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## List of courses taught in English – 2024/25

THU is offering a variety of courses taught in English. Please note that the programs have different semester times. In addition, the mixing of courses from different departments is very difficult and can only be accepted in exceptional cases.

Detailed course description: <https://www.thu.de/en/org/aaa/Pages/ExchangePrograms.aspx>

### **A) International Engineering Program (IEP) - 3-month-program**

- International Mechanical Engineering Program – IMEP – **Fall only**
- International Electrical Engineering Program – IEEP – **Spring only**
- International Computer Engineering Program – ICEP – **Spring only**

### **B) Full semester programs**

- International Semester Program in Energy Economics – SPEEC – **Spring and Fall**
- International Semester Program in Business – SPiB – **Spring and Fall**
- Digital Media Program – SPDM – **Spring and Fall**
- Bachelor Degree Program in Computer Science – CTS – **Spring and Fall**
- Bachelor Degree Program in Electrical Engineering – EET - **Spring and Fall**
- Courses offered by different faculties

### **C) Master-Level Courses taught in English**


- M. Sc. Degree Program in Intelligent Systems – **Spring and Fall**
- Courses offered by different faculties

### **D) German Language courses**



### A) International Engineering Program (IEP) - 3 Month Program

Please note: Semester times are different from our regular semester times.



Fall  
2024/25

| Department / Study Program                   | Title   | ECTS credits | Fall semester<br>1. Oct - 23. Dec | Spring semester<br>1. April - 30. June |
|--|---|--------------|-----------------------------------|--|
| <b>Pre-Semester Intensive Courses</b>        |   |              |                                   |  |
|  | Mathematics for Engineers<br>Intensive course: September  | 1            | X                                 |  |
|  | German for Beginners 1<br>Intensive Course: September or March  | 2            | X                                 | X                                      |
|  | Ankommen in Deutschland – Language and Culture<br>(German level of A2 required)<br>Intensive Course: September or March | 2            | X                                 | X                                      |
| <b>Mechanical and Production Engineering</b> |   |              |                                   |  |
| <b>IMEP</b>                                  | CAD/CAM   | 4            | X                                 |  |
|  | Dynamics I  | 4            | X                                 |  |
|  | Dynamics II   | 4            | X                                 |  |
|  | Dynamics Computer Lab   | 2/4          | X                                 |  |
|  | Lean Production Systems   | 4            | X                                 |  |
|  | System Automation   | 4            | X                                 |  |
|  | Applied Thermal-Fluid Systems   | 4            | X                                 |  |
|  | Fluid Mechanics   | 4            | X                                 |  |
|  | Fuel Cell Principles  | 4            | X                                 |  |
|  | Collaborative Product Development (CPD)   | 4            | X                                 |  |
|  | Project Work  | 6            | X                                 |  |
| <b>Electrical Engineering</b>                |   |              |                                   |  |
| <b>IEEP</b>                                  | Digital Integrated Circuits   | 4            |                                   | X                                      |
|  | Control Technology  | 4            |                                   | X                                      |
|  | EE Advanced Project Work  | 4            |                                   | X                                      |
| <b>Computer Engineering</b>                  |   |              |                                   |  |
| <b>ICEP</b>                                  | Computer Networks   | 4            |                                   | X                                      |
|  | Operating Systems   | 4            |                                   | X                                      |
|  | Mobile Application Development  | 4            |                                   | X                                      |
|  | Computer Architecture   | 4            |                                   | X                                      |
| <b>Social Sciences</b>                       |   |              |                                   |  |
| IMEP   | Germany within Europe   | 4            | X                                 |  |
| IEEP / ICEP                                  | Germany In the last three centuries   | 4            |                                   | X                                      |



### **B) Full Semester programs (Bachelor Level)**

Those courses are offered during the German regular semester times, mixing IEP courses and semester program courses is **NOT possible**. Please note: It is possible that courses may take place at the same time. Students should choose only courses from one department.

Detailed course description of SPEEC and SPiB:

<https://www.thu.de/en/org/aaa/Pages/ExchangePrograms.aspx>

| Department / Study Program  | Title                                  | ECTS credits | Fall semester<br>(Sept - Feb) | Spring semester<br>(March - July) | Course code / specific information |
|---|--|--------------|-------------------------------|-----------------------------------|------------------------------------|
| <b>P</b> Department of Production Engineering and Production Economics / International Semester Program in Energy Economics - SPEEC |  |              |                               |                                   |                                    |
| P / SPEEC   | Analytics for Energy Data              | 5            | X                             |                                   |                                    |
| P / SPEEC   | Energy Efficiency                      | 5            | X                             |                                   |                                    |
| P / SPEEC and SPiB  | Statistics                             | 5            | X                             |                                   |                                    |
| P / SPEEC   | Energy Regulation                      | 5            | X                             |                                   |                                    |
| P / SPEEC   | Project Management                     | 5            | X                             |                                   |                                    |
| P / SPEEC   | Energy Meteorology                     | 5            | X                             |                                   |                                    |
| P / SPEEC and SPiB  | Germany within Europe                  | 4            | X                             |                                   |                                    |
| P / SPEEC and SPiB  | Performance Management                 | 5            |                               | X                                 |                                    |
| P / SPEEC   | Data Management in Energy Markets      | 5            |                               | X                                 |                                    |
| P / SPEEC   | Seminar in Energy Economics            | 5            |                               | X                                 |                                    |
| P / SPEEC and SPiB  | Operations Research                    | 5            |                               | X                                 |                                    |
| P / SPEEC and SPiB  | Energy Trading and Risk Management     | 5            |                               | X                                 |                                    |
| P / SPEEC and SPiB  | Germany in the last three centuries    | 4            |                               | X                                 |                                    |
| P / SPEEC   | Energy Storage                         | 5            |                               | X                                 |                                    |
| P / SPEEC   | System Automation                      | 4            | X                             | X                                 |                                    |
| P / SPEEC and SPiB  | Leadership and Business Communication  | 5            | X                             | X                                 |                                    |
| P / SPEEC and SPiB  | Elements of Complex Systems Simulation | 5            | X                             | X                                 |                                    |
| P / SPEEC and SPiB  | Energy Project                         | 5            | X                             | X                                 |                                    |
| P / SPEEC and SPiB  | Cross-Cultural Management              | 5            | X                             | X                                 |                                    |
| P / SPEEC and SPiB  | Sustainability and the Environment     | 5            | X                             | X                                 |                                    |



| Department / Study Program  | Title                                     | ECTS credits | Fall semester (Sept - Feb) | Spring semester (March - July) | Course code / specific information |
|---|---|--------------|----------------------------|--------------------------------|------------------------------------|
| <b>P / Industrial Engineering</b>   | Distribution Logistics                    | 6 (4)        | X                          | X                              |                                    |
| <b>P / Industrial Engineering</b>   | Enterprise Information Systems            | 4            | X                          | X                              |                                    |
| <b>P / Production Engineering</b>   | Advanced Project                          | 5-10         | X                          | X                              |                                    |
| <b>Department of Computer Science</b><br><b>Computer Science: Complete Bachelor Program is offered in English - CTS</b> |   |              |                            |                                |                                    |
| 1. Semester courses:  |   |              |                            |                                |                                    |
|   | Linear Algebra                            | 5            | X                          |                                |                                    |
|   | Introduction to Computer Science          | 5            | X                          |                                |                                    |
|   | Programming 1                             | 5            | X                          |                                |                                    |
|   | Technical Foundations of Computer Science | 5            | X                          |                                |                                    |
| 2. Semester courses   |   |              |                            |                                |                                    |
|   | Calculus 1                                | 5            |                            | X                              |                                    |
|   | Programming 2                             | 5            |                            | X                              |                                    |
|   | Computer Networks                         | 5            |                            | X                              |                                    |
|   | Databases                                 | 5            |                            | X                              |                                    |
|   | Microcomputer Technology                  | 5            |                            | X                              |                                    |
| 3. Semester courses   |   |              |                            |                                |                                    |
|   | Calculus 2                                | 5            | X                          |                                |                                    |
|   | Programming 3                             | 5            | X                          |                                |                                    |
|   | Theoretical Computer Science              | 5            | X                          |                                |                                    |
| 4. Semester courses   |   |              |                            |                                |                                    |
|   | Software Engineering                      | 5            |                            | X                              |                                    |
|   | Operating systems                         | 5            |                            | X                              |                                    |
|   | Algorithms and Data Structures            | 5            |                            | X                              |                                    |
|   | Stochastic                                | 5            |                            | X                              |                                    |
| 5. Semester courses   |   |              |                            |                                |                                    |
|   | Seminar                                   | 5            | X                          |                                |                                    |
|   | Distributed & Webbased Systems            | 5            | X                          |                                |                                    |
|   | Software Project                          | 5            | X                          |                                |                                    |



| Department / Study Program              | Title   | ECTS credits | Fall semester<br>(Sept - Feb) | Spring semester<br>(March - July) | Course code / specific information                    |
|---|---|--------------|-------------------------------|-----------------------------------|---|
| <b>6. Semester courses</b>              |   |              |                               |                                   |   |
|   | Business Economics                            | 5            |                               | X                                 |   |
| <b>Special Subjects / Electives:</b>    |   |              |                               |                                   |   |
| 3. Semester                             | Digital Systems                               | 5            | X                             |                                   | admission restricted                                  |
| 3. Semester                             | Embedded Systems                              | 5            | X                             |                                   | admission restricted                                  |
| 3. Semester                             | Information Security                          | 5            | X                             |                                   | admission restricted                                  |
| 3. Semester                             | Mobile Application Development                | 5            | X                             | X                                 | admission restricted                                  |
| 3. Semester                             | Deep Learning for Computer Vision             | 5            |                               | X                                 | admission restricted                                  |
| 4. Semester                             | Multicore Systems Programming and Performance | 5            | X                             |                                   | admission restricted                                  |
| 4. Semester                             | Scientific Computing                          | 5            |                               | X                                 | admission restricted                                  |
| 4. Semester                             | Realtime Systems                              | 5            |                               | X                                 | admission restricted                                  |
| 4. Semester                             | Digital Forensics                             | 5            |                               | X                                 | admission restricted                                  |
| 4. Semester                             | Web Engineering                               | 5            |                               | X                                 | admission restricted                                  |
| 4. Semester                             | Game Programming                              | 5            | X                             |                                   | admission restricted                                  |
| 5. Semester                             | Computer Architecture                         | 5            |                               | X                                 | admission restricted                                  |
| 5. Semester                             | Autonomous Systems                            | 5            | X                             |                                   | admission restricted                                  |
| 5. Semester                             | Pentesting                                    | 5            | X                             |                                   | admission restricted                                  |
| 5. Semester                             | Internet of Things                            | 5            | X                             |                                   | admission restricted                                  |
| 5. Semester                             | Computer Graphics                             | 5            | X                             |                                   | admission restricted                                  |
| <b>I / Data Sciences in Medicine</b>    | Project Work                                  |              | X                             |                                   |   |
| <b>I / Business information Systems</b> | Database Programming                          | 5            | X                             | X                                 | Please ask for Pre-requisites                         |
| <b>I / Business information Systems</b> | Data Warehousing                              | 5            | X                             | X                                 | admission restricted<br>Please ask for Pre-requisites |



| Department / Study Program  | Title                          | ECTS credits | Fall semester<br>(Sept - Feb) | Spring semester<br>(March - July) | Course code / specific information |
|---|--------------------------------|--------------|-------------------------------|-----------------------------------|------------------------------------|
| <b>E</b> Department of Electrical Engineering and Information Technology  |                                |              |                               |                                   |                                    |
| <b>Electrical Engineering and Information Technology:</b> Complete Bachelor Program is offered in English – EET |                                |              |                               |                                   |                                    |
| 1. Semester courses:  |                                |              |                               |                                   |                                    |
|   | Digital Technology 1           | 5            | X                             |                                   |                                    |
|   | Electrical Engineering 1       | 6            | X                             |                                   |                                    |
|   | Programming in C               | 6            | X                             |                                   |                                    |
|   | Mathematical Foundations       | 6            | X                             |                                   |                                    |
|   | Physics 1                      | 6            | X                             |                                   |                                    |
| <b>Digital Media - open for enrollment ONLY for design students</b>   |                                |              |                               |                                   |                                    |
| <b>E / Digital Media Program</b>  | Interaction Design 1           | 10           | X                             |                                   |                                    |
| <b>E / Digital Media Program</b>  | Computer Graphics              | 7            |                               | X                                 |                                    |
| <b>E / Digital Media Program</b>  | Project in Photography         | 7            |                               | X                                 |                                    |
| <b>E / Digital Media Program</b>  | Interaction Design 2           | 5            |                               | X                                 |                                    |
| <b>E / Digital Media Program</b>  | Programming                    | 5            | X                             |                                   |                                    |
| <b>T</b> Department of Medical Engineering and Mechatronics   |                                |              |                               |                                   |                                    |
| <b>T / Mechatronics / Medical Engineering</b>   | Microcontroller Applications   | 5            | X                             | X                                 | 89500                              |
| <b>T / Medical Engineering</b>  | Technical Security in Medicine | 5            |                               | X                                 | 91100                              |
| <b>T / Mechatronics / Medical Engineering</b>   | Advanced Project               | 10           | X                             | X                                 |                                    |



### C) Master-Level Courses taught in English

| Department / Study Program                       | Title   | ECTS credits | Fall semester (Sept - Feb) | Spring semester (March - July) |
|--|---|--------------|----------------------------|--------------------------------|
| I / Master Intelligent Systems                   | Complete M. Sc Program is offered in English<br><br><a href="https://www.thu.de/de/org/rek/Downloads/Modulhandbuch_ISY_en.pdf">https://www.thu.de/de/org/rek/Downloads/Modulhandbuch_ISY_en.pdf</a> | 90           | X                          | X                              |
| E / Master SYE and SYE intl. resp.               | Numerical Optimization  | 6            |                            | X                              |
| E / Master SYE and SYE intl. resp.               | Physical Methods  | 6            |                            | X                              |
| E / Master SYE and SYE intl. resp.               | Modeling of Technical Systems   | 6            |                            | X                              |
| E / Master SYE and SYE intl. resp.               | Model-Based Systems Development   | 6            |                            | X                              |
| T / Master SY                                    | Navigation for Medical Interventions  | 6            | X                          |                                |
| P / Master SY Industrial Engineering             | Supply Network Performance Management   | 5            | X                          |                                |
| P / Master SY Industrial Engineering             | Quantitative Planning Methods   | 5            |                            | X                              |
| G / Institute of foreign Language and Management | International Business  | 5            | X                          | X                              |

### D) German Language courses

| Department                      | Title  | ECTS | Fall Semester | Spring Semester |
|---------------------------------|--|------|---------------|-----------------|
| Institute for foreign Languages | German for Beginners 1 - Intensive Course September or March   | 2    | X             | X               |
| Institute for foreign Languages | Ankommen in Deutschland – Language and Culture (Previous knowledge of A2 required) Intensive Course September or March | 2    | X             | X               |
| Institute for foreign Languages | German Beginners Level 1   | 2    | X             | X               |
| Institute for foreign Languages | German Beginners Level 2   | 3    | X             | X               |
| Institute for foreign Languages | German Beginners Level 3   | 5    | X             | X               |



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|                                 |                             |   |   |   |
|---------------------------------|-----------------------------|---|---|---|
| Institute for foreign Languages | German Beginners Level 4    | 5 | X | X |
| Institute for foreign Languages | German intermediate Level 1 | 5 | X | X |
| Institute for foreign Languages | German intermediate Level 2 | 5 | X | X |

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