Shree Mahavir
Education Society's

Mahavir Polytechnic

Mhasrul Varvandi Road , Nashik, Maharashtra

Department of Civil Engineering

Course Outcomes

MSBTE prescribed syllabus, as per the Scheme 'G'

Semester – I

Abbreviation	Subject	Code
ENG –	English	(17101)

1) Understand English - the language as a medium of expressing oneself and being global language, use it in all spheres of life – Personal, Professional and Social.
2) Developing the vocabulary.
3) Learn and apply rules of grammar.
4) Comprehend the given unseen paragraph.

EPH – Basic Physics (17102)

1) Understand the method of selection of material for intended purpose.
2) Application of knowledge of heat conductors (good and bad conductors of heat) in various engineering concepts.
3) Understand the effect of interference between the waves of light.
4) Application of knowledge of wave motion and resonance in various engineering applications.
5) Application of concept photoelectric effect for application like Photoelectric cell and Solar cell.

ECH – Basic Chemistry (17103)

1) Understand the concept of valence electron and valency of elements.
2) Application of knowledge of electrolysis in engineering applications.
3) Understand the formation process/reactions of various molecules.
4) Application of the properties of metals and alloys in engineering field.
5) Understand the use of non-metallic material in engineering field.

BMS – Basic Mathematics (17104)

1) Apply the Crammer's rule and Matrix method to solve simultaneous equations in three variables.
2) Use concept of allied angle, compound angle, multiple and sub-multiple angles to solve engineering problems.
3) Use factorization and de-factorization formulae to solve examples.
4) Understand the relationship of two variables.

EGG – Engineering Graphics (17001)

1) Draw different engineering curves and know their applications.
2) Draw orthographic projections of different objects.
3) Visualize three dimensional objects and draw Isometric Projections.
4) Draw simple geometrical figures using CAD package.

CMF – Computer Fundamentals (17002)

1) Use of Operating System.
2) Use MS-Word, MS-Excel, MS-Power Point, effectively for documentation.
3) Use browser for accessing the Internet
4) Handle Personal Computer System

Semester – II

Abbreviation Subject Code

CMS – Communication Skills (17201)

1) Utilize the skills necessary to be a competent communicator.
2) Select and apply the appropriate methods of communication in various situations.

EGM – Engineering Mechanics (17204)

1) Understand the effect of different types of coplanar forces.
2) Apply Principles of equilibrium in finding reactions of different types of beams.
3) Apply principles of equilibrium for locating centroid and centre of gravity for given Solids.
4) Understand working of different types of lifting machines.

CMA – Construction Material (17209)

1) Know various construction materials required for Civil Engineering construction.
2) Understand the properties/characteristics of various construction materials.
3) Know the applications of various construction materials in Civil Engineering Construction.

APH – Applied Physics (17210)

1) Understand laws and principles of electrical circuits.
2) Classify solids on the basis of semiconductor band theory.
3) Understand principles of Laser and its applications in engineering fields.
4) Identify superconductor and its types.
5) Understands applications of nanoparticles in engineering field.

ACH – Applied Chemistry (17211)

1) Select proper type of cell based on the requirement in electronics and computer engineering.
2) Apply knowledge of extraction, properties of copper and aluminium in engineering applications.
3) Know various insulating or dielectric materials used in for electronic equipments and computers.
4) Generalize different factors which affect atmospheric as well as electrochemical corrosion.

EMS – Engineering Mathematics (17216)

1) Use complex numbers for representing different circuit component in complex form to determine performance of electrical circuit and machines.
2) Apply rules and methods of differential calculus to solve problems.
3) Apply various numerical methods to solve algebraic and simultaneous equations.

DLS – Development of Life Skills (17010)

1) Understand and appreciate importance of life skills.
2) Use self-analysis and apply techniques to develop personality.
3) Use different search techniques for gathering information and working effectively.
4) Improve the presentation skills.

Semester – III

Abbreviation	Subject	Code
AMA –	Applied Mathematics	(17301)

1) Apply derivatives to find slope, maxima, minima and radius of curvature.
2) Apply integral calculus to solve different engineering problems.
3) Apply the concept of integration for finding area.
4) Apply differential equation for solving problems in different engineering fields.
5) Apply the knowledge of probability to solve the examples related to the production process.

BCO – Building Construction (17308)

1) Know various technical terms related to different components of building structure.
2) Understand various construction processes of different building components with use of equipments.
3) Understand the process of setting out of building.
4) Know various materials required for execution of various construction processes.
5) Suggest rectifications for various defects in Building works.

BDR – Building Drawing (17309)

1) Interpret different building drawings.
2) Understand principles of planning considering built environment approach.
3) Apply building rules and byelaws and IS 962:1989 specifications for planning of buildings.
4) Understand the preparation of line plans for Residential and Public Buildings.
5) Draw submission drawing and working drawing
6) Understand methods of perspective drawing for various objects

SUR – Surveying (17310)

1) Understand the need of surveying.
2) Understand handling and use of different survey instruments for the field operations.
3) Understand linear and angular measurements
4) Select suitable instruments and appropriate method of survey..
5) Understand the preparation of plans/maps by using field observations.
6) Read and interpret survey plans/maps.

MOS – Mechanics of Structure (17311)

1) Understand various mechanical properties of materials.
2) Understand the behavior of members under different types of load.

3) Apply principles of equilibrium for determining shear force and bending moment for a given beam.
4) Understand the principles of calculating moment of Inertia for simple and composite sections.

PPO-I– Professional Practices- I (17018)

1) Understand Leadership and problem solving skill through group discussion.
2) Understand the Preparation of legal documents of project.
3) Assess quality control parameters at site.
4) Give feasible solution for the burning problems for the benefit of society.

Semester – IV

Abbreviation	Subject	Code
EST –	**Environmental Studies**	**(17401)**

1) Understand importance of environment
2) Know key issues about environment
3) Understands the reasons for environment degradation
4) Know aspects about improvement methods
5) Know initiatives taken by the world bodies to restrict and reduce degradation.

TEN – Transportation Engineering (17418)

1. Know component parts of railway, bridges, tunnels, airport and dock and harbor engineering
2. Understand methods of survey and investigation of alignment of railway, bridges and tunnels.
3. Organize, supervise and coordinate the construction activities related to railway, Bridges and tunnels

ASU – Advanced Surveying (17419)

1) Understand handling and use of various survey instruments for field observations.
2) Understand linear and angular measurements
3) Select suitable instruments and appropriate method of survey.
4) Understand the preparation of maps from the field observations.
5) Interpret survey maps

GTE – Geo Technical Engineering (17420)

1) Know types of rocks and their formation, ground water table, detail investigation, mineralogy, earthquake forces and their effects.
2) Understand the structure and sub soil strata of earth.
3) Understand the causes and effects of earth quake
4) Understand soil properties and interpretation of results of test on soil.

5) Understand the suitability of foundation based on soil condition at site.
6) Know importance of shear strength, bearing capacity, stability of slopes and techniques of stabilization of soil..

HYD – Hydraulics (17421)

1) Understand principles of pressure measuring devices and computation of hydrostatic pressure and center of pressure
2) Identify the types of fluid flow.
3) Estimate the loss of head for flow through pipes.
4) Estimate the diameter of pipes for different arrangements of pipes
5) Design most economical channel section.
6) Estimate the discharge over weirs and notches.
7) Understand the velocity of flow in open streams as well as in pipes.
8) Decide horse power of pump and selection of pump

TOS – Theory of Structure (17422)

1) Understand the stresses in the members due to eccentric load and wind pressure
2) Understand shear force and bending moment diagram for Fixed and continuous beams for various external loading on them.
3) Understand the shear force and bending moment diagrams for beams subjected to point load and uniformly distributed load.
4) Understand analysis of forces in various members of steel roof trusses for different spans.

CAD – Computer Aided Drawing (17036)

1) Use different CAD commands for drawing
2) Prepare line plans with CAD Software
3) Prepare Submission drawing/ working drawing of building.

PPO-II – Professional Practices- II (17037)

1) Understand construction of different Civil Engineering works through visits.
2) Understand the techniques of collecting different data.
3) Understand the Presentation for giving the seminar.

Semester – V

Abbreviation	Subject	Code
BSC –	**Behavioural Science**	**(17075)**

1) Build team, Develop as a team leader,
2) Utilise self-motivation and motivate others
3) Learn problem solving and decision making skills
4) Discuss a specific topic in a group and learn to face the interview.

IEN – Irrigation Engineering (17075)

1) Appreciate need of Irrigation
2) Understand Water Requirements of a command area
3) Calculate storage capacity of reservoirs.
4) Understand Construction and maintenance of Earthen, Gravity Dams and Canals
5) Understand Minor / Micro Irrigation Schemes.
6) Use optimum water with minimum loss of water and achieve maximum productivity and yield.

EST – Estimating and Costing (17075)

1) Understand units and modes of measurements of various items of work.
2) Know the method of preparation of approximate estimates of various civil engineering works.
3) Apply knowledge of preparation of check list of items of construction, rate analysis for preparation of detailed estimate of various civil engineering works.
4) Understand the preparation of bill of quantities by taking measurements of completed item of work and rate of the item
5) Apply computer software's to prepare estimate of building works

DST – Design of Steel Structure (17075)

1) Understand the analysis of forces acting on different members and select proper material and sections from steel table.
2) Understand the design of tension members, compression members, beams, purlins, column bases and steel roof trusses and understand design values for members using IS 800-2007.
3) Understand and interpret the fabrication drawings and structural drawings.
4) Understand the drawings of designed sections of steel roof truss and its connections.
5) Understand the use of IS 875-1987 part I to IV, provisions for dead loads, live

loads and wind loads and seismic loads (Earthquake loads)

PHE – Public Health Engineering (17075)

1) Understand the terms involved in public water supply, domestic and industrial sewage.
2) Know different types of sources of water for public water supply
3) Understand the methods for estimating quantity of water supply required for city or town.
4) Suggest the treatment required by knowing the quality of water.
5) Understand the hydraulic design of Units in treatment plant.
6) Understand different sewerage systems with their merits.
7) Analyse the quality of sewage and suggest suitable treatment of sewage.
8) Understand and Draw hydraulic flow diagram of industrial effluent treatment plant.
9) Understand method of disposal of solid waste.
10) Know various Govt. scheme related to Public health Engineering.

CTE – Concrete Technology (17075)

1) Ensure the quality of ingredients of concrete.
2) Design concrete mix.
3) Understand Techniques of quality control of concrete.
4) Understand NDT and Various admixtures.

EDE – Entrepreneurship Development (17075)

1) Appreciate the need of Entrepreneurship development in the context of Globalization and Liberalization
2) Develop the entrepreneurial qualities
3) Understand the enterprises establishment process
4) Understand role of various agencies promoting Entrepreneurship development Understand financial and human resource management for an enterprise
5) Draft a detailed project report to start a small enterprise

PP- III – Professional Practices- III (17075)

1) Understand Leadership and problem solving skill through group discussion.
2) Understand the Preparation of legal documents of project.
3) Assess quality control parameters at site.
4) Give feasible solution for the burning problems for the benefit of society.

Semester – VI

Abbreviation	Subject	Code
MAN –	Management	(17601)

1) To become familiar with the world of work.
2) To understand the importance of management process in business and to identify the various components of management.
3) To understand the role and responsibilities of a Technician in an organisational structure.

CAA – Contracts and Account (17603)

1) Understand various types of contract with the purpose of each type.
2) Understand different conditions of contract and it's use in execution of work.
3) Appreciate importance of specification of various items of construction.
4) Understand the procedure and different forms for the preparation of tender documents.
5) Know techniques of evaluation.

HEN – Highway Engineering (17602)

1) Know the importance and classification of Road.
2) Understand the types of Surveys and Investigation for location of new Roads.
3) Understand the different methods of Road Construction.
4) Apply the Equipment used in Road Constructions.
5) Understand the information of various tests on highway constructions materials.

DSS – Design of RCC Structure (17604)

1) Understand the basic principles and procedure of design of slab, beam, column and footing of RCC building as per IS:456-2000
2) Understand reinforcement detailing of RCC structural members.
3) Understand design of singly reinforced, doubly reinforced and flanged section of beams, simply supported one way & two way slabs, cantilevers slab, axially loaded columns and footings by limit state method.
4) Understand, read and interpret structural drawings.
5) Understand ductile detailing of structural components of buildings

SWM – Solid Waste Management (17605)

1) Understand various types of solid waste produced with their characteristics
2) Understand different methods of collection, transportation and disposal of solid waste.
3) Apply different method of disposal of solid waste for safe disposal.
4) Understand concept of Bio medical waste, E-waste and Industrial waste.
5) Understand recycling and reuse of solid waste.
6) Understand different transportation equipment with their limitations.

PRO – Project (17088)

1) Collect the information for a given project.
2) Apply principles, theorems and bye-laws in the project planning and design.
3) Interpret and analyse the data.
4) Develop professional abilities such as persuasion, confidence, perseverance and Communication skill.
5) Develop presentation skill.
6) Enhance creative thinking.
7) Report writing.