

**CURRICULUM – 1<sup>st</sup> YEAR  
2023-2024**

<b>UNIVERSITY</b>	<b>GEORGE EMIL PALADE UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE, AND TECHNOLOGY OF TÂRGU MURES</b>	<b>PROGRAMME OF STUDY</b>	<b>MEDICAL ENGINEERING</b>
<b>FACULTY</b>	<b>FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGIES</b>	<b>TITLE AWARDED</b>	<b>GRADUATE ENGINEER</b>
<b>FIELD OF STUDY</b>	<b>APPLIED ENGINEERING SCIENCES</b>	<b>OFFICIAL LENGTH OF THE PROGRAMME OF STUDY</b>	<b>4 YEARS</b>
<b>LEVEL OF QUALIFICATION</b>	<b>6 LEVEL CNC</b>	<b>NUMBER OF ECTS/SECT CREDITS</b>	<b>60</b>

No.	Educational activities	Code/Type of course	1 <sup>st</sup> Semester (14 weeks)								2 <sup>nd</sup> Semester (14 weeks)								Total academic year			
			1 <sup>st</sup> Module (7 weeks)				2 <sup>nd</sup> Module (7 weeks)				3 <sup>rd</sup> Module (7 weeks)				4 <sup>th</sup> Module (7 weeks)							
			Course	SLP	ECTS	Verif form	Curs	SLP	ECTS	Verif form	Course	SLP	ECTS	Verif form	Course	SLP	ECTS	Verif form	C	LP	Indiv. Std.	ECTS
1.	Mathematical analysis	IMD101/DF	4	4 <sub>s</sub>	5	E												28	28	69	5	
2.	Physics	IMD102/DF	4	4 <sub>L</sub>	5	E												28	28	69	5	
3.	Medicine for engineering students	IMD103/DF	6	6 <sub>L</sub>	6	E												42	42	66	6	
4.	Chemistry	IMD104/DF					4	4 <sub>sp</sub>	5	E								28	28	69	5	
5.	Computer programming and programming languages	IMD105/DF					6	4 <sub>p</sub>	6	E								42	28	80	6	
6.	English Language 1	IMD106/DC					-	4 <sub>s</sub>	2	C								-	28	22	2	
7.	Physical Education (1)	IMD107/DC					-	2 <sub>L</sub>	1	A/R								-	14	-	1	
8.	Applied Informatics	IMD108/DF									4	4 <sub>L</sub>	5	E				28	28	69	5	
9.	Linear algebra, analytical and differential geometry	IMD109/DF									4	4 <sub>s</sub>	6	E				28	28	94	6	
10.	Introduction to electrical engineering	IMD110/DS									4	4 <sub>LS</sub>	5	E				28	28	69	5	
11.	English Language 2	IMD111/DC									-	4 <sub>s</sub>	2	C				-	28	22	2	
12.	Special Mathematics	IMD112/DF												4	4 <sub>s</sub>	5	E	28	28	69	5	
13.	Introduction to biomedical engineering	IMD113/DS												4	2 <sub>L</sub>	3	E	28	14	33	3	
14.	Computer Aided Graphics	IMD114/DD												4	4 <sub>L</sub>	5	C	28	28	69	5	
15.	Physical Education (2)	IMD115/DC												-	2 <sub>L</sub>	1	A/R	-	14	-	1	
<b>GENERAL TOTAL</b>		15 Compulsory	<b>14</b>	<b>14</b>	<b>16</b>	<b>2E1C</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>2E1C 1 A/R</b>	<b>12</b>	<b>16</b>	<b>18</b>	<b>3E;1C</b>	<b>12</b>	<b>12</b>	<b>14</b>	<b>2E 1C 1A/R</b>	<b>336</b>	<b>392</b>	<b>800</b>	<b>62</b>
<b>TOTAL HOURS/CREDITS</b>			<b>28 hours /week; 24 hours /week; 30 ECTS</b>								<b>28 hours /week; 24 hours /week.; 32 ECTS</b>								<b>728</b>			

**CURRICULUM – 2<sup>nd</sup> YEAR  
2023-2024**

<b>UNIVERSITY</b>	<b>GEORGE EMIL PALADE UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE, AND TECHNOLOGY OF TÂRGU MUREȘ</b>	<b>PROGRAMME OF STUDY</b>	<b>MEDICAL ENGINEERING</b>
<b>FACULTY</b>	<b>FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGIES</b>	<b>TITLE AWARDED</b>	<b>GRADUATE ENGINEER</b>
<b>FIELD OF STUDY</b>	<b>APPLIED ENGINEERING SCIENCES</b>	<b>OFFICIAL LENGTH OF THE PROGRAMME OF STUDY</b>	<b>4 YEARS</b>
<b>LEVEL OF QUALIFICATION</b>	<b>6 LEVEL CNC</b>	<b>NUMBER OF ECTS/SECT CREDITS</b>	<b>60</b>

No.	Educational activities	Code/Type of course	1 <sup>st</sup> Semester (14 weeks)								2 <sup>nd</sup> Semester (14 weeks)								Total academic year			
			1 <sup>st</sup> Module (7 weeks)				2 <sup>nd</sup> Module (7 weeks)				3 <sup>rd</sup> Module (7 weeks)				4 <sup>th</sup> Module (7 weeks)				Curs	LP	St.indiv	ECTS
			Curs	SLP	ECTS	Forma verif	Curs	SLP	ECTS	Forma verif	Curs	SLP	ECTS	Forma verif	Curs	SLP	ECTS	Forma verif				
1	Object-oriented languages	IMD201/DD	4	4 <sub>L</sub>	5	E													28	28	69	5
2	Electronics and Automation	IMD202/DD	4	4 <sub>LS</sub>	6	E													28	28	94	6
3	Numerical Methods	IMD203/DF	4	4 <sub>L</sub>	5	C													28	28	69	5
4	English Language 3	IMD204/DC	-	2 <sub>S</sub>	1	C													-	14	11	1
5	English Language 4	IMD205/DC					-	2 <sub>S</sub>	1	C									14	-	11	1
6	Materials science	IMD206/DD					4	4 <sub>L</sub>	6	E									28	28	94	6
7	Electronics	IMD207/DD					6	4 <sub>L</sub>	6	E									42	28	80	6
8	Physical Education (3)	IMD208/DC					-	2 <sub>L</sub>	1	A/R									-	14	-	1
9	Ethics and academic integrity	IMD209/DC									2	-	1	C					-	14	11	1
10	Biological systems	IMD210/DD									6	6 <sub>L</sub>	5	E					42	42	41	5
11	Biophysics	IMD212/DD									4	2 <sub>L</sub>	4	C					28	14	58	4
12	Measurements and instruments	IMD215/DD									6	6 <sub>L</sub>	5	E					42	42	41	5
13	Biomechanics	IMD213/DD													4	4 <sub>L</sub>	4	E	28	28	44	4
14	Strength of Materials	IMD214/DD													4	4 <sub>L</sub>	4	E	28	28	44	4
15	Biochemistry	IMD211/DD													2	2 <sub>L</sub>	2	C	14	14	22	2
16	Physical Education (4)	IMD216/DC													-	2 <sub>L</sub>	1	A/R	-	14	-	1
17	Practical training	IMD219/DD									90						4	C	-	90	-	4
18	Pachet 1 IMD Applied Modeling and Simulation Applied to Bioengineering	IMD217/DS IMD218/DS													2	-	1	C	14	-	11	1
<b>GENERAL TOTAL</b>		17 Compulsory 1 Optional	12	14	17	2E, 2C	12	10	14	2E;1C 1 A/R	16	16	15	2E;2C	12	12	16	2E;2C; 1A/R	364	454	700	62
<b>TOTAL HOURS/CREDITS</b>			<b>24 hours /week /31 ECTS</b>								<b>28 hours /week /31 ECTS</b>								<b>818</b>			

## CURRICULUM – 3<sup>rd</sup> YEAR

**2023-2024**

<b>UNIVERSITY</b>	<b>GEORGE EMIL PALADE UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE, AND TECHNOLOGY OF TÂRGU MURES</b>	<b>PROGRAMME OF STUDY</b>	<b>MEDICAL ENGINEERING</b>
<b>FACULTY</b>	<b>FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGIES</b>	<b>TITLE AWARDED</b>	<b>GRADUATE ENGINEER</b>
<b>FIELD OF STUDY</b>	<b>APPLIED ENGINEERING SCIENCES</b>	<b>OFFICIAL LENGTH OF THE PROGRAMME OF STUDY</b>	<b>4 YEARS</b>
<b>LEVEL OF QUALIFICATION</b>	<b>6 LEVEL CNC</b>	<b>NUMBER OF ECTS/SECT CREDITS</b>	<b>60</b>

No.	Educational activities	Code/Type of course	Semestrul I (14 săptămâni)								1 <sup>st</sup> Semester (14 weeks)								Total academic year			
			1 <sup>st</sup> Module (7 weeks)				2 <sup>nd</sup> Module (7 weeks)				3 <sup>rd</sup> Module (7 weeks)				4 <sup>th</sup> Module (7 weeks)							
			Cour se	SLP	ECTS	Verif form	Course	SLP	ECTS	Verif form	Course	SLP	ECT S	Verif form	Cours e	SLP	ECT S	Verif form	Course	LP	Indiv. Std.	ECTS
1	Medical electronics	IMD301/DD	4	4 <sub>L</sub>	5	E												28	28	69	5	
2	Medical instruments and devices	IMD302/DS	4	4 <sub>L</sub>	5	E												28	28	69	5	
3	CAD/CAM in medical equipment construction	IMD303/DS					4	4 <sub>L</sub>	4	E								28	28	44	4	
4	Electrical networks	IMD304/DD					4	4 <sub>LS</sub>	4	C								28	28	44	4	
5	Electrical medical equipment	IMD305/DD					4	4 <sub>L</sub>	3	E								28	14	33	3	
6	Medical equipment reliability	IMD306/DD									4	6 <sub>LS</sub>	5	E				28	42	55	5	
7	Medical imagining	IMD307/DS									4	4 <sub>L</sub>	4	E				28	28	66	4	
8	Computer networks	IMD308/DS									4\	2 <sub>L</sub>	4	C				28	14	44	4	
9	Design with Microprocessors	IMD309/DD												4	6 <sub>LP</sub>	5	E	28	42	55	5	
10	Electrical installations	IMD310/DS												4	4 <sub>LP</sub>	5	E	28	42	55	5	
11	Medical informatics	IMD311/DD												4	2 <sub>L</sub>	3	C	28	14	33	3	
12	On-site training	IMD312/DD	90														4	C	-	90	-	4
13	Orthopedic implants and prosthetics	IMD313/DS	4	4 <sub>L</sub>	5	C												28	28	69	5	
14	Biomaterial engineering	IMD314/DS					4	4 <sub>L</sub>	4	E								28	28	44	4	
	<b>GENERAL TOTAL</b>	12 Compulsory 2 Optional	<b>12</b>	<b>12</b>	<b>15</b>	<b>2E 1C</b>	<b>16</b>	<b>16</b>	<b>15</b>	<b>3E 1C</b>	<b>12</b>	<b>12</b>	<b>13</b>	<b>2E 1C</b>	<b>12</b>	<b>12</b>	<b>17</b>	<b>2E 2C</b>	<b>364</b>	<b>454</b>	<b>680</b>	<b>60</b>
	<b>TOTAL HOURS /CREDITS</b>		<b>28 hours /week /30 ECTS</b>								<b>24 hours /week /30 ECTS</b>								<b>818</b>	<b>680</b>	<b>60</b>	

## CURRICULUM – 4<sup>th</sup> YEAR 2023-2024

<b>UNIVERSITY</b>	<b>GEORGE EMIL PALADE UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE, AND TECHNOLOGY OF TÂRGU MURES</b>	<b>PROGRAMME OF STUDY</b>	<b>MEDICAL ENGINEERING</b>
<b>FACULTY</b>	<b>FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGIES</b>	<b>TITLE AWARDED</b>	<b>GRADUATE ENGINEER</b>
<b>FIELD OF STUDY</b>	<b>APPLIED ENGINEERING SCIENCES</b>	<b>OFFICIAL LENGTH OF THE PROGRAMME OF STUDY</b>	<b>4 YEARS</b>
<b>LEVEL OF QUALIFICATION</b>	<b>6 LEVEL CNC</b>	<b>NUMBER OF ECTS/SECT CREDITS</b>	<b>60</b>

No.	Educational activities	Code/Type of course	1 <sup>st</sup> Semester (14 weeks)								2 <sup>nd</sup> Semester (14 weeks)								Total an universitar			
			1 <sup>st</sup> Module (7 weeks)				2 <sup>nd</sup> Module (7 weeks)				3 <sup>rd</sup> Module (7 weeks)				4 <sup>th</sup> Module (7 weeks)							
			Cour se	SLP	ECTS	Verif form	Course	SLP	ECT S	Verif form	Course	SLP	ECT S	Verif form	Cours e	SLP	ECT S	Verif form	Course	LP	Indiv. Std.	ECTS
1.	Medical equipment evaluation and certification	IMD401/DS					4	2S	3	E								28	14	33	3	
2.	Dental implantology and prosthetics	IMD402/DS	2	4L	3	C												14	28	33	3	
3.	Web technologies	IMD403/DS	4	4L	5	C												28	28	69	5	
4.	Medical clinical engineering	IMD404/DS					4	6LP	5	C								28	42	55	5	
5.	Electromagnetic compatibility	IMD405/DS									4	2L	4	C				28	14	58	4	
6.	Prosthetics and rehabilitation engineering	IMD406/DD									4	4L	4	E				28	28	44	4	
7.	Electrosecurity	IMD407/DS									4	2L	4	E				28	14	58	4	
8.	Intensive care equipment	IMD408/DS												4	2L	3	E	28	14	33	3	
9.	Medical engineering statistics	IMD409/DS												4	4S	4	E	28	28	44	4	
10.	Biocompatible metallic materials	IMD410/DS												4	2L	3	C	28	14	33	3	
11.	Diploma project drafting	IMD411/DS										4P			4P	4	C	-	56	44	4	
12.	Diploma project practical training	IMD412/DS	60														4	C	-	60	40	4
13.	Databases	IMD413/DS	4	4L	5	E												28	28	69	5	
14.	Medical equipment automation	IMD414/DS					4	6LP	5	E								28	42	55	5	
15.	Biological signal processing and bioelectric phenomena	IMD415/DS	4	4L	4	E												28	28	44	4	
	<b>GENERAL TOTAL</b>	12 Compulsory 3 Optional	<b>14</b>	<b>16</b>	<b>17</b>	<b>2E2C</b>	<b>12</b>	<b>14</b>	<b>13</b>	<b>2E1C</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>2E1C</b>	<b>12</b>	<b>12</b>	<b>18</b>	<b>2E4C</b>	<b>350</b>	<b>438</b>	<b>680</b>	<b>60</b>
	<b>TOTAL HOURS /CREDITS</b>		<b>28 hours /week /30 ECTS</b>								<b>24 hours /week /30 ECTS</b>								<b>788</b>	<b>712</b>	<b>60</b>	

Formative categories		Activities	
DF	Foundamental course	C	Courses
DD	Technical course	S	Seminars
DS	Specialized course	LP	Practical exercise
DC	Complementary course	P	Project