

# Module Catalog Master Program Medical Engineering - Valid for the FPO version 2013

## Study Field "Medical Image and Data Processing"

Please note the Module Descriptions in Campo!

| Module Group | Module Number | Modules                          |       | SWS<br>L+E+S+P | Total Sum<br>ECTS | 1st Year |      | 2nd Year |      | Language | Credit Modalities | Department | Responsible Chair(s) | WS/SS |
|--------------|---------------|----------------------------------|-------|----------------|-------------------|----------|------|----------|------|----------|-------------------|------------|----------------------|-------|
|              |               | Module Name<br>(Name of Lecture) | Abbr. |                |                   | WS       | SS   | WS       | SS   |          |                   |            |                      |       |
|              |               |                                  |       |                |                   | ECTS     | ECTS | ECTS     | ECTS |          |                   |            |                      |       |

| M 1 Medical Specialization |   |                 |         | L+E+S+P | 10  | 5   | 5 | 0 | 0 |    |     |      |   |       |
|----------------------------|---|-----------------|---------|---------|-----|-----|---|---|---|----|-----|------|---|-------|
| M 1.1 <sup>1</sup>         | Fundamentals in Anatomy and Physiology for Engineers  | OMED/FAP        | 4+0+0+0 | 5       | 0   | 5   | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Anatomie II (Prof. Dr. Paulsen)   | SS    |
| M 1.2                      | Applications of nanotechnology in cardiovascular diseases   | HNO 18          | 0+0+2+0 | 2,5     | 0   | 2,5 | 0 | 0 | 0 | EN | gCA | MED  | Professur für Nanomedizin (Stiftungsprofessur der Else Kröner-Fresenius-Stiftung)             | WS/SS |
| M 1.3                      | Medizinische Biotechnologie / Medical Biotechnology   | MBT             | 3+1+0+0 | 5       | 0   | 5   | 0 | 0 | 0 | EN | gCA | CBI  | Lehrstuhl für Medizinische Biotechnologie (MBT)   | SS    |
| M 1.4                      | Introduction to medical physics in radiation therapy  | MEDPHYS-I       | 2+0+0+0 | 2,5     | 2,5 | 0   | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Strahlentherapie  | WS    |
| M 1.5                      | Lab class on medical physics in radiation therapy   | MEDPHYS III     | 0+0+0+2 | 5       | 0   | 5   | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Strahlentherapie  | SS    |
| M 1.6                      | Special topics of medical physics in radiation therapy  | MEDPHYS II      | 2+0+0+0 | 2,5     | 0   | 2,5 | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Strahlentherapie  | SS    |
| M 1.7                      | Medical Physics in Nuclear Medicine   | MPNM            | 2+0+0+0 | 2,5     | 2,5 | 0   | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Klinische Nuklearmedizin  | WS    |
| M 1.8                      | Jüngste Entwicklungen der medizinischen Systembiologie / Advances in Medical Systems Biology  | AdvMedSys       | 0+0+3+0 | 2,5     | 0   | 2,5 | 0 | 0 | 0 | EN | PfE | MED  | Lehrstuhl für Haut- und Geschlechtskrankheiten  | WS/SS |
| M 1.9                      | Introduction to simulation, network and data analysis in Medical Systems Biology  | IntSysMed_f_Eng | 2+0+0+0 | 5       | 5   | 0   | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Haut- und Geschlechtskrankheiten  | WS    |
| M 1.10                     | Introduction to simulation, network and data analysis in cancer and oncotherapy<br><b>Formerly: Systems oncology: bioinformatics and computer modelling in cancer</b> | OncoSys_f_Eng   | 2+0+0+0 | 2,5     | 0   | 2,5 | 0 | 0 | 0 | EN | gCA | MED  | Lehrstuhl für Haut- und Geschlechtskrankheiten  | SS    |
| M 1.11                     | Ethics and Philosophy of AI   |                 | 2+0+0+0 | 5       | 0   | 5   | 0 | 0 | 0 | EN | gCA | PHIL | Lehrstuhl für Theory and Ethics of Artificial Intelligence (Alexander von Humboldt-Professur) | SS    |

|        |   |            |         |     |     |   |   |   |   |       |     |        |   |       |
|--------|---|------------|---------|-----|-----|---|---|---|---|-------|-----|--------|---|-------|
| M 1.12 | Systems Immunology and Infectiology   | SYSImInf   | 2+2+0+0 | 5   | 0   | 5 | 0 | 0 | 0 | EN    | gCA | MED    | Lehrstuhl für Hämatologie / Internistische Onkologie                | SS    |
| M 1.13 | Seminar und Praktikum zur Biosignalverarbeitung / Seminar and Practical Course Biosignal Processing<br><b>New from WS 24/25</b> | BioSigVera | 0+0+3+0 | 5   | 5   | 0 | 0 | 0 | 0 | EN/DE | PL  | MED    | Institut für Physiologie und Pathophysiologie                       | WS    |
| M 1.14 | Medical Device Regulation   | MDR        | 0+0+2+0 | 2,5 | 2,5 | 0 | 0 | 0 | 0 | EN    | gCA | FAU MT | Profilzentrum Medizintechnik  | WS/SS |
| M 1.15 | Movement neuroscience: connections between the brain and muscles in humans<br>Exercise  | MNeuro     | 2+1+0+0 | 5   | 5   | 0 | 0 | 0 | 0 | EN    | gCA | AIBE   | Juniorprofessur für Neuromuscular Physiology and Neural Interfacing | WS    |

<sup>1</sup> Obligatory, if appropriate skills not acquired in the Bachelor programme.

Additional medical modules can be used with the agreement of the program director. Please consult with your study advisor beforehand.

| M 2 Engineering Core Modules |   |               | L+E+S+P | 20 | 10 | 10 | 0 | 0 |   |                   |     |     |  |                   |
|------------------------------|---|---------------|---------|----|----|----|---|---|---|-------------------|-----|-----|--|-------------------|
| M 2.1                        | Digitale Übertragung / Digital Communications<br>Exercise                   | DÜ / DiCo     | 3+1+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | WS: EN<br>SS: GER | gCA | EEl | Lehrstuhl für Digitale Übertragung (IDC)                           | WS: EN<br>SS: GER |
| M 2.2 <sup>3</sup>           | Computergraphik / Computer Graphics<br>Exercise                             | CG-VU         | 3+1+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | EN                | gCA | INF | Lehrstuhl für Informatik 9 (Graphische Datenverarbeitung)          | WS                |
| M 2.3                        | Digitale Signalverarbeitung / Digital Signal Processing<br>Exercise         | DSV           | 3+1+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | EN                | gCA | EEl | Lehrstuhl für Multimediakommunikation und Signalverarbeitung (LMS) | WS                |
| M 2.4 <sup>1</sup>           | Pattern Recognition<br>Exercise   | PR            | 3+1+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | EN                | gCA | INF | Lehrstuhl für Informatik 5 (Mustererkennung)                       | WS                |
| M 2.5 <sup>1</sup>           | Pattern Analysis<br>Exercise  | PA            | 3+1+0+0 | 5  | 0  | 5  | 0 | 0 | 0 | EN                | gCA | INF | Lehrstuhl für Informatik 5 (Mustererkennung)                       | SS                |
| M 2.6                        | Statistische Signalverarbeitung / Statistical Signal Processing<br>Exercise | STASIP        | 3+1+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | EN                | gCA | EEl | Lehrstuhl für Multimediakommunikation und Signalverarbeitung (LMS) | WS                |
| M 2.7                        | Parallele Systeme / Parallel Systems<br>Exercise                            | PSYS-VU       | 2+2+0+0 | 5  | 0  | 5  | 0 | 0 | 0 | GER/EN            | gCA | INF | Lehrstuhl für Informatik 12 (Hardware-Software-Co-Design)          | SS                |
| M 2.8                        | Reconfigurable Computing<br>Exercise  | RC-VU         | 2+2+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | EN                | gCA | INF | Lehrstuhl für Informatik 12 (Hardware-Software-Co-Design)          | WS                |
| M 2.9                        | Information Theory and Coding<br>Exercise                                   | ITC<br>ITC-EN | 3+1+0+0 | 5  | 0  | 5  | 0 | 0 | 0 | WS: EN<br>SS: GER | gCA | EEl | Lehrstuhl für Digitale Übertragung (IDC)                           | WS: EN<br>SS: GER |
| M 2.10                       | Channel Coding<br>Exercise  | KaCo          | 3+1+0+0 | 5  | 0  | 5  | 0 | 0 | 0 | GER/EN            | gCA | EEl | Lehrstuhl für Informationsübertragung (LIT)                        | SS                |
| M 2.11 <sup>3</sup>          | Geometric Modeling<br>Exercise  | GM-VU         | 3+1+0+0 | 5  | 5  | 0  | 0 | 0 | 0 | EN                | gCA | INF | Lehrstuhl für Informatik 9 (Graphische Datenverarbeitung)          | WS                |
| M 2.12                       | Scientific Visualization<br>Exercise  | SciVis        | 2+2+0+0 | 5  | 0  | 5  | 0 | 0 | 0 | EN                | gCA | INF | Lehrstuhl für Informatik 9 (Graphische Datenverarbeitung)          | SS                |

|                     |  |           |         |     |     |     |   |   |   |        |     |      |  |       |
|---------------------|--|-----------|---------|-----|-----|-----|---|---|---|--------|-----|------|--|-------|
| M 2.13              | Transformationen in der Signalverarbeitung / Transformations in Signal Processing  | TSV       | 2+0+0+0 | 2,5 | 0   | 2,5 | 0 | 0 | 0 | EN     | gCA | EEl  | Lehrstuhl für Multimediakommunikation und Signalverarbeitung (LMS)     | SS    |
| M 2.14              | Algorithms of Numerical Linear Algebra Exercise  | ANLA      | 4+2+0+0 | 7,5 | 7,5 | 0   | 0 | 0 | 0 | EN     | gCA | INF  | Lehrstuhl für Informatik 10 (Systemsimulation)                         | WS    |
| M 2.15 <sup>2</sup> | Functional Analysis for Engineers Exercise   | FuncAnEng | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | 0 | EN     | gCA | INF  | Lehrstuhl für Informatik 10 (Systemsimulation)                         | WS    |
| M 2.16              | Optimierung für Ingenieure / Optimization for Engineers Exercise   | OptIngV   | 3+1+0+0 | 5   | 0   | 5   | 0 | 0 | 0 | EN     | gCA | NAT  | Lehrstuhl für Angewandte Mathematik 2 (Prof. Dr. Leugering)            | SS    |
| M 2.17              | Heterogene Rechnerarchitekturen Online<br><b>Ab WS 24/25 nicht mehr angeboten / No longer offered from WS 24/25</b>  | HETRON    | 4+0+0+0 | 5   | 0   | 5   | 0 | 0 | 0 | EN     | gCA | INF  | Lehrstuhl für Informatik 3 (Rechnerarchitektur)                        | WS/SS |
| M 2.18              | Künstliche Intelligenz I   | KI I      | 4+2+0+0 | 7,5 | 7,5 | 0   | 0 | 0 | 0 | GER/EN | gCA | INF  | Professur für Wissensrepräsentation und -verarbeitung                  | WS    |
| M 2.19              | Künstliche Intelligenz II  | KI II     | 4+2+0+0 | 7,5 | 0   | 7,5 | 0 | 0 | 0 | GER/EN | gCA | INF  | Professur für Wissensrepräsentation und -verarbeitung                  | SS    |
| M 2.20              | Deep Learning Exercise   | DL        | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | 0 | EN     | gCA | INF  | Lehrstuhl für Informatik 5 (Mustererkennung)                           | WS/SS |
| M 2.21              | Sprach- und Audiosignalverarbeitung / Speech and Audio Signal Processing Exercise<br><b>Ab WS 24/25 nicht mehr angeboten / No longer offered from WS 24/25</b> | SAV       | 3+1+0+0 | 5   | 0   | 5   | 0 | 0 | 0 | EN     | gCA | EEl  | Lehrstuhl für Multimediakommunikation und Signalverarbeitung (LMS)     | SS    |
| M 2.22              | Maschinelles Lernen für Zeitreihen / Machine Learning for Time Series Exercise   | MLTS      | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | 0 | EN     | gCA | INF  | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)              | WS    |
| M 2.23              | Reinforcement Learning Exercise  | RL        | 2+2+0+0 | 5   | 0   | 5   | 0 | 0 | 0 | EN     | gCA | INF  | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)              | SS    |
| M 2.24              | Data Science Survival Skills Exercise  | DSSS      | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | 0 | EN     | gCA | AIBE | Juniorprofessur für Artificial Intelligence in Communication Disorders | WS    |
| M 2.25              | Advanced Deep Learning Exercise  | AdVDL     | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | 0 | EN     | gCA | AIBE | Juniorprofessur für Artificial Intelligence in Medical Imaging         | WS    |

<sup>1</sup> Obligatory, if appropriate skills not acquired in the Bachelor programme.

<sup>2</sup> Very profound knowledge of mathematics required.

<sup>3</sup> Yearly change between German and English.

| M 3 Medical Engineering Core Modules |   |                   | L+E+S+P | 20  | 10  | 10  | 0 | 0 |       |     |      |   |       |
|--------------------------------------|---|-------------------|---------|-----|-----|-----|---|---|-------|-----|------|---|-------|
| M 3.1                                | Visual Computing in Medicine  | VCMed             | 4+0+0+0 | 5   | 2,5 | 2,5 | 0 | 0 | EN    | gCA | INF  | Lehrstuhl für Informatik 9 (Graphische Datenverarbeitung)                             | WS+SS |
| M 3.4                                | Biomedizinische Signalanalyse / Biomedical Signal Analysis Exercise                                 | BioSig            | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | EN    | gCA | INF  | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)                             | WS    |
| M 3.5                                | Computer Architectures for Medical Applications Exercise  | CAMA              | 2+2+0+0 | 5   | 0   | 5   | 0 | 0 | EN    | gCA | INF  | Lehrstuhl für Informatik 3 (Rechnerarchitektur), Professur für Höchstleistungsrechnen | SS    |
| M 3.6                                | Magnetic Resonance Imaging 1 Exercise   | MRI1              | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | EN    | gCA | INF  | Lehrstuhl für Informatik 5 (Mustererkennung)  | WS    |
| M 3.7                                | Magnetic Resonance Imaging 2 + Übung Exercise   | MRI2+Ü            | 2+2+0+0 | 5   | 0   | 5   | 0 | 0 | EN    | gCA | INF  | Lehrstuhl für Informatik 5 (Mustererkennung)  | SS    |
| M 3.8                                | Image and Video Compression Exercise  | IVC               | 3+1+0+0 | 5   | 0   | 5   | 0 | 0 | EN    | gCA | EEI  | Lehrstuhl für Multimediakommunikation und Signalverarbeitung (LMS)                    | SS    |
| M 3.19                               | Auditory Models   | AudMo             | 2+0+0+0 | 2,5 | 0   | 2,5 | 0 | 0 | EN    | gCA | EEI  | Professur für Audiosignalanalyse (AudioLabs)  | SS    |
| M 3.10a <sup>1</sup>                 | A look inside the human body - gait analysis and simulation+  | GAS+              | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | EN    | PL  | INF  | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)                             | WS    |
| M 3.10b <sup>1</sup>                 | A look inside the human body - gait analysis and simulation   | GAS               | 2+0+0+0 | 2,5 | 2,5 | 0   | 0 | 0 | EN    | gCA | INF  | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)                             | WS    |
| M 3.11                               | Interfacing the Neuromuscular system: Applications for Human/Machine Interfaces and Neurophysiology | INS               | 3+0+0+0 | 5   | 0   | 5   | 0 | 0 | EN    | gCA | AIBE | Juniorprofessor für Neuromuscular Physiology and Neural Interfacing                   | SS    |
| M 3.12                               | Algorithmic Bioinformatics Exercise   | ALGBIOINF         | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | DE/EN | gCA | AIBE | Juniorprofessur für Daten, Sensoren und Geräte / Digitale Transformation              | WS    |
| M 3.13                               | Computational Magnetic Resonance Imaging  | Computational MRI | 2+2+0+0 | 5   | 5   | 0   | 0 | 0 | EN    | gCA | AIBE | Professur für Computational Imaging   | WS    |
| M 3.14                               | Computational Neurotechnology   | Neurotech         | 2+2+0+0 | 5   | 0   | 5   | 0 | 0 | EN    | gCA | AIBE | Professur für Sensorische Neurotechnologie  | SS    |
| M 3.15                               | Numerical & Physical Principles of Imaging Algorithms for CT based Radiation Therapy Planning       | NumerikCTinRT     | 2+0+0+0 | 2,5 | 0   | 2,5 | 0 | 0 | EN    | PL  | Med  | Lehrstuhl für Strahlentherapie  | SS    |
| M 3.16                               | AI in Medical Robotics  | AIMedRob          | 3+1+0+0 | 5   | 5   | 0   | 0 | 0 | EN    | gCA | AIBE | Professur für Robotische Planung und Kognition in der Chirurgie                       | WS    |

<sup>1</sup>You can either take the 2,5 or the 5 ECTS version, not both.

| M 4 Medical Engineering Core Skills |  |         | L+E+S+P | 10  | 5            | 0 | 5   | 0 |    |     |       |  |       |
|-------------------------------------|--|---------|---------|-----|--------------|---|-----|---|----|-----|-------|--|-------|
| M 4.1                               | <b>Medical Law, Economics and Innovation</b>                         |         |         | 5   | 5            |   |     |   |    |     |       |  |       |
|                                     | Innovation Technology  |         | 2+2+0+0 | 5   | 5            | 0 | 0   | 0 | EN | gCA | WISO  | Lehrstuhl für Wirtschaftsinformatik I  | WS    |
|                                     | Leadership and Communication in Global Business (VHB)                | LeadCom | 2+0+0+0 | 2,5 | VHB (online) |   |     |   | EN | gCA | VHB   | Virtuelle Hochschule Bayern (VHB)  | WS/SS |
|                                     | Innovation & Leadership  |         | 2+2+0+0 | 5   | 5            | 0 | 0   | 0 | EN | gCA | WISO  | Lehrstuhl für Wirtschaftsinformatik I  | WS    |
|                                     | Internationales Projektmanagement / International Projekt Management | IntPM   | 4+0+0+0 | 5   | 5            | 0 | 0   | 0 | EN | gCA | WISO  | Lehrstuhl für International Business and Society Relations mit Schwerpunkt Lateinamerika | WS    |
| M 4.2 <sup>5</sup>                  | <b>Seminar Medical Engineering and Ethics</b> , consisting of:       |         |         | 5   |              |   | 5   |   |    |     |       |  |       |
| M 4.2a                              | Ethics of Technology: Software, Hardware, Wetware                    |         | 0+0+2+0 | 2,5 | 0            | 0 | 2,5 | 0 | EN | gCA | ZiWiS | Zentralinstitut für Wissenschaftsreflexion und Schlüsselqualifikationen (ZiWiS)          | WS    |
|                                     | <b>Formerly „Ethics of Engineering“</b>                              |         |         |     |              |   |     |   |    |     |       |  |       |
| M 4.2b <sup>4</sup>                 | Seminar Medical Engineering  |         | 0+0+2+0 | 2,5 | 0            | 0 | 2,5 | 0 | EN | gCA | ZiMT  | see Seminar Catalogue  | WS/SS |

<sup>4</sup> Selection of 1 out of Catalogue

<sup>5</sup> Obligatory

| M 5 Medical Engineering Specialization Modules |  |           | L+E+S+P | 10 | 0 | 5 | 5 | 0 |        |     |     |  |       |
|--|--|-----------|---------|----|---|---|---|---|--------|-----|-----|--|-------|
| M 5.1  | Swarm Intelligence   | SI        | 2+2+0+0 | 5  | 0 | 5 | 0 | 0 | GER/EN | gCA | INF | Lehrstuhl für Informatik 12 (Hardware-Software-Co-Design)          | SS    |
|  | Exercise   |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.3  | Human Computer Interaction   | HCI       | 3+1+0+0 | 5  | 0 | 5 | 0 | 0 | EN     | gCA | INF | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)          | WS/SS |
|  | Exercise   |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.4  | Convex Optimization in Communications and Signal Processing  | ConvOpt   | 3+1+0+0 | 5  | 0 | 0 | 5 | 0 | EN     | gCA | EEl | Lehrstuhl für Digitale Übertragung (IDC)                           | WS    |
|  | Exercise   |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.6  | Security in Embedded Hardware  | SEH       | 2+2+0+0 | 5  | 0 | 5 | 0 | 0 | EN     | gCA | INF | Lehrstuhl für Informatik 12 (Hardware-Software-Co-Design)          | SS    |
|  | Exercise   |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.7  | Knowledge Discovery in Databases mit Übung   | KDD       | 2+2+0+0 | 5  | 0 | 5 | 0 | 0 | EN     | gCA | INF | Lehrstuhl für Informatik 6 (Datenmanagement)                       | SS    |
|  |  |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.8  | Image, Video and Multidimensional Signal Processing /Bild-, Video- und mehrdimensionale Signalverarbeitung | IVMSP     | 3+1+0+0 | 5  | 0 | 0 | 5 | 0 | EN     | gCA | EEl | Lehrstuhl für Multimediakommunikation und Signalverarbeitung (LMS) | WS    |
|  | Exercise   |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.9  | Molecular Communications   | MolCom    | 4+0+0+0 | 5  | 0 | 0 | 5 | 0 | EN     | gCA | EEl | Lehrstuhl für Digitale Übertragung                                 | WS    |
|  | Exercise   |           |         |    |   |   |   |   |        |     |     |  |       |
| M 5.10   | Magnetic Resonance Imaging sequence programming  | MRIpulseq | 2+0+0+0 | 5  | 0 | 5 | 0 | 0 | EN     | gCA | MED | Lehrstuhl für Informatik 5 (Mustererkennung)                       | WS/SS |

|        |   |           |         |   |   |   |   |   |    |     |     |   |    |
|--------|---|-----------|---------|---|---|---|---|---|----|-----|-----|---|----|
| M 5.12 | Cognitive Neuroscience for AI Developers<br>Exercise                | CNAID     | 4+0+0+0 | 5 | 0 | 5 | 0 | 0 | EN | gCA | INF | Juniorprofessur für Artificial Intelligence in Communication Disorders (Prof. Andreas Kist) | SS |
| M 5.15 | Interaktive Computergraphik/ Interactive Computer Graphics<br>Übung | InCG      | 2+2+0+0 | 5 | 0 | 5 | 0 | 0 | EN | PL  | INF | Lehrstuhl für Informatik 9 (Graphische Datenverarbeitung)                                   | SS |
| M 5.16 | Globale Beleuchtungsberechnung/Global Illumination<br>Übung         | GlobIllum | 2+2+0+0 | 5 | 0 | 5 | 0 | 0 | EN | PL  | INF | Lehrstuhl für Informatik 9 (Grafische Datenverarbeitung)                                    | SS |
| M 5.17 | Speech and Language Understanding                                   | SLU       | 2+2+0+0 | 5 | 0 | 5 | 0 | 0 | EN | gCA | INF | Lehrstuhl für Informatik 5 (Mustererkennung)  | SS |

| M 6 Medical Engineering Practical Skills |  |                   | L+E+S+P | 10 | 0 | 0 | 10 | 0 |        |     |      |  |       |
|--|--|-------------------|---------|----|---|---|----|---|--------|-----|------|--|-------|
| M 6.1                                    | Academic Laboratory<br><br>See list on the study program website   |                   | 0+0+0+4 | 5  | 0 | 0 | 5  | 0 | EN     | uCA |      |  | WS/SS |
| M 6.2                                    | Research Laboratory<br>See list on study program website and additionally:<br><br>Digital Transformation Project |                   | 0+0+0+4 | 5  | 0 | 0 | 5  | 0 | EN     | uCA |      |  | WS/SS |
|  |  | DTP               | 2+2+0+0 | 5  | 0 | 0 | 5  | 0 | EN     | uCA |      | Lehrstuhl für Wirtschaftsinformatik, insbesondere Innovation und Wertschöpfung | WS/SS |
| M 6.1 +<br>M 6.2                         | <b>Alternatives for M 6.1 and M 6.2:</b>   |                   |         |    |   |   |    |   |        |     |      |  |       |
|  | Project Pattern Recognition  | ProjME            | 0+0+0+8 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | INF  | Lehrstuhl für Informatik 5 (Mustererkennung)                                   | WS/SS |
|  | Project Computer Vision  | ProjCV            | 0+0+0+8 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | INF  | Lehrstuhl für Informatik 5 (Mustererkennung)                                   | WS/SS |
|  | Projekt Innovationslabor für Wearable und Ubiquitous Computing   | InnoLabPro        | 0+0+0+4 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | AIBE | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)                      | WS/SS |
|  | Projekt Maschinelles Lernen und Datenanalytik / Project Machine Learning and Data Analytics                      | ProjMAD           | 0+0+0+8 | 10 | 0 | 0 | 10 | 0 | GER/EN | uCA | AIBE | Lehrstuhl für Maschinelles Lernen und Datenanalytik (MaD)                      | WS/SS |
|  | Project Representation Learning  | PRL               | 0+0+0+4 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | AIBE | Professur für Image Data Exploration and Analysis                              | WS/SS |
|  | The AMOS Project   | OSS-AMOS-SD       | 2+0+0+6 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | INF  | Professur für Open Source Software   | WS/SS |
|  | Project Biomedical Network Science   | BIONETS           | 0+0+0+4 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | AIBE | Professur für Biomedical Network Science                                       | WS/SS |
|  | Computational Imaging Project  | Comp Imag Proj    | 0+0+0+8 | 10 | 0 | 0 | 10 | 0 | DE/EN  | uCA | AIBE | Professur für Computational Imaging  | WS/SS |
|  | Neurotechnology Project  | Neurotech Project | 0+0+0+8 | 10 | 0 | 0 | 10 | 0 | EN     | uCA | AIBE | Professur für Sensorische Neurotechnologie                                     | WS/SS |

|  |          |         |    |   |   |    |    |   |       |     |      |  |       |
|--|----------|---------|----|---|---|----|----|---|-------|-----|------|--|-------|
| Research Project on Surgical Robotics  |          | 0+0+0+4 | 10 | 0 | 0 | 0  | 10 | 0 | EN    | uCA | AIBE | Professur für Robotische Planung und Kognition in der Chirurgie        | WS/SS |
| Projekt Intraoperative Imaging and Machine Learning                          | IIML     | 0+0+0+4 | 10 | 0 | 0 | 0  | 10 | 0 | EN    | uCA | AIBE | Juniorprofessur für Artificial Intelligence in Medical Imaging         | WS    |
| Project Systems Immunology   | Pr_SYSIm | 0+0+0+3 | 10 | 0 | 0 | 0  | 10 | 0 | EN    | uCA | MED  | Lehrstuhl für Hämatologie / Internistische Onkologie                   | WS/SS |
| Computational Medicine Project<br><b>Neu ab WS 24/25 / New from WS 24/25</b> |          | 0+0+0+4 | 10 | 0 | 0 | 0  | 10 | 0 | DE/EN |     | MED  | W3-Professur für Phoniatrie und Pädaudiologie                          | WS/SS |
| Biomedical Image Analysis Project  | BIMAP    | 0+0+0+4 | 10 | 0 | 0 | 10 | 0  | 0 | EN    | uCA | AIBE | Juniorprofessur für Artificial Intelligence in Communication Disorders | SS    |

|                            |   |  |           |          |          |           |          |  |  |     |  |  |  |
|----------------------------|---|--|-----------|----------|----------|-----------|----------|--|--|-----|--|--|--|
| <b>M 7 Flexible Budget</b> |   |  | <b>10</b> | <b>0</b> | <b>0</b> | <b>10</b> | <b>0</b> |  |  |     |  |  |  |
| M 7.1                      | Flexible Budget<br>any <b>graded</b> lecture / course at the university |  | 10        | 0        | 0        | 10        | 0        |  |  | gCA |  |  |  |

|                            |                                  |  |           |          |          |          |           |  |  |     |  |  |  |
|----------------------------|----------------------------------|--|-----------|----------|----------|----------|-----------|--|--|-----|--|--|--|
| <b>M 8 Master's Thesis</b> |                                  |  | <b>30</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>30</b> |  |  |     |  |  |  |
| M 8                        | Master's Thesis<br>Thesis + Talk |  | 30        | 0        | 0        | 0        | 30        |  |  | PfE |  |  |  |

**L** Lecture

**PfE** Portfolio Examination

For M3, you can use modules with a value of max. 5 ECTS credits from the module groups M2 and M5 of your own branch of study or from M2, M3 and M5 of the other branches of study.

**E** Exercise

**gCA** graded Course Achievement

For M5, you can use modules with a value of max. 5 ECTS credits from the module groups M2 and M3 of your own branch of study or from M2, M3 and M5 of the other branches of study.

**S** Seminar

**uCA** ungraded Course Achievement

**P** Practical Exercise

**SA** Seminar Achievement (usually a presentation and written report)

All lectures can be complemented by additional exercises and practical courses.

**w** written

**o** oral

**online** online (Virtual University Bavaria, VHB, www.vhb.org)

It is possible that in rare cases the exam type is changed. This information must be communicated to the students no later than two weeks after the semester start and must be documented in the module description in Campo.

**WS** Winter Term

**SS** Summer Term

**BESCHLUSS Stuko – 2024-09-07**