

Empowering Higher Education Enabling the future workforce

Offering Industry Integration with UG Programs of Higher education institutions to develop industry ready talent pool.



INDUSTRY INTEGRATED PROGRAM



The world of engineering is in the midst of a profound transformation, characterized by advancements in technology and new age applications. In the swiftly evolving realm of engineering, traditional educational approaches often struggle to keep pace with the dynamic demands of the industry. Graduates frequently encounter a disparity between the theoretical understanding gained in classrooms and the practical expertise needed for real-world engineering challenges. This discrepancy impedes their seamless transition into professional roles, leaving them less than adequately prepared to tackle the complexities of contemporary engineering practices.

L&T EduTech is at the forefront of revolutionizing higher education, driven by a vision to equip students with the skills and knowledge needed to excel in the ever-evolving world of engineering and technology.

To meet the demands of a rapidly advancing industry, L&T EduTech has developed specialization programs blended with both technical and life skills, that are to be offered as Industry Integrated Programs by Universities and Colleges.



Industry Integrated Programs

Recognizing the demand – supply need in every industry sectors, L&T EduTech has developed a concept of Integrated Programs that can be offered by Institutions. These programs represent a paradigm shift in engineering education, offering a holistic approach that seamlessly integrates theoretical learning with hands-on experiences.

By combining cutting-edge curriculum with practical application, students are not only equipped with deep technical knowledge but also gain the crucial problem-solving skills demanded by the industry. This innovative approach ensures that graduates emerge as industry-ready professionals, poised to make meaningful contributions in their chosen fields of engineering.



Why Integrated Programs?

In today's dynamic engineering landscape, theoretical knowledge alone is no longer sufficient. Integrated Programs at L&T EduTech offer a unique blend of theoretical learning, hands-on experience, and industry exposure. This innovative approach ensures that graduates not only possess deep technical knowledge but also the practical skills and adaptability demanded by the modern workplace.

By integrating real-world projects, cutting-edge technologies, and industry insights, we bridge the gap between academia and industry, producing engineers who are not only proficient in their respective fields but also equipped to drive innovation and lead in a competitive global market.



BENEFITS FOR INSTITUTIONS

1

Industry
Integrated
Programs

2

Enriched
Curriculum
and Content

3

Strengthened
Industry
Collaboration

4

Diverse
Learning
Ecosystem

8

Realtime
Industry
Experience

7

Innovative
Teaching
Methods

6

Enhanced
Placement
Opportunities

5

Thought
Leadership



BENEFITS FOR STUDENTS

1

Mastery of
Industry-specific
technical skills

2

Enhanced
behavioral &
functional skills

3

Stronger
industry relevant
knowledge & skills

4

Exposure to
real world
industry projects
& methods

5

Learn from
industry experts
and practitioners

6

Earn an Industry
Specialization from
the industry leader

7

In-Depth knowledge
in specialized
engineering domains

8

Proficiency in
cutting-edge
technologies
and tools



List of Industry-Integrated Programs for B.E./B.Tech

Mechanical Engineering

1. Digital and AI Solutions for Oil & Gas and Process Plants
2. Digital Manufacturing using AI and CPS
3. Advanced Power Generation Systems

Civil Engineering

1. Multi Modal transportation Infrastructure with AI/ML
2. Integrated Building System Design using AI/ML
3. Digital Solutions for Industrial Building Design
4. Digital Transformation in Construction
5. Sustainability Practices in Construction
6. Structural System Design

Electrical and Electronics Engineering

1. Smart and Sustainable Power Engineering with AI Integration
2. Electrical Infrastructure for Smart Buildings and EV Charging
3. Microelectronics for Electric Vehicles
4. Industrial IoT and Smart Systems

Electronics & Communication Engineering

1. Semiconductor Design Framework for Industrial ICs
2. Industrial IoT and Smart Systems

Chemical Engineering

1. Chemical Engineering with Digital Analysis and AI Solutions

Safety Engineering

1. Practical Applications in Health and Safety Engineering

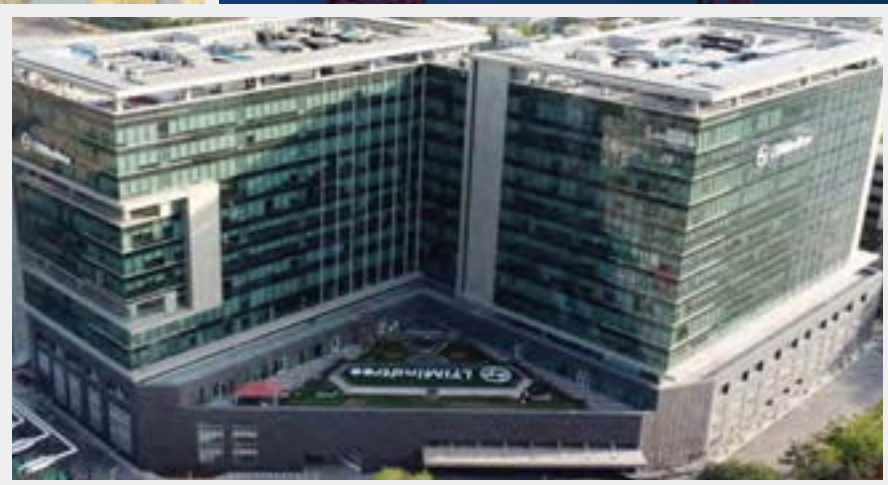
Electric Vehicle Engineering

1. Advanced Specialization in Electric Vehicles for EEE/ECE/E&I/Mechatronics Branches
2. Advanced Specialization in Electric Vehicles for Mechanical/Mechatronics/Chemical/Aeronautical Branches
3. Advanced Specialization in Electric Vehicles for CSE/IT Branches

IT / Computer Science Engineering

1. Agile Methodology with Cloud and DevOps
2. Data Engineering Tools
3. Full Stack Web Development
4. Data Analytics
5. Business Analytics
6. Cyber Security
7. Full Stack MEAN / MERN
8. AI Techniques & ML Algorithms
9. Applied Data Science With Python
10. Data-Driven Product Engineering

CIVIL ENGINEERING



Multi Modal Transportation Infrastructure with AI/ML

Integration with B.E./ B.Tech.: Civil Engineering

The Multi-Modal Transportation Infrastructure with AI/ML program is designed for civil engineering students, equipping them with the knowledge and skills to proficiently design, develop, and manage complex transportation systems. This program focuses on the seamless integration of various modes such as road, rail, air, and sea. The curriculum covers key areas like highway and metro-rail planning, infrastructure design and construction, effective traffic management, and sustainable transport solutions. Additionally, students will explore the use of emerging technologies, including AI and machine learning, to enhance the efficiency, safety, and sustainability of transportation systems. Upon completion, graduates will be well-prepared to contribute to the development of modern, multi-modal transportation networks that are efficient, secure, and environmentally sustainable.

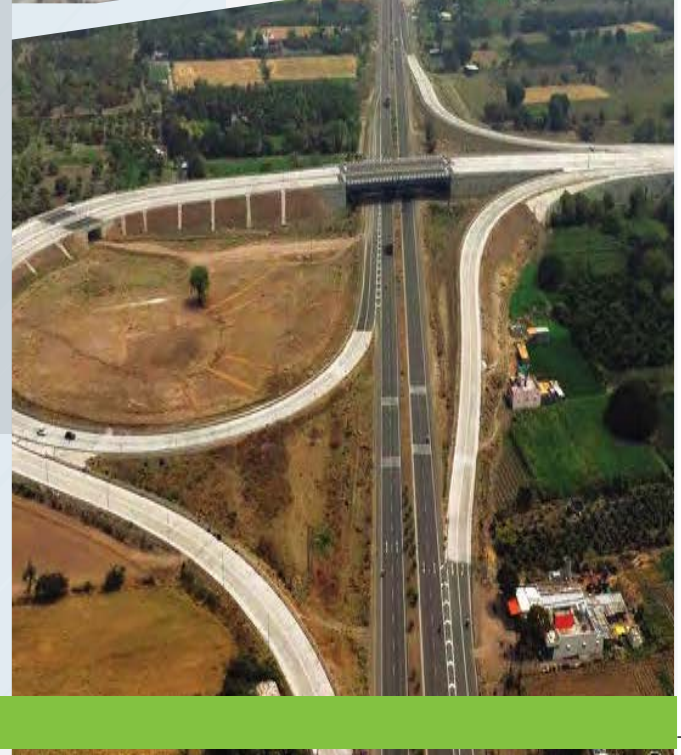
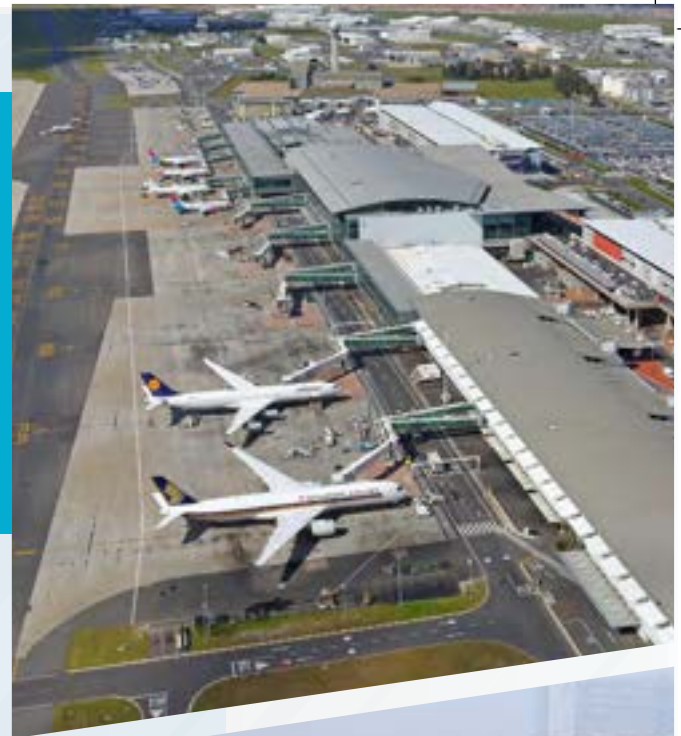
Recommended Integrated Courses

Course Name	Category	Credits	Semester
Essentials of Data Science and AI for Civil Engineers	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork*	Behavioral/ Functional Skills	3	II
Building Information Modelling in Construction	Technical Skills	3	III
Airports and Seaports Engineering	Technical Skills	3	IV
Highway Planning, Design and Construction	Technical Skills	3	V
Design and Execution of Pile Foundations	Technical Skills	3	V
Metro Rail Transportation Systems and Construction	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Bridge Engineering Design Practices	Technical Skills	3	VII
Project Management for Professionals / Finance for Professionals	Functional Skills	3	VIII
Total Credits		30	

Mode of Delivery:

Self-paced learning + Expert session (VILT) – 30 hours, Project work – 15 hours

* Face-to-face instructor led sessions / VILT sessions – 45 hours
(including project work)



Multi Modal Transportation Infrastructure with AI/ML

Integration with B.E./ B.Tech.: Civil Engineering

Job Roles

- ▶ Highway Design Engineer
- ▶ BIM Co-ordinator
- ▶ Bridge Design Engineer
- ▶ Planning Engineer
- ▶ Project Engineer
- ▶ Design Consultant
- ▶ Transportation Engineer

Skills

- ▶ Applying BIM principles and Revit software for infrastructure design, clash detection, reflecting application-level understanding.
- ▶ Utilizing project management skills for work breakdown, resource estimation, scheduling, cost control, and quality assurance.
- ▶ Comprehensive understanding of pile foundation, selection criteria, construction methods and settlement analysis using PLAXIS software
- ▶ Implementing metro station design , earth retaining systems, tunnel support, and instrumentation techniques with adherence to codes
- ▶ Planning airport infrastructure, including master plans, runway design, terminal construction, pavement maintenance. seaport infrastructure design and operations
- ▶ Obtain solutions for bridge structures based on various constraints and input parameters, encompassing design, analysis, and execution methods, along with inspection, monitoring, and maintenance practices.
- ▶ Apply integrated expertise in infrastructure engineering, covering pavement construction and quality control, as well as bridge design, analysis, and maintenance practices.

Software Tools

- ▶ IITPAVE ▶ REVIT ▶ STAAD PRO
- ▶ PLAXIS 2D ▶ MS Project
- ▶ AUTOCAD ▶ CIVIL 3D ▶ WALLAP

Potential Recruiters



Integrated Building System Design using AI/ML

Integration with B.E./ B.Tech.: Civil Engineering

The Integrated Building System Design using AI/ML program is carefully crafted for civil engineering students, focusing on those involved in the planning, design, and management of complex building systems. This comprehensive program covers the entire building process, from the Design Basis Report (DBR) and load calculations to analysis, design, and the creation of detailing/fabrication drawings. It integrates non-structural elements, Building Information Modeling (BIM), and incorporates industry best practices and sustainability principles. Additionally, the program introduces emerging technologies such as AI and machine learning, enhancing the ability to optimize designs and improve decision-making in building system management. Learners will gain the practical skills and knowledge necessary to design and manage integrated building systems for real-world construction projects, with a focus on delivering efficient, sustainable, and innovative solutions.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Essentials of Data Science and AI for Civil Engineers	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork*	Behavioral/ Functional Skills	3	II
Building Information Modelling in Construction	Technical Skills	3	III
Sustainability Practices in Design of Buildings	Technical Skills	3	IV
Foundation Engineering Practices	Technical Skills	3	V
Concrete Building System Design	Technical Skills	3	V
Structural Steel Buildings - Design and Practices	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Precast Construction - Members & Systems	Technical Skills	3	VII
Project Management for Professionals / Finance for Professionals	Functional Skills	3	VIII
Total Credits		30	

Mode of Delivery:

Self-paced learning + Expert session (VILT) – 30 hours, Project work – 15 hours

* Face-to-face instructor led sessions / VILT sessions – 45 hours
(including project work)



Integrated Building System Design using AI/ML

Integration with B.E./ B.Tech.: Civil Engineering

Job Roles

- ▶ Structural Design Engineer
- ▶ BIM Co-ordinator
- ▶ Project Engineer
- ▶ Planning Engineer
- ▶ Design Consultant
- ▶ Building Engineer

Software Tools

- ▶ REVIT
- ▶ STAAD PRO
- ▶ ETABS
- ▶ SAFE
- ▶ ECO NIWAS
- ▶ Solar Rooftop calculator
- ▶ MS Project

Skills

- ▶ Mastery in the creation, management, and application of data models for construction projects using BIM.
 - ▶ Ability to apply sustainable design principles, energy-efficient building practices, and green building certification processes
 - ▶ Comprehensive understanding of foundation types, enabling the design and evaluation of building foundations.
 - ▶ Proficiency in designing concrete structures using ETABS software, with a deep understanding of material properties and load calculations.
 - ▶ Expertise in the design of steel structures using STAAD.Pro, including a thorough understanding of material properties and connection design.
 - ▶ Knowledge of precast concrete production, modelling using ETABS & SAFE software, design, and construction methods, enabling the design and management of precast concrete structures.
 - ▶ Proficiency in project management principles, including project planning, scheduling, budgeting, and risk management, ensuring successful project completion.
- Stack skill set for integrated building services

Potential Recruiters



Digital Solutions for Industrial Building Design

Integration with B.E./ B.Tech.: Civil Engineering

The Digital Solutions for Industrial Building Design program is thoughtfully crafted for civil engineering students, particularly those involved in the planning and design of industrial facilities. This comprehensive program covers all aspects of industrial building design, from the conceptualization of structural systems to the seamless integration of MEP/utility services. The curriculum includes analysis and design using the latest software tools, along with modeling techniques through Building Information Modeling (BIM), with a strong focus on engineering energy-efficient and sustainable industrial buildings. The program aims to equip graduates with the essential skills and knowledge to design and manage integrated industrial facilities, ensuring optimal outcomes in terms of quality, cost, and sustainability. Additionally, emerging technologies such as AI and machine learning are incorporated to further enhance design optimization and operational efficiency.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Essentials of Data Science and AI for Civil Engineers	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork*	Behavioral/ Functional Skills	3	II
Building Information Modelling in Construction	Technical Skills	3	III
Sustainability Practices in Design of Buildings	Technical Skills	3	IV
Practical Design of Structural Steel Members	Technical Skills	3	V
Foundation Engineering Practices	Technical Skills	3	V
Structural Steel Buildings - Design and Practices	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Design of Pre-Engineered Buildings	Technical Skills	3	VII
Project Management for Professionals / Finance for Professionals	Functional Skills	3	VIII
Total Credits		30	

Mode of Delivery:

Self-paced learning + Expert session (VILT) – 30 hours, Project work – 15 hours

* Face-to-face instructor led sessions / VILT sessions – 45 hours
(including project work)



Digital Solutions for Industrial Building Design

Integration with B.E./ B.Tech.: Civil Engineering

Job Roles

- ▶ Steel Structural Design Engineer
- ▶ BIM Co-ordinator
- ▶ PEB Design Engineer
- ▶ Planning Engineer
- ▶ Project Engineer
- ▶ Design Consultant

Software Tools

- ▶ REVIT ▶ STAAD PRO
- ▶ ECO NIWAS ▶ MS Project
- ▶ Solar Rooftop calculator

Skills

- ▶ Proficiency in the creation, management, and application of data models for construction projects using BIM.
- ▶ Ability to apply sustainable design principles, energy-efficient building practices, and green building certification processes.
- ▶ Expertise in practical design of structural steel members, under various loading conditions and analysis concepts.
- ▶ Comprehensive understanding of foundation types, enabling the design and evaluation of building foundations.
- ▶ Proficiency in the design of structural steel buildings, including a thorough understanding of material properties and connection design.
- ▶ Knowledge of pre-engineered building design, enabling the design and management of such structures in industrial applications.
- ▶ Mastery in project management principles, including project planning, scheduling, budgeting, and risk management, ensuring successful project completion.

Potential Recruiters



Digital Transformation in Construction

Integration with B.E./ B.Tech.: Civil Engineering

The Digital Transformation in Construction program is expertly designed for civil engineering students, equipping them with the advanced skills and knowledge required to excel in the construction industry. The comprehensive curriculum covers the latest construction techniques and management strategies, including project management, sustainable construction practices, Building Information Modeling (BIM), and the application of construction automation. The program also integrates emerging technologies like AI and machine learning, which drive project optimization and improve decision-making processes. Upon completion, students will possess a well-rounded proficiency, enabling them to take on leadership roles in construction projects. They will apply cutting-edge practices to deliver high-quality, cost-effective, and sustainable outcomes, driving innovation and progress within the industry.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Essentials of Data Science and AI for Civil Engineers	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork*	Behavioral/ Functional Skills	3	II
Building Information Modelling in Construction	Technical Skills	3	III
Construction Equipment and Techniques	Technical Skills	3	IV
Formwork Systems and Concreting	Technical Skills	3	V
Deep Excavations, Foundations and Tunnels	Technical Skills	3	V
Geospatial Techniques in Practice	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Heavy Lifting Techniques and Machinery	Technical Skills	3	VII
Project Management for Professionals / Finance for Professionals	Functional Skills	3	VIII
Total Credits		30	

Mode of Delivery:

Self-paced learning + Expert session (VILT) – 30 hours, Project work – 15 hours

* Face-to-face instructor led sessions / VILT sessions – 45 hours
(including project work)



Digital Transformation in Construction

Integration with B.E./ B.Tech.: Civil Engineering

Job Roles

- ▶ Safety Engineer
- ▶ Quality Engineer
- ▶ BIM Coordinator
- ▶ Site Engineer
- ▶ Construction Engineer
- ▶ Planning Engineer

Software Tools

- ▶ REVIT ▶ PLAXIS 2D ▶ MS Project
- ▶ ARC GIS ▶ QGIS

Skills

- ▶ Proficiency in BIM software, understanding of construction processes, and 3D modeling and visualization.
- ▶ Knowledge of various construction equipment, understanding of construction techniques, and learn equipment handling and Safety procedures.
- ▶ Design efficient formwork, optimize concrete mix, and apply specialized techniques for quality construction with safety.
- ▶ Expertise in selection of excavation methods and tunneling techniques for various projects.
- ▶ Proficiency in geospatial software, understand geospatial data analysis, and apply geospatial techniques in construction.
- ▶ Knowledge of heavy lifting machinery, understanding of lifting techniques, and safety procedures in heavy lifting.
- ▶ Implement project planning and scheduling, risk management, and develop team leadership and communication skills.

Potential Recruiters



Sustainability Practices in Construction

Integration with B.E./ B.Tech.: Civil Engineering

The Sustainability Practices in Construction program equips students with the skills to integrate sustainable practices, emerging technologies, and advanced engineering strategies in modern construction. Covering AI, data science, and geospatial techniques, it enhances decision-making and project optimization. Students will explore Building Information Modeling (BIM), sustainable building design, solid waste management, hydropower structures, and eco-friendly engineering strategies, ensuring environmentally responsible infrastructure development. With a strong emphasis on critical thinking, leadership, teamwork, project management, and finance, this program prepares students to drive innovation, efficiency, and sustainability in the evolving construction industry.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Essentials of Data Science and AI for Civil Engineers	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork*	Behavioral/ Functional Skills	3	II
Building Information Modelling in Construction	Technical Skills	3	III
Sustainability Practices in Design of Buildings	Technical Skills	3	IV
Engineering strategies for sustainability	Technical Skills	3	V
Solid Waste Engineering and System Design	Technical Skills	3	V
Geospatial Techniques in Practice	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Hydropower Structures	Technical Skills	3	VII
Project Management for Professionals / Finance for Professionals	Functional Skills	3	VIII
Total Credits		30	

Mode of Delivery:

Self-paced learning + Expert session (VILT) – 30 hours, Project work – 15 hours

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(including project work)



Sustainability Practices in Construction

Integration with B.E./ B.Tech.: Civil Engineering

Job Roles

- ▶ Sustainability Engineer
- ▶ Green Building Engineer
- ▶ Hydropower Project Engineer
- ▶ Sustainability Analyst
- ▶ Environmental and Waste Management Engineer

Software Tools

- ▶ REVIT ▶ ECO NIWAS
- ▶ Solar Rooftop calculator
- ▶ MS Project ▶ QGIS
- ▶ ARC GIS

Skills

- ▶ Develop proficiency in BIM software (e.g., Revit), create detailed 3D models, perform clash detection, and coordinate multidisciplinary project data for efficient planning and execution.
- ▶ Design energy-efficient buildings, implement passive design strategies, and adhere to green building certifications.
- ▶ Conduct lifecycle assessments, optimize resource efficiency, and implement climate-responsive engineering solutions.
- ▶ Design and manage waste treatment systems, optimize recycling processes, and ensure regulatory compliance in waste management.
- ▶ Proficiency in geospatial software, understand geospatial data analysis, and apply geospatial techniques in construction.
- ▶ Analyze and design hydropower structures by assessing geological and hydrological factors, optimizing headworks, and planning efficient construction methods
- ▶ Apply project scheduling tools, manage construction budgets, and assess financial risks for project sustainability.

Potential Recruiters



L&T Construction



FICHTNER



AECOM

Jacobs



Structural System Design

Integration with B.E./ B.Tech.: Civil Engineering

This comprehensive program is carefully designed to equip civil engineering students with advanced proficiency in computational methods for structural analysis and design. The curriculum covers the analysis, design, and detailing of structural systems, utilizing the latest software and industry best practices to ensure students develop a deep understanding of these essential tools. By incorporating emerging technologies, including AI and machine learning, the program also enhances students' ability to optimize designs and improve decision-making processes. Upon completion, graduates will be well-prepared to address complex structural design challenges, ensuring the safety, efficiency, and longevity of structures across various industries. Their expertise in computational techniques will position them as valuable contributors to the future of structural engineering.

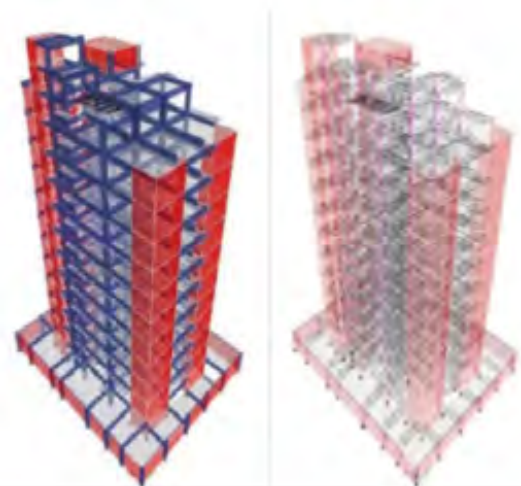
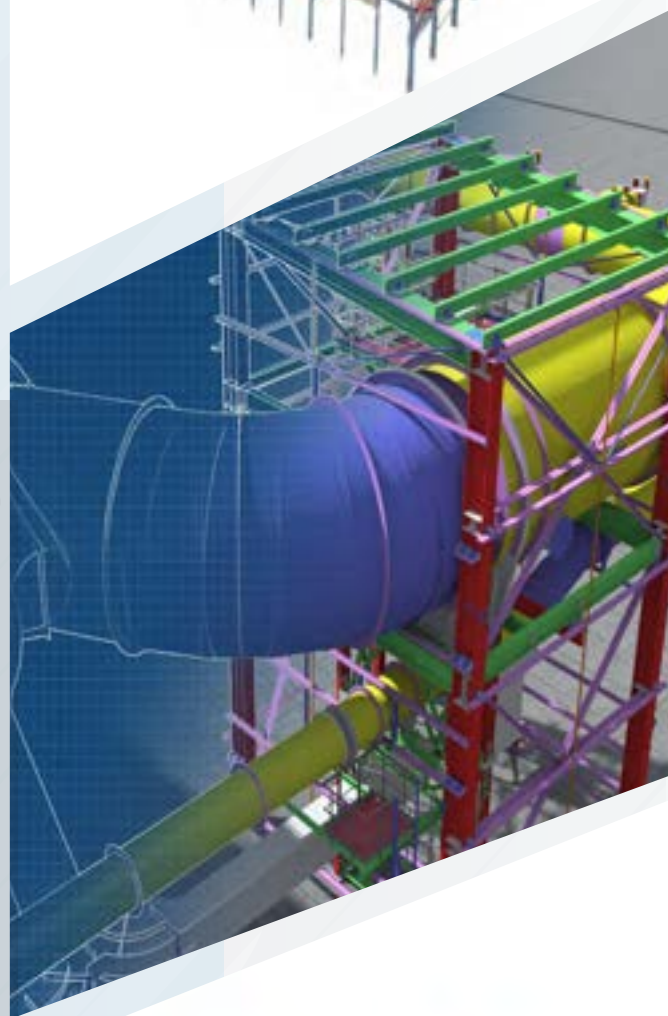
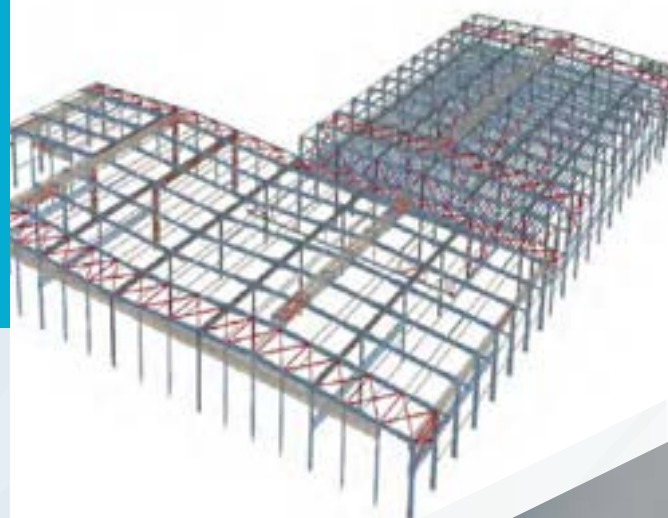
Recommended Integrated Courses

Course Name	Category	Credits	Semester
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Critical Thinking, Design Thinking, Leadership and Teamwork*	Behavioral/ Functional Skills	3	II
Building Information Modelling in Construction	Technical Skills	3	III
Practical Design of Structural Steel Members	Technical Skills	3	IV
Concrete Building System Design	Technical Skills	3	V
Precast Construction - Members & Systems	Technical Skills	3	V
Structural Steel Buildings - Design and Practices	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Design of Pre-Engineered Buildings	Technical Skills	3	VII
Project Management for Professionals / Finance for Professionals	Functional Skills	3	VIII
Total Credits		30	

Mode of Delivery:

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(including project work)



Structural System Design

Integration with B.E./ B.Tech.: Civil Engineering

Job Roles

- Design Engineer
- Planning Engineer
- BIM Co-ordinator
- Design Consultant

Skills

- Proficiency in BIM software, understanding of construction processes, and 3D modeling and visualization.
- Understand practical design aspects of structural steel members, load calculations, and safety considerations.
- Knowledge about concrete building systems, design principles, and construction techniques.
- Knowledge of precast concrete production, modelling using ETABS & SAFE software, design, and construction methods, enabling the design and management of precast concrete structures
- Proficiency in the design of structural steel buildings, including a thorough understanding of material properties and connection design.
- Knowledge of pre-engineered building design, enabling the design and management of such structures
- Gain knowledge about bridge engineering design practices, load calculations, and safety considerations.

Software Tools

- REVIT ► STAAD PRO ► ETABS ► SAFE
- MS Project

Potential Recruiters

