Curriculum

The Chemistry Study Program curriculum of the Faculty of Science and Technology is aligned with the Indonesian National Qualifications Framework-based Curriculum for the Academic Years 2020 – 2025. The Chemistry Study Program at FST has implemented this KKNI-based curriculum since 2015, referring to the Regulation of the Minister of Research, Technology, and Higher Education (Permenristek-Dikti) No. 44 of 2015 concerning the National Standards for Higher Education. This regulation emphasizes that Graduate Learning Outcomes (CPL) encompass three aspects: attitudes or attitude, mastery of knowledge, and skills. Apart from that, it has accommodated the Indonesian Chemical Association as the Chemical Professional Association in Indonesia

Additionally, the development of this curriculum also adopts the Independent Learning Policy – Independent Campus (MBKM) based on the Minister of Education and Culture Regulation (Permendikbud) Number 3 of 2020 concerning the National Standards for Higher Education. The Chemistry Study Program has also adopted an Outcomes-based Curriculum. Through the Independent Learning Policy – Independent Campus, students have the opportunity to spend 1 (one) semester or equivalent to 20 (twenty) credits taking courses outside their study program at the same university; and for a maximum of 2 (two) semesters or equivalent to 40 (forty) credits taking courses in the same study program at different universities and/or learning outside universities.

Code of PLO	Description of PLO
Subject-specific competences	
CHEM-1	have gained chemistry-relevant fundamental knowledge of mathematics and the natural sciences,
CHEM-2	Able to apply the basic concepts of organic chemistry, inorganic chemistry, physical chemistry, analytical chemistry, food chemistry and biochemistry and be able to apply them in the processes of chemical identification, isolation, transformation and synthesis.
CHEM-3	Have gained knowledge of concepts and principles on environmental, materials, and food chemistry as well as their applications in a selected field.
CHEM-4	Be able to work independently by implementing occupational health and safety concepts and regulations in the laboratory, environment and industry
CHEM-5	Mastering complete operational knowledge of functions, how to operate common chemical instruments, and analysis of data and information from these instruments.
CHEM-6	have interdisciplinary knowledge and skills, such as in halal food and Technopreneurship

Generic competences	
CHEM-7	Have the ability to manage simple chemical research supported by data analysis skills, information technology and mastery of chemical instruments.
CHEM-8	Able to Choose Strategic Decisions and Provide Alternative Solutions Based on Simple Chemical Research in the Field of Identification, Analysis, Isolation, Transformation, and Synthesis of Chemicals
Social competences	
CHEM-9	Be able to communicate with colleagues from the related field and the general public on chemistry-related contents and problems, and use the foreign language in a cross-cultural frame as a lifelong learner
CHEM-10	Have gained social skills and knowledge in an integrated manner in the professional field, and leadership based on Islamic and Indonesian values
CHEM-11	Have the ability to work collaboratively in groups and appreciate the meaning of cooperation with others.

COURSE AND CREDIT STRUCTURE

SEMESTER I

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096101	Basic Chemistry I	3	4.13
2	FST 6096102	Basic Chemistry Laboratory Work I	1	2.46
3	FST 6097114	Basic Physic	2	2.75
4	NAS 6013203	Indonesian Language	3	4.13
5	FST 6094225	Calculus	2	2.75
6	UIN 6032201	Islamic Studies	4	5.5
7	FST 6097115	Basic Physic Laboratory Work	1	2.46
8	UIN 6021204	Arabic Language	3	4.13
9	UIN 6033205	Qiroah practice and Worship	2	2.75
		Number of credits	**21**	**31.06**

SEMESTER II

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096103	Basic Chemistry II	3	4.13
2	FST 6096104	Basic Chemistry Laboratory Work II	1	2.46
3	FST 6096105	Organic Chemistry I	3	4.13
4	FST 6096106	Organic Chemistry Laboratory Work I	1	2.46
5	FST 6097116	Advance Physic	2	2.75
6	FST 6096107	Chemical Laboratory Management	2	2.75
7	FST 6095201	Basic Biology	2	2.75
8	NAS 6112201	Pancasila and civic education	3	4.13
9	FST 6091101	Introduction to Information and Communication Technology	2	2.75
10	FST 6096108	Qualitative Analytical Chemistry	2	2,75

11	FST 6096109	Qualitative Analytical Chemistry Laboratory Work	1	2.46
		Number of credits	**22**	**33,52**

SEMESTER III

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096110	Organic Chemistry II	3	4.13
2	FST 6096111	Organic Chemistry Laboratory Work II	1	2.46
3	FST 6096112	Quantitative Analytical Chemistry	3	4.13
4	FST 6096113	Quantitative Analytical Chemistry Laboratory Work	1	2.46
5	FST 6096114	Chemical Thermodynamics	3	4.13
6	FST 6096115	Chemical Thermodynamics Laboratory Work	1	2.46
7	FST 6096116	Inorganic Structure and Reactivity	3	4.13
8	FST 6096117	Inorganic Structure and Reactivity Laboratory Work	1	2.46
9	UIN 6032202	Islam and Science	3	4.13
		Number of credits	**19**	**30.49**
		Elective courses	**2**	**2.75**
		Total of credits	**21**	**33.24**
		Elective courses available (Max for 2)		
1	FSH 6046126	IPR (Intellectual Property Rights)	2	2.75
2	FST 6096319	Management of Hazardous Materials	2	2.75
3	FST 6092038	Halal Food Standardization and Management	2	2.75

SEMESTER IV

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096121	Transition Metals and Coordination Chemistry	3	4.13
2	FST 6096122	Transition Metals and Coordination Chemistry Laboratory Work	1	2.46
3	FST 6096123	Chemical Dynamics	3	4.13
4	FST 6096124	Chemical Dynamics Laboratory Work	1	2.46
5	FST 6096125	Structure and Function of Biomolecules	3	4.13
6	FST 6096126	Biochemistry Laboratory Work	1	2.46
7	FST 6096127	Chemical Separation Techniques	3	4.13
8	FST 6096128	Chemical Separation Techniques Laboratory Work	1	2.46
9	FST 6094106	Elementary statistics	3	4.13
		Number of credits	**19**	**30.49**
		Elective courses	**4**	**5.5**
		Total of credits	**23**	**35.99**
		Elective courses available (Max for 2)		
1	FST 6096329	Polymer Chemistry	2	2.75
2	FST 6096330	Chemical Process Industry	2	2.75
3	FST 6096331	Functional Food	2	2.75
4	FST 6095106	Microbiology	2	2.75
5	FST 6096332	Organic Chemical Synthesis	2	2.75

SEMESTER V

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096133	Metabolism	3	4.13
2	FST 6096134	Natural Product Chemistry	2	2.75
3	FST 6096135	Natural Product Chemistry Laboratory Work	1	2.46
4	FST 6096136	Atomic and Molecular Spectroscopy	2	2.75
5	FST 6096137	Instrument Analysis Laboratory Work	1	2.46

6	FST 6096138	Food Chemistry Laboratory Work	1	2.46
7	FST 6096139	Food Chemistry	3	4.13
8	UIN 6014203	English	3	4.13
		Number of credits	**16**	**25.27**
		Elective courses	**4**	**5.5**
		Total of credits	**20**	**30.77**
		Elective courses available (max for 2)		
1	FST 6096340	Electrochemistry	2	2.75
2	FST6096341	Bioinorganic	2	2.75
3	FST 6096342	Mineral Chemistry	2	2.75
4	FST 6096343	Enzymology	2	2.75
5	FST 6096344	Catalyst Chemistry	2	2.75
6	FST 6096345	Colloid Chemistry	2	2.75
7	FST 6096346	Petroleum Chemistry	2	2.75
8	FST 6096347	Mineral Metabolism	2	2.75

SEMESTER VI

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096148	Structure Elucidation	2	2.75
2	FST 6092035	Technopreneurship	2	2.75
3	FST 6096149	Food Technology	3	4.13
4	UIN 6000208	Research Methodology	3	4.13
5	FST 6096150	Environmental Chemistry Laboratory Work	1	2.46
6	FST 6096151	Environmental Chemistry	2	2.75
		Number of credits	**13**	**18,97**
		Elective courses	**6**	**8,25**
		Total of credits	**23**	**27.22**
		Elective courses available (Max for 5)		
1	FST 6096352	Inorganic Chemical Synthesis	2	2.75
2	FST 6096353	Cosmetic and Medicinal Chemistry	2	2.75
3	FST 6096354	Environmental Impact Management Analysis (AMDAL)	2	2.75

4	FST 6096355	Toxicology	2	2.75
5	FST 6096356	Food Safety Control	2	2.75
6	FST 6096357	Biotechnology	2	2.75
7	FST 6096358	Radiation Chemistry and Applications	2	2.75
8	FST 6096359	Halal Food Analysis	2	2.75
9	FST 6096360	Additive Chemistry	2	2.75

SEMESTER VII

No	Code	Compulsory Courses	Credit	ECTS
1	FST 6096161	Colloquium	2	2.75
2	UIN 6000207	Job training/Internship (PKL)	4	5.5
3	UIN 6000206	Community Service Program (KKN)	4	5.5
		Number of credits	**10**	**13.75**
		Elective courses	**4**	**5.50**
		Total of credits	**14**	**19.25**
		Elective courses available		
1	FST 6095237	Environmental Toxicology	2	2.75
2	FST 6096362	Zeolite	2	2.75
3	FST 6096363	Bioorganic	2	2.75
4	FST 6096364	Biochemical Laboratory Technique	2	2.75
5	FST 6096120	Natural resource management	2	2.75
6	FST 6096365	Biofuels	2	2.75
7	FST6095123	Bioinformatics	2	2.75
8	FST 6096367	Computational Chemistry	2	2.75

SEMESTER VIII

No	Code	Compulsory Courses	Credit	ECTS
1	UIN 6000312	Bachelor Thesis	6	13.60
2	UIN 6000313	Seminar	1	1.25
		Number of credits	**7**	**14.85**

Compulsory Courses	127 Credits	198.14 ECTS

Elective Courses	20 Credits	27.50 ECTS
Total	**147 Credits**	**225,64 ECTS**

Curriculum Map