



**AGH**

AGH UNIVERSITY OF SCIENCE  
AND TECHNOLOGY

Faculty of: Physics and Applied Computer Science

Field of study: Technical Physics

Study level: First-cycle studies

Form and type of study: Full-time studies

Annual: 2017/2018

Lecture language: Polish

Code	Module name	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning	ECTS	E
<b>Semester 1</b>														
Engineering														
JFT-1-101-s	Fundamentals of Computer Science	15	0	45	0	0	0	0	0	0	0	0	5	No
Mathematics														
JFT-1-102-s	Mathematics I	45	45	0	0	0	0	0	0	0	0	0	8	Yes
JFT-1-103-s	Mathematical Methods of Physics 1	30	45	0	0	0	0	0	0	0	0	0	5	Yes
Non-technical														
JFT-1-107-s	Ochrona własności intelektualnej	30	0	0	0	0	0	0	0	0	0	0	3	No
Physical Education														
JFT-1-106-s	Physical Education 1	0	0	0	0	0	0	0	0	0	30	0	0	No
Physics														
JFT-1-104-s	Mechanics	45	60	0	0	0	0	0	0	0	0	0	9	Yes
Suma ECTS													30	
<b>Semester 2</b>														
Engineering														
JFT-1-201-s	Programowanie proceduralne	30	0	45	0	0	0	0	0	0	0	0	5	No
JFT-1-205-s	Statistics for Engineers	15	15	15	0	0	0	0	0	0	0	0	3	No
Mathematics														
JFT-1-202-s	Matematyka 2	45	45	0	0	0	0	0	0	0	0	0	7	Yes
Non-technical														

## Study programme - Technical Physics - 2017/2018

Code	Module name	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning	ECTS	E
JFT-1-208-s	Warsztaty z komunikacji interpersonalnej	6	0	0	0	0	0	0	0	12	0	0	2	No
Other Basic														
JFT-1-204-s	Chemistry	30	15	30	0	0	0	0	0	0	0	0	6	Yes
Physical Education														
JFT-1-206-s	Physical Education 2	0	0	0	0	0	0	0	0	0	15	0	0	No
Physics														
JFT-1-203-s	Electromagnetism and Optics	60	60	0	0	0	0	0	0	0	0	0	8	Yes
<b>Foreign language</b>														
The rules for selecting groups/modules: Jeden przedmiot z grupy														
JFT-1-207-s	English B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 1/3	0	30	0	0	0	0	0	0	0	0	0	0	No
JFT-1-210-s	French B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 1/3	0	30	0	0	0	0	0	0	0	0	0	0	No
JFT-1-211-s	Russian B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 1/3	0	30	0	0	0	0	0	0	0	0	0	0	No
JFT-1-212-s	Spanish B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 1/3	0	30	0	0	0	0	0	0	0	0	0	0	No
JFT-1-213-s	German B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 1/3	0	30	0	0	0	0	0	0	0	0	0	0	No
Suma ECTS													31	
<b>Semester 3</b>														
Engineering														
JFT-1-303-s	Computational Software	15	0	20	8	0	0	0	0	0	0	0	4	No
JFT-1-306-s	Programming in C++	30	0	45	0	0	0	0	0	0	0	0	6	No
JFT-1-308-s	Komputeryzacja pomiarów	15	0	15	15	0	0	0	0	0	0	0	4	No
Mathematics														
JFT-1-301-s	Mathematics 3	30	45	0	0	0	0	0	0	0	0	0	6	Yes
Physical Education														
JFT-1-309-s	Physical Education 3	0	0	0	0	0	0	0	0	0	15	0	0	No
Physics														
JFT-1-302-s	Wstęp do fizyki kwantowej i statystycznej	45	60	0	0	0	0	0	0	0	0	0	7	Yes
JFT-1-305-s	Laboratory of physics 1	0	0	30	0	0	0	0	0	0	0	0	4	No
<b>Foreign language</b>														
The rules for selecting groups/modules: Jeden przedmiot z grupy														
JFT-1-307-s	French B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 2/3	0	45	0	0	0	0	0	0	0	0	0	0	No
JFT-1-310-s	English B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 2/3	0	45	0	0	0	0	0	0	0	0	0	0	No
JFT-1-311-s	German B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 2/3	0	45	0	0	0	0	0	0	0	0	0	0	No

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Code	Module name	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning	ECTS	E
JFT-1-312-s	Russian B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 2/3	0	45	0	0	0	0	0	0	0	0	0	0	No
JFT-1-313-s	Spanish B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 2/3	0	45	0	0	0	0	0	0	0	0	0	0	No
Suma ECTS													31	
<b>Semester 4</b>														
Engineering														
JFT-1-401-s	Mathematical Statistics	30	30	0	15	0	0	0	0	0	0	0	5	Yes
JFT-1-404-s	Laboratory of physics 2	0	0	30	0	0	0	0	0	0	0	0	3	No
JFT-1-407-s	Teoria obwodów i sygnałów	30	30	0	0	0	0	0	0	0	0	0	5	Yes
Mathematics														
JFT-1-402-s	Mathematical Methods of Physics 2	30	45	0	0	0	0	0	0	0	0	0	5	No
Physics														
JFT-1-406-s	Fundamentals of Nuclear Physics	30	15	0	0	0	0	0	0	0	0	0	3	Yes
<b>Foreign language</b>													5	
The rules for selecting groups/modules: Jeden przedmiot z bloku														
JFT-1-405-s	French B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 3/3	0	60	0	0	0	0	0	0	0	0	0	5	Yes
JFT-1-408-s	Spanish B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 3/3	0	60	0	0	0	0	0	0	0	0	0	5	Yes
JFT-1-409-s	English B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 3/3	0	60	0	0	0	0	0	0	0	0	0	5	Yes
JFT-1-410-s	Russian B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 3/3	0	60	0	0	0	0	0	0	0	0	0	5	Yes
JFT-1-411-s	German B2 course - compulsory course of 135 hours for students of FIRST-CYCLE studies - semester 3/3	0	60	0	0	0	0	0	0	0	0	0	5	Yes
<b>Moduły obieralne FT1 - sem. 4</b>													4	
The rules for selecting groups/modules: Student wybiera dowolną liczbę godzin modułów obieralnych o sumarycznym wymiarze ECTS nie mniejszym niż 4.														
Suma ECTS													30	
<b>Semester 5</b>														
Engineering														
JFT-1-503-s	Układy elektroniczne	30	15	30	0	0	0	0	0	0	0	0	5	Yes
Physics														
JFT-1-501-s	Fundamentals of Environmental Physics	30	0	0	15	0	15	0	0	0	0	0	4	Yes
JFT-1-504-s	Laboratorium technik jądrowych	0	0	30	0	0	0	0	0	0	0	0	3	No
JFT-1-505-s	Podstawy fizyki ciała stałego	30	15	15	0	0	0	0	0	0	0	0	4	Yes
<b>Electives FT I.5</b>													15	
The rules for selecting groups/modules: Student wybiera moduły za co najmniej 15 ECTS, w tym przedmiot w całości prowadzony w języku obcym, za który może uzyskać co najmniej 3 ECTS.														
Suma ECTS													31	
<b>Semester 6</b>														

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Code	Module name	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning	ECTS	E
Elective														
JFT-1-605-s	Praktyka zawodowa	0	0	0	0	0	0	0	0	0	0	0	4	No
Engineering														
JFT-1-602-s	Ochrona radiologiczna	30	15	0	6	0	0	0	0	0	0	0	5	Yes
Physics														
JFT-1-601-s	Fundamentals of Theoretical Physics	30	16	12	0	0	0	0	0	0	0	0	4	Yes
<b>Blok tematyczny BT6</b>													16	
The rules for selecting groups/modules: Student wybiera dwa z czterech bloków tematycznych:														
<ul style="list-style-type: none"> <li>• Badania i monitoring środowiska</li> <li>• Oddziaływania i detekcja cząstek</li> <li>• Nowoczesne materiały i technologie</li> <li>• Symulacje komputerowe w fizyce i technice</li> </ul>														
<b>Badania i monitoring środowiska (sem.6)</b>														
The rules for selecting groups/modules:														
JFT-1-603-s	Transportation phenomena in the environment.	30	15	0	0	0	0	0	0	0	0	0	4	Yes
JFT-1-606-s	Environmental Chemistry	15	0	30	0	0	0	0	0	0	0	0	4	Yes
<b>Nowoczesne materiały i technologie (sem.6)</b>														
The rules for selecting groups/modules:														
JFT-1-609-s	Podstawy fizyki ciała stałego 2	30	15	0	0	0	0	0	0	0	0	0	4	Yes
JFT-1-616-s	Real structure of materials	30	15	0	0	0	0	0	0	0	0	0	4	Yes
<b>Oddziaływania i detekcja cząstek (sem.6)</b>														
The rules for selecting groups/modules:														
JFT-1-607-s	Oddziaływanie promieniowania jonizującego z materia	18	8	8	8	0	0	0	0	0	0	0	4	Yes
JFT-1-608-s	Komputerowa analiza układów elektronicznych	0	0	30	15	0	0	0	0	0	0	0	4	No
<b>Symulacje komputerowe w fizyce i technice (sem.6)</b>														
The rules for selecting groups/modules:														
JFT-1-610-s	Mathematical Methods of Physics III	30	15	0	0	0	0	0	0	0	0	0	4	Yes
JFT-1-611-s	Computational Methods of Physics and Technics 1	30	0	0	15	0	0	0	0	0	0	0	4	No
Suma ECTS													29	
<b>Semester 7</b>														
Thesis														
JFT-1-702-s	B.Sc. Thesis	0	0	0	30	0	0	0	0	0	0	0	15	Yes
<b>Blok tematyczny BT7</b>													16	
The rules for selecting groups/modules: Student wybiera dwa z czterech bloków tematycznych, będące kontynuacją bloków z semestru szóstego.														
<b>Badania i monitoring środowiska (sem.7)</b>														
The rules for selecting groups/modules:														
JFT-1-703-s	Metody analizy instrumentalnej	30	0	15	0	0	0	0	0	0	0	0	4	No
JFT-1-704-s	Modelling of environmental transport processes	15	0	20	10	0	0	0	0	0	0	0	4	No
<b>Nowoczesne materiały i technologie (sem.7)</b>														
The rules for selecting groups/modules:														
JFT-1-707-s	Superconductivity and superfluidity	30	0	15	0	0	0	0	0	0	0	0	4	No
JFT-1-708-s	Laboratory of modern materials and technology	0	0	45	0	0	0	0	0	0	0	0	4	No

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<b>Oddziaływania i detekcja cząstek (sem.7)</b>														
The rules for selecting groups/modules:														
JFT-1-705-s	Radiation Detectors	15	0	30	0	0	0	0	0	0	0	0	4	No
JFT-1-706-s	Elementary Particles and their Interactions	30	6	0	8	0	0	0	0	0	0	0	4	Yes
<b>Symulacje komputerowe w fizyce i technice (sem.7)</b>														
The rules for selecting groups/modules:														
JFT-1-701-s	Modeling of flow systems	30	0	15	0	0	0	0	0	0	0	0	4	No
JFT-1-709-s	Computational Methods of Physics and Technics 2	18	0	15	10	0	0	0	0	0	0	0	4	Yes
Suma ECTS													31	
<b>Semester 0 - Completion of modules in any semester</b>														
Engineering														
JFT-1-001-s	Programming in Python	0	0	45	0	0	0	0	0	0	0	0	4	No
JFT-1-002-s	Środowisko programistyczne Geant4	15	0	15	15	0	0	0	0	0	0	0	4	No
JFT-1-005-s	User Interface	30	0	15	15	0	0	0	0	0	0	0	4	No
JFT-1-006-s	Python in the enterprise	15	0	18	10	0	0	0	0	0	0	0	5	No
JFT-1-007-s	Multicore programming	15	0	18	10	0	0	0	0	0	0	0	4	No
JFT-1-010-s	Fundamentals of Computer Graphics	30	0	15	15	0	0	0	0	0	0	0	6	No
JFT-1-012-s	Applications for Mobile Devices	15	0	30	0	0	0	0	0	0	0	0	4	No
JFT-1-014-s	Design of CMOS integrated circuits	15	0	30	15	0	0	0	0	0	0	0	6	Yes
JFT-1-015-s	Design of integrated circuits in CMOS technology 2	15	0	30	0	0	0	0	0	0	0	0	4	No
JFT-1-016-s	Hardware Description Language	20	0	22	15	0	0	0	0	0	0	0	6	No
JFT-1-017-s	Nowoczesne metody pomiarowe	30	0	45	0	15	0	0	0	0	0	0	7	No
JFT-1-018-s	Projektowanie Systemów Cyfrowych	30	0	30	15	0	0	0	0	0	0	0	5	No
JFT-1-019-s	Microprocessor techniques	20	0	22	15	0	0	0	0	0	0	0	5	No
JFT-1-021-s	Scientific Text Edition and Presentation	15	0	15	0	0	15	0	0	0	0	0	4	No
JFT-1-024-s	VPython: 3D simulations of physical processes for everybody	15	0	30	0	0	0	0	0	0	0	0	3	No
JFT-1-032-s	Introduction to X-ray fluorescence analysis	30	0	0	0	0	0	0	0	14	0	0	4	Yes
JFT-1-034-s	R software	0	0	30	15	0	0	0	0	0	0	0	4	No
JFT-1-035-s	Microtomography	22	0	15	0	8	0	0	0	0	0	0	4	No
JFT-1-039-s	Methodology of air quality measurements	15	0	12	6	0	0	0	15	0	0	0	4	No
JFT-1-041-s	Fundamentals of Data Science	15	0	15	15	0	0	0	0	0	0	0	5	Yes
JFT-1-042-s	Programming in UNIX systems	30	0	0	15	0	0	0	0	0	0	0	5	Yes
JFT-1-043-s	Scripting languages	10	0	20	10	0	0	0	0	0	0	0	4	No
Mathematics														
JFT-1-008-s	Wstęp do teorii gier	30	0	0	0	0	0	0	0	0	0	0	3	Yes
JFT-1-029-s	Nonlinear dynamics	30	0	0	0	0	0	0	0	0	0	0	2	Yes
JFT-1-038-s	Econophysics	20	0	0	0	0	10	0	0	0	0	0	2	No
Other Basic														
JFT-1-030-s	Interdisciplinary seminar on complex systems	0	0	0	0	0	15	0	0	0	0	0	2	No
Physics														

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Code	Module name	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning	ECTS	E
IJT-1-003-s	Metody Lagrange'a i Hamiltona w Mechanice	30	30	0	0	0	0	0	0	0	0	0	4	No
IJT-1-004-s	Selected Topics of Special and General Relativity Theory	30	30	0	0	0	0	0	0	0	0	0	4	No
IJT-1-011-s	Fizyka żeglowania	30	0	0	0	0	0	0	0	0	0	0	2	No
IJT-1-013-s	Introduction to Astrophysics and Cosmology	45	0	0	0	0	0	0	0	0	0	0	3	No
IJT-1-020-s	Selected Topics of Modern Physics and Chemistry	0	0	0	0	0	10	0	0	0	0	0	1	No
IJT-1-022-s	Physics of atmosphere	30	0	16	0	0	0	0	12	0	0	0	4	Yes
IJT-1-023-s	Outline of Modern Cosmology	45	0	0	0	0	0	0	0	0	0	0	5	Yes
IJT-1-025-s	Metody analizy danych doświadczalnych	30	15	0	15	0	0	0	0	0	0	0	5	Yes
IJT-1-026-s	About rotations - the minimum necessary for physicists.	30	30	0	0	0	0	0	0	0	0	0	4	Yes
IJT-1-027-s	Teoria grup a symetrie w fizyce	30	15	0	0	0	0	0	0	0	0	0	4	No
IJT-1-028-s	Statistical mechanics	30	0	0	0	0	0	0	0	0	0	0	2	Yes
IJT-1-031-s	Physics of metals	30	0	0	0	0	0	0	0	0	0	0	3	Yes
IJT-1-033-s	Laboratory of advanced nuclear techniques	0	0	30	0	0	0	0	0	0	0	0	3	No
IJT-1-036-s	An introduction to quantum theory of electronic transport	30	0	0	0	0	0	0	0	0	0	0	4	No
IJT-1-037-s	Introduction to eddy covariance	16	0	16	0	0	0	0	8	0	0	0	4	Yes
IJT-1-040-s	Disperse modelling in physics of atmosphere	4	12	0	0	0	0	0	12	0	0	0	2	No
IJT-1-044-s	Theoretical mechanics	0	0	0	0	45	0	0	0	0	0	0	3	No
IJT-1-045-s	Methods of structural and diffractive analysis of aperiodic systems	10	0	20	0	0	0	0	0	0	0	0	2	No
IJT-1-046-s	Introduction to data analysis in experimental particle physics	15	0	0	15	0	0	0	0	0	0	0	3	No