

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

Course Outcomes

Year- First

Semester- First

Paper Name- English & Communication Skills-1

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 Civil Engineering (CE-001)

Course Outcomes

Year Second (II)
Paper: Applied Mechanics

Semester Third (III)
Paper Code: DTME 301

The course uses the Laws of Mechanics to predict forces in and motions of machines and structures. The course is the key prerequisite course to sequences of courses dealing with mechanics of machines, stress analysis and design of mechanical systems.

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

- Differentiate between Scalar and Vector Quantities. Classify different systems of unit
- Analyze the need of finding resultant force in solving typical engineering design problems. Verify laws of forces to solve force related engineering problems.
- Understand the Importance of friction in daily life. Calculate the force of friction with diagram applied on a stationary or moving body.
- Interpret the importance of centroid or centre of gravity in designing of structures and assess the coordinates of centroid of different geometrical figures.
- Illustrate the utility and working of machine. Develop the mechanical advantage to lift the maximum load by minimum effort on several machines like screw jack, worm and worm wheel etc.
- Understand the effect of moment of force in structures. Modify and distribute the forces on different frames with the help of laws of forces to solve typical structure problems.
- Interpret the importance of moment of inertia in designing of structures.

Diploma in Civil Engineering (CE-001)

Year: Second (II)

Paper: Hydraulics

Semester: Third (III)

Paper Code: DTCE301

Course Outcomes

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

- Illustrate the concepts of fluid.
- Explain the properties of fluid.
- Evaluate the different types of pressure.
- Measurement of flow using Venture-meter, Pitot tube, Orifice meter.
- Discuss the different types of flow in pipe or channel.
- Assess the different types of energy in a flowing fluid.
- Identify the losses in the fluid flow.
- Define the working principle of different types of hydraulic pumps.

Diploma in Civil Engineering (CE-001)

Course Outcomes

Year: Second (II)
Paper: Surveying-I

Semester: Third (III)
Paper Code: DTCE302

- Define applications of surveying for Civil Engineers.
- Interpret topographic maps and prepare conventional symbol chart.
- Define the traditional methods of taking distances and apply suitable corrections for different errors.
- Use the angle measuring instruments across various fields and determine the relative positions of the points on the earth's surface.
- Describe about the methods to determine vertical distances i.e.; height, depth of various points.
- Describe the different types of leveling instruments.

Diploma in Civil Engineering (CE-001)

Course Outcomes

Year: Second (II)

Paper: Building Materials

Semester: Third (III)

Paper Code: DTCE303

Diploma holders in civil engineering have to supervise the construction of various types of civil works involving use of various materials like stone, bricks and tiles limes, timber.

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

- Describe how to abstract stones from quarrying sites and uses of different types of stones.
- Explain how to manufacture bricks and tiles.
- Use lime and timber in building construction.
- Explain about different types of paint and varnishes.
- State about other miscellaneous materials used in building construction.

Diploma in Civil Engineering (CE-001)

Course Outcomes

Year: Second (II)

Paper: Building Constructions

Semester: Third (III)

Paper Code: DTCE304

Civil engineering diploma are required to supervise the construction of structural building ,roads, pavements, dams, embankments and other civil engineering structure. So this subject will help to understand the basic principle as well as current design practice in the construction of building.

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

- Discuss about the component of building and details of foundation.
- Define about the individual steps of construction cycle of a building from its base (foundation) to its top (roof).
- Explain the construction terminology and process.
- planning of building, services and building codes
- Formulate information regarding finishing of building.

Diploma in Civil Engineering (CE-001)

Year: Second (II)

Paper: Concrete Technology

Semester: Four (IV)

Paper Code: DTCE 401

Course Outcomes

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

- Explain the basics of concrete and its important constituents.
- Identify the various tests that are performed on concrete.
- Explain various mechanical properties of concrete and its various standards.
- Use various admixtures used in concrete and their effects on it.
- Recognize various operations performed in manufacturing of concrete, defects and remedies related to the same.

Diploma in Civil Engineering (CE-001)

Year: Second (II)
Paper: Geology

Semester: Four (IV)
Paper Code: DTCE 402

Course Outcomes

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

- Interpret the basic concepts of minerals and their physical properties.
- Explain the basic facts and information about origin of rocks.
- Identify the different secondary structures of the rocks.
- Discuss about earthquake engineering and different seismic waves
- Explain the general characteristics of site for construction of different structures like dam, tunnel etc

Diploma in Civil Engineering (CE-001)

Year: Second (II)

Paper: Water supply & waste water Engg.

Semester: Four (IV)

Paper Code: DTCE403

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

- Describe process of water supply.
- Describe the purification of water supplies.
- Define the sources of water & hydrological concepts.
- Describe the treatment of sewage.
- Explain collection and conveyance of sewage.
- Discuss the functioning of Sewage treatment plant.
- Explain the effective functioning of Drainage system.

Diploma in Civil Engineering (CE-001)

Year: Second (II)

Paper: Strength of Materials

Semester: Four (IV)

Paper Code: DTCE404

Course Outcomes

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

- Explain the various properties of engineering materials and the tests through which these properties are revealed.
- Figure out various beams, impact of their shear force and bending moment on them.
- Explain about shear stresses in beams and their distribution and also basics of slope and deflection in beams.
- Implement knowledge of various columns.
- Explain their failure theory.
- Analyze trusses.

Diploma in Civil Engineering (CE-001)

Year: Second (II)
Paper: Surveying-II

Semester: Four (IV)
Paper Code: DTCE 405

Course Outcomes

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

- Use the concept of contouring to explain how altitude is shown in maps.
- Discuss the use of Theodolite in Civil Engineering.
- Determine distances by optical means & using tachometric surveying.
- To understand the various functions and types of curves in road laying.
- Use various modern instruments like EDM, Remote Sensing used in civil engineering.

Diploma in Civil Engineering (CE-001)

Year Third (III)

Paper: Reinforced Cement Concrete

Semester: Fifth (V)

Paper Code: DTCE 501

Course Outcomes

- Discuss the basic concept of Reinforced Cement Concrete, Properties of Steel and Concrete.
- Understand the “limit state method” design.
- Analyze Single and Double Reinforced Beam through “Working Stress Method” for Moment, Shear, Bond and Development length.
- Design and Analysis of Single and Double Reinforced Beam through “Limit State Method” for Moment, Shear, Bond and Development length.
- Design and Analysis of One Way Slab through “Limit State Method” for Moment, Shear, Bond and Development length.
- Analyze the basic concept of pre-stressed concrete and its application.

Diploma in Civil Engineering (CE-001)

Year Third (III)

Paper: Railway, Bridge & Tunnel Engg.

Semester: Fifth (V)

Paper Code: DTCE 502

Course Outcomes

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

- Evaluate the quality and performance of different rails and use the suitable type of rail.
- Select the appropriate materials for use in different railway track.
- Explain the features of railway track, its system and how it work.
- Summarize the functions of different bridge component.
- Describe the bridge, its functions and component parts.
- Define the necessity of tunnels & its methods of construction.
- Carry out the basic design of ventilation and drainage.

Diploma in Civil Engineering (CE-001)

Course Outcomes

Year Third (III)

Paper: Irrigation Engineering

Semester: Fifth (V)

Paper Code: DTCE 503

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

- Explain irrigation system and its necessity.
- Estimate the water requirements for crops.
- Classify types of canals.
- Compare the different techniques of irrigation systems.
- Assess the importance and techniques of harvesting.
- Concepts of movement of ground water below the surface.
- Define the basics of hydrological cycle.
- Review various irrigation systems in detail.
- Describe about dams, canals, spillways and their use in irrigation systems.
- Analyze the classification of cross drainage structures and river training works.

Diploma in Civil Engineering (CE-001)

Course Outcomes

Year Third (III)

Paper: Highway Engineering

Semester: Fifth (V)

Paper Code: DTCE 504

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

- Determine the factors influencing road vehicle performance, characteristics, and design.
- Apply basic science principles in estimating road geometrics like stopping and passing sight distance requirements.
- Determine the types of curves, gradients required in road construction.
- Determine the different types of road materials used nowadays and various tests conducted on those materials for their feasibility in construction.
- Describe the types of road pavements used today and their selection criteria for different topography or needs.
- Judge the importance of road maintenance, road drainage, and special conditions of hill roads.
- Know the various road construction equipments like bulldozer, roller, scrapper used nowadays

Diploma in Civil Engineering (CE-001)

Year Third (III)

Semester: Fifth (V)

Paper: Soil Mechanics & Foundation Engineering

Paper Code: DTCE 505

Course Outcomes

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

- Propose the properties of soil.
- Analyze the stresses on soil mass when water flows through it.
- Choose proper soil mechanical model for the design of a construction.
- Analyze and design shallow foundations with respect to settlements and stability.
- Identify the soil characteristic of soil by soil exploration.
- Calculate the load bearing capacity of the soil.

Diploma in Civil Engineering (CE-001)

Year: Third

Paper: Steel Structure

Semester: Sixth (VI)

Paper Code: DTCE 601

Course Outcomes

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

- Evaluate the quality and performance of different steel section.
- Explain different connections used in steel structure.
- Develop the design feature of different members.
- Summarize the function of different truss component.
- Analyze the boundary conditions for column or strut for different loading conditions.
- Identify the restraint and unrestraint conditions of beams.
- Design different types of girder, beam & column.

Diploma in Civil Engineering (CE-001)

Year: Third

Semester: Sixth (VI)

Paper: Construction, Planning & Management

Paper Code: DTCE 653

Course Outcomes

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

- Understand project characteristics and various stages of a project.
- Understand the conceptual clarity about project organization and feasibility analyses
- Analyze the learning and understand techniques for Project planning, scheduling and Execution Control.

Diploma in Civil Engineering (CE-001)

Year: Third

Semester: Sixth (VI)

Paper: Estimating costing & Construction Management

Paper Code: DTCE 603

Course Outcomes

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

- Estimate costing of construction.
- Assess rates in construction.
- Explain about contracts and type of contracts.
- Preparation tender document.
- Discuss contracting & principles of valuation.

Diploma in Civil Engineering (CE-001)

Course Outcomes

Year: Third

Paper: Environment Engineering

Semester: Sixth (VI)

Paper Code: DTCE 605

- Explain about basic concepts of environmental engineering, pollutions and methods to control the same.
- Differentiate between types of pollutions, and analyze their causes and control.
- Classify human activities which adversely affect the environment.
- Prepare environmental assessments.
- Create acts to control pollution.
- Critique global environmental engineering issues.
- Plan conservation of energy resources.