



IMST

European School of Antennas



Industrial Antenna Design Course
IMST, Kamp-Lintfort, Germany
April 17th – 21st 2023



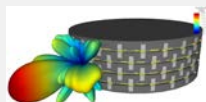
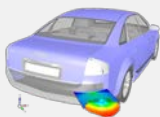
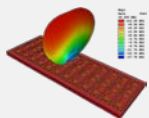
Lecture Program

Monday 17th April
Industrial Antenna Design Fundamentals

Tuesday 18th April
Antenna Concepts / Project start

Hour	Topic	Lecturer
09:00-09:15	Welcome, Schedule, Introduction "Be part of a large project"	W.Simon, D. Manteuffel
09:15-10:45	Antennas <ul style="list-style-type: none"> • Antenna basics • Antenna arrays • Radar basics 	D. Manteuffel
11:00-12:30	Challenges in automotive antenna design	M. Martínez Vázquez
12:30 - 13:30	Lunch	
13:30-14:30	Antenna Design Tools - Overview and Introduction	D. Manteuffel
14.30-15:30	Efficient EM design - Introduction	T. Liebig
15.30-17:00	Basic antenna & array antenna design - Tutorial	A. Friedrich

Hour	Topic	Lecturer
09:00-10:30	Array antenna design for 5G/6G <ul style="list-style-type: none"> • Background • Application examples 	Simona Bruni
10:30-12:00	The Project (Introduction): <ul style="list-style-type: none"> • Presentation of the project • Schedule • Build teams • Define responsibilities 	W. Simon, D. Manteuffel, A. Friedrich
12:30 - 13:30	Lunch	
13:30-17:00	The project: Conceptional work <ul style="list-style-type: none"> • Find an appropriate concept • Evaluate substrate material Prepare first simulations	W. Simon, D. Manteuffel, A. Friedrich



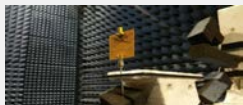
Lecture
Computer exercise and personal work
Experimental Labs



Lecture Program

Wednesday 19th April
The project

Hour	Topic	Lecturer
09:00-11:00	Project Phase 1 <ul style="list-style-type: none">• Concept evaluation• First design revision• Adaption of the antenna	W.Simon, A. Friedrich
11:00-13:00	Project Phase 2 <ul style="list-style-type: none">• Second design revision• Adaption of the antenna• Prepare first antenna layout for mock up production	W.Simon, A. Friedrich
13:00 - 14:00	Lunch	
14:00-16:00	Project Phase 2 <ul style="list-style-type: none">• Antenna integration	W.Simon, A. Friedrich
16:00-17:30	Project Phase 2 (continued): Assemble and measure mock-up <ul style="list-style-type: none">• Evaluate antenna prototype	M. Arnold



Thursday 20th April
The product / Intellectual Property rights

Hour	Topic	Lecturer
09:00-10:00	Project Phase 2 (continued): Assemble and measure mock-up	M. Arnold
10:30-12:00	Project Phase 3: <ul style="list-style-type: none">• Design revision: final product• Adaptation of the antenna based on measurements• Prepare samples to be included into the product (will be manufactured at IMST early afternoon)	W. Simon, 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 2 (continued): Assemble and measure product	M. Arnold

Lecture
Computer exercise and personal work
Experimental Labs



Lecture Program

Friday 21th April

Exam / Product presentation

Hour	Topic	Lecturer
09:00-11:00	Project Phase 3 (continued): Assemble and measure product	M. Arnold
11:00-12:30	Prepare Product presentation	W.Simon, A. Friedrich
12:30 - 13:30	Lunch	
13:30-15:00	Product presentation by groups // Exam	W.Simon, A. Friedrich
15:00	End of course	

Lecture

Computer exercise and personal work

Experimental Labs

Course lecturer:

Prof. Dr. Manteuffel

Dr. Marta Martinez,

Abderrahim Moumen

Dr. Simona Bruni, Dr. Aline Friedrich,

Winfried Simon, Thorsten Liebig,

Matthias Arnold

University Hannover

Renasas Automotive

European Patent Office

IMST GmbH

Social Event:

19.4.23 City tour in Düsseldorf followed by a Brewery tour with dinner at 'Hausbrauerei Zum Schlüssel' Düsseldorf, one of the oldest breweries in Germany.



Course location & local contact:

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Please contact Winfried Simon for any questions regarding the course and also for accommodation recommendations.