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Accredited cpd course

United Kingdom

POST GRADUATE PROGRAM IN APPLIED STRUCTURAL DESIGNING

PGPASD

ENROL NOW

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Civil Engineers

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Lets Get 'EDGE'ucated.....!

EDGE SCHOOL OF CONSTRUCTION MANAGEMENT

Introduction

EDGE School of Construction Management (**EDGE-SCOM**) is a Pioneering Construction Management & Engineering Training Centre formulated to bridge the gap between theoretical concepts taught at University and real-time practical experience. **EDGE** strives to continuously empower both young and experienced engineers in their respective domains by providing them the essential training and exposure required to survive in the ever-evolving field of construction.

Message by Founder

It is a real pleasure to welcome you to the exciting world of Construction Management Courses at **EDGE**. The intent and outcomes of the Courses at **EDGE** is regularly validated by various success stories of professionals after completing these courses. This is, on one hand, a validation for the program design and delivery, and on the other, a proof of the success of the program in providing you with that transformational boost in your career that you are so looking for.

Our greatest strength is our faculty and the same has been echoed by most of our students who have experienced learning from the world class faculty who are industry experts.

The course curriculum integrates Construction practices and applications through a suitable mix of quantitative techniques, analytical reasoning and intuitive explanations. Live Industry projects are integrated as a compulsory component of the Courses, enhancing the application skills amongst participants who grapple with current issues in real companies.

We have clear evidence that the Courses at **EDGE** are that launch-pad that you are looking for to make that quantum leap in your careers. I invite you to join these programs at **EDGE** to be part of this transitional learning process. This academy is founded to meet the practical and professional aspect of Construction/Civil Engineering professional. Here we are committed not only to explain the workability of the Courses but also the practical approach to the same. This brochure will help to make your decision-making in the selection of courses, easy and trouble-free. The brochure briefs you on the important aspects of the course you need to know. It will be a reference, you can use for submission of application. I am sure you will enjoy course and avail the support services we have arranged for you upon seeking admission.

Our Vision & Mission on Skill Development

Education and training are not an end in themselves.They are a means of developing employees individually,and as team members as people and as professionals.Our range of training courses must therefore be seen as one component of a learning and development cycle consisting of:

- **skill assessment**
  > establishing development domains
- **training and education**
  > transfer and intake of knowledge
- **coaching**
  > on-the-job understanding and evolution

We at **EDGE** continuously strive for enhancing the technical skills of the candidates by providing state-of art training for desirable career opportunities. We also imbibe & inculcate the standards required to prepare our candidates according to the industry requirements so that they can firmly lay down their footprints with sound technical knowledge & skills.

Our approach: a 3-stage approach

- **Theory** as the basis and necessary first move (content-wise)
- **Best practices** with concrete, striking examples from your own or related and relevant sectors
- **Application** to translate knowledge into daily practice

Our strengths

EDGE's training courses and workshops are always practically and pragmatically structured. They have a high degree of practical activities and are run by experienced and energetic trainers, who are top in their professional held.Their practical experience ensures that 'theoretical'concepts can be directly translated into 'applicable'knowledge. To give your training course extra strength,**EDGE** in addition to its own experienced trainers, can always call on the services of academics, guest speakers and guest lecturers from its own network.

EDGE School of Construction Management

Course Description and Outlines

POST GRADUATE PROGRAM IN APPLIED STRUCTURAL DESIGNING

PGPASD

Course Description

Develop the skills for career in structural designing .learn to analysis and design the RCC and Steel Structures. Our understanding of the civil construction industry ensures that what you learn is relevant to your future career. As a Civil Structural Designer you will be responsible for Structural analysis and Design of different types of RCC structures. In this course you will learn how to analysis and design of structures as per standard code of practice. Learn to undertake the study of architectural and structural drawings, checking of design drawings, making of detailed drawings.

Course Highlights

Structural engineering is to design and analyse structures such as buildings whose structures must be safe, useful, durable and budget friendly aesthetics.

In Structural Engineering mathematics and physics applies to traditional materials for construction like concrete, stone, steel, wood and glass and innovative engineering materials, including aluminium, polymer and carbon fiber.

Structural Engineering is one of the oldest types of engineering, starting from the first time when branches being tied together to form a shelter. Throughout history, people have been designing and building large and increasingly sophisticated structures, from primitive cabins to the sky scrapers.

Our Structural engineering course provides the in-depth knowledge of the structural designing and the principles of structural engineering design. Students will get the knowledge of the concepts of design both concrete and steel and analysis. Design practical experience and skills will be acquired and learned through problem sets and integral design project.

OBJECTIVES:

Being a job oriented programme, it equips graduates to become Civil Structural Engineers with Construction companies, Consultants, Contractors and Government departments.

The Certified Professionals of this programme will be competent in:

RCC

•Preparing Structural Design and Analysis Calculations using different codes and standards
•Review blueprints, plans and change orders to verify structural integrity of materials and designs, and perform complex calculations and use modelling methods to ensure correct results
•Prepare drawings, specifications and computer models of structures
•To prepare and submit the Design Basis report (DBR) mentioning each and every aspect of the Structure in detail

STRUCTURAL STEEL

•Understanding of the design philosophies and behavior of structural steel
•Ability to analyze and design of tension members
•Ability to analyze and design of Steel columns
•Ability to analyze and design of Steel beams
•Ability to analyze and design of base plates
•Ability to analyze and design of simple bolted and welded connections
•Ability to design steel framing system and connections of a building in a team setting

EDGE School of Construction Management

ELIGIBILITY

Students in final year of graduation or who have completed graduation in Civil Engineering / Technology from recognized University / Institution. Candidates having or pursuing Masters degree in Structural Engineering can also apply.

DURATION

Its a 4+2 months Programme for RCC +Structural Steel with classes on weekdays. Classesusually will be for 2-4 hours everyday including theory and lab practice.

ENTRANCE EXAM

Eligible applicants need not give any entrance exam. Aim isnot only to judge academic competency to go for higher studies but also overall development, attitude,family background, English proficiency, health, achievements in life and approach towards further career.Seats are limited to 10 per batch and management reserves every right to postpone the admission of the candidate if criteria is not met or batch strength has exceeded its capacity.

PROGRAMME FEES

Fees can be paid in 3 installments. 40% of the total feeshould be paid at the time of admission, 30% as second installment and remaining 30% as finalinstallment.

TARGET JOBS AFTER COMPLETION OF COURSE

- DESIGN PROJECT MANAGER
- DESIGN CO-ORDINATOR
- STRUCTURAL ENGINEER
- DETAILING ENGINEER
- RESIDENT ENGINEER
- BIM ENGINEER

COURSE FEATURES

- Courses syllabus is as per industry standards
- Our Faculties have more than 12+ year industrial experience
- Printed Study Materials
- Audio and Video tutorials
- All Courses are based upon Real Projects
- 100% Job oriented training program
- Accommodation is available for outstation candidates
- Career Counselling & Guidance

SOFTWARE INCLUDED

(RCC+STEEL)

- AUTOCAD
- ETABS
- SAP2000
- SAFE
- STAAD PRO
- RAM CONNECTION

CODES & STANDARDS INCLUDED

Indian Codes

IS- 456 2000

IS -800:2007

IS-1893 2016

SP- 13920

IS- 16700

IS 875

SP-16

IS- 875:2015

IS- 808

SP-6

International Codes

BS 8110

ACI 318

CEBFIP 2010
UBC 97
SP17
ASCE-7-05
ASCE-7-02
EN 1992
AISC 360-16
AISC 314-16

Academic Calendar & Attendance

PGPASD Course is a incubator for a graduate to become professional Structural Engineer and hence all systems and policies are set accordingly. Students are informed to refer the academic calendar.Entire program consists of around 120 days plus 60 days of project work including coursework days,national holidays and Sundays. No other holidays are granted to students. Students shall maintain 90 percentattendance to be eligible to pass each level and to get full benefit of the program and final certificate.Students may avail leaves on account of genuine reasons such as passport interview,major illness,and marriage of real brother/sister only. Leaves shall be applied 3 days in advance and getsanctioned. Student shall cover portion missed during leave period on his own responsibility.Sanctioned leave does not mean consideration in attendance. Attendance is a physical presence during conduct of session. Penalty will be application in case student fail to recover those missed classes.

Academic requirements

Course Work:

The list of courses to be studied module wise is mentioned in Course Structure. Teaching schedule and hours may vary depending upon other demands on students and teachers. Typically, a full course involves 90 to 120 hours of teaching. There is total 1 class test per module.The distribution forcourse work and specialization is shown below. Marks are converted finally into grades. Assessment of skills is the focus in this course.Tests are conducted in most apt format such as written, oral,presentation, group discussion or even activity based / case study based evaluation.

All submissions shall be submitted by students from their personal mail id to Google drive shared with students by faculties. All test papers shall be submitted back to the institute as an official record for audit. If misplaced by the student, either he has to rewrite it and submit or make an affidavit for it.

Program Structure

Modules Included:

CPSE 01

SOFTWARE TRAINING (RCC)

CPSE 02

FUNDAMENTALS OF STRUCTURAL ANALYSIS & DESIGN

CPSE 03

STRUCTURAL PLANNING AND ANALYSIS

CPSE 04

MANUAL LOAD CALCULATION AND DESIGN

CPSE 05

PREPARATION OF STRUCTURAL DRAWINGS IN AUTOCAD

CPSE 06

PREPARATION OF STRUCTURAL DESIGN BASIS REPORT

CPSE 07

DESIGN OF STEEL STRUCTURES

CPSE 08

STAAD PRO, RAM CONNECTION TRAINING

CPSE 09

LIVE PROJECTS ON STRUCTURAL STEEL

Certifications Included:

CS 01- CSI ETABS

CS 02- CSI SAP2000

CS 03- CSI SAFE

CS 04 -STAAD PRO

CS 05- RAM CONECTION

CS 06- AUTOCAD

Program Syllabus

RCC Course Outline

MODULE 1:SOFTWARE TRAINING (ETABS , SAP2000 & SAFE)

INTRODUCTION AND MODELLING

- Introduction
- Objectives
- File Operation
- ETABS Windows / Floor Information
- Creating Basic Grid System
- Defining Storey Data
- Adding Structural Objects Using Templates \Manual
- View Selection & Options

Material , Section properties and draw options

- Material Properties
- Section Properties
- Wall Slab Section Properties
- Drawing Of Line ,Point And Area Objects
- Editing Tools For Objects

Assignment structural options

- Point Object
- Line Object
- Area Object
- Assignment Loads

Assignment of load case

- Dead load
- Live load
- Earthquake load
- Wind loads
- Load combinations

Analysis and output

- Response spectrum method
- Static pushover analysis
- Time history analysis
- Results & Graphical Output (Analysis Output)
- Editing
- Text Input And File Exports /Imports

Design of RCC members

- Assigning Design Parameters As Per Is 456
- Study Of Design Summary Results In Terms Of Percentage Of Reinforcement And Area Of Steel
- Preparation Of Design Reports
- Design Of Shear wall
- Detailing of Rcc members
- Design of isolated footing
- Design of combined footing
- Design of raft/mat footing
- Checking footing for punching shear

- Design of slabs
- Design of flat slabs
- Detailing of footings and slabs
- Import and export from Etabs to safe
- Import and export from Cad to safe

Importing and exporting option

- Importing cad to Etabs
- Exporting Etabs to cad

LIVE PROJECT

- Practical design on live project

MODULE 2:FUNDAMENTALS OF STRUCTURAL ANALYSIS AND DESIGN

Methods of Rcc design

- Working stress method
- Ultimate load method
- Limit state method

PROPERTIES OF MATERIALS

- Concrete
- Steel (rebar)

BASIC CONCEPTS OF STRUCTURE ANALYSIS AND DESIGN

- Types of loads
- Type of support conditions
- Concept of SFD
- Concept of BMD
- Codal provision of beams
- Codal provision of columns
- Codal provision of slabs
- Codal provision of foundations
- Codal provision of staircase

MODULE 3: STRUCTURAL PLANNING and ANALYSIS

- Studying of architectural plans
- Position and orientation of columns
- Positioning of beams
- Spanning of slabs
- Layouts of stairs
- Selecting proper type of footing
- Types of analysis methods
- Concept of kanis method
- Analysis of frame using kanis method

MODULE 4: MANUAL LOAD CALCULATION AND DESIGN

MANUAL LOAD CALCULATIONS

- Load calculation on beams
- Load calculation on columns
- Load calculation on slabs

MANUAL DESIGNING OF RCC ELEMENTS

- Manual design of beams
- Manual design of column
- Manual design of slabs
- Manual design of footing
- Manual design of staircase

MODULE 5:PREPARATION OF STRUCTURAL DRAWINGS IN AUTOCAD

- Footing Layout Plan
- Column Layout Plan
- Plinth Beam Layout plan
- Plinth Beam Details
- Slab Layout Plan
- Slab Section Details
- Column Details
- Roof Beam Layout Plan
- Roof Beam Details
- Staircase Layout Plan & Details

MODULE 6:PREPARATION OF STRUCTURAL DESIGN BASIS REPORT

- Preparation Of DBR
- Introduction
- Description of Project
- Structural System
- Design Loads
- Gravity Loads
- Lateral Loads
- Load Combination
- Live Load reduction
- Deflection and Drift Limits
- Miscellaneous Design Criteria
- Material Strengths
- Structure modeling &Computer Programs
- Design Standards and References
- Units

STEEL STRUCTURES OUTLINE

Module 7: Introduction to Structural Steel Design Training

- Various steel sections
- Computational of loads for different designs such as ASD and LRFG
- How and why steel structures fail
- Techniques to get an acceptable level of safety easily
- Building specifications and codes
- Review of basic civil and analysis structure

Module 8: Steel Beams Designs

- Beams and their definitions
- Design of beams
- Axial and bending tension subjection and endurance
- Deflection in beams design
- Using different software for simulation
- Beam columns design
- Code design procedure
- Equivalent moment factor
- Tension and bending forces on beam columns
- Eccentrically loaded beams design
- Nominal strength

Module 9: Steel Connections

- Fillet welds design
- How joints that have bolts handle shear tension
- Introduction to steel welds and their types
- Tension loads and their effect on bolted joints
- Bolted connections
- Eccentric connections
- Welded connections

Module 10: Analysis of Compression Members

- Euler formula in steel design
- Intermediate column formulas
- Long column formulas
- Short column formulas
- Failure modes
- Elastic buckling of slender
- Classification of the cross-section
- Displacements
- Single angle struts
- The effective length of compression members
- Compression members are composed of two components

Module 11: Design of Compression Members

- Built-up columns
- Base plates best designs for concentrically loaded columns
- Column splices design
- AISC best designs tables
- Single angle compression members
- Lacing and batten systems
- Compression members structure

Module 12: Composite Sections

- Composite constructions
- Concrete encased section designs
- Flexural strength
- Composite section moment capacity
- Composite section defections
- Cover plated beams
- Pan floors are an example of composite concrete and floors

Module 13: Steel Building

- Roof construction types
- Steel roofs
- Interior partitions using steel
- Exterior walls steel design
- Structural steel designs
- Fireproofing of steel buildings

Module 14: Advantages and Disadvantages of Structural Steel Design

- Limit state design
- Lateral torsional buckling LTB
- Design resistance and how it affects general strength
- Stress calculations
- Advantages of steel designs
- Disadvantages of steel design

Module 15: Stress and Resistance

- Stress concentration
- Fatigues resistance
- Corrosion resistance
- Structural steel products
- Fabrication and erection
- Residual stress

Module 16: Design of Plate Girders

- Web panel sheer exposure
- Plate girders
- Girder components welding
- General considerations
- Using ISO 800:2007 to design girders
- The behaviour of transverse web stiffness
- Loading considerations
- Fatigue effects
- Maximum load effects

Projects covered: One PEB Commercial Building & One Industrial PEB Structure

Software included: STAAD Pro, RAM Connection & Personalized Spreadsheets

EDGE School of Construction Management

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