

COURSE GUIDE

Dean, Prof. Daniela TARNICERIU



1. Program info

1.1 Higher education institution	"Gheorghe Asachi" Technical University of Iasi
1.2 Faculty / Department	Electronics, Telecommunications and Information Technology
1.3 Department	Telecommunications and Information Technologies
1.4 Field	Electronic Engineering, Telecommunications and Information Technology
1.5 Study level	Bachelor's Degree Studies
1.6 Study program / Qualification	Telecommunications Systems and Technologies

2. Course info

2.1 Course name:		Mobile Communications				Code: ETTI_EDIS402T	
2.2 Course organizer (lecturer)		Prof. Ion BOGDAN					
2.3 Teaching assistants		Conf. Ciprian-Romeo COMȘA					
2.4 Year of study	4	2.5 Semester	7	2.6 Assessment	E	2.7 Type of subject	DS

3. Estimated total time (hours per semester for teaching activities)

3.1 Number of hours per week	5	3.2 lecture	3	3.3 seminar/laboratory/project	2
3.4 Total number of hours in curricula	70	3.5 lecture	42	3.6 seminar/laboratory/project	28
Time distribution					hours
Textbook, course support, references and course notes study					10
Library, electronic platforms and on site documentation					4
Seminar/laboratory preparation, homework, reports, portfolios and essays					3
Tutoring					7
Assessment					2
Other activities					-
3.7 Total individual study hours	26				
3.9 Total hours per semester	96				
3.10 Number of credit points	4				

4. Prerequisites (where applicable)

4.1 curricula type	Mathematical analysis, Signals, circuits, and systems, Communications' basics, Antennas and propagation
4.2 competence type	-

5. Infrastructure (where applicable)

5.1. for lectures	Laptop, video projector, white/black board
5.2. for laboratories	Computer network, Matlab/Communication tools

6. Specific competences

Professional competences	<p>Know and use adequately specific terminology</p> <p>Understand specific architecture of cellular communication networks</p> <p>Understand specific interaction phenomena of electromagnetic waves with the propagation medium</p> <p>Learn main mobile channel models and their domain of validity</p> <p>Develop skills to analyze and evaluate performance of mobile communication cellular networks</p> <p>Learn main parameters of mobile communication standards</p> <p>Learn resource management techniques for cellular networks</p> <p>Learn computer aided design principles for cellular networks</p>
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Transversal competences	Use efficiently information sources and computer assisted techniques for communication and professional skills' enhancing Prove interest in professional skills' enhancing by critical thinking Prove interest for long life learning Learn to work in international environment
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7. Course targets (as resulting from 6. Specific competences table)

7.1 Course main target	Detailed knowledge of mobile communication standards, of mobile propagation models, of resource management techniques, and of mobile communication services
7.2 Course specific targets	Prove acquiring enough knowledge to understand course subjects Critically understand, explain and evaluate the theoretical, methodological, and practical subjects, specific for mobile communications Correctly use of mobile propagation models Identify specific parameters of main mobile technologies

8. Contents

8. 1 Lectures	Teaching methods	Notes
Cellular concept	Combination of: -lecture -slide presentation -explanation -debate -case study -corroboration with other courses' content, with previously presented subjects or with practical aspects of the presented subject	
Mobile radio channel: prediction of mean receiving power		
Mobile radio channel: fading models		
Multiple access techniques		
Radio resource management		
Evolution of cellular networks: 2G, 3G, 4G		
Bluetooth networks		
Cellular networks' design principles		
Positioning of mobile terminals		
References:		
1. Rappaport, T., Wireless Communications: Principles and Practice, Prentice Hall, 2002		
2. Schwartz, M., Mobile Wireless Communications, Cambridge University Press, 2005		
3. Mouly, M., Pautet, M.B., The GSM System for Mobile Communications, 1992		
4. Holma, H., Toskala, A., WCDMA for UMTS: HSPA Evolution and LTE, Wiley, 2010		
8. 2 Laboratory	Teaching methods	Notes
1. Analysis of traffic in cellular networks	Analysis of Matlab based solutions Exercises Discussions	
2. Propagation basics in VHF and UHF bands (1)		
3. Propagation basics in VHF and UHF bands (2)		
4. Mobile radio channel modeling		
5. Computing field distribution in microcellular networks		
6. Dynamic channel allocation in cellular networks		
7. Home work		
References:		
1. Boşdan – Laboratory works		

9. Course contents corroboration with the expectations of the epistemic community representatives, professional associations and relevant employers in the field of the program

Course content and teaching/assessment techniques derive from continuous interaction with colleagues from other Romanian and foreign universities in the frame of Erasmus/Socrates exchange program. Also, industry representatives offered significant input. Course objectives are in good agreement with the general curriculum, offering basic knowledge and creating skills needed for engineers in electronics, telecommunications, and information technology. Course syllabus is adapted to the requirements for the specialization of Telecommunication technologies and systems, as it is implemented in universities from Romania and abroad. The course uses specific knowledge from previously studied courses, like Mathematics, Signals, circuits, and systems, or Digital communications. The course is adequately placed in the curriculum structure.

10. Assessment

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Percentage of final grade
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10.4 Lectures	Acquired theoretical subjects (quantity, correctness, accuracy)	Final test: thesis with theoretical subjects and simple exercises	60% (minimum 5)
10.5 Laboratory	Reports' quality, homework content and quality of its oral presentation	Experimental reports, final colloquium	15% (minimum 5)
		Homework (project)	25% (minimum 5)
10.6 Minimum performance standard			
<ul style="list-style-type: none">• Adequately know and use of specific terminology• Understand mechanisms of cellular communications• Acquire main standards' parameters• Acquire radio resource management principles			

Completion date:

Course organizer signature,

Teaching assistant signature,

Department approval date,

Department director signature,

16. SEP. 2019

