

# Curriculum

Subjects	Credit	Term	Remarks
<b>Master's Degree Program</b>			<b>Requirements for completion:</b> <input type="radio"/> Earn a minimum of 30 credits • Compulsory Subject : 10 credits • Compulsory Elective Subjects : 8 or more credits • Elective Subjects: 5 or more credits • Elective Subjects of Other Courses: 2 or more credits • Common Subjects for CSE: 5 or more credits <input type="radio"/> Complete a thesis and pass the thesis defense and examination, after receiving the necessary research guidance
(Compulsory Subject)			
Laboratory Exercise in Chemical Sciences and Engineering I	10	All Year	
(Compulsory Elective Subjects)			
Advanced Lecture of Physical Chemistry	1	Summer	
Advanced Inorganic Chemistry	1	Summer	
Introductory Bio-organic Chemistry	1	Summer	
Intermediate Biological Chemistry	2	Spring/Summer	
Practical Computational Chemistry	2	Fall	
Structural Organic Chemistry	1	Fall	
Molecular Transformation	1	Winter	
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)			
<b>Molecular Chemistry and Engineering Course</b>			
Molecular Chemistry (Advanced Physical Chemistry)	1	Fall	
Molecular Chemistry (Structural and Physical Organic Chemistry)	1	Winter	
Molecular Chemistry (Macromolecular Science)	1	Summer	
Molecular Chemistry (Catalytic Transformation)	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 (Separation Process Engineering I)	1	Intensive	
Applied Molecular Chemistry (Separation Process Engineering II)	1	Intensive	
Applied Molecular Chemistry A (Process Engineering)	2	Spring/Summer	
Applied Molecular Chemistry A (Catalyst Design)	2	Fall/Winter	
<b>Materials Chemistry and Engineering Course</b>			
Materials Chemistry (Organic Solid State Chemistry)	1	Spring	
Materials Chemistry (Nano-Photonics Materials)	1	Summer	
Materials Chemistry (Introduction to Material Science)	1	Fall	
Materials Chemistry (Advanced Chemical Reaction Rate Theory)	1	Winter	
Materials Chemistry A (Inorganic Solid State Chemistry)	2	Fall/Winter	
Materials Chemistry A (Mesoscopic Material Chemistry)	2	Spring/Summer	
Applied Materials Chemistry (Physical Chemistry of Organic Materials)	1	Fall	
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 (Physical Chemistry and Functional Materials)	1	Fall	
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	
<b>Biological Chemistry and Engineering Course</b>				
Biochemistry A ( I )	2	Fall/Winter		
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 (Cell Processing Engineering)	1	Winter		
Applied Biochemistry A (Microsystem Chemistry)	2	Fall		
Applied Biochemistry A (Advanced Functional Polymer)	2	Spring/Summer		
<b>Common Subjects for CSE</b>				
Topical Lectures in Chemical Sciences and Engineering	1	Spring-Winter	※Following Subjects may be approved for credit as common credit for CSE. <ul style="list-style-type: none"> <li>• Inter-Graduate School Classes</li> <li>• subjects for other graduate schools</li> </ul>	
Internship	1	Fall		
Advanced Chemistry	[1]	Intensive		
Advanced-Applied Chemistry	[1]	Intensive		
Industrial Practice in Chemical Processes	1	Intensive		
Micro-Nanochemistry	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	1	Spring		
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		
Corrosion Engineering	1	Intensive		
Bioresources Chemistry	1	Spring		
Introduction to Chemical Reaction Design and Discovery	1	Summer		
<b>Ph.D Program</b>				
<b>(Compulsory Subject)</b>				<b>Requirements for completion:</b> <input type="radio"/> Earn a minimum of 10 credits <ul style="list-style-type: none"> <li>• Compulsory Subject : 4 credits</li> <li>• Elective Subjects: 6 or more credits</li> </ul> <input type="radio"/> Complete a dissertation and pass the dissertation defense and examination, after receiving the necessary research guidance
Research in Chemical Sciences and Engineering I	4	All Year		
<b>(Elective Subject)</b>				
Research in Chemical Sciences and Engineering III	2	All Year		
Modern Trends in Chemical Sciences and Engineering I	[1]	Intensive		
Modern Trends in Chemical Sciences and Engineering II	[1]	Intensive		
Research in Chemical Sciences and Engineering II	1	Spring-Winter		
Internship	[1]	Irregular		

Remarks

1. Credit with [ ] means several lectures will be provided.
2. 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