Appendix 1 - Mandatory Module and Examination Plan

JACOBS UNIVERSITY

Physics BSc

Matriculation Fall 2020

Program-Specific Modules		Type	Assessment	Period	Status[1]	Sem.	CP
Year 1 - CHOICE							**45**
Take the mandatory CHOICE modules listed below, these are a requirement for the physics program.							
	Unit: Classical and Modern Physics (default minor)						**15**
CH-140	**Module: Classical Physics** (default minor)				**m**		**7.5**
CH-140-A	Classical Physics	Lecture	Written exam	Examination period		1	5
CH-140-B	Classical Physics Lab	Lab	Lab report	During the semester		1	2.5
CH-141	**Module: Modern Physics** (default minor)				**m**		**7.5**
CH-141-A	Modern Physics	Lecture	Written exam	Examination period		2	5
CH-141-B	Modern Physics Lab	Lab	Lab report	During the semester		2	2.5
Take one of the two mandatory elective CHOICE modules listed below, these are a requirement for the physics program (see study program handbook).							
CH-202	**Module: Applied Mathematics**				**me**		**7.5**
CH-202-A	Advanced Calculus and Methods of Mathematical Physics	Lecture	Written exam	Examination period		2	5
CH-202-B	Numerical Software Lab	Lab	Lab report	During the semester		2	2.5
CH-220	**Module: Introduction to Robotics and Intelligent Systems**				**me**		**7.5**
CH-220-A	Introduction to Robotics and Intelligent Systems	Lecture	Written examination	Examination period		2	5
CH-220-B	Intro to RIS - lab	Lab				2	2.5
	Unit: CHOICE (own selection)				**me**	**1/2**	**22.5**
	Take ***three further CHOICE modules*** *from those offered for other study programs: Two modules in 1st, one in 2nd semester.*						
Year 2 - CORE							**45**
Take all modules listed below or replace 15 CP of mandatory elective ("me") modules by suitable CORE modules from other study programs[3]							
	Unit: Advanced Physics I						**15**
CO-480	**Module: Analytical Mechanics** (default minor)[2]				**m**		**5**
CO-480-A	Analytical Mechanics	Lecture	Written exam	Examination period		3	
CO-481	**Module: Quantum Mechanics** (default minor)[2]				**m**		**5**
CO-481-A	Quantum Mechanics	Lecture	Written exam	Examination period		4	
CO-482	**Module: Computational Physics** (default minor)[2]				**me**		**5**
CO-482-A	Computational Physics I	Lecture	Project	During the semester		3	2.5
CO-482-B	Computational Physics II	Lecture				4	2.5
	Unit: Advanced Physics II						**15**
CO-483	**Module: Electrodynamics**				**m**		**5**
CO-483-A	Electrodynamics	Lecture	Written exam	Examination period		3	
CO-484	**Module: Statistical Physics**				**m**		**5**
CO-484-A	Statistical Physics	Lecture	Written exam	Examination period		4	
CO-485	**Module: Renewable Energy**				**me**		**5**
CO-485-A	Renewable Energy	Lecture	Project	During the semester		4	
	Unit: Advanced Physics Labs						**15**
CO-486	**Module: Advanced Physics Lab I**		Oral exam	Before examination period	**m**		**5**
CO-486-A	Advanced Physics Lab I	Lab	Lab report	During the semester		3	
CO-487	**Module: Advanced Physics Lab II**		Oral exam	Before examination period	**m**		**5**
CO-487-A	Advanced Physics Lab II	Lab	Lab report	During the semester		4	
CO-488	**Module: Advanced Physics Lab III**		Oral exam	Before examination period	**me**		**5**
CO-488-A	Advanced Physics Lab III	Lab	Lab report	During the semester		5/3	
Year 3 - CAREER							**45**
CA-INT-900	**Module: Internship / Startup and Career Skills**				**m**	**4/5**	**15**
CA-INT-900-0	Internship / Startup and Career Skills	Intersnhip	Report/Business Plan	During the 5th semester			
CA-PHY-800	**Module: Thesis / Seminar Physics**				**m**	**6**	**15**
CA-PHY-800-S	Thesis Physics	Project	Thesis and	15th of May			12
CA-PHY-800-T	Seminar Physics	Seminar	Presentation	During the semester			3
	Unit: Specialization Physics (*Take a total of 15 CP of specialization modules)*						**15**
CA-S-PHY-801	**Module: Condensed Matter Physics**				**me**		**5**
CA-PHY-801-A	Condensed Matter and Devices	Lecture	Written exam	Examination period		5	
CA-PHY-802	**Module: Particles, Fields and Quanta**				**me**		**5**
CA-PHY-802-A	Elementary Particles and Fields	Lecture	Presentation	During the semester		6	2.5
CA-PHY-802-B	Advanced Quantum Physics	Lecture				6	2.5
CA-PHY-803	**Module: Advanced Applied Physics**				**me**	**6**	**5**
CA-PHY-803-A	Biophysics / Nanotechnology	Lecture	Presentation	During the semester		6	2.5
CA-PHY-803-B	Advanced Optics / Atoms and Molecules	Lecture				6	2.5
Specialization electives from other study programs (see physics study program handbook)			Various	Various	**me**	**5/6**	**5**
Total CP							**180**

Jacobs Track Modules (General Education)		Type	Assessment	Period	Status[1]	Sem.	CP
							15
	Unit: Skills / Methods						**10**
JTMS-MAT-09	**Module: Calculus and Elements of Linear Algebra I**				**m**	**1**	**5**
JTMS-09	Calculus and Elements of Linear Algebra I	Lecture	Written exam	Examination period			
JTMS-MAT-10	**Module: Calculus and Elements of Linear Algebra II**				**m**	**2**	**5**
JTMS-10	Calculus and Elements of Linear Algebra II	Lecture	Written exam	Examination period			
	Unit: Language						**5**
	German is default language. Native German speakers take modules in another offered language.						
JTLA	**Module: Language 1**				**m**	**1**	**2.5**
JTLA-xxx	Language 1	Seminar	Various	Various	me		
JTLA	**Module: Language 2**				**m**	**2**	**2.5**
JTLA-xxx	Language 2	Seminar	Various	Various	me		
							15
	Unit: Skills / Methods (take a total of 10 CP of skills/methods modules, see list below)					3+4	**10**
JTMS-MAT-12	**Module: Probability and Random Processes**				**me**	**3**	**5**
JTMS-12	Probability and Random Processes	Lecture	Written exam	Examination period			5
JTMS-MAT-13	**Module: Numerical Methods**				**me**	**4**	**5**
JTMS-13	Numerical Methods	Lecture	Written exam	Examination period			5
Alternatives:							
JTMS-SKI-14	**Module: Programming in Python**				**me**	**3**	**5**
JTMS-14	Programming in Python	Lecture	Written exam	Examination period			**5**
CO-501	**Module: Discrete Mathematics**				**me**	**4**	**5**
CO-501-A	Discrete Mathematics	Lecture	Written exam	Examination period			
	Unit: Language						**5**
	German is default language. Native German speakers take modules in another offered language.						
JTLA	**Module: Language 3**				**m**	**3**	**2.5**
JTLA-xxx	Language 3	Seminar	Various	Various	me		
JTLA	**Module: Language 4**				**m**	**4**	**2.5**
JTLA-xxx	Language 4	Seminar	Various	Various	me		
							15
	Unit: Big Questions						**10**
JTBQ	**Module: Big Questions**				**m**	**5/6**	
Take a total of 10 CP of Big Questions modules with each 2.5 or 5 CP		Lecture	Various	Various	me		
	Unit: Community Impact Project						**5**
JTCI-CI-950	**Module: Community Impact Project**				**m**	**5**	**5**
JTCI-950	Community Impact Project	Project	Project	Examination period			

[1] Status (m = mandatory, me = mandatory elective). [2]Alternative module choices for a minor in physics are possible (see physics study program handbook).
[3] For a full listing of all CHOICE / CORE / CAREER / Jacobs Track modules please consult the CampusNet online catalogue and /or the study program handbooks.