MODUL HANDBOOK
PHILOSOPHY OF SCIENCE AND RESEARCH METHODOLOGY

MASTER PROGRAM OF ENVIRONMENTAL SCIENCE
SCHOOL OF POST GRADUATED STUDIES
DIPONEGORO UNIVERSITY

Module Description:

Module designation	Philosophy of Science and Research Methodology
Semester(s) in which the module is taught	1st semester
Person responsible for the module	Prof. Drs. Sudharto Prawata Hadi, MES, Ph.D. Prof. Dr. Hadiyanto, S.T., M.Sc. Prof. Dr. rer. Nat. Heru Susanto, S.T., M.M., M.T.
Language	Indonesian and English
Relation to curriculum	Compulsory
Teaching methods	Mix Method or Blended Learning by incorporating Lecture based-learning, Individual learning and High Technological learning • Lecture based learning: teacher lead a lesson by using presenting on, showing visual • Student Centred-learning: teacher promote individual learning so that student can exploring individual idea • High technological learning, teacher leads to use high technology in information such as by exploring, utilizing internet/searching engine and social media.
Workload (incl. contact hours, self-study hours)	• Lecture, 3 hours per week • Discussion and presentation (Q&A), 1.5 hours per week • Individual assignment, 5 hours per week • Total workload for semester = 150 hours
Credit points	3 Credits / 6 ECTS
Required and recommended prerequisites for joining the module	No required prerequisite
Module objectives/intended learning outcomes	• Able to formulate and carry out scientific research to solve environmental problems • Able to formulate methods to solve environmental issue and published in international journals or proceedings of reputable seminars

Content	The Philosophy of Science and Research Methodology course discusses about position of knowledge, habits, beliefs of a person or group of people in science, science as a source of knowledge, scientific method, scientific results, scientific attitudes, sources of truth and limitations of knowledge, as well as the role of science and technology in the development of human civilization. This course trains students to think logically, critically, comprehensively, and contemplatively so that they can understand the interrelationships of various sources of knowledge in the past with the present and the future in the development of science and technology which is based on the integration of axiological and ontology in constructing of scientific products.
Examination forms	• Open book or clossed book • Assays, • Individual and group task
Study and examination requirements	Lecture attendance at least 75%.
Reading list	1. Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications. 2. Pruzan, Peter. 2016. Research Methodology Objectives, Practice and Ethics of Science. Switzerland: Springer Cham. 3. Ruth, M. (Ed.). (2015). Handbook of research methods and applications in environmental studies. Edward Elgar Publishing. 4. Novikov, AM, & Novikov, DA 2013. Research Methodology: From Philosophy of Science to Research Design (1sted.). CRC Press 5. Noeng Muhajir. 2011. Philosophy of Science: ontology, epistemology, axiology. Yogyakarta: Rake Sarasin. 6. Abbott, M. L., & McKinney, J. (2013). Understanding and applying research design. John Wiley & Sons. 7. Aurel Edelstein and Dagmar Bar, 2009, Handbook of Environmental Research