Physics Course Supplement

Bachelor's courses					
Course Name	**Units**	**Course Number**	**Grade[1]**	**Semester Completed**	**Primary Textbook**
General Mathematics 1 (Calculus 1)	4	22015	16.8	Fall 2017	Calculus (R. A. Adams) + Persian sources (A Farsi book by Siavash Shahshahani)
Physics Lab 1	1	24001	17.4	Fall 2017	Fundamental of Physics (Halliday, Resnick, and Walker)
Physics 1	3	24011	18.0	Fall 2017	Fundamental of Physics (Halliday, Resnick, and Walker)
Physical Education	1	30003	15.0	Fall 2017	-
Introduction to Persian Literature	3	31119	20.0	Fall 2017	Based on professor's notes.
General Workshop	1	33018	16.4	Fall 2017	Practical, instruction-based course.
Introduction to Programming (C)	3	40153	19.8	Fall 2017	C How to program(H. Deitel and P. Deitel)
General Mathematics 2 (Calculus 2)	4	22016	17.9	Spring 2017	Calculus (R. A. Adams) + Persian sources (A Farsi book by Siavash Shahshahani)
Differential Equations	3	22034	16.6	Spring 2017	Elementary Differential equations (W. Boyce and R. DiPrima)
Physics 2	3	24012	18.5	Spring 2017	Fundamental of Physics (Halliday, Resnick, and Walker)
Physics 3	3	24013	20.0	Spring 2017	Fundamental of Physics (Halliday, Resnick, and Walker)
Foreign Language (English)	3	31123	18.6	Spring 2017	Inside Reading 4 (K. Richmond, L. Zwier)
Physics Lab 2	1	24002	19.5	Fall 2018	Fundamental of Physics (Halliday, Resnick, and Walker)
Physics Lab 3	1	24003	20.0	Fall 2018	Fundamental of Physics (Halliday, Resnick, and Walker)
Physics 4 (Modern Physics)	3	24014	19.5	Fall 2018	K.S. Krane (Modern Physics)

[1] Out of 20.0

Analytical Mechanics 1	3	24113	20.0	Fall 2018	Classical Dynamics of Particles and Systems (S. Thornton, J. B. Marion)
Mathematical Physics 1	3	24178	20.0	Fall 2018	Mathematical Physics (Sadri D. Hassani)
Electromagnetics 1	3	24213	19.0	Fall 2018	Introduction to Electrodynamics (D. J. Griffiths)
Introduction to Philosophy of Science	3	42373	19.5	Fall 2018	What is this thing called science? (A. F. Chalmers) + Historical Papers
Mathematical Analysis 1	4	22325	20.0	Spring 2018	Real mathematical analysis (C. Pugh)
Analytical Mechanics 2	3	24114	20.0	Spring 2018	Classical Dynamics of Particles and Systems (S. Thornton, J. B. Marion)
Special Relativity	3	24144	19.0	Spring 2018	Relativity: special, general and cosmological (Wolfgang Rindler)
Electromagnetics 2	3	24214	20.0	Spring 2018	Introduction to Electrodynamics (D. J. Griffiths)
Quantum Mechanics 1	3	24313	17.5	Spring 2018	Quantum mechanics: concepts and applications (N. Zetilli)
Analytical History of Initial Islam	2	37620	20.0	Spring 2018	Persian lecture notes.
Algebra 1	4	22217	18.4	Fall 2019	Topics in Algebra (I. N. Herstein)
Thermodynamics and Statistical mechanics 1	3	24167	17.0	Fall 2019	Concepts in thermal physics (S. Blundell, K. Blundell) + The Laws of Thermodynamics: A Very Short Introduction (P. Atkins)
Quantum Mechanics 2	3	24314	16.5	Fall 2019	Quantum mechanics: concepts and applications (N. Zetilli)

Solid State physics 1	3	24617	17.5	Fall 2019	Introduction to Solid state physics (C. Kittel)
Computer simulation in physics	3	24828	20.0	Fall 2019	Professor's lectures on simulation projects and coding.
Computer simulation in physics- Lab	1	24824	20.0	Fall 2019	Professor's lectures on simulation projects and coding.
Islamic Thought 1	2	37445	20.0	Fall 2019	Persian lectures of the professor.
Non-linear dynamics and chaos	3	24119	17.7	Spring 2019	Nonlinear dynamics and chaos (S. Strogatz)
Physics Lab 4	2	24027	(W[2])	Spring 2019	Experiments and instructions based on K.S. Krane 's book (Modern Physics)
Thermodynamics and Statistical mechanics 2	3	24168	19.5	Spring 2019	Concepts in thermal physics (S. Blundell, K. Blundell)
Condensed Matter (**Graduate Course)**	4	24630	18.0	Spring 2019	Modern condensed matter physics (S. M. Girvin) + Professor's lectures notes
Sport 1	1	30004	(W[3])	Spring 2019	-
Nahjol Balagheh Subject interpretation	2	37490	20.0	Spring 2019	Persian lectures of the professor.
Thermodynamics and Statistical mechanics 3[4] (**Graduate Course)**	4	24156	15.3	Fall 2020	Statistical physics of particles and fields (2 Vol.) (M. Kardar)
Mathematical Physics 2	3	24179	20.0	Fall 2020	Mathematical Physics (Sadri D. Hassani)
Laser Lab	2	24206	19.0	Fall 2020	Professor's lectures and lab instructions, in Persian.
Quantum Computation (**Graduate Course)**	4	24317	19.0	Fall 2020	Professor's lectures in Persian.
Quantum Mechanics 3	4	24319	19.3	Fall 2020	Modern quantum mechanics (J. J.

[2] Due to the COVID-19 outbreak, all laboratory courses were canceled. Later, we were informed that these courses would be held in person over one week. Since I was at home and did not have dormitory accommodation, I had to withdraw from the course.

[3] The same story in footnote 2 happened for this course.

[4] This course is also known as "Advanced statistical mechanics."

[5](**Graduate Course**)					Sakurai) + Advanced quantum mechanics (Franz Schwabl)
Introduction to string theory	3	24557	19.0	Fall 2020	A first course in string theory (B. Zwiebach)
Sport 1	1	30004	19.0	Fall 2020	-
Islamic revolution of Iran	2	37626	20.0	Fall 2020	Persian lectures of the professor.
Physics Lab 4[6]	2	24027	20.0	Spring 2020	Experiments and instructions based on K.S. Krane 's book (Modern Physics)
Group theory	3	24191	20.0	Spring 2020	Group theory in a nutshell (A. Zee)
Optics Lab	2	24205	20.0	Spring 2020	Persian Lab instructions and lectures by the professor.
Introduction to quantum field theory (**Graduate Course**)	4	24343	20.0	Spring 2020	Quantum field theory and the standard model (M. D. Schwartz) + Introduction to QFT and the standard model (M. Peskin, D. V. Schroeder)
Introduction to elementary particles	3	24541	20.0	Spring 2020	Introduction to elementary particles (D. J. Griffiths)
Lifestyle	2	37127	20.0	Spring 2020	Persian lectures of the professor.
Islamic thought 2	2	37446	20.0	Spring 2020	Persian lectures of the professor.
Physics Project (B.Sc.)	3	24009	20.0	Summer 2020	Studying basics of QFT.
Physics Project (B.Sc.)	0	24009	NC[7]	Fall 2021	Studying basics of QFT.
Quantum Field theory part 1 [8](**Graduate Course**)	4	24341	20.0	Fall 2021	Quantum field theory and the standard model (M. D. Schwartz) + Anomalies in quantum field theory (R. Bertlmann)

[5] This course is also known as "Advanced quantum mechanics."
[6] Also known as "Modern physics laboratory."
[7] I extended B.Sc. project, so its status was incomplete until the end of fall 2021 semester.
[8] Also known as "Advanced quantum field theory."

Cosmology	3	24922	20.0	Fall 2021	Professor's notes based on Modern Cosmology (S. Dodelson).
Advanced General Relativity, and special topics	4	24148	AUDIT	Fall 2021	General Relativity (R. Wald)
The knowledge of family and population	0	37514	Pass	Fall 2021	Persian lectures of the professor.
Introduction to psychology	2	37635	20.0	Fall 2021	Introduction to Psychology (C. Atkinson, E. Hilgard)
Master's courses					
Electromagnetics 3[9]	4	24216	19.1	Fall 2022	Classical Electrodynamics (J.D. Jackson)
Quantum Information	4	24318	20.0	Fall 2022	Professor's lectures in Persian.
Individual study (on Bosonic String theory)	4	24060	20.0	Spring 2022	String Theory (J. Polchinski)
Doctoral Seminar	1	24084	19.5	Spring 2022	Weekly seminars on high energy physics.
Classical Mechanics[10]	4	24115	17.6	Spring 2022	Classical dynamics: A contemporary approach (J. V. Jose, E. J. Saletan)
Advanced physics Lab	2	24403	19.5	Spring 2022	Farsi lectures and instructions.
Doctoral Seminars	1	24089	19.5	Fall 2023	Weekly seminars on high energy physics.
General Relativity	3	24142	19.8	Fall 2023	Spacetime and Geometry: An Introduction to General Relativity (S. M. Carroll)
M.Sc. Thesis	6	24032	-	Fall 2023	I enrolled in the thesis as a course unit.
M.Sc. Thesis[11]	0	24032	-	Summer 2023	Weekly seminars on high energy physics.
M.Sc. Thesis	0	24032	-	Fall 2024	Weekly seminars on high energy physics.

[9] This course is also known as "Advanced electrodynamics."
[10] This course is also known as "Advanced classical mechanics."
[11] In the final semesters, since I had no courses left, I had to register for the master's thesis as a zero-credit course.

Note: Spring 2019 courses until the end of the bachelor were held Online due to the COVID pandemic.