



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY EDUCATION
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Bachelor of Education in Chemistry

MODULE HANDBOOK

Module name:	Research Methodology for Chemistry Education
Module level, if applicable:	Undergraduate
Code:	MPK6310
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	6 th
Module coordinator:	Dr. Das Salirawati, M.Si
Lecturer(s):	Dr. Antuni Wiyarsi, M.Sc ; Dra. Lis Permanasari, M.Si.; Sukisman Purtadi, S.Pd.M.Pd.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	150 minutes lectures, 180 minutes individual study, and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes individual study per week for 16 weeks.
Credit points:	3 SKS (4.92 ETCS)
Prerequisites course(s):	Chemistry Learning Assessment
Course Outcome:	After taking this course, the students are expected to be able to: CO1. Analyze the problems of chemical learning and determine problem solving as an attitude to the knowledge they have which can be used as material for the study of making thesis final research proposals CO2. Explain the importance of research in the field of chemical education, describe the principles of scientific research methods, identify problems related to chemical learning, arrange the theoretical framework and research hypothesis, determine the variables and research design, determine the subject and object of research, or population, sample and sampling technique, compile chemical education research instruments, both questions and non-questions including questionnaires, observation sheets, interviews, questionnaires, Apply the right formula to test the validity and reliability of research instruments, apply an appropriate data analysis techniques for examples of chemical education research, and explain the important substance in the framework of a proposal and systematic writing. CO3. Prepare a chemistry education research proposal that is feasible and can continue to be a Thesis Project. CO4. Identify chemical learning problems and choose alternative

	solutions and submit them as topics for chemical education research																								
Content:	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. Course descriptions include: (1) Introduction: Chemical Education as a Field of Science, Problems in Chemical Education, Objectives and Benefits of Chemical Education Research. (2) Scientific Research Methods, (3) Chemical Education Research Design: Problem Formulation, Theoretical Framework, Variables and Research Design, Population, Samples, and Sampling Techniques, Research Instruments, Data Collection and Analysis Techniques, (4) Types of Research Chemical Education: Descriptive Research, Experimental Research, Development Research, and Classroom Action Research, (5) New trends in Chemistry Education Research.																								
Study / exam achievements:	<p>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude. The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1</td> <td rowspan="4">CO1, CO2, CO3.</td> <td>Assignments</td> <td>Written task</td> <td>15%</td> </tr> <tr> <td>Midterm</td> <td>Written task</td> <td>15%</td> </tr> <tr> <td>Participation</td> <td></td> <td>10%</td> </tr> <tr> <td>Proposal Writing</td> <td></td> <td>60%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3.	Assignments	Written task	15%	Midterm	Written task	15%	Participation		10%	Proposal Writing		60%	Total				100%
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		Midterm	Written task	15%																					
		Participation		10%																					
		Proposal Writing		60%																					
Total				100%																					
Forms of media:	Board, LCD Projector, Laptop/Computer																								
References:	<ol style="list-style-type: none"> Creswell. J.W. 2008. Educational Research (3th ed). New Jersey: Pearson Prentice Hall. Creswell, J.W. & Clark, P.V.L. 2007. Designing and Conducting Mixed Methods Research. California: Sage Publication, Inc. Tomal, D.R. 2010. <i>Action Research for Educators</i>. Maryland: Rowman & Littlefield Education. Richter, O.Z., Kerres, M., Bedenlier, S., Bond, M., Buntins, K. 2020. Systematic Reviews in Educational Research. Wesbiden: Springer. Gay, L. R., Mills, G.E., Airasian, P. 2012. Educational Research. New Jersey: Pearson Education Cooper, K. & White, R.E. 2011. Qualitative Research in the Post-Modern Era. New York: Springer <p>Suggested Reading</p>																								

Supported Journal Articles.

PLO and CO mapping

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CO1			√			
CO2				√		
CO3					√	
CO4						√