|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Programs** | **Previous Education** | **Aver. BSc Mark** | **Basic Knowledge in** | **Additional Requirements** | |
| **OVGU Magdeburg / KNRTU-KAI** | | | | | |
| **1. Chemical and Energy Engineering** | Bachelor of Science or Bachelor of Engineering in the appropriate program or related field | 4,2 | hydrodynamics, heat and mass transfer, mathematical and computer modelling, organic chemistry, inorganic chemistry, basics of chemistry | | 1. motivation letter 2. list of publications, international grants, conferences, programs, exhibitions, information about scientific and educational awards. 3. working experience |
| **2. Electrical Engineering and Information Technology** | Bachelor-, Master- or Specialist degree diploma in electrical engineering (not in Information Technology) | 4,3 | theoretical foundations of electrical engineering, analog and digital electronics, circuit design of electronic devices, technical electronics, power electronics, electrical systems and grids, information technology and modeling; programming skills in MatLab | |  |
| **3. Systems Engineering and Engineering Cybernetics** | Bachelor of Science in systems engineering and technical cybernetics or in related specialties | not less than 4.12 | 1. Computer science: theory, programming in C ++ or Pascal, object-oriented programming, programming in MatLab 2. Electronics: calculation of DC and AC circuits, semiconductor devices - diodes, transistors, operational amplifiers, discrete and digital electronics, triggers, logic elements, registers, microprocessors 3. Theory of automation control (ordinary differential equations, analytical and numerical solution of differential equations, transfer functions, state space, characteristic equations, stability criteria, frequency characteristics of systems, system quality indicators, programming skills in MatLab) | |  |
| **TU Ilmenau / KNRTU-KAI** | | | | | |
| **4. Communication and Signal Processing** | Bachelor degree (at least 6 Semester / 180 LPs) in Telecommunication Systems, Electrical Engineering, Information Technology | 4 | Random processes, stochastics. Information Theory of Coding. Communication Systems. Telecommunications and networks. Bases of Digital Signal Processing. Analog and Digital Modulations Schemes. Signal Propagation. Linear algebra. *Experience in Matlab, LabView, С++, Python* | Curriculum vitae | |
| **5. Research in Computer and System Engineering** | Bachelor of Science; Bachelor of Engineering in the appropriate program or related field | 4 | Computer Science: Data Structures and Algorithms course, Databases course, Networks course, Programming skills, Operating Systems | 1. Motivation for your bachelor thesis: the problem that was solved, tasks, algorithms, models and methods, mathematical background; characteristics of the project, complexity, which difficulties were solved and how 2. A short story about why you need this master's program. What are your expectations? Why is the partnership between KNRTU-KAI/German university was chosen? How do you see yourself in the future? 3. Personal achievements and awards, including academic. Personal interests, priorities and plans, if they are related to the MSc program. | |
| **6. Automotive Engineering** | Bachelor of Science; Bachelor of Engineering in AE or related field | 4 | vehicle dynamics, vehicle performance characteristics, braking systems, simulation program - MatLab Simulink | 1. CV in English 2. Personal achievements and awards, including academic. 3. Publications if there are any. | |
| **TU Kaiserslautern / KNRTU-KAI** | | | | | |
| **7. Embedded Systems** | Bachelor of Science; Bachelor of Engineering in the appropriate program or related field | 4 | in electronics (digital and analogous electronics, radio circuits and signals, systems and circuits for signal processing, transmission and receiving, metrology and measurements, information and measuring technique, microprocessors and programming) more than 60 CP had to be courses from the IT field | 1. statement including motive for the proposed admittance to the course and an explanation of study goals. 2. description of career and personal background with explanations about practical knowledge and experience where necessary (optional). 3. letters of recommendation (optional). 4. for diploma obtained outside Russia, additional consultation with German side is required | |
| **8. Advanced Quantum Technologies** | Bachelor of Science in Physics or related field | 4 | deep knowledge in statistical physics and quantum mechanics (special paragraph at the questionnaire that let us know which topics/themes of statistical physics and quantum mechanics the students have studied) |  | |
| **9. Intelligent Data Processing** | Bachelor of Science; Bachelor of Engineering in the appropriate program or related field | 4 | mathematical analysis, linear algebra, discrete mathematics, theory of Probability and Mathematical Statistics, practical skills of programing in any high-level programming language (preferable - skills in object-oriented language) more than 60 CP had to be courses from the IT field |  | |