

Elective modules

| Module number     | Module name  | 1 <sup>st</sup> semester  | 2 <sup>nd</sup> semester   | 3 <sup>rd</sup> semester  | Credits |
|-------------------|--|---|--|---|---------|
|                   |  | Lecture (Lecturer) (L/E/Se/La/P)  | Lecture (Lecturer) (L/E/Se/La/P)   | Lecture (Lecturer) (L/E/Se/La/P)  |         |
| NES-30 GLC-14.1   | <b>German Language and Culture</b>   | <i>German Language and Culture</i><br>TUDIAS (0/0/0/4/0)  |  |   | 4       |
| NES-12 12 01-14.1 | <b>Materials for Nanoelectronics and Vacuum Technology</b>   | <i>Vacuum Technology</i><br>(Bartha) (2/0/0/0/0)<br><br><i>Materials for Nanotechnology</i><br>(Richter)(2/0/0/0/1) |  |   | 6       |
| NES-11 06 06-14.1 | <b>Distributed Systems Engineering</b>   | <i>Systems Engineering 1</i><br>(Fetzer) (2/2/0/0/0)  |  |   | 5       |
| NES-12 09 01-14.1 | <b>Stochastic Signals and Systems</b>  | <i>Stochastic Signals and Systems</i><br>(Jorswieck) (2/2/0/0/0)  |  |   | 6       |
| NES-10 01 01-14.1 | <b>Investing in a Sustainable Future</b>   |   | <i>Investing in a Sustainable Future</i><br>(Prof. Günther) (1/0/2/0/0)  |   | 4       |
| NES-13 14 03      | <b>Nanotechnology and Material Science</b>   |   | <i>Nanostructured Materials</i><br>(Cuniberti) (2/2/0/0/2)<br><br><i>Nanotechnology</i><br>(Eng) (2/0/0/0/0)   |   | 12      |
| NES-12 10 05-20.1 | <b>Antennas and Radar Systems</b>  |   | <i>Antennas and Radar Systems</i><br>(Prof. Plettmeier) (4/2/0/0/0)  |   | 7       |
| NES-12 10 02-14.1 | <b>Communications</b>  |   | <i>Communications</i><br>(Fettweis) (2/1/0/0/0)  |   | 3       |
| NES-11 06 03      | <b>Software-Fault Tolerance</b>  |   | <i>Software Fault Tolerance</i><br>(Fetzer) (2/2/0/0/0)  |   | 6       |
| NES-11 06 04-14.1 | <b>Wireless Sensor Networks</b>  |   | <i>Wireless Sensor Networks</i><br>(Dargie)(2/0/2/0/0)   |   | 6       |
| NES-12 10 06-14.1 | <b>Integrated Photonic Devices for Communications and Signal Processing</b>  |   | <i>Integrated Photonic Devices for Communications and Signal Processing</i><br>(Jamshidi) (4/0/0/0/2)  |   | 7       |
| NES-12 08 07      | <b>Neuromorphic VLSI Systems</b>   |   | <i>Neuromorphic VLSI Systems</i><br>(Mayr) (4/2/0/0/0)   |   | 7       |
| NES-12 08 07      | <b>VLSI Processor Design</b>   |   | <i>VLSI Processor Design</i><br>(Mayr) (2/2/0/0/2)   |   | 7       |
| NES-12 08 26      | <b>Modeling and characterization of nanoelectronic devices</b>   |   | <i>Characterization of micro and nanoelectronic devices</i><br>(Schröter) (2/0/0/0/1)<br><br><i>Modeling of nanoelectronic devices</i><br>(Schröter) (2/1/0/0/0) |   | 7       |
| NES-11 20 19      | <b>Design and Programming of Embedded Multicore Architectures</b>  |   | <i>Design and Programming of Embedded Multicore Architectures</i><br>(Göhringer) (2/2/0/0/0)   |   | 6       |
| NES-12 06 01-14.1 | <b>Materials for the 3D System Integration</b>   |   | <i>3D System Integration and 3D Technologies</i><br>(Panchenko) (2/0/0/0/0)  | <i>Micro-/Nanomaterials and Reliability Aspects</i><br>(Panchenko) (2/0/0/0/1)  | 7       |
| NES-12 12 03-14.1 | <b>Memory Technology</b>   |   | <i>Memory Technology 1</i><br>(Mikolajick) (2/0/1/0/0)   | <i>Memory Technology 2</i><br>(Mikolajick) (2/0/1/0/0)  | 7       |
| NES-12 12 06-14.1 | <b>Semiconductor Industry Challenges: Market Dynamics - Technology Innovations - Yield and Reliability Engineering</b> |   | <i>Dynamics and economics of the semiconductor market driven by technological innovations</i><br>(Kücher) (1/0/0/0/0)  | <i>Reliability Engineering and Kinetics of Degradation Processes in Advanced Electronics</i><br>(Zscheck) (2/0/0/0/0)               | 4       |
| NES-12 12 07-14.1 | <b>Innovative Semiconductor Devices</b>  |   |  | <i>Innovative Semiconductor Devices</i><br>(Mikolajick) (2/1/0/0/0)   | 4       |
| NES-13 14 02-14.1 | <b>Molecular Electronics</b>   |   |  | <i>Molecular Electronics</i><br>(Cuniberti/Moresco) (2/2/0/0/0)   | 6       |
| NES-12 12 05-14.1 | <b>Optoelectronics</b>   |   |  | <i>Optoelectronic Devices and Systems</i><br>(Lakner) (2/1/0/0/0)<br><br><i>Nanooptics</i><br>(Eng) (2/0/0/0/0)                     | 7       |
| NES-02 04 01      | <b>Quantum Mechanics for Nanoelectronics</b>   |   |  | <i>Semiconductor Quantum Structures</i><br>(Helm) (2/0/0/0/0)<br><br><i>Quantum and solid state physics</i><br>(Scholz) (3/1/0/0/0) | 7       |

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|-------------------|---|--|--|--|---|
| NES-12 10 20      | <b>Communication Networks 3</b>   |  |  | <i>Communication Networks 3</i><br>(Fitzek) (3/0/0/0/0)<br><i>CN-Actual Topics-Problem based learning</i><br>(Fitzek)(1/2/0/0/0)   | 7 |
| NES-11 06 05-14.1 | <b>Real-Time Systems</b><br><i>currently not offered!</i>                   |  |  | <i>Real-Time Systems</i><br>(Härtig) (2/1/0/0/0)   | 6 |
| NES-12 08 01-20.1 | <b>Future Computing Strategies in Nanoelectronic Systems</b>                |  |  | <i>Future Computing Strategies in Nanoelectronic Systems</i><br>(Tetzlaff) (2/1/0/0/0)   | 4 |
| NES-11 06 07-14.1 | <b>Ubiquitous Systems</b>   |  |  | <i>Distributed Systems</i><br>(Schill) (2/2/0/0/0)<br><br><i>Mobile Communication and mobile computing</i><br>(Schill) (2/0/0/0/0) | 7 |
| NES-11 20 20      | <b>Hardware Modelling and Simulation</b>                                    |  |  | <i>Hardware Modelling and Simulation</i><br>(Göhringer) (2/2/0/0/0)  | 6 |
| NES-12 10 08      | <b>Introduction to Optical Nonclassical Computing: Concepts and Devices</b> |  |  | <i>Introduction to Optical Nonclassical Computing: Concepts and Devices</i><br>(Jamshidi) (4/2/0/0/0)                              | 7 |
| NES-12 12 04-14.1 | <b>Electromechanical Networks</b>   |  |  | <i>Electromechanical Networks</i><br>(Marschner) (2/1/0/0/0)   | 4 |
| NES-12 10 04-14.1 | <b>Hardware/Software Codesign Lab</b>                                       |  |  | <i>HW/SW Codesign Lab</i><br>(Fettweis) (0/0/0/0/2)  | 4 |
| NES-12 08 04-14.1 | <b>Integrated Circuits for Broadband Optical Communications</b>             |  |  | <i>Integrated Circuits for Broadband Optical Communications</i><br>(Ellinger) (3/1/0/0/2)  | 7 |

Last updated: 8<sup>th</sup> April, 2020

L Lecture  
E Exercise  
Se Seminar  
La Language course  
P Practical lab course

**Key areas:**

Technology

Design

Applications