

# IPSE UG Students Enrolled in Fall 2010 through 2017

## Summary Table of Changes in IPSE Group C Courses Offered by Dept. of Chemistry and Biochemistry, School of Advanced Sci. & Eng.

For Fall 2020 course registration periods

\* You need to earn credits of Group C courses provided as "elective required" or "elective" for your enrollment year. Please refer to column [A], or [B] here below according to your enrollment 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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017		
Green Materials Science	Green Materials Science	2	2									O (elective)	O (elective required)	* new course available from fall 2011; allocated to 1st year. * for students enrolled in 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)
Inorganic Chemistry > Inorganic Chemistry A	Inorganic Chemistry > Inorganic Chemistry A	2			2							O (elective)	O (elective required)	* 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. * for students enrolled in 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)
Organic Chemistry > Organic Chemistry A	Organic Chemistry > Organic Chemistry A	2			2							O (elective)	O (elective required)	* 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. * for students enrolled in 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)
-	Inorganic Chemistry B	2				2						O (elective)	O (elective required)	* new course available from spring 2014; allocated to 2nd year.
-	Organic Chemistry B	2				2						O (elective)	O (elective required)	* new course available from spring 2016; allocated to 2nd year
Physical Chemistry > Physical Chemistry A	Physical Chemistry > Physical Chemistry A	2				2						O (elective)	O (elective required)	* 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. * for students enrolled in 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).
Biochemistry	Biochemistry	2				2						O (elective)	O (elective required)	* for students enrolled in 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).
-	Physical Chemistry B	2					2					O (elective)	O (elective required)	* new course available from fall 2014; allocated to 3rd year.
-	Chemical Biology	2						2				O (elective)	O (elective required)	* new course available from spring 2014; allocated to 3rd year.

[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	
Carriculum for Students Enrolled in Fall 2010/ 2011/ 2012/ 2013/ 2014	Carriculum for Students Enrolled in Fall 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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017		
Graduation Thesis A	Graduation Thesis A	4								⊙		O (elective)	O (elective)	
Graduation Thesis B	Graduation Thesis B	4									⊙	O (elective)	O (elective)	
-	Pure and Applied Physics Seminar	2	2									O (elective)	O (elective)	* new course available from fall 2014; 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.
-	Exercises for Fundamental Physics > Exercises for Fundamental Physics A	2		4 first-half								O (elective)	O (elective)	* new course available from spring 2014; allocated to 1st year. * course name changed from spring 2015. * course changed to spring quarter from 2019.
Classical Physics A > Intermediate Mechanics	Intermediate Mechanics	2			2							O (elective)	O (elective)	* 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.
Mathematical Methods for Physics A	Mathematical Methods for Physics A	2			2							O (elective)	O (elective)	
-	Exercises for Fundamental Physics B	2			2							O (elective)	O (elective)	* new course available from fall 2015; allocated to 2nd year.
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)	
-	Intermediate Electromagnetism	2			2							O (elective)	O (elective)	* new course available from fall 2012; allocated to 2nd year.
-	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.
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.

[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
Curriculum for Students Enrolled in Fall 2010/ 2011/ 2012/ 2013/ 2014	Curriculum for Students Enrolled in Fall 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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017	
-	Advanced Electromagnetism	2				2					O (elective)	O (elective)	* new course available from spring 2012; allocated to 2nd year.
Classical Physics B > Quantum Mechanics A	Quantum Mechanics A	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.
Mathematical Methods for Physics B	Mathematical Methods for Physics B	2				2					O (elective)	O (elective)	
-	Thermal Physics	2				2					O (elective)	O (elective)	* new course available from spring 2012; allocated to 2nd year.
Materials Physics A	Materials Physics A	2				2					O (elective)	O (elective)	
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.
-	Introduction to Computational Physics	2				2 (intensive)					O (elective)	O (elective)	* 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.
-	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.
Thermal Physics A	-	2				2					X	X	* cancelled

[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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017	
Thermal Physics B	-	2					2				X	X	* cancelled
Modern Physics A > Quantum Mechanics B	Quantum Mechanics B	2					2				O (elective)	O (elective)	* 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.
Modern Physics B > Relativity	Relativity	2					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. <b>*CHANGED TO spring semester of 3rd year from 2020.</b>
-	Statistical Mechanics	2					2				O (elective)	O (elective)	* new course available from fall 2012; allocated to 3rd year.
-	Fluid Mechanics	2					2	2			O (elective)	O (elective)	* new course available from fall 2014; allocated to 3rd year. <b>*CHANGED TO spring semester of 3rd year from 2020.</b>
Physical Chemistry Laboratory	Physical Chemistry Laboratory	3					6				O (elective)	O (elective)	
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". <b>* Not available for fall 2020.</b>
-	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. * intensive course.

[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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017		
-	Bioscience Practicals A	2					2					O (elective)	O (elective)	* new course available from fall 2016; allocated to 3rd year.
Power Systems Engineering	<del>Power Systems Engineering</del>	2					2					O (elective)	O (elective)	* originally allocated to spring semester of 3rd year, but from fall 2012, CHANGED TO fall semester of 3rd year. * Course cancelled.
-	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.
Introduction to Solid State Physics	Introduction to Solid State Physics	2				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.
	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 fall 2020.
Materials Physics B	Materials Physics B	2							2			O (elective)	O (elective)	
<del>Physics-based Engineering A</del> > Engineering Physics A	Engineering Physics A	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.
<del>Biophysics A</del> > Biological Physics A > Biological Physics	Biological Physics A > Biological Physics	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. * course name changed from spring 2017.
<del>Inorganic Analytical Chemistry Laboratory</del> ⇒ 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.
Organic Chemistry Laboratory	Organic Chemistry Laboratory	3									6	O (elective)	O (elective)	
<del>Green and Sustainable Chemistry</del> > 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.

[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
Curriculum for Students Enrolled in Fall 2010/ 2011/ 2012/ 2013/ 2014	Curriculum for Students Enrolled in Fall 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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017	
-	Intermediate BioScience	2					2 (intensive)	2 (intensive)	2 (intensive)			* 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.	
-	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.
-	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.
-	BioScience Practicals B	2						2			O (elective)	O (elective)	* new course available from spring 2016; allocated to 3rd year.
Frontiers of Device Engineering	Frontiers of Device Engineering	2						2 (intensive)			O (elective)	O (elective)	* intensive course
Mathematical Programming	Mathematical Programming	2						2			O (elective)	O (elective)	* 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. * Course cancelled.
Electric Power Circuits	Electric Power Circuits	2						2			O (elective)	O (elective)	* 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. * Course cancelled.

[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/ 2012/ 2013/ 2014	For students enrolled in 2015/ 2016/2017		
-	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			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
-	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
-	Physics of Semiconductor devices 2	2							2			O (elective)	O (elective)	* new course available from spring 2014; allocated to 3rd year. * Not available for spring 2018.
Semiconductor Device Physics	Semiconductor Device Physics	2							2			X	X	* course cancelled from spring 2014.
Physics-based Engineering B > Engineering Physics B	Engineering Physics B	2							2			O (elective)	O (elective)	* 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.
Biophysics B > Biological Physics B	Biological Physics B	2							2			O (elective)	O (elective)	* 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. * course cancelled from spring 2017
Introduction to Chemistry and Biochemistry	-	2							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.
-	Power System and Nuclear Power Generation Theory	2							2			O (elective)	O (elective)	* new course available from fall 2014; allocated to 4th year.