

## Course Outcomes

### MSBTE prescribed syllabus, as per the Scheme 'G'

#### Semester – I

<b>Abbreviation</b>	<b>Subject</b>	<b>Code</b>
<b>ENG –</b>	<b>English</b>	<b>(17101)</b>
	<ol style="list-style-type: none"><li>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.</li><li>2) Developing the vocabulary.</li><li>3) Learn and apply rules of grammar.</li><li>4) Comprehend the given unseen paragraph.</li></ol>	
<b>EPH –</b>	<b>Basic Physics</b>	<b>(17102)</b>
	<ol style="list-style-type: none"><li>1) Understand the method of selection of material for intended purpose.</li><li>2) Application of knowledge of heat conductors (good and bad conductors of heat) in various engineering concepts.</li><li>3) Understand the effect of interference between the waves of light.</li><li>4) Application of knowledge of wave motion and resonance in various engineering applications.</li><li>5) Application of concept photoelectric effect for application like Photoelectric cell and Solar cell.</li></ol>	
<b>ECH –</b>	<b>Basic Chemistry</b>	<b>(17103)</b>
	<ol style="list-style-type: none"><li>1) Understand the concept of valence electron and valency of elements.</li><li>2) Application of knowledge of electrolysis in engineering applications.</li><li>3) Understand the formation process/reactions of various molecules.</li><li>4) Application of the properties of metals and alloys in engineering field.</li><li>5) Understand the use of non-metallic material in engineering field.</li></ol>	
<b>BMS –</b>	<b>Basic Mathematics</b>	<b>(17104)</b>
	<ol style="list-style-type: none"><li>1) Apply the Cramer's rule and Matrix method to solve simultaneous equations in three variables.</li><li>2) Use concept of allied angle, compound angle, multiple and sub-multiple angles to solve engineering problems.</li><li>3) Use factorization and de-factorization formulae to solve examples.</li><li>4) Understand the relationship of two variables.</li></ol>	

**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**

<b>Abbreviation</b>	<b>Subject</b>	<b>Code</b>
<b>CMS –</b>	<b>Communication Skills</b>	<b>(17201)</b>

- 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**

- | <b>Abbreviation</b> | <b>Subject</b>  | <b>Code</b>    |
|---------------------|---|----------------|
| <b>AMA –</b>        | <b>Applied Mathematics</b>  | <b>(17301)</b> |
|                     | <ol style="list-style-type: none"><li>1) Apply derivatives to find slope, maxima, minima and radius of curvature.</li><li>2) Apply integral calculus to solve different engineering problems.</li><li>3) Apply the concept of integration for finding area.</li><li>4) Apply differential equation for solving problems in different engineering fields.</li><li>5) Apply the knowledge of probability to solve the examples related to the production process.</li></ol> |                |

- 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**

<b>Abbreviation</b>	<b>Subject</b>	<b>Code</b>
<b>EST –</b>	<b>Environmental Studies</b>	<b>(17401)</b>

- 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.



**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**

<b>Abbreviation</b>	<b>Subject</b>	<b>Code</b>
<b>BSC –</b>	<b>Behavioural Science</b>	<b>(17075)</b>

- 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.