



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Master's degree



Master's in Industrial Informatics

University of Applied Sciences Emden/Leer • Emden



Overview

Degree	Master of Engineering
Teaching language	<ul style="list-style-type: none">English
Languages	English is the compulsory language of all modules and courses. There is the possibility for students with enough knowledge of the German language to attend compulsory optional subjects in German.
Programme duration	3 semesters
Beginning	Winter and summer semester
Application deadline	Non-EU applicants, winter semester – 30 May Non-EU applicants, summer semester – 30 November German & EU applicants, winter semester – 15 July German & EU applicants, summer semester – 15 January
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	Yes
Description/content	<p>We are witnessing rapid changes in the industrial environment, mainly driven by business and societal needs towards production customisation and the digitalisation of the economy. In 2006, the term Cyber-Physical Systems (CPS) was coined to refer to the integration of computation with physical processes. CPS can be described as smart systems that encompass hardware and software as well as computational and physical components. These are seamlessly integrated, closely interacting to sense and to control the changing state of the real world in real time. These systems involve a high degree of complexity at numerous spatial and temporal scales, and highly networked communications integrating their computational and physical components. As such, CPS refers to Information-Communication-Control-Mechatronics Systems (sensing, actuating, computing, communicating, etc.) embedded in physical objects, interconnected through several networks including the internet, and providing citizens and businesses with a wide range of innovative applications based on digitalised data, information, and services.</p> <p>Ontologically, the term Cyber-Physical Systems means hardware-software systems that tightly</p>

couple the physical world and the digitalised (virtual) world. In a CPS ecosystem, on the one hand every real physical object (things/assets) has one or more cyber representations, and on the other hand a cyber component or system can be linked to a physical representation, i.e. an object in the three-dimensional human-tangible world. Moreover, these things are increasingly interconnected in real-operational time, either permanently networked or communicating in an asynchronous manner from time to time, using the Internet (Internet-of-Things, IoT). Digitalised data and information associated to functions of these things are then exposed as services in the Internet (Internet-of-Service, IoS) and they can be consumed by any other CPS for performing business. Industrial Cyber-Physical Systems (ICPS) forge the core of real-world networked industrial infrastructures that have a cyber representation through digitalisation of data and information across the enterprise, along the product and process engineering life cycle, and from suppliers to customers along the supply chain. As such, the competitive performance of an ICPS mainly depends on the ability to effectively collect, analyse, and use large-scale digitalised data and information from many different and often heterogeneous sources in order to sustainably and efficiently manage, supervise, and operate in the industrial environments. This effective information-driven interaction of ICPS with other real-time critical CPS like IT-enterprise systems, extending to all business processes, is viewed as vital to modern industries. There are many challenges ahead in the convergence of computing, control, mechatronics, communications and software programming for CPS ecosystems. There is a need for investigating and learning a wide spectrum of foundations, research, and technological fields. In this context, the Master in Industrial Informatics with a specialisation in ICPS addresses the penetration and proliferation of such ecosystems in the industrial environments, taking into account that the same trend is also evident in other domains such as energy, healthcare, manufacturing, military, transportation, consumer, enterprise, robotics, and smart cities, among others.

Current information

There is an obligation to submit a health insurance declaration: since 1 December 2021, the University of Applied Sciences Emden/Leer has been using the electronic student notification procedure (SMV). Notifications from the health insurance companies can only be accepted electronically. In addition to the application, all applicants must apply for a confirmation of insurance from a statutory health insurance company, quoting our sender number H0002194.

Course Details

Course organisation

Summer semester (March – August):
 Industrial Cyber-Physical Systems: 5 CP
 Digitalisation and Virtualisation of ICPS: 5 CP
 Industrial Data Transport Technologies: 5 CP
 MII Project One: 10 CP
 Compulsory Optional Subject One: 5 CP: e.g. Innovation Management, Mobile Robotics, etc.

Winter semester (September – February):
 Robotic Systems: 5 CP
 Engineering ICPS: 5 CP
 Analytics and Mathematics: 5 CP
 MII Project Two: 10 CP
 Compulsory Optional Subject Two: 5 CP: e.g. Digital Economy and Society, IoT Data Processing, Mixed-Reality Technologies, Data Sciences, etc.

Final semester:
 Master's thesis: 30 CP

The courses are organised in lectures, projects, and laboratory work.

For more details about the rationale as well as organisation of the course, please refer to the following [video](#).

A Diploma supplement will be issued

Yes

International elements

- International guest lecturers
- Specialist literature in other languages
- Projects with partners in Germany and abroad
- International comparisons and thematic reference to the international context

Description of other international elements

For students enrolled in this Master's course, there is the possibility to earn a double Master's degree from an Argentinian university (Universidad Tecnológica Nacional, Facultad Regional Santa Fe [UTN-FRSF]) with financial support from the "Deutsch-Argentinisches Hochschulzentrum" (CUAA-DAHZ). For more information, please check <https://www.cuaa-dahz.org/de/binationale-studiengaenge/>.

Integrated internships

Students may engage in voluntary internships and projects. This gives them a practical approach to their Master's theses, which will be written in cooperation with industry and other academic institutions in Germany, Europe, and other countries worldwide.

Course-specific, integrated German language courses

No

Course-specific, integrated English language courses

No

Costs / Funding

Tuition fees per semester in EUR

None

Semester contribution

Students will pay a semester contribution fee of approx. 270 EUR per semester. This covers the cost of the student union contribution and includes the "Semester Ticket", which covers the costs for all modes of public transport in and around the city.

Costs of living

Compared to other cities in Germany, the living expenses in Emden are rather low. An accommodation costs approximately 200 to 400 EUR per month.
<https://www.hs-emden-leer.de/en/institutions/international-office/international-students/living-expenses/>

Funding opportunities within the university

Yes

Description of the above-mentioned funding opportunities within the university

Application and enrolment for scholarships are allowed upon arrival at the campus. The scholarships are limited and only available during a certain period of the year. The following scholarships are provided upon application: Deutschlandstipendium, Niedersachsenstipendium.

Graduation scholarships offered by the University of Applied Sciences Emden/Leer can be reviewed [here](#).

Female students can also apply for [afem:talent](#) Scholarship.

Requirements / Registration

Academic admission requirements

Requirements for admission to the Master's programme in Industrial Informatics, specialisation "Industrial Cyber-Physical Systems" (MII-ICPS) are:

- A Bachelor's degree (BA) of a university belonging to one of the Bologna Signatory States (210 ECTS):
 - BA Electrical Engineering
 - BA Computer Science
 - BA Mechatronic Engineering
- Or an equivalent degree at a German or foreign university in a technically appropriate study programme (the equivalence is set according to the requirements of the assessment proposals of the Corporate Centre for Foreign Education at the permanent registry of the Conference of German Culture Ministers [<http://anabin.kmk.org/anabin.html>])

Remark: Basic knowledge about real-time-critical systems and software engineering (including programming of industrial software systems) are essential requirements to successfully participate in this Master's programme.

International applicants who have graduated from India:

Since 1 November 2022, you have to submit your certificates to the "Akademische Prüfstelle" (APS, <https://www.aps-india.de/>) and submit the APS certificate with your application to uni-assist together with the other application documents. The APS certificate is also mandatory when applying for a visa.

Language requirements

Proficiency in English:
TOEFL-CBT > 220
TOEFL-iBT > 83
TOEFL-PBT > 500
IELTS >= 6
ELSA > 100
EPt > 500

Application deadline

Non-EU applicants, winter semester – 30 May
Non-EU applicants, summer semester – 30 November
German & EU applicants, winter semester – 15 July
German & EU applicants, summer semester – 15 January

Submit application to

Applicants with a foreign higher education entrance qualification (EU and non-EU) apply directly online via [uni-assist](#).

[German applicants](#) apply via "[Mein persönliches Hochschulportal](#)".

Services

Possibility of finding part-time employment

Research and innovative work for the Master's projects and Master's thesis is usually performed in cooperation with local industries, e.g. VW, Honeywell, InproElectric, Thyssen Krupp, Lufthansa Industry Solutions, Krone, Claas, ORGADATA, Meyer Shipyard, Rosen, or Enercon, among others.

Remark: Foreign students with a residence permit according to § 16 AufenthG in accordance with § 16 (3) may work 120 whole days or 240 half days per calendar year and have the possibility to pursue student jobs.

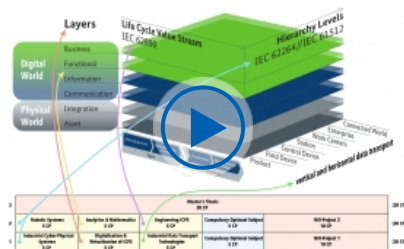
Accommodation

In Emden, the "Studentenwerk Oldenburg" offers accommodation for students in four houses of residence. All residences are a good choice for both short-term and long-term accommodation.

<https://www.hs-emden-leer.de/en/institutions/international-office/international-students/housing/>

We work in close collaboration with our career service and MyCampus. Thus, we support students in their professional orientation and career entry.

- Welcome event
- Buddy programme
- Accompanying programme
- Visa matters



Learning Industrial Cyber-Physical Systems and Industry 4.0 Compliant Solutions

The video shows the presentation prepared for the 3rd IEEE International Conference on Industrial Cyber-Physical Systems, ICPS 2020. It explains the rationale and organisation of the Master of Industrial Informatics, Industrial Cyber-Physical Systems.

» more: <https://www.youtube-nocookie.com/embed/snzCWCKccGg?autoplay=1&>



Studying in Emden or Leer means studying at a modern university with a personal atmosphere. Besides the mere facilitation of technical know-how, our educational goals additionally entail fostering creativity and the capacity for teamwork as well as equipping our students with key qualifications. Our highly motivated academic staff enhances the appeal of our study programmes with efficient learning methods and the commitment to ensuring individual support for each and every student.



University location

The course of study takes place in the town of Emden (population 50,000), which is one of the locations of the University of Applied Sciences Emden/Leer. Today 4,174 students study at the various faculties. Because of their coastal location, the region of East Frisia and the city of Emden are popular holiday destinations and offers numerous cultural and recreational facilities.

We invite you to visit the beautiful landscape in which Emden resides (the Wadden Sea, registered on UNESCO's World Heritage List). The cost of living is fairly low. Cities such as Hamburg or Amsterdam are within 300 km of Emden.

For more information, please visit the official website of the town at: <http://www.emden.de>.

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🌐 Course website: <https://www.hs-emden-leer.de/en/current-students/faculties/technology/study-programs/industrial-informatics-master>

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🌐 <https://de.linkedin.com/school/hochschule-emden-leer/>

📷 <https://www.instagram.com/hs.emden.leer/>

Last update 19.04.2024 11:35:19

International Programmes in Germany - Database

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Disclaimer

The data used for this database was collected and analysed in good faith and with due diligence. The DAAD and the Content5 AG accept no liability for the correctness of the data contained in the "International Programmes in Germany" and "Language and Short Courses in Germany".

The publication is funded by the German Federal Ministry of Education and Research and by contributions of the participating German institutions of higher education.



Federal Ministry
of Education
and Research