

## CIVIL

### ABOUT THE COURSE

Civil engineering is perhaps the broadest of the engineering fields, for it deals with the creation, improvement, and protection of the communal environment, providing facilities for living, industry and transportation, including large buildings, roads, bridges, canals, railroad lines, airports, water-supply systems, dams, irrigation, harbours, docks, aqueducts, tunnels, and other engineered constructions. The civil engineer must have a thorough knowledge of all types of surveying, of the properties and mechanics of construction materials, the mechanics of structures and soils, and of hydraulics and fluid mechanics. Among the important subdivisions of the field are construction engineering, irrigation engineering, transportation engineering, soils and foundation engineering, geodetic engineering, hydraulic engineering, and coastal and ocean engineering.

Man first started his life as a civil engineer. It was the invention of wheel that favored the development of human race in to culture one. Our aim is to achieve a target of producing creative innovative and dignified Civil Engineers. Every Civil Engineer needs the skill for preliminary investigation, analysis, design and execution and maintenance.

Preliminary investigation provides adequate information that are required for the successful completion of the project. This may include collection of environmental data, local material availability, soil and geological conditions, availability of labour force, traffic characteristics etc.

Detailed survey and other field tests are to be conducted before proceeding with the analysis. During the analysis period, different options of the project have to be considered thoroughly and the final one has to be detected.

After the analysis, a decision on the materials to be used has to be made. Then the design is made with one or more approaches and the optimal one is chosen such that the project will be economical with out sacrificing the safety and durability aspects.

Next stage is the execution which is done with proper construction planning for completion of the project in a short duration of time such that the facility shall be available to the society early.

A well constructed project should not get spoiled with out proper maintenance. It needs streamlined maintenance plan and proper execution. Civil engineering is perhaps the broadest of the engineering fields, for it deals with the creation, improvement, and protection of the communal environment, providing facilities for living, industry and transportation, including large buildings, roads, bridges, canals, railroad lines, airports, water-supply systems, dams, irrigation, harbours, docks, aqueducts, tunnels, and other engineered constructions. The civil engineer must have a thorough knowledge of all types of surveying, of the properties and mechanics of construction materials, the mechanics of structures and soils, and of hydraulics and fluid mechanics. Among the important subdivisions of the field are construction engineering, irrigation engineering, transportation engineering, soils and foundation engineering, geodetic engineering, hydraulic engineering, and coastal and ocean engineering.

The course aims at packing up Engineers with above mentioned concepts of motivating and leading the construction industry a full-fledged one for a bright India.

## **CURRICULUM**

### **OBJECTIVES**

#### **i) KNOWLEDGE**

“Knowledge is Power” the saying pays an active attention by bringing out the essence of life. “You become what you think!” said, Vivekananda. Still then it could be well felt that most of us worship the great men who told the sayings but don’t follow them. Is not that true? Human beings are in a wild struggle for the want of money, bread and happiness. But do we achieve the things that we long for in our life? Life is not meant to search but to enjoy. Enjoyment should be the fullest up to the brim. Engineering is always a joy when learned with enthusiasm, the eager to learn, the love to conquer humanity, will drive the life a more meaningful one. Knowledge makes you sharp, brings elation to the brain. Civil engineering is perhaps the broadest of the engineering fields, for it deals with the creation, improvement, and protection of the communal environment. Intelligent hard work never fails. A thirst for knowledge, a drive to win, a passion to achieve can always be accompanied of having sound knowledge in what ever field you choose. Just remember Darwin’s theory of survival of the fittest. If you want to survive enter this competitive world with your brain and get ready for a high tech environment of Civil Engineers.

#### **ii) SKILLS**

Are you really skilled? What do you mean by skill then? Perhaps it nothing but proficiency and excellence in what ever you start with .You need virtue of scientific education and training in the field of Engineering to develop the Engineering skills. Every Engineer has the role to play. For instance a simple train journey to work or school illustrates the number of different kinds of engineers who have involved in some way in making the journey possible. Mechanical and electrical engineers have involved with the design of locomotives and coaches. Civil Engineers with the design and construction of railway tracks, bridges and station buildings; Electronics engineers with the design and installation of communication facilities; Computer Engineers with automatic control and regulation of movement of trains; Chemical engineers with the production of paints and Diesel. Rapid movement of new technologies and new construction techniques and materials has implications upon all branches of engineering. No one is born skilled; It’s the Education that nourish him.

#### **iii) INTERPRETATION**

It was the interpretation that had led man to this extent to rule this world and to some extent he had conquered time also. The Engineering science has no end at all. Fire was the first interpretation of man. Today he makes the computers interpret humans. Civil Engineering has been redefined with the advent of Finite element analysis softwares like NASTRAN, ANSYS other packages like STAAD pro, SAP, STRUDS etc., It’s an interesting thing to note down that Artificial intelligence has come down with flying colours for Civil Engineering that for constructing a bridge or fly over, it has been made possible that about 200 designs can be done at a moment and the appropriate can be chosen at interest.

Its not what field you choose upon but how do you interpret. The engineering interpretation of Tsunami has ended up with an innovative design of folded plate design that could keep the people at comfort. Folded plates offer the combined advantages of both plates and shells. Some times folded plates are called as prismatic shells. All structural theories distinguish sharply between the structures having small deflections and those having large deflections. For the former the law of superposition is applicable while for the latter the so – called “Structural theories of second order “must be used. One of the most important bridge structures, “Howrah Bridge” is made fully of rivets and no where it has bolts and nuts. How enthusiastic the designer was? How creative? One of our Civil Engineering staff often use to say

“Design starts from the top while Construction from the bottom!” Our aim is create innovative, creative and dignified Civil Engineers. We wish you to achieve the aim by joining hand with us.

**B.E. - CIVIL ENGINEERING (FULL TIME) (2006 ONWARDS)**  
**I-YEAR NON-SEMESTER**

SUBJECT CODE	COURSE TITLE	L	P	M
<b>THEORY</b>				
36410211	Technical English	3	0	100
36410212	Engineering Mathematics	3	0	100
36410213	Engineering Physics	3	0	100
36410214	Engineering Chemistry	3	0	100
36410215	Basic Engineering Mechanics	3	0	100
36410216	Basic computer Engineering			
36410217	Basic Electrical & Electronics Engineering	3	0	100
<b>PRACTICAL</b>				
34102LB1	Engineering Physics Lab	0	3	100
34102LB2	Engineering Chemistry lab	0	3	100
34102LB3	Basic Mechanics Lab	0	3	100
34102LB4	Basic Electrical & Electronic Engineering Lab			
34102LB5	Engineering Drawing and Graphics Lab	0	3	100

**SEMESTER III**

SUBJECT CODE	COURSE TITLE	L	P	M
<b>THEORY</b>				
3420318	Advanced Engineering Mathematics	3	0	100
3420319	Mechanics of Solids	3	0	100
3420320	Building Science - I	3	0	100
3420321	Fluid Mechanics	3	0	100
3420322	Surveying I	3	0	100
3420323	Architecture	3	0	100
<b>PRACTICAL</b>				
34203LB20	Strength of Materials lab	0	3	100
34202LB21	Survey Practical I	0	3	100

**SEMESTER IV**

SUBJECT CODE	COURSE TITLE	L	P	M
<b>THEORY</b>				
3420426	Numerical Methods	3	0	100
3420427	Building Science - II	3	0	100
3420428	Strength of Materials	3	0	100
3420429	Concrete and Construction Technology	3	0	100

3420430	Applied Hydraulic Engineering	3	0	100
3420431	Surveying II	3	0	100
PRACTICAL				
34102LB30	Hydraulic Engineering Lab	0	3	100
34102LB31	Survey Practical II	0	3	100

#### SEMESTER V

SUBJECT CODE	COURSE TITLE	L	P	M
THEORY				
	Structural Analysis I	3	0	100
	Structural Design I	3	0	100
	Basics of Remote Sensing and GIS	3	0	100
	Transportation Engineering I	3	0	100
	Soil Mechanics	3	0	100
	Engineering Geology	3	0	100
PRACTICAL				
	Computer Aided Building Drawing	0	3	100
	Soil Engineering Lab	0	3	100

#### SEMESTER VI

SUBJECT CODE	COURSE TITLE	L	P	M
THEORY				
	Structural Analysis II	3	0	100
	Structural Design II	3	0	100
	Transportation Engineering II	3	0	100
	Environmental Science and Engineering	3	0	100
	Foundation Engineering	3	0	100
	Elective I	3	0	100
PRACTICAL				
	Computer Aided Design and Drawing	0	3	100
	Concrete and Construction Technology Lab	0	3	100
	Survey Camp	-	-	-

#### SEMESTER VII

SUBJECT CODE	COURSE TITLE	L	P	M
THEORY				
	Estimating and Cost Engineering.	3	0	100
	Irrigation Engineering	3	0	100
	Environmental Science & Engineering	3	0	100
	Engineering Management & Ethics	3	0	100
	Elective II	3	0	100

	Elective III	3	0	100
PRACTICAL				
	Comprehension Lab	0	3	100
	Environmental Engineering Lab	0	3	100

### SEMESTER VIII

SUBJECT CODE	COURSE TITLE	L	P	M
THEORY				
	Repair and Rehabilitation of Structures	3	0	100
	Elective IV	3	0	100
	Elective V	3	0	100
PRACTICAL				
	Project work	0	12	200

### LIST OF ELECTIVES

	COURSE TITLE	L	T	P	C
1A	Hydrology	3	0	0	100
1B	Remote Sensing Techniques and Applications	3	0	0	100
1C	Intellectual Property Rights (IPR)	3	0	0	100
1D	Indian Constitution and Society	3	0	0	100
1E	Cartography	3	0	0	100
1F	Ground Water Engineering	3	0	0	100
1G	Housing Planning & Management	3	0	0	100

2A	Traffic Engineering Management	3	0	0	100
2B	Management of Irrigation Systems	3	0	0	100
2C	Coastal Zone Management	3	0	0	100
2D	Prefabricated structures	3	0	0	100
2E	Pavement Engineering	3	0	0	100
2F	Ground Improvement Techniques	3	0	0	100
2G	Introduction to Soil Dynamics and Machine Foundations	3	0	0	100

3A	Geographical Information System	3	0	0	100
3B	Electronic Surveying	3	0	0	100
3C	Environmental Impact Assessment of Civil Engineering Projects	3	0	0	100
3D	Pre-stressed Concrete Structures	3	0	0	100
3E	Air Pollution Management	3	0	0	100
3F	Ecological Engineering	3	0	0	100
3G	Bridge Structures	3	0	0	100

4A	Storage Structures	3	0	0	100
4B	Tall Buildings	3	0	0	100
4C	Structural Dynamics	3	0	0	100
4D	Wind Engineering	3	0	0	100
4E	Total Quality Management	3	0	0	100
4F	Water Resources Engineering	3	0	0	100
4G	Rock Engineering	3	0	0	100

5A	Professional Ethics and Human Values	3	0	0	100
5B	Municipal Solid Waste and Management	3	0	0	100
5C	Computer Aided Design of Structure	3	0	0	100
5D	Industrial Waste Management	3	0	0	100
5E	Industrial Structures	3	0	0	100
5F	Smart Structures and smart Materials	3	0	0	100
5G	Finite Element Technique	3	0	0	100
5H	Design of Plate and Shell Structures	3	0	0	100