

Industrial Engineering Track: Program Overview

Comprehensive Principles and Practical Application for Process Improvement

Presented by Agnes, Sapiens AI

Program Goal & Core Topics

Program Goals



Comprehensive Understanding of IE Principles

Delve into the fundamental theories and methodologies that underpin Industrial Engineering, equipping you with a robust theoretical foundation.



Practical Skills in Process Analysis & Improvement

Develop hands-on expertise in identifying inefficiencies, analyzing workflows, and implementing effective solutions for operational excellence.



Culminating Project: Time Study & Manufacturing Improvement

Apply learned principles to a real-world scenario, conducting a time study to measure, analyze, and propose concrete improvements.



Key Areas Covered



Work Study

Method study and work measurement for efficiency.



Facility Design

Optimizing layouts for flow and space utilization.



Production Planning

Strategic scheduling and resource management.



Quality Control

Ensuring product standards and defect prevention.



Ergonomics

Designing workspaces for human comfort and efficiency.

Phase 1: Foundational Principles & Work Study Methodologies (Months 1 & 2 - Online)

 **Mode: Online Learning**

 **Duration: Months 1 & 2**

Core IE Concepts

Grasp essential theories for enhancing productivity and efficiency. This online module allows self-paced mastery of fundamental Industrial Engineering principles.

Method Study Mastery

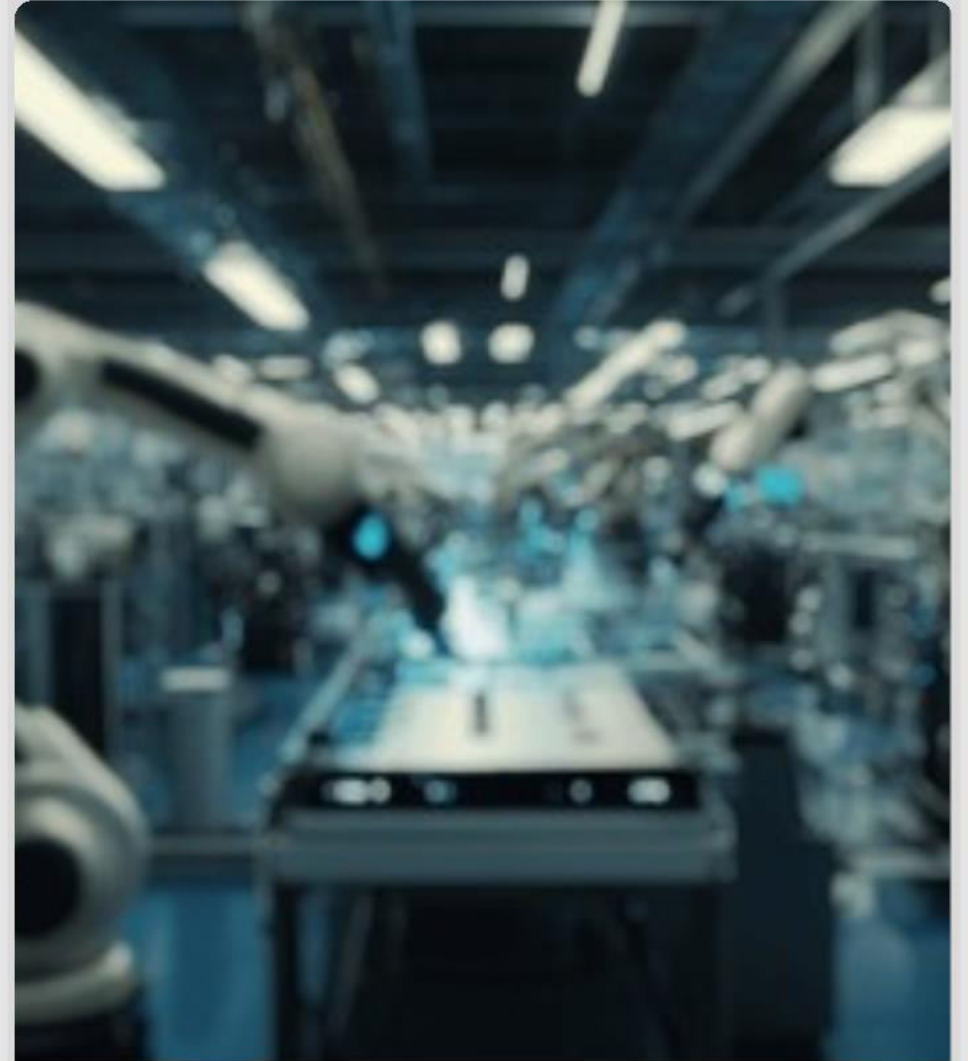
Learn to systematically examine and simplify jobs to improve efficiency. Develop techniques for process analysis and optimizing operational procedures.

Work Measurement & Time Study

Develop expertise in establishing standard times for tasks, crucial for optimizing workflows, balancing workloads, and making data-driven decisions.

Operations & Quality Control

Explore principles for managing production systems, ensuring high standards of quality, reducing defects, and streamlining operational processes.



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Month 1: Principles of IE & Work Study Fundamentals



Introduction to Industrial Engineering

History & Scope: Explores the evolution of IE and its broad application in optimizing complex processes.

Role of an IE: Focuses on Industrial Engineers as key drivers of productivity and efficiency across various sectors.

"Work study is a significant aspect of industrial engineering, primarily focused on enhancing productivity..."



Productivity & Efficiency

Definitions: Clear distinction between **productivity** (output per input) and **efficiency** (doing things right).

Measurement & Factors: Discusses key metrics and influencing factors that impact operational performance.

"Time Study is crucial in Industrial Engineering as it enables organizations to optimize workflows and processes..."



Work Study Fundamentals

Method Study: Systematic examination of work methods to improve efficiency and economy.

Recording Techniques: Intro to tools like **Flow Process Charts** &



Work Measurement & Time Study

Time Study: Structured observation and timing of tasks with tools like a stopwatch and clipboard.

Month 2: Operations Management & Quality Control

Facility Layout & Material Handling



Types: Process, Product, Fixed-position, and Cellular layouts, each optimizing for different needs from flexibility to high-volume efficiency.

Design Principles: Focus on minimizing movement, maximizing space utilization, ensuring accessibility, and prioritizing safety.

Equipment: Introduction to conveyors, forklifts, Automated Guided Vehicles (AGVs), and robotics.

Facility Layout

Material Handling

Design Principles

Inventory Management & Control



Core Concepts: Understanding costs (holding, ordering, stockout) and analytical tools like ABC Analysis, EOQ, and Reorder Point calculations.

Cost Analysis

ABC Analysis

EOQ

Reorder Point

Production Planning & Scheduling

Forecasting: Methods for predicting future demand.

Master Production Schedule (MPS): Detailing products, quantities, and timing for production.



Phase 2: Industry Immersion & Integrated Project (Month 3 - Offline)

Hands-on Application & Integrated Mini-Project

This phase signifies a crucial transition from theoretical learning to **offline, practical application**. Participants will engage in an **intensive, hands-on mini-project** within a simulated or real small manufacturing environment. This integrated experience is designed to solidify theoretical knowledge and develop critical problem-solving skills in an industrial context.

Offline Application

Hands-on Project

Manufacturing Immersion

Practical Skill Development

10s Conducting a Time Study

Learn and perform structured observation and precise measurement of tasks within a small manufacturing process to establish standard times for activities, crucial for understanding current performance.



Identifying Inefficiencies



Month 3: Capstone Mini Project - Time Study & Process Improvement



Month 3 culminates in the **Capstone Mini Project**, where theoretical knowledge is applied to a real-world scenario. This immersive experience focuses on **Time Study and Process Improvement**, providing participants with practical skills to drive operational excellence. Alongside this, crucial **career development workshops** prepare individuals for their professional journey.

Capstone Project

Time Study

Process Improvement

Hands-on Application



Project Kick-off

Select a process, form teams, and conduct initial method study to record the current state.



Data Collection & Analysis

Perform time study observations, apply performance ratings, and calculate standard times.

"A time study is a work



Improvement Proposal

Critically examine data, develop improved methods, and quantify benefits.

"Work study... can improve... industries by reducing process



Final Presentation

Showcase findings, proposed solutions, quantified benefits, and an implementation plan.

Key Learning Outcomes & Skills Acquired



Proficiency in Work Study

Master techniques for streamlining processes and establishing accurate time standards to enhance efficiency and economy.

Method Study

Work Measurement



Efficient Facility Design

Develop the ability to design optimal layouts and material handling systems for smooth workflow and maximized space utilization.

Facility Layouts

Material Handling



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Production Management

Acquire robust skills in managing inventory to control costs and planning production for effective resource allocation.

Inventory Management

Production Planning



Quality Control Expertise

Gain understanding of quality principles



Practical Process Improvement

Develop hands-on experience by



Enhanced Analytical Skills

Strengthen critical problem-solving, data

Next Steps & Contact



Get in Touch

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Apply Learned Principles

Translate your comprehensive understanding of Industrial Engineering methodologies—including work study, time study, and process improvement techniques—into tangible results within real-world industrial settings. Drive efficiency, optimize operations, and foster innovation.



Continue Professional Development

The field of Industrial Engineering is dynamic. Commit to lifelong learning through advanced certifications (e.g., Six Sigma), specialized courses, and industry seminars to remain at the forefront of operational excellence.



Connect with Our Alumni Network

Join a vibrant community of IE professionals. Our extensive alumni