

		Course title: Mobile radiocommunication		
Course code	Course status	Semester	Number of ECTS credits	Lecture hours
PA3202	Mandatory	II	5	3P+1L

Study program:

Postgraduate master studies, ELECTRICAL ENGINEERING, study program: Electronics, Telecommunications and Computer engineering (studies last for 10 semesters, 300 ECTS credits).

Specialized studies, ELECTRICAL ENGINEERING, study program: Electronics, Telecommunications and Computer engineering (studies last for 8 semesters, 240 ECTS credits).

Prerequisites:

No prerequisites required.

Course aims:

Students will be introduced with basic elements of mobile communication systems. The features of mobile radio channel, prediction of propagation losses, multi access techniques for mobile radio systems, techniques for quality improvement of implemented mobile communication are studied. Students are introduced with cellular mobile radio systems of second and third generation.

Teacher(s) first and last names: Ph.D.Milica Pejanovic Djurisc(Doc.D. Zoran Veljovic)

Studying method:

Lectures, exercises, consultations.

Course synopsis:

Preliminary week	Preparation and semester enrolment.
I week	Introduction. Development of mobile radiocommunications. Classification of mobile radio systems. Cellular concept
II week	Mechanism of signal propagation in mobile radio channel
III week	Prediction of propagation losses
IV week	Statistical apparatus for describing the mobile radio channel.
V week	Specific features of mobile radio channel. Multipath fading. Doppler bias. Log – normal fading
VI week	I colloquium.
VII week	Free week
VIII week	Multiaccess in mobile radio systems: FDMA, TDMA, CDMA, TDD, FDD.
IX week	Techniques of mobile radio connection quality improvement.
X week	Diversity systems. Macroscopic diversity, Microscopic diversity. Principles of the combining signals.
XI week	Concept of digital cellular systems. Cellular systems of the second generation. GSM standard
XII week	II colloquium
XIII week	Network and radio GSM subsystems. Standards 2.5 generation (GPRS, EDGE)
XIV week	3G systems concepts. UMTS
XV week	Repeated colloquium
XVI week	Final exam
Final week	Administrative procedures.
XVIII-XXI week	

STUDENT WORKLOAD

<u>per week</u>	<u>per semester</u>
Working hours: 5 credits x 40/30 = 6 h 40min.	Teaching and the final exam: (6h 40min) x 16 = 107ours.
Working hours structure: 3 hours for teaching 1 hour for exercises 2 hours and 40min for individual work, including consultations.	Necessary preparation (before semester): 2 x (10hours) = 20hours. Total work hours for the course: 150hours Additional hours for preparing correction of the final exam, including the exam taking: up to 36hours. Work hours structure: 107hours (lectures) + 20hours (preparation) + 23hours (additional work)

Lessons attendance is mandatory for students, as well as doing homeworks, tests, both colloquiums, etc.

Literature:

.K. Simon, M.S. Alouni, Digital Communications over Fading Channels, Wiley, 2000.

A. Goldsmith, Wireless Communications, Cambridge University Press, 2005.

Z. Nikolić, Zbirka rešenih zadataka iz mobilnih komunikacija, Akademska misao, Beograd, 2004.

The forms of knowledge testing and grading:

- Course activity carries 10 points.
- Colloquiums carry 20 points each (40 points total).
- Final exam carries 50 points

Student gets the passing grade by collecting **50** points at least.

Special remarks for the course :

Teacher(s) who provided the information: Ph.D. Milica Pejanović Đurišić

Note: