

## Monday 13 May 2019: Industrial Antenna Design Fundamentals

Hour	Topic	Lecturer
09:00-09:15	Welcome, Schedule, Introduction "Be part of a large project"	W. Simon, D. Manteuffel
09:15-10:45	Antenna Project Management <ul style="list-style-type: none"> <li>Project Management Process</li> <li>Project Organization</li> <li>Controlling and Documentation</li> </ul>	M. Martínez Vázquez
10:45-12:30	Antennas <ul style="list-style-type: none"> <li>Antenna basics</li> <li>Antenna arrays</li> <li>Radar basics</li> </ul>	D. Manteuffel
12:30 - 13:30	Lunch	
13:30-14:30	Antenna Design Tools - Overview and Introduction	D. Manteuffel
14:30-15:30	Efficient EM design using EMPIRE XPU - Introduction	W. Simon
15:30-17:00	Basic antenna & array antenna design - Tutorial	W. Simon, A. Friedrich

## Tuesday 14 May 2019: Antenna Concepts for Commercial Applications // The Project

Hour	Topic	Lecturer
09:00-10:30	Array Antenna Design for Automotive Radar & 5G <ul style="list-style-type: none"> <li>Background</li> <li>Application examples</li> </ul>	W. Simon
10:30-12:00	The Project (Introduction) <ul style="list-style-type: none"> <li>Presentation of the project</li> <li>Schedule</li> <li>Build teams</li> <li>Define responsibilities</li> </ul>	W. Simon, D. Manteuffel, A. Friedrich, M. Martínez Vázquez
12:00-12:30	Lab Tour IMST	M. Geissler
12:30-13:30	Lunch	
13:30 - 17:00	Conceptual Work <ul style="list-style-type: none"> <li>Find an appropriate concept</li> <li>Evaluate substrate material</li> <li>Prepare first simulations</li> </ul>	D. Manteuffel, W. Simon, A. Friedrich

## Wednesday 15 May 2019: The Project

Hour	Topic	Lecturer
09:00-11:00	Project Phase 1: <ul style="list-style-type: none"> <li>Concept evaluation</li> <li>First design revision</li> <li>Adaptation of the antenna</li> </ul>	A. Friedrich, W. Simon, M. Martínez Vázquez

11:00 - 13:00	Project Phase 2: <ul style="list-style-type: none"> <li>Second design revision</li> <li>Adaptation of the antenna</li> <li>Investigate antenna tolerances</li> </ul> Prepare first antenna samples for mock-up (will be manufactured at IMST)	W. Simon, A. Friedrich, M. Martínez Vázquez
13:00-14:00	Lunch	
14:00 - 16:00	Project Phase 2: Investigate antenna integration	
16:00 - 17:00	Project Phase 2 (continued): Assemble and measure mock-up <ul style="list-style-type: none"> <li>Evaluate antenna prototype performance</li> </ul>	W. Simon, M. Arnold

## Thursday 16 May 2019: The Product // Design & Measurements

Hour	Topic	Lecturer
09:00-10:00	Project Phase 2 (continued): <ul style="list-style-type: none"> <li>Assemble and measure mock-up</li> </ul>	
10:00-12:00	Project Phase 3: <ul style="list-style-type: none"> <li>Design revision: The final product</li> <li>Adaptation of the antenna based on measurements</li> <li>Prepare samples to be included into the product (will be manufactured at IMST early afternoon)</li> </ul>	W. Simon, M. Martínez Vázquez, A. Friedrich
12:00-13:00	Lunch	
13:00-15:00	Intellectual Property Rights	A. Moumen
15:00-16:00	Intellectual Property Rights	A. Moumen
16:00-17:00	Project Phase 3 (continued): <ul style="list-style-type: none"> <li>Assemble and measure product</li> </ul>	M. Arnold, W. Simon

## Friday 17 May 2019: Exam and Discussion

Hour	Topic	Lecturer
09:00 - 10:00	Project Phase 3 (continued): <ul style="list-style-type: none"> <li>Assemble and measure product</li> </ul>	D. Manteuffel, W. Simon
10:00-11:00	Prepare Product Presentation	A. Friedrich
11:00-13:00	Product Presentation by groups // Exam	
13:00-14:00	Lunch	
14:00	End of course	

Lecture
Computer exercise and personal work
Experimental Labs