

 <b>Coordinator</b>	 <small>INSTITUT D'ÉLECTRONIQUE ET DE TÉLÉCOMMUNICATIONS DE RENNES</small>  <b>K. Mahdjoubi</b> IETR (ID 13.)		 European School of Antennas									
<b>Involved institutions</b>	Université de Marne La Vallée (UMLV), France  											
<b>Name of the course</b>	<b>Microwave and millimeter wave antenna design</b>		Type <table border="1" data-bbox="1104 609 1433 689"> <tr> <td>M</td> <td>D</td> <td>A/D</td> <td>A</td> </tr> <tr> <td></td> <td>■</td> <td></td> <td></td> </tr> </table>		M	D	A/D	A		■		
M	D	A/D	A									
	■											
<b>Place</b>	IETR - Rennes, France		Date: 16-20 May 2005									
<b>Summary</b>	<p>The course is divided into two parts. The <b>first part</b> (16 Hours) provides the student with a large overview on planar antennas applications, physical principles and technology. Emphasis is put on technological aspects (microstrip, microtechnologies,...) and specific field of applications (Satellite antennas, mobile phones, base stations,...). The structures and parametric studies presented in the course are validated by CAD softwares (HFSS, Ansoft Designer, ...) and might be re-used by the student for further developments. This course also provides the required details to design microstrip antenna and highlights the most pressing issues in telecommunication area, including broadbanding, circular polarization, and active microstrip antennas in particular. Special design challenges, ranging from dual polarization, high bandwidth, and surface wave mitigation, to choosing the proper substrate, and shaping an antenna to achieve desired results are covered.</p> <p>The <b>second part</b> (16 Hours) is devoted to millimeter wave antennas and describes the main features and specificities of millimeter wave frequency range such as: technological and realization difficulties, antenna measurements, need to characterize the dielectric materials, etc. The students will also see other types of mm-wave antennas and arrays than the printed antennas, including lenses, reflectors, leaky-waves, dielectric resonators, dielectric rods, Gaussian Beam Antennas, EBG antennas, etc. Finally, the civilian, military, automotive and medical application of mm-wave antennas will be presented. The course is accompanied by measurements in mm-wave anechoic chamber and impedance measurements on VNA (Vector Network Analysers). For the lab and simulation parts, the attendee will be divided in groups of small number. the number of groups and therefore, the <b>total number of students will be limited</b>.</p>											
<b>Structure of the course</b>	Lectures 21h	Experimental labs. 11h	Computer exercise	Total 32h	Credits 2	Assessment typology Lectures 1 cr Lab 1 cr						
<b>Teachers</b>	Name		Organization		Title							
Jean-Marc Laheurte		UMLV		Prof.								
Marjorie Grzeskowiak		UMLV		Ass. Prof								
M. Himdi, M. Drissi, K. Mahdjoubi		IETR		Prof.								
O. Lafond, R. Sauleau		IETR		Ass. Prof.								
L. Le Coq, J.M. Floch		IETR		Eng.								
S. Chainon, S. Collardey		IETR		Dr.								
<b>Availability of dedicated structures</b>	College rooms yes    not ■		Dedicated Labs yes    not ■		Classrooms yes    not ■		Computer rooms yes    not ■		Canteen yes    not ■			