

IPSE UG Students Enrolled in Fall 2010 through 2017

Summary Table of Changes in IPSE Group C Courses Offered by Dept. of Physics & Dept. of Applied Physics, School of Advanced Sci. & Eng.

For Fall 2020 course registration periods

* You need to earn credits of Group C courses provided as "required", "elective required" or "elective" for your enrollment year. Please refer to column [A], or [B] here below according to your enrollemnt year. Also check the relevant pages of your enrollment year's Handbook.

[A]	[B]	Number of credits	Number of class hours per week (* a 90-minute long class (per week) is shown as 2 (hours) in the table below)								Current Course Availability by Your Enrollment Year		Note		
			First year		Second year		Third year		Fourth year		O: available X: not available *: conditionally available (see Note section)				
			Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	For students enrolled in 2010/ 2011	For students enrolled in 2012/ 2013/ 2014/ 2015/ 2016/2017			
Classical Physics A > Intermediate Mechanics	Intermediate Mechanics	2			2							O (elective)	O (required)	* course name changed from fall 2012. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Required course (to be counted towards graduation)	
Mathematical Methods for Physics A	Mathematical Methods for Physics A	2			2							O (elective)	O (required)	* for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Required course (to be counted towards graduation)	
-	Intermediate Electromagnetism	2			2							O (elective)	O (required)	* new course available from fall 2012; allocated to 2nd year.	
Classical Physics B > Quantum Mechanics A	Quantum Mechanics A	2				2						O (elective)	O (required)	* course name changed from spring 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Required course (to be counted towards graduation)	
Mathematical Methods for Physics B	Mathematical Methods for Physics B	2				2						O (elective)	O (required)	* for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Required course (to be counted towards graduation)	
-	Thermal Physics	2				2						O (elective)	O (required)	* new course available from spring 2012; allocated to 2nd year.	
-	Statistical Mechanics	2						2				O (elective)	O (required)	* new course available from fall 2012; allocated to 3rd year.	
Graduation Thesis A	Graduation Thesis A	4									⊙	O (elective)	O (required)	* for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Required course (to be counted towards graduation)	
Graduation Thesis B	Graduation Thesis B	4										⊙	O (elective)	O (required)	* for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Required course (to be counted towards graduation)

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-	Pure and Applied Physics Seminar	2	2									O (elective)	O (elective required)	* new course available from fall 2014; allocated to 1st year.
-	Exercises for Fundamental Physics > Exercises for Fundamental Physics A	2		4 first-half								O (elective)	O (elective required)	* new course available from spring 2014; allocated to 1st year. * course name changed from spring 2015. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * course changed to spring quarter from 2019.
-	Exercises for Fundamental Physics B	2			2							O (elective)	O (elective required)	* new course available from fall 2015; allocated to 2nd year.
Materials Physics A	Materials Physics A	2				2						O (elective)	O (elective required)	* for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation)
-	Advanced Electromagnetism	2				2						O (elective)	O (elective required)	* new course available from spring 2012; allocated to 2nd year.
-	Introduction to Computational Physics	2				2 (intensive)						O (elective)	O (elective required)	* new course available from spring 2012; allocated to 2nd year. * intensive course. * originally allocated to fall semester of 2nd year, but from spring 2017, CHANGED TO spring semester of 2nd year. * Not available for fall 2018.
Modern Physics A > Quantum Mechanics B	Quantum Mechanics B	2						2				O (elective)	O (elective required)	* originally allocated to fall semester of 2nd year, but from fall 2012, CHANGED TO fall semester of 3rd year. * course name changed from fall 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation)
Modern Physics B > Relativity	Relativity	2						2		2		O (elective)	O (elective required)	* course name changed from spring 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation) *CHANGED TO spring semester of 3rd year from 2020.
Power Systems Engineering	Power Systems Engineering	2						2				O (elective)	O (elective required)	* originally allocated to spring semester of 3rd year, but from fall 2012, CHANGED TO fall semester of 3rd year. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation) * Course cancelled.

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			Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	For students enrolled in 2010/ 2011	For students enrolled in 2012/ 2013/ 2014/ 2015/ 2016/2017	
-	Fluid Mechanics	2					2	2			O (elective)	O (elective required)	* new course available from fall 2014; allocated to 3rd year. *CHANGED TO spring semester of 3rd year from 2020.
Materials Physics B	Materials Physics B	2								2	O (elective)	O (elective required)	* for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation).
Physics-based Engineering A > Engineering Physics A	Engineering Physics A	2								2	O (elective)	O (elective required)	* course name changed from spring 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation).
Biophysics A > Biological Physics A > Biological Physics	> Biological Physics A > Biological Physics	2								2	O (elective)	O (elective required)	* course name changed from spring 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation). * course name changed from spring 2017.
Mathematical Programming	Mathematical Programming	2								2	O (elective)	O (elective required)	* originally allocated to fall semester of 3rd year, but from spring 2013, CHANGED TO spring semester of 3rd year. * course will be cancelled from spring 2018. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation). * Course cancelled.
Electric Power Circuits	Electric Power Circuits	2								2	O (elective)	O (elective required)	* originally allocated to fall semester of 3rd year, but from spring 2013, CHANGED TO spring semester of 3rd year. * course will be cancelled from spring 2018 * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation). * Course cancelled.
Frontiers of Device Engineering	Frontiers of Device Engineering	2								2 (intensive)	O (elective)	O (elective required)	* intensive course * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation).

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			Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	For students enrolled in 2010/ 2011	For students enrolled in 2012/ 2013/ 2014/ 2015/ 2016/2017			
Physics-based Engineering B > Engineering Physics B	Engineering Physics B	2									2	O (elective)	O (elective required)	* course name changed from fall 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation).	
Biophysics B > Biological Physics B	Biological Physics B	2									2	O (elective)	O (elective required)	* course name changed from fall 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * for students enrolled in fall 2012, fall 2013, fall 2014 and fall 2015, the credit to be earned from this course will be classified as a Group C Elective Required course (to be counted towards graduation). * course cancelled from spring 2017	
Green Materials Science	Green Materials Science	2	2										O (elective)	O (elective)	* new course available from fall 2011; allocated to 1st year.
Life Science and Medical Bioscience Seminar > Life Science and Medical Bioscience Seminar-I	-	2	2					2					X	X	* course name changed from spring 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name. * available only to students with Dept. of Life Science & Medical Bioscience from fall 2014. * originally allocated to fall semester of 3rd year, but from fall 2015, CHANGED TO fall semester of 1st year.
Inorganic Chemistry > Inorganic Chemistry A	Inorganic Chemistry > Inorganic Chemistry A	2			2								O (elective)	O (elective)	* course name changed from fall 2014. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name.
Organic Chemistry > Organic Chemistry A	Organic Chemistry > Organic Chemistry A	2			2								O (elective)	O (elective)	* course name changed from fall 2014. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name.
Introduction to Applied Chemistry	Introduction to Applied Chemistry	2			2								O (elective)	O (elective)	
Fundamentals of Chemical Engineering	Fundamentals of Chemical Engineering	2			2								O (elective)	O (elective)	
Molecular Cell Biology A	Molecular Cell Biology A	2			2								O (elective)	O (elective)	
-	Physiology	2			2								O (elective)	O (elective)	* new course available from fall 2014; allocated to 2nd year. * Not available for fall 2016. * Not available for fall 2018. * Not available for fall 2019. * Not available for fall 2020.

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			Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	For students enrolled in 2010/ 2011	For students enrolled in 2012/ 2013/ 2014/ 2015/ 2016/2017	
Vector Analysis	-	2			2						*	X	* new course available from fall 2012; allocated to 2nd year. * Only students enrolled in fall 2010 & fall 2011 can take this course. It will be classified as a Group C Elective". * For students enrolled in fall 2012, fall 2013, fall 2014 & fall 2015, this course replaced "Vector Calculus (fall, 2nd year)" classified as a Group B Required course from fall 2012.
Thermal Physics A	-	2				2					X	X	* cancelled
Physical Chemistry > Physical Chemistry A	Physical Chemistry > Physical Chemistry A	2				2					O (elective)	O (elective)	* course name changed from spring 2014. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name.
Biochemistry	Biochemistry	2				2					O (elective)	O (elective)	
-	Inorganic Chemistry B	2				2					O (elective)	O (elective)	* new course available from spring 2014; allocated to 2nd year.
-	Organic Chemistry B	2				2					O (elective)	O (elective)	* new course available from spring 2016; allocated to 2nd year
Introduction to Industrial Chemistry	Introduction to Industrial Chemistry	2				2					O (elective)	O (elective)	
Life Science and Medical BioScience Laboratory	-	6				4					X	X	* available only to students with Dept. of Life Science & Medical Bioscience from fall 2014.
Molecular Cell Biology B	Molecular Cell Biology B	2				2					O (elective)	O (elective)	
-	BioScience and Nanotechnology > Bioscience and Biotechnology for Life Science	2				2 (intensive)					O (elective)	O (elective)	* new course available from spring 2012; allocated to 2nd year. * available for 2015 as an intensive course allocated to 2nd year. * course name changed from spring 2017
-	Neuroscience	2				2					O (elective)	O (elective)	* new course available from spring 2014; allocated to 2nd year.
-	Anatomy and Histology	2				2					O (elective)	O (elective)	* new course available from spring 2016; allocated to 2nd year.
-	Advanced Electrical Engineering	2				2					O (elective)	O (elective)	* new course available from spring 2014; allocated to 2nd year.
-	Electromagnetism for Electronics and Electrical Engineering	2				2					O (elective)	O (elective)	* new course available from spring 2015; allocated to 2nd year. * Not available for spring 2018.

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Curriculum for Students Enrolled in Fall 2010/ 2011	Curriculum for Students Enrolled in Fall 2012/ 2013/ 2014/ 2015/ 2016/2017		First year		Second year		Third year		Fourth year		O: available X: not available *: conditionally available (see Note section)		
			Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	For students enrolled in 2010/ 2011	For students enrolled in 2012/ 2013/ 2014/ 2015/ 2016/2017	
Thermal Physics B	-	2					2				X	X	* cancelled
Introduction to Chemistry and Biochemistry	-	2									X	X	* originally allocated to fall semester of 3rd year, but from fall 2012, CHANGED TO spring semester of 3rd year. * course cancelled from spring 2013 * replacement course is available: "General Chemistry B"(available from spr 2013) has the same content of the cancelled course. If you earn the credit of General Chemistry B, it is counted as a Group C elective. When you (4th or 3rd year, belonging to Sch of Advanced) register this course, you need to search it as a Group C specialized elective. When you (4th or 3rd year, belonging to Schs of Fundamental or Creative), search it with your home school chosen in 1st pull down, and "IPSE course offered by sub-programs other than home sub" chosen in 2nd pull down on the registration display.
Physical Chemistry Laboratory	Physical Chemistry Laboratory	3					6				O (elective)	O (elective)	
-	Physical Chemistry B	2					2				O (elective)	O (elective)	* new course available from fall 2014; allocated to 3rd year.
Fundamentals of Materials Chemistry	Fundamentals of Materials Chemistry	2					2				O (elective)	O (elective)	
Analytical Chemistry	Analytical Chemistry	2					2				O (elective)	O (elective)	
-	Field work in Research Institutions and Industry	2					2 (intensive)				O (elective)	O (elective)	* available for 2015 as an intensive course allocated to 3rd year. * This course is limited for the students who have credits of all Chemistry subjects including "Fundamentals of Chemical Engineering", "Introduction to Industrial Chemistry", "Introduction to Applied Chemistry", "Organic Chemistry A ", "Organic Chemistry B ", "Inorganic Chemistry A", "Inorganic Chemistry B", "Physical Chemistry A" and "Biochemistry". * Not available for 2020.

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			Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	Fall sem.	Spring sem.	For students enrolled in 2010/ 2011	For students enrolled in 2012/ 2013/ 2014/ 2015/ 2016/2017			
-	Intermediate BioScience	2					2 (intensive)	2 (intensive)			O (elective)	O (elective)	* new course available from fall 2013; allocated to 3rd year. * originally allocated to fall semester of 3rd year, but from spring 2015, CHANGED TO intensive course (spring and fall) of 3rd to 4th year. * Not available for 2017 * Course cancelled.		
-	Intermediate Life Science and Medical Bioscience Laboratory	6					12				X	X	* new course available from fall 2013; allocated to 3rd year. * available only to students with Dept. of Life Science & Medical Bioscience from fall 2014.		
-	Introduction to Medical Science	2					2 (intensive)				O (elective)	O (elective)	* new course available from fall 2014 as an intensive course; allocated to 3rd year.		
-	Bioscience Practicals A	2					2				O (elective)	O (elective)	* new course available from fall 2016; allocated to 3rd year.		
-	Advanced Electric Power Devices and Machines	2					2				O (elective)	O (elective)	* new course available from fall 2013; allocated to 3rd year.		
-	Smart Grid and Frontiers in Electric Energy Systems	2					2				O (elective)	O (elective)	* new course available from fall 2013; allocated to 3rd year.		
-	Physics of Semiconductor Devices 1	2					2				O (elective)	O (elective)	* new course available from fall 2014; allocated to 3rd year. * Not available for fall 2018.		
-	Advanced Vacuum Engineering	2					2						* new course available from fall 2019; allocated to 3rd year.		
-	Practical Materials/Devices Characterization	2					2						* new course available from fall 2019; allocated to 3rd year. * Not available for 2020.		
Inorganic Analytical Chemistry Laboratory ⇒Inorganic and Analytical Chemistry Laboratory	Inorganic Analytical Chemistry Laboratory ⇒Inorganic and Analytical Chemistry Laboratory	3									6		O (elective)	O (elective)	* course name changed from fall 2015. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name.
-	Chemical Biology	2									2		O (elective)	O (elective)	* new course available from spring 2014; allocated to 3rd year.
Organic Chemistry Laboratory	Organic Chemistry Laboratory	3									6		O (elective)	O (elective)	
Green and Sustainable Chemistry > Industrial Chemistry	Industrial Chemistry	2									2		O (elective)	O (elective)	* course name changed from spring 2013. * those who have earned the credit of this course under the previous course name(s) cannot take it under the new name.

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-	Advanced Life Science and Medical Bioscience Laboratory	4							12			X	X	* new course available from spring 2014; allocated to 3rd year. * available only to students with Dept. of Life Science & Medical Bioscience from fall 2014.
-	Life Science and Medical Bioscience Seminar II	2							2			X	X	* new course available from spring 2014; allocated to 3rd year. * available only to students with Dept. of Life Science & Medical Bioscience.
-	Bioscience Practicals B	2							2			O (elective)	O (elective)	* new course available from spring 2016; allocated to 3rd year.
-	Solar Cell Engineering > Thin Film Engineering	2							2			O (elective)	O (elective)	* new course available from fall 2013; allocated to 3rd year. * Not available for spring 2018. * course name changed from 2019
-	System Control > Control Systems	2					2	2				O (elective)	O (elective)	* new course available from spring 2013; allocated to 3rd year. * not available for spring 2017. * course name changed from spring 2017 * CHANGED TO fall semester of 3rd year from 2020.
-	Power Systems Engineering On-line Security Assessment and Control for Power Systems	2							2			O (elective)	O (elective)	* new course available from spring 2014; allocated to 3rd year. * course name changed from spring 2018
-	Microbiology	2							2			O (elective)	O (elective)	* new course available from spring 2014; allocated to 3rd year.
-	Smart and Bioinspired Materials	2						2 (intensive)				O (elective)	O (elective)	* new course available from spring 2016 as an intensive course; allocated to 3rd year. * Course cancelled.
-	Physics of Semiconductor devices II	2							2			O (elective)	O (elective)	* new course available from spring 2014; allocated to 3rd year. * Not available for spring 2018.
Introduction to Solid State Physics	Introduction to Solid State Physics	2							2			X	X	* originally allocated to spring semester of 2nd year, but from fall 2012, CHANGED TO fall semester of 3rd year. * course cancelled from spring 2014.
-	Power System and Nuclear Power Generation Theory	2								2		O (elective)	O (elective)	* new course available from fall 2014; allocated to 4th year.