Module Handbook:

**Course Structure and Curriculum
for Doctoral Program of Environmental Science
By Research Pathway – 2020 Curricula**

School of Postgraduate Studies
Diponegoro University

2022

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at the School of Postgraduate Studies, Diponegoro University

2020

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1. Introduction

1.1. About the study program

Carry out development that does not damage the environment and concern about the next generation have actually mandated by the State Policy Guidelines Republic of Indonesia in 1973. However, at implementation level, the implementation of development is a more focused aspect on economic growth and ignore the environmental as well as social aspects. This resulted in the depletion of natural resources, biodiversity, increasing pollution and environmental damage that trigger the environmental disasters such as floods, landslides and drought. Meanwhile, the various effects caused by global warming and climate change threat human life. In the era of globalization, free trade and regional autonomy, environmental aspects become central issues, in addition to the issue of depletion of energy reserves and declining water quality and quantity.

To respond the above issues, education that is able to instil knowledge, ethics and discovered a new theory in environmental management is necessary. Doctoral Program of Environmental Science (PDIL) Undip stands with license letter from Director General of Higher Education. 2782/D/T/2008 and pioneered by the Manager and Lecturer of Master Program of Environmental Science Diponegoro University, is facilitated to achieve that goal. Doctoral Program of Environmental Science establishment is in line with the vision towards the Research University.

1.2. Accreditation

Doctoral program of Environmental Science had been accredited by Badan Akreditasi Nasional Perguruan Tinggi (National Accreditation Board for Higher Education) of Republic of Indonesia, ISO, and still in processed by ASIIN.

1.3. Key member of staff

Doctoral program

2. Tittle, affiliation, and language

2.1. Title

Doctoral program of Environmental Science leads to a Doctor in Environmental Science with the Indonesian title: Dr (*Doctor*).

2.2. Affiliation

Since 2006, this program becomes member of SEE (Sustainable Energy and Environment) Forum. SEE Forum is Asia Pacific Academic and Science and Technological Forum that brings forward dialogue on global climate and energy security issues.

2.3. Language

The programme is conducted in Indonesian, but could also provide English-based learning, projects, theses, and etc by the request from international students.

3. Academic profile

3.1. Objective

The graduates of Doctoral Program of Environmental Science are expected to have capabilities in: (a) developing concept of science and technology in the field of environmental through research; (b) managing, leading, and developing a research program; (c) developing professional performance with interdisciplinary approach.

3.2. General structure of the programme

Doctoral Program of Environmental Science is set at 50 credits (Sistem Kredit Semester/SKS) or equivalent to 180 ECTS.

The Doctoral Program consists of the following elements:
- Matriculation courses (No Credits)
- Compulsory courses (Credits: 50 SKS/ 180 ECTS), including the Dissertation, research supervisory courses, and examination

The Doctoral Program in Environmental Science set the maximum study period is seven years or fourteen semesters, whereas the student could be dropped out.

3.3. Career opportunities

The Doctoral program of Environmental Science qualifies students to become professionals within business, management, and research functions and/or areas such as:

- Academia as a Lecturer within universities
- Researcher in any research institutions, varying from government's research body to the think tank institution
- As a leading innovator and researcher in industries in improving environmentally sustainable product processes, promoting circular business, improving waste management, developing breakthrough solution and remediation technologies in achieving better environmental condition
- As a consultant and/or advisor in national or international level with strong basis in environmental management and environmental protection
- Public administration in municipalities working in environmental monitoring, assessment, and protecting local's region from any environmentally unsustainable land utilization
- Policy maker and advocate working in policy assessment and development in promoting the value of sustainable development within the government (national and local), private organization, or international NGOs.

4. Description of learning outcome

The learning outcome from the academic structure in Doctoral Program of Environmental Science through By Research pathway are as follows:

- Able to analyze, develop and apply the conceptual and theoretical thinking of environmental science in various environmental research.
- Able to parse theoretical abstractions in environmental science and its application through mastery of environmental management concepts along with rules and policies.
- Able to carry out stages in the environmental research process through problem identification, risk analysis, management concept, alternative solution, data analysis, conclusion and recommendation that are functional and efficient.
- Able to demonstrate scientific attitude and think critically in carrying out duties professionally through appreciation of religion, culture, humanity, morals and ethics.

5. Admission requirements

5.1. Education Requirements
Doctoral Program on Environmental studies is a multi-entry program. Entering the program, candidates should have graduated in any disciplines with:
- Holding a master's degree from any disciplines
- Prior degree must be gained from B accredited universities (overseas graduates, diplomas must be equalized by the Directorate General of Higher Education)
- Minimum GPA of 3.00/4.00
- Have working experiences in environment-related field would be a plus

5.2. Language requirements
There are no minimum language requirements to enrol to this program.

5.3. Supplementary document requirements
Prospective students must prepare the following documents:

- Academic recommendation from Professor/Doctor (min. 2)
- Letter of guarantee for tuition fees
- Synopsis of research proposals max. 5 pages

5.4. Admission batch
Prospective students could enrol into two batch of admission per year. The first batch is for the prospective student who is preferring to enrol in the Odd Semester (July), whilst the second batch is for those who prefer to start their academic journey in the Even Semester (February).

5.5. Admission system
Detailed admission schedule, timeline, and submission system could be accessed through Diponegoro University's admission website.

- For national prospective students: https://pmb.undip.ac.id/
- For international prospective students: https://pmb.undip.ac.id/international/graduate-program/

5.6. Tuition fee

Prospective students are required to pay the tuition fee which shall be paid early at every semester. The amount might be differed from year to year. For the updated information, prospective students could access the information through this link: http://dil.pasca.undip.ac.id/tuition-fee-2/.

5.7. Scholarship

Diponegoro University provides a Master to Doctorate scholarship program which open every year. The updated information could be accessed through Institute for Research and Community Services's website. The opening for the 2020 batch information could be accessed through this link: https://lppm.undip.ac.id/2020/01/13/pengumuman-penerima-program-pendidikan-magister-doktor-menuju-sarjana-unggul-universitas-diponegoro-pmdsu-undip-tahun-2020/

6. Graduation requirements

To be qualified to be honoured the Doctoral Degree from Doctoral Program of Environmental Science, students must be fulfilled the publication and language requirements.

6.1. Publication requirements

Complying with the Indonesian Government regulation, the students must be able to publish at least three publications before being qualified to be promoted as a Doctor in Environmental Science, with the detail as follows:

- One academic article published as a conference proceeding from an international conference
- One academic article published in a national reputable journal
- One academic article published in an international reputable journal

6.2. Language for graduation requirements

To be able to graduate, students must be able to achieve language proficiency test with a minimum score of 500 for TOEFL ITP test or equivalent to 5.5 for IELTS test.

Structure of the programme

6.3. Matriculation

Due to various background of new students, it is required to have matriculation knowledge to give basic understanding of environment. Thus, Doctoral Program of Environmental Science is offering the Matriculation Course in the beginning of the semester. The subjects that would be taught in this course are as follows:

No	Code	Courses	Credits	
			SKS	ECTS
1	-	Basic Understanding of Ecology	NC	NC
2	-	Human Ecology	NC	NC
3	-	Industrial Ecology	NC	NC
4	-	Spatial and Environmental Dimensions	NC	NC
5	-	Dimensions of Pollution and Environmental Damage	NC	NC
		Total	NC: No Credits	

6.4. Compulsory courses

By Research pathway in the Doctoral Program of Environmental Science offers compulsory courses as follows:

No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9134	Proposal Writing	3	15
2	PCIL 9135	Research 1	3	18
3	PCIL 9273	Research 2	7	30
4	PCIL 9343	Research 3	4	18
5	PCIL 9331	Scientific Publications 1	3	9
6	PCIL 9443	Research 4	4	18
7	PCIL 9474	Scientific Publications 2	7	15
8	PCIL 9571	Scientific Publications 3	7	15
9	PCIL 9532	Seminar of Dissertation Research Result	3	15
10	PCIL 9631	Eligibility Exam	3	15
11	PCIL 9662	Dissertation Defence	6	12
		Total	50	180

Structure of the programme

The detail of each course would be described in the following sub sections:

6.4.1. Proposal Writing

Module designation	Proposal Writing
Module level, if applicable	-
Code, if applicable	PCIL 9134
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	1st Semester
Person responsible for the module	Principal Supervisor
Lecturer	Principal Supervisor and Co-Supervisor
Language	Indonesian and English
Relation to curriculum	Compulsory
Type of teaching, contact hours	• Discussion with Principal Supervisor (16 hours, 1 weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hour weekly for 16 weeks) • Independent work on reading materials and literature review (144 hours, 4 hours weekly for 16 weeks) • Independent work on writing proposal draft (160 hours, 6.5 hours weekly for 16 weeks) • Writing progress report (39 hours, 2.4375 hours weekly for 16 weeks) Total hours in 1 semester = 375 hours
Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (1.07 hours) • Face-to-face discussion with Co-Supervisor (1.07 hours) • Independent work (reading books, materials, papers, literature review, etc.: 9.6 hours) • Writing proposal draft (introduction, research method, research framework, data analysis techniques, etc.: 10.67 hours) • Writing progress report (improvement, evaluation, constraints, etc.: 2.6 hours) Total workload for one ECTS = 25 hours
Laboratory work	This course requires no laboratory work
Credit points	3 SKS which equivalent to 15 ECTS
Requirements according to the examination	The principal supervisor and co-supervisor have been approved the research proposal

regulations	
Recommended prerequisites	The students have taken and passed the philosophy of science and research methodology course
Module objectives/ intendedlearning outcomes	• Able to compose a complete research proposal in accordance with thesis guidelines • Able to present a thesis proposal in the form of a seminar
Content	• Mentoring about literature study, research topic selection, and research title • Discussion and mentoring about research background, research questions, and research objectives. • Discussion about state of the art and novelty • Discussion and mentoring about research design, research framework, and research methods.
Reading Materials	Agus Salim. (2006). Teori dan paradigma penelitian sosial. Yogyakarta: Tiara Wacana. Bloomberg, L. D., & Volpe, M. (2018). Completing your qualitative dissertation: A road map from beginning to end. Joyner, R. L., Rouse, W. A., & Glatthorn, A. A. (2018). Writing the winning thesis or dissertation: A step-by-step guide. Corwin press. Perry, J. A., Zambo, D., & Crow, R. (2020). The improvement science dissertation in practice: A guide for faculty, committee members, and their students. Myers Education Press. Sugiyono. (2007). Metode penelitian pendidikan: pendekatan kuantitatif, kualitatif, dan R & D. Bandung: ALFABETA

6.4.2. Research 1

Module designation	Research 1
Module level, if applicable	-
Code, if applicable	PCIL 9135
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	1st Semester
Person responsible for the module	Head of Study Program
Lecturer	Principal Supervisor and Co-Supervisor
Language	Indonesian and English
Relation to curriculum	Compulsory
Type of teaching, contact hours	• Discussion with Principal Supervisor (32 hours, 2 weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 weekly for 16 weeks) • Independent work on reading materials and literature review (128 hours, 8 hours weekly for 16 weeks) • Developing research proposal (128 hours, 8 hours weekly for 16 weeks) • Preparing progress report (16 hours, 1 hour weekly for 16 weeks) • Preparing presentation materials (16 hours, 1 hour weekly for 16 weeks) • Preparing manuscript and conference (20.8 hours, 1.3 hours weekly for 16 weeks) Total hours in 1 semester = 373 hours
Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (1.78 hours) • Face-to-face discussion with Co-Supervisor (1.78 hours) • Independent work (reading books, materials, papers, literature review, etc.: 7.11 hours) • Developing proposal draft (introduction, research method, research framework, data analysis techniques, etc.: 7.11 hours) • Preparing presentation materials for discussion with supervisors (1.15 hours) • Initial stage to prepare manuscript and conference (1.15 hours) • Total workload for one ECTS = 20.72 hours

Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	3 SKS which equivalent to 18 ECTS
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Recommended prerequisites	Existing competencies in literature review and scientific writing.
Module objectives/intended learning outcomes	• Able to compile research plan. • Able to compile proposal dissertation.
Content	• Introduction to Research Course I • Review of Research Problems, Research Objectives • State of the Art Review and Research Hypotheses • Operational Definitions, Indicators, and Research Variables • Theoretical Framework and Research Concept Framework • Research Fishbone Diagram • Presentation of the Progress Report of the Dissertation Research Proposal • Students collect portfolios and the development of the preparation of the dissertation
Study and examination requirements and forms ofexamination	• Mid-semester progress report assessment, final progress report assessment. • The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.
Media employed	Power point
Reading materials	Kasperson, J. X., Kasperson, R. E., Turner, B. L., Hsieh, W., & Schiller, A. (2022). Vulnerability to global environmental change. In The social contours of risk (pp. 245-285). Routledge. Louv, R., & Fitzpatrick, J. W. (2012). Citizen science: Public participation in environmental research. Cornell University Press. Pohl, C. (2005). Transdisciplinary collaboration in environmental research. Futures, 37(10), 1159-1178. Svarstad, H., Petersen, L. K., Rothman, D., Siepel, H., & Wätzold, F. (2008). Discursive biases of the environmental

	research framework DPSIR. Land use policy, 25(1), 116-125.

6.4.3. Research 2

Module designation	Research 2
Module level, if applicable	-
Code, if applicable	PCIL 9273
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	2nd Semester
Person responsible for the module	Head of Study Program
Lecturer	Principal Supervisor and Co-Supervisor
Language	Indonesian and English
Relation to curriculum	Compulsory
Type of teaching, contact hours	- Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) - Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) - Reading materials and literature review (128 hours, 8 hours weekly for 16 weeks) - Developing data collection strategy (128 hours, 8 hours weekly for 16 weeks) - Developing data analysis strategy (112 hours, 7 hours weekly for 16 weeks) - Preparing progress report (35 hours, 2.2 hour weekly for 16 weeks) Total hours in 1 semester = 467 hours
Student Workload for One ECTS	- Face-to-face discussion with Principal Supervisor (1.07 hours) - Face-to-face discussion with Co-Supervisor (1.07 hours) - Independent work (reading books, materials, papers, literature review, etc.: 4.27 hours) - Developing research conceptual and pathway framework in data collection (4.27 hours) - Developing research conceptual and pathway framework in data analysis (3.73 hours) - Preparing presentation materials for result and progress presentation (improvements, challenges, constraints, etc.: 1.17 hours) - Total workload for one ECTS = 15.58 hours

Laboratory Work	Students taking this course have the chance to utilize the computer laboratory within the Diponegoro University to practice the environmental modelling and simulation
Credit points	7 SKS which equivalent to 30 ECTS
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Recommended prerequisites	Existing competencies in literature review and scientific writing.
Module objectives/intended learning outcomes	• Able to design research according to scientific research methodology. • Able to carry out scientific research for doctoral program dissertation.
Content	• Introduction to Research Course II • Roadmap and Research Design • Population, Sample and Research Variables • Data collection technique • Research Data Analysis Method • Data Analysis Design • Research for Scientific Publications • Data Analysis Design • Research for Advanced Scientific Publications • Progress Report Presentation • Dissertation Research Proposal Design • Students collect portfolios and progress • dissertation preparation
Study and examination requirements and forms ofexamination	• Mid-semester progress report assessment, final progress report assessment. • The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.
Media employed	Power point
Reading Materials	Glatthorn, A. A., & Joyner, R. L. (2005). Writing the winning thesis or dissertation: A step-by-step guide. Corwin Press. Kasperson, J. X., Kasperson, R. E., Turner, B. L., Hsieh, W., & Schiller, A. (2022). Vulnerability to global environmental change. In The social contours of risk (pp. 245-285). Routledge. Louv, R., & Fitzpatrick, J. W. (2012). Citizen science: Public participation in environmental research. Cornell University Press.

	Pohl, C. (2005). Transdisciplinary collaboration in environmental research. Futures, 37(10), 1159-1178. Randolph, J. (2009). A guide to writing the dissertation literature review. Practical Assessment, Research, and Evaluation, 14(1), 13. Svarstad, H., Petersen, L. K., Rothman, D., Siepel, H., & Wätzold, F. (2008). Discursive biases of the environmental research framework DPSIR. Land use policy, 25(1), 116-125

6.4.4. Research 3

Module designation	Research 3
Module level, if applicable	-
Code, if applicable	PCIL 9343
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	3rd Semester
Person responsible for the module	Head of Study Program
Lecturer	Principal Supervisor and Co-Supervisor
Language	Indonesian and English
Relation to curriculum	Compulsory
Type of teaching, contact hours	• Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 weekly for 16 weeks) • Data analysis (128 hours, 8 hours weekly for 16 weeks) • Developing research result discussion (128 hours, 8 hours weekly for 16 weeks) • Preparing progress report (32 hours, 2 hours weekly for 16 weeks) • Preparing presentation materials (40 hours, 2.5 hours weekly for 16 weeks) • Developing dissertation report (75 hours, 4.7 hours weekly for 16 weeks) Total hours in 1 semester = 467 hours

Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (1.78 hours) • Face-to-face discussion with Co-Supervisor (1.78 hours) • Validating research conceptual and pathway framework in data analysis (7.11 hours) • Validating research conceptual and pathway framework in data collection (7.11 hours) • Preparing progress report (improvements, challenges, constraints, etc.: 1.78 hours) • Preparing presentation materials for discussion with supervisors (2.22 hours) • Developing dissertation report (4.17 hours) Total workload for one ECTS = 29.94 hours
Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	4 SKS which equivalent to 18 ECTS
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Required and recommended prerequisites for joining the module	Existing competencies in data analysis and scientific writing.
Module objectives/intended learning outcomes	• Able to display research results visually and in writing. • Able to perform data analysis of scientific research results. • Able to draw conclusions on research results.
Content	• Introduction to MK Research III • Research Method Review • Review of Data Collection Techniques • Primary and Secondary Data Collection • Presentation of Data in the Form of Tables and Graphs • Presentation of the Dissertation Research Progress Report • Students collect portfolios and the development of dissertation preparation
Exams and assessment formats	Mid-semester progress report assessment, final progress report assessment.

Study and examination requirements	The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.
Reading list	Allison, B., & Race, P. (2004). The student's guide to preparing dissertations and theses. Routledge. Arrows, F. (2008). The authentic dissertation. London: Routledge. Joyner, R. L., Rouse, W. A., & Glatthorn, A. A. (2018). Writing the winning thesis or dissertation: A step-by-step guide. Corwin press. Ramlaul, A. (2020). Dissertation Structure and Presentation. In Medical Imaging and Radiotherapy Research: Skills and Strategies (pp. 363-380). Springer, Cham.

6.4.5. Scientific Publications 1

Module designation	Scientific Publications 1
Module level, if applicable	-
Code, if applicable	PCIL 9331
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	3rd Semester
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	*Indonesian and English*
Relation to curriculum	*Compulsory*
Teaching methods	*Progress Report, Presentation, Discussion.*
Type of teaching, contact hours	- Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) - Discussion with Co-Supervisor (24 hours, 1.5 hours weekly for 16 weeks) - Preparing manuscript (160 hours, 10 hours weekly for 16 weeks) - Preparing presentation materials (32 hours, 2 hours weekly for 16 weeks) - Finding suitable conference (32 hours, 2 hours weekly for 16 weeks) Total hours in 1 semester = 280 hours
Student Workload for One ECTS	- Face-to-face discussion with Principal Supervisor (3.56 hours) - Face-to-face discussion with Co-Supervisor (2.67 hours) - Writing manuscript from zero to camera ready version (17.78 hours) - Preparing presentation materials for discussion with supervisors (3.56 hours) - Finding suitable conference (international level, proceeding selection, etc.: 3.56 hours) Total workload for one ECTS = 31.11 hours

Laboratory Work	There is no required laboratory work for this course. On the other hand, student taking this course might utilize the Diponegoro University's Library, Manuscript Consultation Center from LPPM, and the School of Postgraduate Studies' Library
Credit points	3 SKS which equivalent to 9 ECTS
Requirements according to the examination regulations	Collecting of progress report for scientific publication and the proof
Required and recommended prerequisites for joining the module	Existing competencies in scientific writing
Module objectives/intended learning outcomes	• Able to compile scientific articles based on research results. • Able to communicate research results in written and or oral form.
Content	• Identification of national and international scientific publications • Progress reports of writing scientific publications • Progress reports of the submission process to the seminar/journal.
Exams and assessment formats	Submit proof of scientific publication to the head of the study program in the form of a certificate as a presenter at a conference or proof that the article has been accepted/published in the proceedings
Study and examination requirements	The final grade in the module is composed of 60% performance on progress reports, 40% the kinds of publication (international conferences or reputable national journal), Students must have a complete draft of publication as a minimum reached to pass.

Reading list	Alspach, J.G., 2017. Writing for publication 101: Why the abstract is so important. Critical Care Nurse, 37(4), pp.12-15. Black, M., 2018. Critical thinking: An introduction to logic and scientific method. Pickle Partners Publishing. Grech, V. and Cuschieri, S., 2018. Write a scientific paper (WASP)-a career-critical skill. Early Human Development, 117, pp.96-97. Jirge, P.R., 2017. Preparing and publishing a scientific manuscript. Journal of Human Reproductive Sciences, 10(1), p.3. Parija, S.C. and Kate, V., 2017. Why write a scientific research paper. In Writing and publishing a scientific research paper (pp. 3-8). Springer, Singapore. Paul, J. and Criado, A.R., 2020. The art of writing literature review: What do we know and what do we need to know? International Business Review, 29(4), p.101717.

6.4.6. Research 4

Module designation	Research 4
Module level, if applicable	-
Code, if applicable	PCIL 9443
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	4th Semester
Person responsible for the module	Head of Study Program
Lecturer	Principal Supervisor and Co-Supervisor
Language	Indonesian and English
Relation to curriculum	Compulsory
Type of teaching, contact hours	• Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 weekly for 16 weeks) • Data analysis (128 hours, 8 hours weekly for 16 weeks) • Developing research result discussion (128 hours, 8 hours weekly for 16 weeks) • Preparing progress report (32 hours, 2 hours weekly for 16 weeks) • Preparing presentation materials (40 hours, 2.5 hours weekly for 16 weeks) • Developing dissertation report (75 hours, 4.7 hours weekly for 16 weeks) Total hours in 1 semester = 467 hours

Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (1.78 hours) • Face-to-face discussion with Co-Supervisor (1.78 hours) • Validating dan mentoring in major research data analysis (processing, quantify, optimation analysis, etc.: 7.11 hours) • Validating and mentoring in data explanation for result discussion (7.11 hours) • Preparing presentation materials for result and progress presentation (improvements, challenges, constraints, etc.: 1.78 hours) • Preparing presentation materials for discussion with supervisors (2.22 hours) • Developing dissertation report (4.17 hours) Total workload for one ECTS = 25.94 hours
Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	4 SKS which equivalent to 18 ECTS
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Required and recommended prerequisites for joining the module	Existing competencies in data analysis and scientific writing.
Module objectives/intended learning outcomes	• Able to display research results visually and in writing. • Able to perform data analysis of scientific research results. • Able to draw conclusions on research results.
Content	• Introduction to Research Course 4 • Research Data Processing • Discussion of Data Processing Results • Design of Scientific Publications of Data Processing Results • Presentation of the Dissertation Research Progress Report • Students collect portfolios and progress dissertation preparation

Exams and assessment formats	- Mid-semester progress report assessment, final progress report assessment. - The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.
Study and examination requirements	Power point
Reading list	Allison, B., & Race, P. (2004). The student's guide to preparing dissertations and theses. Routledge. Arrows, F. (2008). The authentic dissertation. London: Routledge. Joyner, R. L., Rouse, W. A., & Glatthorn, A. A. (2018). Writing the winning thesis or dissertation: A step-by-step guide. Corwin press. Ramlaul, A. (2020). Dissertation Structure and Presentation. In Medical Imaging and Radiotherapy Research: Skills and Strategies (pp. 363-380). Springer, Cham.

6.4.7. Scientific Publications 2

Module designation	Scientific Publications 2
Module level, if applicable	-
Code, if applicable	PCIL 9474
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	4th Semester
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	*Indonesian and English*
Relation to curriculum	*Compulsory*
Type of teaching, contact hours	• Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) • Preparing manuscript (160 hours, 10 hours weekly for 16 weeks) • Finalizing research result for publication (160 hours, 10 hours weekly for 16 weeks) • Preparing presentation materials (64 hours, 4 hours weekly for 16 weeks) • Proofreading (128 hours, 8 hours weekly for 16 weeks) • Choosing and selecting reputable journal (40 hours, 2.5 hours weekly for 16 weeks) • Submitting and reviewing article submission to reputable journal (21 hours, 1.35 hours weekly for 16 weeks) Total hours in 1 semester = 637 hours

Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (2.13 hours) • Face-to-face discussion with Co-Supervisor (2.13 hours) • Writing manuscript from zero to camera ready version (10.67 hours) • Personal work on finalizing research result data analysis for publication (10.67 hours) • Preparing presentation materials for discussion with supervisors (4.27 hours) • Proofreading the final version of manuscript (8.53 hours) • Choosing and selecting reputable journal (2.67 hours) • Submitting and reviewing final article submission to reputable journal (1.4 hours) Total workload for one ECTS = 42.47 hours
Laboratory Work	There is no required laboratory work for this course. On the other hand, student taking this course might utilize the Diponegoro University's Library, Manuscript Consultation Center from LPPM, and the School of Postgraduate Studies' Library
Credit points	7 SKS which equivalent to 15 ECTS
Requirements according to the examination regulations	Collecting of progress report for scientific publication and the proof
Required and recommended prerequisites for joining the module	Existing competencies in scientific writing for international publication.
Module objectives/intended learning outcomes	• Able to compile scientific articles for international publication based on research results. • Able to communicate research results in written and or oral form in international journals.
Content	• Identification of international scientific publications (reputable journal) • Progress reports of writing scientific publications • Progress reports of the submission process to the journal.
Exams and assessment formats	Submit proof of scientific publication to the head of the study program in the form of a proof that the article has been accepted/published in the reputable international journal

Study and examination requirements	The final grade in the module is composed of 60% performance on progress reports, 40% the publication level of reputable international journal (Scopus Q1-Q3). Students must have a complete draft of publication as a minimum reached to pass.
Reading list	Aispach, J.G., 2017. Writing for publication 101: Why the abstract is so important. Critical Care Nurse, 37(4), pp.12-15. Black, M., 2018. Critical thinking: An introduction to logic and scientific method. Pickle Partners Publishing. Grech, V. and Cuschieri, S., 2018. Write a scientific paper (WASP)-a career-critical skill. Early Human Development, 117, pp.96-97. Jirge, P.R., 2017. Preparing and publishing a scientific manuscript. Journal of Human Reproductive Sciences, 10(1), p.3. Parija, S.C. and Kate, V., 2017. Why write a scientific research paper. In Writing and publishing a scientific research paper (pp. 3-8). Springer, Singapore. Paul, J. and Criado, A.R., 2020. The art of writing literature review: What do we know and what do we need to know?. International Business Review, 29(4), p.101717.

Module designation	Scientific Publications 3
Module level, if applicable	-
Code, if applicable	PCIL 9571
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	5th Semester
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	Indonesian and English
Relation to curriculum	Compulsory
Teaching methods	Progress Report, Presentation, Discussion.
Type of teaching, contact hours	- Discussion with Principal Supervisor and Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) - Preparing manuscript (128 hours, 8 hours weekly for 16 weeks) - Finalizing research result for publication (75 hours, 4.7 hours weekly for 16 weeks) - Preparing presentation materials (32 hours, 2 hours weekly for 16 weeks) - Proofreading (32 hours, 2 hours weekly for 16 weeks) - Choosing and selecting reputable journal (40 hours, 2.5 hours weekly for 16 weeks) - Submitting and reviewing article submission to reputable journal (32 hours, 2 hours weekly for 16 weeks Total hours in 1 semester = 371 hours

Workload	• Face-to-face discussion with Principal Supervisor and Co-Supervisor (2.13 hours) • Writing 2ⁿᵈ/3ʳᵈ manuscript from zero to camera ready version (8.53 hours) • Personal work on finalizing 2ⁿᵈ/3ʳᵈ research result data analysis for publication (5 hours) • Preparing presentation materials for discussion with supervisors (2.13 hours) • Proofreading the final version of 2ⁿᵈ/3ʳᵈ manuscript (2.13 hours) • Choosing and selecting reputable journal (2.67 hours) • Submitting and reviewing 2ⁿᵈ/3ʳᵈ final article submission to reputable journal (2.13 hours) Total workload for one ECTS = 24.73 hours
Laboratory Work	There is no required laboratory work for this course. On the other hand, student taking this course might utilize the Diponegoro University's Library, Manuscript Consultation Center from LPPM, and the School of Postgraduate Studies' Library
Credit points	7 SKS which equivalent to 15 ECTS
Requirements according to the examination regulations	Collecting of progress report for scientific publication and the proof
Required and recommended prerequisites for joining the module	Existing competencies in scientific writing for international publication.
Module objectives/intended learning outcomes	• Able to compile scientific articles for international publication based on research results. • Able to communicate research results in written and or oral form in international journals.
Content	• Identification of international scientific publications (reputable journal) • Progress reports of writing scientific paper for 2ⁿᵈ/3ʳᵈ publications • Progress reports of the submission process to the 2ⁿᵈ/3ʳᵈ journal.
Exams and assessment formats	Submit proof of scientific publication to the head of the study program in the form of a proof that the article has been accepted/published in the international reputable journal

Study and examination requirements	The final grade in the module is composed of 60% performance on progress reports, 40% the publication level of reputable international journal (Scopus Q1-Q3). Students must have a complete draft of publication as a minimum reached to pass.
Reading list	Aispach, J.G., 2017. Writing for publication 101: Why the abstract is so important. Critical Care Nurse, 37(4), pp.12-15. Black, M., 2018. Critical thinking: An introduction to logic and scientific method. Pickle Partners Publishing. Grech, V. and Cuschieri, S., 2018. Write a scientific paper (WASP)-a career-critical skill. Early Human Development, 117, pp.96-97. Jirge, P.R., 2017. Preparing and publishing a scientific manuscript. Journal of Human Reproductive Sciences, 10(1), p.3. Parija, S.C. and Kate, V., 2017. Why write a scientific research paper. In Writing and publishing a scientific research paper (pp. 3-8). Springer, Singapore. Paul, J. and Criado, A.R., 2020. The art of writing literature review: What do we know and what do we need to know?. International Business Review, 29(4), p.101717.

6.4.9. Seminar of Dissertation Research Result

Module designation	Seminar of Dissertation Research Result
Module level, if applicable	-
Code, if applicable	PCIL 9532
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	5th Semester
Person responsible for the module	Principal supervisors
Language	Principal Supervisors and Co-supervisors
Relation to curriculum	Indonesian and English
Type of teaching, contact hours	- Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) - Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) - Data analysis (96 hours, 6 hours weekly for 16 weeks) - Developing research result discussion (88 hours, 5.5 hours weekly for 16 weeks) - Preparing progress report (16 hours, 1 hour weekly for 16 weeks) - Preparing presentation materials (16 hours, 1 hour weekly for 16 weeks) Total hours in 1 semester = 280 hours
Student Workload for One ECTS	- Face-to-face discussion with Principal Supervisor (2.13 hours) - Face-to-face discussion with Co-Supervisor (2.13 hours) - Evaluating in major research data analysis (processing, quantify, optimation analysis, etc.: 6.4 hours) - Evaluating in data explanation for result discussion (5.87 hours) - Preparing presentation materials for result and progress presentation (improvements, challenges, constraints, etc.: 1.07 hours) - Preparing presentation materials for discussion with supervisors (1.07 hours) Total workload for one ECTS = 18.67 hours

Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	3 SKS which equivalent to 15 ECTS
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Required and recommended prerequisites for joining the module	Existing competencies in data analysis and scientific writing.
Module objectives/intended learning outcomes	• Able to display research results visually and in writing. • Able to perform data analysis of scientific research results. • Able to draw conclusions on research results.
Content	• Primary and secondary data collection; • Presentation of data in the form of tables and graphs; • Research data processing; • Analysis of data processing results; • Compilation of conclusions on the dissertation; • Portfolio of progress reports of the dissertation draft.
Exams and assessment formats	Mid-semester progress report assessment, complete dissertation draft, eligibility test.
Study and examination requirements	The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.
Reading list	Allison, B., & Race, P. (2004). The student's guide to preparing dissertations and theses. Routledge. Arrows, F. (2008). The authentic dissertation. London: Routledge. Joyner, R. L., Rouse, W. A., & Glatthorn, A. A. (2018). Writing the winning thesis or dissertation: A step-by-step guide. Corwin press. Ramlaul, A. (2020). Dissertation Structure and Presentation. In Medical Imaging and Radiotherapy Research: Skills and Strategies (pp. 363-380). Springer, Cham.

6.4.10. Eligibility Exam

Module designation	Eligibility Exam
Module level, if applicable	-
Code, if applicable	PCIL 9631
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	6th Semester
Person responsible for the module	Principal supervisor
Language	• Principal supervisor • Co-supervisor
Relation to curriculum	Indonesian and English
Type of teaching, contact hours	• Discussion with Principal Supervisor (16 hours, 1 hours weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hour weekly for 16 weeks) • Preparing dissertation full report (160 hours, 10 hours weekly for 16 weeks) • Preparing presentation (88 hours, 5.5 hour weekly for 16 weeks) Total hours in 1 semester = 280 hours
Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (1.07 hours) • Face-to-face discussion with Co-Supervisor (1.07 hours) • Evaluating for full dissertation version (10.67 hours) • Preparing presentation materials for final assessment of complete dissertation by supervisors and judges (5.87 hours) Total workload for one ECTS = 18.67 hours
Laboratory Work	There is no required laboratory work for this course.
Credit points	3 SKS which equivalent to 15 ECTS
Requirements according to the examination regulations	Minimum attendance of lectures 75% Further detail on examination regulation could be accessed through this link: http://dil.pasca.undip.ac.id/dissertation-feasibility-exam/

Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	– -
Content	-
Exams and assessment formats	• Open book and close book • Journal publications, case studies, interviews
Study and examination requirements	Power point, youtube, website
Reading list	Happell, B. (2009). Presenting with precision: Preparing and delivering a polished conference presentation. Nurse Researcher, 16(3). Jackson, D., Davidson, P. M., & Usher, K. (2022). Preparing for Examination. In Successful Doctoral Training in Nursing and Health Sciences (pp. 119-131). Springer, Cham. Matteson, S. M., & DeLozier, R. W. (2022). Insights Into Undertaking a Three-Article Dissertation. In Methodological Innovations in Research and Academic Writing (pp. 240-259). IGI Global.

6.4.11. Dissertation Defence

Module designation	Dissertation Defence
Module level, if applicable	-
Code, if applicable	PCIL 9662
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	6th Semester
Person responsible for the module	Principal supervisors
Lecturer	Principal Supervisors and Co-supervisors
Language	Indonesian and English
Relation to curriculum	-
Type of teaching, contact hours	• Discussion with Principal Supervisor (40 hours, 2.5 hours weekly for 16 weeks) • Discussion with Co-Supervisor (40 hours, 2.5 hours weekly for 16 weeks) • Revising and finalizing dissertation full report (160 hours, 10 hours weekly for 16 weeks) • Proofreading and copy-editing dissertation (128 hours, 8 hours weekly for 16 weeks) • Preparing presentation (128 hours, 8 hours weekly for 16 weeks) • Peer discussion (32 hours, 2 hours weekly for 16 weeks) • Administrative work (32 hours, 2 hours weekly for 16 weeks) Total hours in 1 semester = 560 hours
Student Workload for One ECTS	• Face-to-face discussion with Principal Supervisor (3.33 hours) • Face-to-face discussion with Co-Supervisor (3.33 hours) • Revising and finalizing dissertation full report (13.33 hours) • Proofreading and copy-editing dissertation (10.67 hours) • Preparing presentation final assessment of complete dissertation by supervisors and judges (10.67 hours) • Improvement for full dissertation and peer discussion (2.67 hours) • Administrative work (2.67 hours) Total workload for one ECTS = 46.67 hours
Laboratory Work	There is no required laboratory work for this course
Credit points	6 SKS which equivalent to 12 ECTS

Requirements according to the examination regulations	Minimum attendance of lectures 75% Further detail on the requirements for taking Doctoral Defence could be accessed through this link: http://dil.pasca.undip.ac.id/dissertation-defence/
Recommended prerequisites	-
Module objectives/intended learning outcomes	-
Content	-
Study and examination requirements and forms ofexamination	• *Open book and close book* • *Journal publications, case studies, interviews*
Media employed	Power point, youtube, website
Reading Materials	Madsen, D. (1983). Successful Dissertations and Theses: A Guide to Graduate Student Research from Proposal to Completion. Matteson, S. M., & DeLozier, R. W. (2022). Insights Into Undertaking a Three-Article Dissertation. In Methodological Innovations in Research and Academic Writing (pp. 240-259). IGI Global. Rockinson-Szapkiw, A. J., & Spaulding, L. S. (2014). Navigating the doctoral journey: A handbook of strategies for success. Rowman & Littlefield. Tribe, R., & Marshall, C. (2020). Preparing for a conference, doctoral or professional presentation. Counselling Psychology Review, 35(2), 30-39.

Appendix 1 Recommended Academic Progression

		Semester 1		
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9134	Proposal Writing	3	15
2	PCIL 9135	Research 1	3	18
		Total Credit Semester	6	33

		Semester 2		
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9273	Research 2	7	30
		Total Credit Semester	7	30

		Semester 3		
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9343	Research 3	4	18
2	PCIL 9331	Scientific Publication 1	3	9
		Total Credit Semester	7	27

		Semester 4		
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9443	Research 4	4	18
2	PCIL 9474	Scientific Publication 2	7	15
		Total Credit Semester	11	33

		Semester 5		
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9571	Scientific Publication 3	7	15
2	PCIL 9532	Seminar of Dissertation Research Result	3	15
		Total Credit Semester	10	30

		Semester 6		
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9631	Eligibility Exam	3	15
2	PCIL 9662	Dissertation Defence	6	12
		Total Credit Semester	9	27
		Total Credit	50	180

Appendix 1 Recommended Academic Progression