

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

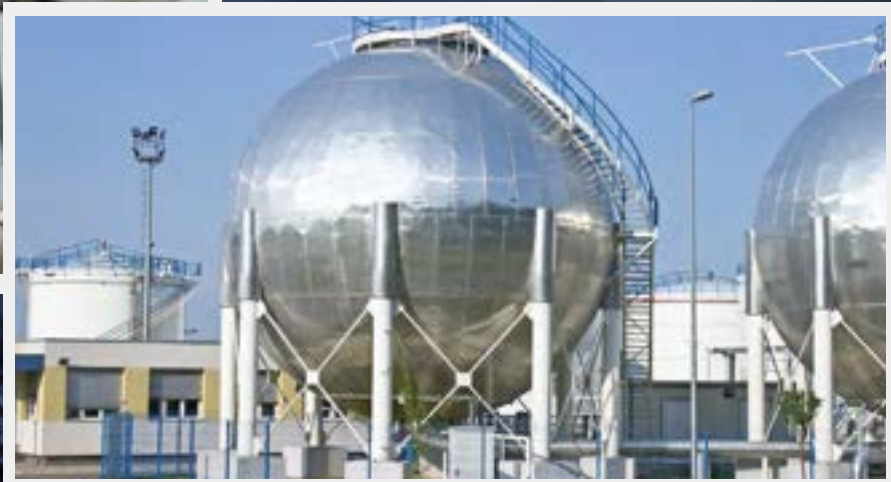
Electric Vehicle Engineering

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

MECHANICAL ENGINEERING



Digital and AI Solutions for Oil & Gas and Process Plants

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

The Digital and AI Solutions for Oil & Gas and Process Plants program is tailored for Mechanical Engineering students, providing them with a comprehensive understanding of optimizing oil, gas, and chemical process engineering through digital, analysis and AI solutions. This program encompasses a wide spectrum of subjects, including the design of oil, gas, and chemical process equipment besides green hydrogen storage tanks and piping with AIML, chemical process optimization, plant digitization, plant analysis, and process safety. Graduates with this high-demand skill set play a pivotal role in ensuring the efficient and safe operation of oil, gas, and chemical process plants by implementing digital, analysis and AI solutions. They are sought after for their ability to ensure design compliance with international codes, enhance productivity, and environmental safety making them indispensable assets to oil, & gas, and process plants.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Digital Enablement Basics for Engineers*	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork *	Behavioral/ Functional Skills	3	II
Utility Systems for Industrial Facilities	Technical Skills	3	III
Ambience Control System (HVAC) Design	Technical Skills	3	IV
Computational Fluid Dynamics	Technical Skills	3	V
Industrial Piping and Pipeline Engineering	Technical Skills	3	V
Thermal Design and Simulation of Process Plant Equipment	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Mechanical Design of Static Equipment	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 and AI Solutions for Oil & Gas and Process Plants

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

Job Roles

- ▶ Utility Engineer
- ▶ HVAC Design Engineer
- ▶ CFD Engineer/Process Simulation Engineer
- ▶ Process Engineer
- ▶ Piping Engineer
- ▶ Piping Design Engineer
- ▶ Piping Stress Engineer
- ▶ Thermal Design Engineer
- ▶ Mechanical Design Engineer
- ▶ Pressure Vessel Design Engineer (ASME Sec VIII)
- ▶ Storage Tank Design Engineer (API650/API620)
- ▶ Project Control Engineer

Software Tools

- ▶ CAEPIPE ▶ Pipeflow ▶ Plant 3D ▶ HTRI ▶ DWSIM
- ▶ ANSYS ▶ Fluent ▶ Abaqus ▶ WoundSim
- ▶ EdrawMax ▶ MS Excel Spread Sheet ▶ MS Project

Skills

Learner Can

- ▶ Perform HVAC Design for Industrial Facilities
- ▶ Understand the Schematics of Various Utilities
- ▶ Know MoC & Design Data for Utilities
- ▶ Determine Optimum Pipe Diameter for Pressure Drop
- ▶ Calculate Pipe Wall Thickness for both Int. & Ext. Pr.
- ▶ Recommend Right Pipe Size & Schedule
- ▶ Perform Pipe Stress Analysis using Software
- ▶ Design Piping System Comply with ASME Codes and also using AIML
- ▶ Perform Thermal Design of STHE (TEMA)
- ▶ Perform Thermal Design of Condensers, Evaporators & Reboilers
- ▶ Perform Process Simulation using Software
- ▶ Design Pr. Vessels & Storage Tanks Comply with Codes and also using AIML
- ▶ Design Green H2 Tanks with AIML & Perform FEA
- ▶ Understand Project Monitoring & Control

Potential Recruiters



Digital Manufacturing using AI and CPS

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

The Integrated Program in Digital Manufacturing, leveraging Artificial Intelligence (AI) & Cyber-Physical Systems (CPS), is meticulously crafted for learners who aspire to spearhead the future of manufacturing. This transformative program delves deep into the realms of cutting-edge technology, empowering learners to revolutionize production processes. With a comprehensive curriculum encompassing predictive maintenance strategies, intelligent automation techniques, advanced data analytics, and the principles of smart manufacturing, learners emerge poised to not only navigate, but also lead the digital transformation. This holistic preparation amplifies efficiency and elevates competitiveness, positioning learners at the forefront of innovation within the industry.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Digital Enablement Basics for Engineers*	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork *	Behavioral/ Functional Skills	3	II
Graphics, Geometric Tolerances and Drawings in Manufacturing	Technical Skills	3	III
Technology and Processes in Heavy Manufacturing	Technical Skills	3	IV
Digital Technologies with CPS, IIOT and Cloud in Manufacturing	Technical Skills	3	V
Collaborative Robotics in Manufacturing with AI, ML and IIOT	Technical Skills	3	V
Cognitive Manufacturing - Artificial Intelligence and Machine Vision	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Additive Manufacturing	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 Manufacturing using AI and CPS

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

Job Roles

- ▶ Planning & Control Engineer
- ▶ Production Engineer
- ▶ Maintenance Engineer
- ▶ Robotic Programmer
- ▶ Production Technologist
- ▶ Quality Engineer
- ▶ Automation Engineer

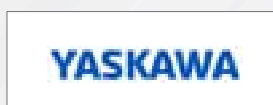
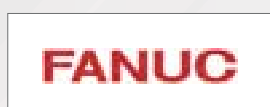
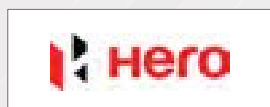
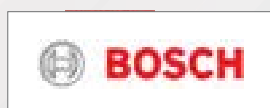
Skills

- ▶ Drafting Production & Assembly drawings of Mechanical components & tools, Process equipment, Pressure vessels, Turbines and Industrial Valves
- ▶ Robotic Design & Development Methods and Programming for Cobot environment
- ▶ Applications of Cyber Physical systems, Industrial Internet of things, Cloud computing, Artificial Intelligence and Machine learning
- ▶ Nuances of cognitive manufacturing to realize the Customized Industry
- ▶ Additive manufacturing techniques, Design for Manufacturing & Assembly and conceptual support systems.
- ▶ Application of Machine vision, Digital Twins, Digital Threads, Augmented & Virtual reality and Drone Technology

Software Tools

- ▶ AutoCAD ▶ MATLAB - Simulink ▶ Robotics Toolbox
- ▶ STM32 CUBE IDE ▶ Arduino UNO ▶ Ultimaker Cura ▶ Blender
- ▶ eiger.io ▶ Power BI ▶ Open CV ▶ Tinker CAD ▶ ANSYS ▶ All 3DP Pro

Potential Recruiters



Advanced Power Generation Systems

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

The Integrated Program in Advanced Power Generation Systems is meticulously designed to equip learners with an extensive understanding of cutting-edge technologies and best learners in power generation. This program delves deeply into a diverse array of subjects, including the integration of renewable energy sources, advanced energy storage solutions, super critical boilers, environmental protection systems, and the implementation of sustainable power generation methods. Learners emerge not only well-prepared, but also inspired to play a pivotal role in the evolution of advanced power generation systems. These systems stand as beacons of environmental responsibility, characterized by their efficiency, reliability, and eco-friendliness. This comprehensive program equips learners to lead the way in developing and managing power generation solutions that align seamlessly with the demands of a rapidly evolving energy landscape.

Recommended Integrated Courses

Course Name	Category	Credits	Semester
Digital Enablement Basics for Engineers*	Functional Skills	3	I
Critical Thinking, Design Thinking, Leadership and Teamwork *	Behavioral/Functional Skills	3	II
Design of Fire and Life Safety Systems	Technical Skills	3	III
Green Energy Systems: An Overview and its Applications	Technical Skills	3	IV
Utility Systems for Industrial Facilities	Technical Skills	3	V
Power Plant Engineering - An Industrial Context	Technical Skills	3	V
Steam Generator and Auxiliary Systems	Technical Skills	3	VI
Career Readiness in Digital Era*	Behavioral Skills	3	VI
Steam Turbine and Auxiliary 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)



Advanced Power Generation Systems

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

Job Roles

- ▶ Power Plant Design Engineer
- ▶ Power Plant Equipment
- ▶ Manufacturing Engineer
- ▶ Power Plant Commissioning Engineer
- ▶ Power Plant Operation Engineer

Skills

- ▶ Fire hydrants, sprinklers, foam systems
- ▶ Life safety, building compartmentation strategies
- ▶ Pump and sump capacity for firefighting
- ▶ Systems for wind, solar, geothermal applications
- ▶ Advancements in fuel cells, hydrogen energy
- ▶ Power plant, emission control, auxiliary systems
- ▶ Balance of plant system
- ▶ Combined cycle, nuclear plants for compliance
- ▶ Boiler layout for efficient operation, support
- ▶ NOx, SOx reduction for regulatory compliance
- ▶ Steam turbines for performance, efficiency
- ▶ Utility systems in industrial facilities
- ▶ Commissioning, erection, operation of steam turbines

Software Tools

- ▶ MS Project ▶ EDraw Max

Potential Recruiters

