properties and recognize their need in engineering applications.
<b>COURSENAME: ENGINEERING MECHANICS</b>	
ES1104	
<b>COURSENAME: ENGINEERING DRAWING</b>	
ES1103	Construct polygons, scales and draw curves used in engineering applications, draw orthographic projection of points

	Apply concept of orthographic projection to project lines inclined to both reference planes
	Produce orthographic projections of planes inclined to both the reference planes.
	Produce orthographic projections of regular solids inclined to both the reference planes.
	Construct isometric view from orthographic views and vice versa.
	Drawing practice on AUTO-CAD

### COURSENAME: ENGLISH LAB

HS1102	Recognize the sounds of English with the help of audiovisual aids.
	Build confidence and overcome inhibitions while speaking in English
	Demonstrate acquired language skills in performing the designated activity.

### COURSENAME: ENGINEERING PHYSICS LAB

BS1109	Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments.
	Verify the laws of thermo dynamics, electro magnetism and stretched string.
	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments

### COURSENAME:ENGINEERING EXPLORATION PROJECT

PR1101	Build mindsets & foundations essential for designers.
	Learn about the Human- Centered Design methodology and understand their real-world applications.
	Use Design Thinking for problem solving methodology for investigating illdefined problems.
	Undergo Several design challenges and work towards the final design challenge

## Semester– II

### COURSENAME: ENGLISH

HS1201	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
	Employ knowledge of grammatical structures and vocabulary in speech and writing
	Apply effective communication skills to enhance professional possibilities.
	Develop acceptable personality traits suitable for chosen profession.

### COURSENAME: ENGINEERING CHEMISTRY

	Identify the advantages and limitations of Plastic materials, Elastomers and their use in day to day life.
	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
	Identify the advantages and limitations of building materials and their use in day to day life and select the various lubricants for engineering machines.

BS1210	Identify the fuels which are commonly used and their advantages and limitations.
	Select the various methods used for purification of water for domestic and industrial purposes.

**COURSENAME:MATHEMATICS - III**

BS1203	Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux
	Apply Laplace Transforms to solve the ordinary differential equations
	Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function.
	Solve the first and higher order partial differential equations and apply to various physical problems

**COURSENAME:PROGRAMMING FOR PROBLEM SOLVING USING C**

ES1201	Describe the concept of computer system, analyze a given problem, develop an algorithm, fundamental programming constructs, identify data representation formats, describe operators and their precedence, associativity.
	Understand branching and loop statements.
	Describe the concept of homogeneous derives data types, strings and functions.
	Understand pointers and heterogeneous data types.
	Describe the concept of file system and functions.

**COURSENAME:COMPUTER AIDED ENGINEERING DRAWING**

ES1207	Produce orthographic projections of regular solids using auxiliary projection method.
	Generate sectional views and develop lateral surfaces of regular solids.
	Draw curves of intersection for interpenetration of solids.
	Produce geometric models of simple solids and machine components using AUTO CAD.

**COURSENAME:ENVIORNMENTAL SCIENCE**

MC1201	

**COURSENAME: ENGLISH COMMUNICATION SKILLS LAB**

HS1203	Recognize the sounds of English with the help of audio-visual aids
	Build confidence and overcome inhibitions while speaking in English.
	Demonstrate acquired language skills in performing the designated activity.

**COURSENAME: ENGINEERING CHEMISTRY LAB**

BS1211	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, KMnO <sub>4</sub> and Copper using different indicators.
	Obtain the knowledge of complexometry titrations to determine the hardness of given water sample by EDTA method.
	Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.

**COURSENAME: PROGRAMMING FOR PROBLEM SOLVING USING C**

ES1202	Describe the basics of computer and understand the problem-solving aspect.
	Design and develop C program to evaluate simple expressions and logical operations.
	Develop & Implement C programs with suitable modules to solve the given problem.
	Demonstrate the concept of pointer and perform I/O operations in files.

**COURSENAME: WORKSHOP PRACTICE LAB**

ES1219	Make simple wood joints by applying wood working knowledge
	Make sheet metal objects by applying development of surfaces concept
	Prepare simple fitting joints with the use of proper fitting tools
	Analyze the basic house wiring circuits.