

Hochschule
München
University of
Applied Sciences

Munich Summer Schools
of Applied Sciences

Engineering for Sustainability

July 8th – August 9th, 2024
Munich, Germany



hm.edu/
summerschool

H M



Why MSSAS

Munich Summer School of Applied Sciences (MSSAS) offers in-depth study of engineering and business topics, integrating green issues with a focus on sustainability. Great importance is attached to the practical application using state-of-the-art technology and teaching methods in the courses.

This approach is also reflected in our course related field trips to relevant German companies.

Our “German Language and Culture” course will help you learn every day phrases and immerse in Germany’s history, culture and present life. HM is one of only a few German universities offering the unique opportunity of such an integrated language and culture course.

Academic Program

The summer school is a five-week program. International students participate in an intensive German Language and Culture course in the first week and continue these studies part-time throughout the program.

Students select **two credit subject courses**, which are taught in English by multi-national teams of two renowned lecturers from HM Hochschule München University of Applied Sciences, California Polytechnic State University (USA) and the Strasczeg Center for Entrepreneurship (Munich). Each subject course covers a minimum of 40 teaching contact hours, including laboratory experiments and simulations. **The academic program also includes a number of relevant field trips. Please visit our website for detailed course descriptions.**



»Coming to Germany was my first extended international trip. I really feel like my eyes were opened to other cultures. I loved the excursions, especially to BMW, and I feel like I learned a lot about engineering and life in general.« Elise, California Polytechnic State University

Why Munich

- High-tech hub (around 22,000 high-tech companies, such as BMW, Apple, Microsoft)
- Rich culture life in international atmosphere combined with Bavarian traditions
- Beautiful nature in and around Munich (Alps, lakes, etc.)
- Safety & comfort – Munich is rated #1 in Germany for quality of life and is one of the safest cities in Europe.

Why HM

- Second largest university of Applied Sciences in Germany with over 18.000 students and over 85 degree programs
- Future-oriented education
- Career success
- International services
- Excellent industry connections

Courses planned for 2024

All subject courses are awarded 4 ECTS credits (3 US-credits), the “German Language and Culture course”, 6 ECTS credits (4 US-credits)

German Language and Culture

- Overview of the most important German phrases and grammatical structures
- Vocabulary for day-to-day situations in Germany
- Ability to communicate and read in German
- Basic elements of German culture and its historical roots
- The impact of culture on intercultural behavior

Introduction to Embedded Computing

- Learn how to interface computers with sensors in the real world
- Gain hands-on experience with digital and analog sensors
- Build familiarity with embedded computing concepts often used in robotics, sensing, and measurement
- Develop an understanding of the role of microcontrollers in today's engineering fields

The Potential of Renewable Energies – can we satisfy our thirst for Energy in a sustainable way?

- Overview of our energy consumption and the energy production through renewable sources
- Understanding the subject of energy and estimating the potential of renewable energies by using simple Physics
- Identifying green wash
- Finiteness of fossil energy
- The impact of fossil energy on our world
- Estimates for the potential of renewables in the USA and in Germany
- Setting up a useful agenda for the use of renewable energies in the USA and in Germany

Control Engineering for Sustainable Technical Processes

- Introduction to Control for Sustainability
- System Dynamics in Time and Laplace Domains
- Feedback Control Loops and PID Controllers
- Model-Based PID Control Design Strategies



Hydraulic & Pneumatic Systems

- Overview of hydr. and pneum. systems and their applications
- Properties of hydraulic fluids and their flow characteristics
- Design of hydr. components incl. pumps/motors, actuators, valves
- Hydraulic system design incl. component selection
Analysis of system efficiency and energy consumption
- Hands on experimentation and testing of hydraulic components
- Speed and position control experiments with real-time control

Impact Entrepreneurship

- Topic 2024: Mobility
- Entrepreneurship in theory and practice
- Implementation of business models
- Development and growth of the enterprise
- Interdisciplinary teamwork

Smart Vehicles

- Introduction to Smart Vehicles
- Autonomous driving vehicles and their contribution to sustainable mobility
- Defining simple manoeuvres with a model car

Sustainability

- Fundamental overview of the functioning of Artificial Intelligence (AI)
- Fundamental overview of sustainability
- Introduction to AI based climate modeling and resource management
- Overview of sustainable AI concepts
- Development of basic AI models used for resource management

Cultural Program

A broad and attractive cultural program makes your stay an unforgettable experience.

We will offer some (mandatory) events and provide ideas for further excursions and sightseeing. The mandatory cultural program includes i.a. the following excursions:

- A guided tour of Munich with our German teachers and a visit to a typical beer garden
- Field trip to BMW (guided factory tour)
- A day trip (to a Bavarian lake, castle or to the mountains)

Meeting German students in class and afterwards provides unique insights into German every-day life. Joint studies with participants from all over the world complete an intercultural experience.

Please note that the events and trips strongly depend on the Corona pandemic and the restrictions in place in the summer school period!



Accommodation and Support

Accommodation will be organized by the coordinating staff upon request. Participants of the program will stay in a hostel or a hotel near the university in Munich. The accommodation is located in a safe neighborhood in Munich. All amenities and shops are easy to reach. The approximate price per person for 34 nights in multiple-bed rooms will be around 1,615 Euros. Please find details about the housing and options on our website.

We guarantee professional assistance by the program coordinator and bilingual German buddies. The buddies will help you to settle in smoothly. They will accompany the field trips, company visits and receptions. Free access to the internet will be provided by the university as well as a welcome package including a Summer School shirt.

Fees

The program fee of € 1,890 covers: tuition for the German Language and Culture class, two subject courses, the official cultural and social program, free internet access at the university and a welcome package. For students from partner universities, the fee is reduced to € 1,750. Accommodation is not included.

Requirements

In order to apply, you should be at least 18 years old. Applicants must provide evidence of a good level of English (at least level B2 in the CEFR, TOEFL iBT 90 or equivalent, or mother tongue), as well as a letter of motivation and a transcript with the most recent grade point average. Please also refer to the prerequisites specified in the course descriptions. The program is intended for advanced undergraduate students in Mechanical Engineering, Automotive Engineering, Electrical Engineering and Industrial Engineering from Germany and abroad. The deadline for applications is March 23rd, 2024.

Contact

Contact

Phone: +49-89-1265-1145
summerschool@hm.edu

Post

HM Hochschule München
University of Applied Sciences
Summer Schools
Ms Gabriela Vasil
Lothstraße 34
D-80335 München, Germany

Further information

hm.edu/summerschool



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.