

# IT Applications in Civil Engineering

(Elective – I)

B.E. Sem. VII [INFT]

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## EVALUATION SYSTEM

	Time	Marks
<b>Theory Exam</b>	3 Hrs.	100
<b>Practical Exam</b>	–	–
<b>Oral Exam</b>	–	25
<b>Term Work</b>	–	25

## SYLLABUS

### 1. Introduction to construction Industry

Introduction to various aspects of Civil Engineering; Overview of present practices in Structural, Hydraulics, Geotechnical, Surveying, Environmental & construction Management and their field applications. Perspectives and definition of the construction firms for the future; New trends in organization for the construction firm.

### 2. Software Applications in construction Projects

Use of advanced spread sheet and advanced autocad in civil engineering projects; Understanding the basics of developing software for the purpose of structural analysis, Geotechnical analysis, surveying, water resource management and Project Management. Overview of GIS & GPS.

### 3. IT applications in construction project management.

Overview of Construction equipments; Developing simple programs for calculating equipment output, cycle time, strength of concrete using any of the procedural languages.(BASIC,COBAL or FORTRAN). Developing applications with file and database software; Developing simulations for various civil engineering operations. Management of information; Web based material procurement, e-auctions and e-tendering.

### 4. Intelligent Buildings & Building Automation

Concept of Intelligent Building. Building Automation, Controls and Protocols IT tools for Illumination, HVAC load calculation, Acoustics, Fire etc. Energy Efficiency in Buildings. Passive Architecture. Green Building concepts. Overview of Building Management System Software

### 5. IT applications in Construction quality & safety.

Use of sensors and wireless communication technologies on construction sites for safe operations. Use of lasers and sensors in defect detections and construction quality improvement.

### Reference :

Computer applications in construction (*Boyd C Paulson, JR*) Mc Graw Hill International Editions, Civil Engineering Series.

Students should be demonstrated capabilities of present software in structural and Construction Management areas (Minimum one source code from each) Students shall also be encouraged to write programs for simple problems of construction field applications

