DOWNLOAD PDF CIVIL ENGINEERING DESIGN LECTURE NOTES

Chapter 1 : Lecture Notes - Civil Engineering :: Veer Surendra Sai University of Technology

Don't show me this again. Welcome! This is one of over 2, courses on OCW. Find materials for this course in the pages linked along the left. MIT OpenCourseWare is a free & open publication of material from thousands of MIT courses, covering the entire MIT curriculum.

Concrete is strong in compression and very weak in tension. Steel reinforcement is used to take up tensile stresses in reinforced concrete beams. Many different types of structures and components of structures can be built using reinforced concrete including slabs, walls, beams, columns, foundations, frames and more. Reinforced concrete can be classified as precast or cast-in-place concrete. Designing and implementing the most efficient floor system is key to creating optimal building structures. Small changes in the design of a floor system can have significant impact on material costs, construction schedule, ultimate strength, operating costs, occupancy levels and end use of a building. Reinforced concrete, as a composite material, has occupied a special place in the modern construction of different types of structures due to its several advantages. Italian architect Ponti once remarked that concrete liberated us from the rectangle. Due to its flexibility in form and superiority in performance, it has replaced, to a large extent, the earlier materials like stone, timber and steel. Thus, it has helped the architects and engineers to build several attractive shell forms and other curved structures. However, its role in several straight line structural forms like multistory frames, bridges, foundations etc. The design of these modern reinforced concrete structures may appear to be highly complex. However, most of these structures are the assembly of several basic structural elements such as beams, columns, slabs, walls and foundations. Accordingly, the designer has to learn the design of these basic reinforced concrete elements. The joints and connections are then carefully developed. Design of reinforced concrete structures started in the beginning of last century following purely empirical approach. Thereafter came the so called rigorous elastic theory where the levels of stresses in concrete and steel are limited so that stress-deformations are taken to be linear. However, the limit state method, though semi-empirical approach, has been found to be the best for the design of reinforced concrete structures Objectives of the Design of Reinforced Concrete Structures: Every structure has got its form, function and aesthetics. Normally, we consider that the architects will take care of them and the structural engineers will be solely responsible for the strength and safety of the structure. However, the roles of architects and structural engineers are very much interactive and a unified approach of both will only result in an "Integrated" structure, where every material of the total structure takes part effectively for form, function, aesthetics, strength as well as safety and durability. This is possible when architects have some basic understanding of structural design and the structural engineers also have the basic knowledge of architectural requirements. Both the engineer and the architect should realize that the skeletal structure without architecture is barren and mere architecture without the structural strength and safety is disastrous. Safety, here, includes consideration of reserve strength, limited deformation and durability. However, some basic knowledge of architectural and structural requirements would facilitate to appreciate the possibilities and limitations of exploiting the reinforced concrete material for the design of innovative structures. Before proceeding to the design, one should know the objectives of the design of concrete structures. The objectives of the design are as follows: The structures so designed should have an acceptable probability of performing satisfactorily during their intended life: This objective does not include a guarantee that every structure must perform satisfactorily during its intended life. There are uncertainties in the design process both in the estimation of the loads likely to be applied on the structure and in the strength of the material. Moreover, full guarantee would only involve more cost. Thus, there is an acceptable probability of performance of structures as given in standard codes of practices of different countries. The designed structure should sustain all loads and deform within limits for construction and use: Adequate strengths and limited deformations are the two requirements of the designed structure. The structure should have sufficient strength and the deformations must be within prescribed limits due to all loads during construction and use. The structure having insufficient strength of concrete which fails in bending compression with the increase of load, though the deformation of the structure is not alarming. In another

situation where the structure, having sufficient strength, deforms excessively. Both are undesirable during normal construction and use. However, sometimes structures are heavily loaded beyond control. The structural engineer is not responsible to ensure the strength and deformation within limit under such situation. The staircases in residential buildings during festival like marriage etc. Though, the structural designer is not responsible for the strength and deformations under these situations, he, however, has to ensure that the failure of the structures should give sufficient time for the occupants to vacate. The structures, thus, should give sufficient warning to the occupants and must not fail suddenly. The designed structures should be durable: The materials of reinforced concrete structures get affected by the environmental conditions. Thus, structures having sufficient strength and permissible deformations may have lower strength and exhibit excessive deformations in the long run. The designed structures, therefore, must be checked for durability. Separate checks for durability are needed for the steel reinforcement and concrete. This will avoid problems of frequent repairing of the structure. The designed structures should adequately resist to the effects of misuse and fire: Fire may also take place as accidents or as secondary effects during earthquake by overturning kerosene stoves or lantern, electrical short circuiting etc. Properly designed structures should allow sufficient time and safe route for the persons inside to vacate the structures before they actually collapse. How to fulfill the objectives? All the above objectives can be fulfilled by understanding the strength and deformation characteristics of the materials used in the design as also their deterioration under hostile exposure. Out of the two basic materials concrete and steel, the steel is produced in industries. Further, it is available in form of standard bars and rods of specific diameters. However, sample testing and checking are important to ensure the quality of these steel bars or rods. The concrete, on the other hand, is prepared from several materials cement, sand, coarse aggregate, water and admixtures, if any. Therefore, it is important to know the characteristic properties of each of the materials used to prepare concrete. These materials and the concrete after its preparation are also to be tested and checked to ensure the quality. The necessary information regarding the properties and characteristic strength of these materials are available in the standard codes of practices of different countries. It is necessary to follow these clearly defined standards for materials, production, workmanship and maintenance, and the performance of structures in service.

Chapter 2 : Building Drawing - Civil Engineering Notes

Civil Engineering Class Notes Classroom notes, Engineering exam notes, previous year questions for Engineering, PDF free download blog.quintoapp.com works best with JavaScript, Update your browser or enable Javascript.

Chapter 3 : Building Drawing - Civil Engineering Notes

CIVIL Engineering CLASS LECTURE NOTES pdf free Download basic all civil subjects ebook study material of all semester GATE PSU IES made easy syllabus mcqs Skip to content Engineering interview questions,Mcqs,Objective Questions,Class Notes,Seminor topics,Lab Viva Pdf free download.

Chapter 4 : Lecture Notes â€“ CE â€“ Civil Engineering Design

Gotthard Base Tunnel (Rail Tunnel) Design Engineering, Construction & Cost It is one of the most extreme engineering projects in World History, to build a 35 miles long tunnel under the Alps Mountains.

Chapter 5 : Civil Engineering | Civil Engg Lectures, Books, Notes, Softwares site | blog.quintoapp.com

Building Construction - Civil Engineering Lectures Course Notes Construction. Construction is the process of constructing a building or infrastructure. Construction differs from manufacturing in that manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client.

DOWNLOAD PDF CIVIL ENGINEERING DESIGN LECTURE NOTES

Chapter 6 : Building Construction & Design - Civil Engineering Lectures and Course Notes

VSS University of Technology Burla, Sambalpur, Odisha, India PH: () Fax: ()

Chapter 7 : Civil Engineering Class Notes

Lecture Notes in Civil Engineering (LNCE) publishes the latest developments in Civil Engineering - quickly, informally and in top blog.quintoapp.com original research reported in proceedings and post-proceedings represents the core of LNCE, edited volumes of exceptionally high quality and interest may also be considered for publication.

Chapter 8 : Notes ~ Civil Engineering Study Materials for GATE IES SSC JE PSUs

Design of Steel Structure Lecture notes (pdf, free download) Posted on November 16, by engineer I came across some free lecture notes for civil engineering students.

Chapter 9 : Design of Steel Structure Lecture notes (pdf, free download) | Nepali Engineer - Civil Engineeri

University of Bath Department of Architecture & Civil Engineering Page 1 of 28 Structures 4 lecture notes This is the basis for column design.