The Advanced Signal Processing & Communications Engineering degree program is a forward-thinking choice for technology-savvy students who want to deepen their knowledge of digital signal processing and communications technology.

This Master's degree program is part of the Elite Network of Bavaria and has a duration of four semesters. It is taught in English and is aimed at holders of excellent Bachelor's degrees in Electrical Engineering, Computer Science, Applied Mathematics, Medical Engineering (Medical Image and Data Processing) or closely related disciplines.

The program focuses on interdisciplinary concepts that are fundamental for advanced technologies in the areas of artificial intelligence, signal processing and communications. Besides information theory, coding and statistical signal processing, this includes machine learning, optimization and game theory. Students deepen the broad interdisciplinary scope of these topics by choosing various areas of specialization.

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1st semester
2nd semester
3rd semester:
4th semester:

The four-semester curriculum starts with a kick-off seminar right before the winter semester. Selected faculty members guide the students in composing their own curricula tailored to their individual interests and career goals. The degree program includes at least two or even three research projects, one of them being the six-month Master's thesis.

A winter school complements the scientific education with general soft and targeted people management and business development skills. A summer school prepares the students for the research-based training in the second year of the program. Furthermore, students can opt to participate in various events organized by the Elite Network of Bavaria.

15.07.

The required English level is "Vantage or upper intermediate" level (B2) according to the Common European Framework of Reference for Languages, or an equivalent score in an internationally recognised test, eg. IELTS 5.5, TOEFL pbt 552. Six years of English lessons at a German Gymnasium shall also suffice as proof; applicants whose native language is English need not submit any such proof.

Proof of German proficiency is not required. However, we strongly recommend non-German speaking students to attend German language classes during the MSc studies.

The time frames for submitting your online application are:

Our Student Advice and Career Service (IBZ) is the central point of contact for all questions about studying and starting a degree programme.

Our Student Service Centres and subject advisors support you in planning your studies.

Degree: Master of Science
Duration of studies in semester: 4
Start of degree program: Winter semester
Study location: Erlangen
Number of students: 1-50
Subject group: Engineering sciences
Special ways to study: Elite degree programs, International degree program
Teaching language: completely in English
Admission Requirements: Qualification assessment

Admission requirements (first semester): Qualification assessment
Application deadline winter semester: 15.07.
Content-related admission requirements: outstanding Bachelor's degree: at least 80% or 2.0 in German grading system
Engineering math: linear algebra, complex analysis, linear differential equations, Fourier transform, Laplace transform, z-transform
Signals and Systems (textbook, e.g., Oppenheim/Willsky, Signals and Systems)
Communications (textbook, e.g., Haykin, Communication Systems)
Stochastic Signals (textbook, e.g., Pillai/Papoulis: Probability, Random Variables, and Stochastic Processes)
Minimum knowledge in Digital Signal Processing: A.V. Oppenheim and R. Schafer, Discrete-Time Signal Processing, 3rd edition, Prentice Hall, 2013.
Software: MATLAB or Python
German language skills for international applicants: No DSH, English (level B2, CEFR)
General language skills: The required English level is "Vantage or upper intermediate" level (B2) according to the Common European Framework of Reference for Languages, or an equivalent score in an internationally recognised test, eg. IELTS 5.5, TOEFL pbt 552. Six years of English lessons at a German Gymnasium shall also suffice as proof; applicants whose native language is English need not submit any such proof.
Proof of German proficiency is not required. However, we strongly recommend non-German speaking students to attend German language classes during the MSc studies.
Details and notes: The time frames for submitting your online application are:

February 15 – March 15 (applies to international students who have to apply for a visa)
February 15 – July 15 (for students who do not have to apply for a visa)