

FRAMEWORK PLAN AND PROGRAM OF DOCTORAL STUDIES AT THE FACULTY OF TECHNICAL PHYSICS AND APPLIED MATHEMATICS
(3rd DEGREE STUDIES)

No.	Module code	Subject (in general)	Subject (in detail)	Number of hours and ECTS credits								Hours	Total ECTS credits	Completion requirement
				1 st year		2 nd year		3 rd year		4 th year				
				Hours	ECTS	Hours	ECTS	Hours	ECTS	Hours	ECTS			
1	10	a) basic classes	Mandatory lectures	30 hours of lectures (blocks of 15 h) 3 ECTS credits per lecture.								30	6	Examination
	1F	b) detailed classes	Optional lectures	60 hours of lectures (blocks of 15 h) 3 ECTS credits per lecture.								60	15	Coursework credit (pass/fail)
			Participation in organized workshops typical for DS	Instead of some lectures or as an additional option to choose (min. 10 hours, for training - 1 ECTS credit)								30		Confirmation document
2	2 O/F	Optional classes developing teaching and professional skills	Subjects from the list	30	4	15	2	15	2	15	2	75		10
3	Presentation of scientific research and presence in the international scientific publications	Presentation of scientific research and presence in international scientific publications	Chair seminar (participants and presentations)	1	0	1	0	1	0	1	0	4	0	Coursework credit (pass/fail)
														Certification of presentation
	50	Reporting session		10	1	10	1	10	1	10	1	40	4	Opinion of and credit by Course Manager
												239	35	
4	60	Teaching practice (number of hours)		60	0	90	0	90	0	50	0			Confirmation of hours

Min. 10 ECTS credits per year for the first three years of study.

MODULE 2

Optional classes developing teaching and professional skills (min. 5h each class)

Areas and classes	Hours	ECTS credits	Type: l/cl/sem
Area 1: Classes developing teaching skills.			
1. Methodological basics of teaching.	15	2	1
2. Modern methods and techniques of teaching.	10	1	l/cl
3. Techniques of conducting distance learning (e.g. Moodle platform)	15	2	cl
Area 2: Classes in additional subjects for taking the doctoral examination on an additional discipline.			
1. Selected problems of philosophy.	15	2	1
2. Selected problems of economics.	15	2	1
3. Selected problems of psychology.	15	2	1
4. Selected problems of sociology.	15	2	1
5. Selected problems of history of technology.	15	2	1
Other problems can be introduced as needed, if there is an appropriate number of doctoral students (12-15 people).	15	2	1
Area 3: Classes developing professional skills.			
1. Patent databases.	5	1	cl
2. Literature databases.	5	1	cl
3. Protection of intellectual property.	5	1	1
4. Basics of commercialization of research results.	5	1	sem
5. Ethics in scientific research.	5	1	1
6. Good practices in conducting scientific research.	5	1	1
7. Writing project applications.	5	1	1
8. Ergonomics and industrial design.	5	1	1
9. Techniques for presentation of scientific results.*	5	1	sem
10. Methodology of conducting scientific research (methodology of sciences, logic).	5	1	1
11. Preparation of a patent application (utility model).	5	1	sem
12. Writing scientific publications (subject organized at the Faculty of Technical Physics and Applied Mathematics)	5	1	sem

- This does not include the writing of scientific publications which, due to the specificity of each area, should be conducted separately at each Faculty as optional classes.

NOTE: Module 2 Classes will be planned as common classes for the whole University, and their availability and requirements for participation will be announced before the beginning of each semester.

	SEMESTER							
	1	2	3	4	5	6	7	8
Basic classes for the field related to the area of conducted scientific research	X	X	X					
Detailed classes corresponding to the area of the conducted scientific research.	X	X	X	X	X	X		
Optional classes developing teaching and professional skills and developing social competencies.	X	X	X	X	X	X	X	X
Required element: - Block of classes preparing for teaching.	X	X						
Skill modules related to presentation of scientific research and presence in international scientific publications.	X	X	X	X	X	X	X	X
Required elements: - Doctoral Seminar	X	X	X	X	X	X	X	X
- Faculty Seminar	X	X	X	X	X	X	X	X
Supplementary classes (without ECTS credits)	X	X	X	X				
Professional training - without ECTS credits.	X	X	X	X	X	X	X	X

LEGEND: possible in the indicated semester or in the following semester.