

SYLLABUS


TLI 561 Sanitasi dan Kesehatan Lingkungan (Sanitation and Environmental Health)

Lecturers:

Dr. Eng. Shinta Indah

Dr. Eng. Shinta Silvia

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

	SYLLABUS SEMESTER	No.Dok :
	(TLI 561 Sanitation and Environmental Health)	Revisi :
		Tanggal : June 2020
		Halaman:
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Lecturer	Head of QC	Head of Master Study Program
SYLLABUS		
1. Lecture Information		
Study Program Name : Environmental Sanitation Infrastructure		
Lecture Name : Sanitation and Environmental Health		
Lecture Code : TLI 561		
Category : Elective		
Unit : 2 units		

Year	: Year 1
Semester	: 1 (one)
Prasyarat	: -
Status (required/elective)	: Elective
Lecturers	: Dr. Eng. Shinta Indah Dr. Eng. Shinta Silvia

2. Description of Lecture

The lecture discusses the Introduction of Public Health and Sanitation, Human Health Hazards and Waste, Transmission Routes Disease Cycles – Lifecycles & Vectors, Sanitation - Related Patogens, Persistence of Enteric Pathogens, Control Measures and Risk Evaluation Tools

3. Learning Achievement of Study Program

- Mastering the theory of engineering science, design engineering, methods and the latest techniques needed for the analysis and design of environmental management efforts;
- Mastering the contextual and current interdisciplinary approach related to the design of integrated environmental management systems.
- Able to solve engineering and technological problems and design systems, processes and components in environmental management efforts including management of drinking water, wastewater, solid waste, settlement drainage, liquid, solid and gas waste control systems, air pollution control and occupational health and safety (OHS) by utilizing other fields of science (if needed) and taking into account economic, health and public safety, cultural, social and environmental factors;

4. Learning Achievement of Lecture

1. Introduction of Public Health and Sanitation
2. Human Health Hazards and Waste
3. Transmission Routes Disease Cycles – Lifecycles & Vectors
4. Sanitation - Related Patogens
5. Persistence of Enteric Pathogens
6. Control Measures
7. Risk Evaluation Tools

5. Description of Lesson Plan

Week	Indicator of Learning Achievements of Subjects	Topics	Method of Learning	Course Time	Assignment and evaluation	Reference
1	Students are able to explain about public health via the work of John Snow and the relationship between public health and sanitation.	Introduction of Public Health and Sanitation	Lecture and discussion	3x50 minutes	work individual and / in groups	Snow J. On the mode of communication of cholera. London: John Churchill, 1855.
2	Students are able to describe the concept of hazards and risk, what types of risks exist and how they are classified, what is a public health risk.	Human Health Hazards and Waste	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
3	Students are able to explain about classification of waste and how wastes are defined	Human Health Hazards and Waste	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
4	Students are able to explain about pathogen and the different type of organisms that cause diseases	Human Health Hazards and Waste	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
5	Students are able to explain about classification of environmental transmitted diseases in relation to sanitation	Transmission Routes Disease Cycles – Lifecycles & Vectors	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions

6	Students are able to explain about specific examples of the lifecycles of pathogens and how this affects control mechanisms	Transmission Routes Disease Cycles – Lifecycles & Vectors	Lecture and discussion	3x50 minutes	work individual and / in groups	Moe, Christine L Classification and Transmission of Water- and Sanitation-related Disease
7	Students are able to explain about global and national disease burdens of sanitation related disease	Transmission Routes Disease Cycles – Lifecycles & Vectors	Lecture and Individual/Group Presentation	3x50 minutes	work individual and / in groups	International Journals
8	Mid-term Examination					
9	Students are able to explain about sanitation related pathogens	Sanitation Related Pathogens	Lecture and discussion	3x50 minutes	work individual and / in groups	International Journals
10	Students are able to explain about persistence of enteric pathogens (enteric bacteria, enteric virus, enteric protozoa, helminthes)	Persistence of Enteric Pathogens	Lecture and discussion	3x50 minutes	work individual and / in groups	Remais and Eisenberg (2012) Balance between clinical and environmental responses to infectious diseases

11, 12	Students are able to analyze Non-technical principles of control which are related to lifecycles explore current outbreaks via case studies	Control Measures	Lecture and Individual/Group Presentation	3x50 minutes	Work individual	International Journals
13	Students are able to explain about Sanitation Safety Planning	Risk Evaluation Tools	Lecture and discussion	3x50 minutes	work individual and / in groups	<ul style="list-style-type: none"> • WHO 2006 Guidelines for the safe use of wastewater, excreta and greywater • WHO 2016 Sanitation safety planning manual • http://brown.gatech.edu
14	Students are able to explain about Introduction to SaniPath Exposure Assessment and sanitary survey	Risk Evaluation Tools	Lecture and discussion	3x50 minutes	work individual and / in groups	Moe, Christine L. Introduction to SaniPath Exposure Assessment
15	Students are able to assess using Quantitative Microbial Risk Assessment (QMRA)	Risk Evaluation Tools	Lecture and Individual/Problem solving	3x50 minutes	Work individual	QMRA wiki (qmrawiki.canr.msu.edu)
16	Final Examination					

6. References

1. Snow J. On the mode of communication of cholera. London: John Churchill, 1855.
2. Waldbott, G.L. Health effects of environmental pollutions
3. Moe, Christine L. Classification and Transmission of Water- and Sanitation-related Disease
4. Remais and Eisenberg (2012). Balance between clinical and environmental responses to infectious diseases
5. WHO 2006 Guidelines for the safe use of wastewater, excreta and greywater
6. WHO 2016 Sanitation safety planning manual
7. Moe, Christine L. Introduction to SaniPath Exposure Assessment
8. <http://brown.gatech.edu>
9. Another reference related to Sanitation Technology

7. Annex

Scoring Instrument: Mid-term examination : 25%; Final Examination: 30%; Assignment: 20%; Report 25%