

GOVERNMENT POLYTECHNIC CHINYALISUR

3 YEAR DIPLOMA COURSE – CIVIL ENGINEERING

COURSE OUTCOMES

I YEAR – I SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
991001	English and Communication Skills –I	<ol style="list-style-type: none">1- The learner will be able to read and comprehend texts from simple to moderate levels of difficulty.2- The learner will be able to write simple to moderately complex sentences and develop a simple idea into a short paragraph.3- Shall be able to write business and personal letters at a functional level.4- Shall also be able to write specific formats like circulars, notices, press release, memo, agenda and minutes, e-mail, resume.5- The learner will be able to listen and understand spoken communication of fellow workers, News broadcast on TV and Radio, Lectures available on the internet and Films and shows in theatres and on TV.6- The learners will be able to interpret the common and technical conversation in the language.
991002	Applied Mathematics	<ol style="list-style-type: none">1- To provide mathematical background to the students so that they can be able to grasp the engineering subjects properly.2- To initiate the multi-dimensional logical thinking and reasoning capabilities.3- Shall be able to apply the concepts of algebra to solve engineering related problems.4- Utilize basic concepts of trigonometry to solve elementary engineering problems.5- Solve the problems based on limit & derivatives.6- Use basic concepts of Set theory to solve engineering related problems.
991003	APPLIED PHYSICS – I	<ol style="list-style-type: none">1- To give an understanding both by observation and by prediction of the way in which objects will behave.2- Concrete use of physical principles and analysis in various fields of engineering and technology so that students can appreciate learning of these concepts and principles.3- To develop proper understanding of the physical phenomenon.4- To develop scientific temper in the students.

991004	APPLIED CHEMISTRY - I	<ol style="list-style-type: none"> 1- To understand the role of Chemistry and chemical products in every branch of engineering. 2- To develop scientific temper and appreciation of chemical properties of materials, which students must handle in their professional career. 3- To understand various products of chemical industries that are playing important role in the field of engineering. 4- To understand the strength of materials, the chemical composition of substances, their behaviour when subjected to different treatment and environment, and the laws of heat and dynamic energy.
991005	Computer Fundamentals	<ol style="list-style-type: none"> 1- Students will be able to understand a computer system that has hardware and software components, which controls and makes them useful. 2- Students will be able to understand the operating system as the interface to the computer system and basic functions of an operating system. 3- Students will be able to Set the parameter required for effective use of hardware combined with and application software's. 4- Students will be able to Use file mangers, word processors, spreadsheets, presentation software. 5- Students will be able to use Internet to send mail and surf the World Wide Web.
991006	ENGINEERING GRAPHICS – I	<ol style="list-style-type: none"> 1- Information about the important tools for engineering drawing. This will give student basic knowledge of technical drawings. 2- Student shall learn how to draw the shapes, angels, lines letters and geometrical constructions. 3- Develop student's imagination and ability to represent the shape, size and specifications of physical objects. 4- Student shall be able to understand the main idea of using dimension for engineering drawing. 5- Student shall be able to develop concept of scale (Simple and Diagonal scale). 6- Student shall have knowledge of projection and shall be able todraw two-dimensional orthographic drawings and three-dimensional isometric views.
991007	GENERAL WORKSHOP PRACTICE – I	<ol style="list-style-type: none"> 1- Student shall have knowledge of general safety rules and precautions in work place. 2- Student shall have knowledge of how to use different tools. 3- To understand measuring and marking process on job before operation. 4- Student shall have basic knowledge of fitting, carpentry and electric shop.

I YEAR – II SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
992001	English and Communication Skills –II	<ol style="list-style-type: none">1- The learner will be able to read and comprehend texts from simple to moderate levels of difficulty.2- The learner will be able to write simple to moderately complex sentences and develop a simple idea into a short paragraph.3- Write specific formats like circulars, notices, press release, memo, agenda and minutes, e-mail, resume.4- The learner will be able to listen and understand spoken communication of fellow workers, News broadcast on TV and Radio, Lectures available on the internet and Films and shows in theatres and on TV.5- The learners will be able to communicate ideas with moderate fluency of speech.6- The learners will be able to interpret the common and technical conversation in the language.
992002	Applied Mathematics- II	<ol style="list-style-type: none">1- To provide mathematical background to the students so that they can be able to grasp the engineering subjects properly.2- To develop intellectual maturity3- To initiate the multi-dimensional logical thinking and reasoning capabilities.4- Apply the concepts of algebra to solve engineering related problems.5- Utilize basic concepts of trigonometry to solve elementary engineering problems.6- Solve the problems based on limit & derivatives.7- Use basic concepts of Set theory to solve engineering related problems
992003	APPLIED PHYSICS – II	<ol style="list-style-type: none">1- To give an understanding of this world both by observation and by prediction of the way in which objects will behave2- Concrete use of physical principles and analysis in various fields of engineering and technology are so that students can appreciate learning of these concepts and principles.3- To develop proper understanding of the physical phenomenon.4- To develop scientific temper in the students.
992004	APPLIED CHEMISTRY - II	<ol style="list-style-type: none">1- To understand the role of Chemistry and chemical products in every branch of engineering.2- To develop scientific temper and appreciation of chemical properties of materials, which students have to handle in their professional career.3- To understand various products of chemical industries that are playing important role in the field of engineering.4- To understand the strength of materials, the chemical composition of substances, their behaviour when subjected to different treatment and environment, and the laws of heat and dynamic energy.

992005	ENVIRONMENTAL SCIENCE	<ol style="list-style-type: none"> 1- To have knowledge of different types of pollution caused due to industries, constructional activities and agricultural inputs so that he may help in balancing the ecosystem and controlling pollution by pollution control measures. 2- To be aware of various social issues on environment and environment laws related to the control of pollution.
992006	ENGINEERING GRAPHICS – II	<ol style="list-style-type: none"> 1- Student shall have basic knowledge of intersection and development of surface of body. 2- Student shall have basic knowledge of detail and assembly drawing and use of keys, cotters, coupling and other joints. 3- Student shall be able to understand the nomenclature of threads, various types of nut and bolts, screws, studs washers. 4- Student shall know about types of rivet, riveting process and riveted joints. 5- Student shall understand the purpose of symbols and conventions in engineering.
992007	GENERAL WORKSHOP PRACTICE – II	<ol style="list-style-type: none"> 1- Student shall understand the types of welding and prepare job e.g. Lap joint, butt joint. 2- Student shall know the function of forging shop and different jobs produced in smithy & forging shop. 3- Student shall understand different types of metal and its properties. 4- Student shall know the commonly used plastic materials i.e, Thermosetting, thermo plastic.

II YEAR – III SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
023006	FLUID MECHANICS	<ol style="list-style-type: none">1- Solving fluid flow problems in the field of Civil Engineering.2- To understand the basic concepts and principles in hydrostatics, hydro kinematics and hydrodynamics and their application in solving fluid - mechanics problems.3- To understand the study of various Hydraulic Pumps.
023001	ENGINEERING MECHANICS	<ol style="list-style-type: none">1- To understand the basic concepts of mechanics.2- To understand the laws of forces, moments, friction, centre of gravity, laws of motion and simple machines which are required by the students for further understanding of other allied subjects.3- To enhance the analytical ability of the students.
023002	BASIC SURVEYING	<ol style="list-style-type: none">1- plotting of survey data, preparation of survey maps and setting out works.2- To develop the skills in chain surveying, compass surveying, levelling will normally be called upon to perform.3- To Use various Minor Instruments in surveying work.4- Practical Exercises to be done so that student would be able to check his work, have an idea of the results and the extent of error in the work done by him.5- The plotting skills of the students to be developed for various surveys done with necessary adjustment of errors occurred.
023004	BUILDING MATERIAL & CONSTRUCTION	<ol style="list-style-type: none">1- To effectively supervise construction of various structures including building construction to obtain/provide a fault free service from contractors to users.2- To possess knowledge of various building materials and components of buildings.3- To have knowledge of foundations, walls, roofs, staircases, floors etc., and their material specifications, constructional details as well as preventive, remedial and corrective methods of common construction faults.
023003	BUILDING DRAWING	<ol style="list-style-type: none">1- Learner to have a thorough knowledge of drawing.2- To be capable of sketching detailed constructional drawing of various components of building for the purpose of communication with the craftsman.3- Should be capable of Planning of small buildings, developing a line plan, dimensioning, key plan, drainage plan.4- Should be conversant with reading and interpretation of drawing for execution of work.

II YEAR – IV SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
024001	ADVANCED SURVEYING	<ol style="list-style-type: none"> 1- To understand detailed surveying, plotting of survey data, preparation of survey maps and setting out works. 2- To develop knowledge and skill in plane table surveying, theodolite surveying; tachometry surveying, curves, and use of minor and modern instruments. 3- Practical exercises to be done so that student can check his work, have an idea of the results and the extent of error in the work done by him. 4- The surveys done should be plotted, as this will also reveal errors in the work and develop skill in plotting.
024005	MECHANICS OF STRUCTURES	<ol style="list-style-type: none"> 1- To impart basic knowledge and skill regarding properties of materials, concept of stresses and strains, bending moment and shear force diagrams, second moment of area, bending and shear stresses, slope, and deflection. 2- To possess knowledge for designing simple structural components. 3- To develop basic concepts and principles related to strength of materials. 4- To enable the students to continue their higher education.
024006	WATER SUPPLY & WASTE WATER ENGINEERING	<ol style="list-style-type: none"> 1- To have the basic knowledge of potable water at the first place then collection and disposal of waste solids and liquids which are important activities of civil engineering field. 2- To have basic knowledge and skills in the field of water supply system and waste water disposal system. 3- Through field visits to show functional details of water supply and waste water disposal systems.
024004	IRRIGATION ENGINEERING	<ol style="list-style-type: none"> 1- To have the basic knowledge for preventing water logging and irrigation by tube wells. 2- To have knowledge regarding hydrology, flow irrigation – storage and distribution system. 3- To have knowledge of constructional features of head works, river training works, cross drainage works, causes and prevention of water logging and construction of tube wells.
024002	CONCRETE TECHNOLOGY	<ol style="list-style-type: none"> 1- To have basic knowledge to supervise concreting operations involving proportioning, mixing, transporting, placing, compacting, finishing and curing of concrete. 2- To have knowledge and skills regarding ingredients of concrete and their properties. 3- To have knowledge of properties of concrete in plastic and hardened stage, water cement ratio and workability; proportioning for ordinary concrete; concreting operations and joints in concrete.
024003	ENVIRONMENTAL & IRRIGATION ENGINEERING DRAWING	<ol style="list-style-type: none"> 1- To have knowledge to supervise construction of water supply wastewater treatment works and irrigation structures. 2- To have skills for preparing water supply waste water and irrigation engineering drawings to develop

		competencies for reading the drawings, and their execution in their field.
024053	INDUSTRIAL TRAINING	<ol style="list-style-type: none"> 1- To prepare student for their future role as diploma engineers in the world of work and enables them to integrate theory with practice. 2- Through Industrial training students to experience the environment and culture of industrial production units and commercial activities undertaken in field organizations.

III YEAR – V SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
025003	REINFORCED CONCRETE DESIGN	<ol style="list-style-type: none"> 1- It is an applied engineering subject. Students to have basic knowledge so that they can supervise RC Construction and fabrication. 2- To have basic knowledge to design simple structural elements, make changes in design depending upon availability of materials (bars of different diameters). 3- The student will be able to design simple structural elements like RCC beam, column, slab etc. by WSM & LSM using IS 456
025005	HIGHWAY & AIRPORT ENGINEERING	<ol style="list-style-type: none"> 1- To have basic knowledge so that they can construct and maintain highways and airports. 2- Should have knowledge of basic concepts of road geometrics, surveys and plans, elements of traffic engineering, road materials, construction of rigid and flexible pavements, special features of hill roads, road drainage system and various aspects of maintenance. 3- Should know constructional details and quality control aspects. 4- Students to prepare sketches and drawings, clearly indicating specifications and constructional details for various sub components of a highway. 5- The student will be able to get knowledge of highway geometrics design as per IRC standards, types of pavements and test materials required for highway construction. 6- The student will be able to get the knowledge of Airport planning, layout of Runway, taxiways, and apron.
025006	RAILWAYS, BRIDGES AND TUNNEL ENGINEERING	<ol style="list-style-type: none"> 1- Students to have broad based knowledge regarding various components and construction of railway track, bridges, and tunnels. 2- Through field visits teachers to show various components and construction of railway track, bridges, and tunnel, so that students have practical knowledge of these components. 3- The student will be able to get knowledge regarding construction of various components of railways, bridges and tunnels+
025001	ESTIMATING & COSTING	<ol style="list-style-type: none"> 1- To have basic knowledge so that students are able to prepare material estimates for various Civil Engineering works namely; buildings, irrigation works, public health works and roads etc. 2- To have basic knowledge regarding analysis of rates, contracting, principles of valuation. 3- Teachers to provide working drawings for various Civil Engineering works and studentsto calculate the quantities of materials required for execution of such works and use of relevant software for preparing estimates. 4- Teachers should conceptualize making analysis of rates for different items of works. It will be advantageous if

		<p>students are given valuation reports for reading so that students are well versed with analysis of rates and valuation work.</p> <p>5- The student will be able to prepare estimates for various civil engineering works along with technical knowhow of tender, contracts, and principles of valuation.</p>
025002	GEOTECHNICAL ENGINEERING	<p>1- Learners are required to supervise the construction of structural buildings, roads, pavements, dams, embankments, and other Civil Engineering structures. As such the knowledge of basic soil engineering is the prerequisite for effective discharge of their duties.</p> <p>2- Should have basic knowledge to identify and classify the different types of soils, their selection and proper use in the field for various types of engineering structures.</p> <p>3- To lay greater emphasis on the practical aspects rather than theory and mathematical treatment.</p> <p>4- To create understanding in students that soils fail either under shear or settlement due to heavy loads.</p> <p>5- The student will be able to Understand & classify the different types of soils, their physical properties.</p> <p>6- Student will be able to test soil parameters like compaction, shear strength & Atterberg's limits etc along with the technical knowhow of soil bearing capacity.</p>
025004	COMPUTER APPLICATION IN CIVIL ENGINEERING	<p>1- Use the computers effectively in problem solving. Students should be able to use application of various computer software's in civil engineering.</p>

III YEAR – VI SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
026003	STEEL STRUCTURE DESIGN	<ol style="list-style-type: none"> 1- To have basic knowledge so that students are able to supervise steel construction and fabrication. 2- To have basic knowledge to design simple structural elements, make changes in design depending upon availability of materials. 3- To have basic knowledge of BIS code as this subject deals with elementary design principles as per BIS code of practice IS: 800. 4- The student will be able to understand the properties of structural steel and design simple steel structural elements like tension members, compression members, columns, beams etc. by using IS 800
026002	EARTHQUAKE RESISTANT BUILDING CONSTRUCTION	<ol style="list-style-type: none"> 1- To have basic knowledge to supervise construction of various earthquake resistant buildings. 2- Should have requisite knowledge regarding terminology of earthquake and the precautions to be taken while constructing earthquake resistant buildings. 3- The student will be able to understand the terminology of earthquake along with the technical knowhow of earthquake resistant building construction.
026001	CONSTRUCTION MANAGEMENT ACCOUNTS AND ENTREPRENEURSHIP DEVELOPMENT	<ol style="list-style-type: none"> 1- To have basic knowledge about construction planning and management, site organisation, construction labour, control of work progress, inspection and quality control, accidents and safety and accounts. 2- The student to understand the various objectives and functions of construction planning and management, prepare bar charts for scheduling construction works, control of work progress, inspection and quality control along with safety parameters.
026006	DISASTER MANAGEMENT	<ol style="list-style-type: none"> 1- To have basic knowledge related to general concept in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response, and recovery. 2- The student will be able to understand the general concept in the dimensions of disasters caused by nature beyond the human control. 3- Student will be able to understand the rehabilitation, reconstruction & recovery measures post disaster.
026007	REPAIR AND REHABILITATION OF BUILDINGS	<ol style="list-style-type: none"> 1- To have basic knowledge to take care of the building works, already constructed, in order to keep these buildings in utmost workable conditions. 2- To have proper knowledge so that buildings do not deteriorate faster for want of care and proper maintenance. 3- To have proper knowledge of cracks, leakage from the roofs and sanitary/water supply fittings. 4- Students should be made to find damaged/defective work spots and students should be asked to think about

		<p>rectifying/finding solution to the problem.</p> <p>5- The student will be able to assess the various sources, causes & effects of deterioration of buildings and other structures.</p> <p>6- Student will be able to provide remedial measures for building defects including rehabilitation of buildings.</p>
026004	STRUCTURAL DRAWINGS	<p>1- To have basic knowledge so that students can supervise the construction of RC and steel structures.</p> <p>2- Should be able to draw structural drawings.</p> <p>3- The student will be able to prepare, read and interpret various drawings of RCC and steel structures.</p> <p>4- Student will be able to prepare and read Bar Bending Schedule & calculate the material requirements for execution of different civil works.</p>
026008	MAJOR PROJECT WORK	<p>1- Develop understanding regarding the size and scale of operations and nature of field work in which students are going to play their role after completing the courses of study.</p> <p>2- Develop understanding of subject based knowledge given in the classroom in the context of its application at work places.</p> <p>3- Provide first-hand experience to develop confidence amongst the students to enable them to use and apply classroom-based knowledge and skills to solve practical problems of the world of work.</p> <p>4- Develop special skills and abilities like interpersonal skills, communication skills, attitudes, and values.</p> <p>5- The student will be able to understand the nature of field work including development of interpersonal and communication skills.</p>
026005	SURVEY CAMP	<p>1- To train the students to appreciate practical difficulties in surveying on the field</p> <p>2- To train the students for self-management.</p> <p>3- The student will be conversant with the camp life, develop team spirit, use of various surveying instruments in the field & solving practical difficulties.</p>
016055	EMPLOYABILITY SKILLS	<p>1- Possess subject related knowledge, also soft skills to get good jobs and to rise steadily at their workplace.</p> <p>2- The student will acquire soft skills and develop employability skills for getting good job.</p>