Elective No. 5

Manufacturing, Mechanical & Telecom Domain

Domain Specialization & Project Expertise

Domain Specialization elective :

In Manufacturing, Mechanical & Telecom

- Learn how to succeed in an increasingly competitive market with advanced tools and technology by using proven methodology.
- Master your data analysis skills and create a dynamic dashboard to describe your insights
- Develop leadership skills by gaining a better knowledge of data and making more informed choices regarding prospects, customers, product lines, market opportunities, and team performance.

6 Industry Relevant Projects | **20+ Case Studies & Assignments** | **100% Interview Guarantee**

Elective Details

The fields of data science and artificial intelligence use a wide range of approaches, including statistical analysis, modelling, machine learning, and data mining, to help us forecast the future.

Who should join?

- Executive-level Manufacturing, Mechanical & Telecom professionals or consultants, dreaming of securing a position at the forefront in same domain practices to add value to both their career and organization.
- Managers and leaders associated with Manufacturing, Mechanical & Telecom who want to incorporate future proof and data-driven newfangled practices into the existing business operations.

Why domain specialization?

- Data science skill efficacy is all about using your domain-specific knowledge in a balanced way using data-driven methods.
- As a result, if you don't have domain expertise, your data science abilities are useless.
- Even so, these are the main reasons why experienced workers seeking career changes are in greater demand.

Course Pre - requisite:
Professionals having **1+ year of experience** in either Manufacturing, Mechanical & Telecom domain. Or professionals interested in learning about the newest technology, data science, artificial intelligence, data analyst and business analyst techniques that drives strategic development.

NO background in programming or statistics required.

Tools & Modules

TERM 1 & 2

Python

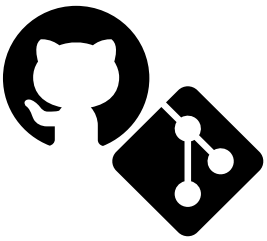
Statistics

Machine Learning

Deep Learning (Tensorflow)

Time Series Analysis & Forecasting

Natural Language Processing



Git & GitHub

R Programming

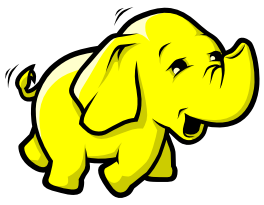
TERM 3 & 4

SQL for Data Science

Tableau

Power BI

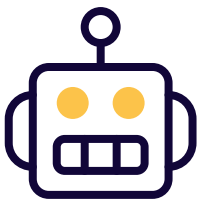
Mongo DB



Hadoop

Apache Spark

Google Cloud



Advance AI

Transition Process

What will you learn?

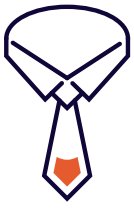
The process of manufacturing products through the use of labor, machinery, tools, and chemical or biological processing or formulation is called manufacturing. Secondary sector of the economy refers to human activity from handicraft to high-tech, which is the most frequently used word in the context of industrial design. More sophisticated items, such as aero planes, home appliances, furniture, sports equipment, or cars, may be made from these commodities.

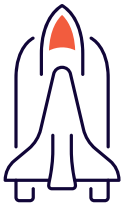
Companies in the communications industry make communication possible regardless of how it is accomplished—whether via phone lines, the Internet, broadcast frequencies, or wires. In order to facilitate sending data in text, speech, audio, or video, these businesses built the necessary infrastructure.

A complete listing of the major service businesses includes both telecommunications (wired and wireless) operators, such as satellite and cable companies, as well as Internet service providers.

Mechanical engineering is one of the oldest and broadest of the engineering disciplines. While mechanical engineering has many specialised topics that need in-depth knowledge, these areas provide the foundation for the profession and provide the necessary foundation for all mechanical engineering pursuits. To assist them in their efforts, mechanical engineers use technologies such as computer-aided design (CAD), computer-aided manufacturing (CAM), and product lifecycle management (PLM). Machinery design, manufacturing, and operation are all examples of machine design.

Domain Specialization
In manufacturing mechanical & telecom Domain





Project Life Cycle Expertise
with 2 Capstone Projects

Domain Training

Module 1 - Introduction to Advance Manufacturing Process Analysis

Learn Text mining, AI-driven automated quality assurance, and video analytics to track attendance and behavior are all topics covered.

Understand the principles of Industrial Revolution 4.0 (IR 4.0) and its potential, as well as wireless sensor networks, the purpose of IoT sensors, and manufacturing wireless sensors.

This subject provides you with in-depth knowledge of Big Data and its applications in manufacturing. Students will learn about Hadoop, data collecting, storage, and processing, as well as important technologies like Spark and Hadoop and much more.

- How data is collected in different manufacturing settings, understanding Discrete part manufacturing and Continuous manufacturing.
- Sensitivity Analysis, Anomaly Detection, HPC & Cloud Computing.
- Determination of Significant Variables/Factors, Computing Platform, Components, Categories, and Capabilities.
- Advanced Manufacturing Analysis.

Module 2 - All Around Mechanisms

This gives a brief introduction It may span numerous modules, and the goal is for you to be able to understand the processes at a glance before diving into the components of process technology modelling.

This course might be intended to provide insight into process designers, and it would essentially be a parametric analysis of all these diverse processes.

- Mechanisms and Machines
- Kinematics and Dynamics
- Fabrication Design with Solid Works
- Fixturing
- Module Design with Solid Works

Module 3 - Telecommunications

- Here You'll Analyze the Telecom Industry's Transformation Using Big Data Analytics.
- How network performance measurement helps to improve service quality.
- Apply some telco practices to other industries, such as retail, FMCG, and banking.
- Learn how telcos are using Big Data Analytics to better analyze subscriber behavior using both internal and external data.
- Introduction to Telecommunication Industry
- Data Types and Data Extraction using Hadoop
- Data Transformation
- Clustering
- Data Interpretation
- Telco's extracting value

Project Work

Bosch Production Line Performance

Manufacturing Domain

To predict internal failures using thousands of measurements and tests made for each component along the assembly line.

This would enable Bosch to bring quality products at lower costs to the end user. The goal is to predict which parts will fail and control the quality.

Working towards creating Smart Factories by Automation and Robotisation

Mechanical Domain

The enormous push toward automation necessitates a significant investment. System integrators and engineers all across the world are charting their course, using advances in data science as a roadmap to more efficient resource allocation and significant productivity benefits.

Data scientists use predictive and analytical methods to identify the most cost-effective cost-cutting opportunities.

The information is then utilised by engineers in their work, helping manufacturers to make the best decision possible when investing in robotics and automation technology.

Fault Prediction and Preventive Maintenance

Manufacturing Domain

In modern manufacturing, there are very few crucial cells or machinery on which production is dependent. Real-time monitoring data can be studied further to prevent equipment failure and improve asset management.

To produce these forecasts, data scientists use the machine's expertise and take note of the reasons why it might fail.

In big data manufacturing, process data revealing varying vibration and temperature is used to anticipate a machine's breakdown in advance. By comparing deviations to machine settings for optimum performance, engineers can be alerted to take preventative actions as needed, allowing manufacturers to avoid catastrophic failure.

This is how data science is redefining design and optimization in some of today's most advanced manufacturing facilities.

For the manufacturing industry, the utilisation of real-world data to assess the impact of new technology, designs, and machinery on production has proven revolutionary.

Project Work

Designing and Developing Product

Mechanical Domain

Data science can be used to validate material design and decisions by assessing client needs and preferences.

One of the most important services supplied by contract manufacturers is product development.

Their product designs and functionalities must appeal to their customers' preferences and needs.

Data science technologies are frequently used to find the best approach to manufacture an item to meet the specific needs of a consumer or a set of customers.

Data science can also be used to study consumer preferences and market trends while developing a new product or improving an existing one.

Product marketers can leverage actionable information from consumer feedback to enhance products in order to meet customer needs and benefit the manufacturers.

Identify And Predict Customer churn in telecom industry

Telecom Domain

The goal is to develop a churn prediction model which assists telecom operators to predict customers who are most likely subject to churn.

Also to understand the customer behavior and reasons for churn.

Apply multiple classification models to predict the customer churn in telecom industry.

Fraud Detection

Telecom Domain

The telecommunications business, which attracts the largest number of customers on a daily basis, is a broad arena for fraudulent activity. Illegal access, authorization, theft or fake profiles, cloning, behavioral fraud, and other types of fraud are the most common in the telecom industry.

Fraud has a direct impact on the relationship that has been created between the business and the user.

As a result, fraud detection systems, methods, and tactics have become commonplace.

You can prevent fraud by using unsupervised machine learning algorithms on a massive quantity of customer and operator data to recognize the features of legitimate traffic.

The algorithms identify anomalies and offer them to analysts in real time as alerts using data visualization tools. This technique has a high level of efficiency because it enables for a near-real-time response to suspicious activities.

FAQ's

Can I select multiple domain electives?

- You can select multiple electives based on your career goal and work experience/academics.

What if I don't have any prior experience in any domain?

- Even if you don't have any prior experience, you can still opt for any elective to gain Domain Expertise and work on Real - Time Industrial Projects.

Can I change my domain electives later ?

- Yes, you can change your elective or repeat the training later within the Course Accessibility Duration.

Are there any additional charges for electives?

- No, there are no additional/ hidden charges.

How many capstone projects do I need to work?

- You can work on all projects, or depending on your experience and goal. For eg, Having 1-2 yrs of experience you must work on 4-5 projects.

Note: We keep updating trending projects and case - studies as per the market/company requirement. You can also Bring your own project.

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