

Course code	Course Name	L-T-P -Credits	Year of Introduction
FS205	SAFETY IN CONSTRUCTION INDUSTRY	3-0-0-3	2016
Prerequisite: Nil			
Course Objectives <ul style="list-style-type: none"> To recognize the role of safety in the workplace and describe the causes of the most common workplace injuries. To outline procedures that must be followed in order to control and minimize workplace hazards. To understand the importance of Ergonomics in construction industry To understand the role of various groups in ensuring safety in a construction industry To identify the factors that poses a hazard to employees while performing construction operations and identifies how to reduce those hazards. To summarize “best practices” for proper storage, stacking and handling of construction materials. To familiarize with the Indian standards and National building code. To describe safety guidelines and requirements to be followed while using construction equipment. To understand the legal Acts and Rules pertaining to construction industry 			
Syllabus <p>Safety issues in construction – Human factors engineering – Roles of various groups and stake-holders – Framing of contract conditions-Working at heights -Working in Confined space, Safety in electrical works at construction, Personal Protective Equipment – Safety in storage, stacking and handling of construction materials- Indian Standards and the National Building Code - Safety in the use of various equipment, tools in construction industry - Fire and its effect on various building materials - Repair techniques to the fire damaged structural members- Contract Labour (R&A) Act and Central Rules</p>			
Expected outcome. <p>A student who has undergone this course</p> <ul style="list-style-type: none"> would be able to recognize the role of safety in the workplace and describe the causes of the most common workplace injuries. would be able to outline procedures that must be followed in order to control and minimize workplace hazards. would understand the importance of Ergonomics in construction industry would understand the role of various groups in ensuring safety in a construction industry would identify the factors that poses a hazard to employees while performing construction operations and identifies how to reduce those hazards. would be able describe safety guidelines and requirements to be followed while using construction equipment. would be able to summarize “best practices” for proper storage, stacking and handling of construction materials. would get familiarized with the Indian standards and National building code. would understand the legal Acts and Rules pertaining to construction industry 			

References:

1. Building & Other Construction Workers (RE &CS) Act, 1996 and Central Rules.
2. Contract Labour Act and Central Rules
3. James B. Fullman, Construction Safety, Security & Loss Prevention, John Wiley & Sons
4. K.N. Vaid (Ed.), Construction Safety Management, National Institute of Construction Management and Research, Bombay.
5. Linger L, Modern Methods of Material Handling
6. National Building Code of India 2005, SP-7, Bureau of Indian Standards, New Delhi.
7. R.T. Ratay, Handbook of Temporary Structures in Construction , McGraw-Hill
8. V.J. Davies & K. Tomasin, Construction Safety Handbook, Thomas Telford Publishing, London.

Course Plan

Module	Contents	Hours	Sem.ExamMarks
I	Introduction to construction industry- safety issues in construction- Planning of safety – Roles of various groups and stake-holders in ensuring safety in construction industry – Framing of contract conditions on safety and related matters – Human factors in construction safety management- Relevance of ergonomics in construction safety.	6	15%
II	Safety in various construction operations – Excavation and filling – Under-water works- Cofferdams and SCUBA diving – Under-pinning & Shoring – Tunneling – Blasting – Demolition. Working at heights: Ladders & Scaffolds, its parts, types, safety features Working in Confined space - Pneumatic caissons. Safety in electrical works at construction, Personal Protective Equipment used in Construction	8	15%
FIRST INTERNAL EXAMINATION			
III	Safety in the use of construction equipments – excavators, graders and dozers – cranes – hoists & lifts – chain-pulley blocks – mixers – conveyors – pneumatic and hydraulic tools in construction.	8	15%

IV	Safety in material storing, stacking and handling – Safety in storage & stacking of construction materials - Steel, cement, timber, aggregates, bricks, glass and other materials. Familiarisation with relevant Indian Standards The National Building Code (NBC) provisions on construction safety.	6	15%
SECOND INTERNAL EXAMINATION			
V	Fire and effect on building materials -Classification of fire. Effect of high temperature on the properties of concrete, steel, masonry, wood. Fire damage to concrete, steel, masonry and timber. Repair techniques to the fire damaged reinforced concrete columns, beams, slabs and to the steel structural members.	6	20%
VI	Contract Labour (R&A) Act and Central Rules: Definitions, Registration of Establishments, Licensing of Contractors, Welfare and Health provisions in the Act and the Rules, Penalties, Rules regarding wages. Building & Other Construction Workers (RE & CS) Act, 1996 and Central Rules, 1998: Applicability, Administration, Registration, Welfare Board & Welfare Fund, Training of Building workers, General Safety, Health & Welfare provisions, Penalties.	8	20%
END SEMESTER EXAM			

QUESTION PAPER PATTERN:

Maximum Marks: 100

Duration: 3 Hours

Part – A: 5 MARK QUESTIONS

There will be two questions from module 2 and module 3 and one question each from remaining modules (5x8 = 40)

PART B: 10 MARK QUESTIONS

5 questions uniformly covering the first four modules. Each question can have maximum of three sub questions, if needed. Student has to answer any 3 questions (3 x 10 = 30 marks)

PART C: 15 MARK QUESTIONS

4 questions uniformly covering the last two modules. Each question can have maximum of four sub questions, if needed. Student has to answer any two questions

(2 x 15 = 30 marks)