



DISCIPLINE ACADEMIC SHEET
ACADEMIC YEAR 2025 – 2026

1. PROGRAMME DATA

1.1. Higher Education Institution	UNIVERSITY OF CRAIOVA
1.2. Faculty	Automation, Computers and Electronics
1.3. Department	Computers and Information Technology
1.4. Field of Study	Computers and Information Technology
1.5. Study level	L(License / Undergraduate)
1.6. Organizational form	IF
1.7. Study Program (name/code) /Qualification	Computers / L2060101010

2. DISCIPLINE DATA

2.1 Discipline Name				Applied Mathematics - Complements of Mathematical Analysis			
2.2 Course Activities Holder				Prof. dr. Cristian VLADIMIRESCU			
2.3. Practical Activities Holder				Prof. dr. Cristian VLADIMIRESCU			
2.4. Study Year	1	2.5. Semester	2	2.6. Evaluation type	V	2.7. Discipline regime	DFA

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

3.1. Number of hours per week	2	in which: 3.2 course	1	3.3. seminar	1
3.4. Total hours of curriculum	28	in which: 3.5 course	14	3.6. seminar	14
3.7. Time distribution - hours/week					hours
Study after manual, course support, bibliography and notes					9
Additional documentation in library, on specialized electronic platforms and field					3
Training seminars, homework, portfolios and essays					4
Tutorial					2
Examinations					2
Other activities: consultations, student meetings					2
Total hours per individual activities					22
3.8. Total hours per semester					50
3.9. Number of credits					2

4. PRECONDITIONS (where appropriate)

4.1. of curriculum	The students should have mathematical notions learned during the high school and those from the following disciplines: Mathematical Analysis, Linear Algebra, Analytical and Differential Geometry.
4.2. of competence	There are not necessary.

5. CONDITIONS (where appropriate)

5.1. of the course	The course is taught explanatory and interactively with the students. Course support is provided in electronic format on the Google Classroom platform, and access to updated documentation is ensured. The teaching process has the following structure: -80% theoretical presentation, based on the course support; -20% interactive activity with the students.
5.2. of seminar	The seminar is taught interactively with the students. Seminar support is provided in electronic format on the Google Classroom platform.

6. COURSE OBJECTIVES – expected learning outcomes that are supported by completing and passing the course

Knowledge	Student/Graduate: - Identifies and describes basic concepts, principles, and methods in mathematics. - Explains and interprets theoretical and experimental results in mathematics.
Skills (Abilities)	Student/Graduate: - Operates with basic concepts, principles, and methods in mathematics. - Solves mathematical problems applicable in engineering and validates the solution obtained. - Applies evaluation criteria and methods to identify, model, experiment, analyze, and qualitatively and quantitatively assess phenomena and processes specific to the fundamental field, including the use of digital technologies.
Responsibility and autonomy	Student/Graduate: - Applies the values of ethics and professional conduct in the engineering profession. - Practices logical reasoning, evaluation, and self-evaluation in decision-making. - Promotes dialogue, cooperation, respect for others, and interculturalism.

7. CONTENT

7.1. Course			
	The method of implementation	Teaching methods	Allocated time (hours)
1. Real sequences and series	Face to face	Exposition The course is taught explanatory and interactively with the students. Course support is provided in electronic format on the Google Classroom platform, and access to updated documentation is ensured. The teaching process has the following structure: -80% theoretical presentation, based on the course support; -20% interactive activity with the students.	2
2. Recurrent sequences	Face to face		2
3. Classical inequalities	Face to face		2
4. Convex functions	Face to face		2
5. The Gamma and Beta Euler's functions	Face to face		2
6. The the generating function method	Face to face		2
7. Infinite products	Face to face		2
Bibliography:			
1. C. Avramescu, C. Vladimirescu, Calculus Course, Univ. of Craiova Publisher, 2002 (in Romanian).			
2. P. Duren. Invitation to Classical Analysis. AMS. 2012.			

3. W.J. Kaczor, M.T. Nowak, Problems in Mathematical Analysis I, AMS, 2000.
4. C.P. López, MATLAB Differential and Integral Calculus, Apress Academic, Springer, 2014.
5. P.R. Mercer, More Calculus of a Single Variable, Springer, 2014.
6. M. Oberguggenberger, A. Ostermann, Analysis for Computer Scientists - Foundations, Methods, and Algorithms, Springer, 2018.
7. D.A. Simovici, Mathematical Analysis For Machine Learning And Data Mining, World Scientific Publishing, 2018.
8. J. Vince, Foundation Mathematics for Computer Science - A Visual Approach, Springer, 2020.
9. C. Vladimirescu, Mathematical Analysis - Theory and Applications (electronic support), 2025.
10. C. Vladimirescu, Special Mathematics, Universitaria Craiova Publisher, 2020 (in Romanian).
11. H.S. Wilf, generatingfunctionology, A.K. Peters Ltd., Massachusetts, 2006.
12. R.C. Wrede, M.R. Spiegel, Schaum's Outline of Advanced Calculus, Second Edition, McGraw Hill, 2002.
13. V.A. Zorich, Mathematical Analysis I, Springer, 2015.
14. V.A. Zorich, Mathematical Analysis II, Springer, 2016.

7.2. Seminar	The method of implementation	Teaching methods	Allocated time (hours)
1. Real sequences and series	Face to face	Solving practical applications The seminar is taught interactively with the students. Seminar support is provided in electronic format on the Google Classroom platform.	2
2. Recurrent sequences	Face to face		2
3. Classical inequalities	Face to face		2
4. Convex functions	Face to face		2
5. The Gamma and Beta Euler’s functions	Face to face		2
6. The the generating function method	Face to face		2
7. Infinite products	Face to face		1
8. Taking the colloquium	Face to face		1
Bibliography:			
1. C. Avramescu, C. Vladimirescu, Calculus Course, Univ. of Craiova Publisher, 2002 (in Romanian).			
2. P. Duren, Invitation to Classical Analysis, AMS, 2012.			
3. W.J. Kaczor, M.T. Nowak, Problems in Mathematical Analysis I, AMS, 2000.			
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14. V.A. Zorich, Mathematical Analysis II, Springer, 2016.			

8. Correlating the content of the discipline with the expectations of representatives from the epistemic community, professional associations and representative employers in the field related to the program

Development and acquiring of notions, methods, and actual mathematical techniques, used to the mathematical modelling of engineering problems.

9. EVALUATION

Activity Type	9.1. Evaluation criteria	9.2. Evaluation methods	9.3. Final mark weight
9.4. Course	- The understanding the problem - The mathematical statement - The solving of the problem	Colloquium: taking of a written report Colloquium assistance: 2 internal examiners Evaluations: The written report will be individual, will have a subject related to the contents of the course and seminar, and will be assessed by a score from 1 (for free) to 10. The weight of the score at the written report in the final score is 80%. Evaluations of continuous assessments is made during the semester, based on the activity of the students at the seminar, whose weight in the final score is 20%.	80% 20%
9.5. Seminar	- the degree of development of practical skills and the ability to operate with the fundamental notions, techniques, and methods introduced	The activity of the students at the seminar has the weight in the final score 20%. The final score is deduced by using the formula: $S_{\text{final}} = 0,8 \times WR + 0,2 \times SS,$ where WR is the score obtained at the written report and SS is the score at the activity at the seminar.	20%
9.6. Minimum standard of performance			
- Minimum standards to promote: the understanding of the notions and basic terminology. - The obtaining of a minimum 50% from the continuous assessments and the written exam. - The the final score is made by rounding up to integer number.			

Date of Completion	Signature of the Course Activities Holder,	Signature of the Practical Activities Holder,
23.08.2025	Prof. dr. Cristian VLADIMIRESCU	Prof. dr. Cristian VLADIMIRESCU

Date of Approval in the Department	Signature of the Department Director,
25.08.2025	Ș.I.dr.ing. Nicolae ENESCU

Date of Approval in the Faculty	Signature of the Dean,
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	Prof.dr.ing. Dorin ȘENDRESCU
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