
 Universitas Airlangga	<b>SEMESTER LEARNING PLAN</b>		<b>Prepared by</b>	<b>Examined by</b>	<b>Approved by</b>	<b>Document Registration Number</b>
	<b>SLP</b>		(Person in Charge)	(Head of Bachelor Program / Head of Department)	Vice Dean I	01/S1Kesmas/RPS/2019
	Revision - Date	January 1 <sup>st</sup> , 2019	Retno Adriyani, ST., M.Kes.	Dr. Diah Indriani, S.Si., M.Si	Dr. Santi Martini, dr., M.Kes	
Faculty of Public Health	Valid on Semester (odd/even) / Academic Year	Even Semester	(sign)	(sign)	(sign)	

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## A. DETAILS OF COURSE


1. Course Name	Water Sanitation
2. Course Code	LKM 313
3. Credits (SKS)	2 (two) SKS
4. Semester / Term	VI (sixth)
5. Study Program	Bachelor of Public Health
6. Student Learning Achievement	Students are able to carry out community empowerment program
7. Course Learning Achievement	At the end of the course, students will be able to explain the meaning of clean water, drinking water, water quality, water body water. Students are able to describe water treatment methods and understand water-borne disease controlling.
8. Course Outline	This course is delivered in lectures, group discussions and presentations. This course discusses clean water, drinking water, water bodies, criteria and classes of water, water supply, water supply, water relations with health and disease, water checks, water quality monitoring, water treatment, urban water supply, rural water supply.
9. Course Prerequisites (if any)	None
10. Instructor	Retno Adriyani, ST., M.Kes.
11. Teaching Assistants	

## B. TEACHING PROGRAM

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Week	Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)	Study Materials	Teaching Methods	Additional Materials for Learning	Meeting Time	Course Objectives	Criteria and Indicator of Evaluation / Measurable Learning Outcome ( <i>hard dan soft skills</i> )	Mark / Grade / Percentage (%)	Reference Number Ref. (nomor)
1	2	3	4	5	6	7	8	9	10
1	Students are able to explain the importance of water supply for health	1. Definition of clean water and drinking water: <ol style="list-style-type: none"> <li>a. Source of water, criteria of water and category of water</li> <li>b. Requirements of clean water and drinking water</li> </ol> 2. Relationship between water and health: <ol style="list-style-type: none"> <li>a. Function of water for health</li> </ol>	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1,2,5 Additional: 1,2

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1	2	3	4	5	6	7	8	9	10
		b. Role of water in the onset of diseases							
2	Students are able to explain the importance of water supply for health	1. Definition of clean water and drinking water: <ol style="list-style-type: none"> <li>Source of water, criteria of water and category of water</li> <li>Requirements of clean water and drinking water</li> </ol> 2. Relationship between water and health: <ol style="list-style-type: none"> <li>Function of water for health</li> <li>Role of water in the onset of diseases</li> </ol>	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1,2,5 Additional: 1,2

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<b>Week</b>	<b>Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)</b>	<b>Study Materials</b>	<b>Teaching Methods</b>	<b>Additional Materials for Learning</b>	<b>Meeting Time</b>	<b>Course Objectives</b>	<b>Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard dan soft skills)</b>	<b>Mark / Grade / Percentage (%)</b>	<b>Reference Number Ref. (nomor)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
3	Students are able to explain the importance of water supply for health	1. Definition of clean water and drinking water: a. Source of water, criteria of water and category of water b. Requirements of clean water and drinking water 2. Relationship between water and health: a. Function of water for health	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1,2,5 Additional: 1,2

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1	2	3	4	5	6	7	8	9	10
		b. Role of water in the onset of diseases							
4	Students are able to explain the importance of water supply for health	1. Definition of clean water and drinking water: a. Source of water, criteria of water and category of water b. Requirements of clean water and drinking water 2. Relationship between water and health:	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1,2,5 Additional: 1,2

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1	2	3	4	5	6	7	8	9	10
		a. Function of water for health b. Role of water in the onset of diseases							
5	Students are able to explain contamination check and water-quality monitoring activity	1. Water contamination: a. Raw water contamination b. Contamination during water treatment process c. Contamination during distribution 2. Controlling of drinking-water quality:	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1 Additional: 4

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<b>Week</b>	<b>Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)</b>	<b>Study Materials</b>	<b>Teaching Methods</b>	<b>Additional Materials for Learning</b>	<b>Meeting Time</b>	<b>Course Objectives</b>	<b>Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard dan soft skills)</b>	<b>Mark / Grade / Percentage (%)</b>	<b>Reference Number Ref. (nomor)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
		a. Method of water sample collection b. Internal monitoring c. External monitoring							
6	Students are able to explain contamination check and water-quality monitoring activity	1. Water contamination: a. Raw water contamination b. Contamination during water treatment process c. Contamination during distribution 2. Controlling of drinking-water quality:	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1 Additional: 4

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1	2	3	4	5	6	7	8	9	10
		a. Method of water sample collection b. Internal monitoring c. External monitoring							
7	Students are able to explain contamination check and water-quality monitoring activity	1. Water contamination : a. Raw water contamination b. Contamination during water treatment process c. Contamination during distribution	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 1 Additional: 4



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1	2	3	4	5	6	7	8	9	10
		2. Controlling of drinking-water quality: a. Method of water sample collection b. Internal monitoring c. External monitoring							
<b>MID TERM EXAMINATION</b>									
8	Students are able to explain the drinking water supply (SPAM)	1. Definition of SPAM: a. Policy of SPAM b. Establishment of SPAM in Indonesia 2. Unit of SPAM: a. Unit of raw water	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 2,3 Additional: 3,4,5,6

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1	2	3	4	5	6	7	8	9	10
		b. Transmission of raw water c. Unit of production d. Unit of distribution e. Unit of service							
9	Students are able to explain the drinking water supply (SPAM)	1. Definition of SPAM: a. Policy of SPAM b. Establishment of SPAM in Indonesia 2. Unit of SPAM: a. Unit of raw water b. Transmission of raw water c. Unit of production	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 2,3 Additional: 3,4,5,6

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1	2	3	4	5	6	7	8	9	10
		d. Unit of distribution e. Unit of service							
10	Students are able to explain the drinking water supply (SPAM)	1. Definition of SPAM: a. Policy of SPAM b. Establishment of SPAM in Indonesia 2. Unit of SPAM: a. Unit of raw water b. Transmission of raw water c. Unit of production d. Unit of distribution e. Unit of service	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 2,3 Additional: 3,4,5,6

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1	2	3	4	5	6	7	8	9	10
11	Students are able to explain the drinking water supply (SPAM)	1. Definition of SPAM: <ol style="list-style-type: none"> <li>Policy of SPAM</li> <li>Establishment of SPAM in Indonesia</li> </ol> 2. Unit of SPAM: <ol style="list-style-type: none"> <li>Unit of raw water</li> <li>Transmission of raw water</li> <li>Unit of production</li> <li>Unit of distribution</li> <li>Unit of service</li> </ol>	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 2,3 Additional: 3,4,5,6
12	Students are able to explain the drinking water supply (SPAM)	1. Definition of SPAM: <ol style="list-style-type: none"> <li>Policy of SPAM</li> </ol>	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork		Required: 2,3 Additional: 3,4,5,6

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1	2	3	4	5	6	7	8	9	10
		b. Establishment of SPAM in Indonesia 2. Unit of SPAM: a. Unit of raw water b. Transmission of raw water c. Unit of production d. Unit of distribution e. Unit of service					Systematic thinking		
13	Students are able to explain water quality improvement technologies	1. Water quality improvement technologies: a. Peat water treatment b. Water filtering c. Disinfection technology	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 6

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1	2	3	4	5	6	7	8	9	10
		d. Water quality improvement in archipelago area 2. Community empowerment in water supply: a. Community-based water supply							
14	Students are able to explain water quality improvement technology	1. Water quality improvement technologies: a. Peat water treatment b. Water filter c. Disinfection technology d. Water quality improvement in archipelago area	Lectures Discussions	LCD and Laptop	2x50 minutes		Communication skill Teamwork Systematic thinking		Required: 6

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1	2	3	4	5	6	7	8	9	10
		2. Community empowerment in water supply: a. Community-based water supply							
FINAL TERM EXAMINATION									


## C REQUIRED TEXTS / REFERENCES / ESSENTIAL READINGS

### Required Readings:

1. Santoso, B., Hardinsyah, P., Siregar, S.O., Pardede. 2011. Water Bagi Kesehatan.
2. Achmadi, U.F. 2011. Dasar dasar Penyakit Berbasis Lingkungan.
3. Joko, T. 2010. Unit Water Baku dalam Siste Penyediaan Water Minum.
4. Joko, T. 2010. Unit Produksi dalam Siste Penyediaan Water Minum.
5. Barzilay, J.I., W.G. Weinberg, J.W. Eley. 1999. The Water We Drink.
6. BPPT. 1999. Kesehatan Masyarakat dan Teknologi Peningkatan Kualitas Water.

### Additional Readings:

1. Anies. 2005. Mewaspada Penyakit Lingkungan.
2. Steel, e. 1981. Drinking Water and Sanitation.
3. Municipal and Rural Sanitation Mc.Grow-Hill Ehler Steel

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- 4. Drinking Water for Small Community, WHO
- 5. Environmental Engineering and Sanitation, A.Salvato, JR
- 6. Water Supply and Pollution Control, Warren Viessman,Jr.Mark J.hammer,1993.