Program and carier opportunities

Engineering physics is the application of physics to real life processes and products. The combination of Physics, Data Science and numerical simulations skills has become necessary for modern technology development, therefore opening bright career opportunities for you.

Focused on applications, your bachelor program includes both internships and a bachelor's thesis in collaboration with our industrial partners and research institutes. After successfull completion of your bachelor of science (B.Sc.) you will be able to work at the very interface between research and cutting-edge technology.

Fields of Activity:

• Technology research and development
• Product design and engineering
• Development of manufacturing, measuring processes
• Analysis, quality assurance, technology marketing

Contact and Information

Department of
Applied Sciences and Mechatronics
Lothstr. 34, 80335 Munich, Germany
Tel. 0049 89 1265-1601, -1602
sekretariat-fk06@hm.edu
sci.hm.edu
hm_fakultaet06

Advisor for Course of Study
Prof. Dr. Felix Allmendinger
Room: C 203, Tel. 0049 89 1265-1265
felix.allmendinger@hm.edu

Application
May 2nd to July 15th (Semester starts Oct. 1st)
Hochschule München – University of Applied Sciences
Office of Administration and Registration
Lothstr. 34, 80335 Munich, Germany
Tel. 0049 89 1265-5000
beratung@hm.edu
hm.edu/en

HM

The HM Hochschule München University of Applied Sciences is Bavaria's largest institute of higher education in this field. Over 80 attractive and forward-looking degree courses lay the foundation for successful careers. Besides specialist skills, the university promotes sustainable and entrepreneurial mindsets and actions, as well as international and intercultural experiences, such as through stays abroad.

The departments imbue their students with vision, creativeness and a sense of shared responsibility as an ideal preparation for making a difference in their chosen professions and within society. Close contacts to companies at the high-tech location of Munich allow students to obtain practical experience during their studies. And last but not least: Munich's attractive cultural and leisure opportunities offer plenty of variety.

V.03.25

HM

Hochschule München University of Applied Sciences

Fakultät für angewandte Naturwissenschaften und Mechatronik

Engineering Physics and Data Science

Bachelor (B.Sc.)
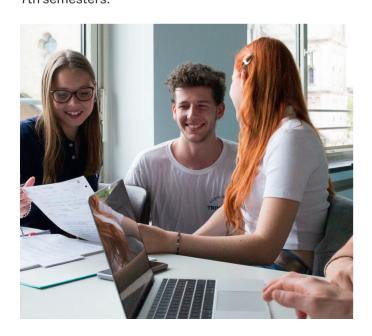
Study objective and content

The program is interdisciplinary. Scientific and technological foundations are comprehensively addressed in many laboratory and computer classes. You will develop your analytical, team work and problem solving skills by practicing with actual modern working methods & tools. Professors with extensive industrial experience will make sure your program is up to date with the newest development.

The program comprises three pillars:

A solid foundation in engineering physics, focusing on the acquisition of scientific data.

A solid and practical knowledge on data science and numerical simulation methods. This pillar aims the understanding and development of virtual computer models in all their forms (e.g. data driven, equation based, advanced hybrid approaches).

An application oriented study of modern technologies and tools through elective disciplines in the 6th and 7th semesters.

Prerequisite and structure

The language of instruction in all modules is English. The language requirements are B2 in English and A2 in German, the latter must be proven by the end of the second semester. The prerequisite is a university entrance qualification recognized in Bavaria. For more information see: hm.edu/bewerberinfo

The course comprises six theory semesters and one practical semester. It ends with a four month Bachelor's thesis, which is usually completed in a company or at a research institute.

The practical semester can be completed abroad. A study visit to a university abroad is also possible in the 6th or 7th semester.

Study structure

1st to 2nd Semester	Lectures and practical courses in scientific basics
3rd to 4th Semester	Lectures and practical courses with focus on data acquisition, data science and numerical simulation
5th Semester	24 weeks Internship in a company or research institute
6th to 7th Semester	Lectures and practical courses with focus on Applications in Science and Technology, Bachelor's Thesis

After your Bachelor's Degree

If you want to deepen your knowledge, you have the further qualification in the department's Master's degree programs: Micro- and Nanotechnology (M.Sc. in English), Photonics (M.Sc. in English), Mechatronics (M.Eng.). The Master's degree gives you the opportunity to do a doctorate.

Courses and Modules

Compulsory Semester	1	2	3	4	5	6	7
Mathematics	8	7	5				
Physics	7	8	5	5		5	
Chemistry/Materials Technology	4	6	5	4			
Electrical Engineering	4	5					
Sensor Technology/Signal Processing			5	5			
Modeling/Simulation/Control				6		4	
Computer Science	4	4					
Data Structures and Algorithms			4	5			
Machine Learning and Deep Learning			4	4			
Internship Seminar					2		
Basics of Business Administration					4		
General Studies Modules						4	
Electives (choose 1)						12	8
Energy-and Environmental Technology							
Micro-and Nanotechnology							
Optical and Acoustic Technology							
Modeling and Simulation							
Interdisciplinary Module							4
Bachelor's Thesis							X
Semester Weekly Hours (SWS)	27	30	28	29	6	25	13

Semester 5: Internship