CC111: BASIC CIVIL ENGINEERING AND ENVIRONMENTAL STUDIES

CREDITS = 6 (L=4, T=0, P=2)

Course Objectives:

1. Impart basic concepts of surveying.
2. Develop basic concepts of building construction.
3. Appraise about the modes of transportation.
4. Develop awareness about natural resources, various environmental pollution effects and control measures.
5. Recognize the human population growth, population explosion and its impact.
6. Create awareness about environmental ethics.

Teaching and Assessment Scheme:

Teaching Scheme			Credits	Assessment Scheme				
L	T	P	C	Theory		Practical		Total Marks
				ESE	CE	ESE	CE	
4	**0**	**2**	**6**	**70**	**30**	**30**	**20**	**150**

Course Content:

Sr. No.	Topics	Teaching Hrs.
1	**<u>Introduction</u>:** Sub-branches of Civil Engineering, Scope of Civil Engineering, Role of Civil Engineer and benefits to society. Infrastructural development and its impact on Economy of country. **Surveying, Leveling and Mapping:** **Introduction:** Aims, objectives and applications surveying, Fundamental principles of surveying, Classification of surveying, Plans and maps, Scales, Units of measurement. **Linear Measurement:** Methods of linear measurements, Instruments used for linear measurements. Conventional symbols, Linear measurements and plotting. **Angular Measurement:** Methods of angular measurements, Instruments used for angular measurements. Compass traversing and balancing. Types of meridians and bearings, Measurement of bearings and correction of bearings for local attraction. Computation of angles. **Leveling:**	14

	Introduction, Instruments for leveling, Methods of leveling, Recording level-book, Bench mark, Computing RLs, Introduction to contour and contour survey of different terrains, uses of contour maps. **Special Methods:** Introduction and use to Planimeter, Global positioning system (GPS), Geographical information system (GIS) and Remote sensing (RS).	
2	**Building Materials and Construction:** **Materials:** Introduction to engineering properties ofconstructionmaterials and their tests. Classifications of constructionmaterials. Properties and uses construction materials. **Building Planning and Construction:** Introduction to buildings & building systems,Typesofbuildings as per NBC, Common building loads, Building components, their functions and construction details. Basic building bye-laws & principles of planning. Concept of preparing building drawing of one room residential building.	12
3	**Introduction to Transportation Systems:** Road, Railway, Airport and water ways. Roadway elements , Classification of roads, Road Cross Section, Railway track components and functions, Airport component parts (Terminal Building, Runways, Taxiways, Apron, ATC Waterways -port components- sketch.	04
4	**Environmental Studies:** **Introduction of Environment:** Components of Environment, Impact of Technology and Environmental degradation, Multidisciplinary nature of study of Environment **Natural Resources:** Natural and Manmade resources, Renewable an non- renewable resources of Energy, exploitation and conservation **Human Population:** Factors governing population growth, Population explosion – causes, effects and control **Global Environmental Issues:** Global warming- Green House effects, Ozone layer depletion, Acid Rain, Heat island effects. **Thermal and Nuclear pollution:** Thermal pollution: Sources, effects and remedy. Nuclear pollution: Radiation, sources, effects and control **Environmental Sanitation:** Sources of water, Types, Drinking Water Quality Criteria, Water pollution and sources of water pollution, water borne diseases- spread and	30

	control. **Solid Waste:** Sources and types, overview of collection, transport, treatment and disposal. **Environmental ethics:** Objectives of ethics**,** Importance and Limitation of ethics. Environmental ethics in India.	

Reference Books:

1. Dr. B. C. Punmia, Ashok kumar Jain, Arunkumar Jain, Surveying, Vol. I, 16th Edition. Publisher: Laxmi Publication Delhi.
2. Duggal S. K., SurveyingVol. I, Tata McGraw Hill Publication, New Delhi
3. Dr. B. C. Punmia, Ashokkumar Jain, Arunkumar Jain, Building Construction, 5th Edition, Laxmi Publication. Delhi.-ISBN-81-7008-053-3
4. Dr. R. K. Jain and Dr. P. P. Lodha, Elements of Civil Engineering, 1st edition, McGraw Hill Education, India Pvt.Ltd.2014.
5. Suresh K. Dhameja, Environmental Studies, 3rdEdiiton, S. K. Kataria and Sons. Delhi 2007, ISBN- 81-88458-77-5.
6. Deeksha Dave and S S Kateva, Environmental Studies, 2nd Edition,Cengage Publishers, 2012.ISBN-978-81-315-1760-4
7. Erach Bharucha, A text book of Environmental Studies, University press, 2013,.
8. National Building Code and BIS Code.

Course Outcomes (COs):

1. Carry out chain and compass survey and leveling.
2. Understand simple building drawing and building components.
3. Significance and knowledge of the different transportation modes and their elements.
4. Recognize importance of Natural Resources.
5. Impact assessment of various pollution and remedial measures.
6. Develop ethical awareness about environmental degradation and control.