

MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE



363, Arcot Road, Kodambakkam, Chennai – 24
Approved by AICTE & Affiliated to Anna University

email Id: principal@msec.edu.in

Website : www.msec.edu.in

DEPARTMENT OF HUMANITIES AND SCIENCE
BE (CIVIL ENGINEERING)

REGULATION – 2021 COURSE OUTCOMES (CO)

HS3151-Professionals English [C101]

C101.1	To listen and comprehend complex academic texts.
C101.2	To read and infer the denotative and connotative meanings of technical texts.
C101.3	To write definitions, descriptions, narrations and essays on various topics.
C101.4	To speak fluently and accurately in formal and informal communicative contexts
C101.5	To express their opinions effectively in both oral and written medium of communication.

MA3151-Matrices and Calculus [C102]

C102.1	To find eigenvalues and eigen vectors of a matrix ,diagonalize symmetric matrix.
C102.2	Acquire the knowledge of Limit definition and differentiation rules to differentiate the functions.
C102.3	Examine the concepts of functions of several variables and to find extremum value of a given function.
C102.4	Evaluate the integrals by using Riemann sum and Fundamental theorem of Calculus.
C102.5	Develop an ability to trace the curve and find area , volume using multiple integrals.

PH3151-Engineering Physics [C103]

C103.1	Effectively understand the importance of Mechanics.
C103.2	Gain knowledge of electromagnetic waves and its applications.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.


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DEPARTMENT OF HUMANITIES AND SCIENCE
BE (CIVIL ENGINEERING)

CY3151 -Engineering Chemistry [C104]

C104.1	Water treatment techniques will facilitate better understanding of engineering processes and applications for further learning
C104.2	The students will gain knowledge on the basics of properties of nano materials and its applications
C104.3	The students will acquire knowledge on the concepts of composites and phase rule and their applications in compound formation,
C104.4	The knowledge gained on engineering materials, fuels, energy sources will facilitate future learning
C104.5	The students will have adequate knowledge on the concepts of nuclear energy, batteries and their application in energy production

GE3151- Problem Solving And Python Programming [C105]

C105.1	Develop algorithmic Designs to simple computational problems.
C105.2	Develop simple statements of python programs for mathematical Expressions.
C105.3	Implement control flow and function concepts for developing Python programs.
C105.4	Understanding Python data structures - lists, tuples & dictionaries for handling compound data.
C105.5	Handling files, exception, modules and packages in Python for solving problems.

GE3171 – Problem Solving And Python Programming Laboratory – [C106]

C106.1	Develop algorithmic solutions to execute simple computational Python programs.
C106.2	Implement programs in Python using conditionals and loops for solving problems real time scenarios.
C106.3	Deploy functions to decompose a Python program in real time mathematical applications.
C106.4	Process compound data using Python data structures by Utilize Python packages in developing software applications.


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BS3171– Physics And Chemistry Laboratory – [C107]

C107.1	The hands on exercises undergone by the students will help them to apply physics principles of optics Out filled with hands on knowledge about pH and conductometric titration
C107.2	Acquire knowledge about the modulus of elasticity and able to apply them in the field. The basic concepts on argentometric titration helps in flouride estimation.
C107.3	Assess the behaviour of columns, beams and failures of materials. The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.

HS3251 - Professional English - II [C108]

C108.1	Compare and Contrast the product and ideas and how to apply in their academic, professional and personal life.
C108.2	Identify cause and effects in events, industrial processes as well competency in reporting the events, documentaries, biographies, travelogue, news and technical blogs in oral and written communication.
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C108.5	Express and present their opinions, views and ideas diligently in debates, discussions and role plays, and draft clear & concise recommendations and newspaper articles in a logical manner.

MA3251 - Statistics and Numerical Methods [C109]

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
C109.3	Use numerical methods to solve algebraic and transcendental equations and to find Eigen value of a matrix.
C109.4	Estimate the unknown intermediate values through interpolation and calculate the derivatives, the length and area of irregular objects using numerical differentiation and integration.
C109.5	Determine numerical solutions of ordinary differential equations.


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PH3201- Physics For Civil Engineering - [C110]

C110.1	Acquire knowledge about heat transfer through different materials, thermal performance of building and thermal insulation.
C110.2	Gain knowledge on the ventilation and air conditioning of buildings
C110.3	Understand the concepts of sound absorption, noise insulation and lighting designs
C110.4	Know about the processing and applications of composites, metallic glasses, shape memory alloys and ceramics
C110.5	Get an awareness on natural disasters such as earth quake, cyclone, fire and safety measures

BE3252 – Basic Electrical, Electronics and Instrumentation Engineering– [C111]

C111.1	Able to understand the basic electric circuit laws and Compute the electric circuit parameters for simple problems using Nodal and Mesh methods.
C111.2	Able to understand the concepts of domestics wiring and protective devices.
C111.3	Able to understand the working principle, characteristics and applications of a.c and d.c electrical machines
C111.4	Able to analyse the characteristics of diodes, Transistors, MOSFET, IGBT and SCR.
C111.5	Able to understand the types and operating principles of different sensors and variable transducers.

GE3251- Engineering Graphics– [C112]

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
C112.5	Draw the nature of cut surfaces in isometric vews & projections, and also to visualize the perspective projection of simple solids.


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GE3271- Engineering Practices Laboratory - [C113]

C113.1	Ability to draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; can able to do Sawing; planning; making joints in wood materials used in common household wood work.
C113.2	Ability to do house wiring and can measure energy.
C113.3	Ability to do arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipment and can do making a tray out of metal sheet using sheet metal work.
C113.4	Ability to do soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB

GE3272- Basic Electrical, Electronics and Instrumentation Engineering Lab –[C114]

C114.1	Able to understand and do experimental methods to verify the Ohm's law and Kirchhoff's Law and to measure three phase power.
C114.2	Able to Analyze experimentally the load characteristics of A.C and D.C electrical machines.
C114.3	Able to Analyze the characteristics of basic electronic devices such as Diode, Transisters, MOSFET and SCR.
C114.4	Able to understandthe use of LVDT to measure displacement.


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DEPARTMENT OF HUMANITIES AND SCIENCE
BE (COMPUTER SCIENCE ENGINEERING)

Year / Semester: I Yr / I Sem

NBA Course Code :C101

Course Name: Professional English - I (HS3151)

Course Outcomes

C101.1	To listen and comprehend complex academic texts.
C101.2	To read and infer the denotative and connotative meanings of technical texts.
C101.3	To write definitions, descriptions, narrations and essays on various topics.
C101.4	To speak fluently and accurately in formal and informal communicative contexts
C101.5	To express their opinions effectively in both oral and written medium of communication.

Year: I Yr / I Sem

NBA Course Code :C102

Course Name: MATRICES AND CALCULUS (MA3151)

Course Outcomes

C102.1	To find eigenvalues and eigen vectors of a matrix ,diagonalize symmetric matrix.
C102.2	Acquire the knowledge of Limit definition and differentiation rules to differentiate the functions.
C102.3	Examine the concepts of functions of several variables and to find extremum value of a given function.
C102.4	Evaluate the integrals by using Riemann sum and Fundamental theorem of Calculus.
C102.5	Develop an ability to trace the curve and find area , volume using multiple integrals.


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Year: I Yr /I Sem

NBA Course Code :C103

Course Name: Engineering Physics (PH3151)

Course Outcomes

C103.1	Effectively understand the importance of Mechanics.
C103.2	Gain knowledge of electromagnetic waves and its applications.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.

Year: I Yr /I Sem

NBA Course Code :C104

Course Name: Engineering Chemistry (CY3151)

Course Outcomes

C104.1	Water treatment techniques will facilitate better understanding of engineering processes and applications for further learning
C104.2	The students will gain knowledge on the basics of properties of nano materials and its applications
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Year: I Yr /I Sem

NBA Course Code :C105

Course Name: Problem Solving And Python Programming (GE3151)

Course Outcomes

C105.1	Develop algorithmic Designs to simple computational problems.
C105.2	Develop simple statements of python programs for mathematical Expressions.
C105.3	Implement control flow and function concepts for developing Python programs.
C105.4	Understanding Python data structures - lists, tuples & dictionaries for handling compound data.
C105.5	Handling files, exception, modules and packages in Python for solving problems.

Year: I Yr /I Sem

NBA Course Code :C106

Course Name: Problem Solving And Python Programming Laboratory(GE3171)

Course Outcomes

C106.1	Develop algorithmic solutions to execute simple computational Python programs.
C106.2	Implement programs in Python using conditionals and loops for solving problems real time scenarios.
C106.3	Deploy functions to decompose a Python program in real time mathematical applications.
C106.4	Process compound data using Python data structures by Utilize Python packages in developing software applications.

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Year: I Yr /I Sem

NBA Course Code :C107

Course Name: Physics and Chemistry Laboratory (BS3171)

Course Outcomes

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C107.2	Acquire knowledge about the modulus of elasticity and able to apply them in the field The basic concepts on argentometric titration helps in flouride estimation.
C107.3	Assess the behaviour of columns, beams and failures of materials The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.

Year: I Yr /II Sem

NBA Course Code :C108

Course Name: Professional English - II (HS3251)

Course Outcomes

C108.1	Compare and Contrast the product and ideas and how to apply in their academic, professional and personal life
C108.2	Identify cause and effects in events, industrial processes as well competency in reporting the events, documentaries, biographies, travelogue, news and technical blogs in oral and written communication.
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Year: I Yr /II Sem

NBA Course Code :C109

Course Name: Statistics and Numerical Methods (MA3251)

Course Outcomes

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
C109.3	Use numerical methods to solve algebraic and transcendental equations and to find Eigen value of a matrix.
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Year: I Yr /II Sem

NBA Course Code :C110

Course Name: Physics for Information Science

(PH3201)Course Outcomes

Course Outcomes

C110.1	Gain knowledge on classical and quantum electron theories, and energy band structures.
C110.2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
C110.3	Get knowledge on magnetic properties of materials and their applications in data storage.
C110.4	Have the necessary understanding on the functioning of optical materials for optoelectronics.
C110.5	Understand the basics of quantum structures and their applications and basics of quantum computing


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Year: I Yr /II Sem

NBA Course Code :C111

Course Name: Basic Electrical, Electronics Engineering (BE3252) Course Outcomes

C111.1	Explain the basic concepts passive components, simple analysis of laws, theorems, and parameters in electrical circuits.
C111.2	Explain the construction, operation and applications of DC motors, transformers, AC rotating machines
C111.3	Explain the basic concepts passive components in electronic circuits and working principles, characteristics and applications of PN Diode, Zener Diode, BJT, FET, MOSFETS, IGBT, RECTIFIERS.
C111.4	Explain the basic concepts of number systems and codes in digital systems, operations of logic gates, combinational circuits, K-map and simplifications using K-maps..
C111.5	Explain the functional elements of an instruments, standards, calibration, operating principle of MC and MI meters and measurement of power and energy meters and DSO.


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Year: I Yr /II Sem

NBA Course Code :C112

Course Name: Engineering Graphics

(GE3251)Course Outcomes

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
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Year: I Yr /II Sem

NBA Course Code :C113

Course Name: **Programming in C (CS 3271)**

C113.1	Demonstrate knowledge on C Programming constructs
C113.2	Develop simple applications in C using basic constructs
C113.3	Design and implement applications using arrays and strings
C113.4	Develop and implement modular applications in C using functions.
C113.5	Develop applications in C using structures and pointers.
C113.6	Design applications using sequential and random access file processing.


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Year: I Yr /II Sem

NBA Course Code :C114

Course Name: Engineering Practices Laboratory(GE3271)

Course Outcomes

C114.1	Ability to draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; can able to do Sawing; planning; making joints in wood materials used in common household wood work.
C114.2	Ability to do house wiring and can measure energy.
C114.3	Ability to do arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipment and can do Making a tray out of metal sheet using sheet metal work.
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NBA Course Code: C115

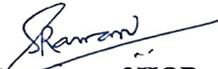
Year / Semester: I Yr. /II SEM

Course Name: Programming in C Laboratory

Course Outcomes

At the end of the course, the student will be able to

C115.1	Simple applications in C using basic constructs
C115.2	Have a strategy to design and implement applications using arrays and strings
C115.3	Understand and implement applications in C using functions and pointers
C115.4	Knowing Applications in C using structures.
C115.5	Design applications using sequential and random access file processing.


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REGULATION – 2021

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C107.3	Assess the behaviour of columns, beams and failures of materials. The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.

HS3251 – Professional English-II [C108]

C108.1	Compare and Contrast the product and ideas and how to apply in their academic, professional and personal life.
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DEPARTMENT OF HUMANITIES AND SCIENCE BE (ELECTRONICS AND COMMUNICATION ENGINEERING) MA3251 – Statistics and Numerical Methods [C109]

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
C109.3	Use numerical methods to solve algebraic and transcendental equations and to find eigen value of a matrix.
C109.4	Estimate the unknown intermediate values through interpolation and calculate the derivatives, the length and area of irregular objects using numerical differentiation and integration.
C109.5	Determine numerical solutions of ordinary differential equations.

PH3254– Physics for Electronics Engineering [C110]

C110.1	Express the knowledge of crystallography and its importance for varied materials properties.
C110.2	Gains knowledge on the electrical and magnetic properties of materials and their applications.
C110.3	Understands clearly of semiconductor physics and functioning of semiconductor devices.
C110.4	Acquire knowledge about the optical properties of materials and working principles of various optical devices.
C110.5	Appreciate the basics and importance of nanotechnology and Nano devices.

BE3254 - Electrical and Instrumentation Engineering [C111]

C111.1	Explain the working principle and operation of electrical transformer.
C111.2	Explain the construction and operation of DC machine, universal motor, stepper motor and BLDC motor.
C111.3	Explain the construction and operation of AC rotating machines.
C111.4	Explain the types and operating principles of measuring instruments
C111.5	Explain the basic power system structure, protection schemes and the safety precautions to be followed.

GE3251 – Engineering Graphics [C112]

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
C112.5	Draw the nature of cut surfaces in isometric views & projections, and also to visualize the perspective projection of simple solids.


Hod


Principal



MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE

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Website : www.msec.edu.in

DEPARTMENT OF HUMANITIES AND SCIENCE
BE (ELECTRONICS AND COMMUNICATION ENGINEERING)
EC3251 –Circuit Analysis[C113]

C113.1	Apply the basic concepts of circuit analysis such as Kirchoff's laws, mesh current and node Voltage method for analysis of DC and AC circuits.
C113.1	Apply suitable network theorems and analyze AC and DC circuits.
C113.1	Analyze steady state response of any R, L and C circuits.
C113.1	Analyze the transient response for any RC, RL and RLC circuits and frequency response of parallel and series resonance circuits.
C113.1	Analyze the coupled circuits and network topologies.

GE3271 – Engineering Practices Laboratory [C114]

C114.1	Ability to draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; can able to do Sawing; planning; making joints in wood materials used in common household wood work.
C114.2	Ability to do house wiring and can measure energy.
C114.3	Ability to do arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipment and can do Making a tray out of metal sheet using sheet metal work.
C114.4	Ability to do soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB.

EC3271 – Circuits Analysis Laboratory [C115]

C115.1	Design RL and RC circuits.
C115.2	Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems.


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DEPARTMENT OF HUMANITIES AND SCIENCE

BE (ELECTICAL AND ELECTRONICS ENGINEERING)

REGULATION – 2021

COURSE OUTCOMES

(CO)

HS3151-Professional English-I [C101]

C101.1	To listen and comprehend complex academic texts.
C101.2	To read and infer the denotative and connotative meanings of technical texts.
C101.3	To write definitions, descriptions, narrations and essays on various topics.
C101.4	To speak fluently and accurately in formal and informal communicative contexts
C101.5	To express their opinions effectively in both oral and written medium of communication.

MA3151-Matrices and Calculus [C102]

C102.1	To find eigenvalues and eigen vectors of a matrix ,diagonalize symmetric matrix.
C102.2	Acquire the knowledge of Limit definition and differentiation rules to differentiate the functions.
C102.3	Examine the concepts of functions of several variables and to find extremumvalue of a given function.
C102.4	Evaluate the integrals by using Riemann sum and Fundamental theorem of Calculus.
C102.5	Develop an ability to trace the curve and find area , volume using multiple integrals.

PH3151-Engineering Physics [C103]

C103.1	Effectively understand the importance of Mechanics.
C103.2	Gain knowledge of electromagnetic waves and its applications.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.


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DEPARTMENT OF HUMANITIES AND SCIENCE

BE (ELECTICAL AND ELECTRONICS ENGINEERING)

CY3151 -Engineering Chemistry [C104]

C104.1	Water treatment techniques will facilitate better understanding of engineering processes and applications for further learning
C104.2	The students will gain knowledge on the basics of properties of nano materials and its applications
C104.3	The students will acquire knowledge on the concepts of composites and phase rule and their applications in compound formation,
C104.4	The knowledge gained on engineering materials, fuels, energy sources will facilitate future learning
C104.5	The students will have adequate knowledge on the concepts of nuclear energy, batteries and their application in energy production

GE3151- Problem Solving And Python Programming [C105]

C105.1	Develop algorithmic Designs to simple computational problems.
C105.2	Develop simple statements of python programs for mathematical Expressions.
C105.3	Implement control flow and function concepts for developing Python programs.
C105.4	Understanding Python data structures - lists, tuples & dictionaries for handling compound data.
C105.5	Handling files, exception, modules and packages in Python for solving problems.

GE3171 – Problem Solving And Python Programming Laboratory – [C106]

C106.1	Develop algorithmic solutions to execute simple computational Python programs.
C106.2	Implement programs in Python using conditionals and loops for solving problems real time scenarios.
C106.3	Deploy functions to decompose a Python program in real time mathematical applications.
C106.4	Process compound data using Python data structures by Utilize Python packages in developing software applications.


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DEPARTMENT OF HUMANITIES AND SCIENCE

BE (ELECTICAL AND ELECTRONICS ENGINEERING)

BS3171– Physics And Chemistry Laboratory – [C107]

C107.1	The hands on exercises undergone by the students will help them to apply physics principles of optics Out filled with hands on knowledge about pH and conductometric titration
C107.2	Acquire knowledge about the modulus of elasticity and able to apply them in the field. The basic concepts on argentometric titration helps in flouride estimation.
C107.3	Assess the behaviour of columns, beams and failures of materials. The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.

HS3251 - Professional English - II [C108]

C108.1	Compare and Contrast the product and ideas and how to apply in their academic, professional and personal life.
C108.2	Identify cause and effects in events, industrial processes as well competency in reporting the events, documentaries, biographies, travelogue, news and technical blogs in oral and written communication.
C108.3	Analyze problems in order to arrive at feasible solutions and communicate them orally and in the written format and diction for accurate description of a process or product through all four skills(LSRW).
C108.4	Report events and the processes of technical and industrial nature and identify the core ideas of various topics in TED talks, scientific lectures, newspaper articles, journals and educational videos and give formal and informal presentations on the same
C108.5	Express and present their opinions, views and ideas diligently in debates, discussions and role plays, and draft clear & concise recommendations and newspaper articles in a logical manner.

MA3251 - Statistics and Numerical Methods [C109]

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
C109.3	Use numerical methods to solve algebraic and transcendental equations and to find Eigen value of amatrix.
C109.4	Estimate the unknown intermediate values through interpolation and calculate the derivatives, the length and area of irregular objects using numerical differentiation and integration.
C109.5	Determine numerical solutions of ordinary differential equations.


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DEPARTMENT OF HUMANITIES AND SCIENCE

BE (ELECTICAL AND ELECTRONICS ENGINEERING)

PH3202- Physics for Electrical Engineering - [C110]

10.1	Express the knowledge of dielectric materials and insulation.
10.2	Gains knowledge on the electrical and magnetic properties of materials and their applications.
10.3	Understands clearly of semiconductor physics and functioning of semiconductor devices.
10.4	Acquire knowledge about the optical properties of materials and working principles of various optical devices.
110.5	Appreciate the basics and importance of nanotechnology and Nano devices.

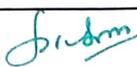
BE3255 – Basic Civil and Mechanical Engineering – [C111]

111.1	Understand the significance of civil and mechanical engineering profession to the benefit of society
111.2	Familiarize with the principles of measurements, different materials used for construction
111.3	Understand the various components of building, solid waste management, rain water harvesting, green buildings
111.4	Identify the components of IC engines, power plants and demonstrate their working principle
111.5	Elaborate the components and working of refrigeration and air conditioning systems.

GE3251- Engineering Graphics– [C112]

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
C112.5	Draw the nature of cut surfaces in isometric views & projections, and also to visualize the perspective projection of simple solids.


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DEPARTMENT OF HUMANITIES AND SCIENCE

BE (ELECTICAL AND ELECTRONICS ENGINEERING)

EE3251- Electric circuit analysis – [C113]

C113.1	Able to understand fundamental laws and analyse electrical circuits with different techniques
C113.2	Able to gain conceptual knowledge in solving circuits by applying network reduction techniques and network theorems
C113.3	Able to Compute the transient response of first order and second order systems to step and sinusoidal input
C113.4	Able to interpret the concept of resonance and coupled circuits
C113.5	Able to develop understanding of three phase circuits under balanced and unbalanced condition

GE3271- Engineering Practices Laboratory - [C114]

C114.1	Ability to draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; can able to do Sawing; planning; making joints in wood materials used in common household wood work.
C114.2	Ability to do house wiring and can measure energy.
C114.3	Ability to do arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipment and can do making a tray out of metal sheet using sheet metal work.
C114.4	Ability to do soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB


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DEPARTMENT OF HUMANITIES AND SCIENCE

BE (ELECTICAL AND ELECTRONICS ENGINEERING)

EE3271 Electrical Circuit lab –[C115]

C115.1	Use simulation and experimental methods to verify the fundamental electrical laws for the given DC/AC circuit
C115.2	Use simulation and experimental methods to verify the various electrical theorems (Superposition, Thevenin , Norton and maximum power transfer) for the given DC/AC circuit
C115.3	Analyze transient behavior of the given RL/RC/RLC circuit using simulation and experimental methods
C115.4	Analyze frequency response of the given series and parallel RLC circuit using simulation and experimentation methods
C115.5	Analyze the performance of the given three-phase circuit using simulation and experimental methods


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DEPARTMENT OF HUMANITIES AND SCIENCE
BE (MECHANICAL ENGINEERING)
REGULATION – 2021

HS3151- Professional English - I [C101]

C101.1	To listen and comprehend complex academic texts.
C101.2	To read and infer the denotative and connotative meanings of technical texts.
C101.3	To write definitions, descriptions, narrations and essays on various topics.
C101.4	To speak fluently and accurately in formal and informal communicative contexts
C101.5	To express their opinions effectively in both oral and written medium of communication.

MA3151- Matrices and Calculus [C102]

C102.1	To find eigenvalues and eigen vectors of a matrix ,diagonalize symmetric matrix.
C102.2	Acquire the knowledge of Limit definition and differentiation rules to differentiate the functions.
C102.3	Examine the concepts of functions of several variables and to find extremum value of a given function.
C102.4	Evaluate the integrals by using Riemann sum and Fundamental theorem of Calculus.
C102.5	Develop an ability to trace the curve and find area ,volume using multiple integrals.

PH3151- Engineering Physics [C103]

C103.1	Effectively understand the importance of Mechanics.
C103.2	Gain knowledge of electromagnetic waves and its applications.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.

CY3151- Engineering Chemistry [C104]

C104.1	Water treatment techniques will facilitate better understanding of engineering processes and applications for further learning
C104.2	The students will gain knowledge on the basics of properties of nano materials and its applications
C104.3	The students will acquire knowledge on the concepts of composites and phase rule and their applications in compound formation,
C104.4	The knowledge gained on engineering materials, fuels, energy sources will facilitate future learning
C104.5	The students will have adequate knowledge on the concepts of nuclear energy, batteries and their application in energy production


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DEPARTMENT OF HUMANITIES AND SCIENCE
BE (MECHANICAL ENGINEERING)

GE3151- Problem Solving & Python Programming [C105]

C105.1	Develop algorithmic Designs to simple computational problems.
C105.2	Develop simple statements of python programs for mathematical Expressions.
C105.3	Implement control flow and function concepts for developing Python programs.
C105.4	Understanding Python data structures - lists, tuples & dictionaries for handling compound data.
C105.5	Handling files, exception, modules and packages in Python for solving problems.

GE3171- Problem Solving and Python Programming Laboratory [C106]

C106.1	Develop algorithmic solutions to execute simple computational Python programs.
C106.2	Implement programs in Python using conditionals and loops for solving problems real time scenarios.
C106.3	Deploy functions to decompose a Python program in real time mathematical applications.
C106.4	Process compound data using Python data structures by Utilize Python packages in developing software applications.

BS3171- Physics and Chemistry Laboratory [C107]

C107.1	The hands on exercises undergone by the students will help them to apply physics principles of optics Out filled with hands on knowledge about pH and conductometric titration
C107.2	Acquire knowledge about the modulus of elasticity and able to apply them in the field. The basic concepts on argentometric titration helps in flouride estimation.
C107.3	Assess the behaviour of columns, beams and failures of materials. The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.


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DEPARTMENT OF HUMANITIES AND SCIENCE
BE (MECHANICAL ENGINEERING)

HS3251- Professional English - II [C108]

C108.1	Compare and Contrast the product and ideas and how to apply in their academic, professional and personal life.
C108.2	Identify cause and effects in events, industrial processes as well competency in reporting the events, documentaries, biographies, travelogue, news and technical blogs in oral and written communication.
C108.3	Analyze problems in order to arrive at feasible solutions and communicate them orally and in the written format and diction for accurate description of a process or product through all four skills(LSRW).
C108.4	Report events and the processes of technical and industrial nature and identify the core ideas of various topics in TED talks, scientific lectures, newspaper articles, journals and educational videos and give formal and informal presentations on the same
C108.5	Express and present their opinions, views and ideas diligently in debates, discussions and role plays, and draft clear & concise recommendations and newspaper articles in a logical manner.

MA3251- Statistics and Numerical Methods [C109]

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
C109.3	Use numerical methods to solve algebraic and transcendental equations and to find eigen value of a matrix.
C109.4	Estimate the unknown intermediate values through interpolation and calculate the derivatives, the length and area of irregular objects using numerical differentiation and integration.
C109.5	Determine numerical solutions of ordinary differential equations.

PH3251-Materials Science [C110]

C110.1	Know basics of crystallography and its importance for varied materials properties.
C110.2	Gain knowledge on the electrical and magnetic properties of materials and their applications
C110.3	Acquire knowledge of semiconductor physics and functioning of semiconductor devices.
C110.4	Understand the optical properties of materials and working principles of various optical devices.
C110.5	Get an insight and appreciate the importance of functional Nano electronic devices.


Hod


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DEPARTMENT OF HUMANITIES AND SCIENCE
BE (MECHANICAL ENGINEERING)

BE3251- Basic Electrical and Electronics Engineering [C111]

C111.1	Explain the basic concepts passive components, simple analysis of laws, theorems, and parameters in electrical circuits.
C111.2	Explain the construction, operation and applications of DC motors, transformers, AC rotating machines
C111.3	Explain the basic concepts passive components in electronic circuits and working principles, characteristics and applications of PN Diode, Zener Diode, BJT, FET, MOSFETS, IGBT, RECTIFIERS.
C111.4	Explain the basic concepts of number systems and codes in digital systems, operations of logic gates, combinational circuits, K-map and simplifications using K-maps.
C111.5	Explain the functional elements of an instruments, standards, calibration, operating principle of MC and MI meters and measurement of power and energy meters and DSO.

GE8152- Engineering Graphics [C112]

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
C112.5	Draw the nature of cut surfaces in isometric views & projections, and also to visualize the perspective projection of simple solids.

GE8261-Engineering Practices Laboratory [C113]

C113.1	Ability to draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; can able to do Sawing; planning; making joints in wood materials used in common household wood work.
C113.2	Ability to do house wiring and can measure energy.
C113.3	Ability to do arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipment and can do Making a tray out of metal sheet using sheet metal work.
C113.4	Ability to do soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB.

BE3271 - Basic Electrical and Electronics Engineering Laboratory [C114]

C114.1	Verify kirchoffs current law and voltage law.
C114.2	Perform load test and draw the characteristics of DC rotating machines, transformer and Induction motor.
C114.3	Construct electronic and digital circuits using semiconductor devices and IC's.


Head


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DEPARTMENT OF HUMANITIES AND SCIENCE
B.TECH- INFORMATION TECHNOLOGY

REGULATION – 2021 COURSE OUTCOMES (CO)

HS3151-Professional English - I [C101]

C101.1	To listen and comprehend complex academic texts.
C101.2	To read and infer the denotative and connotative meanings of technical texts.
C101.3	To write definitions, descriptions, narrations and essays on various topics.
C101.4	To speak fluently and accurately in formal and informal communicative contexts
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MA3151-Matrices and Calculus [C102]

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DEPARTMENT OF HUMANITIES AND SCIENCE
B.TECH- INFORMATION TECHNOLOGY

CY3151 -Engineering Chemistry [C104]

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C104.5	The students will have adequate knowledge on the concepts of nuclear energy, batteries and their application in energy production

GE3151- Problem Solving And Python Programming [C105]

C105.1	Develop algorithmic Designs to simple computational problems.
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C105.5	Handling files, exception, modules and packages in Python for solving problems.

GE3171 – Problem Solving And Python Programming Laboratory – [C106]

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C106.3	Deploy functions to decompose a Python program in real time mathematical applications.
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DEPARTMENT OF HUMANITIES AND SCIENCE
B.TECH- INFORMATION TECHNOLOGY

BS3171– Physics And Chemistry Laboratory – [C107]

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C107.2	Acquire knowledge about the modulus of elasticity and able to apply them in the field. The basic concepts on argentometric titration helps in flouride estimation.
C107.3	Assess the behaviour of columns, beams and failures of materials. The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.

HS3251 - Professional English - II [C108]

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C108.2	Identify cause and effects in events, industrial processes as well competency in reporting the events, documentaries, biographies, travelogue, news and technical blogs in oral and written communication.
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C108.4	Report events and the processes of technical and industrial nature and identify the core ideas of various topics in TED talks, scientific lectures, newspaper articles, journals and educational videos and give formal and informal presentations on the same
C108.5	Express and present their opinions, views and ideas diligently in debates, discussions and role plays, and draft clear & concise recommendations and newspaper articles in a logical manner.

MA3251 - Statistics and Numerical Methods [C109]

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
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C109.4	Estimate the unknown intermediate values through interpolation and calculate the derivatives, the length and area of irregular objects using numerical differentiation and integration.
C109.5	Determine numerical solutions of ordinary differential equations.


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DEPARTMENT OF HUMANITIES AND SCIENCE
B.TECH- INFORMATION TECHNOLOGY

PH3256- Physics for Information Science - [C110]

C110.1	Gain knowledge on classical and quantum electron theories, and energy band structures.
C110.2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
C110.3	Get knowledge on magnetic properties of materials and their applications in data storage.
C110.4	Have the necessary understanding on the functioning of optical materials for optoelectronics.
C110.5	Understand the basics of quantum structures and their applications and basics of quantum computing

BE3251-Basic Electrical and Electronics Engineering -[C111]

C111.1	Able to understand the basic electric circuit laws and Compute the electric circuit parameters for simple problems using Nodal and Mesh methods.
C111.2	Able to understand the concepts of domestics wiring and protective devices.
C111.3	Able to understand the working principle, characteristics and applications of a.c and d.c electrical machines
C111.4	Able to analyse the characteristics of diodes, Transistors, MOSFET, IGBT and SCR.
C111.5	Able to understand the types and operating principles of different sensors and variable transducers.

GE3251- Engineering Graphics– [C112]

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
C112.5	Draw the nature of cut surfaces in isometric vews & projections, and also to visualize the perspective projection of simple solids.


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DEPARTMENT OF HUMANITIES AND SCIENCE
B.TECH- INFORMATION TECHNOLOGY

CS3251- Programming in C - [C113]

C113.1	Demonstrate knowledge on C Programming constructs.
C113.2	Develop simple applications in C using basic constructs.
C113.3	Design and implement applications using arrays and strings.
C113.4	Develop and implement modular applications in C using functions
C113.5	Develop application in C using structures and pointers

GE3271-Engineering Practices Laboratory-[C114]

C114.1	Ability to draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; can able to do Sawing; planning; making joints in wood materials used in common household wood work.
C114.2	Ability to do house wiring and can measure energy.
C114.3	Ability to do arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipment and can do Making a tray out of metal sheet using sheet metal work.
C114.4	Ability to do soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB.

CS3251-Programming in C Laboratory-[C115]

C115.1	Simple applications in c using basic constructs
C115.2	Have a strategy to design and implement applications using arrays and strings
C115.3	Understand and implement applications in C using functions and pointers.
C115.4	Knowing Applications in C using structures.
C115.5	Design applications using sequential and random access file processing.


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DEPARTMENT OF HUMANITIES AND SCIENCE
B.TECH- ARTIFICIAL INTELLIGENCE AND DATA STRUCTURES

REGULATION – 2021 COURSE OUTCOMES (CO)

HS3151-Professional English - I [C101]

C101.1	To listen and comprehend complex academic texts.
C101.2	To read and infer the denotative and connotative meanings of technical texts.
C101.3	To write definitions, descriptions, narrations and essays on various topics.
C101.4	To speak fluently and accurately in formal and informal communicative contexts
C101.5	To express their opinions effectively in both oral and written medium of communication.

MA3151-Matrices and Calculus [C102]

C102.1	To find eigenvalues and eigen vectors of a matrix ,diagonalize symmetric matrix.
C102.2	Acquire the knowledge of Limit definition and differentiation rules to differentiate the functions.
C102.3	Examine the concepts of functions of several variables and to find extremum value of a given function.
C102.4	Evaluate the integrals by using Riemann sum and Fundamental theorem of Calculus.
C102.5	Develop an ability to trace the curve and find area , volume using multiple integrals.

PH3151-Engineering Physics [C103]

C103.1	Effectively understand the importance of Mechanics.
C103.2	Gain knowledge of electromagnetic waves and its applications.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.


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CY3151 -Engineering Chemistry [C104]

C104.1	Water treatment techniques will facilitate better understanding of engineering processes and applications for further learning
C104.2	The students will gain knowledge on the basics of properties of nano materials and its applications
C104.3	The students will acquire knowledge on the concepts of composites and phase rule and their applications in compound formation,
C104.4	The knowledge gained on engineering materials, fuels, energy sources will facilitate future learning
C104.5	The students will have adequate knowledge on the concepts of nuclear energy, batteries and their application in energy production

GE3151- Problem Solving And Python Programming [C105]

C105.1	Develop algorithmic Designs to simple computational problems.
C105.2	Develop simple statements of python programs for mathematical Expressions.
C105.3	Implement control flow and function concepts for developing Python programs.
C105.4	Understanding Python data structures - lists, tuples & dictionaries for handling compound data.
C105.5	Handling files, exception, modules and packages in Python for solving problems.

GE3171 – Problem Solving And Python Programming Laboratory – [C106]

C106.1	Develop algorithmic solutions to execute simple computational Python programs.
C106.2	Implement programs in Python using conditionals and loops for solving problems real time scenarios.
C106.3	Deploy functions to decompose a Python program in real time mathematical applications.
C106.4	Process compound data using Python data structures by Utilize Python packages in developing software applications.


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BS3171– Physics And Chemistry Laboratory – [C107]

C107.1	The hands on exercises undergone by the students will help them to apply physics principles of optics Out filled with hands on knowledge about pH and conductometric titration
C107.2	Acquire knowledge about the modulus of elasticity and able to apply them in the field. The basic concepts on argentometric titration helps in flouride estimation.
C107.3	Assess the behaviour of columns, beams and failures of materials. The basic idea on Potentiometric titration will help the adequate knowledge EMF measurement.

HS3251 - Professional English - II [C108]

C108.1	Compare and Contrast the product and ideas and how to apply in their academic, professional and personal life.
C108.2	Identify cause and effects in events, industrial processes as well competency in reporting the events, documentaries, biographies, travelogue, news and technical blogs in oral and written communication.
C108.3	Analyze problems in order to arrive at feasible solutions and communicate them orally and in the written format and diction for accurate description of a process or product through all four skills(LSRW).
C108.4	Report events and the processes of technical and industrial nature and identify the core ideas of various topics in TED talks, scientific lectures, newspaper articles, journals and educational videos and give formal and informal presentations on the same
C108.5	Express and present their opinions, views and ideas diligently in debates, discussions and role plays, and draft clear & concise recommendations and newspaper articles in a logical manner.

MA3251 - Statistics and Numerical Methods [C109]

C109.1	Analyse the statistical data and apply various small and large sample test for testing the hypothesis.
C109.2	Adapt Design of Experiments using analysis of variance to test the hypothesis.
C109.3	Use numerical methods to solve algebraic and transcendental equations and to find Eigen value of a matrix.
C109.4	Estimate the unknown intermediate values through interpolation and calculate the derivatives, the length and area of irregular objects using numerical differentiation and integration.
C109.5	Determine numerical solutions of ordinary differential equations.


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PH3256- Physics for Information Science - [C110]

C110.1	Gain knowledge on classical and quantum electron theories, and energy band structures.
C110.2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
C110.3	Get knowledge on magnetic properties of materials and their applications in data storage.
C110.4	Have the necessary understanding on the functioning of optical materials for optoelectronics.
C110.5	Understand the basics of quantum structures and their applications and basics of quantum computing

BE3251-Basic Electrical and Electronics Engineering -[C111]

C111.1	Able to understand the basic electric circuit laws and Compute the electric circuit parameters for simple problems using Nodal and Mesh methods.
C111.2	Able to understand the concepts of domestics wiring and protective devices.
C111.3	Able to understand the working principle, characteristics and applications of a.c and d.c electrical machines
C111.4	Able to analyse the characteristics of diodes, Transistors, MOSFET, IGBT and SCR.
C111.5	Able to understand the types and operating principles of different sensors and variable transducers.

GE3251- Engineering Graphics– [C112]

C112.1	Understand BIS conventions and appropriately demonstrated and also construct the profile of Engineering Conic Curves
C112.2	Identify, explain and represent the orthographic views of projection of Points in all four quadrants, and Projection of lines and Planes in two dimensional plane.
C112.3	Draw the concept of orthographic views from pictorial views, models, and projection of Solids
C112.4	Draw the sectional views of solids, to identify the true shape of cut surfaces and also to develop the surfaces of cut solids
C112.5	Draw the nature of cut surfaces in isometric vews & projections, and also to visualize the perspective projection of simple solids.


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AD3251- Data Structures Design - [C113]

C114.1	Explain abstract data types and Algorithmic Notations.
C114.2	Design, Implement, and Analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications.
C114.3	Understanding and Analysing the algorithms of searching and sorting.
C114.4	Design, Implement, and Analyse efficient tree structures to meet requirements such as searching, indexing, and sorting.
C114.5	Model problems as graph problems and implement efficient graph algorithms to access data's.

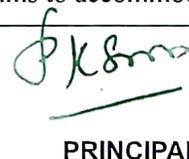
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C114.4	Ability to do soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB.

AD3271-Data Structures Design Laboratory-[C115]

C116.1	Design and Implement ADTs as Python classes
C116.2	Design, Implement, and Analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications.
C116.3	Design, Implement, and Analyse efficient tree structures to meet requirements such as searching, indexing, and sorting
C116.4	Model problems as graph problems and implement efficient graph algorithms to accommodate data


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