

## Civil Engineering Program

### Course Outcomes

<b>Course Name</b>	<b>English(C22101) - SEMESTER-I</b>
<b>C22101.a</b>	Formulate grammatically correct sentences.
<b>C22101.b</b>	Summaries comprehension passages.
<b>C22101.c</b>	Compose dialogues and paragraphs for different situations.
<b>C22101.d</b>	Use relevant words as per context.
<b>C22101.e</b>	Deliver prepared speeches to express ideas, thoughts and emotions.
<b>Course Name</b>	<b>Basic Science –Physics/Chemistry(C22102)- SEMESTER-I</b>
<b>C22102.a</b>	Estimate errors in measurement of physical quantities
<b>C22102.b</b>	Apply the principles of electricity and magnetism to solve engineering problems.
<b>C22102.c</b>	Use the basic principles of heat and optics for related engineering applications.
<b>C22102.d</b>	Apply the catalysis process in industries
<b>C22102.e</b>	Apply corrosion preventive measures in industry.
<b>C22102.f</b>	Use the engineering material in industry.
<b>Course Name</b>	<b>Basic Mathematics(C22103)- SEMESTER-I</b>
<b>C22103.a</b>	Apply the concept of algebra to solve engineering related problems
<b>C22103.b</b>	Utilize the concept of trigonometry to elementary engineering problems
<b>C22103.c</b>	Solve basic engineering problems under the given condition of straight line
<b>C22103.d</b>	Solve the problems based of mensuration regular closed figure and regular solid
<b>C22103.e</b>	Use basic concept of statistics to solve engineering related problems
<b>Course Name</b>	<b>Fundamentals of ICT(C22001)- SEMESTER-I</b>
<b>C22001.a</b>	Use computer system and its peripherals.

<b>C22001.b</b>	Prepare business document using word processing tool.
<b>C22001.c</b>	Interpret data and represent it graphically using spreadsheet.
<b>C22001.d</b>	Prepare professional presentation.
<b>C22001.e</b>	Use different types of browsers.
<b>Course Name</b>	<b>Engineering Graphics(C22002)- SEMESTER-I</b>
<b>C22002.a</b>	Draw geometrical figures and engineering curves.
<b>C22002.b</b>	Draw the views of given object using principles of orthographic projection.
<b>C22002.c</b>	Draw isometric view of an object from given orthographic projections.
<b>C22002.d</b>	Use drawing codes, conventions and symbols as per IS SP-46 in engineering drawing
<b>C22002.e</b>	Draw free hand sketches of given engineering elements.
<b>Course Name</b>	<b>Workshop Practice(C22004)- SEMESTER-I</b>
<b>C22004.a</b>	Select tools & machinery according job.
<b>C22004.b</b>	Use hand tools in different shops for performing different operations.
<b>C22004.c</b>	Operate machinery & equipments in different shops.
<b>C22004.d</b>	Prepare job according to drawing.
<b>C22004.e</b>	Maintain workshop related tools, machinery & equipments
<b>C22004.f</b>	Follow safety rules & procedures
<b>Course Name</b>	<b>Applied Mathematics(C22201) - SEMESTER-II</b>
<b>C22201.a</b>	calculate equation of Tangent , normal , maxima and minima , and radius of curvature by differentiation
<b>C22201.b</b>	Solve the given problems of integration using suitable method
<b>C22201.c</b>	Apply the concept of integration to find area and volume
<b>C22201.d</b>	Solve differential equation of first order and first degree using suitable method

<b>C22201.e</b>	Solve differential equation of first order and first degree using suitable method
<b>Course Name</b>	<b>Applied Science( Physics)/Chemistry(C22202)- SEMESTER-II</b>
<b>C22202.a</b>	Select relevant material in industry by analyzing its physical properties.
<b>C22202.b</b>	Apply laws of motion in various applications.
<b>C22202.c</b>	Use LASERs, X-rays and photo electric sensors.
<b>C22202.d</b>	Select relevant metallurgical process related to industrial applications
<b>C22202.e</b>	Use relevant water treatment process to solve industrial problems.
<b>C22202.f</b>	Use relevant fuel in relevant applications.
<b>Course Name</b>	<b>Applied Mechanics(C22203)- SEMESTER-II</b>
<b>C22203.a</b>	Identify the force systems for given conditions by applying the basics of mechanics
<b>C22203.b</b>	Select the relevant simple lifting machine(s) for given purposes.
<b>C22203.c</b>	Determine unknown force(s) of different engineering systems
<b>C22203.d</b>	Check the stability of various force systems.
<b>C22203.e</b>	Apply the principles of friction in various conditions for useful purposes.
<b>C22203.f</b>	Find the centroid and center of gravity of various components in engineering systems
<b>Course Name</b>	<b>Construction Materials(C22204)- SEMESTER-II</b>
<b>C22204.a</b>	Identify relevant construction materials.
<b>C22204.b</b>	Identify relevant natural construction materials.
<b>C22204.c</b>	Select relevant artificial construction materials.
<b>C22204.d</b>	Select relevant special type of construction materials.
<b>C22204.e</b>	Select relevant finishing materials for construction.

<b>C22204.f</b>	Identify processed construction materials
<b>Course Name</b>	<b>Basic Surveying(C22205)- SEMESTER-II</b>
<b>C22205.a</b>	Select the type of survey required for given situation.
<b>C22205.b</b>	Compute the area of open field using chain, tape and cross staff
<b>C22205.c</b>	Conduct the traversing in the field using chain and compass
<b>C22205.d</b>	Use leveling instruments to determine reduced level of ground points.
<b>C22205.e</b>	Draw and Interpret contour maps of an area collecting field data
<b>C22205.f</b>	Use Digital planimeter to calculate areas.
<b>Course Name</b>	<b>Civil Engineering Workshop(C22008)- SEMESTER-II</b>
<b>C222008.a</b>	Identify the various construction activities at site.
<b>C222008.b</b>	Perform masonry job activities.
<b>C222008.c</b>	Perform plumbing job activities.
<b>C222008.d</b>	Identify finishing jobs related to building construction.
<b>C222008.e</b>	Identify the various components of typical civil structures like road ,culvert/bridges.
<b>Course Name</b>	<b>Business Communication(C22009)- SEMESTER-II</b>
<b>C22009.a</b>	Communicate effectively by avoiding barriers in various formal and informal situations
<b>C22009.b</b>	Communicate skillfully using non-verbal methods of communication
<b>C22009.c</b>	Give presentations by using audio- visual aids
<b>C22009.d</b>	Write reports using correct guidelines
<b>C22009.e</b>	Compose e-mail and formal business letters
<b>Course Name</b>	<b>Advance Surveying(C22301)- SEMESTER-III</b>
<b>C22301.a</b>	Prepare plans using Plane Table Surveys.

<b>C22301.b</b>	Prepare plans using Theodolite surveys.
<b>C22301.c</b>	Find distances and elevations using Tacheometer.
<b>C22301.d</b>	Set out simple circular curves.
<b>C22301.e</b>	Prepare plans using Total Station instrument.
<b>C22301.f</b>	Locate coordinates of stations using GPS.
<b>Course Name</b>	<b>Highway Engineering(C22302)- SEMESTER-III</b>
<b>C22302.a</b>	Identify the types of roads as per IRC recommendations.
<b>C22302.b</b>	Executing the geometrical design features of given highways
<b>C22302.c</b>	Experimenting the road materials which used for road construction.
<b>C22302.d</b>	Detecting traffic flow characteristics.
<b>C22302.e</b>	Executing hill road construction using relevant materials, techniques and methods.
<b>C22302.f</b>	Choosing relevant method of maintenance for roads and drainage
<b>Course Name</b>	<b>Mechanics of Structure(C22303)- SEMESTER-III</b>
<b>C22303.a</b>	Articulate Practical applications of moment of inertia of symmetrical and unsymmetrical structural sections
<b>C22303.b</b>	Interpret structural behavior of materials under various loading conditions
<b>C22303.c</b>	Select material considering engineering properties for various structural applications.
<b>C22303.d</b>	Interpret shear force and bending moment diagrams for various types of beams and loading conditions
<b>C22303.e</b>	Determine the bending and shear stresses in beams under different loading conditions
<b>C22303.f</b>	Check the column safety for various loading and end conditions
<b>Course Name</b>	<b>Building Construction(C22304)- SEMESTER-III</b>
<b>C22304.a</b>	Identify the components of Building Structures
<b>C22304.b</b>	Propose Suitable type of Foundation for Building Structures

<b>C22304.c</b>	Select suitable type of masonry for Building Structures.
<b>C22304.d</b>	Propose relevant means of communications for different types of Buildings.
<b>C22304.e</b>	Select the relevant material for finishing works.
<b>C22304.f</b>	Execute safe practices in building construction activities.
<b>Course Name</b>	<b>Concrete Technology(C22305)- SEMESTER-III</b>
<b>C22305.a</b>	Select relevant types of cement in given site conditions
<b>C22305.b</b>	Justifying the suitability of aggregate for concreting.
<b>C22305.c</b>	Evaluate workability of fresh concrete.
<b>C22305.d</b>	Mixing ingredient of concrete for given specification and testing hardened concrete.
<b>C22305.e</b>	Explain how to maintain the quality of given specified concrete.
<b>C22305.f</b>	Explaining special concreting methods and admixtures
<b>Course Name</b>	<b>Computer Aided Drawing(C22022)- SEMESTER-III</b>
<b>C22022.a</b>	Interpret the given 2-dimensional drawing.
<b>C22022.b</b>	Use CAD software for drafting and editing 2-dimensional drawings.
<b>C22022.c</b>	Locate the dimensions of the drafted drawing.
<b>C22022.d</b>	Draw the isometric and 3- dimensional drawings.
<b>Course Name</b>	<b>Hydraulics(C22401)- SEMESTER-IV</b>
<b>C22401.a</b>	Interpret the pressure parameters from pressure measuring devices in flowing liquids.
<b>C22401.b</b>	Determine total hydrostatic pressure and center of pressure for different conditions.
<b>C22401.c</b>	Choosing relevant fluid flow parameters in different situations.
<b>C22401.d</b>	Determine the loss of head of fluid flow through pipes.
<b>C22401.e</b>	Measuring the fluid flow parameters in open channels.

<b>C22401.f</b>	Testing relevant hydraulic pumps for different applications.
<b>Course Name</b>	<b>Theory of Structures(C22402)- SEMESTER-IV</b>
<b>C22402.a</b>	Estimate stresses induced in vertical member subjected to direct and bending loads.
<b>C22402.b</b>	Estimate slope and Deflection in beams under given loading conditions.
<b>C22402.c</b>	Estimate end moments of fixed beams.
<b>C22402.d</b>	Estimate continuous beam under given loading conditions using the principles of three Moments.
<b>C22402.e</b>	Estimate continuous beam using Moment Distribution Method under different loading conditions
<b>C22402.f</b>	Estimate axial forces in the members of simple truss.
<b>Course Name</b>	<b>Railway and Bridge Engineering(C22403)- SEMESTER-IV</b>
<b>C22403.a</b>	Identify the components of Railway Tracks
<b>C22403.b</b>	Explain the maintenance of Railway Tracks
<b>C22403.c</b>	Describe the condition of Bridges
<b>C22403.d</b>	Explain the components of Railway and Bridges
<b>C22403.e</b>	Describe different types of Tunnels
<b>Course Name</b>	<b>Geo Technical Engineering(C22404)- SEMESTER-IV</b>
<b>C22404.a</b>	Identify types of rocks and sub soil strata of earth from given
<b>C22404.b</b>	Testing the physical properties of soil related to given construction activities.
<b>C22404.c</b>	Testing the results of permeability, shear strength and bearing capacity of soil for foundation analysis
<b>C22404.d</b>	Testing optimum values for moisture content for maximum dry density of soil through various tests.
<b>Course Name</b>	<b>Building Planning and Drawing(C22405)- SEMESTER-IV</b>
<b>C22405.a</b>	Interpret the symbols, signs and conventions from the given drawing.
<b>C22405.b</b>	Prepare line plans of residential and public buildings using principles of planning

<b>C22405.c</b>	Prepare submission and working drawing from the given requirement for Load Bearing Structure
<b>C22405.d</b>	Prepare submission and working drawing from the given requirement for Framed Structure.
<b>C22405.e</b>	Draw Two point perspective drawing for given small objects.
<b>Course Name</b>	<b>Environmental Studies(C22447)- SEMESTER-IV</b>
<b>C22447.a</b>	Develop public awareness about environment
<b>C22447.b</b>	Select alternative energy recourses for engineering practice
<b>C22447.c</b>	Conserve ecosystem and Biodiversity
<b>C22447.d</b>	Apply techniques to reduce environmental pollutions
<b>C22447.e</b>	Manage social issues and environmental ethics as lifelong learning.
<b>Course Name</b>	<b>Water Resource Engineering(C22501)- SEMESTER-V</b>
<b>C22501.a</b>	Estimating Hydrological Parameters
<b>C22501.b</b>	Estimating Crop water Requirement of a command area and capacity of canal
<b>C22501.c</b>	Comparing the construction and maintenance between Gravity and Earthen Dams
<b>C22501.d</b>	Executing the Minor and Micro Irrigation Schemes
<b>C22501.e</b>	Choosing the Relevant Diversion Head Works for the specific site condition
<b>C22501.f</b>	Designing, Constructing and maintaining simple Canal Structures
<b>Course Name</b>	<b>Design of Steel and RCC Structures(C22502)- SEMESTER-V</b>
<b>C22502.a</b>	Use steel table and IS code 800:2007 at work sites
<b>C22502.b</b>	Design the connections for the given steel joints.
<b>C22502.c</b>	Analysis and design of singly reinforced rectangular beams.
<b>C22502.d</b>	Design of shear reinforcement and development length for beam and slabs
<b>C22502.e</b>	Design various slabs for the given edge condition.



<b>C22502.f</b>	Design of axially loaded short columns and footings.
<b>Course Name</b>	<b>Estimating and Costing(C22503)- SEMESTER-V</b>
<b>C22503.a</b>	Select the modes of measurements for different items of work
<b>C22503.b</b>	Prepare approximate estimate of a civil engineering works
<b>C22503.c</b>	Estimate quantities of various items for residential building.
<b>C22503.d</b>	Justify the rate for given items of work using rate analysis technique
<b>C22503.e</b>	Prepare estimate for given civil engineering works and use relevant software /Excel Program
<b>Course Name</b>	<b>Public Health Engineering(C22504)- SEMESTER-V</b>
<b>C22504.a</b>	Identify the sources and characteristics of water and wastewater
<b>C22504.b</b>	Estimate the quantity of drinking water and wastewater generated.
<b>C22504.c</b>	Draw labeled systems of plumbing for building sanitation.
<b>C22504.d</b>	Draw the flow diagram for process of treatment of water and wastewater
<b>C22504.e</b>	Identify various accessories for efficient conveyance and distribution of water
<b>Course Name</b>	<b>Traffic Engineering(C22507)- SEMESTER-V</b>
<b>C22507.a</b>	Identify the road characteristics for a given road as per IRC
<b>C22507.b</b>	Use of traffic volume study, O&D study, Speed study and Parking study of traffic studies on a given road
<b>C22507.c</b>	Use the relevant road traffic signs and markings for given traffic problems.
<b>C22507.d</b>	Specify the relevant road traffic signals and Intersections for given traffic problem
<b>C22507.e</b>	Collect the Environmental and arboriculture data of the given road at a given time
<b>C22507.f</b>	Choose preventive measures to avoid accidents by analysing the traffic conditions at the site.
<b>Course Name</b>	<b>Capstone Project – Planning (C22058)- SEMESTER-V</b>
<b>C22058.a</b>	Write the problem/task specification in existing systems related to the occupation.

<b>C22058.b</b>	Select, collect and use required information/knowledge to solve the problem/complete the task.
<b>C22058.c</b>	Choose relevant possible solutions.
<b>C22058.d</b>	Identify ethical issues related to the project if any.
<b>C22058.e</b>	Assess the impact of the project on society.
<b>C22058.f</b>	Prepare 'project proposals' with action plan.
<b>C22058.g</b>	Communicate effectively and confidently as a member and leader of team.
<b>Course Name</b>	<b>Management(C22509)- SEMESTER-VI</b>
<b>C22509.a</b>	Use basic management principles to execute daily activities.
<b>C22509.a</b>	Use principles of planning and organizing for accomplishment of tasks.
<b>C22509.a</b>	Use principles of directing and controlling for implementing the plans.
<b>C22509.a</b>	Apply principles of safety management in all activities
<b>C22509.a</b>	Understand various provision of industrial acts.
<b>Course Name</b>	<b>Contracts and Accounts(C22601)- SEMESTER-VI</b>
<b>C22601.a</b>	Explain the PWD procedure for initiating the work.
<b>C22601.b</b>	Execute the contract for civil engineering works.
<b>C22601.c</b>	Prepare the tender document for civil engineering works.
<b>C22601.d</b>	Use the relevant type of form used in PWD to pay the bill of the executed work.
<b>C22601.e</b>	Prepare the detailed specification for various items of construction.
<b>C22601.f</b>	Justify the rent fixation of civil structures
<b>Course Name</b>	<b>Maintenance and Repair of Structure(C22602)- SEMESTER-VI</b>
<b>C22602.a</b>	Explain the necessities of maintenance and types of maintenance.
<b>C22602.b</b>	Examine the given structure and its stability.

<b>C22602.c</b>	Select the appropriate materials for given under maintenance structure.
<b>C22602.d</b>	Select the appropriate methods for given under maintenance structure.
<b>C22602.e</b>	Estimate the structural audit and budget of given maintenance structure as per rules of PWD.
<b>Course Name</b>	<b>Emerging Trends in civil engineering(C22603)- SEMESTER-VI</b>
<b>C22603.a</b>	Reveal different applications of software's for planning, designing and execution of project.
<b>C22603.b</b>	Suggest the advanced materials as per site condition.
<b>C22603.c</b>	Recommend the suitable tools and equipment's for the given situation.
<b>C22603.d</b>	Suggest the advanced resources management techniques for the given project.
<b>C22603.e</b>	Use the feasible advance techniques for various civil engineering projects.
<b>Course Name</b>	<b>Solid Waste Management(C22605)- SEMESTER-VI</b>
<b>C22605.a</b>	Identify the different sources of solid wastes.
<b>C22605.b</b>	Execute the relevant method of collection and transportation of solid wastes.
<b>C22605.c</b>	Execute an action plan for disposal of solid wastes.
<b>C22605.d</b>	Implement the relevant method for disposal of Bio medical wastes.
<b>C22605.e</b>	Implement the relevant method for disposal of Industrial wastes and E-waste.
<b>C22605.f</b>	Implement the relevant laws related to Solid waste management.
<b>Course Name</b>	<b>Capstone Project- Execution and Report Writing(C22060)- SEMESTER-VI</b>
<b>C22060.a</b>	Implement planned activity individually or as team.
<b>C22060.b</b>	Select, collect and use required information/knowledge to solve the problem/complete the task.
<b>C22060.c</b>	Analyze the data with interpretation.
<b>C22060.d</b>	Incorporate energy and environment conservation principles.

<b>C22060.e</b>	Identify ethical issues related to project.
<b>C22060.f</b>	Assess the impact of project on society.
<b>C22060.g</b>	Communicate effectively and confidently as a member and leader of team.
<b>C22060.h</b>	Develop report writing skills.
<b>Course Name</b>	<b>Construction Management(C22061)- SEMESTER-VI</b>
<b>C22061.a</b>	Organize the human resources for the Civil Engineering project
<b>C22061.b</b>	Prepare networks and bar chart for the given construction project.
<b>C22061.c</b>	Apply Safety measures at construction projects.
<b>Course Name</b>	<b>Entrepreneurship Development (C22032)- SEMESTER-VI</b>
<b>C22032.a</b>	Identify your entrepreneurial traits
<b>C22032.b</b>	Identify the business opportunities that suits you
<b>C22032.c</b>	Use the support system to zero down to your business idea
<b>C22032.d</b>	Develop comprehensive business plans
<b>C22032.e</b>	Prepare plans to manage the enterprise effectively.