Study Plan

Advanced Signal Processing & Communications Engineering (ASC)

Study Plan for the Elite Master's Degree Programme
Advanced Signal Processing & Communications Engineering (ASC)

In each of the first three semesters before the start of the lecture period, students shall submit a study plan for the coming semester to the ASC office. It has to be approved by their mentor and contain all signatures. Before the first and second semester the mandatory elective and elective modules must be chosen and included into the study plan.

In each semester the additions will be supplemented while the former items must remain! Changes to a student's study plan have to be recommended by the mentor and subsequently receive the final approval from the Admission Committee.

Before the third semester the topics and supervisors of the research projects must be chosen and added to the study plan. Each project and later on the Master's thesis have to be described with at least 200 words.

Please note that this concept is a binding version and later alterations require the consent of the Admission Committee.

Current Semester	Semester Start of Studies	# Sem	Matriculation Number

Last Name	First Name	Graduated from	

Signatures

Date: _____

Signature: _____

Full Name: _____

Function: STUDENT _____

Date: _____

Signature: _____

Full Name: _____

Function: MENTOR _____

Study Plan

Course Plan

Type of Module	Standard Semester Sem-x (WS/SS)	Module Name	ECTS	Planned Semester Sem-x (WS/SS)	Course Passed MM-YYYY
Mandatory Modules (50 ECTS)	Sem-1 (WS)	Mathematical Optimization for Communications and Signal Processing	5		
	Sem-1 (WS)	Information Theory and Coding	5		
	Sem-1 (WS)	Statistical Signal Processing	5		
	Sem-1 (WS)	Game Theory with Applications to Information Engineering	5		
	Sem-1 (WS)	Machine Learning in Signal Processing	5		
	Sem-2 (SS)	Selected Topics in ASC	5		
	Sem-1 (WS) Sem-2 (SS)	Kick-off Seminar, Winter School & Summer School	5		
	Sem-3 (SS)	Research Project (Major)	15		
Technical Mandatory-Elective Courses (15 ECTS)					
Technical Lab Courses (5 ECTS)					
Nontechnical Elective Courses (5 ECTS)					
Technical Elective Courses (15 ECTS)					
Master's Thesis	Sem-4 (SS)		30		

Study Plan

Research Project(s)

Module	Supervisor and Topic *
Research Project (Minor) - optional (ECTS towards Technical Mandatory-Elective Courses)	
Research Project (Major) (ECTS towards Mandatory Modules)	

* Use this table to state your plans at the beginning of the 3rd semester at the latest. Fill in the additional "Project Form" with the final title and other details to state your final plans BEFORE you actually start your project work.

Study Plan Comments

Table II

Module Class	Course Name	ECTS in Winter Semester	ECTS in Summer Semester
Technical Mandatory-Elective Courses (binding list, NOT extendible)	Communications Systems Design	5	
	Convex Optimization in Communications and Signal Processing	5	
	Embedded Systems	5	
	Introduction to Modern Cryptography	5	
	Introduction to Deep Learning	5	
	Mobile Communications		5
	Image and Video Compression		5
	MIMO Communication Systems		5
	Speech and Audio Signal Processing		5
	Advanced Communication Networks		5
	Quality-of-Service in Communications		5
	Channel Coding on Graphs		5
	Human Computer Interaction		5
	Radar, RFID and Wireless Sensor Systems		5
	Research Project (Minor)		10
Technical Lab Courses (extendible list)	Statistical Signal Processing	2.5	
	Image and Video Signal Processing on Embedded Systems	2.5	
	Communications Systems Design	2.5	
	Audio Processing	2.5	2.5
	Machine Learning in Signal Processing		2.5
	Mobile Communications		2.5
	Image and Video Compression		2.5
Nontechnical Elective Courses (extendible list)	Energy Markets	5	
	Innovation Management		5
	Innovation & Entrepreneurship		5
	Scientific Writing in Engineering and Science	2.5	2.5
	Language courses (for international students)		
Technical Elective Courses (extendible list)	Image, Video, and Multidimensional Signal Processing	5	
	Molecular Communications	5	
	Multiuser Information and Communications Theory	5	
	Advanced Audio Processing	5	
	Music Processing	5	
	Pattern Recognition	5	
	Advanced Optical Communication Systems	5	
	Concurrent Systems	5	
	Reconfigurable Computing	5	
	Theory of Communication in Parallel Systems (*)	5	
	Advanced Networking	5	
	Equalization and Adaptive Systems for Digital Communications	2.5	
	Signal Analysis	2.5	
	Machine Learning in Communications	5	
	Random Matrices in Communications and Signal Processing	5	
	Machine Learning for Time Series	5	
	Virtual Vision	2.5	
	AI-enabled Wireless Networks (Alnet)	2.5	
	Cognitive Neuroscience for AI Developers	5	
	Machine Learning for Time Series	5	
	Pattern Analysis		5
	Channel Coding		5
	Linear and non-linear Fibre Optics		5
	Transmission and Detection for Advanced Mobile Communications		2.5
	Transforms in Signal Processing		2.5
	Approximate Computing		5
	Reinforcement Learning		5
	Audio Processing for the Internet of Things		2.5
	Selected Topics in Deep Learning for Audio, Speech, and Music Processing		2.5
	CryptoCurrencies		5
	Self-Organized Networks		5
	4G/5G Mobile Communication Systems		2.5
	Advanced Deep Learning		5

(*) currently not offered