

„GHEORGHE ASACHI” TECHNICAL UNIVERSITY OF IASI
FACULTY OF MACHINE MANUFACTURING AND INDUSTRIAL MANAGEMENT

Level of qualification: **Bachelor studies**

Field of study: **Mechanical Engineering**

Programme of Study: **Precision Mechanics and Nanotechnologies**

Conferred title: engineer degree

Study duration: 4 years, 240 ECTS

Form of education: *full-time*

CURRICULUM - 1st year of study

No.	Course name	Course code	Type	Pre-requisite	1 st semester								2 nd semester							
					No of hours				Hours	Ev	K	No of hours				Hours	Ev	K		
					C	S	L	P	SI			C	S	L	P	SI				
1	Linear Algebra, Analytical and Differential Geometry	CMMI-L-1.01	MC	-	3	2	0	0	65	E	5									
2	Mathematical Analysis 1	CMMI-L-1.02	MC	-	2	1.5	0	0	59	E	4									
3	Computer Programming	CMMI-L-1.03	MC	-	1	0	2	0	39	E	3									
4	Descriptive Geometry and Technical Drawing 1	CMMI-L-1.04.a	MC	-	2	3	0	0	65	C	5									
5	Chemistry	CMMI-L-1.05	MC	-	1	0	1	0	26	C	2									
6	Materials Science	CMMI-L-1.06	MC	-	2.5	0	2	0	79	E	5									
7	Fundamentals of Economics	CMMI-L-1.07.a	MC	-	2	0	0	0	53	C	3									
8	Physical Training and Sports 1	CMMI-L-1.08	MC	-	0	1	0	0	13	C	1									
9	Professional Communication	CMMI-L-1.09	OC	-	2	0	0	0	26	C	2									
	History of Technics	CMMI-L-1.10	OC	-																
10	Mathematical Analysis 2	CMMI-L-2.01	MC	C1,C2								2.5	1.5	0	0	79	E	5		
11	Computer-Aided Engineering Graphics and Applied Informatics	CMMI-L-2.02	MC	C3								1	0	4	0	65	C	5		
12	Descriptive Geometry and Technical Drawing 2	CMMI-L-2.03	MC	C4								2	3	0	0	65	C	5		
13	Theoretical Mechanics 1	CMMI-L-2.04	MC	C1,C2								4	1.5	1	0	71	E	6		
14	Materials Technology	CMMI-L-2.05	MC	C5								2.5	0	1	0	59	E	4		
15	Physical Training and Sports 2	CMMI-L-2.06	MC	-								0	1	0	0	13	C	1		
16	Structured Programming Languages	CMMI-L-2.07	OC	-								1.5	0	2	0	66	E	4		
	Object-Oriented Programming Languages	CMMI-L-2.08	OC	-																
17	Elementary Mathematics 1	CMMI-L-2.09	FC	-	0	3	0	0	39	C	3									
18	Psychology of Education	DPPD-SPU-01	FC	-	2	2	0	0	64	E	5									
19	Elementary Mathematics 2	CMMI-L-2.10	FC	-								0	2	0	0	53	C	3		
20	Elements of Metric Spaces with Applications	CMMI-L-2.11	FC	-								2	2	0	0	79	C	5		
21	Pedagogy 1	DPPD-SPU-02	FC	-								2	2	0	0	64	E	5		
	Total hours per week, total evaluations and credits per semester					15.5	7.5	5	0	425	4E	30	14	7	8	0	418	4E	30	
							28				5C		28					3C		

Abbreviation: MC - Mandatory Course; OC- Optional Course; FC - Free Course;

SI - Individual (Non Assisted) Study; C – Course; S – Seminary;

L – Laboratory; P - Project; Ev - evaluation type (E-exam, C-colloquium), K- ECTS credits

Prerequisites: C1 - Mathematical Analysis 1; C2 - Linear Algebra, Analytical and Differential Geometry; C3 - Computer Programming; C4 - Descriptive Geometry and Technical Drawing 1; C5 - Materials Science.

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CURRICULUM - 2nd year of study

No.	Course name	Course code	Type	Pre-requisite	1 st semester								2 nd semester							
					No of hours				Hours	Ev	K	No of hours				Hours	Ev	K		
					C	S	L	P	SI			C	S	L	P	SI				
1	Special Mathematics	CMMI-L-3.01	MC	C1	2.5	1.5	0	0	52	E	4									
2	Computer-Aided Numerical Calculus	CMMI-IMEC-3.02	MC	C1,C2	2	0	2	0	52	C	4									
3	Physics	CMMI-L-3.03	MC	C3	4	1.5	2	0	91	E	7									
4	Theoretical Mechanics 2	CMMI-IMEC-3.04	MC	C3	1.5	0	1	0	46	C	3									
5	Strength of Materials 1	CMMI-L-3.05	MC	C3,C1	2.5	1	1	0	72	E	5									
6	Mechanisms	CMMI-L-3.06	MC	C3	2	1	1	0	79	E	5									
7	Physical Training and Sports 3	CMMI-L-3.07	MC	-	0	1	0	0	13	C	1									
8	English Language 1	CMMI-L-3.08	OC	-	0	1	0	0	13	C	1									
	French Language 1	CMMI-L-3.09	OC	-																
	German Language 1	CMMI-L-3.10	OC	-																
9	Strength of Materials 2	CMMI-L-4.01	MC	C4								2.5	2	0	0	45	E	4		
10	Machine Elements 1	CMMI-L-4.02	MC	C4,C5								3	0	0	2	65	E	5		
11	Fluid Mechanics 1	CMMI-L-4.03	MC	C3								3	1.5	1	0	58	E	5		
12	Tolerances and Dimensional Control	CMMI-L-4.04	MC	-								2.5	0	2	0	45	E	4		
13	Mechanical Vibrations	CMMI-IMEC-4.05	MC	C3								2	0	1	0	39	C	3		
14	Physical Training and Sports 4	CMMI-L-4.06	MC	-								0	1	0	0	13	C	1		
15	Field of Study Practical Training (3 weeks x 30 hours = 90 hours)	CMMI-IMEC-4.07	MC	-												18	C	4		
16	Thermodynamics	CMMI-L-4.08	OC	C6								2	0	1	0	39	C	3		
	Heat and Mass Transfer	CMMI-L-4.09	OC	C6																
17	English Language 2	CMMI-L-4.10	OC	-								0	1	0	0	13	C	1		
	French Language 2	CMMI-L-4.11	OC	-																
	German Language 2	CMMI-L-4.12	OC	-																
18	Elementary Physics	CMMI-L-3.11	FC	-	0	2	0	0	53	C	3									
19	Computational Geometry	CMMI-L-3.12	FC	-	2	2	0	0	79	C	5									
20	Pedagogy II	DPPD-SPU-03	FC	-	2	2	0	0	64	E	5									
21	Ethics and Academic Integrity	CMMI-L-4.13	FC	-								2	1	0	0	39	C	3		
22	Specialty Didactics	DPPD-SPU-04	FC	-								2	2	0	0	64	E	5		
	Total hours per week, total evaluations and credits per semester					14.5	7	7	0	418	4E	30	15	5.5	5	2	335	4E	30	
						28					4C		28				5C			

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Prerequisites: C1 - Mathematical Analysis 1, 2; C2 - Computer Programming;

C3 - Theoretical Mechanics 1; C4 - Strength of Materials; C5 - Mechanisms; C6 - Physics

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CURRICULUM - 3rd year of study

No.	Course name	Course code	Type	Pre-requisite	1 st semester								2 nd semester							
					No of hours				Hours	Ev	K	No of hours				Hours	Ev	K		
					C	S	L	P	SI			C	S	L	P	SI				
1	Machine Elements 2	CMMI-IMEC-5.01	MC	C1	2	0	0	1	39	E	3									
2	Machine Tools and Cutting Manufacturing 1	CMMI-IMEC-5.02	MC	-	2.5	0	2	0	99	E	6									
3	Experimental Methods in Mechanical Engineering 1	CMMI-IMEC-5.03	MC	C2	2	0	1	0	39	C	3									
4	Fundamentals of Precision Mechanics Systems Design	CMMI-MFNT-5.04	MC	C1	2	0	1	0	39	C	3									
5	Fundamentals of Technical Creativity	CMMI-MFNT-5.05	MC	-	2	1	0	0	39	C	3									
6	Measuring Devices and Systems	CMMI-MFNT-5.06	MC	C3	3	0	2	0	72	E	5									
7	Electrical Engineering and Electronics	CMMI-L-5.07.a	OC	C4	4	0	2	0	78	E	6									
	Industrial Electrical Engineering	CMMI-L-5.08.a	OC	C4																
8	English Language 3	CMMI-L-5.15	OC	-	0	1	0	0	13	C	1									
	French Language 3	CMMI-L-5.16	OC	-																
	German Language 3	CMMI-L-5.17	OC	-																
9	Machine Tools and Cutting Manufacturing 2	CMMI-IMEC-6.01	MC	C5								2	0	2	0	25	E	3		
10	Experimental Methods in Mechanical Engineering 2	CMMI-IMEC-6.02	MC	C4								2	0	1	0	39	C	3		
11	Hydraulic and Pneumatic Drives	CMMI-MFNT-6.03	MC	C2								3	0	1	1	65	E	5		
12	CAM in Precision Mechanics	CMMI-MFNT-6.04	MC	C5								2	0	2	0	25	E	3		
13	Precision Mechanics Systems Automation	CMMI-MFNT-6.05	MC	C5								2	0	1	0	39	C	3		
14	Precision Mechanics Tools	CMMI-MFNT-6.06	MC	C5								3	0	1	1	65	E	5		
15	Industrial Management	CMMI-L-6.07	MC	-								2	1	0	0	39	C	3		
16	Speciality Practical Training (3 weeks x 30 hours = 90 hours)	CMMI-MFNT-6.08	MC	-												18	C	4		
17	English Language 4	CMMI-L-6.15	OC	-								0	1	0	0	13	C	1		
	French Language 4	CMMI-L-6.17	OC	-																
	German Language 4	CMMI-L-6.18	OC	-																
18	Quality Control and Quality Assurance	CMMI-MFNT-5.09	FC	-	2	0	2	0	52	C	4									
19	Computer Aided Training	DPPD-SPU-04	FC	-	1	1	0	0	32	C	2									
20	Pedagogic Training I	DPPD-SPU-05	FC	-	0	0	3	0	48	C	3									
21	Classroom Management	DPPD-SPU-06	FC	-								1	1	0	0	30	C	3		
22	Pedagogic Training II	DPPD-SPU-07	FC	-								0	0	3	0	32	C	2		
23	Entrepreneurial education	CMMI-L-6.18	FC									2	0	1	0	93	C	5		
	Total hours per week, total evaluations and credits per semester					17.5	2	8	1	418	4E	30	16	2	8	2	328	4E	30	
							28				4C		28				5C			

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Prerequisites: C1 - Machine Elements 1; C2 - Fluid Mechanics 1; C3 - Tolerances and Dimensional Control; C4 - Physics; C5 - Machine Tools and Cutting Manufacturing 1.

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CURRICULUM - 4th year of study

No.	Course name	Course code	Type	Pre-requisite	1 st semester								2 nd semester							
					No of hours				Hours	Ev	K	No of hours				Hours	Ev	K		
					C	S	L	P	SI			C	S	L	P	SI				
1	Manufacturing Technologies	CMMI-IMEC-7.01	MC	C1	3	0	1	0	52	E	4									
2	Computer-Aided Mechanical Bio-engineering	CMMI-MFNT-7.02	MC	-	2	0	2	0	52	C	4									
3	Information Processing Technique	CMMI-MFNT-7.03	MC	-	2	0	2	0	52	E	4									
4	Tehnologia mecanicii fine	CMMI-MFNT-7.04	MC	C1	2	0	2	0	52	C	4									
5	Metrology of Micro-mechanical Structures	CMMI-MFNT-7.05	MC	C2	2	0	2	0	52	E	4									
6	Technological Control Equipments for Non-Conventional Machining	CMMI-MFNT-7.06	OC	-	2	0	0	2	79	E	5									
	Technological Control Equipments for Precision Mechanics	CMMI-MFNT-7.07	OC	-																
7	Precision Stamping and Drawing Technology	CMMI-MFNT-7.08	OC	C1	2	0	1	1	79	E	5									
	Manufacturing Technologies for Plastics	CMMI-MFNT-7.09	OC	C1																
8	Computer Aided Design	CMMI-MFNT-8.01	MC	C3								2	0	3	0	65	E	5		
9	Non-Conventional Technologies	CMMI-MFNT-8.02	MC	C4								2	0	2	0	52	E	4		
10	Robotics and Robotic Systems	CMMI-MFNT-8.03	MC	C5								3	0	1	0	79	E	5		
11	Structures and Equipments in Precision Engineering	CMMI-MFNT-8.03	MC	C4								2	0	1	0	39	C	3		
12	Reliability and Maintainability	CMMI-MFNT-8.04	MC	C6								2	1	0	0	39	C	3		
13	Modelling and Simulation of Micro- and Nano-Mechanical Structures	CMMI-MFNT-8.05	MC	C4								2	0	1	0	39	C	3		
14	Diploma Project 1	CMMI-MFNT-8.06	MC	-								0	0	0	4	52	E	4		
15	Diploma Project 2 (2 weeks.x 30 hours = 60 hours)	CMMI-MFNT-8.07	MC	-												21	C	3		
16	English Language 5	CMMI-L-7.15	FC	-	0	1	0	0	13	C	1									
17	French Language 5	CMMI-L-7.16	FC	-	0	1	0	0	13	C	1									
18	German Language 5	CMMI-L-7.17	FC	-	0	1	0	0	13	C	1									
19	Concurrent Engineering Elements	CMMI-MFNT-7.10	FC	-	2	0	1	0	39	C	3									
20	Entrepreneurial education	CMMI-L-7.18	FC	-	1	0	2	0	93	C	5									
21	English Language 5	CMMI-L-8.15	FC	-								0	1	0	0	13	C	1		
	French Language 5	CMMI-L-8.16	FC	-								0	1	0	0	13	C	1		
	German Language 5	CMMI-L-8.17	FC	-								0	1	0	0	13	C	1		
22	Applied Entrepreneurial education	CMMI-L-8.18	FC	-								2	0	0	1	39	C	3		
	Total hours per week, total evaluations and credits per semester				15	0	10	3	418	5E	30	13	1	8	4	386	4E	30		
					28					2C		26					4C			
23	Diploma Exam	CMMI-MFNT-ED	MC															E 10		

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L – Laboratory; **P** - Project; **Ev** - evaluation type (E-exam, C-colloquium), **K**- ECTS credits

Prerequisites: **C1** - Machine Tools and Cutting Manufacturing 2; **C2** - Tolerances and Dimensional Control; **C3** - Computer-Aided Engineering Graphics and Applied Informatics;
C4 - Manufacturing Technologies; **C5** - Mechanisms; **C6** - Special Mathematics.