

SYLLABUS¹

1. Information about the program

1.1 Higher education institution	POLITEHNICA UNIVERSITY OF TIMISOARA
1.2 Faculty ² / Department ³	ELECTRONICS AND TELECOMMUNICATIONS / MATHEMATICS
1.3 Chair	—
1.4 Field of study (name/code ⁴)	ELECTRONICS AND TELECOMMUNICATIONS/
1.5 Study cycle	Bachelor
1.6 Study program (name/code)/Qualification	TECHNOLOGIES AND SYSTEMS OF TELECOMMUNICATIONS/L20202010020/ENGINEER

2. Information about the discipline

2.1 Name of discipline	MATHEMATICS III						
2.2 Coordinator (holder) of course activities	PhD. Lect. Tudor BÎNZAR						
2.3 Coordinator (holder) of applied activities ⁵	PhD. Lect. Tudor BÎNZAR						
2.4 Year of study ⁶	1	2.5 Semester	2	2.6 Type of evaluation	Exam	2.7 Type of discipline	Required

3. Total estimated time (hours / semester of didactic activities)

3.1 No. of hrs. / week	4 , of which:	3.2 course	2	3.3 seminar/laboratory/ project/training	2
3.4 Total no. of hrs. in the education curricula	56 , of which:	3.5 course	28	3.6 applied activities	28
3.7 Distribution of time for individual activities related to the discipline					hrs.
Study using a manual, course materials, bibliography and lecture notes					10
Additional documentation in the library, on specialized electronic platforms and on the field					10
Preparation for seminars / laboratories, homeworks, assignments, portfolios, and essays					10
Tutoring					2
Examinations					3
Other activities					
Total hrs. of individual activities					35
3.8 Total hrs. / semester ⁷	91				
3.9 No. of credits	4				

4. Prerequisites (where applicable)

4.1 Curriculum	• College-level Mathematics; Calculus, Linear Algebra and Coordinate Geometry
4.2 Competencies	• An appropriate using of mathematical notions and tools

5. Conditions (where applicable)

5.1 of the course	•
5.2 to conduct practical activities	•

¹ The form corresponds to the Syllabus promoted by OMECTS 5703/18.12.2011 (Annex3).

² The name of the faculty which manages the educational curriculum to which the discipline belongs.

³ The name of the department entrusted with the discipline, and to which the course coordinator / holder belongs.

⁴ Fill in the code provided in GD no. 493/17.07.2013.

⁵ The applied activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).

⁶ The year of study to which the discipline is provided in the curriculum.

⁷ It is obtained by summing up the number of hrs. from 3.4 and 3.7.

6. Specific competencies acquired

Professional competencies ⁸	<ul style="list-style-type: none"> • Work with scientifically and computer engineering tools • [Acquiring knowledge of calculus • Acquiring necessary knowledge in geometry and algebra •
Transversal competencies	<ul style="list-style-type: none"> • Behaviour honorable, responsible, ethical, within the law to ensure problems resolution • Identify, describe and project management workflows by taking over their roles in the team and description of clear and concise verbal and written in English, the results of the activity • Demonstrating the spirit of initiative and action to update professional knowledge, economic and organizational culture

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

7.1 General objective of the discipline	<ul style="list-style-type: none"> • The goal of this course is to introduce basic concepts of integral calculus of the functions of one and several real variables and differential equations
7.2 Specific objectives	<ul style="list-style-type: none"> • The main goal of the course is to help students master the basic concepts and skills they use later in their careers.

8. Content

8.1 Course	No. of hours	Teaching methods
1. Integrals of functions of one variable	5	Disquisition, lecture, dialog, explanation, example.
2. Multiple integrals	5	
3. Line integrals	6	
4. Surface integrals	3	
5. Fields Theory	3	
6. Differential equations	6	
Bibliography ⁹ 1. S. A. Popescu, Mathematical Analysis II, Integral Calculus, Conspress Bucharest 2011; 2. T Bânzaru, T. Bînzar, Integral Calculus and Differential Equations, Theory and Applications, Politehnica Publishers, Timișoara 2005		

⁸ The professional competencies and the transversal competencies will be treated according to the Methodology of OMECTS 5703/18.12.2011. The competencies listed in the National Register of Qualifications in Higher Education [Registrul Național al Calificărilor din Învățământul Superior RNCIS] (http://www.rncis.ro/portal/page?_pageid=117,70218&_dad=portal&_schema=PORTAL) will be used for the field of study from 1.4 and the program of study from 1.6 of this form, involving the discipline.

⁹ At least one title must belong to the department staff teaching the discipline, and at least 3 titles must refer to national and international works relevant for the discipline, and which can be found in the Politehnica University Library.

8.2 Applied activities ¹⁰	No. of hours	Teaching methods
1. Improper integrals. Integrals dependent on parameters	6	Solving problems, explanation, example, conversation, homework
2. Double integrals. Triple integrals. Change of variables in double and triple integrals	6	
3. Line integrals of the first and the second type. Line integrals of the second type independent of path. Green's formula.	4	
4. Surface integrals of the first and second type. Gauss-Ostrogradski's formula	3	
5. The divergence integral formula. The curl integral formula. The gradient integral formula. Stokes' integral formula.	3	
6. Differential equations of the first order. Higher order linear differential equations.	6	
Bibliography ¹¹ 1. T. Bînzar, C. Lăzureanu, Probleme de calcul integral și ecuații diferențiale (in romanian), Editura Politehnica, Timișoara 2011; 2. T Bânzaru, T. Bînzar, Integral Calculus and Differential Equations, Theory and Applications, Politehnica Publishers, Timișoara 2005		

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

<ul style="list-style-type: none"> Understanding the correct use of mathematical and engineering sciences is essential. Discipline creates special mathematical skills of students on which they will be able to meet the requirements of the labor market in various areas or to continue research in the higher stages of study.
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10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	Four problems	Written Exam	50%
10.5 Applied activities	S: Two problems for each test	Written Tests and Oral Examination	50%
	L:		
	P:		
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified)			
<ul style="list-style-type: none"> 50% 			

Date of completion

Course coordinator
(signature)

Coordinator of applied activities
(signature)

¹⁰ The types of applied activities are those specified in footnote 5. If the discipline contains several types of applied activities, then these will be written consecutively in the lines of the table below. The type of activity will be written in a distinct line, as „Seminar:”, „Laboratory:”, „Project:” and/or „Practice/Training:”.

¹¹ At least one title must belong to the staff teaching the discipline.

19.12.2016

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**Head of Department
(signature)**

**Date of approval in the Faculty
Council¹²**

**Dean
(signature)**

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¹² Avizarea este precedată de discutarea punctului de vedere al board-ului de care aparține programul de studiu cu privire la fișa disciplinei.