

Diploma in Engineering 1st year (Common to all Diploma Programs)

Course Outcomes

Year- First

Paper Name- English & Communication Skills-1

Semester- First

Paper Code DTHM-101

After successful completion of the course the students will be able to:

- Demonstrate effective communication skills.
- Demonstrate practical understanding of grammar in the practical use of English language.
- Utilize active listening & responding skills.
- Analyze the importance of body language.
- Identify different strategies of reading text
- Apply oral and written language skills into practice for building career.

Course Outcomes

Year –First

Paper- Applied Mathematics-1

Semester- First

Paper Code- DTMA-102

After successful completion of the course the students will be able to:

- Apply the knowledge of Determinants and Matrices in their professional work
- Analyze various mathematical series like Arithmetic and Geometric Progression.
- Compute complex numbers and its applications.

Course Outcomes

**Year- First
Paper – Applied Physics-1**

**Semester- First
Paper Code- DTPH 103**

After successful completion of this course the student will be able to:

- Apply knowledge of physics and engineering.
- Identify, formulae, and solve basic physics problems.
- Use the techniques, skills, and modern tools necessary for engineering practice.
- Illustrate laws of motion.
- Derive formula for kinetic & potential energy.
- Describe various properties of matter.
- Convert one scale of temperature into another.
- Describes modes of transfer of heat.

Course Outcomes

**Year-First
Paper – Basic Electronics Engineering**

**Semester- First
Paper Code- DTEC 104**

After successful completion of this course the student will be able to:

- Discuss about conduction in semiconductors.
- Apply the knowledge of junction diode into its applications.
- Identify the applications of transistor.
- Discuss about number system and op-amp.

Course Outcomes

Year: First

Paper: Basic Mechanical Engineering

Semester: First

Paper Code: DTME104

After successful completion of this course the student will be able to:

- Classify different laws of thermodynamics. Compare the temperature in different scale.
- Calculate the engineering problems based on thermodynamics.
- Develop the relation between COP of heat pump and refrigerator.
- Calculate the efficiency of heat engine on the basis of heat and work done.
- Assess the applications of S.I. and C.I. engines. Construction of two stroke and four stroke engines and study about the set up of IC engines.
- Classify different types of force system with free body diagram applied on a body. Verify also different laws of forces to solve various engineering problems.
- Evaluate the application on stress-strain in engineering problems.
- Develop the stress strain diagram of different types of material on the basis of their mechanical properties tested on UTM.
- Discuss the application of shaft in bending and twisting.

Course Outcomes

Year: First

Paper: Fundamentals of IT

Semester: First

Paper Code: DTCS105

For a diploma holder in civil engineering, it becomes imperative to know the fundamental of the subject in order to grasp the knowledge of the computer field. This subject will provide acquaintance with various terms knowledge of fundamental concepts of basic computer system, input/output and storage devices and various principles related to it.

After successful completion of this course the student will be able to:

- Apply basic knowledge of computer, comprising the history of computer, into practical use.
- Identify its characteristics and its application in various fields.
- Assess how to manage all the resources of computer and get to know the basics of operating system.
- Utilize the MS-office concept and discuss important documentation.
- Discuss regarding networking,
- Develop different components of computer network and also get to know various internet related concepts.
- Interpret E-commerce and traditional commerce.
- Describe different applications of information technology.

Course Outcomes

Year: First
Paper: Basic Electrical Engineering

Semester: First
Paper Code: DTEE 105

Diploma holder in Electrical Engineering comes across many electrical components and theorems of calculation of electrical quantities. They must have the knowledge of various Electric circuits and electrical equipments.

- Identify Basic Electrical components.
- Discuss working and application of different types of batteries.
- Discuss Electrical circuits.
- Interpret theorems for calculation of quantities in electrical network.
- Describe Passive elements and their response in Electrical circuit.
- Explain magnetic circuit and its quantities.
- Assess production of A.C quantity.

Course Outcomes

Year: First

Paper: Environmental Studies

Semester: First

Paper Code: DTES 108

After successful completion of this course the students will be able to:

- Illustrate the scope of environment studies
- Summarize different types of pollution.
- Compare & Contrast the concepts of SS, TDS, DO, COD, BOD.
- Manage hardness & alkalinity of water.
- Verify the types of hardness.
- Identify the sources of air pollution-natural and man- made.
- Explain about the soil pollution, major soil pollutants and their causes.
- Discuss & Describe environment laws.

Course Outcomes

Year: First
Paper: Applied Chemistry

Semester: First
Paper Code: DTCY 108

After successful completion of this course the students will be able to:

- Examine the basic and modern periodic laws.
- Apply knowledge of IUPAC nomenclature of hydrocarbons in their practical work.
- Demonstrate working knowledge of basic organic chemistry
- Analyze different order reactions and laws associated with electrochemistry.
- Test different solution properties like “Molarity” & “Molality”.
- Understand the terms related to metallurgy and extraction of metals.
- Classify different types of fuels, lubricants their properties, mechanisms use.

Course Outcomes

Year: First

Paper: English & Communication Skills-II

Semester: Second

Paper Code: DTHM 201

After completion of this course the students will be able to:

- Judge the various forms of literature from short stories to essay and poetry of Indian as well as international writers.
- Learning the different aspects & nuances of language to become better communicators.
- Analyze the in depth details of a given piece of text in its entirety and provide solutions to the questions & problems.
- Demonstrate efficiency in use of the various tools of formal written communication.
- Compose the various types of official and business correspondence in the relevant formats widely used in the industry.
- Develop the intricacies of business communication for enhanced personalities to become complete professionals.

Course Outcomes

Year: First

Paper: Applied Mathematics-II

Semester: Second

Paper Code: DTMA 202

After successful completion of this course the student will be able to:

- Interpret definition of function.
- Solve problems related to Differentiation, Maxima and minima, Equation of tangent and Normal to a curve etc.
- Estimate Simple standard integrals, Integration by substitution, By-parts and by partial fractions etc.
- Verify ordinary Differential Equations, Formation of differential equations, Solution of first order differential equations.
- Interpret Measures of Central Tendency, Measures of Dispersion and Co-efficient of rank correlation

Course Outcomes

Year: First

Paper: Applied Physics-II

Semester: Second

Paper Code: DTPH 203

After successful completion of this course the student will be able to:

- Apply knowledge of physics into engineering.
- Identify, formulae, and solve basic physics problems.
- Use the techniques, skills, and modern tools necessary for engineering practice.

Course Outcomes

Year: First

Paper: Basic Mechanical Engineering

Semester: Second

Paper Code: DTME 204

After successful completion of this course the student will be able to:

- Classify different laws of thermodynamics. Compare the temperature in different scale.
- Calculate the engineering problems based on thermodynamics.
- Develop the relation between COP of heat pump and refrigerator.
- Calculate the efficiency of heat engine on the basis of heat and work done.
- Assess the applications of S.I. and C.I. engines. Construction of two stroke and four stroke engines and study about the set up of IC engines.
- Classify different types of force system with free body diagram applied on a body. Verify also different laws of forces to solve various engineering problems.
- Evaluate the application on stress-strain in engineering problems.
- Develop the stress strain diagram of different types of material on the basis of their mechanical properties tested on UTM.
- Discuss the application of shaft in bending and twisting.

Course Outcomes

Year: First

Paper: Basic Electronics Engineering

Semester: Second

Paper Code: DTEC 204

After successful completion of this course the students will be able to:

- Explain about conduction in semiconductors.
- Demonstrate working knowledge of junction diode and its applications.
- Evaluate applications of transistor.
- Explain number system and op-amp.

Course Outcomes

Year: First
Paper: Basic Electrical Engineering

Semester: Second
Paper Code: DTEE 205

Diploma holder in Electrical Engineering comes across many electrical components and theorems of calculation of electrical quantities. They must have the knowledge of various Electric circuits and electrical equipments.

After successful completion of this course the student will be able to:

- Demonstrate knowledge of Basic Electrical components, working and application of different types of batteries.
- Use knowledge of Electrical circuits and Theorems for calculation of quantities in electrical network.
- Demonstrate knowledge of other Passive elements and their response in Electrical circuit.
- Use knowledge of magnetic circuit and its quantities.
- Use knowledge of production of A.C quantity.

Course Outcomes

Year: First

Paper: Fundamentals of IT

Semester: Second

Paper Code: DTCS 205

After successful completion of this course the student will be able to:

- Demonstrate basic knowledge of computer comprising the history of computer, its characteristics and its application in various fields.
- Manage all the resources of computer and get to know the basics of operating system.
- Use the MS-office concept in important documentation.
- Apply the knowledge regarding networking, different components of computer network into practical usage.
- Explain various internet related concepts.
- Use the knowledge of E-commerce and traditional commerce.
- Interpret different applications of information technology.

Course Outcomes

Year: First

Paper: Applied Chemistry

Semester: Second

Paper Code: DTCY208

On successful completion of this course the student will be able to:

- Interpret the basic and modern periodic laws.
- Apply knowledge of IUPAC nomenclature of hydrocarbons.
- Discuss the basic organic chemistry
- Explain different order reactions and laws associated with electrochemistry.
- Use different solution properties like molarity ,molality.
- Identify the terms related to metallurgy and extraction of metals.
- Explain fuels and lubricants their properties and uses.

Course Outcomes

Year: First

Paper: Environmental Studies

Semester: Second

Paper Code: DTES 208

After successful completion of this course the student will be able to:

- Interpret the scope of Environmental Studies.
- Explain different types of pollution and concept of SS, TDS, DO, COD, BOD.
- Assess about hardness & alkalinity of water, types of hardness.
- Interpret the source of air pollution-natural and man- made.
- Explain the soil pollution, major soil pollutant and their causes.
- Critique environment laws.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)

Paper: Electrical Circuit Theory

Semester: Third (III)

Paper Code: DTEE 301

Course Outcomes

After successful completion of this course the student will be able to:

Course Outcomes

- Building the fundamental concepts of circuit theory.
- Analysis of various D.C networks and theorems used for the calculation of electrical quantities in D.C circuits.
- Discuss about the A.C. and its components
- Analysis of various A.C networks and theorems used for the calculation of electrical quantities in A.C circuits.
- Illustrate about the frequency tuning, how frequency is tuned for real world applications.
- Identify about the star and delta connection, formulate phase component and line component.
- Knowledge about the combine response of electric and magnetic circuit and laws of magnetism. How electromagnetism works in real world.

Diploma in Electrical Engineering (EE-002)
Course Outcomes

Year: Second (II)

Paper: Electrical & Electronics Engg. Materials

Semester: Third (III)

Paper Code: DTEE 302

After successful completion of this course the student will be able to:

- Develop the fundamental concept of engineering materials.
- Recognize the various materials in context to electrical engineering.
- Explain about the types of high resistive & low resistive materials and their applications.
- Recognize semi conducting materials and their types along with their properties & applications.
- Explain various insulating materials and their types besides their importance in electrical engineering.
- Describe the concept of super conductivity and its applications.
- Classify various magnetic materials along with their types, properties and importance.
- Recognize various special purpose materials used in the field of electrical engineering.

Diploma in Electrical Engineering (EE-002)
Course Outcomes

Year: Second (II)
Paper: Electronics Devices & Circuits

Semester: Third (III)
Paper Code: DTEE 303

After successful completion of this course the student will be able to:

- Analyze the operation of transistors.
- Discuss the different types of biasing used in transistor.
- Analyze the various coupling schemes used in multi stage amplifiers.
- Sketch the frequency response of various amplifiers.
- Analyze the operation of JFET.
- Analyze the operation, characteristics and applications of a MOSFET.
- Design various circuits using Operational Amplifier.
- Illustrate the various application of Op-Am.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)

Semester: Third (III)

Paper: Electromechanical Energy Conversion-1

Paper Code: DTEE 304

Course Outcomes

After successful completion of this course the student will be able to:

- Develop the basic concept of electromechanical energy conversion.
- Develop the concept of DC machines & its applications.
- Analysis & formulation of DC machine and its types.
- Construction & working of single phase transformer.
- Development of torque and formulation of various components & equivalent circuits.
- Develop the construction and working of three phase transformer.
- Classify various protection schemes of transformer.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)

Semester: Three (III)

Paper: Estimating & costing in Electrical Engineering

Paper Code: DTEE 305

Course Outcomes

Diploma holder in Electrical Engineering comes across various types of electrical Projects. Students must have the knowledge of estimation of material required and costing for the electrical project.

After successful completion of this course the student will be able to:

- Construct the pro forma for Tender.
- Discuss various contingency factors for estimation and costing in electrical engineering.
- Discuss the IE rules with its safety codes.
- Analyze the factors for selection of wires
- Discuss the domestic and industrial installation as per IS and IE rules.
- Prepare the list of materials for domestic and industrial loads.
- Discuss the material required for transmission and distribution lines.
- Survey of substations with its schemes and components.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)

Semester: Four (IV)

Paper: Electromechanical Energy conversion-II

Paper Code: DTEE 401

Course Outcomes

After successful completion of this course the student will be able to:

- Develop the basic concept of synchronous machine.
- Discuss the working principle of synchronous machine at different power factor and load condition.
- Analyze the applications of synchronous machines.
- Develop the concept of induction motor with its principle.
- Determine the EMF frequency and losses of induction motor.
- Analyze the application of induction motor.
- Analysis of different types of motors with their losses.
- Describe special purpose machine with their applications.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)
Paper: Digital Electronics

Semester: Four (IV)
Paper Code: DTEE 402

Course Outcomes

After successful completion of this course the student will be able to:

- Analyze various number systems, analog and digital signals.
- Discuss the various concepts of binary codes.
- Explain logic gates, logic families and Boolean algebra.
- Formulate Boolean equation with the help of K-map.
- Discuss the applications and operations of sequential circuits.
- Design various digital circuits for addition and subtraction.
- Discuss the applications and operations of combinational circuits.
- Design various types of Flip Flops and counters.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)

Semester: Four (IV)

Paper: Electric power generation, transmission & distribution

Paper Code: DTEE 403

After successful completion of this course the student will be able to:

Course Outcomes

- Analyze conventional and non conventional sources.
- Design the flow diagrams of generating stations.
- Analyze the economy of power generation.
- Formulate the load estimation with the help of different factors.
- Analyze the layout of transmission system.
- Calculate different factors affecting AC transmission lines.
- Analysis of distribution system.
- Calculate losses in distribution system.
- Discuss the concept of power factor and tariffs in power system.

Diploma in Electrical Engineering (EE-002)

Year: Second (II)
Paper: Power Electronics

Semester: Four (IV)
Paper Code: DTEE 404

Course Outcomes

After successful completion of this course the student will be able to:

- Create the basic concept of electronic components in power transmission.
- Analyze the construction and working of SCR.
- Discuss the characteristics and application of various electronic components.
- Analyze the rectifier working on various load condition.
- Formulate the various outputs with the help of numerical problems.
- Create the basic concept of principle of chopper.
- Discuss the working of chopper with its applications.
- Analyze the power supply mode in power distribution.
- Discuss the inverters with its principles and application.

Diploma in Electrical Engineering (EE-002)

Course Outcomes

Year: Second (II)

Semester: Four (IV)

Paper: Electrical Measurements & Measuring Instruments

Paper Code: DTEE 405

After successful completion of this course the student will be able to:

- Develop the fundamental concept of electrical quantities and instruments.
- Analyze the errors, accuracy, and precision of their measurements.
- Construction and working Ammeter, and voltmeter with their applications.
- Analyze the construction and working of watt meter, energy meter with applications.
- Discuss the measurement bridges and their types.
- Discuss the special measuring instruments.

Diploma in Electrical Engineering (EE-002)

Year: Third

Paper: Switchgear & Protection

Semester: Fifth (V)

Paper Code: DTEE 501

Course Outcomes

After successful completion of this course the student will be able to:

- Discuss the various protective relaying, Zones.
- Discuss t
- Analyze the functionality of relay with its comparisons.
- Discuss the protection of transmission line.
- Analyze the methods used for protection of transmission line.
- Diagnosis of construction and operation of circuit breaker.
- Discuss the testing of circuit breakers and its classification.
- Identify of various circuit breaker and relays actions on a various machines.

Diploma in Electrical Engineering (EE-002)

Course Outcomes

Year: Third

Paper: Electric Drives

Semester: Fifth (V)

Paper Code: DTEE 502

After successful completion of this course the student will be able to:

- Discuss the concept of control system.
- Analyze the functioning of Relay.
- Discuss the Starters of Squirrel cage and Wound rotor induction motor.
- Analyze the working of auto transformer, Star delta Starter.
- Discuss the protection of motor with its control circuit.
- Discuss the industrial control circuit.
- Analyze the static control of machine.
- Develop the simple control circuits using gates.
- Discuss programmable action on motors like PLCs.

Diploma in Electrical Engineering (EE-002)

Course Outcomes

Year: Third

Semester: Fifth (V)

Paper: Computer Programming & Application

Paper Code: DTEE 503

After successful completion of this course the student will be able to:

- Formulate a broad perspective about the uses of computer programming in engineering industry.
- Discuss C programming environment with C program structure.
- Formulate Algorithmic solutions to problems and implementing algorithms in
- Construct user defined function to solve real time problems
- Discuss techniques,skills and modern tools of the discipline to narrowly defined engineering technology activities.
- Construct Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
- Discuss Pspice Autocad in Electrical Engineering.
- Construct programs in MATLAB for conditional and iterative statements,matrix operations and graphics tools.

Diploma in Electrical Engineering (EE-002)

Year: Third
Paper: Control System

Semester: Fifth (V)
Paper Code: DTEE 504

Course Outcomes

After successful completion of this course the student will be able to:

- Discuss the need of control system and concept of open loop and closed loop control system.
- Analyze the Different types of devices used in control system.
- Formulate the transfer function with its derivation using control system.
- Calculate the transfer function of the system using signal flow graph and block reduction techniques.
- Analyze the performance of control system with the help of various inputs.
- Discuss the different types of factors used in 2nd order control system with errors.
- Analyze the concept of stability and stability criteria using different techniques.
- Discuss and design different types of controller.

Diploma in Electrical Engineering (EE-002)

Year: Third

Paper: Microprocessors & Microcontrollers

Semester: Fifth (V)

Paper Code: DTEE 505

Course Outcomes

After successful completion of this course the student will be able to:

- Apply knowledge of pin diagrams with details and architecture of microprocessor into practice.
- Processing of different types of data transfer schemes.
- Explain the details of pin diagrams and architecture of microcontroller and its applications in real world.
- Describe about the interfacing application like latch connection, LEDs, 8 segment display etc. which used in various projects of electrical and electronics.

Diploma in Electrical Engineering (EE-002)

Year: Third

Semester: Sixth (VI)

Paper: Utilization of Electrical Energy & Traction Paper Code: DTEE 601

Course Outcomes

After successful completion of this course the student will be able to:

- Discuss the concept of electric heating.
- Analyze the different types of heating methods with its advantages.
- Discuss the electric welding with its types.
- Analyze the electrolyte process, laws, and applications.
- Analyze the illumination and its laws.
- Calculate number of light points for illumination.
- Analyze the electrochemical process and its laws.
- Discuss the refrigeration and air conditioning at various levels.
- Discuss the concept of electric traction with speed time curve.
- Analyze the mechanism of train movement.

Diploma in Electrical Engineering (EE-002)

Year: Third

Semester: Sixth (VI)

Paper: Installation & Maintenance of Electrical Equipment

Paper Code: DTEE 602

Course Outcomes

After successful completion of this course the student will be able to:

- Discuss the tools, accessories, required for installation of electrical equipments.
- Analyze the knowledge of Indian electricity and safety rules.
- Analyze the installation of transmission and distribution lines.
- Discuss the testing and lying of service lines.
- Discuss the elementary idea of power plant installation
- Identify circuit breakers used in installation.
- Analyze the maintenance and its procedures in transmission and distribution system.
- Calculate the fault used in various tests.
- Discuss the maintenance of distribution transformer.
- Analyze the domestic installation and its testing.

Diploma in Electrical Engineering (EE-003)

Year: Third

Paper: Electrical Machine Design

Semester: Sixth (VI)

Paper Code: DTEE 603

Course Outcomes

After successful completion of this course the student will be able to:

- Develop the basic concept of material used in machine design.
- Discuss the characteristics of materials with the variation of temperature.
- Analyze the design of transformer with its output equation.
- Calculate efficiency and voltage regulation of transformer on the basis of load.
- Analyze the design of synchronous machine with its output equation.
- Describe the flow chart for design of three phase synchronous generator.
- Analyze the design of DC machine with its flow chart.
- Discuss the computer aided analysis to design the DC machine.

Diploma in Electrical Engineering (EE-003)

Course Outcomes

Year: Third

Semester: Sixth (VI)

Paper: Entrepreneurship Development & Management

Paper Code: DTHU 604

After successful completion of this course the student will be able to:

- Plan and Manage Start Ups and enterprises.
- Set Up new projects through information about the process, procedure, rules and regulations
- Enhance effectiveness of the business through managerial skills.
- Create new employment opportunities.
- Modify work processes for higher profitability.
- Solve problems of varied nature that occur in business on a daily basis.

Diploma in Electrical Engineering (EE-002)

Course Outcomes

Year: Third

Paper: Consumer Electronics

Semester: Sixth (VI)

Paper Code: DTEE 653

The theory, practical experiences and relevant soft skills associated with this course are to be taught and implemented, so that the student demonstrates the following industry oriented CO's associated with the above mentioned competency.

- Troubleshoot different types of microphones and speakers.
- Maintain audio systems.
- Analyze the composite video signal used in TV signal transmission.
- Troubleshoot color TV receivers.
- Maintain various consumer electronic appliances.