



**NEMZETI
KÖZSZOLGÁLATI EGYETEM**
A HAZA SZOLGÁLATÁBAN

HADTUDOMÁNYI ÉS HONVÉDTISZTKÉPZŐ KAR
Katonai Műszaki Doktori Iskola

In effect since 1 September 2019

**TRAINING PROGRAMME
OF THE
DOCTORAL SCHOOL OF MILITARY
ENGINEERING**

Decision of the Senate
Approved by the decision of the Senate

1. RESEARCH AREAS, MISSION AND FORMS OF EDUCATION OF THE DOCTORAL SCHOOL OF MILITARY ENGINEERING

1.1 Forms of education in the Doctoral School:

The Doctoral School of Military Engineering provides doctoral training programme and scientific research activities in the following areas: military engineering as well as basic, applied, technology, technology transfer and technical innovation related to the application of technical disciplines specifically for military and broader defence purposes.

The research results are applied in modern, new procedures and tools of military equipment and, in a broader sense, of defence, public administration and the related scientific areas. Such areas include: defence industry; defence electronics, IT and communication; national defence; law enforcement; environment security; environmental protection; CBRN defence (chemical, biological, radiological and nuclear) and non-proliferation; fight against terrorism; disaster management; critical infrastructure; energy security; cyber security and safety.

Research areas of the Doctoral School:

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

1.2. Mission of the programme

Mission of the programme is to prepare doctoral students, participating in either organized or individual training programme, for obtaining their doctoral (PhD) degree in military engineering.

1.3. Relevant Master's Degrees

The training at the Doctoral School of Military Engineering is based on the following accredited Master's programmes:

- | | |
|----------------------------------|---------------|
| – Defence C3 Systems Manager | 2006/2/IX/5/8 |
| – Military Maintenance Manager | 2017/3/VI/5 |
| – Military Operational Logistics | 2017/3/VI/5 |
| – Disaster Management | 2015/7/XI/16 |

The Doctoral School of Military Engineering primarily accepts doctoral students with a degree in the aforementioned Master's programmes. Nonetheless, students of other institutions or students with a different Master's degree may also apply for the doctoral training programme as long as they have a relevant scientific background and a research topic related to military engineering.

1.4. Forms of education in the Doctoral School

The doctoral training programme is tailored to the scientific needs of doctoral students, enrolled either in group or individual preparation, within the military engineering discipline. The programme constitutes of two main phases, namely the training and research phase and the research and dissertation phase.

The training at the Doctoral School of Military Engineering is realized in the following forms:

- full time (state funded or self-financed);
- part time (distance learning, self-financed);
- individual (self-financed);
- unorganized training: individual preparation

1.5. Language of the training

Language of the training is Hungarian and English.

2. CREDIT ALLOCATION, TRAINING REQUIREMENTS

2.1 General training requirements:

As part of the organized training, doctoral students shall complete a minimum of 240 credits by the end of the 8th semester as a prerequisite to obtain the absolutorium.

- minimum 50 credits for academic results;
- minimum 170 credits for scientific researches;
- maximum 20 credits for holding lectures (teaching);

The doctoral training programme consists of two phases:

- training and research phase
- research és dissertation phase

Each phase consists of four semesters. An average of 30 credits, but at least 20 credits need to be collected during each semester.

At the end of the fourth semester of the training and research phase, doctoral students must pass a comprehensive examination. Upon successful completion of the comprehensive examination, doctoral students enter the 4-semester long research és dissertation phase. The credits of a successful comprehensive examination are taken into account for the 5th semester, during the research and dissertation phase.

The above requirements of the training programme are identical to the requirements of the organized training programme. Doctoral students enrolled in individual training programme - with the exception of the first semester - shall obtain the 240 credits in accordance with their own research plan, and the necessary number of credits is to be obtained by the end of the training and research phase. Doctoral students with individual training plan, however, are not required to attend PhD classes.

At the end of the first semester, doctoral students must submit their “Study and Research Plan” by 31 January, which includes their course enrollment, research work, and planned publications. Prior to the application for the comprehensive examination, doctoral students are required to submit their “Research report” that consists of the result of researches conducted during the research and dissertation phase (semesters 1-4) as well as of the research and dissertation phase plans (semesters 5-8).

Doctoral students are required to participate at the beginning of each semester to an orientation session with the aim of learning about the new procedures and new topics of discipline. Doctoral students are also requested to contact the lecturer of each course by the end of the first month of the semester in order to clarify the course requirements.

The regulations applicable to doctoral students enrolled in individual preparation and individual training programme are defined in the Doctoral and Habilitation Regulations of the University (DHR).

2.2 Requirements to complete doctoral studies

During the first semester of the training and research phase, doctoral students, including those in individual training, are required to take the following courses:

- „Introduction courses” module, which consists of five, 2-credits introduction courses - evaluated separately in each semester;
- „Theory and methodology of scientific research" practical course for 3 credits. Doctoral students receive a mark to conclude the course.

At the end of the first semester, doctoral students shall take a combined exam of five courses within the “Introduction courses” module. The successful combined exam, the completion of the “Theory and methodology of scientific research” course and a summary of the scientific literature are prerequisites for the continuation of studies.

Doctoral students enrolled in organized programme are required to complete mandatory-elective courses for 6 credits in their own research area. Furthermore, it is obligatory to complete the “Foundations of Military Science” course for 2 credits and the “Processing and Publication of Research Data” research seminar for an additional 2 credits.

During the 3rd and 4th semesters, doctoral students in organized training programme within the DSME are obliged to register for two mandatory-elective courses relevant to their own or other research area for 6 respective credits. Furthermore, registering for two research seminars is also mandatory for 2 respective credits during the given period. Additionally, the “Classics of Military Science” course shall be completed in the 3rd semester for 2 credits.

From the second until the fourth semester, doctoral students shall register for at least three lectures for 3 respective credits.

Throughout their studies, doctoral students may choose extra courses worth not more than ten percent of the total 50 credits required by the study obligation without paying any additional cost.

The course list can be found in the Appendix 1, while the detailed list of courses per year can be found in Appendix 2. ¹If justified and related to the research topic, doctoral students may register for courses announced by other doctoral schools.

2.3 Requirements of scientific research work

In order to meet the requirements of the scientific research work, doctoral students are requested to sign up for the “Scientific research” course of the respective semester (Scientific research I-VIII).²

In regards to scientific research activities, during the first part of the training programme (semesters 1-4), doctoral students must gain at least 12 credits in each semesters. In the second part of the training programme (semesters 5-8) doctoral students must gain at least 20 credits in each semesters. By the end of the doctoral programme, at least 170 credits must be collected. In the first semester, doctoral students may request 20 credits for their relevant scientific articles published prior to their admission into to doctoral school. Credits may be acquired through the scientific activities determined in Appendix 3.

9 credits may be acquired in the first semester as scientific activity by submitting a literature summary for the “Theory and methodology of scientific research” course.

In case doctoral students do not acquire credits for scientific publications in the given semester, or, based on the credit points listed in Appendix 3, they have not collected 12 credits during the first four semesters and 15 credits in the last four semesters, the supervisor of doctoral students may grant 12 credits for the completion of the “Scientific research I-IV” courses and 15 credits for the

¹ The actual course list is available on the website of the Doctoral School of Military Engineering

²The Roman numeral next to the course title indicates the semester when the course can be taken.

completion of the “Scientific research V-VIII” courses. This shall be recorded in the written semester report of the supervisor. Alternatively, doctoral students are eligible only to the credit points related to the relevant scientific research.

In the second part of the training (from the 5th till the 8th semester), doctoral students shall obtain 5 credit points in each semester for the dissertation work. In order to meet the requirements of the thesis work, doctoral students are requested to sign up for the “Scientific research” course of the respective semester (Scientific research I-VIII).³ In order to earn credits, doctoral students are requested to hold an oral presentation in the given semester. The presentation shall contain the scientific research work and the dissertation progress. The presentation is to be held in front of a three-member committee, with the participation of doctoral students of other research areas. The workshop shall be documented. The chair of the committee is the leader of the research area, while the members include the supervisor and another expert.

Doctoral students in individual preparation are requested to register for the “Research Management” course in the 5th semester and for the “Basics of the Doctoral Procedure” course in the 8th semester. Both lectures conclude with a signature and worth 2 credits, respectively. Students must attend at least two third of the classes in order to receive signature.

Doctoral students may receive 20 credits - registered during the fifth semester - upon successful completion of the comprehensive examination.

The supervisor is to acknowledge each semester the academic activity of doctoral students through the “Semester credit report” by recognizing the credit points. It is mandatory to indicate the link to the published articles of doctoral students on the Repository of Hungarian Scientific Works (MTMT).

The same publication or scientific activity can be taken into account only once during the entire period of the doctoral programme.

A scientific publication has a minimum length of 0.5 sheet. Exceptions of the above are posters and conference proceedings, which are shorter publications.

Rules of taking into account publications in a given semester:

- a submitted but not yet accepted publication, or a study where the editor requests major changes are considered as non-peer reviewed article;
- a certified editor’s declaration must be attached to a submitted but yet unpublished paper.
- In case of a co-authored publication, an author contribution statement has to be enclosed confirming the contribution in percentage. Credits are to be awarded based on the contribution in percentage and decimals are to be rounded in accordance with the general rules of mathematics. As an exception, 0.5 fractional parts are always rounded up.
- In case of conference presentation, it is required to attach either the conference certificate, the source data of the publication or the presentation material.
- It is required to attach a copy of the publication, or, a copy of the manuscript should the article not be published yet.

It is mandatory for doctoral students to obtain at least 8 credits based on the Publication Score Table of the DHR during the first period of the doctoral training programme. This shall include at least two scientific articles published in an A, B, C or D category peer reviewed journal - defined by the Committee on Military Science of the HAS.

Doctoral students must prepare additional publications in the second phase of the training, provided that, together with the completed publications in the first phase, a minimum of 20 publication points for the degree procedure has been achieved as a prerequisite to the absolutorium. Additionally, doctoral students are required to publish five scientific articles about their research results. These publications consist of at least three single authored and one foreign language articles and are to

³The Roman numeral next to the course title indicates the semester when the course can be taken.

appear in A, B, C or D category journal. In each stage of the training programme, doctoral students may obtain credits for one unpublished article with a declaration of acceptance.

If a publication appears in a journal that is not categorized by the Hungarian Academy of Sciences, doctoral students may request and the head of the research area may propose the head of the DS to acknowledge the credit points.

Further requirements of the acceptance of scientific research work are 1) presenting the 4-year research plan and the yearly progress at the end of the second semester within the framework of the Scientific research II. course and 2) presenting the research results at the end of the seventh semester within the framework of the Scientific research VII. course. The scientific achievements are to be presented in a conference of the DSME organized in May and November.

2.4 Teaching requirements

Teaching is an optional – and not obligatory – activity to collect credits.

If doctoral students are employed as lecturer, they are not entitled to obtain credits for teaching activities at the employer university.

Credits for teaching activities may be obtained - with the exception of individual preparation - only between the 3rd and the 8th semester.

Teaching can only be conducted with the 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.

5 credits per semester may be acquired for teaching. In the first and second phase of the doctoral programme 10 credits may be obtained respectively, while a total of 20 credits may be collected during the entire training programme. Four classes held are equal to one credit. The head of the relevant department shall attest the conduct of teaching.

3. TESTING KNOWLEDGE

3.1. Testing may be conducted in the following ways:

During the doctoral training programme, the knowledge of doctoral students in each academic subjects is tested in accordance with the Curriculum. The requirements of each tests are described in the Course Programs.

Testing may be conducted by exam, mid-term evaluation, or 5-point grading scale in case of practical courses. The rating scale of the evaluation is as follows: Passed, and Failed.

In case of end-of-term exam, the marks are determined by the examiner or leading teacher. Regarding the “Scientific research I-VIII” course, it is the supervisor who assigns the mark and signs the markbook, while in case of “Dissertation activities V-VIII”, it is the relevant committee who is responsible for defining and signing the mark in the markbook. Lecturers shall record the assessment in NEPTUN and sign the exam sheet as well.

The rules of retaking examinations and the tasks to complete an improvement exam are regulated by the Academic and Examination Regulations of NUPS.

At the end of each term, doctoral students are obliged to submit a personal “Credit report”. This report shall contain all academic, scientific or teaching activities of the doctoral students including the approved credits and the marks received. It shall also contain the written evaluation of the supervisor.

3.2. Comprehensive examination

During the doctoral program, at the end of the fourth semester, as a conclusion of the training and research phase and as a condition for the commencement of the research and dissertation phase, a comprehensive examination shall be taken, which measures and evaluates the academic and research progress.

Doctoral students shall apply for the comprehensive examination by filling the application form, which is attached to the Doctoral and Habilitation Regulations of the University. The deadline for application is announced by the Doctoral School. The admission for the comprehensive examination are decided by the Council of the Doctoral School of Military Engineering. Admission to the comprehensive examination requires at least 90 credits collected during the training and research phase, as well as all the other credit points for academic achievements defined in paragraph 2.2. Furthermore, doctoral students shall acquire at least 8 publication points as well.

The applicant should acquire documented teaching activities or research work equal to 150 credits, and 20 credits for publication, which are mandatory for obtaining the degree. Requirements of acquiring credits for academic activities defined in 2.2 are not applicable for doctoral students in individual preparation.

The comprehensive examination consists of two major parts:

- The first part assesses the theoretical knowledge of the candidate;
- The second, dissertation part assesses the scientific progress and achievement of the candidate.

In the theoretical part of the comprehensive examination, the candidate shall take an examination in two subjects or subject areas. The topics covered by the theoretical examination may differ by research areas. The first topic serves to assess the general knowledge of doctoral students on the main courses of their research areas while the second topic helps to evaluate their knowledge on the research topic. The exact topics of the theoretical examination are approved by the DCD following the recommendation of the head of the research area.

In the dissertation part of the comprehensive examination, doctoral students are to present their research results to date and further research plans based on the previously submitted “Research report”. The “Research report” should be a scientific paper in 1.5 sheets containing a summary of the professional literature related to the conducted research as well as the scientific achievements. Doctoral students shall also cover in the document the research plan of the second training phase, the detailed schedule of the dissertation work and publication of the results. The research report is required to be submitted to the head of the doctoral school prior to the comprehensive examination following a detailed and written assessment of the supervisor. The copy and list of publications (the latter can be printed from the Repository of Hungarian Scientific Works) as well as the copy of the doktori.hu profile of doctoral students shall be attached to the research report.

The comprehensive examination must be taken in public before a committee. The actual Doctoral and Habilitation Regulations of the University regulates the members of the committee, procedure, exam courses, exam topic and the rules of evaluation of the comprehensive examination.

Doctoral students may receive 20 credits - registered during the fifth semester - upon successful completion of the comprehensive examination.

A failed comprehensive examination may be retaken once, in the same term.

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

The pre-degree certificate (absolutorium) certifies that doctoral students have fulfilled all the required coursework, scientific research and teaching activities (optional choice), have successfully passed - with the exception of language exams - all required exams, and have obtained the 240 credits listed among the requirements. The certificate also proves - without any qualification or evaluation - that doctoral students have completed the set requirements of the doctoral training programme.

At the end of the eighth semester – if all conditions of issuing the pre-degree certificate exist – the Doctoral School issues the pre-degree certificate. However, student only receive the certificate after the supervisor’s doctoral school on the 4-year progress has been submitted to the Doctoral School.

The absolutorium may be issued if 1) 240 credits are obtained at the end of the training programme, 2) compliance with the training requirements are met and 3) 20 publication credit points are achieved based on the list provided by the DHR. Additionally, doctoral students are required to publish five scientific articles about their research results. These publications consist of at least three single authored and one foreign language articles and are to appear in A, B, C or D category journal.

The four-year training period cannot be shortened and the pre-degree certificate cannot be issued earlier. The preliminary defence, however, may be conducted in the last semester.

The pre-degree certificate shall be signed by the Head of the Doctoral School.

Budapest, 2019.

Dr. György Kende
Head of the Doctoral School

CURRICULUM

Semester	Academic requirements					Scientific research				Teaching activities Credits (optional)		
	Subject	Credits	Contact classes		Type	Subject	Minimum credits:	Contact classes			Type	
			F	P T				F	P T			
1.	Introduction courses:				CE	Scientific research I.	(at least 12 credits)	-	-	P	-	
	Military Engineering	2	20	6	MT							
	Disaster Management Environment Security	2	20	6	MT							
	Critical Infrastructures	2	20	6	MT							
	Information Operations	2	20	6	MT							
	Military Logistics	2	20	6	MT							
Theory and Methodology of Scientific Research		3	40	12	P							
2.	Foundations of Military Science		2	20	6	MT	Scientific research I.	(at least 12 credits)	-	-	P	-
	mandatory-elective course within the research area		6	60	20	L						
	Elective course		3	30	10	L						
	Processing and Publication of Research Data (research seminar)		2	20	6	P						
3.	Classics of Military Science		2	20	6	MT	Scientific research III.	(at least 12 credits)	-	-	P	maximum 10 credits
	Mandatory-elective course within the research area		6	60	20	L						
	Elective course		3	30	10	L						
	Research seminar		2	20	6	P						
4.	Mandatory-elective course within the research area		6	60	20	L	Scientific research IV.	(at least 12 credits)	-	-	P	-
	Elective course		3	30	10	L						
	Research seminar		2	20	6	P						
COMPREHENSIVE EXAMINATION												
5.	Research és dissertation phase					Research Management	2	20	6	S	-	
						Dissertation activities V.	5	-	-	R		
						Scientific research V.	(at least 15 credits)	-	-	P		
6.	Research és dissertation phase					Dissertation activities VI.	5	-	-	R	-	
						Scientific research VI.	(at least 15 credits)	-	-	P		
7.	Research és dissertation phase					Dissertation activities VII.	5	-	-	R	-	
						Scientific research VII.	(at least 15 credits)	-	-	P		
8.	Research és dissertation phase					Basics of the Doctoral Procedure	2	20	6	S	-	

					Dissertation activities VIII.	5	-	-	R	
					Scientific research VIII.	(at least 15 credits)	-	-	P	
	Total:	50	510	162		(at least 170 credits)	40	12		maximum 20

Abbreviations: F – Full-time training, PT – Part-time training; MT – Mid-term evaluation; P – Practice, L – Lecture, CE – Combined exam of individual courses; R – Report; E – Exam; S – Signature

**LIST OF ELECTIVE COURSES
IN THE DOCTORAL SCHOOL OF MILITARY ENGINEERING**

BY RESEARCH AREA

Code	Course type	Exam type	Course/research seminar name	Credits
HKDID0000	Exam course	CE	Introduction courses (only for exam)	-
HKDID0001*	L	MT	Basics of Military Engineering (introductory course)	2
HKDID0002*	L	MT	Disaster Management, Environment Safety (introductory course)	2
HKDID0003*	L	MT	Defence of Critical Infrastructures (introductory course)	2
HKDID0004*	L	MT	Information Operations (introductory course)	2
HKDID0006*	L	MT	Military Logistics (introductory course)	2
HKDID0005*	L	P	Theory and Methodology of Scientific Research	3
HKDID0007*	L	MT	Foundations of Military Science	2
HKDID0008*	L	MT	Classics of Military Science	2
HKDID0303	L	P	Scientific research I.	12
HKDID0304	L	P	Scientific research II.	12
HKDID0305	L	P	Scientific research III.	12
HKDID0306	L	P	Scientific research IV.	12
HKDID0307	L	P	Scientific research V.	15
HKDID0308	L	P	Scientific research VI.	15
HKDID0312	L	P	Scientific research VII.	15
HKDID0313	L	P	Scientific research VIII.	15
HKDID0309*	L	P	Processing and Publication of Research Data	2
HKDID0311	L	S	Basics of the Doctoral Procedure	2
HKDID0318	L	S	Research Management	2
HKDID0314	L	R	Dissertation activities V.	5
HKDID0315	L	R	Dissertation activities VI.	5
HKDID0316	L	R	Dissertation activities VII.	5
HKDID0317	L	R	Dissertation activities VIII.	5
HKDID0319*	EC	P	Research Methodology of Doctoral Dissertation in Military Engineering	2

Abbreviations: CE – Combined exam of individual courses; EC - Exam courses; M - Mandatory courses; E - Elective courses; MT – Mid-term evaluation; R – Report; A - Signature

Note: Courses marked as bold are the introductory courses of the first semester that concludes with a combined exam.

HKDID1100 – MILITARY ENGINEERING INFRASTRUCTURE THEORY RESEARCH AREA

MANDATORY-ELECTIVE COURSES (6 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID1106*	ME	Physical Defence of Military and Critical Infrastructure <i>(Mandatory course of the research area, in case of relevant topic)</i>	Dr. Zoltán Kovács PhD
HKDID1103*	ME	Implementation of the FP tasks' new technical equipment and principles, opportunities of application of those	Dr. Tibor Kovács PhD

Course marked as bold is the mandatory-elective course of the research area in the 2nd semester.

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID1211*	EC	Blasting Tasks and Technics	Dr. László Lukács CSc
HKDID1214*	EC	IED & VBIED Survey and Neutralization	Dr. László Lukács CSc
HKDID1216*	EC	New Tools for Technical Support of Peace Support Operations	Dr. Tibor Kovács PhD
HKDID1217*	EC	Physical Defence of Military and Critical Infrastructure	Dr. Zoltán Kovács PhD
HKDID1218*	EC	Possible Ways of Building Protection Against Blast Attacks	Dr. Zsuzsanna Balogh PhD

RESEARCH SEMINAR COURSES (2 credits, practical course)

Code	Course type	Course/research seminar name	Responsible
HKDID1407*	P	Preparation of the Theatre, With Special Attention to Protected HQ Locations	Dr. Tibor Kovács PhD
HKDID1412*	P	Ice Flood Protection by Blasting	Dr. Zoltán Kovács PhD
HKDID1414*	P	Environmental Aspects of Military Blasting Tasks	Dr. László Lukács CSc

HKDID2100–MILITARY TECHNOLOGY AND ROBOTICS

MANDATORY-ELECTIVE COURSES (6 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID2103*	ME	Theory, Methodology and NATO Aspects of R&D in Military Technology	Dr. György Kende DSc

Course marked as bold is the mandatory-elective course of the research area in the 2nd semester.

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID2204*	EC	Past, Present and Future of the Hungarian R&D in Military Technology	Dr. György Kende DSc
HKDID2224*	EC	Military Related R&D Experimentation and Planning – case-studies	Dr. Gábor Gyulai PhD
HKDID2233*	EC	Effects of Generational Modernization on Force Readiness within the Hungarian Defence Forces	Dr. Imre Porkoláb PhD

HKDID3100– Defence Electronics, IT and Communication Research Area

MANDATORY-ELECTIVE COURSES (6 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID3101*	ME	Theory and Practice of Electronic Warfare <i>Mandatory course of the research area</i>	Dr. Zsolt Haig PhD (co-lecturer: Dr. István Balajti PhD)
HKDID3107*	ME	Information Infrastructures	Dr. László Kovács PhD
HKDID3108*	ME	Cyber terrorism	Dr. László Kovács PhD
HKDID3114*	ME	Multirole Gaussian monostatic – Twin radar systems	Dr. István Balajti PhD

Course marked as bold is the mandatory-elective course of the research area in the 2nd semester.

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID3201*	EC	Basics of Military System Modeling	Dr. György Seres DSc
HKDID3219*	EC	ICT Basics in Interactive Knowledge Transfer	Dr. György Seres DSc
HKDID3221*	EC	Information Infrastructures	Dr. László Kovács PhD
HKDID3222*	EC	Cyber terrorism	Dr. László Kovács PhD
HKDID3227*	EC	“In-Situ” Radar Performance Analysis for Researchers	Dr. István Balajti PhD
HKDID3234*	EC	Modern Technological and Organizational Processes in the Management of Battlefield Infocommunication Networks in the Hungarian Defense Forces	Dr. Tibor Farkas PhD

HKDID3235*	EC	Research of the Battlefield Infocommunication System in the Hungarian Defense Forces	Dr. Tibor Farkas PhD
HKDID3236*	EC	Technical Research of the Infocommunication Support in NATO Multinational Operations	Dr. Tibor Farkas PhD

RESEARCH SEMINAR COURSES (2 credits, practical course)

Code	Course type	Course/research seminar name	Responsible
HKDID3407*	P	Application of GIS in Defence Electronics	Dr. Zsolt Haig PhD
HKDID3408*	P	Architectural Aspects of Defence IT Systems	Dr. Sándor Munk DSc
HKDID3409*	P	Rugged IT Devices	Dr. Sándor Munk DSc
HKDID3410*	P	Personal and Wearable IT Devices	Dr. Sándor Munk DSc
HKDID3415*	P	Information Infrastructures	Dr. László Kovács PhD
HKDID3416*	P	Cyber Terrorism	Dr. László Kovács PhD
HKDID3418*	P	IT Support Activities and Solutions	Dr. Sándor Munk DSc
HKDID3419*	P	Internet-based IT Services	Dr. Sándor Munk DSc
HKDID3428*	P	Development Trends in the Deployable Info-Communication System on the Hungarian Defence Forces	Dr. Tibor Farkas PhD
HKDID3429*	P	Challenges of Infocommunication Capabilities, Applications and Technical Equipments in the Joint Operations of the Hungarian Defense Forces	Dr. Tibor Farkas PhD
HKDID3431*	P	Cybersecurity in Public Administration	Dr. Csaba Krasznay PhD

**HKDID4100 – MILITARY ENVIRONMENT SECURITY
RESEARCH AREA**

MANDATORY-ELECTIVE COURSES (6 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID4102*	ME	Environmental Protection and Security	Dr. László Földi PhD
HKDID4105*	ME	Chemical Safety	Dr. László Földi PhD

Course marked as bold is the mandatory-elective course of the research area in the 2nd semester.

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID4201*	EC	Weapons of Mass Destruction	Dr. Tamás Berek PhD
HKDID4202*	EC	Toxic Chemicals	Dr. László Földi PhD
HKDID4206*	EC	Radioecology	Dr. József Csurgai PhD
HKDID4208*	EC	Non-Proliferation Actions Against Weapons of Mass Destruction	Dr. László Földi PhD
HKDID4210*	EC	Environmental Management	Dr. László Földi PhD
HKDID4211*	EC	Nature Conservation	Dr. László Földi PhD
HKDID4215*	EC	Monitoring and Extermination Technologies of Weapons of Mass Destruction	Dr. László Földi PhD
HKDID4216*	EC	NBC Threat Analysis on the Hungarian Territory	Dr. József Csurgai PhD
HKDID4221*	EC	Mathematical Methods of Risk Assessment	Dr. József Csurgai PhD
HKDID4238*	EC	Containerised Wastewater Treatment Systems in Military Camps	Dr. Tamás Karches PhD
HKDID4242*	EC	Corrosion Protection in the Defence Sector with Special Emphasize on Microbiological Corrosion	Dr. Judit Knisz PhD

RESEARCH SEMINAR COURSES (2 credits, practical course)

Code	Course type	Course/research seminar name	Responsible
HKDID4401*	P	Protection Against Air Pollution	Dr. László Földi PhD
HKDID4405*	P	Waste Handling and Waste Management	Dr. László Földi PhD
HKDID4421*	P	Evaluation of NBC and Fire Situations	Dr. József Csurgai PhD

**HKDID5100 – DEFENCE LOGISTICS AND DEFENCE ECONOMICS;
RESEARCH AREA**

RESEARCH SEMINAR COURSES (2 credits, practical course)

Code	Course type	Course/research seminar name	Responsible
HKDID5407A	P	Supply Chain Designing and Security	Dr. Pavel Foltin PhD

HKDID6100 – SECURITY TECHNOLOGY RESEARCH AREA

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID6212*	EC	Applied Statistics	Dr. István Horváth CSc

HKDID7100 – DISASTER MANAGEMENT RESEARCH AREA

MANDATORY-ELECTIVE COURSES (6 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID7110*	ME	Disaster management	Dr. József Solymosi DSc
HKDID7109*	ME	Management of Industrial Safety	Dr. Gyula Vass PhD
HKDID7111*	ME	Civilian Protection	Dr. László Teknős PhD
HKDID7112*	ME	Nuclear Safety and Emergency Response	Dr. György Pátzay CSc
HKDID7113*	ME	Fire Protection	Dr. János Bleszity CSc

Course marked as bold is the mandatory-elective course of the research area in the 2nd semester.

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID7217*	EC	Hazardous Materials and Their Remediation	Dr. József Dobos PhD
HKDID7218*	EC	Disaster Management Tasks for the Safety of Critical Systems and Installations	Dr. Balázs Bognár PhD
HKDID7219*	EC	Radiology	Dr. György Pátzay CSc
HKDID7220*	EC	Disaster Management Monitoring Systems	Dr. Gyula Vass PhD
HKDID7226*	EC	Protection Against Major Accidents	Dr. Lajos Kátai-Urbán PhD
HKDID7228*	EC	Transportation and Logistics of Dangerous Goods	Dr. Gyula Vass PhD
HKDID7229*	EC	Planning, Organization and Execution of Technical Rescue	Dr. Péter Pántya PhD
HKDID7230*	EC	Planning, Organization and Execution of Firefighting	Dr. Ágoston Restás PhD

RESEARCH SEMINAR COURSES (2 credits, practical course)

Code	Course type	Course/research seminar name	Responsible
HKDID7418*	P	Introduction to Radiation Protection and Nuclear Disaster Preparedness	Dr. György Pátzay CSc
HKDID7419*	P	Case Studies in Industrial Safety	Dr. József Dobos PhD
HKDID7420*	P	Risk and Consequences Analyses in the field of Industrial Safety	Dr. Zsolt Cimer PhD
HKDID7423*	P	Fire Prevention Activities	Dr. Ágoston Restás PhD
HKDID7424*	P	Safety Aspects of Firefighting	Dr. Péter Pántya PhD
HKDID7426*	P	Relations Between Disasters and Geography	Dr. Klára Siposné Kecskeméthy PhD
HKDID7440A	P	Civil Protection in the European Union Member Countries	Dr. Tomáš Zeman PhD
HKDID7442A	P	Disaster Risk Management	Dr. Alena Oulehlová PhD

HKDID8100 – AVIATION AND AERONAUTICS RESEARCH AREA

ELECTIVE COURSES (3 credits, exam)

Code	Course type	Course/research seminar name	Responsible
HKDID6216*	EC	Safety Engineering	Dr. László Pokorádi CSc
HKDID6217*	EC	Technical System Modelling	Dr. László Pokorádi CSc
HKDID6218*	EC	Maintenance Process Modelling	Dr. László Pokorádi CSc
HKDID8210*	EC	Automatic Flight Control Systems of UAVs	Dr. Róbert Szabolcsi CSc

RESEARCH SEMINAR COURSES (2 credits, practical course)

Code	Course type	Course/research seminar name	Responsible
HKDID3430*	P	UAV Security Systems	Dr. Imre Makkay PhD
HKDID6415*	P	Human Factors in Flight Safety, Causes of Sudden Incapacitation, Possible Countermeasures and Prevention by Ergonomic Tools	Dr. Sándor András Szabó PhD
HKDID8409*	P	Programming in MATLAB	Dr. Róbert Szabolcsi CSc

CREDITS TO OBTAIN FOR SCIENTIFIC ACTIVITIES
(for 100% contribution)

Scientific activities		Credit
Book, course book, textbook	Book published in Hungary	32
	Chapter in a book published in Hungary	20
	Scientific study in a book	20
	Printed or electronic course book in foreign language	24
	Printed or electronic course book in the native language of the PhD student	20
	Teaching material based on scientific research	12
Peer-reviewed article in a journal	Article published abroad in foreign language	24
	Article published in Hungary in foreign language	20
	Article published in a journal in the native language of the PhD student	16
Non-Peer-reviewed article in a journal	Article published abroad in foreign language	16
	Article published in Hungary in foreign language	12
	Article published in a journal or an electronic site in the native language of the PhD student	10
Participation in international scientific conference (in foreign language)	Publication of the presentation in a peer-reviewed, foreign language proceeding	24
	Publication of the presentation in a non-peer-reviewed, foreign language proceeding	16
	Publication of the presentation in a foreign language proceeding	14
	Foreign language presentation	6
	Poster in foreign language	6
	Complementary lecture in foreign language, submitted in writing and published in conference proceedings	4
Participation in national scientific conference	Publication of the foreign language presentation in a foreign language proceeding	12
	Publication of a contribution in native language in conference proceedings	10
	Publication of native language presentation in conference proceeding	8
	Foreign language presentation	4
	Poster in foreign language	4
	Presentation in native language	2
	Poster in native language	2
Scientific tenders	Participation in international scientific conference (in foreign language)	12
	Participation in national scientific conference	10
	Participation in university-level scientific conference	6
Patent, invention	Foreign patent	30
	Creation, patent-based industrial production (4 points)	24
	Patent granted in Hungary (3 points)	20
Other scientific activities:	Professional literature summary related to the research topic ²	9
	Doctoral draft dissertation prepared for preliminary defence during the training programme	30
	A study or review of a research topic that can be researched in library	6

	“Research report” prepared and approved for the comprehensive examination	20
	Research and Teaching	2

Note: In case of co-authorship, the number of credits is to be determined in accordance with the co-author declaration and confirmation.

1. To be accepted, if the presentation material has not been published.
2. Applicable only to the first semester
3. Applicable only to the fifth semester
4. Teaching or other research organization activity at the doctoral school or at the specific department may be accepted once a year.