

### Research Method for Education

Module Name :	Research Method for Education	
Module Level :	Undergraduate	
Code :	32151283	
Sub-heading, if applicable :		
Classes, if applicable :		
Semester :	6 <sup>th</sup>	
Module coordinator :	Dr. Firmanul Catur Wibowo, M.Pd	
Lecturer(s) :	Dr. Firmanul Catur Wibowo, M.Pd Dwi Susanti, M.Pd	
Language :	Indonesian	
Classification within the curriculum :	Compulsory course	
Type of Teaching	Contact hours per week during the semester	Class Size
Lecture (Expository, discussion, exercise)	150 minutes	40
Workload	Total workload of this course 136 hours (4.5 ECTS) per semester which consist of 40 hours (1.32 ECTS) classroom activity, 48 hours (1.59 ECTS) structured task, and 48 hours (1.59 ECTS) per semester.	
Credit points :	4,5 ECTS	
Prerequisite course(s) :	-	
Course Outcomes :	After taking this course the student have ability to :  CLO1. Understanding instruments in learning CLO2. Designing learning instruments	

	CLO3. Applying appropriate instruments in learning
Content :	<ol style="list-style-type: none"> <li>1. Education research Physics <ul style="list-style-type: none"> <li>● Definition of educational research</li> <li>● Purpose and meaning of conducting research</li> <li>● Scope of research study to solve Physics education problems</li> <li>● Physics education research problems</li> </ul> </li> <li>2. Trends and scope of education research physics <ul style="list-style-type: none"> <li>● Analyzed 20 international journal articles of the last 5 years related to physics education, the articles different research methods</li> <li>● How to find thesis research ideas</li> </ul> </li> <li>3. Types of research education <ul style="list-style-type: none"> <li>● R&amp;D research</li> <li>● Quantitative Research</li> <li>● Qualitative Research</li> <li>● Mixed Research</li> <li>● Classroom Action Research</li> <li>● experimental and quasi-experimental research</li> </ul> </li> <li>4. Preparation of planning Educational research <ul style="list-style-type: none"> <li>● Research framework: background of the problem, formulation and research questions, research objectives, research benefits research, and research variables</li> <li>● Developing literature review, citation writing and literature search</li> <li>● Operationalizing the research, designing the research and methodology selection, developing a research design research planning and how to manage research planning</li> <li>● Communicating research results and drawing conclusions, suggestions and implications</li> </ul> </li> <li>5. Data collection techniques data collection and data analysis techniques data analysis techniques, hypothesis testing <ul style="list-style-type: none"> <li>● Sampling techniques for research quantitative research</li> <li>● Techniques for selecting research participants/subjects for qualitative research</li> <li>● Data collection and data analysis techniques, mean, Standard deviation</li> </ul> </li> </ol>

	<ul style="list-style-type: none"> <li>● Hypothesis testing techniques, chisquare test, t test, z test and f test</li> </ul> <p>6. Compilation Research instruments</p> <ul style="list-style-type: none"> <li>● Techniques for preparing test instruments (learning outcomes, Hots)</li> <li>● Non-test instrument preparation techniques (Questionnaires, Interview, Observation)</li> </ul> <p>7. Validity and reliability</p> <ul style="list-style-type: none"> <li>● Definition and how to measure Validity of test instruments RnD, quantitative, qualitative and mixed methods research</li> <li>● Understanding and how to measure reliability in RnD, quantitative, qualitative and mixed researchD</li> </ul> <p>8. Writing technique reference and bibliography bibliography, as well as proposal rules Thesis</p> <ul style="list-style-type: none"> <li>● Reference and bibliography writing techniques</li> <li>● Rules in writing a thesis report thesis research report</li> <li>● Plagiarism</li> <li>● Research ethics: licensing, data collection and reporting reporting</li> <li>● Thesis Proposal Writing Rules</li> </ul> <p>9. Free study Thesis Proposal Writing Thesis</p> <ul style="list-style-type: none"> <li>● Design and demonstrate independent learning by communicating its criticality in knowledge in the form of product presentation thesis proposal design that has been developed</li> </ul>																				
Study/exam achievements:	<p>Examination are conducted as unit test, as following</p> <table border="1" data-bbox="548 1339 1380 1843"> <thead> <tr> <th>No</th> <th>Assesment Object</th> <th>Assesment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Case Based Learning %</td> <td>Project Assessment (for group project assessment)</td> <td>55%</td> </tr> <tr> <td>2</td> <td>Mid-semester exam (UTS)</td> <td>Written test</td> <td>15%</td> </tr> <tr> <td>3</td> <td>Final semester exam</td> <td>Written test</td> <td>15%</td> </tr> <tr> <td>4</td> <td>Paper presentation 20%</td> <td>Presentation</td> <td>20%</td> </tr> </tbody> </table>	No	Assesment Object	Assesment Technique	Weight	1	Case Based Learning %	Project Assessment (for group project assessment)	55%	2	Mid-semester exam (UTS)	Written test	15%	3	Final semester exam	Written test	15%	4	Paper presentation 20%	Presentation	20%
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Media :	Projector, VOSviewer, Computer/leptop, LMS <a href="https://epsilon.smart-unj.id/">https://epsilon.smart-unj.id/</a> , Zoom/Microsoft teams/google meet
Literatures :	<ol style="list-style-type: none"> <li>1. . Cohen, L., Manion, L., &amp; Morrison, K. (2018). Research methods in education. London, UK: Routledge.</li> <li>2. Creswell, J. W., &amp; Plano Clark, V. L. (2018). Designing and conducting mixed methods research (2nd ed.). Los Angeles, LA: Sage.</li> <li>3. Denzin, N. K., &amp; Lincoln, Y. S. (Eds.). (2017). The Sage handbook of qualitative research (4th ed.). Los Angeles, LA: Sage.</li> <li>4. John W. Creswell. (2012). Educational Research_ Planning, Conducting, and Evaluating Quantitative and Qualitative Research, 4th Edition -Addison Wesley 13</li> <li>5. Buku Pedoman Penyusunan Skripsi &amp; Disertasi. Jakarta: Universitas Negeri Jakarta.</li> <li>6. Wibowo, F. C. et al. (2021). Effectiveness of Virtual Physics Laboratory (VPL) with Dry Cell Microscopic Simulation (DCMS) to Promote of Inquiry Activity about the Battery J. Phys.: Conf. Ser.1772 012006, 1-6.</li> <li>7. Wibowo, F.C.; Suhandi, A.; Rusdiana, D.; Samsudin, A.; Darman, D.R.; Faizin, M.N.; Wiyanto; Supriyatman; Permanasari, A.; Kaniawati, I.; Setiawan, W.; Karyanto Y.; Linuwih, S.; Fatah, A.; Subali, B.; Hasani, A.; and Hidayat, S. (2017). Effectiveness of Dry Cell Microscopic Simulation (DCMS) to Promote Conceptual Understanding about Battery. Journal of Physics:Conference Series 877(1), 012009. pp. 1-6</li> <li>8. Wibowo, et al., Development of the Innovative Smart Orbital (ISO) Mediumto ImprovetheCognitive Skills on the Heat TransferConcept. International Journal of Learning, Teaching and Educational Research, 19 (5), pp. 141-152</li> </ol>