NEMZETI
KÖZSZOLGÁLATI EGYETEM
A HAZA SZOLGÁLATÁBAN

Katonai Műszaki Doktori Iskola

National University of Public Service
Serving the country!
Doctoral School of Military Engineering

THE TRAINING PLAN OF THE DOCTORAL SCHOOL OF MILITARY ENGINEERING

- 2016 -

1. THE FIELDS OF RESEARCH, OBJECTIVES AND FORMS OF TRAINING AT THE DOCTORAL SCHOOL OF MILITARY ENGINEERING

1.1 The field of research of the Doctoral School of Military Engineering

In the framework of the **Doctoral School of Military Engineering** (DSME) doctoral (PhD) training and preparation for scientific research work is conducted in areas of basic research, applied sciences, experimental, development, technological, technology transfer, and engineering in the branch of Military Technical Sciences, connected to their **specific military applications**.

Research findings emerge in military technology, defence, and public administration in the broad sense of the word, including the up-to-date systems of procedures and assets of the relating fields of science and application. These areas include defence industry, defence electronics, information technology and communication, national defence; law enforcement; environment security; environment protection; CBRN defence and non-proliferation; counterterrorism; disaster management; protection of critical infrastructures; energy security; security technology; and defence administration.

The announcement of topics identified in the research plans of the governing offices (ministries and government agencies) are top priorities among the research topics of the Doctoral School (DS) every year.

1.2 The objective of training

Our goal is to train and prepare doctoral students conducting organised training or individual preparation, doing scientific research in some field of Military Technical Sciences, for obtaining their scientific degree (PhD).

1.3 The entrance Master Programmes of the doctoral training

In the DS the training is built on the following accredited Master Training Programmes:

- Defence leadership system manager 2005/8/IV/5
- Disaster-management engineering 2005/8/IV/2
- Security-technology engineering 2005/8/IV/3
- Military logistics 2005/8/IV/1

The DSME receives students from the Master Training Programmes as follows:

- Defence administration Military sciences
- Military leadership Military sciences
- Military logistics Military sciences
- Military management Military sciences
- Security and defence policy Military sciences
- National security Military sciences
- Border policing Military sciences
- Correctional-institution leadership Law enforcement sciences
- Electrical engineering Engineering sciences
- Mechanical engineering Mechanical sciences
- Mechanical modelling Mechanical sciences
- Infrastructure engineering Construction engineering sciences
- Vehicle engineering Transportation sciences
- Disaster management Law enforcement sciences
- Environmental engineering Bio- environment- and chemical sciences
- Transportation engineering Transportation sciences
- Logistical management Economics and organisation sciences
- Logistical engineering Transportation sciences
- IT engineering IT sciences

• Mechatronic engineering	Mechanical sciences
• Technical manager	Economics and organisation sciences
• Technical manager	Mechanical sciences
• Chemist	Chemical sciences
• Chemical engineering	Chemical sciences
• Organisation and leadership	Economics and organisation sciences

Thus the DS receives primarily students with degrees earned at the above listed Master Training Programmes, however, any other applicants with degrees from other Master Programmes of other institutions may also be admitted for training, whose scientific activities and research topics linked to military sciences/military engineering sciences justify this.

1.4 Forms of training at the DS

The training at the Doctoral School is a training, research, and testing activity conducted in the framework of individual or group-based preparation meeting the specific requirements of engineering sciences and the requirements of doctoral students. It consists of training and research, and research and dissertation phases.

In the DS training and earning a degree is conducted in the following forms:

- Organised training:
  - full-time training (state-funded or self-funded);
  - part-time (distance learning) training (self-funded);
  - individual training (self-funded).
- Individual preparation (self-funded, with no training).

1.5 The research fields of the Doctoral School

In the training system of the DS – within the discipline of military engineering sciences – the research fields are as follows:

- Military technical infrastructure;
- Military technology and robotics;
- Defence electronics, IT, and communication;
- Military environment security;
- Military logistics, defence economy;
- Security technology;
- Disaster management.

1.6 The language of training

In the DS the training is usually conducted in Hungarian but it may be done in a foreign language – primarily in English – as well.

2. CREDIT ALLOCATION, THE REQUIREMENTS OF TRAINING

2.1 General training requirements

In the framework of organised training a minimum of 240 credits needs to be obtained for the pre-degree certificate by the end of the 8^{th} semester in following structure:

- minimum 50 credits for academic achievements;
- minimum 170 credits for scientific research;
- maximum 20 credits for lecturing (education).

The doctoral training consists of two phases, four semesters in each. An average of 30 credits – but no fewer than 21 – is to be obtained in each semester.

After the completion of the fourth semester of the training and research phase, doctoral students are required to take a **comprehensive examination**. A successful comprehensive examination is followed by the research and dissertation phase consisting of four semesters.

The comprehensive examination is part of the first semester of the research and dissertation phase and its credits are taken in account in the fifth semester.
The above training requirements are identical for the doctoral students in organised training. Students conducting individual training may obtain the minimum of 240 credits in accordance with their own schedule – except for the first semester – but by the end of the training and research phase the academic credit requirements must be fulfilled. For these doctoral students the participation in classes is not obligatory, although it is desirable.
At the end of the first semester, by 31st January, the doctoral students shall prepare their "Two-year individual study and research plan", which is to contain the courses, and the scheduling of research work and planned publications.

2.2 Requirements to meet academic requirements

In the 1st semester of the training and research phase of doctoral training the PhD student of the DS (including those in individual training) is obliged to sign up for the following courses:

- Module "Basic courses", which means five basic courses of the DS evaluated with end-of-semester assessment worth of two credits each;
- Course "Theory and methodology of scientific research" – three credits – evaluated with grades;
- Another two courses in military sciences – evaluated with end-of-semester assessments – worth two credits each.

In the five courses within the Module "Basic courses" the doctoral students shall take a combined final examination. The successful final examination and the fulfilment of the course "Theory and methodology of scientific research" are the criteria for continuing further studies.
In the 2nd semester each student of the DSME, doing organised training, must fulfil their own required elective major relating to their own research field worth 6 credits. Also, they must complete seminar "Processing and publication of research data" worth 2 credits.
In semesters 3 and 4 the students doing organised training in a given research field are obliged to sign up to one required elective course of each final examination worth 6 credits each. Both courses are to be related to the students' research topic.
In semesters 2-4 the doctoral student is to sign up for at least three elective courses evaluated in an oral examination, worth three credits each.
In semesters 3-4 the doctoral student is to sign up for at least two research seminars worth two credits each. Research seminars are evaluated with grades.
In the first four semesters of the doctoral training the student may sign up for and complete courses with credits exceeding the limit by 10 percent consequently no more than 264 credits may be accounted at the completion of the training.
It is reasonable to schedule the courses in accordance with Annex 1, chosen from the courses listed in Annex 2, however, if it is justified by the research topic the student may sign up for other doctoral school's courses too.

2.3 Requirements of scientific research work

In order to meet the requirements of scientific research work the doctoral students are requested to sign up for the course "Scientific research I-VIII." from courses out of their research fields. The Roman numerals after the course indicate the semester when it can be signed up for.
For scientific research activities in each semester of the first phase of training (semesters 1-4) no fewer than 12, and in each of the second phase (semesters 5-8) no fewer than 21 credits are to be obtained so that by the end of the doctoral training a minimum of 170 credits must be collected. The credits may be obtained through scientific activities or dissertation activity detailed in Annex 3.

In the first semester the literature overview submitted and accepted in the framework of "Theory and methodology of scientific research" may be regarded as a scientific activity and 9 credits may be awarded for it.
If a doctoral student has no valid publication in the first phase of the training (semesters 1-4) or does not have 12 credits in accordance with the table in Annex 3, upon the proposal and written justification from the supervisor 12 credits may be added to his/her "Scientific research I-IV". In other cases the research-related credits are to be added on the basis of Annex 3.
In the second phase of the training (in semesters 5-8) the students are to earn five credits in each semester through dissertation-writing activities. Also, from courses other than research-field courses "Dissertation activities V-VIII" relating to the given semester must be signed up for. The Roman numerals after the course indicate the semester in which the given course is to be signed up for. In order to earn credits the doctoral students are to present their research work completed and the progress achieved in that particular semester in the framework of an **oral presentation** organised on the basis of research fields, in accordance with their research plans. In the framework of a workshop, the presentations shall be carried out before a three-member committee and in the presence of other students conducting research in other fields. The Chairperson of the committee shall be the leader of the given course; its members shall be the supervisor and an expert.
In semesters 5-8 the doctoral students are obliged to conduct scientific activities (publication activities) detailed in Annex 3, through which a minimum of 16 credits are to be earned. The publication credits shall be taken into account in courses "Scientific research V-VIII" with the written certification of the supervisor.
In the case of a successful comprehensive examination the student may earn 20 credits for his/her accepted Research report, which are to be taken into account in Scientific research in the 5^{th} semester.
Scientific activities shall be certified by the supervisor through awarding credits every semester. To the supervisor's report certifying scientific activities the accessibility of publications in the Hungarian Scientific Works Database is to be attached.
In the entire period of training the same publication or scientific activity may be accounted for only once.
The minimum length of a professional publication shall be 0.3 author's sheet. The only exception may be a complementary lecture published in proceedings of a scientific conference, as that may be shorter.
The rules of taking into account publications in a semester:

- a submitted but unevaluated publication, or a study where the editor requests some major changes are regarded as a non-peer reviewed article;
- to a submitted but unpublished paper an authentic editor's declaration is to be attached on its prospective publication;
- in the case of a co-authored paper a co-author's declaration is to be attached including the proportion of his/her involvement. Credits are to be awarded on the basis of involvement proportion and the fractions are to be rounded in accordance with the general rules of mathematics. Five tenths are an exception as they have to be rounded up;
- in the case of a conference contribution the source parameters of the publication, or the certificate on the contribution at the conference must be attached to the credit account.

In the first phase of the training (semesters 1-4) a doctoral student, is required to obtain a minimum of 8 publication credits in accordance with the publication credit table of the Doctoral School Regulation, which shall include at least two publications on the student's

own research findings and, as a co-author of at least 50%, have them published in journals classified by the Committee on Military Science (or any other committee) of the HAS (categories A, B, or C).

In the second phase of the training (semesters 5-8) another 12 publication credits must be earned, with at least 50% of authorship, which means at least three publications published in journals classified by the Committee on Military Science (or any other committee) of the HAS (categories A, B, or C), at least one in a foreign language.
By the end of the training the student must have a minimum of 20 publication credits in order to be eligible for pre-degree certificate. In each training phase one unpublished papers with a declaration of acceptance for publication issued by the editors can be taken into account.

2.4 Lecturing (teaching) requirements

Lecturing can be chosen as an optional – not compulsory – way of obtaining credits.
A doctoral student employed as a teacher is not allowed to obtain credits through teaching activities at the university employing him/her.
Credits may be earned through lecturing activities only in semesters 3-8 (except for doctoral students conducting individual training).
Teaching can only be conducted with the preliminary permission of the Head of the relevant department, in the research topic of the doctoral student – or in a topic close to that research field.
One credit may be awarded for four classes.
In one semester no more than five credits may be earned through lecturing, in the first and second phases of training 10 credits may be earned in each, which means 20 credits may be obtained in the entire training period.
Teaching activities shall be attested by the Head of the relevant department.

2.5 Special rules for doctoral students conducting individual training or preparation

In the case of doctoral students doing individual training the DS may award credits for academic achievements and research findings in accordance with the following scheme:
- academic obligations: maximum 16 credits;
- scientific research activities: maximum 80 credits.

The doctoral student conducting individual training must be informed on the awarded credits in the notification on his/her admission for training.
With the admission of the applicant for individual preparation the University accepts the minimum number of credits necessary for comprehensive examination and if requested by the student further credits may be earned through previously gained knowledge and competencies. The comprehensive examination following the admission is part of the first semester of the research and dissertation phase.
Further requirements of the training – including those of admission and degree procedures of individual students – are incorporated into the Academic and Examination Regulations of the DSME, the Operational Regulations of the DSME and the University Doctoral Regulations.

3. THE SYSTEM OF TESTING PROGRESS

3.1. Testing knowledge

The types of testing in individual academic subjects during the doctoral training are detailed in the Model Curriculum, while the contents-related requirements are detailed in the Programs of the courses.
Knowledge is evaluated through five-grade assessment.
In the case of end-of-semester examinations – examination, evaluation, practice grades – it is the examiner, in the case of "Scientific research I-VIII" courses the supervisor, with "Lecturing" subjects the Head of the relevant department (or the teacher appointed by

him/her) who determines and signs the grades in the markbook. Credits earned this way are taken into account with "Scientific research III-VIII" courses.
Retaking examinations and the tasks to complete for the successful retake are regulated by the NUPS Academic and Examination Regulations.

3.2 The comprehensive examination

After the completion of the first four semesters of the doctoral training programme, at the end of the training and research phase and as the beginning of the research and dissertation phase, doctoral students are required to take a comprehensive examination which is to assess and evaluate their academic and research progress.
The pre-conditions of applying for a comprehensive examination are: a minimum of 90 credits and the earning of all academic credits detailed in point 2.2. The latter pre-condition does not apply to individual doctoral students. Apart from this the applicant for a comprehensive examination must have a minimum of eight publication credits.
An individually preparing doctoral student needs to have documented lecturing and scientific research activities equal to a minimum of 150 credits, and 20 credits obtained through publications.
The comprehensive examination consists of two major parts: one is to assess the theoretical preparedness of the student ("theoretical part") while in the other part the student proves his/her scientific achievements ("dissertation part").
The theoretical part involves two courses. The topics of the theoretical examination differ according to research fields. One of the topics focuses on the comprehensive knowledge of the given research field while in the other the knowledge relating to the research field is evaluated. The concrete topics of the theoretical part are approved by the UDC upon the proposal of the DSC each academic year.
In the second, dissertation, part of the comprehensive examination the student proves his/her progress in scientific achievements and further research plans on the basis of a "Research plan" submitted previously, in the framework of an oral presentation. The "Research plan" shall be a minimum 1.5 author's sheet written report compiled with scientific approach and contain a summary of special literature relating to research, findings, and the Research plan for the second phase of the doctoral training programme, including the schedule of the preparation of the dissertation, and publication plans. The "Research report" with the written evaluation by the supervisor attached is to be submitted to the head of the DS before the comprehensive examination. To the Research report the list of publications (from the HSWD), the printed versions of publications, and a copy of the doctoral student's data sheet from doktori.hu must be attached.
The comprehensive examination must be taken in public, before a committee. The examination committee consists of four members two of whom are not employed by the University. The chairperson and members of the committee are experts in the given fields and courses. The chairperson may be a university professor, a Professor Emeritus, a habilitated university associate professor, or a researcher of the given field. The supervisor of the doctoral student, his/her close relative, or a person expected not to be able to objectively evaluate the examination shall not be a member of the committee. All members of the examination committee must have a PhD degree.
The committee members separately evaluate the examination, and grade the candidate's performance within the theoretical parts by awarding points on a scale from 0-5. A comprehensive examination is successful if the majority of the committee members assesses both part as successful and the candidate receives at least 60% of the points at each part and combined, which can be earned at the examination. The result of the evaluation of the comprehensive examination may be either pass or fail.

In the case of a successful comprehensive examination the student shall be awarded 20 credits for this/her Research report, which have to be taken into account in the 5th semester.
A failed comprehensive examination may be retaken once, in the same examination session.

4. COMPLETING THE TRAINING, THE REQUIREMENTS OF EARNING PRE-DEGREE CERTIFICATE

The pre-degree certificate is a document that certifies the completion of academic requirements, research activities, and lecturing (if chosen by the student) and successful examinations set in the curriculum – except for the language examination – and the minimum of 240 credits. This document certifies – without any evaluation or assessment – that the doctoral student has fulfilled all training requirements set for him/her.
After the successful completion of the 8th semester – if all pre-conditions of the issuance of the pre-degree certificate exist – the Doctoral School shall issue the pre-degree certificate. However, the student can receive it only after submitting his/her 4-year summary report and that of his/her supervisor to the DS.
The pre-condition of the issuance of the pre-degree certificate is the earning of 20 publication credits – in accordance with the Publication credit table – necessary for entering the degree procedure, by the end of the training period. These papers shall include a minimum of five articles published in peer-reviewed scientific journals classified by the Committee on Military Science of the HAS as categories A, B, or C, and at least one of the studies must be published in a foreign language.
The four-year-long training period cannot be shortened, the pre-degree certificate cannot be issued earlier, however, the preliminary defence may be completed in the last semester of the training.
The pre-degree certificate shall be signed in the electronic marks book of the doctoral student by the head of the DS or his/her deputy.
Budapest, ….. October 2016

Prof György Kende DSc
Head of DSME

SUGGESTED ORDER OF SIGNING UP FOR COURSES IN THE SEMESTERS

(IDENTICAL IN ALL RESEARCH FIELDS)

The figure and table below illustrate a possible and suggested order of courses to complete during the training.

MODEL CURRICULUM

<table>
<tr><td>Examination</td><td>1st semester</td><td></td></tr>
<tr><td>Basic courses
Combined final exam</td><td rowspan="5">Basic courses (10 cr)
- Military engineering (2 cr)
- Disaster management, environment security (2 cr)
- Protection of critical infrastructures (2 cr)
- Information operations (2 cr)
- Military logistics(2 cr)</td><td rowspan="2">MILITARY SCIENCE (4 cr)
- Basics of military science (2 cr)
- Classics of military science (2 cr)</td></tr>
<tr><td></td></tr>
<tr><td>Theory and methodology of scientific research – pract. grade</td><td rowspan="2">Theory and methodology of scientific research (3 cr)</td></tr>
<tr><td></td></tr>
<tr><td>Basics of military science</td></tr>
<tr><td></td><td colspan="2">Scientific research I. 12 cr (minimum)</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>Examination</td><td>2nd semester</td><td></td></tr>
<tr><td>Final examination</td><td rowspan="6">Required elective major in own research field (6 cr)</td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Oral examination</td><td>Elective course (oral examination – 3 cr)</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Practice grade</td><td>Processing and publication of research data (Research seminar – 2 cr)</td></tr>
<tr><td></td><td colspan="2">Scientific research II. 12 cr (minimum)</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>Examination</td><td>3rd & 4th semesters</td><td></td></tr>
<tr><td>Final examination (2x)</td><td rowspan="6">Required elective major in own research field (2 x 6 cr)</td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Oral examination (2x)</td><td>Elective course (oral examination – 2 x 3 cr)</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Practice grade (2x)</td><td>Processing and publication of research data (Research seminar – 2 x 2 cr)</td></tr>
<tr><td></td><td colspan="2">Scientific research III-IV. – 2 x 12 cr (minimum)</td></tr>
<tr><td></td><td colspan="2">Lecturing – max 10 cr</td></tr>
<tr><td colspan="3">Comprehensive examination (min 90 credits & 8 publication credits)</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="3">5th – 8th semesters</td></tr>
<tr><td colspan="3">Dissertation activities V – VIII (4 x 5 cr)</td></tr>
<tr><td colspan="3">Scientific research (4 x min 16 cr)</td></tr>
<tr><td colspan="3">Lecturing – max 10 cr</td></tr>
<tr><td colspan="3">Pre-degree certificate (min 240 cr. & 20 publication credits)</td></tr>
</table>

MODEL CURRICULUM

Sem.	Academic requirements					Scientific research		Lecturing cr. (not comp-ry)
	Course	Cr.	Classes		Sz.	Course	Min. cr.	
			N	L				
1.	**Basic courses:**				SZ	Scientific research I.	min. 12	-
	Military engineering	2	20	6	F			
	Disaster management, environment security	2	20	6	F			
	Protection of critical infrastructures/	2	20	6	F			
	Information operations	2	20	6	F			
	Military logistics	2	20	6	F			
	Theory and methodology of scientific research	3	40	12	G			
	Military science:							
	Basics of military science	2	20	6	F			
	Classics of military science	2	20	6	F			
2.	Required elective major in own research field	6	60	20	SZ	Scientific research II.	min. 12	
	Elective course (oral examination)	3	30	10	K			
	Processing and publication of research data (Research seminar)	2	20	6	G			
3.	Required elective major in own research field	6	60	20	SZ	Scientific research III.	min. 12	max. 10
	Elective course (oral examination)	3	30	10	K			
	Research seminar	2	20	6	G			
4.	Required elective major in own research field	6	60	20	SZ	Scientific research IV.	min. 12	
	Elective course (oral examination)	3	30	10	K			
	Research seminar	2	20	6	G			
COMPREHENSIVE EXAMINATION								
5.	Research and dissertation phase					Dissertation activity V.	5	max. 10
						Scientific research V.	min. 16	
6.						Dissertation activity VI.	5	
						Scientific research VI.	min. 16	
7.						Dissertation activity VII.	5	
						Scientific research VII.	min. 16	
8.						Dissertation activity VIII.	5	
						Scientific research VIII.	min. 16	
Total		50	510	162			min. 170	max. 20

2. melléklet

COURSES FOR PhD STUDENTS
AT THE DOCTORAL SCHOOL OF MILITARY ENGINEERING

COURSES OTHER THAN RESEARCH FIELDS

Neptun code	Type of the course	Course/research seminar	Credits
HKDID0001*	**R F**	**Military engineering** (introductory course)/	**2**
HKDID0002*	**R F**	**Disaster management, environment security** (introductory course)	**2**
HKDID0003*	**R F**	**Protection of critical Infrastructures** (introductory course)/	**2**
HKDID0004*	**R F**	**Information operations** (introductory course)	**2**
HKDID0006*	**R F**	**Military logistics** (introductory course)	**2**
HKDID0005	R G	Theory and methodology of scientific research	3
HKDID0007	R F	Basics of military science (military science)	2
HKDID0008	R F	Classics of military science (military science)	2
HKDID0303	R	Scientific research I.	12
HKDID0304	R	Scientific research II.	12
HKDID0305	R	Scientific research III.	12
HKDID0306	R	Scientific research IV.	12
HKDID0307	R	Scientific research V.	16
HKDID0308	R	Scientific research VI.	16
HKDID0312	R	Scientific research VII.	16
HKDID0313	R	Scientific research VIII.	16
HKDID0309	G	Processing and publication of research data	2
HKDID0311	G	Basics of degree procedures	2
HKDID0314	R	Dissertation activity V.	5
HKDID0315	R	Dissertation activity VI.	5
HKDID0316	R	Dissertation activity VII.	5
HKDID0317	R	Dissertation activity VIII.	5

Legend:

R – requested (Scientific research)
RE – required elective (final examination)
E – elective (oral examination)
F – end-of-semester assessment
G – research seminar (seminar mark)

Note: courses in bold, marked with * are required elective courses with final examination!

HKDID1100 – THEORY OF MILITARY ENGINEERING INFRASTRUCTURE – RESEARCH FIELD

REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID1105	**RE**	**Military and critical infrastructure*** ***(In dependence on topic elective research-field requested course)***	**Tibor Ferenc PhD**
HKDID1106	**RE**	**Physical protection of critical military infrastructure elements** ***(In dependence on topic elective research-field requested course)***	**Zoltán Kovács PhD**
HKDID1102	RE	Issues of developing military infrastructure	Tibor Ferenc PhD
HKDID1103	RE	New technical equipment for „Force Protection" tasks, and the principles and options of its use	Tibor Kovács PhD

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID1201	E	Permanent and semi-permanent defence facilities	Tibor Kovács PhD
HKDID1210	E	Demolition activities	Zoltán Kovács PhD
HKDID1211	E	Explosion missions	Prof.László Lukács CSc
HKDID1212	E	Protection of constructions from special impacts	Prof.László Lukács CSc
HKDID1213	E	Establishment and maintenance of protected government and military facilities	Tibor Ferenc PhD
HKDID1214	E	Detection and neutralisation of IEDs and VBIEDs	Prof.László Lukács CSc
HKDID1215	E	Skills in special construction and building engineering	Rudolf Tóth
HKDID1216	E	New means of engineer support in peace support operations	Tibor Kovács PhD
HKDID1217	E	Physical protection of elements of critical military infrastructure	Zoltán Kovács PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID1401	G	Pre-construction demining activities in PSOs and combat operations	Prof.László Lukács CSc
HKDID1403	G	Establishment of permanent fortifications in accordance with NATO principles	Tibor Ferenc PhD
HKDID1404	G	Designing permanent fortifications	Tibor Ferenc PhD
HKDID1407	G	Tasks of theatre preparation with special regard to protected Command Posts	Tibor Kovács PhD
HKDID1412	G	Explosion in ice-protection	Zoltán Kovács PhD.
HKDID1413	G	Protection from unwanted effects of explosions	Tibor Kovács PhD
HKDID1414	G	Environment-protection aspects of military explosion tasks	Prof.László Lukács CSc
HKDID1415	G	Increasing load-bearing capabilities of ground	Tibor Kovács PhD
HKDID1418	G	Physical defence of military camps – lessons learned	Tibor Kovács PhD
HKDID1419	G	Modern means and methods of fast repair of military critical infrastructure elements (roads, bridges, passes, airfields)	Tibor Kovács PhD

Courses in bold are required elective courses with final examination!

HKDID2100–MILITARY TECHNOLOGY AND ROBOTICS – RESEARCH FIELD

REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID2101	**RE**	**Military technology** ***(Research-field requested course)***	**Károly Turcsányi DSc**
HKDID2103	RE	Theory, methodology, and NATO-aspects of R&D in military technology	György Kende DSc
HKDID2108	RE	Airframe designs for the increase of economy, manoeuvrability and combat survivability of fixed and rotary wing aircraft	Gyula Óvári CSc

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID2204	E	Past, present, and future of Hungarian R&D in military technology	György Kende DSc
HKDID2207	E	Special aircraft's structures and their military use	Gyula Óvári CSc
HKDID2214	E	Theory and methodology of maintenance	Károly Turcsányi DSc
HKDID2215	E	Quality - military quality.	Károly Turcsányi DSc
HKDID2219	E	Modern measurement technology.	Róbert Szabolcsi CSc
HKDID2221	E	Theory and application of comparison of military technology assets	József Gyarmati PhD
HKDID2223	E	Function analysis of the rifleman – weapon – projectile system, and the development of small arms in the past 100 years	Ferenc Földi PhD
HKDID2224	E	Experiments and various analyses during military technology R&D – case studies	Gábor Gyulai PhD
HKDID2225	E	The career and scientific achievements of János Bolyai as a military engineer	Tibor Ács DSc
HKDID2226	E	History of Hungarian R&D in military technology	Ferenc Hajdú PhD
HKDID2228	E	Military technology assets of airborne troops	Ernő Hegedűs PhD
HKDID2229	E	Structural specialities, and development trends of internal combustion engines in military use	Ernő Hegedűs PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID2403	G	Modern management methods	Károly Turcsányi DSc
HKDID2404	G	Quality management systems and techniques in quality issues	Károly Turcsányi DSc
HKDID2411	G	Application opportunities of simulators and virtual reality in modern airmanship training	László Kavas PhD
HKDID2412	G	R&D case studies, domestic and foreign (NATO) lessons learned	György Kende DSc
HKDID2414	G	Comparison of military technology assets	József Gyarmati PhD
HKDID2415	G	Development history of air defence assets	Zoltán Krajnc PhD
HKDID2416	G	Technical analysis and evaluation of airborne troops' military technology assets	Ernő Hegedűs PhD
HKDID2417	G	Application and construction features of multipurpose aircraft	Ernő Hegedűs PhD

Courses in bold are required elective courses with final examination!

HKDID3100 – DEFENCE ELECTRONICS, INFORMATION TECHNOLOGY, AND COMMUNICATION – RESEARCH FIELD

REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID3101	**RE**	**Theory and practice of electronic warfare** ***(Research-field requested course)***	**Zsolt Haig PhD**
HKDID3102	RE	Space dynamics	József Szabó DSc
HKDID3103	RE	Technical basis of information society, information war, and security culture	László Ványa PhD
HKDID3104	RE	Electronic intelligence and support	László Kovács PhD
HKDID3105	RE	Disaster management use of national telecommunication system	Károly FeketePhD
HKDID3106	RE	Defence IT II (introductory course)	Sándor Munk DSc
HKDID3107	RE	Information infrastructures	László Kovács PhD
HKDID3108	RE	Information terrorism	László Kovács PhD
HKDID3110	RE	IT assets II.	Sándor Munk DSc
HKDID3112	RE	IT security	Lajos Muha PhD
HKDID3114	RE	Multipurpose, Gaus monostatic – twin radar systems	István Balajti PhD

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID3201	E	Basics of modelling military systems	György Seres DSc
HKDID3204	E	Joint management of military and civil telecommunication systems	Károly FeketePhD
HKDID3205	E	Military use of robots	László Ványa PhD
HKDID3206	E	Direct energy weapons	László Ványa PhD
HKDID3207	E	IT assets II.	Sándor Munk DSc
HKDID3208	E	IT defence II.	Lajos Muha PhD
HKDID3209	E	Theory and practice of electronic warfare	Zsolt Haig PhD
HKDID3210	E	Space dynamics	József Szabó DSc
HKDID3211	E	Electronic intelligence and support	László Kovács PhD
HKDID3212	E	Electronic countermeasures	László Ványa PhD
HKDID3213	E	Electronic defence	Zsolt Haig PhD
HKDID3215	E	Specific features and conditions of the military use of IT techniques and tools	Imre Négyesi PhD
HKDID3216	E	Disaster management use of national telecommunication system	Károly FeketePhD
HKDID3217	E	Disaster management use of privatised telecommunication system	Károly FeketePhD
HKDID3219	E	Infocommunication fundaments of interactive knowledge transfer	György Seres DSc
HKDID3221	E	Information infrastructures	László Kovács PhD

HKDID3222	E	Information terrorism	László Kovács PhD
HKDID3224	E	Development of e-government IT systems and applications	Imre Négyesi PhD
HKDID3225	E	Development opportunities of police and disaster management IT systems	Imre Négyesi PhD
HKDID3226	E	IT support (development and management)	Sándor Munk DSc
HKDID3227	E	„In Situ" Radar performance analysis for researchers	István Balajti PhD
HKDID3230	E	IT capabilities, services	Sándor Munk DSc
HKDID3234	E	Modern technological and organisational procedures in the field HDF communication networks	Tibor Farkas PhD
HKDID3235	E	Analysis of HDF field communication and information system	Tibor Farkas PhD
HKDID3236	E	Technical analysis of communication support for multinational NATO operations	Tibor Farkas PhD
HKDID3237	E	Cyber warfare	Zsolt Haig PhD
HKDID3238	E	Human aspects of information security (social engineering)	Csaba Kollár PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID3402	G	Analysis of permanent communication system of the HDF	Károly FeketePhD
HKDID3403	G	The telecommunication Act and military communication	Károly FeketePhD
HKDID3404	G	Hopping in communication – and in military communications	Károly FeketePhD
HKDID3405	G	Usability of high-speed systems in military communications	Károly FeketePhD
HKDID3407	G	The use of geoinformation systems in defence electronic systems	Zsolt Haig PhD
HKDID3408	G	Architectural issues of defence IT systems	Sándor Munk DSc
HKDID3409	G	Special, field IT assets	Sándor Munk DSc
HKDID3410	G	Personal and "wearable" IT devices	Sándor Munk DSc
HKDID3411	G	IT protection II.	Lajos Muha PhD
HKDID3412	G	Development options of public administration, police, and disaster management IT systems	Imre Négyesi PhD
HKDID3413	G	Development options of e-government IT systems and applications	Imre Négyesi PhD
HKDID3414	G	Development options of field IT systems	Imre Négyesi PhD
HKDID3415	G	Information infrastructures	László Kovács PhD
HKDID3416	G	Information terrorism	László Kovács PhD
HKDID3418	G	IT support missions and solutions	Sándor Munk DSc
HKDID3419	G	Internet-based IT services	Sándor Munk DSc
HKDID3421	G	Analysis of counter jamming of modern tactical radio systems I.	András Németh PhD
HKDID3422	G	Analysis of counter jamming of modern tactical radio systems II.	András Németh PhD
HKDID3423	G	Analysis of counter jamming of modern tactical radio systems III.	András Németh PhD
HKDID3424	G	Analysis of usability of special modes of modern tactical radio systems I.	András Németh PhD
HKDID3425	G	Analysis of usability of special modes of modern tactical radio systems II.	András Németh PhD
HKDID3426	G	Analysis of usability of special modes of modern tactical radio systems III.	András Németh PhD
HKDID3428	G	Development options in the deployable signals and IT system of the HDF, its technological realisation in a capability-based approach	Tibor Farkas PhD
HKDID3429	G	Technological issues of the use and assets of communication capabilities supporting the HDF joint activities	Tibor Farkas PhD
HKDID3430	G	Security of UASs	Imre Makkay CSc
HKDID3431	G	Cyber defence in public administration	Csaba Krasznay PhD

Courses in bold are required elective courses with final examination!

HKDID4100–MILITARY ENVIRONMENT SECURITY
RESEARCH FIELD
REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID4102	**RE**	**Environment protection and environment security** ***(In dependence on topic elective research-field requested course)***	**Prof.László Halász DSc László Földi PhD**
HKDID4105	RE	Chemical security	Prof. László Halász DSc László Földi PhD

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID4201	E	NBC weapons	Prof. László Halász DSc Tamás BerekPhD
HKDID4202	E	Chemistry of poisonous materials	Prof. László Halász DSc László Földi PhD
HKDID4206	E	Radioecology	Árpád Vincze PhD József Csurgai PhD
HKDID4208	E	Prevention of the proliferation of WMD	László Földi PhD
HKDID4210	E	Environmental management	László Földi PhD
HKDID4211	E	Conservation	Prof. László Halász DSc László Földi PhD
HKDID4215	E	Technologies of control and destruction of WMD	László Földi PhD József Csurgai PhD
HKDID4216	E	Analysis of the NBC-threats in Hungary	Prof. Dr. József Solymosi DSc József Csurgai PhD
HKDID4217	E	Environmental chemistry	Árpád Vincze PhD József Csurgai PhD
HKDID4221	E	Mathematical methodology of risk analysis	Árpád Vincze PhD József Csurgai PhD
HKDID4225	E	Environment security of soil remediation	Sándor Szoboszlay PhD
HKDID4226	E	Medical screening and mission support of personnel in foreign missions	Gyula Kóródi PhD
HKDID4235	E	Correlations of water management and climate change	Rajmund Kuti PhD
HKDID4236	E	Environment security tasks of defence organs	Júlia Hornyacsek PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID4401	G	Protection of clean air	Prof. László Halász DSc László Földi PhD
HKDID4402	G	Water pollution and drinking water basis	Tamás BerekPhD
HKDID4405	G	Waste management, waste treatment	László Földi PhD Prof. László Halász DSc
HKDID4406	G	Proliferation of air pollutants	Prof. László Halász DSc József Csurgai PhD
HKDID4414	G	Nuclear environment protection	György Pátzay PhD Árpád Vincze PhD
HKDID4421	G	NBC and fire situation awareness	József Csurgai PhD
HKDID4422	G	Laser-based measurement technology in environment protection and disaster management	Prof. László Halász DSc József Csurgai PhD
HKDID4428	G	Theoretical and practical issues of environmental rehabilitation	Rudolf Tóth

Courses in bold are required elective courses with final examination!

HKDID5100–MILITARY LOGISTICS, DEFENCE ECONOMY – RESEARCH FIELD

REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID5101	**RE**	**Military transport logistics** ***(In dependence on topic elective research-field requested course)***	**Attila Horváth CSc**
HKDID5104	**RE**	**Defence economics** ***(In dependence on topic elective research-field requested course)***	**László Király CSc**
HKDID5102	RE	Transport support for military operations	Attila Horváth CSc
HKDID5103	RE	Defence economy, foreign trade in military technology	György Nógrádi CSc

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID5201	E	Military (defence) evaluation of transport network	Attila Horváth CSc
HKDID5202	E	Defence budget	György Nógrádi CSc
HKDID5203	E	Military economics	György Nógrádi CSc
HKDID5208	E	Container security	Attila Horváth CSc / Csaba Zágon
HKDID5209	E	Military and critical infrastructure protection requirements of transport system development and sustainment	Attila Horváth CSc
HKDID5210	E	Security of supply chains	Attila Horváth CSc
HKDID5211	E	Supply and storage (material support)	Prof. Sándor Báthy
HKDID5212	E	Preparation methodology of military transport elements	Gábor SzásziPhD
HKDID5213	E	Relations between transport system development and transport policy	Gábor SzásziPhD
HKDID5214	E	Strategic issues of transport infrastructure-development.	Gábor SzásziPhD
HKDID5215	E	Complex development of military transport system.	Gábor SzásziPhD
HKDID5216	E	From battle field preparation to critical infrastructure protection	László Király CSc
HKDID5217	E	Economic security as a pillar of national security	Magdolna Csath PhD
HKDID5218	E	Sustainment aspects of public service and logistics	Péter Lakatos PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID5401	G	Analysis of the military (defence) use of transport networks	Attila Horváth CSc
HKDID5402	G	Defence economy – globalisation	György Nógrádi CSc
HKDID5403	G	Defence economy aspects of NATO	György Nógrádi CSc
HKDID5404	G	Economic security	Király László CSc
HKDID5405	G	Preparation methodology of military transport system elements	Gábor SzásziPhD
HKDID5406	G	Suitability-check of civil vehicles to use for military transportation	Gábor SzásziPhD

Courses in bold are required elective courses with final examination!

HKDID6100 – SECURITY TECHNOLOGY – RESEARCH FIELD

REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID6101	**RE**	**Introduction to security technology** ***(In dependence on research-field topic requested elective course)***	**Sándor Kiss PhD**
HKDID6109	**RE**	**Complex property protection assets** ***(In dependence on research-field topic requested elective course)***	Tamás BerekPhD
HKDID6102	RE	Electronic security systems – technical reliability	Gyula Zsigmond PhD
HKDID6103	RE	Flight security	Ferenc Varga PhD
HKDID6104	RE	Explosive materials and technical materiel	László Lukács CSc
HKDID6105	RE	Airframe structures for efficiency, economy, and flight security of aerial vehicles	Prof. Gyula Óvári CSc
HKDID6106	RE	Flight mechanics	László Békési PhD
HKDID6107	RE	Personal and property protection	Prof. Lajos BerekCSc
HKDID6108	RE	System, elements, operations principles and specialities of Hungarian disaster management.	Rudolf Tóth PhD

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID6201	E	Special personal protection devices in the air force	László Jakab PhD
HKDID6202	E	Reliability of electronic systems	Gyula Zsigmond PhD
HKDID6203	E	Theoretical fundaments of flight safety	Ferenc Varga PhD
HKDID6204	E	Civil defence	Sándor Kiss PhD
HKDID6205	E	Finite-element method in security technology	Tibor Goda PhD
HKDID6206	E	Flight safety systems of airframes and safety technology elements in their mechanisms	Prof. Gyula Óvári CSc
HKDID6207	E	Personal and property protection	Prof. Berek Lajos CSc
HKDID6208	E	GPS-based positioning in security technology	Tamás Berek PhD habil
HKDID6209	E	Special weapons and trends in their development	Tamás Berek PhD habil
HKDID6210	E	IEDs and VBIEDs	László Lukács CSc
HKDID6211	E	Theory of damage control and the requirements of consequence management in practice	Rudolf Tóth PhD
HKDID6212	E	Applied statistics	Prof. Dr. Horváth István CSc
HKDID6213	E	Military use of non-lethal weapons	Tibor Bartha PhD
HKDID6214	E	Protection and defence of facilities for analysis of dangerous materials	Tamás BerekPhD
HKDID6215	E	Applicability of protection of complex systems drinking water supply	Tamás BerekPhD

HKDID6216	E	Technical reliability	Prof. László Pokorádi PhD
HKDID6217	E	Model analysis of technical systems	Prof. László Pokorádi PhD
HKDID6218	E	Model analyses of management processes	Prof. László Pokorádi PhD
HKDID6219	E	Practical use of ergonomy	Pál Dunai PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID6404	G	Chemical security technology	Sándor Kiss PhD
HKDID6405	G	Preventive fire protection	Sándor Kiss PhD
HKDID6406	G	Management and neutralisation of hazardous waste	Sándor Kiss PhD
HKDID06407	G	Development trends in vehicles' electronic protection	Tibor Kovács PhD
HKDID6408	G	Individual and collective emergency exit systems of aerial vehicles	Prof. Gyula Óvári CSc
HKDID6409	G	Facility protection	Prof. Lajos BerekCSc
HKDID6410	G	Event security	Prof. Lajos BerekCSc
HKDID6411	G	Risk analysis in property protection	Prof. Lajos BerekCSc
HKDID6412	G	Analysis of destructive impacts of disasters, technical rescue, from damage control and/or logistic support aspects	Rudolf Tóth PhD
HKDID6413	G	Use of non-lethal weapons in personal and property protection	Tibor Bartha PhD
HKDID6414	G	Property protection specialities of major industrial investments	Tamás Berek PhD
HKDID6415	G	Human factors of air safety, causes of sudden incapacity and the ergonomic means of its prevention	András Sándor Szabó PhD

Courses in bold are required elective courses with final examination!

HKDID7100 – RESEARCH FIELD - DISASTER MANAGEMENT

REQUIRED ELECTIVE COURSES with FINAL EXAMINATION (6 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID7110	**RE**	**Disaster management** ***(Requested course in research field)***	**Prof. em. József Solymosi DSc** **József Dobor PhD**
HKDID7109	RE	Industry-safety management	Lajos Kátai-Urbán PhD
HKDID7111	RE	Civil defence	István Endrődi PhD habil.
HKDID7112	RE	Nuclear safety	György Pátzay PhD habil. Kristóf Horváth PhD
HKDID7113	RE	Fire protection	Prof. János Bleszity CSc Ágoston Restás PhD

ELECTIVE COURSES with ORAL EXAMINATION (3 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID7206	E	Electronic public administration	Sándor Munk DSc
HKDID7217	E	Hazardous materials and damage control	József Dobor PhD
HKDID7218	E	Disaster-management tasks in the field of safety of critical systems and facilities	Balázs Bognár PhD
HKDID7219	E	Radiology	György Pátzay PhD habil.
HKDID7220	E	Environment-protection and disaster-management monitoring systems	Prof. László Halász DSc Gyula Vass PhD
HKDID7221	E	Fire protection	László Komjáthy PhD
HKDID7222	E	Disaster (panic) psychology	Prof. Judit Bolgár CSc
HKDID7223	E	Municipality and law-enforcement related tasks in environment protection and disaster management	István Endrődi PhD habil.
HKDID7224	E	Organisational and control issues of disaster management with special regard to flood control	Árpád Muhoray PhD
HKDID7225	E	Advanced NBC studies	Vincze Árpád PhD
HKDID7226	E	Protection from serious accidents	Lajos Kátai-Urbán PhD
HKDID7227	E	Emergency planning and management	Árpád Muhoray PhD
HKDID7228	E	Transportation and logistics of hazardous materials	Lajos Kátai-Urbán PhD
HKDID7229	E	Planning, organising, and execution of technical rescue	Péter Pántya PhD
HKDID7230	E	Planning, organising, and execution of firefighting	Ágoston Restás PhD habil. László Bérczi, PhD
HKDID7231	E	Theory and practice of emergency preparation of the population	Júlia Hornyacsek PhD

RESEARCH SEMINAR COURSES (2 credits)

Neptun code	Type of the course	Course/research seminar	Course leader
HKDID7404	G	Government and leadership IT	Prof. Sándor Munk DSc
HKDID7418	G	NBC studies and nuclear emergency prevention	György Pátzay PhD habil.
HKDID7419	G	Industry-safety case studies	József Dobor PhD
HKDID7420	G	Industry-safety risk- and consequence-analysis	Béla Szakál PhD Zsolt Cimer PhD
HKDID7421	G	Disaster investigation and situation evaluation	Prof. László Halász DSc Zoltán Lévai
HKDID7422	G	Fire tests	Prof. Dr. Bleszity János CSc
HKDID7423	G	Fire prevention activities	Ágoston Restás PhD habil.
HKDID7424	G	Firefighting safety measures	Péter Pántya PhD
HKDID7425	G	Authorities and supervision activities in industry safety	Gyula Vass PhD Imre Hoffmann PhD
HKDID7426	G	Interrelations of disasters and geographic space	Klára Kecskeméthy Siposné PhD
HKDID7427	G	Theory and practice of technical rescue	Béla Szakál PhD
HKDID7428	G	Current issues of the protection of population	Júlia Hornyacsek PhD
HKDID7429	G	Technical management during consequence management of natural and civilisational disasters	Árpád Muhoray PhD
HKDID7430	G	Firefighting in extreme situations	László Bérczi, PhD
HKDID7431	G	Analysis of health impacts of disasters and crisis situations	Róbert RévaiPhD

Courses in bold are required elective courses with final examination!

Annex 3

CREDITS TO OBTAIN THROUGH SCIENTIFIC RESEARCH ACTIVITIES

(with 100 % involvement)

Activity		Credits
Book, course book, textbook	Book published in Hungary in Hungarian language	32
	Study / chapter in a book published in Hungary	20
	Peer-reviewed study / chapter in a book	20
	Printed or electronic course book in a foreign language	24
	Printed or electronic course book or textbook in the student's native language	20
	Teaching materials based on scientific research	12
Peer-reviewed article in a journal	Study in a journal published abroad in a foreign language	24
	Study in a journal published in a foreign language in Hungary	20
	Study in a journal published the student's native language	16
Non-peer-reviewed article in a journal	Study in a journal published abroad in a foreign language	16
	Study in a journal published in a foreign language in Hungary	12
	Study in a journal or electronic format published the student's native language	10
Participation in international conferences in a foreign language	Publication of the conference contribution in a peer-reviewed, foreign-language proceedings	24
	Publication of the conference contribution in a non-peer-reviewed, foreign-language proceedings	16
	Publication of the conference contribution in a foreign-language proceedings	14
	A foreign-language presentation[1]	6
	A poster in a foreign language	6
	A foreign language complementary lecture submitted in writing and published in conference proceedings	4
Participation in domestic scientific conferences	Publication of a foreign-language contribution in a foreign-language conference proceedings	12
	Publication of a contribution in an international conference proceedings in its own language	10
	Publication of a contribution in a native language in conference proceedings	8
	Giving a foreign-language presentation [1]	4
	Foreign-language poster	4
	Giving a foreign-language presentation[1]	2
	A poster in the student's native language	2
	A native-language complementary lecture submitted in writing and published in conference proceedings	2
Scientific applications and tenders	Participation in international scientific application	12
	Participation in national scientific application	10
	Participation in university-level scientific application	6
Patent	Patent registered abroad	30
	Creation, industrial manufacturing on the basis of a patent	24
	Patent registered in Hungary	20

Any other scientific activity	Collection and presentation of research-related literature [2]	9
	Draft dissertation made for the preliminary defence during the training period	30
	Study in the research topic, which may be accessed in the university library [3]	6
	"Research report" made and approved for the comprehensive examination [4]	20

Notes: In the case of co-authorship the number of credits is to be determined in accordance with Point 2. c.

1. Credits may be obtained only if the contribution has not been published.
2. Credits may be obtained only in the first semester.
3. Only one conference presentation, certified in writing, may be taken into account per academic year.
4. To be taken into consideration only in the 5th semester.