

ulm university universität



Introduction to Radio Frequency Engineering Discover the exciting possibilities of enhancing your career with Ulm University's programs in advanced professional studies

The certificate course »Introduction to Radio Frequency Engineering« imparts basic knowledge to the participants in the area of high frequency and radio frequency techniques to facilitate the start of the accompanying master's programme »Sensor Systems Engineering«.

By successfully completing this course the participants shall be able to describe basic properties of important radio frequency components and to use their performance to design respective circuits. They will be able to apply basic methods for the analysis and the design of state-ofthe-art RF circuits and systems.

Course requirements

- Basics of electrical engineering
- Advanced mathematics (complex calculation, basics of vector analysis)
- Analogue circuits
- Signals and systems



Prof. Dr.-Ing. Wolfgang Menzel Institute of Microwave Engineering Lecturer



Dr.-Ing. Tobias Chaloun Institute of Microwave Engineering Additional Lecturer

What am I going to learn?

- Real circuit devices
- Brief overview of Maxwell's equations, boundary conditions, wave equation, vector potential, Poynting vector, skin effect, plane wave
- Waves on transmission lines
- Smith chart, reflection of waves at load impedances, impedance transformation by transmission lines and other circuit elements
- Wave amplitudes, description of linear, time-invariant wave-based N-ports by scattering parameters, signal flow graphs
- Electronic noise

- Components such as filters, couplers, amplifiers, mixers
- Basic terms of antenna technology
- Introduction to wave propagation

Who is the course designed for?

This certificate course is particularly appropriate as a preparatory course for persons who plan to take an extra-occupational master's programme in the area of engineering and have no prior knowledge in the field of »Radio Frequency Engineering«. The Faculty of Engineering, Computer Science and Psychology of Ulm University offers the accompanying master's programme »Sensor Systems Engineering« in this sector.

Learning setting

- Self-study with learning material that is offered on a learning platform (written material, videos, interactive exercises)
- Webinars
- Possibility of thematic exchange in an online forum
- 📕 Oral Exam
- After finishing your exam successfully (3 ECTS) you will get a certificate and a supplement, which will list the contents of the module and the competencies you have acquired.

Timeline

- Deadline for registration
 26th of January 2018
- Online kick-off meeting
 Friday, 9th of February 2018
- Webinars
 Appointments will be announced on 9th of February 2018
- One day of on-campus attendance
 Online participation will be provided optionally
- Oral exam (on-campus)

Participation Fee

220,-- Euros

Advanced Professional Studies at Ulm University? What's in it for me?

We are offering a small selection of all our courses also in English language:

Engineering	Business administration/ process maganagment
Signals and Systems	Introduction to Business Administration*
Management Aspects of Systems Engineering I	Strategic Process Management*
Management Aspects of Systems Engineering II	Business Analytics Drives Innovation*
Design Methodology of Embedded Systems*	Soft Skills
Sensor Principles and Integrated Interface Circuits	
Wireless Sensor Networks	Technical Presentation Skills*
Introduction to Radio Frequency Engineering*	

SAPS School of Advanced Professional Studies

- A course is split into approximately 80% online studies (flexible in terms of space and time) and 20% on-campus time at the university.
- The technical learning environment has been designed according to the needs of students who work full-time.
- Learning units can be adapted to the time available (e. g. online-seminars in the early evening, small quantities of time, few mandatory on-campus phases...).
 Pace of study is individual.

Contact Person

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The courses marked with an asterisk (*) have been developed within the project »SAPS: Regional International«

(http://www.uni-ulm.de/en/einrichtungen/saps/projekte/sapsri/). Don't miss the opportunity of discovering new learning experiences with us! Be open to new professional trajectories and enhance your career!

Register online till the 26th of January 2018 www.uni-ulm.de/en/einrichtungen/saps/

Ulm University

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