



Curriculum of Master of Chemistry Study Programme

Course Code	Group of courses	Credits	Semester			
			1	2	3	4
MKKPs		8	5	3	0	0
PS701	Applied Statistics	3		3		
PS702	Philosophy of Science	2	2			
PS709	Chemistry Research Methodology	3	3			
MKKIPS		14	10	4	0	0
KI707	Selected Topics in Physical Chemistry	2	2			
KI711	Selected Topics in Organic Chemistry	2	2			
KI712	Selected Topics in Analytical Chemistry	2	2			
KI713	Selected Topics in Inorganic Chemistry	2	2			
KI723	Selected Topics in Biochemistry	2	2			
KI724	Computational Chemistry	2		2		
KI725	Characterization and Measurement in Chemistry	2		2		
MKKPPS		12	2	8	2	0
Biological Chemistry		12				
KI731	Functional Food Components	2		2		
KI732	Drug Molecule Synthesis	2		2		
KI733	Molecular Mechanism and Drug Biotransformation	2		2		
KI734	Medical and Nutritional Biochemistry	2		2		
KI735	Biological Chemistry Research Study	2			2	
KI736	Food and Drug Analysis	2	2			
Material Chemistry		12				
KI726	Material Design and Process	2	2			
KI727	Polymer Material	2		2		
KI728	Composite and Ceramic Materials	3		3		
KI729	Material Synthesis and Characterization	3		3		
KI730	Material Chemistry Research Study	2		3		
THESIS		8				8
KI799	Thesis	8				8
TOTAL CREDITS		42				

DESCRIPTION OF COURSE GROUP

Course Group	Description
General Courses (MKU)	Course group that contains knowledge, general skills, and attitudes to help students develop personality and "Indonesianness" as people and citizens who understand the cultural variation between nations.
Faculty Expertise Courses (MKKF)	Course groups that contain knowledge, skills, and attitudes to assist students in developing competencies according to the characteristics of the faculty.
University Specific Courses (MKKU)	Courses group that teach students about UPI's educational identity, including knowledge, skills, and attitudes, for every UPI graduate to comprehend, appreciate, and implement educational values.
Core Expertise Courses of Study Program (MKKIPS)	Course groups contain information, abilities, and attitudes that equip students to build important abilities according to the graduate profile and the study program's learning outcomes.
Elective Expertise Courses of Study Program (MKKPPS)	Course groups that contain knowledge, skills, and attitudes to equip students to develop additional skill competencies following the additional profile of the study program
Fieldwork Practices/Internship (MKPPL)	Course groups that contain knowledge, skills, and attitudes to equip students to gain practical experience in the field of expertise following their respective disciplines at the relevant institution.
Basic Education Courses (MKDK)	Course groups that contain knowledge, skills, and attitudes to equip students in developing general pedagogical competencies or pedagogical knowledge as prospective teachers.
Learning Expertise of Field of Study Courses (MKPBS)	Course groups that contain strategies, methods, planning, learning evaluation, and learning media literacy.
Educational Unit Field Experience Courses (MKKPLSP)	Course groups that contain activities to develop knowledge, skills, and attitudes that equip students to gain practical educational experience in the unit education.
Postgraduate Expertise Courses (MKKPs)	Courses group that contain knowledge, skills, and attitudes to equip students to deepen, expand, and develop expertise in the field of science at postgraduate.
Thesis	Scientific writing as a requirement for graduation in the bachelor and master Program. The thesis aimed at developing the ability of bachelor/master students in compiling scientific papers as a result of their overall learning experience based on the results of field research based on the application of theory and written in the procedure for writing scientific papers.

MASTER OF CHEMISTRY'S OBJECTIVE-MODULE-MATRIX

LO TC-09-Chemistry-Master ASIIN SSC	Programme Learning Outcomes	Corresponding modules
Specialist Competences		
1. have deepened their knowledge in core subjects, special subjects or interdisciplinary sub-jects,	MC-1 Have depth knowledge of the theory of structure, energetics, kinetics, analysis and synthesis of micro, macro and supramolecule and their applications.	Selected Topics in Physical Chemistry (KI707); Selected Topics in Organic Chemistry (KI711); Selected Topics in Analytical Chemistry (KI712); Selected Topics in Inorganic Chemistry (KI713); Selected Topics in Biochemistry (KI723); Applied Statistics (PS701); Characterization and Measurement in Chemistry (KI725)
2. have knowledge building up on a Bachelor's degree level in chemistry, which forms a basis for original and competent development and implementation of ideas within a research area	MC-2 Able to apply chemistry in the research and development of the selected fields.	Functional Food Components (KI731); Drug Molecule Synthesis (KI732); Molecular Mechanism and Drug Biotransformation (KI733); Medical and Nutritional Biochemistry (KI734); Material Design and Process (KI726); Polymer Material (KI727); Composite and Ceramic Materials (KI728); Food and Drug Analysis (KI736); Material Synthesis and Characterization (KI729); Computational Chemistry (KI724)
3. have competences qualifying them professionally, e.g. to work as a chemist in industry or public service.	MC-3 Able to apply knowledge and skills to work professionally in chemistry, industrial chemistry, and other areas.	Food and Drug Analysis (KI736); Material Synthesis and Characterization (KI729); Computational Chemistry (KI724); Chemistry Research Methodology (PS709); Thesis (KI799)
Generic Competences		
4. Such graduates are able to carry out independent scientific work 5. apply their knowledge and understanding, in order to solve problems in new and unaccustomed situations, involving broader (or multidisciplinary) issues.	MC-4 Apply specific comprehension in material and biological chemistry to solve problems and manage related projects.	Chemistry Research Methodology (PS709); Biological Chemistry Research Study (KI735); Material Chemistry Research Study (KI730); Thesis (KI799)

LO TC-09-Chemistry-Master ASIIN SSC	Programme Learning Outcomes	Corresponding modules
Social Competences		
6. have acquired a capacity to carry out independent scientific work and to organise, conduct and lead more complex projects,	MC-5 Able to develop logical and critical thinking, systematic, and creative to solve problems in chemistry and current issues independently through inter and multidisciplinary approaches.	Thesis (KI799)
7. have acquired scientific, technical and social competences (abstraction ability, systems analytical thinking, capacity for teamwork, ability to communicate, international and intercultural experience etc.), and are therefore prepared to take on leadership responsibility,	MC-6 Able to make a proper decision to solve problems based on the existing data and information, following social ethics and values, humanities, and nationalism.	Philosophy of Science (PS702); Chemistry Research Methodology (PS709)
8. can combine and independently apply specialised knowledge in various component disciplines, in order to organise, work on and manage complex problems,	MC-7 Able to apply for scientific work independently in conducting and leading certain complex activities (including scientific publication).	Thesis (KI799); Biological Chemistry Research Study (KI735); Material Chemistry Research Study (KI730)
9. capable of making decisions, based on incomplete or limited information 10. take into account ethical responsibility in their decisions.	MC-8 Able to apply scientific skills and social competences in sensibly managing and leading certain activities.	Thesis (KI799); Biological Chemistry Research Study (KI735); Material Chemistry Research Study (KI730)

Mapping Between PLOs with courses in Master of Chemistry

No	Code	Courses	SKS	PLO								
				MC-1	MC-2	MC-3	MC-4	MC-5	MC-6	MC-7	MC-8	
MKKPs												
1	PS701	Applied Statistics	3			X						
2	PS702	Philosophy of Science	2					X	X			
3	PS709	Chemistry Research Methodology	3				X	X	X	X		
MKKIPS												
4	KI707	Selected Topics in Physical Chemistry	2	X								
5	KI711	Selected Topics in Organic Chemistry	2	X								
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8	KI723	Selected Topics in Biochemistry	2	X								
9	KI724	Computational Chemistry	2									
10	KI725	Characterization and Measurement in Chemistry	2	X								
11	KI799	Thesis	8			X	X				X	
MKKPPS												
12	KI726	Material Design and Process	2	X	X							
13	KI727	Polymer Material	2	X	X							
14	KI728	Composite and Ceramic Materials	3	X	X							
15	KI729	Material Synthesis and Characterization	3	X	X							
16	KI730	Material Chemistry Research Study	2	X	X		X					X
17	KI731	Functional Food Components	2	X	X							
18	KI732	Drug Molecule Synthesis	2	X	X							
19	KI733	Molecular Mechanism and Drug Biotransformation	2	X	X							

No	Code	Courses	SKS	PLO								
				MC-1	MC-2	MC-3	MC-4	MC-5	MC-6	MC-7	MC-8	
20	KI734	Medical and Nutritional Biochemistry	2	X	X							
21	KI735	Biological Chemistry Research Study	2	X	X			X				X
22	KI736	Food and Drug Analysis	2	X	X							
Jumlah SKS			42									

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