



<b>Short Course Description</b>	Training develops scientific reasoning power through library/school/field studies regarding chemistry education topics, searching, systematizing, then writing them in the form of papers and presenting them orally and conducting research based on scientific studies to solve chemistry education problems.						
<b>References</b>	<b>Main :</b>						
	<ol style="list-style-type: none"> <li>1. Tim (2006). Panduan Penulisan dan Penilaian Skripsi. Surabaya: Unesa University Press.</li> <li>2. Tim. (2011). Panduan Penulisan Proposal dan Skripsi Program Studi Pendidikan Kimia. Surabaya: Unesa University Press.</li> </ol>						
	<b>Supporters:</b>						
	<ol style="list-style-type: none"> <li>1. Jurnal ilmiah terkait</li> </ol>						
<b>Supporting lecturer</b>	Prof. Dr. Utiya Azizah, M.Pd.						
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>		
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>
1	Understand the techniques for preparing a scientific work	<ol style="list-style-type: none"> <li>1.Explain the meaning of scientific work</li> <li>2.Explain the components of scientific work</li> </ol>	<b>Criteria:</b> assignments and participation  <b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment	discussion and question and answer 6 X 50		<b>Material:</b> Techniques for preparing scientific work  <b>Reference:</b> <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i>  <b>Material:</b> Techniques for preparing scientific work  <b>Reader:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i>  <b>Material:</b> Related scientific journals  <b>Library:</b> Related scientific journals	5%

2	Able to search library materials and present them in the form of a thesis proposal	<ol style="list-style-type: none"> <li>1. Able to compile the background of the problem</li> <li>2. Able to formulate problem formulations</li> <li>3. Able to formulate research objectives</li> <li>4. Able to formulate the benefits of research</li> <li>5. Able to compile operational definitions</li> <li>6. Able to formulate research assumptions and limitations</li> <li>7. Able to develop research methods</li> <li>8. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Forms of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance</p>	Presentation and discussion 6 X 50		<p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal <b>Reader</b> : <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal. <b>Reader:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i></p>	5%
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3	Able to search library materials and present them in the form of a thesis proposal	<ol style="list-style-type: none"> <li>1. Able to compile the background of the problem</li> <li>2. Able to formulate problem formulations</li> <li>3. Able to formulate research objectives</li> <li>4. Able to formulate the benefits of research</li> <li>5. Able to compile operational definitions</li> <li>6. Able to formulate research assumptions and limitations</li> <li>7. Able to develop research methods</li> <li>8. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Forms of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance</p>	Presentation and discussion 6 X 50		<p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal <b>Reader</b> : <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal. <b>Reader:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i></p>	5%
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4	Able to search library materials and present them in the form of a thesis proposal	<ol style="list-style-type: none"> <li>1. Able to compile the background of the problem</li> <li>2. Able to formulate problem formulations</li> <li>3. Able to formulate research objectives</li> <li>4. Able to formulate the benefits of research</li> <li>5. Able to compile operational definitions</li> <li>6. Able to formulate research assumptions and limitations</li> <li>7. Able to develop research methods</li> <li>8. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Forms of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance</p>	Presentation and discussion 6 X 50		<p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal <b>Reader</b> : <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal. <b>Reader:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i></p>	5%
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5	Able to search library materials and present them in the form of a thesis proposal	<ol style="list-style-type: none"> <li>1. Able to compile the background of the problem</li> <li>2. Able to formulate problem formulations</li> <li>3. Able to formulate research objectives</li> <li>4. Able to formulate the benefits of research</li> <li>5. Able to compile operational definitions</li> <li>6. Able to formulate research assumptions and limitations</li> <li>7. Able to develop research methods</li> <li>8. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Forms of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance</p>	Presentation and discussion 6 X 50		<p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal <b>Reader</b> : <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal. <b>Reader:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i></p>	10%
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6	Able to search library materials and present them in the form of a thesis proposal	<ol style="list-style-type: none"> <li>1. Able to compile the background of the problem</li> <li>2. Able to formulate problem formulations</li> <li>3. Able to formulate research objectives</li> <li>4. Able to formulate the benefits of research</li> <li>5. Able to compile operational definitions</li> <li>6. Able to formulate research assumptions and limitations</li> <li>7. Able to develop research methods</li> <li>8. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Forms of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance</p>	Presentation and discussion 6 X 50		<p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal <b>Reader</b> : <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal. <b>Reader:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i></p> <hr/> <p><b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i></p>	10%
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7	Able to search library materials and present them in the form of a thesis proposal	<ol style="list-style-type: none"> <li>1. Able to compile the background of the problem</li> <li>2. Able to formulate problem formulations</li> <li>3. Able to formulate research objectives</li> <li>4. Able to formulate the benefits of research</li> <li>5. Able to compile operational definitions</li> <li>6. Able to formulate research assumptions and limitations</li> <li>7. Able to develop research methods</li> <li>8. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance</p>	Presentation and discussion 6 X 50		<p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal <b>Reader :</b> Team (2006). <i>Thesis Writing and Grading Guide</i>. Surabaya: Unesa University Press.</p> <p><b>Material:</b> Techniques for searching library materials and preparing a thesis proposal. <b>Reader:</b> Team. (2011). <i>Guide to Writing Proposals and Theses for the Chemistry Education Study Program</i>. Surabaya: Unesa University Press.</p> <p><b>Material:</b> Related scientific journals <b>Library:</b> Related scientific journals</p>	10%
8	be accountable for the proposal prepared before the proposal examiner	<ol style="list-style-type: none"> <li>1. Present the thesis proposal smoothly</li> <li>2. Answer the proposal examiner's questions correctly</li> <li>3. Able to compile a bibliography</li> </ol>	<p><b>Criteria:</b> assignments and participation</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation and questions and answers 6 X 50			10%
9	carry out research based on the proposal that has been prepared		<p><b>Form of Assessment :</b> Practice / Performance</p>	6 X 50		<p><b>Material:</b> Related scientific journals <b>Library:</b> Related scientific journals</p>	5%
10	carry out research based on the proposal that has been prepared		<p><b>Form of Assessment :</b> Practice / Performance</p>	6 X 50		<p><b>Material:</b> Related scientific journals <b>Library:</b> Related scientific journals</p>	5%



11	carry out research based on the proposal that has been prepared		<b>Form of Assessment :</b> Practice / Performance	6 X 50		<b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i>	5%
12	carry out research based on the proposal that has been prepared		<b>Form of Assessment :</b> Practice / Performance	6 X 50		<b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i>	5%
13	carry out research based on the proposal that has been prepared		<b>Form of Assessment :</b> Participatory Activities, Practice/Performance	6 X 50		<b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i>	5%
14	compose a thesis based on research results		<b>Form of Assessment :</b> Practice / Performance	6 X 50		<p><b>Material:</b> thesis writing <b>Reference:</b> <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i></p> <p>-----</p> <p><b>Material:</b> thesis writing <b>Reference:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i></p> <p>-----</p> <p><b>Material:</b> Related scientific journals <b>Library:</b> <i>Related scientific journals</i></p>	5%

15	compose a thesis based on research results		<b>Form of Assessment :</b> Participatory Activities, Practice/Performance	6 X 50		<b>Material:</b> thesis writing <b>Reference:</b> <i>Team (2006). Thesis Writing and Grading Guide. Surabaya: Unesa University Press.</i> <hr/> <b>Material:</b> thesis writing <b>Reference:</b> <i>Team. (2011). Guide to Writing Proposals and Theses for the Chemistry Education Study Program. Surabaya: Unesa University Press.</i> <hr/> <b>Material:</b> Related scientific journals <b>Library:</b> Related scientific journals	5%
16	1.present the results of the thesis in front of the examiners 2.defend the thesis in front of the examiner	1.present the results of the thesis well and correctly 2.answer the examiner's questions	<b>Criteria:</b> thesis exam scores  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	presentation and question and answer 6 X 50			5%

#### Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	27.5%
2.	Project Results Assessment / Product Assessment	27.5%
3.	Practice / Performance	45%
		100%

#### Notes

- Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- Indicators for assessing** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities or performance of student learning outcomes accompanied by evidence.
- Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- Forms of assessment:** test and non-test.
- Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.

9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.