

**C O U R S E G U I D E – s h o r t f o r m**  
Academic year 2024 – 2025

Course name <sup>1</sup>	<b>NUMERICAL METHODS</b>					Course code	<b>2.EPI.08.DF</b>			
Course type <sup>2</sup>	<b>DF</b>	Category <sup>3</sup>	<b>DI</b>	Year of study	<b>2</b>	Semester	<b>4</b>	Number of credit points		<b>4</b>

Faculty	Materials Science and Engineering					Number of teaching and learning hours <sup>4</sup>					
Field	Materials engineering					Total	L	T	LB	P	IS
Specialization	Equipments for Industrial Process					<b>100</b>	<b>28</b>	-	<b>28</b>	-	<b>44</b>

Pre-requisites from the curriculum <sup>5</sup>	Compulsory	-
	Recommended	-

General objective <sup>6</sup>	Ability to select, analyze, synthesize and use appropriate knowledge in order to formulate coherent scientific arguments, effective practical approaches, decisions and concrete solutions in the field of mechanical engineering.
Specific objectives <sup>7</sup>	Presentation and understanding of the main numerical methods. Description of algorithms specific to the analyzed numerical methods. Realization of programs in Fortran language and / or spreadsheets that implement the analyzed algorithms.
Course description <sup>8</sup>	Errors in numerical calculation. Numerical methods for interpolating functions. Numerical methods for solving algebraic equations. Numerical methods for solving systems of linear equations. Numerical methods for solving systems of nonlinear equations. Numerical methods for determining the vectors and eigenvalues of a matrix. Numerical methods with finite differences. Numerical methods for deriving functions. Numerical methods for integrating functions. Numerical methods for solving ordinary differential equations. Displacement method.

Assesment			Schedule	Percentage in the final grade (minimum grade)
A. Final assessment form <sup>9</sup> :	Class tests along the semester	-	exam period	70 % (minimum 5)
	Home works	-		
	Other activities	-		
	Examination procedures and conditions: 1.Subject with open questions; tasks: answers to open questions; working conditions: oral; percent of the final grade 50 % 2.Subject with open questions; tasks: answers to open questions; working conditions: oral; percent of the final grade 50 %	100 % (minimum 5)		
B. Seminar	Activity during seminar			-
C. Laboratory	Activity during laboratory			30 % (minimum 5)
D. Project	Activity during project			-

Course organizer	Lecturer PhD. Eng. Vasile MANOLE
Teaching assistants	Lecturer PhD. Eng. Vasile MANOLE

<sup>1</sup>Course name from the curriculum

<sup>2</sup>DF – fundamental, DID – in the field, DS – specialty, DC – complementary (from the curriculum)

<sup>3</sup>DI – imposed, DO – optional, DL – facultative (from the curriculum)

<sup>4</sup>Points 3.8, 3.5, 3.6a,b,c, 3.7 from the Course guide – extended form (L-lecture, T-tutorial, LB-laboratory works, P-project, IS-individual study)

<sup>5</sup>According to 4.1 – Pre-requisites - from the Course guide – extended form

<sup>6</sup>According to 7.1 from the Course guide – extended form

<sup>7</sup>According to 7.2 from the Course guide – extended form

<sup>8</sup>Short description of the course, according to point 8 from the Course guide – extended form