SYLLABUS

1. Information about the program

1.1 Higher education institution	UNIVERSITY POLITEHNICA OF TIMISOARA
1.2 Faculty[1]/ Department [2]	ELECTRONICS, TELECOMUNICATON AND INFORMATION TECHNOLOGIES/ COM
1.3 Field of study (name/code[3])	ELECTRONIC ENGINEERING, TELECOMUNICATION AND INFORMATION TECHNOLOGIES
1.4 Study cycle	License
1.5 Study program (name/code/qualification)	TST-ENG/20/20/10/100/10/TST-ENG

2. Information about the discipline

2.1 Name of discipline/ formative category[4]			Radiocommunications/DD				
2.2 Coordinator (holder) of course activities			SIMU Călin				
2.3 Coordinator (holder) of applied activities[5]			SIMU Călin				
2.4 Year of study[6]	3	**2.5** Semester	5	**2.6** Type of evaluation	D	**2.7** Regime of discipline[7]	DI

3. Total estimated time – hours / semester: direct teaching activities (fully assisted or partly assisted) and individual training activities (unassisted) [8]

3.1 Number of fully assisted hours / week	5 of which:	**3.2** course	3	**3.3** seminar / laboratory / project	0/2/0
3.1* Total number of fully assisted hours / semester	70 of which:	**3.2*** course	42	**3.3*** seminar / laboratory / project	0/28/0
3.4 Number of hours partially assisted / week	of which:	**3.5** training		**3.6** hours for diploma project elaboration	
3.4* Total number of hours partially assisted / semester	of which:	**3.5*** training		**3.6*** hours for diploma project elaboration	
3.7 Number of hours of unassisted activities / week	2.14 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			0.5
		hours of individual study after manual, course support, bibliography and notes			0.5
		training seminars / laboratories, homework and papers, portfolios and essays			1.14
3.7* Number of hours of unassisted activities / semester	30 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			7
		hours of individual study after manual, course support, bibliography and notes			7
		training seminars / laboratories, homework and papers, portfolios and essays			16
3.8 Total hours / week [9]	7.14				
3.8* Total hours /semester	100				
3.9 Number of credits	4				

4. **Prerequisites** (where applicable)

[1] The name of the faculty which manages the educational curriculum to which the discipline belongs
[2] The name of the department entrusted with the discipline, and to which the course coordinator/holder belongs.
[3] The code provided in HG - on the approval of the Nomenclature of fields and specializations / study programs, annually updated.
[4] Discipline falls under the educational curriculum in one of the following formative disciplines: Basic Discipline (DF), Domain Discipline (DD), Specialist Discipline (DS) or Complementary Discipline (DC).
[5] Application activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).
[6] Year of studies in which the discipline is provided in the curriculum.
[7] Discipline may have one of the following regimes: imposed discipline (DI) or compulsory discipline (DOb)-for the other fundamental fields of studies offered by UPT, optional discipline (DO) or optional discipline (Df).
[8] The number of hours in the headings 3.1 *, 3.2 *, ..., 3.8 * is obtained by multiplying by 14 (weeks) the number of hours in headings 3.1, 3.2, ..., 3.8. The information in sections 3.1, 3.4 and 3.7 is the verification keys used by ARACIS as: (3.1) + (3.4) ≥ 28 hours / wk. and (3.8) ≤ 40 hours / wk.
[9] The total number of hours / week is obtained by summing up the number of hours in points 3.1, 3.4 and 3.7.

4.1 Curriculum	• Signals and systems, Signal processing
4.2 Competencies	• Physics, Modulations

5. Conditions (where applicable)

5.1 of the course	• video projector, whiteboard, Internet
5.2 to conduct practical activities	• available equipments, computers, whiteboard, Internet, Matlab, Excel

6. Specific competencies acquired through this discipline

Specific competencies	• Methods for information transfer • Basic principles of radio communications • Study of equipments composing a radio communication system
Professional competencies ascribed to the specific competencies	• Use of fundamentals in terms of devices, circuits, systems, instrumentation and electronics technology. • Application of basic methods for signal acquisition and processing. • Application of knowledge, concepts and basic methods related to computer system architecture, microprocessors, microcontrolers, programming languages and techniques. • .
Transversal competencies ascribed to the specific competencies	• Methodical analysis of field-related problems aimed at identifying acknowledged solutions, thus ensuring the accomplishment of professional tasks • Adaptation to new technologies, professional and personal development through continuous training, using printed documentation sources, specialized software and electronic resources in Romanian and at least one foreign language.

7. Objectives of the discipline (based on the grid of specific competencies acquired - pct.6)

7.1 The general objective of the discipline	• To understand all the aspects involved in making a radio link
7.2 Specific objectives	• The study of radio communication systems • Introduction of new technologies emerging in the field • Developing the skills to select, combine and use the acquired knowledge

8. Content [10]

8.1 Course	Number of hours	Teaching methods [11]
1 Introduction and decibels	3	slides ppt, video projector, whiteboard, discussions
2 Radio waves propagations, part 1	4	
3 Radio waves propagations, part 2	4	
4 Antenna parameters	3	
5 Antenna types	4	
6 Frequency synthesizers	4	
7 Modulations	3	
8 Radio receivers parameters, part 1	4	
9 Radio receivers parameters, part 2	4	

[10] It details all the didactic activities foreseen in the curriculum (lectures and seminar themes, the list of laboratory works, the content of the stages of project preparation, the theme of each practice stage). The titles of the laboratory work carried out on the stands shall be accompanied by the notation "(*)".
[11] Presentation of the teaching methods will include the use of new technologies (e-mail, personalized web page, electronic resources etc.).

10 Radio receivers types	3	
Examination parts – weeks 6, 7 & 13-14	6	

1. Bibliography [12] BASIC:

1. Kai Chang, “RF and Microwave Wireless Systems”, Ed. John Wiley & Sons, USA &…, 2000.
2. Simu Călin, Mârza Eugen, “Antene radio-TV”, Ed. Orizonturi Universitare, Timișoara, ISBN 973-8109-39-6, 2001.
3. Perambur S. Neelakanta, Rajeswari Chatterjee, “Antennas for Information Super Skyways: An Exposition on Outdoor and Indoor Wireless Antennas”, Research Studies Press Ltd, 2003.
4. Mârza Eugen, Simu Călin, “Comunicații mobile - principii și standarde”, Ed. de Vest, Timișoara, ISBN 973-36-0374-0, 2003.
5. John S. Seybold, “Introduction to RF Propagation”, Ed. John Wiley & Sons, USA & Canada, 2005.
6. Mârza Eugen, Alexa Florin, Simu Călin, “Radiocomunicații - fundamente”, Ed. de Vest, Timișoara, ISBN 978-973-36-0446-4, 2007.

8.2 Applied activities [13]	Number of hours	Teaching methods
1. Decibels	4	theory explained, solved exercises, questions, experimental part including simulatios
2. Radio waves propagation	4	
3. Antennas	8	
4. Frequency synthesis	6	
5. Radio receivers	6	

Bibliography [14] 1.Radiocomunicaţii. Experimente şi aplicaţii, Andy Vesa, Călin Simu, Editura Orizonturi Universitare, 2015

2. Radio communications. Experiments, Calin Simu, not published, yet.

9. Corroboration of the content of the discipline with the expectations of the main representatives of the epistemic community, professional associations and employers in the field afferent to the program

- The subject content is approved by the profile companies in the field and is correlated with other related subjects in the educational plan

10. Evaluation

Type of activity	**10.1** Evaluation criteria [15]	**10.2** Evaluation methods	**10.3** Share of the final grade
10.4 Course	Degree of understanding of presented key elements	2 X Written paper – distributed assessment	66.6 %
10.5 Applied activities	**S:**		
	L: Understanding the theoretical and experimental parts, correctness of the results, final conclusions	Individual testing, final check of lab work, announced tests, short homeworks	33.3 %
	P[16]**:** 0	0	0
	Pr: 0	0	0
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified [17])			

[12] At least one title must belong to the discipline team and at least one title should refer to a reference work for discipline, national and international circulation, existing in the UPT library.
[13] Types of application activities are those specified in footnote 5. If the discipline contains several types of applicative activities then they are sequentially in the lines of the table below. The type of activity will be in a distinct line as: "Seminar:", "Laboratory:", "Project:" and / or "Practice/training".
[14] At least one title must belong to the discipline team.
[15] Syllabus must contain the procedure for assessing the discipline, specifying the criteria, methods and forms of assessment, as well as specifying the weightings assigned to them in the final grade. The evaluation criteria shall be formulated separately for each activity foreseen in the curriculum (course, seminar, laboratory, project). They will also refer to the forms of verification (homework, papers, etc.)
[16] In the case where the project is not a distinct discipline, this section also specifies how the outcome of the project evaluation makes the admission of the student conditional on the final assessment within the discipline.

- 5.00 for the 3 components of the final grade (2 assessments and activity)

Date of completion	Course coordinator (signature)	Coordinator of applied activities (signature)
16.06.2023		

Head of Department (signature)	Date of approval in the Faculty Council [18]	Dean (signature)
	14.09.2023	

[17] It will not explain how the promotion mark is awarded.
[18] The endorsement is preceded by the discussion of the board's view of the study program on the discipline record.