Study plan

Name of study plan: prg.ai Master

Faculty/Institute/Others: Faculty of Electrical Engineering Department: Branch of study guaranteed by the department: Welcome page Garantor of the study branch: Program of study: prg.ai Master Type of study: Follow-up master full-time Required credits: 90 Elective courses credits: 0 Sum of credits in the plan: 90 Note on the plan:

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 84 The role of the block: P

Code of the group: 2025_MPRGAIDIP Name of the group: Diploma Thesis Requirement credits in the group: In this group you have to gain 30 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 30 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) Completion Credits Scope Semester Role BDIP30 Diploma Thesis Z 30 22s L P

Characteristics of the courses of this group of Study Plan: Code=2025_MPRGAIDIP Name=Diploma Thesis

 BDIP30
 Diploma Thesis
 Z
 30

 Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.

Code of the group: 2025_MPRGAIP

Name of the group: Compulsory subjects of the programm Requirement credits in the group: In this group you have to gain 54 credits Requirement courses in the group: In this group you have to complete 9 courses Credits in the group: 54 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BECM36AIS	Al and Society	ZK	6	1P+1C	Z	Р
BECM36AIC	Al for Cybersecurity	Z,ZK	6	2P+2C	Z	Р
BE4M33MPV	Computer Vision Methods Georgios Tolias, Ji í Matas, Jan ech, Dmytro Mishkin Ji í Matas (Gar.)	Z,ZK	6	2P+2C	L	Р
BECM33DPL	Deep Learning Essentials Lukáš Neumann	Z,ZK	6	2P+2C	Z	Р
BECM33MLE	Machine Learning Engineering	KZ	6	2P+2C	Z	Р
BECM33MLF	Machine Learning Fundamentals	Z,ZK	6	2P+2C	L	Р
BECM36MLM	Machine Learning Methods	Z,ZK	6	2P+2C	L	Р
BECM36NLPT	Natural Language Processing and Translation	Z,ZK	6	2P+2C	L	Р
BECM36STAI	Selected Topics in Al	KZ	6	2P+2C	L	Р

Characteristics of the courses of this group of Study Plan: Code=2025_MPRGAIP Name=Compulsory subject	cts of the pro	gramm
BECM36AIS AI and Society	ZK	6
The course introduces students to topics that combine technical understanding of ML/AI safety and security with social and philosophical dimensions of	f ML/AI. The focus	is on explaining
limitations of ML/AI in high-risk scenarios and on helping students understand how to design robust, fair, and accountable ML/AI lifecycles that address	societal concerns	over technology.
The course will also show students how to navigate the complex regulatory environment emerging in response to rising concerns over impacts of M	L/AI on society.	
BECM36AIC AI for Cybersecurity	Z,ZK	6
The goal of the course is to learn about cybersecurity and the importance of using AI in this field to understand how it transforms our perception of s	ecurity in general.	
BE4M33MPV Computer Vision Methods	Z,ZK	6
The course covers selected computer vision problems: search for correspondences between images via interest point detection, description and ma	tching, image stite	hing, detection,
recognition and segmentation of objects in images and videos, image retrieval from large databases and tracking of objects in video sequences. Thi	s course is also pa	rt of the
inter-university programme prg.ai Minor. It pools the best of AI education in Prague to provide students with a deeper and broader insight into the fie	ld of artificial intell	igence. More
information is available at https://prg.ai/minor.		
BECM33DPL Deep Learning Essentials	Z,ZK	6
The course teaches deep learning methods on known robotic problems, such as semantic segmentation or reactive motion control. The overall goal		sal knowledge
rather than listing all known deep learning architectures. Students are assumed to have working prior knowledge of mathematics (gradient, jacobian	, hessian, gradient	descent, Taylor
polynomial) and machine learning (Bayes risk minimization, linear classifier). The labs are divided into two parts; in the first one, the students will solv	e elementary dee	o ML tasks from
scratch (including the reimplementation of autograd backpropagation), and in the second one, students will build on existing templates in order to so	lve complex tasks	including RL,
vision transformers and generative networks.		
BECM33MLE Machine Learning Engineering	KZ	6
The course focuses on anchoring theoretical knowledge of artificial intelligence (AI) methods into practice. Upon completion of the course, students sho	buld gain a practica	I understanding
of the principles and considerations of applying machine learning to real-world problems. They should get familiar with technologies and workflows that	allow them to actio	nize knowledge
acquired throughout the program. The student's work is oriented to the programming language Python, with the option to use C++, Julia, and Rust. I	During the labs and	homework,
students become familiar with topics like training pipelines, containerization, and production deployments.		
BECM33MLF Machine Learning Fundamentals	Z,ZK	6
The aim of this course is to provide a comprehensive understanding of the fundamental principles underlying machine learning algorithms and to ex	plain their use in b	asic machine
learning algorithms. The goal of statistical machine learning is to design systems incorporating models and algorithms capable of learning to solve p		
provided and prior knowledge of the problem. This course is designed with two main objectives. First, it seeks to clarify the basic principles of learning	ig, such as risk mi	nimization,
maximum likelihood learning, and Bayesian learning, and to delve into their theoretical foundations. Second, it seeks to explore the basic models for	classification and	regression and
show how these models can be effectively learned by applying these basic concepts.		
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BECM36MLM Machine Learning Methods	Z,ZK	6
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BECM36MLM Machine Learning Methods	hat work well for ta	bular and
BECM36MLM Machine Learning Methods Students will get familiar with machine learning methods that go beyond the standard settings taught in basic ML courses. They will learn methods the	hat work well for ta	bular and
BECM36MLM Machine Learning Methods Students will get familiar with machine learning methods that go beyond the standard settings taught in basic ML courses. They will learn methods that structured data domains (e.g. relational databases), including graph neural networks and recent neuro-symbolic techniques. The course will also tea	hat work well for ta	bular and
BECM36MLM Machine Learning Methods Students will get familiar with machine learning methods that go beyond the standard settings taught in basic ML courses. They will learn methods the structured data domains (e.g. relational databases), including graph neural networks and recent neuro-symbolic techniques. The course will also tea model interpretability, basics of causality, and reinforcement learning.	hat work well for ta	bular and me methods for
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Name of the block: Elective courses Minimal number of credits of the block: 6 The role of the block: V

Code of the group: 2025_MPRGAIVOL

Name of the group: Elective subjects

Requirement credits in the group: In this group you have to gain at least 6 credits (at most 999) Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 6

Note on the group: # ~Student can choose arbitrary subject of themagister's program (EEM - Electrical Engineering, Power Engineering and Management, EK - Electronics and Communications, KYR - Cybernetics and Robotics, OI - Open Informatics, OES - Open Electronics Systems) which is not part of his curriculum. Student can choose with consideration of recommendation of the branch guarantee. You can find a selection of optional courses organized by the departments on the web site http://www.fel.cvut.cz/cz/education/volitelne-predmety.html

List of courses of this pass:

Code	Name of the course	Completion	Credits
BDIP30	Diploma Thesis	Z	30
Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will			
be specified b	by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the compreh	ensive final examir	nation.

BE4M33MPV	Computer Vision Methods	Z,ZK	6
The course covers selected	d computer vision problems: search for correspondences between images via interest point detection, description and matchin	ng, image stitchin	g, detection
recognition and segmer	ntation of objects in images and videos, image retrieval from large databases and tracking of objects in video sequences. This	s course is also p	art of the
inter-university programm	e prg.ai Minor. It pools the best of AI education in Prague to provide students with a deeper and broader insight into the field of	of artificial intellig	ence. More
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BECM33DPL	Deep Learning Essentials	Z,ZK	6
The course teaches deep l	learning methods on known robotic problems, such as semantic segmentation or reactive motion control. The overall goal is til	meless, universa	l knowledge
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scratch (including the reim	nplementation of autograd backpropagation), and in the second one, students will build on existing templates in order to solve	complex tasks in	cluding RL
	vision transformers and generative networks.		
BECM33MLE	Machine Learning Engineering	KZ	6
he course focuses on anch	noring theoretical knowledge of artificial intelligence (AI) methods into practice. Upon completion of the course, students should a	gain a practical ur	nderstandin
of the principles and conside	erations of applying machine learning to real-world problems. They should get familiar with technologies and workflows that allow	w them to actioniz	e knowledg
acquired throughout the p	program. The student's work is oriented to the programming language Python, with the option to use C++, Julia, and Rust. Dur	ring the labs and	homework,
	students become familiar with topics like training pipelines, containerization, and production deployments.		_
	Machina Learning Fundamentals	7 71	6
BECM33MLF	Machine Learning Fundamentals	Z,ZK	6
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The aim of this course is to learning algorithms. The g	o provide a comprehensive understanding of the fundamental principles underlying machine learning algorithms and to explai oal of statistical machine learning is to design systems incorporating models and algorithms capable of learning to solve probl	in their use in bas lems based on th	sic machine
The aim of this course is to learning algorithms. The go provided and prior knowl	o provide a comprehensive understanding of the fundamental principles underlying machine learning algorithms and to explai oal of statistical machine learning is to design systems incorporating models and algorithms capable of learning to solve probl ledge of the problem. This course is designed with two main objectives. First, it seeks to clarify the basic principles of learning,	in their use in bas lems based on th , such as risk mir	sic machine e examples nimization,
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For updated information see <u>http://bilakniha.cvut.cz/en/f3.html</u> Generated: day 2025-07-21, time 20:14.