



GUIDE FIELD WORK PRACTICE (PKL)



GUIDE

CHEMISTRY UNDERGRADUATE
STUDY PROGRAM
CHEMISTRY DEPARTMENT
FACULTY OF MATHEMATICS
AND SCIENCES
IPB UNIVERSITY-2023

CHEMISTRY UNDERGRADUATE PROFILE

Graduate Competency

Have the ability to conceptualize chemistry in a broad and balanced manner, including mastery of science and technology in the field of chemistry. These competencies include knowledge and practical skills in chemistry through the application of standardized methodologies to solve problems properly, correctly, and safely in the field of chemistry.

Level 6 Undergraduate Learning Outcomes Chemistry

A. KNOWLEDGE

- A1 Able to relate the structure and the universe systematically through observation and experimentation that utilizes science and technology as an application of basic science including mathematics, physics, chemistry, and biology.
- A2 Able to describe the theoretical concepts of structure, properties, and their changes kinetically and thermodynamically,

identification, separation, characterization, transformation, material synthesis, and their applications.

A3 Able to use knowledge of materials and develop management systems that have been implemented in industry at large, including ISO, HACCP, K3, halal assurance systems.

B. SPECIALIZED SKILLS

B1 Able to organize standard operations of the function and operation of chemical instruments, and analyze data and information to produce appropriate conclusions.

B2 Able to use software for analysis, synthesis, and molecular modeling in the field of chemistry.

B3 Able to demonstrate good practical work in the laboratory to support theoretical aspects by paying attention to safety, occupational health, and environmental aspects.

B4 Able to solve science and technology problems in the field of chemistry including identification, analysis, isolation, transformation, and synthesis of simple materials through the application of knowledge of structure, properties, molecular changes, kinetics and thermodynamics.

C. GENERAL ATTITUDES AND SKILLS

- C1 Able to show an attitude of piety to God Almighty; uphold human values; contribute to improving the quality of community life; proud and love the country; appreciate diversity; able to work together; law-abiding and disciplined; internalization of values, norms, and ethics; responsible; internalization of the spirit of independence, struggle, and entrepreneurship.
- C2 Able to communicate orally and in scientific writing; interpret, process, and present data; show skills in numeracy and mathematical thinking; show skills in problem solving; show ethical responsibilities; do sourcing information, team working, and time management well; show soft skills such as organizational skills, creativity, and leadership.

CHAPTER 1. INTRODUCTION

1.1 DEFINITION OF FIELD WORK PRACTICE

Field Work Practice (KIM1490) is a compulsory course for the Chemistry Undergraduate Study Program, Department of Chemistry, FMIPA IPB and is included in the final year project (FYP) course. The course load for field work practice (PKL) is 3 (0-3) credits. PKL activities are carried out mainly **outside the IPB campus or the working world** such as the business world, the industrial world, state-owned / regionally-owned enterprises, government agencies, or other institutions at home and / or abroad.

1.2 LEGAL FOUNDATION

- Law of the Republic of Indonesia Number 12 Year 2012 on Higher Education (State Gazette of the Republic of Indonesia Year 2012 Number 158, Supplement to State Gazette of the Republic of Indonesia Number 5336);
- Regulation of the Minister of Education and Culture of the Republic of Indonesia No.3 of 2020 concerning National Higher Education Standards

- Regulation of the Board of Trustees of Bogor Agricultural University Number: 06/ MWA-IPB/P/2020 on the Organization and Working Procedures of Bogor Agricultural University.
- Decree of the Board of Trustees of Bogor Agricultural University Number: 72/K/MWA-IPB/2023 on the Appointment of the Rector of Bogor Agricultural University for the Period 2023-2028;
- Decree of Rector of IPB Number: 015/IT3/KP/2017, concerning Determination of Home Base in Department/School/Diploma Program and Assignment of Lecturers in Study Program in the Environment of IPB;
- Decree of Rector of IPB Number: 234/IT3/DT/2012, about Study Program (Major) of Undergraduate Education of Bogor Agricultural University;
- Decree of Rector of IPB Number: 89/IT3/KP/2018, concerning the Assignment of the Head of the Department of Chemistry for the Period 2018-2023

1.3 OBJECTIVES OF FIELD WORK PRACTICE

1.3.1 GENERAL OBJECTIVES

Field work practice aims to provide students with work experience in order to explore the mastery of concepts, theories, methods, and / or philosophies in the field of chemistry in a systematic manner and perform work at the partner place for implementing PKL with by

using chemical concepts, theories, methods, materials, and / or instrumentation.

1.3.2 SPECIAL OBJECTIVES

For Students

- Getting to know the post-campus world early on while still being a student
- Use the knowledge and skills of chemistry that have been learned to solve problems (problem solving) in the world of work
- Gain experience working in the professional world and get to know the chemical science profession, governance, and work culture applied in the world of work
- Improve students' interpersonal skills to be committed, skilled at communicating, able to work together between professions, and contribute to solving problems in the world of work.
- Have the opportunity and opportunity to work at the PKL implementation partner place after completing their studies.

For Field Work Practice Partners

- Foster mutual cooperation and benefit the parties involved in the PKL program activities.

- Obtain solutions to problems and obstacles found in the world of work through students' knowledge and work skills during the PKL program.
- Assist in the identification of talents of prospective employees early on

For the Study Program

- Initiate cooperation opportunities between study programs and PKL program partners
- Maintain and improve existing cooperation with partners
- Obtaining feedback to be used in curriculum improvement to be in line with the needs of the world of work

1.4 SCOPE

The scope of KIM1490 Field Work Practices is work practices carried out at agencies **outside the IPB campus or the working world** in accordance with the scientific field in the IPB Chemistry Undergraduate Program, namely the field of **Chemistry**. PKL activities and / or internships **outside the field of Chemistry cannot be equalized in SKS with KIM1490**, but will be equalized with SKS Enrichment Courses with course codes from IPB, for example IPB 303 Professional Development 3 (0-3) SKS.

CHAPTER 2. CRITERIA AND REQUIREMENTS

2.1 PARTICIPANT CRITERIA

KIM1490 Field Work Practices course in the K2020 curriculum
The Chemistry Undergraduate Program can be taken by students with the following requirements:

- a. Have taken ≥ 105 credits
- b. Have a GPA ≥ 2
- c. Must attend the PKL debriefing lecture
- d. Include KIM1490 course in KRS
- e. PKL material is relevant to the field of Chemistry
- f. Have a letter of acceptance / permission from the place of PKL implementation
- g. Have a letter of permission from parents
- h. For students who have an illness that requires special treatment, they must include a doctor's certificate.

2.2 CREDIT LOAD

The credit load of KIM1490 Field Work Practice is 3 (0-3) credits.
Details of the credit load are as follows:

- a. Number of credits (minimum) for the implementation of work at the partner site,

$$\frac{2 \text{ Credit course} \times 170 \text{ minute week}^{-1} \text{ Credit course}^{-1} \times 16 \text{ week semester}^{-1}}{60 \text{ minute hour}^{-1}} = 90 \text{ jam semester}$$

b. Number of credits (maximum) preparation and evaluation

$$\frac{1 \text{ Credit course} \times 170 \text{ minute week}^{-1} \text{ Credit course}^{-1} \times 16 \text{ week semester}^{-1}}{60 \text{ week hour}^{-1}} = 45 \text{ jam semester}$$

Notes: 1 credit according to Permendikbud No.3 of 2020 is 170 minutes per week per semester, with the number of weeks per semester being 16 weeks.

2.3 IMPLEMENTATION TIME

In accordance with the K2020 Curriculum, PKL is carried out in semester 7. However, the **technical implementation of PKL activities can be carried out in other semesters** or adjusted to the time prepared by PKL partners. Confirmation of the PKL implementation time will be carried out by the Education Commission of the Bachelor of Chemistry Study Program at the end of semester 5 and no later than the beginning of semester 6. The length of implementation of KIM1490 Field Work Practice is **32-34 working days**. Details of the implementation of activities are presented in Section 2.4.

2.4 ACTIVITY DETAIL

PKL activities are divided into: (i) preparation stage, (ii) implementation stage, and (iii) evaluation, reporting, and examination stage. Details of each stage are presented as follows:

No	Stage s	Learning Hour (LH)	Credit conversion
1	Preparation/Pre-Activity		
	Search / selection of PKL places	60	0,02
	Administration	60	0,02
	Guidance/consultation	180	0,07
	PKL debriefing from Prodi	240	0,03
2	Implementation		
	PKL debriefing from partners	240	0,09
	Daily journal/activity log filling	240	0,09
	Implementation of PKL	5440	2,00
	Guidance/consultation	640	0,24
3	Search / selection of PKL places		
	Administration	800	0,29
	Guidance/consultation	180	0,07
	PKL debriefing from Prodi	240	0,09
	Total	8320	3,00

*1 Credit Course = 2720 minute

2.5 PARTNER/LOCATION CRITERIA

Requirements for partners or locations for implementing PKL activities, at least meet the following criteria:

- a. The world of business and industry (DUDI), state-owned enterprises / regionally-owned enterprises (BUMN / BUMD), government agencies, or other institutions at home and / or abroad
- b. Preferably outside the scope of IPB Campus
- c. Preferably partners whose scope of activities is in accordance with the field of Chemistry
- d. Partners are willing to accept offline PKL activities. If there is a change in implementation, then students immediately report to the Education Commission
- e. Partners already have a good administration and management system, preferably those that have implemented a quality management system or other relevant management systems.
- f. The implementation time is adjusted to the activities at the partner's place

2.6 PKL SUPERVISOR CRITERIA

- a. **PKL Supervisors from the Chemistry Undergraduate Study Program** are **Lecturers**, namely Permanent Lecturers of the Department of Chemistry (including Lecturers who have NIDK) and are determined by the Dean through an Assignment Decree. PKL Supervisor from the Chemistry Undergraduate Study Program is the **Main Supervisor** in PKL activities.
- b. **PKL Supervisors from Partners** are permanent employees at partner sites with a minimum of S1 education who are assigned to accompany students during PKL activities at partner sites. PKL Supervisors from Partners are **Member Supervisors** in PKL activities.

2.7 SCOPE OF PKL ACTIVITIES

The scope of PKL activities includes at least one of the following fields of science:

- Organic Chemistry
- Inorganic Chemistry
- Analytical Chemistry
- Physical Chemistry
- Organic Chemistry Synthesis
- Inorganic Chemistry Synthesis
- Natural Materials Chemistry
- Environmental Chemistry
- Polymer Chemistry
- Surface Chemistry
- Materials Chemistry and Biomaterials
- Chemical Toxicology

- Engineering and Analysis Biomolecules
- Energy and Energy Renewable
- Medicinal and Cosmetic Chemistry
- Food Chemistry
- Forensic Chemistry
- Biological Materials Analysis
- Membrane Chemistry
- Catalyst Chemistry
- Sensors and Biosensors
- Biological Chemistry
- Separation Engineering
- Other scopes relevant to the field of Chemistry

CHAPTER 3. MECHANISM AND PROCEDURE

3.1 PREPARATION

Things that need to be done before the PKL activity is carried out are :

- a. Students search for PKL locations independently.
- b. Students are required to communicate with the supervisor in choosing and determining the location of the PKL. At this stage of preparation, mentoring consultations are carried out at least 1 (one) time and must bring a guidance card when conducting mentoring consultations.
- c. Students submit a PKL application letter to be submitted to partners through the Education Commission of the Chemistry Undergraduate Study Program. Application letters can be made collectively for 1 (one) partner place.
- d. In 1 (one) PKL location, a maximum of 4 (four) students can participate. students.
- e. The Education Commission of the Chemistry Undergraduate Study Program makes a recap of PKL places and supervisors.
- f. The Head of the Department of Chemistry makes a Decree on the Assignment of Lecturers PKL Supervisor.

- g. The Education Commission prepares PKL debriefing lectures before students carry out PKL activities at partner sites.

3.2 IMPLEMENTATION

Things that must be done in the implementation of PKL activities are

- a. Students must maintain the good name of the Department of Chemistry FMIPA IPB
- b. Students must comply with all rules and regulations that apply at the partner place.
- c. Students begin the implementation of PKL by bringing a PKL acceptance letter at the partner's place.
- d. Students communicate with PKL Supervisors from partners and submit Biodata Forms to be filled in by PKL Supervisors from partners. The filled form is then submitted back to the Education Commission of the Chemistry Undergraduate Study Program to be stored and archived.
- e. Students get PKL debriefing material by Partners
- f. Students are required to write activities in a daily journal or form/log of activities during the implementation of PKL activities. If necessary, daily journals or activity forms / logs are equipped with documentation of activities.
- g. At the implementation stage, mentoring consultations are carried out at least 3 (three) times for each Main Supervisor and Member Supervisor. Every time consulting with the supervisor,

students are required to show a daily journal / activity log and bring a guidance card.

3.3 EVALUATION, REPORTING, AND EXAMINATIONS

Things that need to be done at the evaluation, reporting, and examination stages of PKL activities are

- a. After the PKL is completed, students are required to report back and submit an assessment sheet from the PKL supervisor from the partner to the Education Commission of the Chemistry Undergraduate Study Program no later than 1 (one) week after completing the PKL activity.
- b. Students are required to consult with their supervisors when compiling PKL reports. Guidance activities at this stage are carried out at least 3 (three) times for each Main Supervisor and Member Supervisor. Every consultation must carry a guidance card.
- c. The PKL report is prepared using a writing system that refers to the PPKI book. Report writing and examination materials will be delivered at the PKL debriefing lecture.
- d. The exam is carried out in the form of a poster presentation which is carried out no later than 2 (two) months from the end of the PKL activity.

- e. If after the exam there are improvements in the PKL Report, then the follow-up improvement is no later than 1 (one) month from the exam.
- f. The final PKL report is submitted back to the Education Commission as many as 3 (three) copies no later than 1 (one) week before the final exam in the current semester. The PKL report is bound in a white laminated hardcover.
- g. Sanctions will be given if there is negligence in fulfilling the PKL management regulations.

3.4 PKL EXAM REQUIREMENTS

The PKL exam can be conducted if the following requirements are met:

- a. All administration related to the PKL is complete, such as the PKL supervisor's biodata, assessment, proof copy of the guidance card.
- b. Submit 2 (two) copies of the PKL Report that have been authorized by the Main Supervisor and Member Supervisor. The PKL report used for the PKL exam is usually bound. The front is colorless plastic and the back is blue cardboard.
- c. PKL exam registration is carried out no later than 1 (one) week before the exam.
- d. Students submit PKL exam invitations and PKL Reports to the Principal Supervisor and Examiners no later than H-2 before the exam.

- e. At the time of the exam, students must dress neatly and wear an alma mater suit. Students stand next to the poster place that has been prepared during the exam time.

3.5 TIME AND PLACE OF THE PKL EXAM

The PKL examination is carried out in the form of a poster presentation which is carried out for 1 (one) day, starting from 08.00-16.00WIB. The venue for the PKL exam is at the Darmaga Campus of IPB. The poster exam is open and can be attended by all IPB academicians.

3.6 PKL ASSESSMENT

The assessment components for PKL activities are

- a. Report grade from the Main Supervisor (30%)
- b. Value of work from Member Supervisors (40%)
- c. Poster test score from the Main Supervisor (15%)
- d. Poster test score from the Examiner (15%)

The range of values is

- $A \geq 80,0$
- $75,0 \leq AB < 80,0$
- $70,0 \leq B < 75,0$
- $65,0 \leq BC < 70,0$
- $60,0 \leq C < 65,0$
- $D < 60,0$
- E if one or more components of the grade (work, report, and exam) are incomplete