



INDUSTRIAL ENGINEERING: ECO INDUSTRY



Our Partner:



About Industrial Engineering – Eco Industry

The emerging world issues related to sustainability drive the general industry to achieve cleaner production. With the use of modern tools, concepts, methods, and technologies, green engineering, and technology help to build sustainable and eco-friendly designs and breakthroughs. The concept is aligned with the United Nations 2030 agenda: achieving sustainable development goals. In accordance with the issue, Industrial Engineering: Eco-Industry of Swiss German University has directed students to have a sustainable mindset which is based on economic, environmental, and social perspectives. The field of study includes green economy, circular economy, supply chain management, lean operations, and maintenance management; and equipped with knowledge from digital and technological aspects such as Artificial Intelligence (AI) and Data Analytics. This set of competences provided to the students ensures that our graduates will be prepared for the competitive market in the industrial world especially in the face of the Industry 4.0 era.

Why Industrial Engineering – Eco Industry?

Studying industrial engineering with a concentration in eco-industry is crucial as it prepares you to address pressing environmental challenges. This specialization equips you with the skills to develop sustainable practices, reduce waste, and minimize the environmental impact of industrial processes. Eco-industry professionals are in high demand as organizations prioritize green initiatives to meet regulatory requirements and consumer expectations. Your expertise in resource optimization and eco-friendly design provides a competitive edge in today's job market. By studying this concentration, you can make a meaningful contribution to a more sustainable and environmentally responsible future.

Career Prospect

Industrial Engineering: Eco-Industry comes with such a wide range of skills, that makes them adaptive and resilient to changes, therefore an industrial engineer from eco industry specialization can work in both technical and managerial positions:

- Leading a Transformation team, in engineering systems and in business systems (i.e. Business Development and Innovation for sustainability and circular economy)
- Artificial Intelligence and Data Analytics utilization for Business and Industrial Systems Optimization that involve sustainability and circular economy as the performance indicator
- Optimizing facility and equipment utility and reliability for sustainability, including by implementing data science and analytics (i.e. predictive maintenance)
- Designing and developing system for operations of manufacturing, logistics and supply chain that involve sustainability and circular economy as the performance indicator (i.e. green manufacturing and reverse logistics)
- Engineer in Green Product Design and Development, product life cycle assessment for environment, etc.
- Designing and developing waste management system
- Energy efficiency engineer
- Engineer for occupational health and safety manager in sustainability

International Academic Experience:

- Credit Earning Program with **Ernst-Abbe-Hochschule Jena** (approx. 12 months), get Sarjana Teknik (S.T.) degree
- Internship program to ensure students receive global professional experience.
- Experience student exchange in several **European** and **Asian** countries.
- Accelerate Success with the **SGU-University of Missouri - Kansas City** Fast Track Program

CURRICULUM

CREDIT EARNING WITH EAH JENA
Academic Year 2024/2025

SEMESTER 1

English 1
Calculus
Physics 1
Physics 1 Laboratory
Algorithm, Programming and Data Structure
Chemistry 1
Material Science
Technical Drawing
Introduction to Industrial Engineering
[Extracurricular Courses](#)
German Language and Culture 1

SEMESTER 3

English 3
Operation Research
Production Planning and Control + Lab
Ergonomics and Work System Design + Lab
Cost Control and Analysis
Indonesian Language and Culture
Economy and Engineering Economy
Product Lifecycle Management
[Extracurricular Courses](#)
German Language and Culture 3

SEMESTER 5

Internship 1 (Indonesia)
Industrial Automation
Project Management
Off Grid Energy Supply*
Eco Balance*
Resource Efficiency*
German as Foreign Language*
Smart Assembly*
[List of elective \(EAH Jena\)](#)
Industrial Sales and International Trade
International Economic Relationships

SEMESTER 7

English 5
Research Methodology
Industrial Engineering System Design
Enterprise and Industrial Information System
Human Capital Management and Organizational Behaviour
Business Intelligence, Analytics, and Data Science
Industrial System Maintenance
Facilities Planning and Analysis

SEMESTER 2

English 2
Linear Algebra
Physics 2
Statics and Strength of Materials
Modern Manufacturing Process
Modern Manufacturing Process Lab + Work
Chemistry 2
Statistics and Lab
Pancasila and Civic
Ethics and Religious Philosophy
[Extracurricular Courses](#)
German Language and Culture 2

SEMESTER 4

English 4
Logistics and Supply Chain System
Quality Control and Assurance + Lab
Human Machine Interaction
Lean Operations
Optimization with Artificial Intelligence
System Modeling and Simulation + Lab
Integrated Industrial Engineering Laboratory

SEMESTER 6

Internship-2**

SEMESTER 8

Professional Competence Assessment (PCA)
Character and Professional Development Program
Thesis

Alumni of the Industrial Engineering Study Program have been accepted into top-tier firms, and the study program has established industry partnership, such as:



INTERNSHIP EXPERIENCES



Contact Us:

SWISS GERMAN UNIVERSITY

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