



MECHATRONICS  
ENGINEERING



Our Partner:



sgu.ac.id



## About Mechatronics

Mechatronics refers to an integrated approach to the multi-disciplinary field involving mechanical engineering, electronics, and computer sciences. The applications of this field are numerous, ranging from manufacturing automation to “smart” product designs. Currently, factories from various industries continue to develop and prioritize automation. This industrial revolution is the reason why mechatronic engineers are always needed.

### Career Prospect

In the coming decades, human tasks that tend to be repetitive and require higher speed and quality will lead to more industrial automation in Indonesia. The lack of automation engineers creates such a high need of local competence to maintain and design locally sourced automation. Internationally, development of the internet of things, connectivity of devices and equipment and other intelligent products will require mechatronics engineers with multi-disciplinary talents.

### International Academic Experience:

- Joint Degree Program with **Fachhochschule Südwestfalen** (approx. 7 months), get Sarjana Teknik (S.T.) and Bachelor of Engineering (B. Eng.) degrees.
- Internship program to ensure students receive global professional experience.
- Experience student exchange in several European and Asian countries.
- Global career in local and international company.
- Accelerate Success with the **SGU-University of Missouri - Kansas City** Fast Track Program

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



SIEMENS



FESTO



Mercedes-Benz

Schneider Electric



eupec Schlumberger  
SIEMENS

Indofood



Fachhochschule Südwestfalen  
University of Applied Sciences



# CURRICULUM

DOUBLE DEGREE  
Academic Year 2024/2025

## SEMESTER 1

English 1  
Discrete Math  
Physics 1  
Physics 1 Laboratory  
Electrical Engineering 1\*  
Electrical Engineering 1 Lab\*  
Algorithm, Programming & Data Structure 1  
Technical Drawing & CAD  
Introduction to Mechatronic Systems\*  
Engineering Statics\*  
[Extracurricular Courses](#)  
German Language and Culture 1

## SEMESTER 2

English 2  
Calculus  
Physics 2  
Physics 2 Laboratory  
Electrical Engineering 2\*  
Electrical Engineering 2 Lab\*  
Algorithm, Programming & Data Structure 2  
Strength of Materials\*  
Linear Algebra  
Chemistry  
[Extracurricular Courses](#)  
German Language and Culture 2

## SEMESTER 3

English 3  
Control Techniques\*  
Kinematics & Dynamics  
Sensors and Instrumentation\*  
Analog and Digital Electronics\*  
Thermodynamics and Fluid Mechanics  
Differential Equation  
Statistics

## SEMESTER 4

English 4  
Machine Design\*  
Electro-Hydraulics\*  
Electro-Pneumatics\*  
Microcontroller\*  
Manufacturing Processes\*  
Power Electronics  
Manufacturing Process Management\* (Lean)  
Introduction to Entrepreneurship (IBA)  
[Extracurricular Courses](#)  
German Language and Culture 3

## SEMESTER 5

Programmable Logic Controllers\*  
Electric Drive\*  
Project Management (IE)  
Engineering Economics (IE)  
Internship 1  
Manufacturing Process Workshop (Training)  
Elective Subject 1  
Elective Subject 2  
[Extracurricular Courses](#)  
German Language and Culture 4

## SEMESTER 6

Basic of Electrical Engineering  
Introduction to Project Management  
Model Based Design  
Internship 2\*  
[Elective Subject 4](#)  
Current Developments in Business IT  
Advanced Programming  
IS-Project  
German Language (C1)  
Seminar (Focus Seminar)

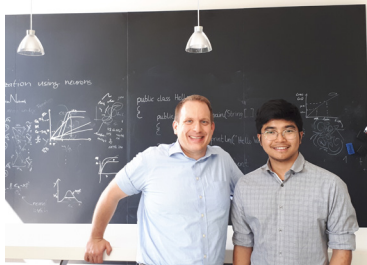
## SEMESTER 7

English 5  
Indonesian Language  
Research Methodology  
Mechatronics System Design\*  
Process Automation\*  
Elective Subject 3\*\*  
[Optional: Internship in Germany](#)

## SEMESTER 8

Character & Professional Development  
SMSCP Exam Preparation\*  
SMSCP Competence Certification\*  
Bachelor Thesis  
Pancasila and Civics  
Ethics and Religious Philosophy

# INTERNSHIP EXPERIENCES



Contact Us:

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