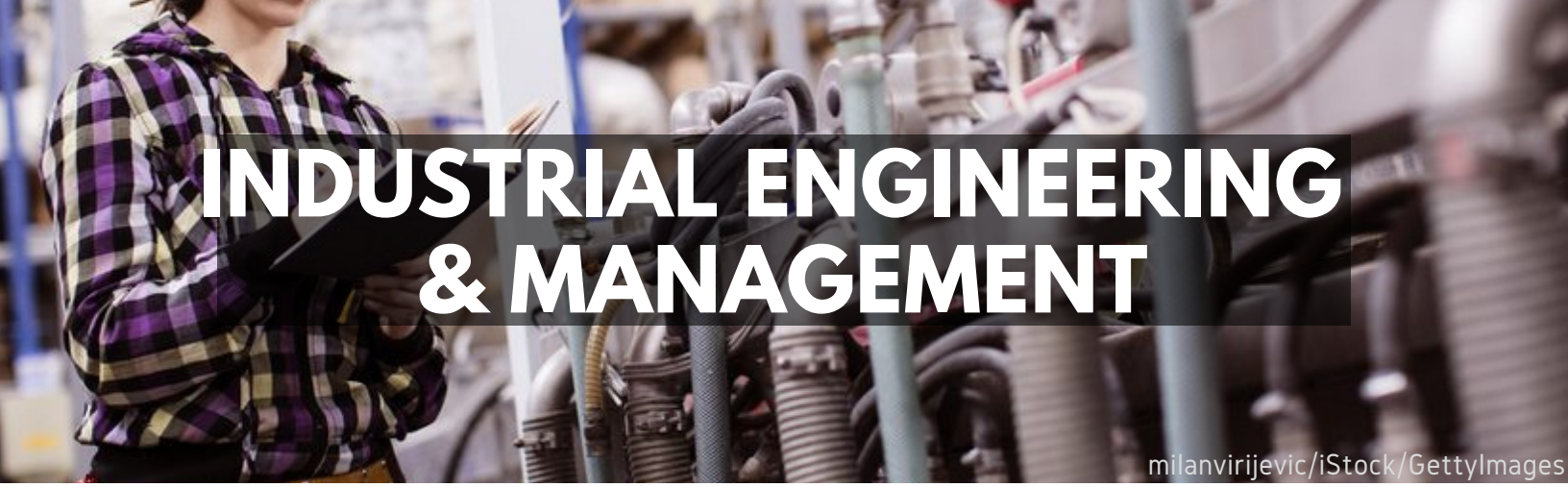

INDUSTRIAL ENGINEERING & MANAGEMENT

milanvirijevic/iStock/GettyImages

Track Description

Industrial engineering (IE) is an interdisciplinary profession focused on the optimization of complex systems (e.g., logistics), processes (e.g., manufacturing), or organizations. Industrial engineers develop and apply quantitative and data driven tools to help people and organizations make better decisions. Fundamentally, IE is an engineering approach to systems-based decision making, hence can be applied in virtually every sector (e.g., manufacturing, service, retail, technology, healthcare). Engineering management is a discipline that addresses the management of engineering projects. This includes leading the technical and economic aspects of a project to ensure that it is aligned with the organization's objectives, safely implemented, finished on time, and completed within the budget. Together, Industrial Engineering & Management (IEM) help companies make the best use of their resources and identify the most attractive opportunities.

IEM students must take 4 courses from the lists below. At least 1 of these must be an ORI undergraduate course.

ORI Undergraduate Courses (select 1 to 4)

ME 366L/ORI 366: Operations Research Models
ME 367S/ORI 367: Simulation Modeling
ME 379M/ORI 370: Statistical Methods in Manufacturing
ME 379M: Data Science for Engineers
ORI 369: Decision Analysis
ME 377K Projects in Mechanical Engr

Faculty Mentors

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ORI Graduate Courses (select up to 3)*

ORI 390Q.2: Production & Inventory Control
ORI 390R.1: Applied Probability
ORI 390R.17: Decision Analysis I
ORI 390R.18: Decision Analysis II

McCombs Courses (select up to 2)**

Please ask an advisor for a list of approved courses

** No more than 2 McCombs courses can be counted towards the ME CGE requirement.

Organizations & Societies

INFORMS, www.informs.org
IISE, www.iise.org

* Please contact faculty mentors for approval or to petition other courses. For course descriptions visit the University Catalog.

The University of Texas at Austin
Walker Department of Mechanical Engineering
Cockrell School of Engineering

Industry Applicability

Industrial Engineering & Management incorporates transferable skills that are highly applicable in numerous industries. Here are a few examples of the types of jobs that typically employ students specializing in IEM:

- Design, plan, & operation of manufacturing & service systems (e.g. logistics, warehousing, delivery)
- Revenue management & pricing (e.g. airlines, hospitality)
- Data analytics in industries such as technology & finance
- Strategic management of large engineering projects (e.g. energy)

Selected Examples

1. Financial Engineering: Financial companies have access to tremendous amounts of data about their customers. Using this information, they need to decide which products to offer (e.g., new credit cards, loans) so as to maximize profitability while managing risk.

2. Energy Investment: Energy companies must spend significant amounts of capital in order to bring energy projects to the market. Energy prices are volatile and these investments are risky. These companies need help modeling their investment opportunities and making the right choice.

3. Public Policy: Public policy decisions can have significant benefits and costs that involve complex tradeoffs. For example, a policy to impose a carbon tax may decrease the use of fossil fuels, thereby reducing potential climate damage, but will also impose a cost on consumers by making energy more expensive. IEM methods are used to model these decisions and help policymakers make the best choice.