

SEMESTER - V

SL No.	Course No.	Course Title	Contact Hours/ Week	Credit
1	CE 311 Prereq. CE 211	Structural Analysis & Design-I	3.0	3.00
2.	CE 315 Prereq. CE 213	Reinforced Concrete-I	3.0	3.00
3.	CE 321 Prereq. CE 221	Engineering Hydraulics	4.0	4.00
4.	CE 331	Geotechnical Engineering-I	3.0	3.00
5.	CE 341	Environmental Engineering-I	3.0	3.00
6.	CE 312	Structural Analysis & Design Sessional-I	3.0	1.50
7.	CE 322	Engineering Hydraulics Sessional	3/2	0.75
8.	CE 332	Geotechnical Engineering Sessional-I	3/2	0.75
9.	CE 342	Environmental Engineering Sessional-I	3/2	0.75
Total			23.5	19.75

Prereq. = Prerequisite

No. of Theory Courses = 05
No. of Sessional Courses = 04

Total Contact Hour =23.5
Total Credit = 19.75

SEMESTER - V

CE 311 Structural Analysis and Design-I

Lecture: 3 hrs/ week

Credit:3.00

Prereq. CE 213

Stability and determinacy of structures, analysis of statically determinate arches. Influence lines for statically determinate structure: moving loads on beams, frames and trusses. Cable supported structures and space trusses.

CE 312 Structural Analysis and Design Sessional-I

Contact Hour: 3 hrs/ week

Credit:1.50

Design of members and connections of a roof truss and a plate girder bridge.

CE 315 Reinforced Concrete-I

Lecture: 3 hrs/ week

Credit:3.00

Fundamental behavior of reinforced concrete members, introduction to WSD and USD methods, analysis and design of singly & doubly reinforced beams. T-beams and one way slab according to WSD and USD methods, diagonal tension, bond and anchorage according to WSD and USD methods, lintels, and staircases.

CE 321 Engineering Hydraulics

Lecture: 4 hrs/ week

Credit:4.00

Prereq. CE 221

Open channel flow and its classification, velocity and pressure distributions, energy equation, specific energy and transition problems, critical flow and control, principles of flow measurement and devices, concept of uniform flow, Chezy and Mannings equations, estimation of resistance coefficients and computation of uniform flow, momentum equation, hydraulic jump, stilling basin, dams and related structures. Theory and analysis of gradually varied flow,

computation of flow profiles, design of channel. Impact of water jet, Principles of hydraulic machines: pumps.

CE 322 Engineering Hydraulics Sessional

Contact Hours: 1.5 hrs/ week

Credit: 0.75

Experiments on sluice gate, venture flume, Parshall flume, cut-throat flume, hydraulic jump, velocity distribution profile, Manning's roughness coefficient. Specific force and specific energy: pipe surge and water hammer, preparation and analysis of hydrographs, aquifer characteristics and estimation of yield from wells.

CE 331 Geotechnical Engineering-I

Lecture: 3 hrs/ week

Credit: 3.00

Introduction to Geotechnical Engineering, formation. type and identification of soils, soil composition, soil structure and fabric, index properties of soils, Engineering classification of soils, soil compaction, principles of total and effective stresses, permeability and seepage, capillarity and flow net, shear-strength characteristics of soils, compressibility and settlement behavior of soils.

CE 332 Geotechnical Engineering Sessional-I

Lecture: 1.5 hrs/ week

Credit: 0.75

Field identification of soil samples, specific gravity test, Atterberg limits test, grain size analysis by sieve and hydrometer, field density test, standard proctor compaction test, modified proctor compaction test, permeability (constant & variable head) test.

CE 341 Environmental Engineering-I

Lecture: 3 hrs/ week

Credit: 3.00

Introduction to environmental Engineering, community and environment, clean water, sanitation and health, introduction to water supply, population and water requirement.

Water supply sources, ground water and surface water, common water supply systems with specific reference to Bangladesh, different types of hand pumps, installation and O & M of hand

pumps, problems of water supply, presence of iron and arsenic, hardness, salinity. Alternative technologies for problem areas in Bangladesh: Shallow Shrouded Tube well (SST), Very Shallow shrouded Tube well (VSST), pond sand Filter (PSF), Deep-set technologies.

Water collection and transportation, head works, pumps and pumping machinery, water distribution system, analysis and design of distribution network, fire hydrants, leak detection, unaccounted for water, alternative technologies, solar stills, rain water harvesting.

Water quality and treatment, water quality parameters and standards, water treatment: plain sedimentation, flocculation and settlement, filtration, disinfection, other treatment methods, small scale iron and arsenic removal units, other low-cost treatment methods for rural communities, monitoring and sanitary protection of water supply distribution system.

Socio-Economic aspects of WSS, Socio-Economy of rural and urban Bangladesh. Demographic characteristics, power structure, cultural issues (traits), rural leadership, local government structure, influence of socio-Economic aspects on community water supply and sanitation, concept of community participation, participatory planning, community organization, community mobilization, sustainable development approach, gender issues conceptual frame, women empowerment, gender auditing, gender balance and sensitivity.

[CE 342 Environmental Engineering Sessional-I](#)

Contact Hours: 1.5 hrs/ week

Credit: 0.75

Physical and chemical tests of water and waste water.