SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Automation and Computer Science
1.3	Department	Mathematics
1.4	Field of study	Electronics and Telecommunications Engineering
1.5	Cycle of study	License
1.6	Program of study/Qualification	Telecommunications Technologies and Systems/ Engineer, Applied Electronics/ Engineer
1.7	Form of education	IF (Full-time learning)
1.8	Subject code	TST-E08.00, EA-E08.00

2. Data about the subject

2.1	Subject name					Special Mathematics					
2.2	Subject area					Mathematics					
2.3	Course responsible/lecturer					Prof. dr. Dorian Popa					
2.4	Teachers in charge of applications					Prof. dr. Dorian Popa					
2.5	Year of study	I	2.6	Semester	2	2.7	Assessment	verification	2.8	Subject category	DF/DI

Year/ Sem.	Type of discipline	Course	Applications			Course	Applications			Ind. study	TOTAL	Credits	Form of assessment
		[hours/week]				[hours/sem.]							
			S	L	P		S	L	P				
I/2	Special Mathematics	**2**	**2**		**-**	**28**		**28**	**-**	**69**	**125**	**5**	**Exam**

Acquired competences :
Acquired skills (what the student is able to do):
Notions and concepts concerning, line integrals, multiple integrals, surface integrals and relations between them, complex functions – differentiation and integration.
Acquired abilities: (what type of equipment/instruments/software the student is able to handle)
■ To operate with line integrals ■ To operate with multiple integrals ■ To operate with surface integrals ■ To operate with complex functions

Prerequisites (if necessary)
Notions on mathematical analysis, algebra and trigonometry from high school

A. Course/Lecture (course/lecture titles)	
	Course 1 – Line integrals of the first kind Course 2 – Line integrals of the second kind Course 3 – Differential forms Course 4 – Measurable sets in R^n Course 5 The Riemann integral in R^n Course 6 – Evaluation of multiple integral by iteration Course 7 – Change of variables in multiple integrals Course 8 – Surface integrals of the first kind. Course 9 – Surface integrals of the second kind. Course 10 Integral formulas: Green, Stokes, Gauss-Ostrogradski Course 11 –Holomorphic functions. Cauchy-Riemann equations Course 12 – Complex integral Course 13 – Taylor series. Laurent series Course 14- Residues theorem

B1. Applications – **Laboratory** (list of laboratories), **Seminar** (contents), **Project** (project contents)	
1	Seminar 1 – Line integrals of the first kind Seminar 2 – Line integrals of the second kind Seminar 3 – Differential forms

	Seminar 4 – Measurable sets in R^n Seminar 5 - The Riemann integral in R^n Seminar 6 – Evaluation of multiple integral by iteration Seminar 7 – Change of variables in multiple integrals Seminar 8 – Surface integrals of the first kind. Seminar 9 – Surface integrals of the second kind. Seminar 10 - Integral formulas: Green, Stokes, Gauss-Ostrogradski Seminar 11 –Holomorphic functions. Cauchy-Riemann equations Seminar 12 – Complex integral Seminar 13 – Taylor series. Laurent series Seminar 14- Residues theorem

C. Individual study (reference study contents, synthesis materials, projects, applications etc.)

2 synthesis reports
12 sets of problems (the preparation part in every laboratory)
3 sets of problems (course homework)

Individual study structure	Course study	Problem solving, laboratory, project	Applications preparation	Examination time	Additional reference study	Total no. of individual study hours
Hours	28	6	18	3	9	69

References (Textbooks, courses, laboratory manual, exercise book)

T.Apostol, Mathematical Analysis, Addison-Wesley Publishing Company, 1981.
S.Lang, Undegraduate Analysis, Springer, 1997.
D. Popa, Calcul integral, Editura Mediamira, 2005.

Final evaluation	
Evaluation method	Writen paper – 3 hours containing theory and problems. After 7 courses partial evaluation (3 hours)
Mark components	Seminar S Theory T Problems P
Mark computation	N=0,2S+0,2T+0,6P

Date of filling in 1.10.2018

Course responsible
Prof. Dorian POPA, PhD

Teachers in charge of applications
Prof. Dorian POPA, PhD