

SYLLABUS

TLI 562 Research Theory and Practice (Teknik Penulisan dan Praproposal)


Lecturers:

Dr. Eng. Shinta Indah

Dr. Eng. Shinta Silvia

Dr. Eng. Zulkarnaini

**MASTER STUDY PROGRAM OF ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING
UNIVERSITAS ANDALAS
2020**

	SYLLABUS SEMESTER	Doc. No.:
	(TLI 562 Research Theory and Practice)	Revision :
		Date : June 2020 Pages:
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Lecturer	Head of QC	Head of EE Study Program
SYLLABUS		
1. Lecture Information		
Study Program Name : Environmental Engineering		
Lecture Name : Research Theory and practice		
Lecture Code : TLI 562		
Category : Required Study Program		
Unit : 2units		

Year	: Year 1
Semester	: 2 (two)
Prerequisite	: -
Status (required/elective)	: Required
Lecturers	: Dr. Eng. Shinta Indah Dr. Eng. Shinta Silvia Dr. Eng. Zulkarnaini

2. Description of Lecture

The aim of this module is to provide guidance and tools to prepare for deployment to emergency responses in a WASH role, with a focus on sanitation. It will ensure an understanding of the interdisciplinary humanitarian action. Also to understand different types of research methodologies, sampling strategies and methods for writing a research proposal.

3. Learning Achievement of Study Program

- able to deepen or expand knowledge in the field of design, operation and maintenance of engineering systems and environmental management to make original and tested contributions through independent research;
- able to formulate new ideas (new research questions) from the results of research carried out for the development of technology and environmental management systems.;

4. Learning Achievement of Lecture

1. Develop a research proposal and protocol
2. Establish links between theory and methods within the field of study
3. Select from different methodologies, methods and forms of analysis to produce and justify a suitable research design
4. Demonstrate an understanding of the ethical issues associated with practitioner research
5. Carry out a substantial research-based project
6. Analyse data and synthesize research findings
7. Report findings in written and verbal forms

5. Description of Lesson Plan

Week	Indicator of Learning Achievements of Subjects	Topics	Method of Learning	Course Time	Assignment and Evaluation	Reference
1	Students understand the ethics in conducting research and know the important aspects in research design	<ul style="list-style-type: none"> Referencing guidelines (plus plagiarism awareness and basics of literature search) Critical reading papers from module 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 14
2	Students understand the principal, function, and important aspects related to research methodology in research	Introduction to research portfolio	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 14
3	Students understand the ethics in conducting research and know the important aspects in research design	<ul style="list-style-type: none"> Research topic allocation Proposal template instruction Using Endnote or Mendeley for referencing 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 14
4		Academic writing <ul style="list-style-type: none"> Paragraphs Discourse markers, paraphrasing and plagiarism Tenses and parallel expressions Analyzing and describing data, and proof reading 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 14
5	The student can present the proposal and have the skills in delivering effective and engaging	Presentation Skill	Lecture, discussion and practise	2x50 minutes	Work individual and/ in groups	Module 14

Week	Indicator of Learning Achievements of Subjects	Topics	Method of Learning	Course Time	Assignment and Evaluation	Reference
	presentations to a variety of audiences.					
6	Students can write literature study based on the UNAND format, with consideration ethics	Literature review	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 14
7	Students understand the ethics in conducting research and know the important aspects in research design	Ethics in research and consent	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 14
8	Mid-term Examination					
9	Students understand the methods, techniques, and rules in collecting data	<ul style="list-style-type: none"> • Research Methods and Approaches • Reflexivity • Feminist Methodologies 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 13
10		<ul style="list-style-type: none"> • Classification of Research Studies • Research Study Design 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 13
11		<ul style="list-style-type: none"> • Sampling Strategies 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Module 13
12	The student can use the tools for data analysis and visualization.	Training on specialised tools according to research needs <ul style="list-style-type: none"> • R programming • SPSS • ARB software 	Lecture and discussion	2x50 minutes	Work individual and/ in groups	Wickham H (2016) Quast C. (2

Week	Indicator of Learning Achievements of Subjects	Topics	Method of Learning	Course Time	Assignment and Evaluation	Reference
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13	Students can present research proposals that have been prepared and get input and suggestions for improvement.	Proposal presentation	Presentation and discussion	2x50 minutes	Presentation	
14		Proposal presentation	Presentation and discussion	2x50 minutes	Presentation	
15		Proposal presentation	Presentation and discussion	2x50 minutes	Presentation	
16	Final Examination					

6. References

1. Dawson, D., "Practical Research Methods, 2002
2. Kumar, R., "Research Methodology: A Step-by-Step Guide for Beginners, 2nd Ed., 2006
3. Module 13 Research Method for Sanitation UNESCO IHE Global Sanitation Graduate School
4. Module 14 Research Theory and Practise for Sanitation UNESCO IHE Global Sanitation Graduate School
5. Wickham H (2016). ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag New York. ISBN 978-3-319-24277-4, <http://ggplot2.org>.
6. Quast C, Pruesse E, Yilmaz P, Gerken J, Schweer T, Yarza P, Peplies J, Glöckner FO (2013) The SILVA ribosomal RNA gene database project: improved data processing and web-based tools. Nucl. Acids Res. 41 (D1): D590-D596.7.

7. Annex

Scoring Instrument: Mid-term examination : 35%; Final Examination: 40%; Assignment: 25%