Industrial Engineering Course Offering

Investment Opportunity - Higher Education

EDUCATION

استثمر في السعودية
INVEST SAUDI

Industrial Engineering Course Offering

OPPORTUNITY DESCRIPTION: Invest in KSA's higher education sector by offering bachelor's, master's and doctoral courses in industrial engineering

OPPORTUNITY OVERVIEW

Industrial Engineering Overview

Industrial engineering course offerings can be across Bachelors, Masters and PhD programs

Industrial engineering focuses on optimizing systems and processes to improve overall efficiency, productivity, and quality using principles such as process design, operations research, quality control, and data analysis

Bachelors	Masters	PhD
Provides broad foundation in core engineering principles and technical skills	Provides specialized education and research exposure in a few selected concentrations	Provides in-depth research experience and expertise in subject matter

>95% of enrolments in industrial engineering are in Bachelors programs, with limited offerings

NOT EXHAUSTIVE

King Saud University; Princess Nourah Bint Abdulrahman University; University of Bisha; University of Jeddah; Taif University; King Khalid University; University of Ha'il

Offerings and Current Providers

Multiple specializations exist within industrial engineering that can be explored in KSA

NOT EXHAUSTIVE

- *Industrial Operation Management*
- *Automatic Control Systems*
- *Manufacturing Processes*
- *Engineering and Manufacturing Economics*
- *Quality Engineering*
- *Computer Integrated Manufacturing*
- *Industrial Systems Simulation*
- *Design and Analysis of Experiments*
- *Product Design and Innovation*

Industrial engineers find employment in many end-market segments that are rapidly growing in KSA

NOT EXHAUSTIVE

- Aerospace and Aviation
- Logistics and Supply Chain
- Technology and electronics
- Energy and Utilities
- Advanced Manufacturing

Demand Forecast

CAPEX outlay of 80-120M SAR is required to set up one institute of 1.3-1.5K students

30-35K — Total number of industrial engineering graduates required over 2023-30 to support Saudi's economic expansion

13-15K[4] — Enrolment scale of institutions based on cumulative incremental graduate requirement of 25-30K[2] annualized to 3.5-4K[3] till 2030

80-120M SAR — Investment outlay[5] to set up a higher education institute with a capacity of 1.3-1.5K based on forecasted demand

engineers will be filled by fresh graduates from Saudi, and other 50% will be lateral or expat hires; [2]Subtracting graduates required; [3]Annualising total supply (dividing by 7 years between 2023 and 2030); [4]Assuming a course fitting cost of 2-3K SAR per sqm and an average area requirement of 30-40 sqm per student

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OVERVIEW OF INDUSTRIAL ENGINEERING

Introduction to Industrial Engineering

Industrial engineering is a field of engineering focusing on optimizing systems and processes to improve overall efficiency, productivity, and quality using principles such as process design, operations research, quality control, and data analysis.

Offerings

Bachelor's Program	Master's Program	PhD Program
Provides broad foundation in core engineering principles and technical skills	Provides specialized education and research exposure in a few selected concentrations	Provides in-depth research experience and expertise in subject matter
Limited or no research focus	*Some research and thesis required*	*Extensive research & dissertation required*

Courses

NOT EXHAUSTIVE

Industrial Operation Management	*Automatic Control Systems*	*Manufacturing Processes*
Engineering and Manufacturing Economics	*Quality Engineering*	*Computer Integrated Manufacturing*
Industrial Systems Simulation	*Design and Analysis of Experiments*	*Product Design and Innovation*

End-Market Segments

NOT EXHAUSTIVE

Different specializations are required in different end-market segments leading to a need for specialized course offerings

Industry	Description	Specializations
 **Manufacturing**	Analyze production systems, and design workflows	Process Optimization Production Planning Quality Control
 **Technology & Electronics**	Improve workflow efficiency, reduce costs and increase output	Process automation Technology integration
 **Aerospace & Aviation**	Optimize the assembly lines operational efficiency	Aircraft Manufacturing Maintenance Logistics
 **Logistics & Supply Chain**	Streamline and optimize the movement of goods and services	Supply Chain Analysis Distribution Transportation
 **Energy & Utilities**	Analyze energy use patterns to reduce environmental impact	Energy Efficiency Resource Optimization

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Definitions

#	SCORECARD SECTION	DEFINITIONS
1	Market size	Size of market in value/volume in KSA and/or Region (MENA/GCC) covering future projections based on available estimates from published /government sources
2	Business drivers	A select number of factors that will influence future demand for the related product/service
3	Investment highlights	An overview of key financial metrics summarizing the investment opportunity along with the expected return based on the suggested investment size
4	Value proposition	Summary of key differentiators that position KSA as a strategic choice over other regional/global peers
5	Market readiness	An overview of KSA market structure, market maturity and level of participation by local and global players
6	Global trends	Latest business developments within the sector/product category
7	Scalability and localization	Ease of scaling the business across the value chain or into new adjacent products or geographies that would maximize the opportunity's investment returns and the ability and potential to locally manufacture the product and its components
8	Import dependency	An overview of the countries from which Saudi Arabia is importing the product and their value/volume and share in total imports
9	Value chain analysis	The process or activities that would potentially need to be carried out to deliver the underlying product or service
10	Key stakeholders	Government institutions, organizations, and/or authorities that participate or influence the market for the underlying product/service
11	Enablers	Factors that enable investment in the underlying opportunity
12	Cost of doing business in KSA	Key factors that position KSA as a competitive destination for investment in the region. Productivity adjusted wages do not include cost of $1.23/hour towards annual recurring charges including work permit, resident identity (iqama) and health insurance

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