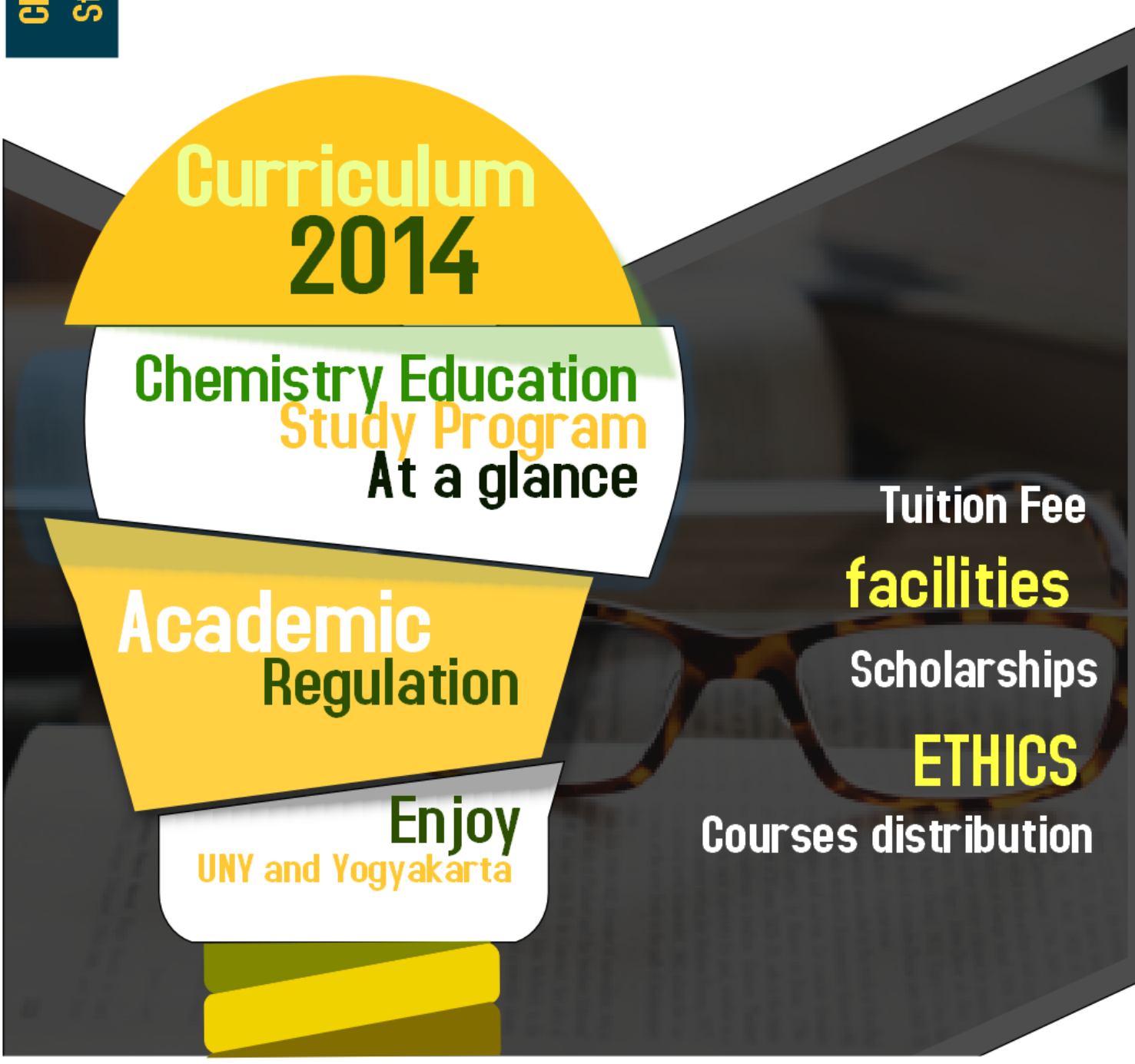
Chemistry Education Study Program

STUDENT HANDBOOK



2015

Department of Chemistry Education
Faculty of Mathematics and Natural Science
Universitas Negeri Yogyakarta

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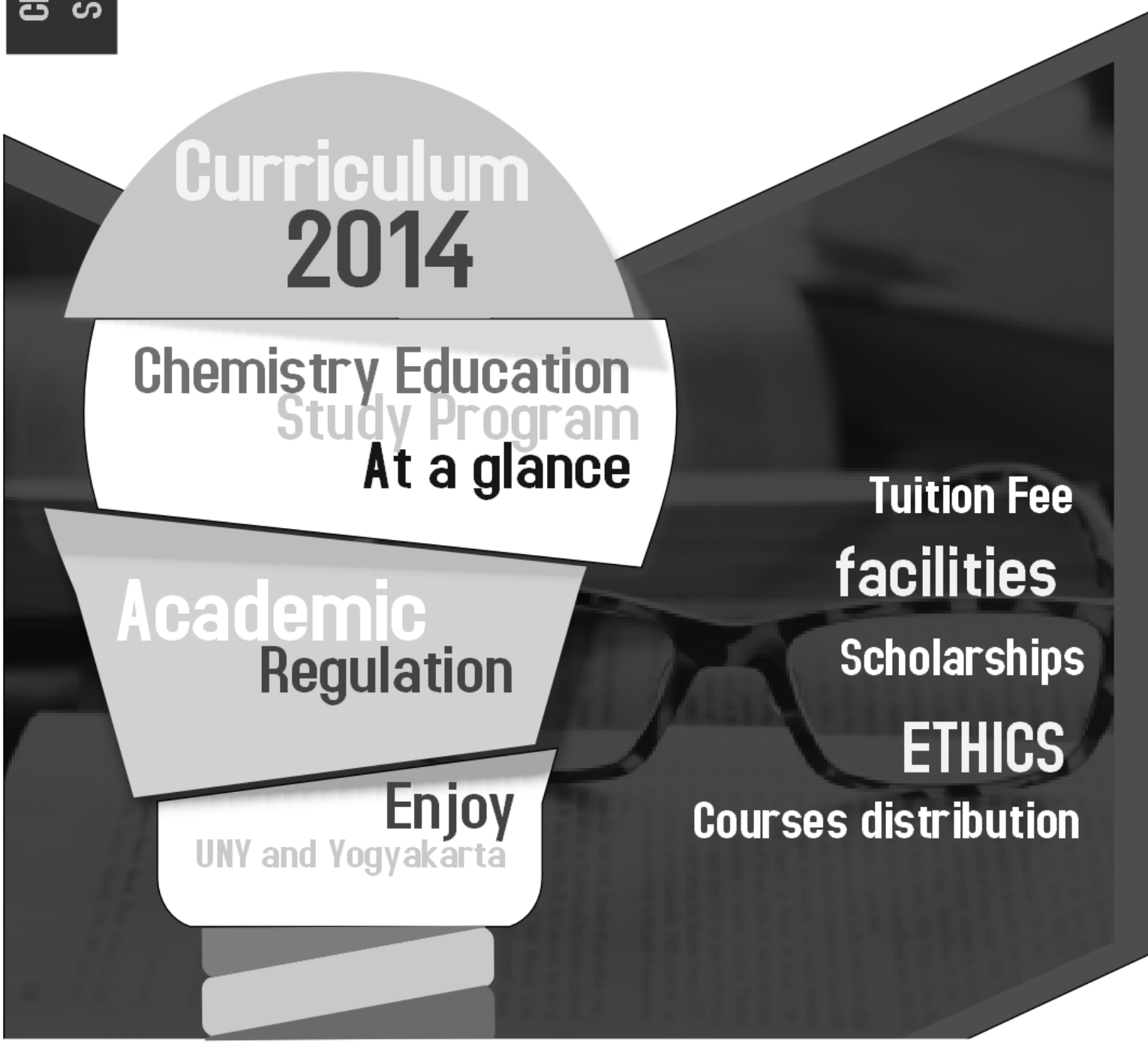

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Overview of the Chemistry Education Study Program

A Short History of Chemistry Education

The Department of Chemistry Education was initially a B-1 Chemistry course which was opened on October 22, 1956. In 1961, the B-1 chemistry was changed to the Department of Chemistry FKIP / B Gadjah Mada University. With the establishment of Yogyakarta State Teachers 'Training College on May 21, 1964, the Department of Chemistry FKIP / B UGM joined the Teachers' Training College of Yogyakarta under the Faculty of Teacher Training of Exact Sciences (FKIE) under the name of the Department of Chemistry. Since 1980, FKIE has changed to FPMIPA (Faculty of Mathematics and Natural Sciences), and the Department of Chemistry has changed to the Department of Chemistry Education (Jurdik Chemistry) which manages Bachelor and D3 Chemistry Education Study Programs. In 1997, Jurdik Kimia was given an expanded mandate to open a S1 Chemistry Study Program. With the change of status of Yogyakarta State Teachers' Training College to Yogyakarta State University (UNY) in 1999, FPMIPA became FMIPA, and Chemistry Education Department managed the S1 Chemistry Education Study Program and the S1 Chemistry Study Program. Thus, for more than 50 years, this study program has a role in improving the quality of chemical education in Indonesia.

The Chemistry Education Department has two study programs, namely Chemistry Study Program and Chemistry Education Study Program, and has three laboratories, namely Chemistry Education Laboratory, Computer Laboratory, Chemistry Laboratory (covering Basic Chemistry Laboratory, Organic Chemistry and Biochemistry, Physical Chemistry Laboratory, Analysis Chemistry Laboratory, Laboratory Inorganic Chemistry, and Research Laboratories). The laboratory is also supported by a book collection room (library) which is quite complete and has an internet network.

Starting in the 2003/2004 academic year the Chemistry Education Department used a Competency Based Curriculum (Curriculum 2002) compiled based on the vision, mission, goals and objectives of the study program and has considered the needs of stakeholders, taking into account input from lecturers, students, alumni, users of graduates, paying attention to evaluating the implementation of the curriculum before, and refer to SK No 232 / U / 2000 and SK NO 045 / U / 2002. Starting in the Academic Year 2009/2010 the Chemistry Education Department implemented the 2009 Curriculum which was more supportive towards UNY's internationalization program. Starting in the Academic Year 2010/2011 curriculum has also been applied to the International Class of Chemistry Education Study Program. The 2014 curriculum based on KKNI has been implemented starting in the 2014/2015 school year.

The infrastructure of the Department of Chemistry Education is very good. There are enough lecture rooms, laboratrium, library, department management rooms, lecturer rooms, seminar rooms, thesis examination rooms, and student management rooms. The Department of Chemistry Education also has adequate lecture and administrative support equipment, such as OHP, LCD, notebooks, computers, audio visual equipment, workshop equipment, and photocopying machines. Computers are available in adequate numbers and quality (80 computers in 2 rooms) so that each student can carry out practicum with 1 computer. Computer laboratory equipped with internet network. The books in the department's library are available in a sufficient number of books, titles, and editions. The books come from alumni contributions, the DUE-Like project, JICA, and the A2 Competition Grant Program (PHK), and PHKI batch II.

Vision and Mission of the Chemistry Education study

The Vision of the Chemical Education Study Program is "In 2025 the accomplishment of a Chemistry Education Study Program based on quality and excellence in the development of learning and research to produce Bachelor of Education in Chemistry that meets global pedagogical, professional, personal, social, and competitive competencies and has a pious, independent and intellectual character".

An explanation of the terms in the vision is as follows.

a. Quality-based means that the Chemistry Education Study Program continuously improves the performance of the processes and results of the management of the Study Program by utilizing all available resources.
b. Unggul, means having specificity that has more value compared to graduates of Chemistry Study Program outside UNY
c. Pedagogic Competence: is a competency that must be possessed by teachers associated with learning students. Pedagogic competencies include the teacher's understanding of students, the design and implementation of learning, evaluation of learning outcomes, and the development of students to actualize their various potentials
d. Professional Competence is the mastery of extensive and in-depth learning material, which includes the mastery of curriculum material in school subjects and the scientific substance that houses the material, as well as mastery of its scientific structure and methodology
e. Personality Competence is a personal ability that reflects a personality that is steady, stable, mature, wise, and authoritative, be an example for students, and have good character
f. Social Competence is the ability of teachers to communicate and interact effectively with students, fellow educators, educational staff, parents / guardians of students, and surrounding communities
g. Global Competitiveness means it has advantages that can be compared with graduates of the S1 Study Program at the globa,l level

h. Taqwa means that in carrying out its mandate, UNY carries out activities on the path blessed by God Almighty. With the value of piety, every academic community of UNY is expected to be able to 1) firm faith, 2) honest, 3) obey the law and God's commands, and 4) noble character
i. Independence refers to the professionalism of someone who is strong in carrying out his mandate so that the way of thinking, behaving, and acting is more likely to be based on self-professionalism with full awareness of the consequences for themselves, institutions, society, and the nation, both in the short and long term by promoting professionalism self, self confidence, and self-initiative that do not always depend on others
j. Intellectual, means that in thinking, acting, and acting, all academicians always base on scientific truth. The characteristics of a scholar are 1) competent and smart, 2) smart, 3) creative, 4) productive, and 5) caring.

In order to achieve the vision going forward, Chemistry Education Study Program carries out the mission carried out as follows

a. Establishing education to produce Bachelor of Education in Chemistry that have pedagogical, professional, personal, social, and capable competencies in the global era.
b. Developing chemical education through research and innovation based on character education in accordance with local wisdom, and disseminating research results nationally and internationally.
c. Conducting community service by promoting the results of research and innovation in the field of chemical education on the part of users.
d. Developing mutually beneficial cooperation with other parties both at home and abroad to support the pace of the development of chemistry and chemistry education.

   Fostering the academic community which is aimed at the realization of a campus community that is devout, independent, and scholarly and has a love for the nation, state and homeland.

Chemistry Education Study Program Objectives

The objectives of Bachelor of Education in Chemistry (BEC) at the Faculty of Mathematics and Natural Sciences Universitas Negeri Yogyakarta (FMIPA UNY) are to produce graduates who work as chemistry educators, chemistry education researcher or entrepreneur in the field of chemistry education who are outstanding, creative, and innovative with the foundations of piety, independence, intelligence, and the ability to compete in the international level, which can be detailed as follows.

a. Graduates who represent the Indonesian humans that are pious to God Almighty with good personality and character, and can become good role models for students.
b. Graduates with pedagogical, professional, personality, and social competencies who serve as chemistry learning agents at school, follow the dynamics of chemistry education, apply them in the form of chemical

learning innovation, as well as apply information and communication technology in an appropriate and creative way to increase the effectiveness of chemistry education implementation, in addition to analyze and develop chemistry education problem solving strategies in scientific manners.

c. Graduates who keep up with the development of chemistry science and master the field of applied chemistry in order to support creative behaviors in the community's productive efforts, master information and computer technology for the scientific development and play a role in the global era.
d. Graduates who are able to work together in a team and have the commitment to self potential development for the sake of character development

These objectives was formed into competencies that must be possessed by graduates through lecturing, practicum, research, and other activities relevant to the Tri Dharma of Higher Education. All those activities supported by human resources who have competence and adequate and reliable educational and research facilities, to achieve bachelor graduates who are able to compete in the world of work in accordance with their fields.

Target of Chemistry Education Study Program

Based on the vision and mission and objectives of the Chemical Education Study Program above, the objectives of the Chemical Education study program are as follows

a. The realization of an academic atmosphere that is conducive to increasing graduates who are of superior quality, professional, and play a role in the global era by paying attention to the development of chemistry, education, and technology, based on the value of piety, entrepreneurial spirit, creative, and innovative
b. The formation of networks that improve the quality and quantity of lecturer and student research
c. The formation of cooperation with the community and industry in community service activities that are effective and effective
d. Increased mutual cooperation at the national, regional and international level
e. The formation of the campus community, especially in the Chemical Education Study Program, which is based on piety, independence, scholarship, and love of the nation, state and homeland
f. The realization of a clean and accountable Chemistry Education Study program management

Graduate Profile

Competency Development of graduates from the Chemistry Education Study Program is in line with the vision of UNY, which makes Taqwa, independence, and intellectual as the foundation of values developed in each learning process. This can be seen from the description of learning outcomes that have been presented in table 1.

Tabel 1. Competencies of Graduates of the Chemical Education Study Program – Yogyakarta State University

Domain	BEC Learning Outcomes
Attitude	1. The graduates of Bachelor of Education in Chemistry demonstrate religious spirit, moral, ethics, and characters of Indonesia in a community, society, and state life
	2. The graduates of Bachelor of Education in Chemistry demonstrate independence both individual and group work
Knowledge	3. The graduates of Bachelor of Education in Chemistry apply the concepts, principles, laws, and theories of mathematics, science, chemistry, education, and chemistry education that are continuously updated as a part of lifelong learning
Specific Skill	4. The graduates of Bachelor of Education in Chemistry adapt scientific work skills and chemical learning skills that are continuously updated as a part of lifelong learning to solve problems related to chemistry and chemistry education
Generic Skill	5. The graduates of Bachelor of Education in Chemistry adapt the ability for critical and creative thinking in dealing with problems in their careers or personal lives
	6. The graduates of Bachelor of Education in Chemistry implement cooperative skills in conducting their duties and solving problems

Occupational Profile

The program learning outcomes set in the development process above are oriented to the objectives of the study program. The graduate competencies as prospective chemistry educator are in line with the field of employment. However, the curriculum change, whether in secondary school or universities, demands that graduates of chemistry education become not only teachers, but also researchers and entreprenuers in the field of chemistry education. The following is the characteristics of the occupational profile of BEC.

1. Chemistry Educator. The graduates of BEC are provided with the abilities to be good educators whether in elementary and secondary school level, universities, or informal and nonformal institutions, including to serve as the

developer of curriculum and learning management of chemistry subject at school.

2. Chemistry Education Researcher. In this field, the graduates of BEC are provided with the abilities to become researchers in the field of chemistry education with specific distinctions compared to education research and or chemistry.
3. Entrepreneur in the Field of Chemistry Education. In this field, the graduates of BEC are provided with the abilities to develop themselves to not only pursue careers as teachers or researchers, but also become entrepreneurs in the field of chemistry education. Entrepreneurship is now a supporting factor in chemistry learning.

Academic Regulations

Learning

Learning in the Chemistry Education Study Program is carried out with the Semester Credit System (SKS). SKS is a unit of study load and roundness that must be taken by students in one semester. There are several forms of learning in the Chemistry Education Study Program, namely lectures in class, practicum, seminars, internships, research, and field lectures. Allocation of time required for face-to-face meetings per 1 (one) credits is as follows.

1. Learning in the form of lectures, responses, or tutorials, consists of 50 minutes of face-to-face learning process, 60 minutes of structured learning tasks, and 60 minutes of independent learning tasks.
2. Learning in the form of seminars or other similar forms consists of 100 (one hundred) minutes of face-to-face activities, and 70 (seventy) minutes of independent activities
3. Learning in the form of practicum and field practice is given an allocation of 170 (one hundred seventy) minutes, including for the preparation of reports and responses.
4. Learning in the form of research or community service is given an allocation of 170 (one hundred and seventy) minutes, including for the preparation of proposals and reports.

In an academic year, there are three types of semesters available at UNY, namely

1. odd semester held from September to January of the following year.
2. even semester which is held from February to August of the current year.
3. the semester between the implementation in July to August of the current year.

Learning activities in the form of lectures in class and practicum are held 16 (sixteen) meetings per semester. In each meeting, the lecturer will enter student attendance data online via http://presensikuliah.uny.ac.id. Students must attend lectures in every course in one semester at least 75% (seventy-five percent) of face-to-face meetings held. Student absence due to illness or carrying out tasks accompanied by a statement or permit that can be accounted for, is counted in attendance. Students who do not meet the attendance of 75% (seventy-five percent) are not entitled to take the final exam, and the student concerned is given an E. If the number of face-to-face learning does not meet 16 meetings, the lecturer will replace lecture hours and / or with activities equal. The activity of changing lecture hours is included in the online lecture presence. Lectures can be done with blended learning or full e-learning models. Learning e-learning in blended learning is held a maximum of four meetings.

The implementation of intermediate semester courses is determined by the Department of Chemistry Education. The courses in the intermediate semester are theoretical courses offered by study programs. The Chemistry Education

Department will offer several courses, and students can register for the desired course. Courses in the intermediate semester can only be held with participants of at least 20 (twenty) students per class except with FMIPA permission. Students can take intermediate semester courses with the following conditions.

1. Repeat the course that has been taken.
2. Take courses that have never been taken on the condition that they have a previous odd semester achievement index of at least 3.00 (three point zero zero).
3. The number of credits that can be taken by students is a maximum of 7 (seven) credits
4. Pay according to the number of credits taken.
5. Students are not currently taking college leave in the current semester.

In each course that is attended, students are required to fill out an evaluation of each course they take through www.emonev.lppmp.uny.ac.id.

Assessment and Evaluation

For each course taken, students will get a final grade in the course. Determination of the weights for each form of assessment in each course is mutually agreed upon by lecturers and students at the beginning of the lecture and determined by the course contract. The grading system to determine the final grade uses the Benchmark Reference Assessment (PAP) with the provisions that can be seen in the following table

Table 2. Conversion of Final Course Subjects

Final Course	Conversion	
Scale 100	Alphabet	Weight
86 – 100	A	4,00
81 – 85	A-	3,67
76 – 80	B+	3,33
71 – 75	B	3,00
66 – 70	B-	2,67
61 – 65	C+	2,33
56 – 60	C	2,00
41 – 55	D	1,00
0 – 40	E	0,00

The grades are determined based on several bill components agreed by students and lecturers on the course contract. Some forms of bills for students include assignments and examinations aimed at measuring the mastery of student competencies. The explanation is as follows.

a. Exam. The test is conducted to measure competence with written, oral, and practical observation techniques. Exams are conducted on theoretical, practical and field subjects. Exams can be in the form of midterm or end of

semester exams. Changes to the regulations and the latest curriculum system turn midterm examinations into competency tests that can be done more than once in a semester, depending on the need for measurement of competency achievement from each course

b. Report. Reports are conducted to measure student skills with written techniques compiled by students after carrying out practical and field assignments. Reports prepared by B.Ed.Chem students are practicum reports for each practice course, project reports for chemistry education research project courses, guided Field Practice reports, service learning reports, and course reports that include field activities
c. Task. Assignments are carried out to measure the progress of student competencies that can vary based on the competence of courses that support PLO. The form of assignment and time of collection are determined jointly by students and lecturers.
d. Final Thesis. The final test for students at the moment is the final thesis exam. In this case, students defend their research results in front of a board of examiners consisting of learning experts, material experts, and mentors. In addition to the material written in their final project report, students are also tested in their content fields.

Each form of assessment is conveyed to students in the first meeting of each lecture. In this meeting, students and lecturers agreed to determine the forms of assessment and weight for each assessment, the criteria for passing and not passing the course, and what students could do if they did not pass the course.

For students who have not completed and submitted assignments related to the course concerned, are not given a grade and the grade list is given a K mark. The K mark can be converted to their proper grade if the student has completed and submitted assignments within a maximum period of one semester. If within one semester the student cannot complete and submit his assignments, the student concerned is given a grade by the lecturer supporting the course, according to the achievements obtained.

The cumulative grade average obtained by students in each course is called the Achievement Index (IP). IP is the average value of learning outcomes that illustrates the achievement of student competencies for a particular semester, while the Cumulative Achievement Index (GPA) is the average value of learning outcomes that illustrates the achievement of student competencies from the first semester to the last semester that has been cumulatively pursued.

Calculation of semester achievement index (AI) is determined by: the number of letter grades that have been transferred to the value of the number / weight multiplied by the number of credits of the course divided by the number of credits taken by the student concerned in a particular semester. Examples of AI calculations are as follows.

Table 3. Example of AI Calculation per Semester

No	Course	scs	Score		scs x weight
			Alphabet	Weight	
1.	Pancasila	2	A	4,00	2 X 4 = 8,00
2.	Statistics	2	A-	3,67	2 X 3,67 = 7,34
3.	Education Management	2	B	3,00	2 X 3 = 6,00
4.	English	2	B+	3,33	2 X 3,33 = 6,66
5.	Mathematical Insights and Studies	2	B-	2,67	2 X 2,67 = 5,34
6.	Mathematics for Chemistry	3	C+	2,33	3 X 2,33 = 6,99
7	Fundamental of Analytical Chemistry	4	B-	2,67	4 X 2,67 = 10,68
8	Non-Metallic Inorganic Chemistry	4	A-	3,67	4 X 3,67 = 14,68
	Total	**21**			= 65,69

AI = 65,69/21= 3,13

This AI will determine the number of credits that can be taken the following semester after the second semester. The conditions can be seen in the following table

Table 4. Provisions for Maximum Study Load Taking for D3 and S1 Levels

Grade Point (semester)	Maximum Study Load (scs)
More than 3,00	24
2,50 – 3,00	22
2,00 – 2,49	20
Less than 2,00	18

Monitoring

Chemistry Study Program students in class of 2014 and thereafter have a maximum time limit of completion of study in 12 (twelve) semesters, whereas for students of class of force before 2014 are 14 (fourteen) semesters. To ensure students graduate on time (8 semesters), students will get an evaluation of learning progress

Evaluation of learning progress is an evaluation of learning outcomes carried out in the first two semesters (stage I) and two second semesters (stage II). Phase I evaluation of learning progress serves to identify various obstacles in the learning process in order to plan a more planned, structured, and systemic learning process. In this phase I evaluation students must already have grades for 30 credits of courses with a minimum IP of 2.50. Evaluation results are sent to the students concerned, academic advisors, and parents of students.

Evaluation of learning progress phase II serves to determine whether students can continue their studies or otherwise are unable to complete their studies. In

this phase I evaluation students must already have grades for 60 credits of courses with a minimum IP of 2.50. If students do not meet these minimum requirements, the student is declared unable to complete his studies, and is declared resigned. Certificate of never lecturing can be given to students who need it. Students who fail to complete their undergraduate study cannot be transferred to the level below.

Remidial and Score Complaints

The remedial program is given to students who have not met the criteria for achieving competency in a course. To achieve sub competence, remedial is done during the lecture process. For the final grade, the remedial program is set by the faculty. If there is a difference in perceptions between students and the grading lecturer, students can file a score complaint by showing evidence of the appraisal of the bill given by the lecturer concerned in the same semester. The above explanation can also be accessed via: http://baki.uny.ac.id/informasi/peraturan-akademik/evaluasi-keberhasilan-studi and or https://www.uny.ac.id/akademik/sistem-penilaian

College Leave

Students can apply for leave of study in accordance with the paths listed in http://baki.uny.ac.id/informasi/sop-cuti-kuliah and register for leave online via https://eservice.uny.ac.id/. College leave is not counted as a period of study and students are not required to pay tuition fees. The college leave permit requirements for students are set as follows:

1. have taken a minimum of one semester of study, with at least 10 (ten) credits, and a minimum achievement index of 2.00 (two point zero zero) for S1 and D3 programs and 3.00 (three point zero zero) for S2 and S3 programs.
2. not a scholarship recipient.
3. does not exceed the limit on the number of college leave

The procedure for applying for college leave is done online (online) with the following stages.

1. Students enter data into SIAKAD UNY on the lecture leave service menu.
2. The system sends a copy of data contents in the form of e-mail to the PA lecturer for approval.
3. The system sends copies of data contents in the form of e-mails to the head of the department / head of the study program, vice dean I / asdir I of the Postgraduate Program, as a notification.
4. The academic section of UNY processes college leave approval to the Chancellor.
5. The academic section of UNY sent an e-mail containing a lecture leave letter that had been signed by the Chancellor to the proposing student with a copy

to the PA lecturer, Head of Department / Head of Study Program, and Vice Dean I.

6. Students who do not register will be processed by their academic leave automatically by the academic department and the system will send a notification to the student concerned with a copy to the PA lecturer, Head of Department / Head of Study Program, and Vice Dean I.
7. The leave of lecture is automatically given at most 2 (two) times as long the person still has leave rights.
8. If there are reasons that can be accounted for, students who have already re-registered can apply for a leave of absence and cancel their study plans in the current semester without refunding the tuition fees that have been paid.

Permitted length of college leave is as follows.

1. The diploma program and PKS for 2 (two) semesters.
2. Undergraduate program for 4 (four) semesters, and
3. Masters and doctoral programs for 2 (two) semesters.

Application for permission to take a leave of absence can be submitted every semester. Successive college leave is only allowed a maximum of 2 (two) semesters. In the case after a student leaves college for two semesters in a row and does not register in the following semester, the semester is counted as a period of study. If the student referred to in paragraph (3) will re-enroll, the student is required to pay the tuition fees of the previous semester and the semester that will be taken. Students who have left college for two consecutive semester and did not register were declared resigned as UNY students.

Move Study Programs

Transfer of study programs (transfer from one study program to another study program) at UNY can only be done at the beginning of the third semester, with certain conditions, as stipulated in UNY academic regulations. Students who will be transferred to study programs submit applications to the Chancellor, with the knowledge of the PA, the Head of Study Program, and the Dean, accompanied by the letter of approval of the intended study program. In giving approval, the intended Head of Study Program can determine the condiions that must be met by the student concerned.

Credit Transfer

Transfer of credit and transfer of students is determined based on the recognition of credit owned by students and the condition of the college. Transferring students from one tertiary institution to another or from one program to another in a tertiary institution is carried out through credit transfer. In addition to the recognition of student credit, the condition of

the tertiary institution also needs to be considered in determining the transfer of students from a tertiary institution to another tertiary institution or from a section to another part of the same tertiary institution. Diploma and S1 students from other state universities can be transferred to UNY if they meet the requirements, as follows.

1. transfers from the same level and study program;
2. there is still a place in the study program of interest;
3. have passed at least 40 credits, with a minimum GPA of 2.75;
4. has a good recommendation from the original PTN;
5. Accreditation of minimum origin PTN study program B;
6. Obtained the chancellor's approval based on the consideration of the head of study program.

The dean publishes a decree on the subject that must be taken by the transfer student for the roundness of his studies. In addition, the Chemistry Education study program provides an opportunity for students to make credit transfers by attending lectures at partner universities both domestically and abroad in accordance with the following regulations.

- ✓ Students can take credit in one semester or more at other tertiary institutions that have collaboration with UNY.
- ✓ The credi transfer time is calculated as the study period .
- ✓ Transfer of credit is carried out on the same or equivalent courses in the UNY curriculum.
- ✓ Students who will transfer credit must be actively registered as UNY students.
- ✓ Study programs and / or domestic tertiary institutions where credit transfer must be accredited at least B.
- ✓ Universities abroad which will be used as a place to transfer credit must be recognized by the Ministry of Research, Technology and Higher Education.
- ✓ The amount of credits that can be transferred is at most 25% (twenty-five percent) of the total credits that must be taken by students.
- ✓ Credit transfer procedures are regulated by the Chancellor's Regulation on UNY's Credit Transfer Guide

Judgment and Graduation

Judgment

Judgment is an academic process that involves the application of grades and graduation of students from the entire academic process. Judgment also means the announcement of grades to students as the final assessment process of all courses taken by students and the determination of grades in academic transcripts, as well as deciding whether or not a student should study for a certain period of time, which is determined by an authorized official resulting

from the decision Judicial meeting. Judicial meetings are held by the Faculty Senate or Postgraduate Program. The Judicial Decision is stated by the decision of the Dean or Director of the Postgraduate Program.

Graduation

Graduation is the final process in a series of academic activities at tertiary institutions. As a sign of the confirmation of the completion of the study, the inauguration procession was held through the UNY open senate meeting. This graduation ceremony is held for all study program graduates at UNY.

Every year, UNY holds four graduation ceremonies. This ceremony takes place every February, May, August, and November. Regarding graduation terms and conditions will be announced in each faculty. For each graduation procession, on average there are thousands of students who will be released their student status by the Chancellor / Chair of the UNY Senate.

Academic Guidance

Definition of Terms

a. Study plan
   The study plan is the preparation of an academic program by students under the guidance of an academic supervisor based on applicable terms and regulations or IP obtained previously. All study plans must be consulted with an academic supervisor based on applicable terms and regulations or IP obtained, a maximum of 24 credits per semester. By referring to http://siakad2013.uny.ac.id students can see the number of credits that can be taken each semester
b. Semester credit load
   Semester credit load is the number of credits taken by students in one semester. In the first and second semester the package system is implemented and each new student is required to take package courses, according to the applicable curriculum.
c. Grade Point (GP)
   Performance indexes are numbers (up to two digits behind the comma) that indicate the level of student success quantitatively.
d. Academic Counselors
   Academic counselors is defined as an educational service process in the form of guidance in accordance with student needs. The understanding of this guidance is limited to efforts to solve academic problems faced by students and efforts to arouse students' motivation and enthusiasm for learning so that they can complete their studies on time. It is expected that with good guidance students will have high learning achievements and good character. The task of academic guidance is carried out by the PA or guardian lecturer.

Scope of Guidance Services

The scope of academic guidance services that can be provided includes the following.

- Understanding of policies and regulations issued by universities, faculties, departments, and study programs
- Understanding of the various duties and functions of universities, faculties, majors, and study programs
- Understanding of self potential and its development in order to achieve success in learning
- Customizing yourself with the campus life environment
- Solving problems faced by students
- Career development after graduation

Form of Guidance

The form of guidance can be divided into two, namely curricular and non-curricular.

a. Curricular Guidance

Curricular guidance can take place in the form of individual or group dialogue with the following objectives.

1) Helping students understand the curriculum that applies to the study program in question
2) Provide direction for students in compiling a comprehensive study plan in each semester
3) Provide an understanding of the academic regulations that apply at UNY, especially those related to student interests in completing studies
4) Provide an understanding of the lecture system, practicum, and the use of learning tools in order to improve student achievement and gain relevant experience
5) Provide information about the results and progress of student learning, both those who take theoretical courses, practical work, KKL / PKL / PI, as well as other lecture assignments
6) Directing students in preparing plans for the preparation of the final project
7) Motivating students to participate in various academic activities that can add insight and experience, for example through seminars, discussions, and workshops

b. Non-Curricular Guidance

Non-curricular guidance includes guidance related to psychological and sociocultural issues, especially student efforts to adjust to the local culture of Yogyakarta and the socio-economic conditions of parents, non-curricular guidance activities carried out with the following objectives

1) Guiding students to obey worship

2) Provide direction in the association in the family and community, and fellow students
3) Provide guidance in aspects of self control, especially things that can interfere with the concentration of student learning
4) Provide direction in the distribution of time for organizational activities, both intra and extra university
5) Directing students to take advantage of facilities that support the smoothness of studies such as UPPL, Library, UPBK, Research Institutions, Community Service Institutions, and Puskom
6) Help solve personal problems when deemed necessary

Academic Supervisor Duties

The duties of the guardian lecturer or academic supervisor are as follows.

1) Giving proper guidance to students in preparing programs and study plans and in choosing courses to be taken.
2) Help overcome the problems of student studies experienced.
3) Writing recommendations and giving initials after completing guidance on the guardianship guidance card that has been provided for each student.
4) Give recommendations on the level of success of student studies for certain purposes, including in the Study Evaluation process for academic coaching or the determination of study dropouts or study dropouts to the Chair of the Study Program
5) Academic advisers are required to provide periodic guidance during the student's study period, at least 3 times in 1 semester and record it on an academic guidance card.

Guidance Time

Guidance time can be done by paying attention to the following things

1) Guidance is done during working hours
2) Guidance a minimum of twice each semester, and added if needed.

Student Rights and Obligations in Guidance

a. Students Rights

1) Get guidance in designing courses taken by taking into account the number of credits and IPs obtained previously.
2) Get an explanation of the education system in the Faculty / Study Program
3) Get guidance if you get a low IP in learning during the study.
4) Getting motivation in developing creativity based on student competence
5) Getting guidance time, especially during the trust period.

b. Student Obligations

1) Students are required to bring this academic guidance book when consulting with an academic supervisor.

2) Write down, the problems and benefits on the consultation list
3) Students are required to meet / consult with the guardian lecturer at least 3 times in one semester at the time: Before KRS is online, When making course additions. Consultation with a trustee lecturer online using the path agreed with the guardian lecturer.

Kurikulum 2014

Course Structure

The Structure of the Chemistry Study Program FMIPA UNY includes:

Compulsory Subjects

No	Course group	Total scs
1.	Universal Courses	18 scs
2.	Elementary Education Course	8 scs
3.	Faculter Subject	2 scs
4.	Chemistry Education Courses (including an integrated Internship 1 and Internship 2)	27 scs
5.	Chemistry Scientific Courses	71 scs
6.	Educational Development Subjects	
	▪ Educational Internship (Internship 3)	3 scs
	▪ Final Thesis	6 scs
	Total	135 Scs

Elective Courses

Students choose a minimum of 10 credits from the 30 credits provided

No	Course Group	Total scs
1.	Chemistry Education Course	14 scs
2.	Chemistry Scientific Course	16 scs
	Total	30 scs

Curriculum Structure

List of Compulsory Courses

No	Code	Course Name	Detail SCS				Semester		Precondition
			T	P	L	Tot	Gs	Gn	
Universitic Courses (MKU) and Elemenary Education Courses (MDK)									
1	MKU 6301	Islamic Education*	3			3	√		
	MKU 6302	Catholic Religious Eduction*	3			3			
	MKU 6303	Christian Religious Education*	3			3			
	MKU 6304	Buddhist Education*	3			3			
	MKU 6305	Hindu Religious Education*	3			3			
	MKU 6306	Confucian Religious Education*	3			3			
2	MKU 6207	Citizenship Education	2			2	√		
3	MKU 6208	Pancasila	2			2		√	
4	MKU 6209	Indonesian	2			2	√		
5	MKU 6210	Statistics	2			2		√	
6	MKU 6211	English						√	
7	MKU 6212	Enterpreneurship	2			2		√	
8	MKU 6313	KKN			3	3	√		
9	MKU 6214	Socio-Cultural Education	2			2	√		
10	MDK 6201	Educational Sciences	2			2	√		
11	MDK 6202	Educational Psychology	2			2	√		
12	MDK 6203	Education Management	2			2		√	
13	MDK 6204	Sociology and Anthropology of Education	2			2	√		
Chemistry Education Courses (MPK)									
14	MPK 6201	Study Schol Chemistry Curriculum	2			2	√		
15	MPK 6202	Chemical Learning Media	2			2	√		
16	MPK 6303	Chemistry Learning Strategies	2		1	3		√	MPK 6201
17	MPK 6204	ICT Applications for Chemistry Learning	2			2		√	MPK 6202
18	MPK 6305	Chemistry Learning Assessment	3			3	√		MPK 6303
19	MPK 6306	Development of Chemistry Learning Programs	2		1	3	√		MPK 6303
20	MPK 6307	High School Chemistry	3			3		√	
21	MPK 6208	Vocational High School Chemistry	2			2		√	
22	MPK 6209	Micro Teaching		2		2		√	MPK 6306
23	MPK 6310	Chemical Education Research Methodology	3			3		√	MPK 6305
24	MPK 6211	Chemistry Research and Learning Trend	2			2	√		
Chemistry Scientific Courses									

No	Code		Course Name	Detail SCS				Semester		Precondition
				T	P	L	Tot	Gs	Gn	
25	AMF	6201	Mathematical Insights and Studies	2			2		√	
26	KIM	6401	Basic Chemistry	3	1		4	√		
27	KIM	6302	Physics for Chemistry	2	1		3	√		
28	KIM	6303	Biology for Chemistry	2	1		3	√		
29	KIM	6304	Mathematics for Chemistry	3			3		√	
30	KIM	6405	Chemical Equilibrium	3	1		4	√		KIM 6401
31	KIM	6406	Molecular Dynamics	3	1		4		√	KIM 6405
32	KIM	6407	Basic Organic Chemistry	3	1		4	√		KIM 6401
33	KIM	6408	Reactivity and Organic Reaction Mechanism	3	1		4		√	KIM 6407
34	KIM	6409	Non-Metallic Inorganic Chemicals	3	1		4		√	KIM 6401
35	KIM	6310	Inorganic Metal Chemistry	2	1		3		√	KIM 6401
36	KIM	6411	Basics of Analytical Chemistry	3	1		4		√	KIM 6401
37	KIM	6412	Chemical Separation Method	3	1		4	√		KIM 6411
38	KIM	6413	Biochemistry	3	1		4		√	KIM 6407
39	KIM	6214	Core Chemistry	2			2		√	KIM 6406
40	KIM	6215	Chemical Environment	2			2	√		KIM 6401
41	KIP	6201	Introduction to Quantum Chemistry	2			2	√		KIM 6406
42	KIP	6402	Coordination and Organometallic Chemistry	3	1		4	√		KIM 6409
43	KIP	6303	Chemical Analysis Instrument	2	1		3		√	KIM 6412
44	KIP	6204	Structure Analysis of Organic Compounds	2			2	√		KIM 6408
45	KIP	6205	Chemical Laboratry Management	2			2	√		KIM 6411
46	KIP	6206	Chemical Industry	2			2		√	
47	KIP	6209	Chemical Research Project		2		2	√		KIM 6412
48			*Elective Courss*	10			10	√	√	
PPL and Final Thesis										
49	PPL	6301	Educational Apprenticeship			3	3	√		MPK 6209
50	SPK	6601	Final Thesis				6		√	MPK 6310
			Total	119	18	8	145			
			The total number of scs				**145**			

*) Choose according to their religion

List of Elective Courses

Students choose 10 credits from the 30 credits provided

No	Code	Course Name	Detail SCS				Semester		Precondition
			T	P	L	Tot	Gs	Gn	
1	MPK 6212	History and Perspective of Chemistry	2			2	√		
2	MPK 6213	Review of Chemistry Education Research	2			2		√	
3	MPK 6214	Chemistry Learning Workshop	2			2	√		
4	MPK 6215	Devlopment of Chemical Teaching Materials	2			2		√	
5	MPK 6216	Chemistry Experiments in Schools	2			2	√		
6	MPK 6217	Chemical Technology Engineering	2			2		√	
7	MPK 6218	IT Based Learning Entrepreneur	2			2	√		
8	KIM 6215	Pharmaceutical Chemistry	2					√	
9	KIP 6207	Fod Chemistry	2				√		
10	KIP 6208	Macromolecular Chemistry	2					√	
11	KMA 6207	Chemical Natural Materials	2			2	√		
12	KMA 6238	Petroleum Chemistry	2			2		√	
13	KMA 6242	Corrosion and Electroplating Chemistry	2			2	√		
14	KMA 6246	Hazardous Water Management	2			2		√	
15	KMA 6249	Geochemistry	2			2	√		
		Total	**30**			**30**			

Course Distribution Every Semester

SEMESTER I

No	Code		Course	Detail scs			
				T	P	L	J
1	MKU	6301	Islamic Education*	3			3
	MKU	6302	Catholic Religious Education*	3			3
	MKU	6303	Christian Education*	3			3
	MKU	6304	Buddhist Education*	3			3
	MKU	6305	Hindu Religious Education*	3			3
	MKU	6306	Confusion Religious Education*	3			3
2	MKU	6207	Civic Education	2			2
3	MDK	620	Education	2			2

		1					
4	MKU	6214	Socio Cultural Education	2			2
5	KIM	6401	Basic Chemistry	3	1		4
6	KIM	6302	Physiscs for Chemistry	2	1		3
7	KIM	6303	Biology for Chemistry	2	1		3
			Total	**16**	**3**		**19**

*) Choose according to their religion

SEMESTER II

No	Code		Course	Detail scs			
				T	P	L	J
1	MKU	6208	Pancasila	2			2
2	MKU	6210	Statistics	2			2
3	MDK	6203	Education Management	2			2
4	MDK	6211	English	2			2
5	AMF	6201	Mathematical Insights and Studies	2			2
6	KIM	6304	Mathematics for Chemistry	3			3
7	KIM	6411	Fundamentals of Analytical Chemistry	3	1		4
8	KIM	6409	Non-metallic Inorganic Chemistry	3	1		4
			Total	**19**	**2**		**21**

SEMESTER III

No	Code		Course	Detail scs			
				T	P	L	J
1	MDK	6202	Educational Psychology	2			2
2	MDK	6204	Sociology and Anthropology of Education	2			2
3	MPK	6201	Study the School Chemistry Curriculum	2			2
4	MPK	6202	Chemistry Learning Media	2			2
5	KIM	6412	Chemical Separation Method	3	1		4
6	KIM	6405	Chemical Equilibrium	3	1		4
7	KIM	6407	Basic Organic Chemistry	3	1		4
			Total	**17**	**3**		**20**

SEMESTER IV

No	Code		Course	Detail scs			
				T	P	L	J
1	MPK	6303	Chemistry Learning Strategies	2		1	3
2	MPK	6204	ICT Application for Learning Chemistry	2			2
3	MKU	621	Entrepreneurship	2			2

No	Code		Course	Detail scs			
				T	P	L	J
		2					
4	KIP	6303	Chemical Analysis Instrument	2	1		3
5	KIM	6406	Molecular Dynamics	3	1		4
6	KIM	6310	Metallic Inorganic Chemistry	2	1		3
7	KIM	6408	Reactivity and Organic Reaction Mechanism	3	1		4
			Total	**16**	**4**	**1**	**21**

SEMESTER V

No	Code		Course	Detail scs			
				T	P	L	J
1	MPK	6305	Chemistry Learning Assessment	3			3
2	MPK	6306	Development of Chemistry Learning Programs	2		1	3
3	MKU	6209	Indonesian	2			2
4	KIP	6205	Chemical Laboratory Management	2			2
5	KIM	6215	Chemical Environment	2			2
6	KIP	6201	Introduction to Quantum Chemistry	2			2
7	KIP	6402	Coordination and Organometallic Chemistry	3	1		4
8			*Optional subjects -1*	2			2
			Total	**18**	**1**	**1**	**20**

SEMESTER VI

No	Code		Course	Detail scs			
				T	P	L	J
1	MPK	6307	High School Chemistry	3			3
2	MPK	6208	Vocational Chemistry	2			2
3	MPK	6209	Micro Teaching		2		2
4	MPK	6310	Chemical Education Research Methodology	3			3
5	KIP	6204	Structure Analysis of Organic Compounds	2			2
6	KIM	6413	Biochemistry	3	1		4
7			*Optional subjects -2*	2			2
8			*Optional subjects -3*	2			2
			Total	**1**	**3**		**20**

				7			

SEMESTER VII

No	Code		Course	Detail scs			
				T	**P**	**L**	**J**
1	PPL	6301	Educational Apprenticeship			3	3
2	MKU	6313	Real Work Lecture			3	3
3	MPK	6211	Chemistry Research and Learning Trends	2			2
4	KIM	6214	Core Chemistry	2			2
5	KIP	6206	Chemical Industry	2			2
6	KIP	6209	Chemical Research Project		2		2
7			*Optional subjects -4*	2			2
8			*Optional subjects -5*	2			2
			Total	**10**	**2**	**6**	**18**

SEMESTER VIII

No	Code		Course	Detail scs			
				T	**P**	**L**	**J**
1	SPK	6601	Final Thesis			6	6
			Total				**6**

Course Description

Compulsory Subjects

No.	Course	Description
1a	MKU 6301 Islam Education	This course trains the students to be good personalities *(kaffah)* using Islamic values as the foundation of thinking and interaction based on their background knowledge and professions. The concept of *kaffah* can only be achieved by practicing their beliefs and piety to God by building islamic knowledge, religion dispositions, islamic skills, islamic commitment, moslem confidence, and islamic competence.
1b	MKU 6302 Catholic Education	This course discuss the concept of human and his origin; his call, pluralism in religion; on how Jesus preaches about Allah's kingdom; on how Jesus finishes his salvation; Allah the trinity; the church comes from Jesus Christ and his delegacy; Maria in the history of salvation; and being religious in the context of national level, the development of IT, Catholic marriage, as well as social and moral problems.
1c	MKU6303 Christian Education	This course provides students with spritual training and guidelines in order to be able to run daily activities as a spiritually responsible human being
1d	MKU 6304 Buddhism Education	This course discusses the basic concept of Buddhism including theology, human, laws, morality, culture and IT as the introduction for Buddhists.
1e	MKU6305 Hinduism Education	This course discusses the introduction, God the one and only, human, ethics, IT and science, harmony for religious people, arts, culture, politics, and leadership from the perspectives of Hinduism.
1f	MKU6306 Confucianism Education	This course discusses the urgency of holding a belief/religion in everyday life. It includes a study of the source of Confucianism values, the history of Confucianism, and expects students to practice the Holy Way brought by the Great Teachings (Thai Rights), and the role of Confucianism in the

		development of science and technology.
2	MKU6207 Civics Education	This course discusses civil education, democracy, laws, and multicultural values for students in order to make them realize their rights and responsibilities, be skillful and be morally good to build the country
3	MKU6208 Pancasila	This course elaborates the basic concept, existence, and implementation of Pancasila as the foundation of the country in every aspect of the society. It especially includes course introduction, indonesian history, Pancasila as the foundation of the country, Pancasila as the ideology of the country, symbols in Pancasila, Pancasila as the phylosophical system, Pancasila as the ethic system, and the implementation of Pancasila (the analysis of Pancasila's nature)
4	MKU6209 Bahasa Indonesia	This course discusses the development, position and function of Bahasa Indonesia; its kinds; standardized spelling in Bahasa Indonesia; words and dictions; effective sentences in Bahasa Indonesia; paragraph; texts; topics for scientific writing; text convention and editing; structure of scientific writing; quotation and reference
5	MKU 6210 Statistics	This course discusses the basic concepts of statistics, measurement scale and data collection, probability, random variable distribution, parameter estimation and hypothesis testing.
6	MKU6211 English Language	This course presents word types and their identification, basic structure and various sentence patterns, and sentence analysis. Emphasis is on recognizing sentence structure, subject, verb, noun, adjective, adverb, conjunction, and clause. Thus also build active or passive sentences; Special vocabulary is emphasized specifically in chemistry or science with various names of chemical compounds and various kinds of beaker equipment. Listening exercises are presented from various chemical videos, interesting text texts that are light-weight but up to date and contain criticism from journal publications. These topics are translated by each student, then discussed together by applying various sentence patterns that have been studied in the pattern of chemical texts that

		end in the preparation of paragraphs such as lab reports.
7	MKU6212 Entrepreneurship	This course aims to equip students in building spirit / soul and character of entrepreneurship, understanding the concept of entrepreneurship, and practicing entrepreneurial skills. The scope of this subject matter includes: spirit / soul development and entrepreneurial character, achievement motivation, creative thinking, entrepreneurial nature, business ethics and social responsibility, seeking new ideas, production management, finance, marketing and HR, business opportunities, business plans.
8	MKU6303 Community Service Program (KKN)	This course is a course that is expected to be able to educate students to apply the knowledge they get in people's lives. Lecture material includes work program matrix, exploring local potential, ethics in people's lives, and compiling reports
9	MKU6214 Social and Culture Education	This subject is one of the groups of Community Life Courses in universities. This course provides basic knowledge of human concepts, cultural concepts, sociological concepts, and concepts of value, morality, law, concepts of science, technology, art, and the environment
10	MDK6201 Science of Education	This course discusses the basic principles of education and the basic concepts of educational science as well as their application in educational praxis which includes: educational phenomena, historical viewpoints of education, the nature of education and science of education, education as a system, and issues (educational issues in the context of renewal (innovation) education.
11	MDK6202 Psychology of Education	This course discusses the basic concepts of human symptoms in the field of education and their application, which includes the basic concepts of educational psychology, forms of psychological symptoms, individual differences, learning and learning, evaluation of learning outcomes and diagnostic learning difficulties.
12	MDK6203 Management of	This course discusses the basic concepts, roles, and scope of education management, followed by an in-

	Education	depth study of management of the field of education management, which includes: students, curriculum, education staff, educational facilities, education funding, and management of educational institutions and relationships educational institutions with the community, as well as educational leadership and educational supervision.
13	MDK6204 Sociology and Anthropology Education	This course perceives education as a socio-cultural process. In this course, concepts, socio-cultural methodologies in education, and various cases and problems in education will be discussed. This course also provides foundation knowledge about the importance of climate, approaches, and socio-cultural influences, both from school and from outside the school (family, peer group, community-nation, and mass media) in a multicultural society (pluralistic) and education that is most suitable for Indonesian (anthropos) people in realizing the goals of present and future Indonesian national education
14	MPK6201 Review of Chemical Curriulum	Through this course students are expected to be able to understand the development of the curriculum, design examples of curriculum component models and compile their syllabus, they are also expected to understand the implemented chemistry curriculum in certain level of the school.
15	MPK6202 Chemistry Learning Media	In this course we will discuss the meaning of learning media, the role and function of learning media, types of learning media, planning and selection of learning media, production techniques for learning media, learning media presentation techniques, and evaluation of learning media, which are specific to learning chemistry. It is expected that after completing this lecture students will be equipped with the use of learning media, especially the teaching and learning process in schools so that they can enhance the quality of the teaching and learning process which ultimately can improve the quality of learning outcomes
16	MPK6303 Instructional Strategies of	Through this course, students are expected to be able to plan learning strategies that are suitable for chemistry subjects in schools (high school, vocational) which include approaches, methods, techniques,

	Chemistry	models, and the ability to develop learning models with a scientific approach. The course contains of the followings materials: understanding learning strategies, chemistry learning problems, basic teaching skills, public speaking, method approaches, techniques, and learning models, scientific approaches, learning models, strategies to face unexpected situations.
17	MPK 6204 ICT Application for Chemistry Teaching and Learning	This course is a compulsory subject for students of Chemistry Education FMIPA UNY. In this global era, ICT is seen as an important tool in learning, including learning Chemistry. ICT can help learning both as a learning media, as well as a means of delivering learning content in a delivery system. As a media, ICT helps students to understand learning material. As a tool in a delivery system, ICTs can increase flexibility in accessing learning content. By studying this course, students are expected to be able to understand the principles of ICT-based chemistry learning and be competent in utilizing ICT for learning chemistry both as a means of delivering learning content and as a learning media. This course discusses the notion of ICT, the integration of ICT in chemistry learning, the understanding and implementation of ICT-based chemical learning content systems, the understanding of learning media, the roles and types of ICT-based learning media, the planning and selection of chemical learning media, development, validation and evaluation ICT-based chemical learning media, as well as the implementation of ICT in chemistry learning. After this learning, students are expected to be able to develop ICT-based chemistry learning media and use it as virtual learning content by utilizing ICT as a delivery system.
18	MPK6305 Chemistry Learning Assessment	Chemistry Learning Assessment is a chemistry education discipline, which studies the problems of planning, implementing, and reporting the assessment of chemistry learning outcomes. Lecture material begins with the introduction of various terms commonly used in the assessment of chemistry learning outcomes, followed by techniques and instruments for evaluating chemistry learning outcomes, how to compile instruments for evaluating

		chemistry learning outcomes, processing assessment results, analyzing assessment instruments, and compiling reports. Various new approaches discussed in this lecture include the use of objective statements in the form of competencies, competency classification based on the dimensions of cognitive processes and alternative dimensions of knowledge and assessment.
19	MPK6215 Program Development of Chemistry Learning	This course is designed to provide skills for students in developing chemistry learning programs that are active, innovative, creative, interesting and authentic. Therefore, the discussion in this course includes: compiling the semester program, explaining the procedure of curriculum analysis, setting the indicators according to Core Competency-Basic Competency, determining the subject matter / study material for a Basic Competency, designing learning strategies that educate, student-centered contextual learning , designing learning media, as well as authentic assessment in the domain of attitudes, cognitive, and skills, and producing learning devices (Lesson Plan to assessment instruments)
20	MPK 6307 High School Chemistry	This course gives experience to students to analyze chemical concepts learned at the high school / MA level in accordance with the applicable curriculum. The course material is focused on content analysis in the curriculum, learning strategies that emphasize the nature of chemistry as part of Nature of Science (NOS), difficulties, mistakes (and misconceptions), and other problems that often occur in learning these concepts, and the latest developments on learning chemical concepts in high schoo. Lectures are carried out with discussions, demonstrations, assignments, and other strategies that can provide students with experience in learning chemistry at the high school level
21	MPK6208 Chemistry for Vocational High School	This course is a compulsory subject that must be taken by chemical education students who learn about the nature of chemistry learning in the curriculum structure in vocational schools, the problem of chemistry learning in vocational schools, chemical material analysis that fits the vocational context and enrichment of chemical materials relevant to the

		context of vocational schools. The chemical material studied includes enrichment of chemical material related to vocational field material in the field of expertise studies in vocational schools, namely technology and engineering; energy and considerations, agribusiness and agro-technology, maritime affairs, health and information and communication technology. The results of the chemical curriculum analysis in vocational schools and chemical enrichment materials are used as the basis for packaging chemical learning that is appropriate to the context of students in vocational schools. Lectures are conducted by collaborative learning, problem-based learning, class discussions, presentations, exercises and assignments, and other strategies that can provide experience to students to teach chemistry in accordance with the vocational context on its level.
22	MPK6208 Micro-Teaching	The micro-teaching course is a practical learning subject in front of peers in groups (each group of 7-10 students) and each group is guided by one or two lecturers who are competent in their fields. Before the practice of learning begins, it is given a micro-teaching orientation in the form of providing micro-teaching insights among others: Why, what, and how to implement micro-teaching; Overview of applicable curriculum and the spirit of learning; Review of applicable curriculum syllabus and determination of time allocation in the form of annual programs and semester programs; Discussion of examples of standard and complete Learning Preparation Planning (Student Worksheet); Observation to the school where students will carry out Field Experience Practices
23	MPK6310 Research Methodology for Chemistry Education	Chemical education research has benefits both theoretical benefits, namely for the development of chemical education, as well as for solving practical problems in the field of chemistry education and teaching. This course provides the principles of research methodology, so that chemistry education students can compile a feasible research proposal and proceed to Final Thesis.

24	MPK6211 Trend of Chemistry Research and Learning	This courses discusses new trends in the field of chemical education, both in research and in learning that are education issues in Indonesia and the world.
25	AMF6201 Insight and Analysis of Natural Science Materials	This lecture includes theories about how to integrate various scientific sciences for the benefit of the development of chemistry
26	MDK 6211 English for Chemistry Classroom	This course studies about the principles and techniques of grammar-translation, direct, writing skills, audio-lingual, the silent way, listening skills, suggestopedia, community language learning, total physical response, communicative approach, and reading skills method with their application in the teaching and learning process of chemistry in classroom.
27	KIM 6401 Basic Chemistry	This course discusses about the atomic theory, periodic table elements, chemical bonds, stoichiometry, introduction to chemical thermodynamics, chemical kinetics, chemical equilibrium, acid-base, colligative properties of solutions, and redox and electrochemical reactions. Lectures also study the application of basic chemical concepts in everyday life, as well as laboratory activities.
28	KIM 6302 Physic for Chemistry	In this course, the theory and practice of physical-phenomena related to mechanics (kinematics, motion, displacement, distance, speed, speed, acceleration, GLB, GLBB, GMB, force and effort, energy and impulse, fluid), heat (temperature and heat, calorimeter, heat type, heat transfer), sound (sound source, sound properties, sound intensity level, resonance, string sound on string, organa pipe), electricity (static and dynamic electricity), magnetism (magnetic material, magnetic induction, transformer, induction, Lorentz force) and optics (geometric optics and physical optics) will be briefly examined.

29	KIM 6303 Biology for Chemistry	This course discusses about the basic definition of objects and biological issues, the scientific method in learning biology, the structure of biology; the living things' characteristics concept; energy and nutrition; changes of energy; entropy; metabolism; enzyme and energy transfer-ATP and survival living on earth, the level organization of life, ecosystems, and the benefits of biology for human life.
30	KIM 6303 Mathematic for Chemistry	This course will also include the study about mathematical concepts and their applications in chemistry. The concept includes: coordinate systems, functions of one or more variables, differential-integrals, differential equations, determinants, operators and vectors and data processing.
31	KIM 6405 Chemical Equilibrium	Chemical Equilibrium subjects discuss the concept of gas and its properties, the first law of thermodynamics and its application, thermochemistry, the second and third laws of thermodynamics and their application, chemical balance, phase balance, physical properties of solutions, and electrochemical balance.
32	KIM 6406 Molecular Dinamics	This course studies about the molecular dynamics, which include the theory of gas kinetics, moving molecules (including gases and solutions), the rate of chemical reactions (including: empirical chemical kinetics and explanation of the law of speed), and complicated reaction kinetics. This course also learn about the theory and practicum in the laboratory
33	KIM 6407 Basic of Organic Chemistry	This course covers the theory and practice which includes the basic concepts of organic reactions are the structure of organic molecule. mechanism of substitution and conformation reactions of alkane and cycloalkane compounds. Addition reactions to alkene and alkyne. Mechanism of the reaction of halo alkane compounds, SN1 / E1 and SN2 / E2 and SN. Aromaticity and mechanism of SE reactions to benzene and its derivatives. Steering group o / p, guide m. Stabilizer and stabilizing groups. Alkoxy alkane, diol and thiol. Alkanal, alkanon compounds, and mechanism of reaction of alkanoic acid compounds, and mechanism of reaction of amine

		nitrogen compounds
34	KIM 6408 Reactivity and Mechanism of Organic Reaction	The subject of organic compounds' structure and reactivity contains concept, structure, physical and chemical traits and reaction mechanism on carbonyl compound (aldehyde and ketone), amide, aromatic compound, aromatic heterocyclic, stereochemistry, compound with polyfunctional groups, carbohydrate, lipids, amino acid, and protein
35	KIM 6409 Non-metal Inorganic Chemistry	This course covers theories and practices which include: hydrogen and polyatomic atomic structures, periodic trend elements, symmetry and group molecular theory, covalent bond models (valence bond theory and molecular orbital theory), acid-base and donor-acceptor chemistry, chemical reactions (oxidation-reduction), and group chemistry main non-metal.
36	KIM 6310 Inorganic Metal Chemistry	This course consists of Chemical Qualitative and Quantitative Analysis. Qualitative analysis is the identification of sample components with specific reagents. Quantitative analysis is the determination of quantities (grams, percent) by volumetric techniques. Lecture emphasizes the mastery of lecture material logically and scientifically and the ability to use scientific methods to solve problems faced by students.
37	KIM 6411 Basic of Analytical Chemistry	This course serves two purposes. The first purpose is to provide the students with a background in statistical principles to be a good user of statistical analysis. We will learn how to describe data effectively, how to run a simple regression, statistical inference, hypothesis testing, and how to interpret the results. The second purpose of this course is to provide them with the basic knowledge in probability theories, such as expected values or probability distributions, which are necessary in understanding other courses in science education research.
38	KMA 6412 Chemical Separation Method	This course deals with various principles of analytic separation, several factors that influence, electrochemical separation and analysis methods and separation with membranes

39	KIM 6413 Biochemistry	This course concerns about chemical structures, functions, chemical processes in cells (the smallest part of living things) which consists of carbohydrates, fats, proteins, enzymes, minerals, vitamins and water in the chemical process (metabolism) of carbohydrates, lipids and proteins. Discusses nucleic acids, genetic engineering, hormones, nutrition and food, and practices about traits and chemical reactions of carbohydrates, lipids, proteins, and enzymes
40	KIM 6214 Nuclear Chemistry	This course discusses changes in core structure due to nuclear reactions. Nuclear reactions consist of 2 (two) types, namely nuclear decay (radioactivity) and nuclear firing reaction (Nuclear Bombardment Reaction). Lectures are emphasized on the ability to master lecture material logically and scientifically as well as the ability to use scientific methods in solving problems faced by students. Discovery of Radioactivity, Atomic Nucleus, Nucleus Structure, and Nuclear Characteristics, Nuclear Stability (viewed in various ways: mass, ratio of the number of protons to neutrons, the binding energy of the nucleus, the amount of energy released, the core structure with the core skin model, and the core structure with the model liquid drops), both qualitative and quantitative radioactivity, interaction of radiation with matter, detection of core radiation, core reaction (nucleus transformation) with the probability of occurrence and its relationship with the production of energetic radionuclides, protection against radiation, use of radionuclides
41	KIM 6215 Environmental Chemistry	This course provides experience for students to analyze chemical concepts related to the interaction of chemicals with the biotic, abiotic, and social environments. Lecture material is focused on the sources, reactions, transportation, effects and fate of chemical species in the air, water and soil environment, and also the influence of human activities on these processes. Lectures are carried out with discussions, demonstrations, and assignments that provide students with experience in solving environmental problems.
42	KIM 6215	This course includes theories covering background, coordinate systems, differentials and integrals,

	Introduction to Quantum Chemistry	determinants, vectors, operators, complex numbers, and eigenvalue equations; corservative system, Langrange motion equation, Hamilton motion equation, internal coordinates and center mass movements, and basic assumptions of classical mechanics; atomic spectra, black matter radiation, photoelectric effects, the formulation and postulates of quantum mechanics; application of postulates of quantum mechanics, orthonormal and orthogonal properties of hybrid wave functions, and perturbation theory.
43	KIP 6402 Coordination Chemistry and Organometallic	This course discusses Coordination Chemistry and organometallic compounds with a weighting of 3 theoretical credits and 1 integrated practicum credit. Chemistry Coordination talks about the Chemical Transition Elements: understanding, electronic configuration, catalytic properties, magnetic properties, and spectroscopic terms. Complex compounds: boundaries, formulations, bonds, coordination numbers, formula writing formula, nomenclature, history of development of complex compound formulations according to Blomstrand-Jørgensen chain theory, Werner's theory, isomerism, and application of complex compounds. The concept of effective atomic number, and valence bond theory (hybridization), the theory of Crystal Fields (ligand field theory): d orbitals division and electronic configurations in octahedron, tetrahedron and square fields; energy of crystal field stability, Jahn-Teller distortion, crystal field strength (ligand) and how to measure it, color and introduction of electronic spectrum. Molecular orbital theory of complex compounds: Thermodynamics and kinetics of complex compounds: stability and instability, and constants of equilibrium; reaction mechanism: ligand substitution, trans effect, redox reaction. Chemical transition elements in (4f and 5f), and applications of complex compounds. Practicum of Aluminum Complex Compounds, chromium, iron, cobalt, nickel, copper with a variety of ligands. Organometallic compounds discuss the concepts and history of organometallic compounds, the mechanism of reaction of organometallic compounds includes the mechanism of oxidative addition, the mechanism of hydride

		elimination, the mechanism of transmetallization, carbomethacilation, and silylmetallation; example of the reaction of some organometallic reagents and their application. And the use of organometallic compounds in industry.
44	KIP 6303 Instrument Analysis Chemistry	This course covers theory and practice in the laboratory which includes the scope of instrument chemistry, colorimetry, and various modern analytical methods such as UV-VIS spectrophotometry, FTIR, Mass, NMR, and SSA
45	KIP 6204 Analysis on Organic Compound Structures	The course discusses the basic concepts of spectroscopy, the basic principles of UV, IR, NMR, and MS spectroscopy, and the elucidation of the structure of organic compounds based on spectroscopic data
46	KIP 6205 Chemistry Laboratory Management	This course discusses the basic concepts of (1) the understanding, purpose and scope of laboratory management, (2) laboratory understanding and function, (3) laboratory design and layout, (4) tool management, (5) material management, (6) tool selection criteria, (7) work safety in a laboratory, (8) assessment of learning activities in the laboratory, (9) management of laboratory waste, (10) hazardous experimental techniques, (11) MSDS
47	KIP 6206 Industrial Process on Chemistry	The Chemical Industry Process Course explains to students how to manage a chemical industry safely, efficiently and effectively. In addition, the process diagram in the industries explained: Sugar Cane, Paper, Portland Cement, Ammonia, Urea Fertilizer, Textile and Milk Powder. Explained in this course: the physical and chemical processes that occur in each of these industries. The next chapter explains how to calculate the heat released from a chemical process, using the help of experimental results curves, and examples of the use of the concept of stoichiometry in the chemical industry.
48	KIP 6209 Chemistry Research Project	This course contains useful chemical research project designs, conducting research, presenting research results and reporting them

49	PPL 6301 Educational Internship	This course is a course that is expected to be able to provide learning experiences for students, especially in terms of teaching, broadening horizons, training and developing the teaching potential needed in their fields, increasing independence, responsibility and ability to solve problems in learning. The implementation involves some elements including, Supervisor, Supervising Teacher, Principal / institution, Local Government, college students and students at the school. It includes several stages, namely the pre-PPL stage, the preparation of the program design, the implementation of the program, monitoring and preparation of the report.
50	SPK 6601 Undergraduate Thesis Writing	This course guides students to understand and be able to apply the basic concepts of research. Students are led to write research proposals by analyzing problems from a condition (background problems), identifying problems, problem constraints, formulating problems, research objectives, looking for relevant sources of study, making thinking frames, proposing temporary problem solving (hypotheses) or submitting more detailed research questions. Students are also guided to choose appropriate research methods, sample populations and data analysis techniques. The final assignment of the thesis is prepared in accordance with the Final Project Thesis Handbook.

Mata Kuliah Pilihan

Mahasiswa harus memilih 10 sks (5 mata kuliah pilihan) yang ditawarkan

a	MPK 6212 Chemistry History and Perspective	This course studies the development (history) of chemistry from prehistoric times to the early 20th century through a philosophical analysis of historical developments by emphasizing how chemists of the past thought and worked at the same time they also develop, evaluate, and use theory and new practical methods, and their applications in the process of learning chemistry schools.

b	MPK 6213 Chemistry Education Research Review	This course provides students the ability to choose and analyze journals in accordance with the topics of both domestic and foreign journals related to chemistry education.
c	MPK 6214 Chemistry Learning Workshop	This course is a practical course that aims to make students understand and be able to develop teaching aids for chemistry learning in secondary schools (SMA / SMK) to support constructive, innovative and fun chemical learning. Workshop materials on chemistry learning include identification of chemical material that is considered difficult in high school / vocational school, alternative chemical teaching aids in the chemistry learning process in chemistry classes and labs, proposals for making teaching aids, and making teaching aids
d	MPK 6215 Materials Development on Chemistry	This course is an elective course with the aim of students being able to develop chemical teaching materials with current and up-to-date sources. This course includes material on the preparation of design, development, management and evaluation of teaching materials. The lecture implementation uses an active learning model with lecture, question and answer, discussion, and project learning methods.
e	MPK 6216 Chemistry Experiment at School	This course discusses the fundamentals of chemistry experiments in elementary and secondary schools, design experiments in chemistry learning in schools by looking at the analysis in terms of concepts, contexts, and implementation of experiments in schools, and various forms of application of chemical experiments in learning at school
f	MPK 6217 Products of Chemical Technology	This course discusses knowledge and skills about simple chemical technology that can be developed into everyday products
g	MPK 6218 Entrepreneurship in IT-Based Learning	Through this course students are prepared to design and produce IT-based learning media in the form of multimedia applications, games, virtual labs. The learning materials include identification of chemistry learning problems in high school and university, identification of alternative learning solutions through

		IT-based media, identification of CAI learning support media, website-based learning, and mobile-based learning, development of audio-visual learning media, web 2.0-based learning media and html5, and Android, IOS-based media, media validation, media production, and media marketing.
h	MPK 6221 Academic Writing for Chemistry Education	This course studies academic writing which includes punctuation, sentences (clauses and dependent clauses), types of sentences (simple sentences, compound sentences, and complex sentences), paragraphs (topic selection, main symbols / main thoughts, supporting sentences, closing sentences), cohesiveness / coherence of paragraphs. Students also learn the procedure for writing 2000 word argumentative essays consisting of opening paragraphs (thesis statements, hooks, transitions), content paragraphs, and closing paragraphs, and studying citation and referencing to avoid plagiarism
i	KIM 6215 Pharmaceutical Chemistry	This course discusses the concepts of drug limits, drug forms, drug classifications, drug use methods, drug biopharmaceutical aspects, main effects and side effects of drug use, drug structure interactions - receptors, chemical structure of drug molecules and their biological activities, drug analgesics, and central nervous system suppression drugs
j	KIP 6207 Food Chemistry	Through this course students are expected to have an understanding of basic concepts in food chemistry, composition, properties of chemical changes, including browning reactions, damage to food ingredients and their prevention, food additives, packaging, and descriptions of important food ingredients.
k	KIP 6206 Chemistry Macromolecule	Macromolecular chemistry courses discuss the basic concepts of polymer science, polymerization reactions, polymer characterization, polymer properties and the development of polymers based on research that has been done
l	KMA 6207 Natural Material Chemistry	This course covers the classification, structure, nature, origin of biogenesis, biosynthesis, ways of isolation, and its identification which includes classes of terpenoid compounds, steroids, flavonoids,

		polyketides, polyphenols, alkaloids, as well as several examples of useful natural compounds, found in various families plant
m	KMA 6238 Petroleum Chemistry	This course discusses about the importance of petroleum mines and their results for life and human activities in general. In this course the process of forming petroleum is explained, the processing process becomes a product that can be used. Besides that, a number of petroleum products are also explained, including: methods of manufacture, chemical and physical properties, and measures of quality. In addition, this course also explains the preliminary stages of the establishment of the petroleum refining industry
n	KMA 6242 Corrosion and Electroplating	This course discusses about the concept of corrosion and its prevention, as well as electroplating and its uses. The concept of corrosion and its prevention include Concept of Corrosion, Basics of Corrosion, Electrochemical Corrosion, Thermodynamics of Corrosion, Corrosion Kinetics and Electrochemical Applications, Know Forms of Corrosion, Factors Affecting Corrosion, Corrosion due to Water, Atmospheric Corrosion, Corrosion in Soil and Effect of Microbiology, Selection Material, Test and Design, Corrosion Risk, Cathodic Protection, Coating, Corrosion at High Temperatures. Meanwhile, electroplating and its uses include Electroplating Concepts, Electroplating Methods, Electrodics and Electro-catalysis, Electrochemical Materials, Waste, Electrochemicals, and Applications.
o	KMA 6246 B3 Waste Management	This course provides experience to students to analyze the physicochemical properties of B3 waste and its management related to environmental health. Lecture materials are focused on 1) Definition, nature and classification of B3 waste, 2) Regulations related to B3 Waste Management, 3) Identification, documents, symbols, labels, packaging, storage, collection, transportation, processing, utilization, stockpiling and final disposal of waste B3, 4) Emergency response system in the processing of B3 waste, 5) Hospital waste treatment, 6) Processing of chemical laboratory waste, 7) Processing of chemical industry waste, 8) Printing waste treatment. Lectures

		are conducted with discussions, demonstrations, and assignments that provide experience to students to solve the problem of B3 waste management
p	KMA6249 Geochemistry	This lecture includes theories covering following material; the principles and history of geochemistry, earth and relations with the universe, the structure and content of the earth, thermodynamics and chemical crystals, magmatism and igneous rocks, sedimentation and sedimentary rocks, and isotope geochemistry

Final Project

Condition

Undergraduate students can take the final project if they have completed at least 110 (one hundred and ten) credits with a GPA of at least 2.50 (two point five zero).

Guidance

The implementation of the **final assignment guidance starts from the guidance in lectures** which underlies the preparation of the thesis proposal and is followed by intensive guidance with the final thesis supervisor for each student. The following stages are the preparation and guidance of student final thesis.

1. Preproposal Stage

The implementation of this stage is integrated with the Chemistry Education Research Methodology (MPPK) lecture. This course weighs 3 credits given to 6th semester students. In this lecture students begin to identify research themes both through the lecturer's research umbrella and independently. Students are given the opportunity to meet with prospective supervisors to discuss the initial ideas of the thesis to be worked on. Furthermore, according to the theme chosen from the initial discussion, students begin to formulate the problem, research objectives and research design. The process of drafting the proposal is continued by the discussion in the lecture of the MPPK Course. At the end of the lecture, students present a draft proposal to obtain input from supporting lecturers and friends. The draft proposal is the product of this lecture. To improve the quality of final thesis research, starting in the 2014 school year in semester 5 students were given a Chemistry Education Research Research course. This subject discusses the latest research results in chemistry education. Students analyze international journal articles to get the latest research ideas.

2. Stage Guidance for Proposals and Seminars

Guidance for proposals is carried out in two ways. First classically in an activity called Classical Guidance with the TAS coordinator in Chemistry Education Study Program. Second, each student conducts intensive guidance with a mentor who has been appointed. Classical guidance must be followed by all students of Chemistry Education Study Program who take the final thesis in their study plans. Activities are carried out on a scheduled basis in the odd semester. Classification guidance functions to monitor the progress of preparing a draft proposal into a final thesis proposal. In the middle of the semester, a proposal seminar schedule for students is arranged.

Final thesis proposal seminars are held simultaneously which are divided into several classes according to the research theme. The proposal seminar was attended by mentors and appointed discussion lecturers who had expertise in the field of student final thesis research themes. Students present proposals and are given input by the discussants. This seminar aims to review the readiness of students in conducting research, especially in preparing research instruments, the accuracy of the methodology and the possibility of conducting research.

3. Research Phase and Report Preparation

Students can start research for final thesis after the proposal seminar and revise the proposal according to the input of the discussing lecturer. The research begins with validating the instrument, submitting a research permit if necessary and collecting research data. Furthermore, students can continue with the preparation of the final thesis report. During the process students continue to consult intensively with the supervisor. Final thesis Coordinator remains in charge of monitoring the progress of TAS writing both actively and passively based on student reports. If there are problems or obstacles in the guidance process, the TAS Coordinator or study program will discuss them with the supervisor and the Head of the Department to find the best solution.

4. Final Thesis Examination Stage

The final thesis exam can be carried out after the supervisor has approved the final thesis research report. Students complete the requirements for the TAS exam and apply to the Department. Furthermore, the TAS coordinator will determine the board of examiners and determine the exam schedule. This process is carried out 10 days before the exam day with students must have submitted their thesis scripts that have been signed by the supervisor and TAS / Head of Study Program coordinator and write a scientific article. Student thesis manuscripts will be distributed to examiners a week before the test. The scientific article will be reviewed by the main examiner.

Examination

The final project is assessed by the Examining Team formed by the Faculty through the head of the study program or the thesis coordinator. Students can take the final exam if:

1. registered as an active student in the semester concerned.
2. obtain a theory-free certificate from the faculty education sub-section
3. a theory-free certificate is issued if the final project has been approved by the supervisor to be tested.
4. Have a minimum ProTEFL score of 425

Student Ethics

The Student Association Ethics and Rules described below are sourced from the Rector of Yogyakarta State University Number 03 of 2009 concerning Student Ethics and Rules.

Principle of Appication of Ethics and Rules of Student Association

The application of ethics and rules of student association based on the principles:
a. responsible;
b. participation;
c. justice;
d. peace;
e. politeness; and
f. benefits

Purpose and Objectives

The purpose of the ethics and rules of student association on campus is as a guide and guidelines for students to behave and behave on campus
The ethical and

a. So that students are able to behave and behave in accordance with moral values and norms that reflect the campus community that is scientific, educative, creative, polite, and dignified
b. Protect the rights of all students;
c. Maintaining a condusive campus atmosphere.
d. Realizing superior quality human resources.

Attitude and Behavior

1. Students must have a religious attitude that is religious, honest, optimistic, active, creative, rational, capable of critical thinking, humble, polite, prioritizing academic honesty, able to value time, and open to the development of science, technology, and art.
2. Students must be able to show their attitudes in accordance with their scientific dignity, namely to get along, greet and speak words politely, naturally, sympathetic, educative, meaningful, and in accordance with applicable moral norms;
3. Students as educated people must be able to develop a climate of creation of works of science, technology and art that reflects the clarity of conscience, nuanced devotion to God Almighty, and encourage the quality of human life;
4. Students must be able to design, implement, and complete their studies according to applicable academic regulations;

5. Students must be able to play an active role in realizing campus life that is safe, comfortable, clean, orderly, and conducive;
6. Students are able to be morally, spiritually, and socially responsible to practice the science, technology and arts they have learned for the benefit of society, nation and state;
7. Students must be able to reflect attitudes as educated people with reasonable makeup, dress that is clean, neat, polite, harmonious in accordance with the context of needs;
8. Students as human beings who are self-aware and environmentally conscious must always be able to maintain the integrity, order, cleanliness, beauty, and tranquility of the campus.
9. Students in the context of campus life must be able to actualize a disciplined attitude in the lecture system, academic regulatory system, administrative procedures, so that the lecture management system runs smoothly and regularly.

The Function of Ethics and Rules of Student Association

The function of ethics and the rules of student association on campus are:

a. As a rule or instruction regarding rights, obligations, violations, and sanctions that apply to students
b. As a guideline for the enforcement of rules and order on campus.

Student Rights and Obligations

Student Rights

Every student has the right:

1. Obtain education and teaching in study programs in accordance with applicable requirements and regulations
2. Express opinions or ideas without disturbing other people's rights and public order
3. Obtain correct information about academic achievement;
4. Obtain guidance from lecturers in conducting studies, research, community service, and writing scientific papers;
5. Obtain legal assistance and protection in terms of obtaining threats and / or impaired their rights as students;
6. Using academic pulpit freedom responsibly for the development of science, technology, and art (IPTEKS);
7. Obtaining good services in the academic, administrative, and student fields;
8. Apply and get a scholarship for the progress of their studies in accordance with applicable terms and conditions;
9. Utilizing UNY facilities in order to facilitate academic activities;
10. Received an award from UNY for the achievements achieved in accordance with applicable regulations;
11. Participate in student organizations that are not prohibited at UNY.

Student Obligation

Every student has obligation:

1. Completion of the study in accordance with the study load in accordance with applicable academic provisions;
2. Participating in lectures, practicum and completing assignments in accordance with the provisions agreed with the lecturer;
3. Maintaining the academic atmosphere on campus, upholding the alma mater and maintaining authority and maintaining the good name of the university;
4. Maintain the neutrality of the university from practical political activities;
5. Appreciate the progress of science, technology and art,
6. Maintaining facilities and infrastructure, cleanliness, orderliness, and security within the campus, not misusing campus facilities for personal or group interests which have nothing to do with academic and student activities;
7. Comply with and understand the implementation of all academic regulations that apply at the university;
8. To dress modestly, to be dressed in a natural manner, to be polite and not to conflict with religious and moral norms;
9. Placing the vehicle in a designated place;
10. Comply with all the regulations contained on campus.
11. Respect and do not violate the rights of others.

Prohibition and Handling

Prohibition

Every student is prohibited from :

1. Committing plagiarism, falsification of documents, and other fraud either alone or together with other parties.
2. Perform actions that are contrary to the regulations in force in the university environment;
3. Performing acts classified as blasphemy against certain religions.
4. Performing acts classified as: sexual violations, pornography, sexual harassment and free sex in the environment of the university;
5. Acts classified as violent crime, gambling, adultery, defamation, theft, fighting, physical and mental violence, distribution of prohibited goods, and technology-based crime.
6. Storing and / or trading and / or carrying and / or using narcotics and psychotropic substances;
7. Store and / or trade and / or carry and / or use alcoholic drinks;
8. Carry and / or use firearms and sharp weapons into the campus environment;
9. Damaging campus facilities;
10. Using campus facilities without permission;
11. Invite outsiders without permission;
12. Conduct incitement that can disturb the peace and implementation of programs organized by the university;

13. Dress modestly and contain harassment against certain ethnic groups, religions, races and groups.
14. Permanent or temporary tattooing and piercing are out of the ordinary.
15. Conducting practical political activities and the spread of forbidden ideology within the university.

Handling

1. Handling of violations of prohibitions as referred to above is carried out by authorized officials within the scope of work together with the Ad Hoc Team;
2. In the process of handling violations of prohibitions, the perpetrators of violations of the prohibition have the right to defend;
3. The university is authorized to delegate the handling of cases of violations of prohibitions to the police.
4. Every student who violates the prohibition of letters a through h is liable to the mildest suspension and the most severe ban from university.
5. Every student who violates the prohibition of letter i to letter o is subject to the most severe temporary suspension in the form of a prohibition to participate in academic activities.
6. These sanctions can be added to the burden of compensation caused by violations of the prohibitions set out in Yogyakarta State University Rector Regulation No. 03 of 2009 concerning Ethics and Rules of Student Association on Campus.

Student Organizations and Student Activities Units

Student Organization

Student organizations (Ormawa) at the university level consist of the Student Executive Board (BEM), the Student Representative Council (DPM), and the Student Consultative Assembly (MPM). Ormawa at the faculty level is the Faculty Student Executive Board (BEMF) and the Faculty Student Representative Council (DPMF), while at the department / study program level there is a Student Association (HIMA) Department / study program. Meanwhile, to accommodate the interests, talents, and coaching of student persuasion, there are Student Activity Units (UKM) at the university and faculty levels. BEM REMA UNY is the highest executive institution at the university level that runs the wheels of student government. The term Republik Republik (REMA) is deliberately used to realize Good Student University Government and the regularity of a healthy student government.

The development of the Ormawa field is intended to channel, develop, and direct Ormawa both at the university level namely BEM, MPM, DPM, faculty level namely BEMF and DPMF, as well as the department level namely Hima majors / study programs. Coaching is done through the guidance, assistance, and provision of funds and infrastructure needed. To provide an integrated and representative university-level Ormawa and UKM secretariat office, UNY is now grateful to have a Student and Multicultural Center building that has been inaugurated for use by the Governor of DIY, Sri Sultan Hamengkubuwono X in May 2008. Therefore coordination of activities is expected to be expected. University level Ormawa and UKM will be better.

Student Organizations consist of :

a. Student Consulttaive Assemby (SCA)
b. Student Executive Board (SEB)
c. Student Representtaive Council (SRC)
d. Faculty Student Executive Board (FSEB)
e. Student Representative Council (SRC)
f. Student Association (SA) majors

Student Activity Unit

It is a student organization at the university level whose function is to develop various interests, talents and special skills for its members. Student activity unit extra-curricular activities at the tertiary level related to reasoning and science, interests, talents and hobbies, student welfare and community service. Activities in student activity unit are regularly scheduled and programmed to adjust to the academic calendar, so that it does not interfere with the lecture activities of its members. Students involved in student activity unit

will be familiar with good time management. They must be able to divide their time between studying, studying, practicing in student activity unit and other social activities. They will also be accustomed to working in team work and faced with the atmosphere of competition. All of these experiences will foster a strong mentality by always maintaining personality, sportsmanship, honesty, heightening achievement, good manners and having great self-confidence and being able to control oneself. The University believes that the participation of students in student activity unit activities will increase their soft skills, which is very useful in the future.

Student activity unit UNY is grouped into four fields, namely Reasoning, Sports, Art, and Welfare or Special. Each field of activity consists of SMEs. University-level SMEs include:

a. Research (http://ukmpenelitianuny.org/)
b. "EXPRESSION" Student Press (https://ekspresionline.com/tentang-kami/)
c. Broadcasting Radio "MAGENTA FM" (http://magentaradio.uny.ac.id/)
d. FOREIGN LANGUAGE (http://ukmsafel.student.uny.ac.id/sejarah/)
e. Engineering Technlogy (https://restek-uny.org/)

Field of Art

1. SICMA BAND Music (http://sicma.student.uny.ac.id/author/sicma/)
2. Unit of Literature and Theater Study Unit "UNSTRAT"
3. KAMASETRA Tradiition Art Student Family
4. Vocal SUARA WADHANA
5. SERUFO Fine artsand Photography (https://www.serufo.com/)

Sports

1. Athletic
2. Basketball
3. Volleyball
4. Badminton
5. Chess
6. Hockey
7. Judo
8. Karate
9. MADAWIRNA (http://madawirna.student.uny.ac.id/)
10. Archery
11. Pencak Silat
12. Swimming
13. Soccer
14. Softball
15. Tae Kwon Do
16. Tennis Court
17. Table Tennis
18. "CDB" Marching Band

Special Field

1. Islamic Student Activity Unit
2. Christian Student Fellowhip
3. Catholic Student Family Association
4. Hindu Dharma Student Family
5. Koperasi Mahasiswa (https://www.kopmauny.com/)
6. PMI (http://ksrpmi.student.uny.ac.id/)
7. Pramuka (http://pramuka.student.uny.ac.id/)
8. "PASOPATI" Student Regiment

Facility

Classroom

The Chemistry Education Department has classrooms and laboratories as well as other complementary rooms that will support the lecture comfort. The following is a list of spaces that are enabled

No.	Type of Inrastructure	Total Unit	Total Area (m^2)
1.	Chemistry Education Department Room (D.01.3.04.05)	1	72,0
2.	Lecture Room (D.02.1.01.05)	1	60,0
3.	Lecture Room (D.02.2.01.04)	1	60,0
4.	Lecture Room (D.02.2.01.08)	1	60,0
5.	Lecture Room (D.03.1.01.05)	1	125,0
6.	Lecture Room (D.07.1.01.05)	1	67,5
7.	Lecture Room (D.07.2.01.07)	1	67,5
8.	Lecture Room (D.07.2.01.10)	1	72,0
9.	Lecture Room (D.07.3.01.09)	1	72,0
10.	Lab. Basic Chemistry (D.14.1.03.05)	1	162,0
11.	Lab. Organic Chemistry & Biochemistry (D.14.1.11.14)	1	165,0
12.	Lab. Analytical Chemistry (D.14.2.03.05)	1	150,0
13.	Lab. Phisical & Inorganic Chemistry (D.14.2.03.14)	1	150,0
14.	Lab. Computers (D.14.3.03.06)	1	82,5
15.	Lab. Research 1 (D.14.1.03.01)	1	150,0
16.	Lab. Research 2 (D.14.3.03.01)	1	150,0
17.	Lab. Research 3 (D.14.3.03.12)	1	87,5
18.	Lab. Integrated Instrumentation (D.14.2.03.01)	1	150,0
19.	Laboran Work room	5	18,5
20.	Chemical room	5	20,6
21.	Chemical Instrument/Instrument Room	6	20,6
22.	Lab. Microteaching (D.14.3.03.10)	1	45,0
23.	PPG Room	1	84,2
24.	Workshop Room (D.14.3.03.09)	1	82,5
25.	Library (D.14.3.02.05)	1	123,8
	Total	38	2.557,6

Office Space Department and Lecturers

The department office space is used as the center of the administration of the department, where the Head of the Department, the Secretary of the Department, the Head of the Study Program, and the Admin of the Office have offices. Lecturers of the Department of Chemistry Education occupy conducive spaces scattered in several buildings, which can be seen in the following table

Lecturer Work Room	Total Room
One room for more than 4 lecturers	-
One room for 3-4 lecturers	
• D.02.1.05.03	1
• D.02.1.05.09	1
One room for 2 lecturers	
• D.14.1.05.02	1
• D.14.3.05.07	1
• D.16.1.05.09	1
• D.16.1.05.10	1
• D.16.1.05.11	1
• D.16.2.05.09	1
• D.16.2.05.10	1
• D.16.2.05.11	1
• D.16.3.05.09	1
• D.16.3.05.10	1
• D.16.3.05.11	1
One room for 1 lecturer (not a structural official)	
• D.14.1.05.06	1
• D.14.2.05.13	1

Laboratory

The 2,100 m2 3-storey chemical laboratory building was built to support practicum and research activities. In general, the laboratory consists of chemical content laboratories (basic chemistry, organic and biochemical, inorganic and analytic, physical chemistry, instruments and research) and learning laboratories (computers, microteaching, and learning workshops). Each chemistry laboratory is equipped with laboratory head room, laboratory room and tool and material storage room. The service of practicum and research activities in each laboratory is carried out by a laboratory assistant. The facilities in each of these laboratory rooms are very adequate for conducting practicum and research activities for all students and lecturers. The capacity of chemistry laboratory for practicum is 30-40 students and according to the number of classes available.

The availability of tools and chemicals is adjusted to the needs of practicum in each sub-laboratory which is monitored at the beginning of the year by considering the number of students who will take the practicum. Each laboratory

has an order of use that must be followed by all lecturers and students who use laboratory facilities to ensure work safety for practitioners and researchers.

The availability of practicum equipment and chemicals is adequate for the practicum in accordance with the number of classes available and monitored at the beginning of each semester. Checks are carried out by each laboratory assistant and then the laboratory assistant reports. If there is a shortage, the laboratory assistant makes a proposal for tools and materials to the head of the department which is then forwarded to the faculty. Practicum instructions are prepared by practicum supporting lecturers in accordance with the periodic review of practical content and material.

Analysis of student satisfaction with laboratory facilities is done through distributing questionnaires once a year. The 2016 survey results showed that 58% of students were quite satisfied with the cleanliness and comfort of the chemical laboratory, 25% were very satisfied and the rest stated less satisfied. As for the availability of tools and materials, 57% of students said they were quite satisfied, 5% said they were very satisfied and there were still 38% of students who felt less satisfied. These results are then followed up by improving laboratory and bathroom hygiene, more detail in recording the availability of chemicals, more intensive laboratory equipment maintenance and structuring of tools and chemicals. The results of the 2017 survey showed the percentage of student satisfaction increased to 71% of students feeling satisfied, 4% less satisfied and 25% of students feeling very satisfied.

The integrated instrumentation laboratory as a support for research and lecture activities has a porimeter, XRD, UV-Vis, Spectronic (Spectromotometer ASAP 2020 Physisorption Analyzer, Rigaku Miniflex 600 Benchtop X-Ray Diffraction (XRD), Shimadzu Spectrophotometer UV-Vis, UV-Vis spectrophotometer and Spektronika-20. Research tools and instruments, cleaned after use, routine maintenance (check the condition of the tools and components and calibration is done every 6 months.

Picture 1. Rotavapor R-215

Picture 2. Micrometrics ASAP 2020 Pyhsisorption Analyzer

Picture 3. Shimadzu Spectrofotometer UV

Picture 5. Spectrofotometer UV-Vis

Work safety assurance in a chemical laboratory begins with the rules that must be obeyed, such as the use of masks and taking dangerous substances in the fume hood, wearing closed footwear, laboratory coats, tidying hair and headscarves and not bringing food and drinks into the laboratory. Likewise, waste management. Liquid waste is disposed of in a special container with previously diluted, solid waste disposed of in a special waste bin. The B3 waste is disposed of in a special place which is then put into an integrated incineration place at FMIPA. The liquid waste disposal site is reviewed once a year, if it is full, the faculty will work with the waste transport and processing company to collect the waste in the laboratory. In every laboratory, fire fighting facilities are provided to anticipate accidents in the laboratory. If an injury occurs, the victim will be taken to a faculty or university clinic that provides on-site medical personnel with adequate equipment.

The computer laboratory that has been prepared on the third floor of the Chemical Laboratory has a capacity of 44 computers. All computers are connected to a LAN (local area network) in the FMIPA and UNY environment that can be used for practicum in computer applications, chemical computing, preparation of computer-assisted learning materials (CAL), analysis of chemical education research data, and access to global information through the internet and e-library. Computer software is checked every 6 months for eligibility and updates. The results of the 2017 student satisfaction analysis showed that 51% of students expressed satisfaction with the comfort and conditions of the computer laboratory, 45% stated very satisfied and 4% expressed less satisfied. Efforts to improve services are carried out by upgrading old and unfavorable computers through proposals to replace computers with the Faculty.

The microteaching laboratory is a soundproof room, has a capacity of 20 chairs, demonstration table, teacher's desk, LCD and projector, whiteboard and is supported by a recording room. This laboratory is used for practical teaching activities that are designed as real as possible. The microteaching laboratory with a capacity of 20 students is quite adequate compared to the classes for microteaching courses ranging from 10-15 students.

Physical facilities including buildings, rooms and contents are sufficient for the needs of conducting lectures and research. Each lecture room is equipped with an

LCD for the lecture process. For disabled facilities / special needs Chemistry education program provides ramp for wheelchair users and toilets or bathrooms for wheelchair users. As a form of maintenance of physical facilities the room is cleaned every day, as for routine maintenance such as painting and checking the condition of the building carried out within a certain period.

Library

Chemistry study program has adequate library facilities to support learning and research activities. The library is located on the 3rd floor of the laboratory building. The atmosphere around the library is very calm so that it supports students to study. The 110 m2 building is equipped with reading chairs, shelves and book storage facilities with thousands of collections, catalog racks, air conditioners, computers for data storage, visitor attendance computers, photocopiers and stable internet networks.

The library collection includes reference books and textbooks on education, learning, chemical materials and their applications, national and international journals (open access), lecture dictates, learning media, final project reports, and popular magazines.

IT Supporters

The Department of Chemistry Education is also equipped with computer laboratories consisting of 45 newest generation computers with internet access (LAN and WAN). Information systems and computer networks in the Department of Chemistry Education are controlled centrally within the university by the Computer Center (Puskom). UNY's main computer network (core network) is connected to the international internet (IX) and domestic internet (OIXP) using IP transit with US Number 55674 through a reliable Internet Service Provider to ensure connectivity. With a total internet bandwidth of 15990 Mbps in 2017, it is distributed through fiber optic networks to all faculties and work units in UNY (http://puskom.uny.ac.id).

Puskom also made an information system for the administration of student lectures within the University. Access to students to plan lectures and control the value of the results of lectures can be accessed through http://siakad2013.uny.ac.id. To facilitate scheduling of lectures, this is done through the system http://jadwalkuliah.uny.ac.id. As for the presence of lectures facilitated through http://presensikuliah.uny.ac.id.

The lecture system can also be done online via http://besmart.uny.ac.id/v2. With this online system, lecturers can design lectures as best they can by assigning, giving lecture material or designing online examinations. The research system at the university level is facilitated via http://simppm.lppm.uny.ac.id. The researchers uploaded a proposal for research funding through the system. The

university has also entered into agreements with various software developers (such as Microsoft) so that the software and applications used within the university are legal. Besides, UNY also have Sports Facilities, UKF and UNY Clinic, Counseling Guidance, Place of Worship, and Open Space.

Scholarship

Scholarship of D3 and S1

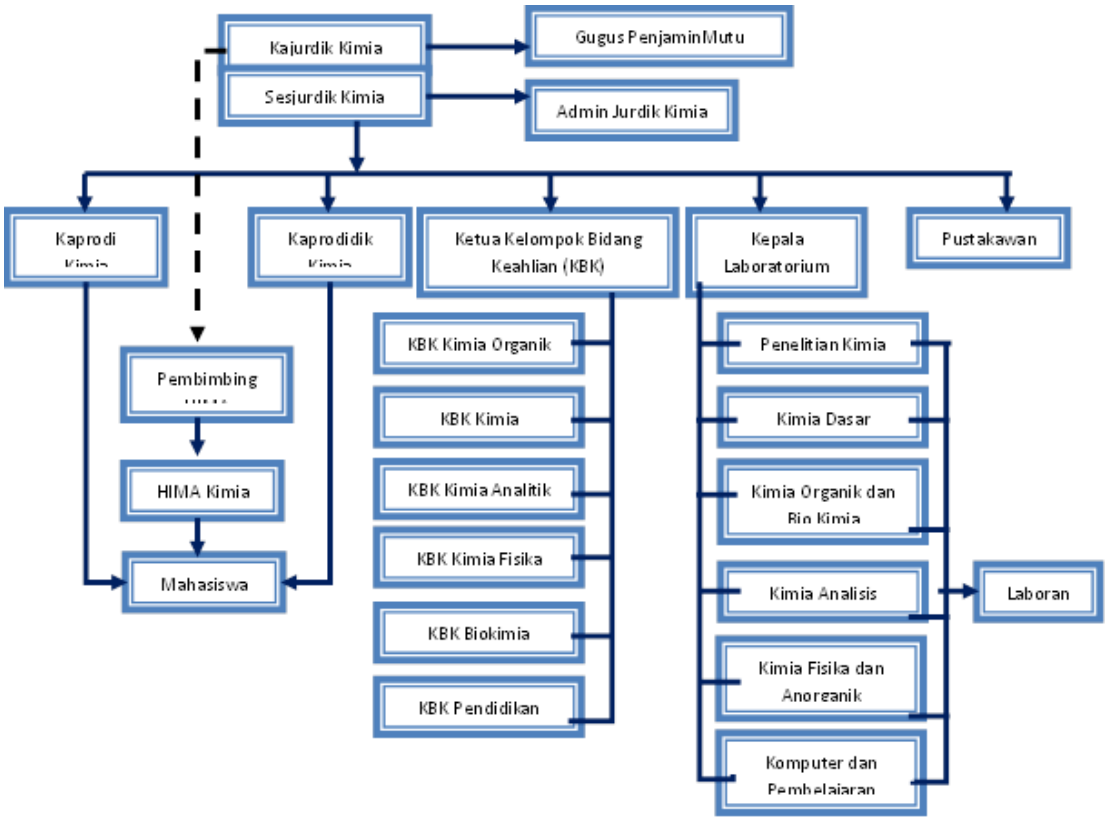
1. Bidikmisi Scholarship *
2. Peningkatan Prestasi Akademik (PPA) Scholarship
3. Bantuan Biaya Pendidikan PPA (BBPPPA) Scholarship
4. ADik Scholarship
5. ADik Papua Scholarship
6. Unggulan Kemendikbud Scholarship
7. Dinas Dikpora DIY) Scholarship
8. Bantuan Dinas Dikpora DIY Scholarship
9. Bank Indonesia Scholarship
10. Supersemar Scholarship
11. Unggulan Supersemar Scholarship
12. Toyota Astra Scholarship
13. Salim Scholarship
14. Yayasan Orbit Scholarship
15. BNI 46 Scholarship
16. Ormawa Scholarship
17. BPD DIY Scholarship
18. Lippo Bank Scholarship

Carrier

UNY provides services for graduates who are looking for work. The service is carried out by http://ppk.lppmp.uny.ac.id/. Graduates can see job opportunities and apply for jobs.

Chemistry Education Study Program Organization and Staff

Organizational Structure of the Chemistry Education Department



1. Head of the Chemistry Education Department Period 2015 – 2019

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	Office Address	Jurdik Kimia – FMIPA UNY
	Phone Number	55281
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Educational History	S1	Chemistry Education- IKIP Yogyakarta
	S2	Collidal and Surface Chemistry- La Trobe University, Australia
	S3	Colloidal and Surface Chemistry- La Trobe University, Australia
Subjects Taught (3 tahun terakhir)	1. Colloidal and Surface Chemistry 2. Physical Chemistry II (Kinetics) 3. Molecular Dynamics 4. Physics Chemistry Practicum I and II 5. Basic Chemistry II 6. Basic Chemistry Practicum I and II 7. Development of Chemistry Learning Media 8. Application of ICT in Chemistry Learning	

The Chairperson of the Department is in charge of preparing plans, giving instructions, coordinating and evaluating the implementation of educational and teaching, research and community service activities carried out by lecturers in the department based on the provisions that apply to the smooth implementation of tasks. The Head of Department task details are as follows.

a. Arranging the department's work plan and program as a guideline for carrying out the task
b. Checking the concept of teaching load for lecturers each semester based on applicable regulations, to find out its suitability.

c. Examining the concept of Lecture Program Plans and Satauan Course Lectures based on applicable provisions to determine their suitability.
d. Monitor the implementation of lectures based on the applicable provisions as evaluation material.
e. Evaluate the results of the lecture implementation based on the results of monitoring to improve quality.
f. Prepare a plan for operational costs majors per year based on the workload and the provisions applicable to the smooth running of lecture activities.
g. Guide and assess student academic activities in the section environment for development materials.
h. Determine the supervisor for students who complete the final project based on the instructions from superiors for the smoothness of academic work.
i. Serving lecturers who conduct research and community service in accordance with the task load and expertise for the smooth implementation of the task.
j. Carry out academic coaching of department lecturers.
k. Coordinate the implementation of laboratory activities and department workshop.
l. Prepare reports on the implementation of department activities in accordance with the results that have been achieved as a responsibility for carrying out the tasks.
m. Carry out other tasks given by superiors.

Secretary of the Department of Chemistry Education Period 2015–2019

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	S2	Analytical Chemistry- SPs ITB
Subject Taught (Last 3 Years)	1.	Basic Chemistry
	2.	Micro Chemistry Teaching
	3.	Vocational Chemistrty
	4.	History of Chemistry Literature
	5.	Computer Applications for Chemistry
	6.	Development of Chemistry Learning Media

The secretary of the department is tasked with giving instructions, coordinating and evaluating the implementation of educational and teaching, research and community service activities carried out by lecturers in the department based on the provisions that apply to the smooth implementation of tasks. The details of the duties of the Secretary of the department are as follows.

a. Arranging the concept of plans and work programs majors as a guideline for the implementation of the task.
b. Develop the concept of teaching load for lecturers each semester based on the applicable provisions as input for superiors.
c. Develop lecture plans and lecture event units based on the applicable provisions as input from superiors.
d. Develop concepts for the assignment of guardian lecturers or academic advisors according to supervisor's input.
e. Develop monitoring instruments for conducting lectures in accordance with the applicable provisions for the smooth implementation of tasks.
f. Develop a concept of evaluating the results of conducting lectures based on data and information to improve quality.

g. Develop a draft operational costs plan majors based on data and information as well as the provisions that apply to the smooth implementation of tasks.
h. Guide and assess student activities in the Section environment as development material.
i. Determine the prospective supervisor for students who complete their final project based on the applicable provisions as input for superiors

2. Head of Chemistry Education Study Program Period 2015-2019

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	S2	Science Education (Chemistry) – Universitas Sebelas Maret

Subjects Taught (Last 3 Years)

1. Chemistry Education Research Methodology
2. High School Chemistry
3. Chemical Experimentation in Schools
4. Development of Chemistry Learning Programs
5. Review of Chemistry Education Research
6. New Trends in Chemical Education Research
7. Chemistry Learning Strategies
8. Teaching Micro Chemistry Education

The Head of Study Program is in charge of preparing plans, giving instructions, and evaluating the implementation of educational and teaching, research and community service activities carried out in the study program environment based on the provisions that apply to the smooth implementation of tasks.
The details of the duties of the Head of Study Program are as follows.

a. Arranging study program plans and work programs as guidelines for implementing tasks.
b. Checking the concept of teaching load teaching program lecturers each semester based on applicable regulations, to find out its suitability.
c. Examining the materials for the Lecture Program and Lecture Program Unit based on the applicable provisions to determine their compatibility.
d. Monitor the implementation of lectures in accordance with the study program and the applicable provisions as evaluation material.

e. Evaluate the results of the lecture in accordance with the study program to determine its suitability.
f. Guide and assess students who follow the study program for development materials.
g. Developing the concept of a supervisor lecturer proposal for students who complete their final project based on the instructions of the supervisor for the smooth running of academic assignments.
h. Compile reports on the implementation of study program activities in accordance with the results achieved as a responsibility for carrying out the tasks.
i. Carry out other tasks given by superiors

3. Head of the Laboratory in the Department of Chemistry Education

Head of Basic Chemistry Sub Laboratory

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Head of Organic Chemistry and Biochemistry Laboratory

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Head of Computer and Chemistry Learning Sub Laboratory

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Head of Laboratory is the implementation of academic activities in the laboratory. The head of the laboratory has the following duties and functions.

a. coordinate all laboratory activities.
b. plan and develop a laboratory.
c. Manage laboratory personnel
d. Monitor and evaluate the use of laboratory facilities and infrastructure
e. Provide an evaluation of the results of the performance of the head of sub-laboratory and laboratory staff.

Admin Department of Chemistry Education

Identities

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