L&T EduTech

Precast Elements

This course is part of **Precast Structural System Specialization**

Instructor: Subject Matter Expert

Included with coursera PLUS • Learn more

4 modules
Gain insight into a topic and learn the fundamentals.

Intermediate level
Recommended experience

8 hours to complete

Flexible schedule
Learn at your own pace

What you'll learn

- ✓ Gain in-depth knowledge of precast concrete technology, including its fundamental concepts, major components, and structural systems.
- ✓ Develop skills in selecting, designing, and erecting precast beams, slabs, columns, walls, staircases, roof elements, and infrastructure components.

Skills you'll gain

Architectural Engineering · Construction · Structural Engineering · Engineering Practices · Construction Engineering · Manufacturing Processes · Building Design · Civil Engineering

Details to know

Shareable certificate
Add to your LinkedIn profile

Taught in English

Assessments
4 assignments

See how employees at top companies are mastering in-demand skills

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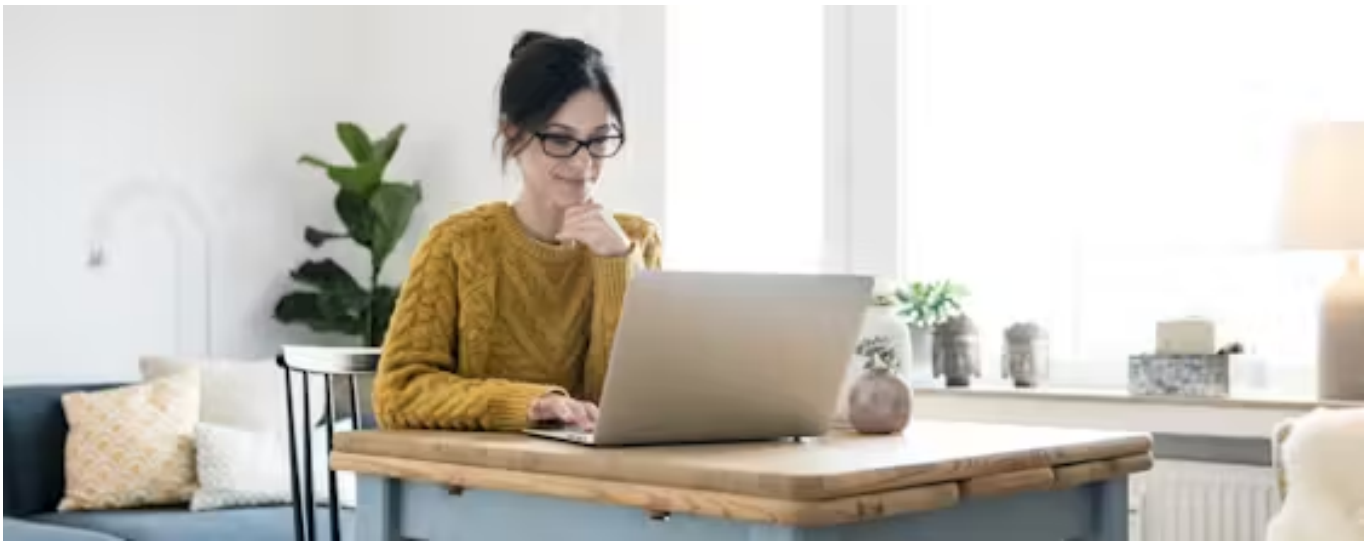

Build your subject-matter expertise

This course is part of the **Precast Structural System Specialization**
When you enroll in this course, you'll also be enrolled in this Specialization.

- Learn new concepts from industry experts
- Gain a foundational understanding of a subject or tool
- Develop job-relevant skills with hands-on projects
- Earn a shareable career certificate

There are 4 modules in this course

The course on Precast Elements provides a comprehensive overview of precast concrete technology, highlighting its advantages over traditional cast-in-situ methods. It covers the fundamental concepts, major components, and structural systems used in precast construction, emphasizing its applications in residential, commercial, and industrial projects. Participants will learn about the classification, types, and erection of beams, slabs, columns, and walls, as well as the use of precast elements in infrastructure works. The course also addresses guidelines for selecting precast elements for different building types and explores the principles of structural stability and behavior, preparing learners to effectively implement precast solutions in various construction scenarios.

Target Learners:
- Undergraduate students of Civil Engineering
- Post-Graduate Students of Geotechnical Engineering
- Practicing Engineers in Pile Construction based projects.
- Faculties of Civil Engineering Domain

Pre-requisites:
- Analytical skill for determinate & indeterminate structures and design knowledge of reinforced concrete members
- Exposure to codes and standards (Indian standard codes for concrete, wind and earthquake design)

Read less

Introduction to Precast

Module 1 • 2 hours to complete

Module details

This section introduces the fundamental concepts of precast concrete, contrasting it with traditional cast-in-situ methods. It covers the current industry scenario, highlighting the constraints and merits of using precast elements. Key topics include the needs, types, and features of precast concrete, as well as its advantages for various stakeholders such as owners, architects, engineers, contractors, and end-users. The module also delves into the applications of precast in residential, commercial, and industrial settings, discussing the materials used and relevant codal clauses.

What's included

13 videos 1 assignment

Hide info about module content

13 videos • Total 91 minutes

About the Specialization • 3 minutes

About the Course • 2 minutes

Current scenario and Constraints • 6 minutes

Difference between Precast vs Cast in situ • 7 minutes

Merits over Cast in situ • 5 minutes

Needs, Types and Features • 12 minutes

Advantages for Owners and Architects • 7 minutes

Advantages for Engineers and Contractors • 7 minutes

Advantages for End user and Limitations • 9 minutes

Residential and Commercial Applications • 7 minutes

Industrial Applications • 5 minutes

Materials • 13 minutes

Codal Clauses • 1 minute

1 assignment • Total 30 minutes

Assignment on Introduction to Precast • 30 minutes

Major Elements

Module 2 • 2 hours to complete

Module details

This module provides an in-depth look at the primary components of precast construction. It begins with an introduction to beams, including their classification, types, shapes, applications, and erection methods. Slabs are thoroughly examined, with a focus on their advantages, classification, and types, including hollow core slabs and their production processes. The module also covers the selection and erection of slabs, columns, and walls, detailing their features, advantages, and types. Foundations are also discussed, providing a comprehensive understanding of these critical structural elements.

What's included

12 videos 1 assignment

Hide info about module content

12 videos • Total 97 minutes

Introduction • 2 minutes

Beam - Classification, Types and Shapes • 11 minutes

Beam - Application and Erection • 3 minutes

Slab - Advantages, Classification and Types • 6 minutes

Hollow Core Slab • 14 minutes

Hollow Core Slab - Production • 7 minutes

Other Types of Slab • 10 minutes

Slab - Selection and Erection • 8 minutes

Column • 8 minutes

Wall - Features, Advantages and Types • 9 minutes

Wall - Classification and Erection • 5 minutes

Foundation • 8 minutes

1 assignment • Total 30 minutes

Assignment on Major Elements • 30 minutes

Additional Major Elements

Module 3 • 2 hours to complete

Module details

Building on the previous module, this section explores further key elements of precast construction. Topics include staircases, roof elements, and architectural concrete. The module addresses façade choices and applications, as well as various infrastructure works such as pipes, drains, duct banks, baggage handling tunnels, culverts, sleepers, facia elements, pavements, and channels. This module ensures a holistic understanding of the diverse applications of precast elements in different construction scenarios.

What's included

10 videos 1 assignment

Hide info about module content

10 videos • Total 102 minutes

Staircase • 13 minutes

Roof Elements • 6 minutes

Folded Plate • 13 minutes

Architectural Concrete • 8 minutes

Facade • 7 minutes

Facade - Choice and Application • 11 minutes

Infra Works - Pipes and Drains • 12 minutes

Infra Works - Duct bank and Other applications • 8 minutes

Infra Works - Baggage Handling Tunnel, Culvert and Sleeper • 7 minutes

Infra Works - Facia Element, Pavement and Channel • 12 minutes

1 assignment • Total 30 minutes

Assignment on Additional Major Elements • 30 minutes

Structural System

Module 4 • 1 hour to complete

Module details

The final module focuses on the structural systems used in precast construction. It introduces various types and systems, including skeletal systems, portal frames, and large panel systems. The course discusses the limitations and applications of these systems, as well as specialized systems like cell box and hollow block systems. Guidelines for selecting precast elements for residential, office, industrial, and commercial buildings are provided. The module concludes with an examination of structural stability and behavior, emphasizing the engineering principles behind precast construction. Overall, this course equips participants with the knowledge and skills necessary to effectively utilize precast concrete in a variety of construction projects, enhancing efficiency, quality, and sustainability in the built environment.

What's included

11 videos 1 assignment

Hide info about module content

11 videos • Total 81 minutes

Introduction and Types • 11 minutes

Skeletal System • 6 minutes

Portal Frame System • 10 minutes

Large Panel System • 7 minutes

Large Panel System - Limitations, Application • 2 minutes

Cell Box System and Hollow Block System • 2 minutes

Guidelines of Selection - Residential and Office Buildings • 6 minutes

Guidelines of Selection - Industrial Buildings • 5 minutes

Guidelines of Selection - Commercial Buildings • 6 minutes

Structural Stability • 14 minutes

Structural Behaviour • 8 minutes

1 assignment • Total 30 minutes

Assignment on Structural System • 30 minutes

Earn a career certificate

Add this credential to your LinkedIn profile, resume, or CV. Share it on social media and in your performance review.

Instructor

Subject Matter Expert
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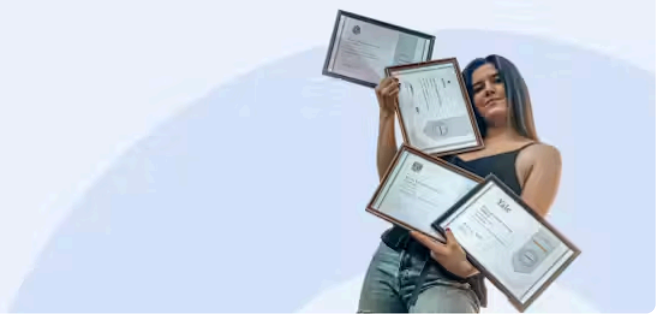

Frequently asked questions

When will I have access to the lectures and assignments?

To access the course materials, assignments and to earn a Certificate, you will need to purchase the Certificate experience when you enroll in a course. You can try a Free Trial instead, or apply for Financial Aid. The course may offer 'Full Course, No Certificate' instead. This option lets you see all course materials, submit required assessments, and get a final grade. This also means that you will not be able to purchase a Certificate experience.

What will I get if I subscribe to this Specialization?

When you enroll in the course, you get access to all of the courses in the Specialization, and you earn a certificate when you complete the work. Your electronic Certificate will be added to your Accomplishments page - from there, you can print your Certificate or add it to your LinkedIn profile.

Is financial aid available?

Yes. In select learning programs, you can apply for financial aid or a scholarship if you can't afford the enrollment fee. If fin aid or scholarship is available for your learning program selection, you'll find a link to apply on the description page.

More questions

Visit the learner help center

Financial aid available, learn more

Skills

- Artificial Intelligence (AI)
- Cybersecurity
- Data Analytics
- Digital Marketing
- English Speaking
- Generative AI (GenAI)
- Microsoft Excel
- Microsoft Power BI
- Project Management
- Python

Certificates & Programs

- Google Cybersecurity Certificate
- Google Data Analytics Certificate
- Google IT Support Certificate
- Google Project Management Certificate
- Google UX Design Certificate
- IBM Data Analyst Certificate
- IBM Data Science Certificate
- Machine Learning Certificate
- Microsoft Power BI Data Analyst Certificate
- UI / UX Design Certificate

Industries & Careers

- Business
- Computer Science
- Data Science
- Education & Teaching
- Engineering
- Finance
- Healthcare
- Human Resources (HR)
- Information Technology (IT)
- Marketing

Career Resources

- Career Aptitude Test
- Examples of Strengths and Weaknesses for Job Interviews
- High-Income Skills to Learn
- How Does Cryptocurrency Work?
- How to Highlight Duplicates in Google Sheets
- How to Learn Artificial Intelligence
- Popular Cybersecurity Certifications
- Preparing for the PMP Certification
- Signs You Will Get the Job After an Interview
- What Is Artificial Intelligence?

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