

Curriculum

Subjects	Credit	Term	Remarks
Master's Degree Program			Requirements for completion:
(Compulsory Subject)			○ Earn a minimum of 30 credits
Laboratory Exercise in Chemical Sciences and Engineering I	10	All Year	• Compulsory Subject : 10 credits
(Compulsory Elective Subjects)			• Compulsory Elective Subjects : 8 or more credits
Advanced Lecture of Physical Chemistry	1	Summer	• Elective Subjects: 5 or more credits
Advanced Inorganic Chemistry	1	Summer	• Elective Subjects of Other Courses: 2 or more credits
Introductory Bio-organic Chemistry	1	Summer	• Common Subjects for CSE: 5 or more credits
Intermediate Biological Chemistry	2	Fall/Winter	○ Complete a thesis and pass the thesis defense
Practical Computational Chemistry	2	Fall	and examination, after receiving the necessary research guidance
Structural Organic Chemistry	1	Winter	
Molecular Transformation	1		
Supramolecular Chemistry	1	Fall	
Chemical Engineering Thermodynamics	1	Intensive	
Organic Chemistry of Reaction Mechanism and Molecular Structure	2	Spring/Summer	
Chemical Reaction Engineering	2	Spring/Summer	
Advanced Organic Synthesis	2	Fall	
Inorganic Materials Chemistry	2	Spring/Summer	
Materials for Energy Conversion and Storage	1	Summer	
Advanced Applied Biochemistry	1	Intensive	
Molecular Materials Chemistry	1	Fall	
Instrumentation Chemistry	1	Intensive	
Advanced Ethics and Safety for Science and Engineering	1	Intensive	
Laboratory Exercise in Chemical Sciences and Engineering II	2	All Year	
Laboratory Exercise in Chemical Sciences and Engineering III	2	All Year	
(Elective Subject)			
Molecular Chemistry and Engineering Course			
Molecular Chemistry (Advanced Physical Chemistry)	1	Fall	
Molecular Chemistry (Structural and Physical Organic Chemistry)	1	Fall	
Molecular Chemistry (Macromolecular Science)	1	Spring	
Molecular Chemistry (Catalytic Transformation)	1	Winter	
Molecular Chemistry (Catalysis Theory)	1	Winter	
Molecular Chemistry (Photochemistry)	1	Spring	
Molecular Chemistry (Advanced Chemical Reaction Design and Discovery)	1	Fall	
Molecular Chemistry A (Theoretical Chemistry)	2	Spring/Summer	
Molecular Chemistry A (Organometallic Chemistry)	2	Spring/Summer	
Applied Molecular Chemistry (Chemical Energy Conversion)	1	Winter	
Applied Molecular Chemistry (Process Engineering)	1	Spring	
Applied Molecular Chemistry (Separation Process Engineering I)	1	Intensive	
Applied Molecular Chemistry (Separation Process Engineering II)	1	Intensive	
Applied Molecular Chemistry A (Catalyst Design)	2	Fall/Winter	
Materials Chemistry and Engineering Course			
Materials Chemistry (Organic Solid State Chemistry)	1	Spring	
Materials Chemistry (Materials for Nanodevice)	1	Summer	
Materials Chemistry (Introduction to Material Science)	1	Fall	
Materials Chemistry (Advanced Chemical Reaction Rate Theory)	1	Winter	
Materials Chemistry A (Mesoscopic Material Chemistry)	2	Spring/Summer	
Applied Materials Chemistry (Physical Chemistry of Organic Materials)	1		
Applied Materials Chemistry (Interfacial Electrochemistry)	1	Summer	
Applied Materials Chemistry (Inorganic Solid State Chemistry)	1	Fall	
Applied Materials Chemistry (Physical Chemistry of Electronic Materials)	1	Winter	
Applied Materials Chemistry (Functional Solid State Materials Chemistry)	1	Intensive	
Applied Materials Chemistry (Advanced Materials Chemistry)	1	Summer	
Applied Materials Chemistry (Applied Inorganic Materials Chemistry I)	1	Fall	
Applied Materials Chemistry (Applied Inorganic Materials Chemistry II)	1	Fall	

Subjects	Credit	Term	Remarks
Biological Chemistry and Engineering Course			
Biochemistry A (I)	2	Spring/Summer	
Biochemistry A (II)	2	Fall/Winter	
Biochemistry A (III)	2	Spring/Summer	
Biochemistry A (IV)	2	Fall/Winter	
Applied Biochemistry (Biosynthetic and Metabolic Engineering)	1	Fall	
Applied Biochemistry (Biosystem Engineering)	1	Fall	
Applied Biochemistry (Analytical Biochemistry)	1	Fall	
Applied Biochemistry A (Microsystem Chemistry)	2	Fall	
Applied Biochemistry A (Advanced Functional Polymer)	2	Spring/Summer	
Common Subjects for CSE			
Internship	1	Fall	※Following Subjects may be approved for credit as common credit for CSE. • Inter-Graduate School Classes • subjects for other graduate schools
Advanced Chemistry	[1]	Intensive	
Advanced–Applied Chemistry	[1]	Intensive	
Industrial Practice in Chemical Processes	1	Fall	
Micro–Nanotechnology	1	Fall	
Modern Trends in Biomolecular Chemistry	1	Summer	
Modern Trends in Physical and Material Chemistry	1	Intensive	
Modern Trends in Organic Chemistry and Biological Chemistry	1	Intensive	
Introductory Physical Chemistry	1	Spring	
Frontiers of Inorganic Chemistry			
Special Lecture on Organic Chemistry	1	Summer	
Introduction to Biological Chemistry	1	Intensive	
Molecular Physical Chemistry	1	Spring	
Structure Analysis of Inorganic Materials	1	Spring	
Bioresources Chemistry	1	Spring	
Introduction to Chemical Reaction Design and Discovery	1	Summer	
Strategy for Integrating Organic Chemistry with Computational Chemistry	2	Spring/Summer	
Ph.D Program			Requirements for completion:
(Compulsory Subject)			○Earn a minimum of 10 credits
Research in Chemical Sciences and Engineering I	4	All Year	• Compulsory Subject : 4 credits
(Elective Subject)			• Elective Subjects: 6 or more credits
Research in Chemical Sciences and Engineering III	2	All Year	○Complete a dissertation and pass the dissertation defense and examination, after receiving the necessary research guidance
Modern Trends in Chemical Sciences and Engineering I	[1]	Intensive	
Modern Trends in Chemical Sciences and Engineering II	[1]	Intensive	
Internship	[1]	Irregular	

Remarks

- Credit with [] means several lectures will be provided.
- The periods for individual terms are generally as follows:
 Spring: Early April – Early June
 Summer: Early June – Early August
 Fall: Early October – Early December
 Winter: Early December – Early February