

**OUTLINES PROGRAM EDUCATION,
UNIT OF EVENT INSTRUCTION, &
CONTRACT LECTURING**



**PROGRAM STUDY NUTRITION SCIENCE
FACULTY OF MEDICINE DIPONEGORO UNIVERSITY**

OUTLINES PROGRAM OF EDUCATION

SUBJECT : Micronutrient Metabolism
CODE/SCS : KUG 223 / 3
SEMESTER : III

DESCRIPTION

Definition of micronutrients, metabolism, function in the body, and requirement of micronutrients, interaction among micronutrients, and the influence of micronutrients to health.

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

| No. | Target of Specific Instructional | Topic | Sub Topic | Literature |
|-----|--|--|---|--|
| 1 | Understand about definition, type, and nature of micronutrients | Definition, type, and nature of micronutrient | <ul style="list-style-type: none">• Definition of micronutrient• Type of micronutrient• Nature of micronutrient | <ul style="list-style-type: none">• Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta |
| 2 | Understand about vitamin classification | Vitamin classification | <ul style="list-style-type: none">• Water soluble vitamin• Lipid soluble vitamin | <ul style="list-style-type: none">• Cambs, GF. 1992. The Vitamins. Academic Press. USA. |
| 3 | Understand about definition and nature of water soluble vitamins | Definition and nature of water soluble vitamin | <ul style="list-style-type: none">• Vitamin B complex• Vitamin C | <ul style="list-style-type: none">• Berddanier, CD. 1998. Advanced Nutrition Micronutrients |
| 4 | Understand about definition and nature of lipid soluble vitamins | Definition and nature of lipid soluble vitamin | <ul style="list-style-type: none">• Vitamin A• Vitamin D | <ul style="list-style-type: none">• Stipanuk, Martha H. 2000. Biochemical and |

| | | | |
|---|--|-------------------------------------|---|
| | | | <ul style="list-style-type: none"> • Vitamin E • Vitamin K |
| 5 | Understand about definition and nature of essential macromineral | Macromineral (Na, K, Cl, Mg, P, Ca) | Definition of: <ul style="list-style-type: none"> • Natrium • Kalium • Chloride • Magnesium • Phosphor • Calsium Nature of: <ul style="list-style-type: none"> • Natrium • Kalium • Chloride • Magnesium • Phosphor • Calsium |
| 6 | Understand about definition and nature of essential micromineral | Micromineral Fe, Zn, Iodium, Se | Definition of: <ul style="list-style-type: none"> • Ferrous • Zinc • Iodium • Selenium Nature of <ul style="list-style-type: none"> • Ferrous • Zinc • Iodium • Selenium |
| 7 | Understand about interaction micronutrient with other nutrients | Interaction micronutrient with | Interaction among: <ul style="list-style-type: none"> • Natrium |

Physiological Aspects of Human Nutrition. WB Saunders Company.

- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

| | | | |
|----|---|--|---|
| | and substances | nutrient and another substance | <ul style="list-style-type: none"> • Kalium • Chloride • Magnesium • Phosphor • Calsium • Ferrous • Zinc |
| 8 | Understand about society problems because of micronutrient deficiency | Society problems because of micronutrient deficiency | <ul style="list-style-type: none"> • Vitamin A deficiency • Anemi • IDD (Iodium Deficiency Disorder) |
| 9 | Understand various micronutrient problem solving | Various micronutrient problem solving | <ul style="list-style-type: none"> • Micronutrient fortification • Micronutrient supplementation |
| 10 | Understand various aspect from micronutrient fortification | Various aspect from micronutrient fortification | <ul style="list-style-type: none"> • asses of micronutrient fortification • deficiency of micronutrient fortification |
| 11 | Understand various aspect from micronutrient supplementation | Various aspect from micronutrient supplementation | <ul style="list-style-type: none"> • asses of micronutrient supplementation • deficiency of micronutrient supplementation |
| 12 | Follow micronutrient problems development | Micronutrient problems development | <ul style="list-style-type: none"> • Vitamin problems development • Macro and micromineral problems development |

TEACHING CONTRACT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
SUBJECT SUPERVISOR : Prof. Hertanto W Subagio, MS, Sp.GK
LECTURER :
1. Prof: Hertanto W Subagio, MS, Sp.GK
2. dr. I. Martha Kartasurya, MSc
3. dr. Hesti Murwani R.
DAY/TIME : Monday / 08.00-10.40
LOCATION : Class C

1. THE ADVANTAGE OF SUBJECT

Giving knowledge about micronutrients metabolism and their interaction with another substances and the implication to micronutrient problems in society. Suggest that students have knowledge and skill about how to diagnose micronutrient problems in society and the solving.

2. SUBJECT DESCRIPTION

Definition of micronutrients, metabolism, function in the body, and requirement of micronutrients, interaction among micronutrients, and the influence of micronutrients to health.

3. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

1. Understand about definition, type, and nature of micronutrient
2. Understand about vitamin classification
3. Understand about definition and nature of water soluble vitamin
4. Understand about definition and nature of lipid soluble vitamin
5. Understand about definition and nature of essential macromineral
6. Understand about definition and nature of essential micromineral
7. Understand about interaction micronutrient with nutrient and another substance
8. Understand about society problems because of micronutrient deficiency
9. Understand various micronutrient problem solving
10. Understand various aspect from micronutrient fortification
11. Understand various aspect from micronutrient supplementation
12. Follow micronutrient problems development

4. SUBJECT STRATEGY

To get the target of this subject, arranged methods of teaching. Methods which can be use are discourse, discussion, and giving assignment (review research result).

5. BIBLIOGRAPHY

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

6. ASSIGNMENT

7. SCORING

| Score | Point | Range |
|-------|-------|-------|
| A | 4 | --- |
| B | 3 | --- |
| C | 2 | --- |
| D | 1 | --- |
| E | 0 | --- |

To determine final score, will used:

Attendance : 75%
Mid semester test : 50%
Final test + assignment : 50%

8. SCHEDULE OF TEACHING

| MEETING | TOPIC | LECTURER |
|---------|--|----------|
| 1 | Definition, type, and nature of micronutrient | Hertanto |
| 2 | Vitamin classification | Hertanto |
| 3 | Definition and nature of water soluble vitamin | Hertanto |
| 4 | Definition and nature of lipid soluble vitamin | Hertanto |
| 5 | Macromineral (Na, K, Cl) | Hesti |
| 6 | Macromineral (Mg, P) | Hesti |
| 7 | Macromineral (Ca) | Hesti |
| 8 | Micromineral Fe | Hesti |
| 9 | Micromineral Zn | Hesti |
| 10 | Micromineral Iodium | Hesti |

| | | |
|----|---|--------|
| 11 | Micromineral Selenium | Hesti |
| 12 | Interaction micronutrient with nutrients and another substances | Martha |
| 13 | Problems solving of micronutrient | Martha |
| 14 | Micronutrient problems development | Martha |

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : Prof. Hertanto W Subagio, MS, Sp.GK
TIME : 150 min
MEETING : 1

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition, type, and nature of micronutrients.

B. TOPIC

Definition, type, and nature of micronutrients.

C. SUB TOPIC

- Definition of micronutrient
- Type of micronutrient
- Nature of micronutrient

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition, type, and nature of micronutrients 2.Explain the advantage of learning definition, type, and nature of micronutrients 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain definition, type, and nature of | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|---------|--|---|------------------------------|
| | micronutrients 2. Giving examples 3. Giving practices | | |
| CLOSING | 1. Giving questions about definition, type, and nature of micronutrients 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about definition, type, and nature of micronutrients to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddaniar, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : Prof. Hertanto W Subagio, MS, Sp.GK
TIME : 150 min
MEETING : 2

A. INSTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about vitamin classification.

B. TOPIC

Vitamin classification

C. SUB TOPIC

- Water soluble vitamins
- Lipid soluble vitamins

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|---|------------------------|------------------------------|
| OPENING | 1.Explain topic of vitamin classification. 2.Explain the advantage of learning vitamin classification 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain water soluble vitamins, lipid soluble vitamins 2.Giving examples 3.Giving practices | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|---------|---|---|------------------------------|
| CLOSING | 1. Giving questions about vitamin classification. 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |
|---------|---|---|------------------------------|

E. EVALUATION

Giving formative test such as short question about water soluble vitamins and lipid soluble vitamins to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : Prof. Hertanto W Subagio, MS, Sp.GK
TIME : 150 min
MEETING : 3

A. INSTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of water soluble vitamins.

B. TOPIC

Definition and nature of water soluble vitamins.

C. SUB TOPIC

- Vitamin B complex
- Vitamin C

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of water soluble vitamins 2.Explain the advantage of learning definition and nature of water soluble vitamins 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain Vitamin B complex, vitamin C | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|---------|---|---|------------------------------|
| | 2. Giving examples 3. Giving practices | | |
| CLOSING | 1. Giving questions about definition and nature of water soluble vitamins 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about vitamin B complex and vitamin C to know successfully teaching.

F. REFERENCE

- Almtsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : Prof. Hertanto W Subagio, MS, Sp.GK
TIME : 150 min
MEETING : 4

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of lipid soluble vitamins.

B. TOPIC

Definition and nature of lipid soluble vitamins.

C. SUB TOPIC

- Vitamin A
- Vitamin D
- Vitamin E
- Vitamin K

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|----------------------|-------------------|
| OPENING | 1.Explain topic of definition and nature of lipid soluble vitamins 2.Explain the advantage of learning definition and nature of lipid soluble vitamins 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 2.Explain Vitamin | Give attention and | Whiteboard and |

| | | | |
|---------|---|---|------------------------------|
| | A, D, E, K 2. Giving examples 3. Giving practices | ask | LCD Projector |
| CLOSING | 1. Giving questions about definition and nature of lipid soluble vitamins 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about vitamin A, D, E and vitamin K to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 5

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential macromineral.

B. TOPIC

Definition and nature of essential macromineral.

C. SUB TOPIC

- Natrium
- Kalium
- Chloride

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|----------------------|-------------------|
| OPENING | 1.Explain topic of definition and nature of essential macromineral 2.Explain the advantage of learning definition and nature of essential macromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 3.Explain about | Give attention and | Whiteboard and |

| | | | |
|---------|---|---|------------------------------|
| | Natrium, Kalium, and Chloride 2. Giving examples 3. Giving practices | ask | LCD Projector |
| CLOSING | 1. Giving questions about definition and nature of essential macromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Natrium, Kalium, and Chloride to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 6

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential macromineral.

B. TOPIC

Definition and nature of essential macromineral.

C. SUB TOPIC

- Magnesium
- Phosphor

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of essential macromineral 2.Explain the advantage of learning definition and nature of essential macromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 4.Explain about Magnesium and | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|---------|---|---|------------------------------|
| | Phosphor 2. Giving examples 3. Giving practices | | |
| CLOSING | 1. Giving questions about definition and nature of essential macromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Magnesium and Phosphor to know successfully teaching.

F. REFERENCE

- Almtsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 7

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential macromineral.

B. TOPIC

Definition and nature of essential macromineral.

C. SUB TOPIC

- Calsium

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of essential macromineral 2.Explain the advantage of learning definition and nature of essential macromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain about Calsium 2.Giving examples | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|---------|---|---|------------------------------|
| | 3. Giving practices | | |
| CLOSING | <ol style="list-style-type: none"> 1. Giving questions about definition and nature of essential macromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Calcium to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 8

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential micromineral.

B. TOPIC

Definition and nature of essential micromineral.

C. SUB TOPIC

- Ferrous

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of essential micromineral 2.Explain the advantage of learning definition and nature of essential micromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain about Ferrous 2.Giving examples | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|---------|---|---|------------------------------|
| | 3. Giving practices | | |
| CLOSING | 1. Giving questions about definition and nature of essential micromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Ferrous to know successfully teaching.

F. REFERENCE

- Almatier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 9

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential micromineral.

B. TOPIC

Definition and nature of essential micromineral.

C. SUB TOPIC

- Zinc

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of essential micromineral 2.Explain the advantage of learning definition and nature of essential micromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain about Zinc 2.Giving examples 3.Giving practices | Give attention and zsk | Whiteboard and LCD Projector |

| | | | |
|---------|---|---|------------------------------|
| CLOSING | 1. Giving questions about definition and nature of essential micromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |
|---------|---|---|------------------------------|

E. EVALUATION

Giving formative test such as short question about Zinc to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 10

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential micromineral.

B. TOPIC

Definition and nature of essential micromineral.

C. SUB TOPIC

- Iodium

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of essential micromineral 2.Explain the advantage of learning definition and nature of essential micromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain about Iodium 2.Giving examples | Give attention and ask | Whiteboard and LCD Projector |

| | | | | |
|---------|--|---|---|------------------------------|
| | | 3. Giving practices | | |
| CLOSING | | 1. Giving questions about definition and nature of essential micromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Iodium to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. Hesti Murwani R.
TIME : 150 min
MEETING : 11

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about definition and nature of essential micromineral.

B. TOPIC

Definition and nature of essential micromineral.

C. SUB TOPIC

- Selenium

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1.Explain topic of definition and nature of essential micromineral 2.Explain the advantage of learning definition and nature of essential micromineral 3.Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1.Explain about Selenium 2.Giving examples | Give attention and ask | Whiteboard and LCD Projector |

| | | | | |
|---------|--|---|---|------------------------------|
| | | 3. Giving practices | | |
| CLOSING | | 1. Giving questions about definition and nature of essential micromineral 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Selenium to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. I. Martha Kartasurya, MSc.
TIME : 150 min
MEETING : 12

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about interaction micronutrient with other nutrients and substances.

B. TOPIC

Interaction micronutrient with other nutrients and substances.

C. SUB TOPIC

- Natrium
- Kalium
- Chloride
- Magnesium
- Phosphor
- Calsium
- Ferrous
- Zinc
- Iodium
- Selenium

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|----------------------|-------------------|
| OPENING | 1.Explain topic of interaction micronutrient with other nutrients and substances. 2.Explain the advantage of learning | Give attention | LCD Projector |

| | | | |
|----------|---|---|---------------------------------|
| | interaction micronutrient with other nutrients and substances. 3.Explain competention, TGI and TSI | | |
| TEACHING | 1.Explain about interaction among Natrium, Kalium, Chloride, Magnesium, Phosphor, Calsium, Ferrous, Zinc, Iodium, Selenium 2.Giving examples 3.Giving practices | Give attention and ask | Whiteboard and LCD Projector |
| CLOSING | 1.Giving questions about interaction micronutrient with other nutrients and substances. 2.Explain the answering of students to judge successfully teaching 3.Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about interaction among Natrium, Kalium, Chloride, Magnesium, Phosphor, Calsium, Ferrous, Zinc, Iodium, Selenium to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. I. Martha Kartasurya, MSc.
TIME : 150 min
MEETING : 13

A. INSTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about micronutrient problem solving.

B. TOPIC

Interaction micronutrient with other nutrients and substances.

C. SUB TOPIC

- Vitamin A deficiency, Anemi, IDD (Iodium Deficiency Disorder)
- Micronutrient fortification and supplementation
- asses and deficiency of micronutrient fortification
- asses and deficiency of micronutrient supplementation

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|------------------------|------------------------------|
| OPENING | 1. Explain topic of micronutrient problem solving. 2. Explain the advantage of learning micronutrient problem solving 3. Explain competention, TGI and TSI | Give attention | LCD Projector |
| TEACHING | 1. Explain about Vitamin A | Give attention and ask | Whiteboard and LCD Projector |

| | | | |
|----------------|--|---|------------------------------|
| | <p>deficiency, Anemi, IDD (Iodium Deficiency Disorder), Micronutrient fortification and supplementation, asses and deficiency of micronutrient fortification, asses and deficiency of micronutrient supplementation</p> <p>2. Giving examples</p> <p>3. Giving practices</p> | | |
| CLOSING | <p>1. Giving questions about micronutrient problem solving.</p> <p>2. Explain the answering of students to judge successfully teaching</p> <p>3. Identify students problems</p> | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about Vitamin A deficiency, Anemi, IDD (Iodium Deficiency Disorder), Micronutrient fortification and supplementation, asses and deficiency of micronutrient fortification, asses and deficiency of micronutrient supplementation to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cambs, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

TEACHING EVENT UNIT

SUBJECT : Micronutrient Metabolism
CODE : KUG 223
SCS : 3
SEMESTER : III
LECTURER : dr. J. Martha Kartasurya, MSc.
TIME : 150 min
MEETING : 14

A. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

After finish this subject students of nutrition science can understand definition, nature, function in the body of a lot of micronutrient, interaction among micronutrient, the influence of micronutrient to health and various solving technique micronutrient problems in society.

TARGET OF SPECIFIC INSTRUCTIONAL

After finish this subject students suggested understand about micronutrient problems development.

B. TOPIC

- micronutrient problems development about vitamins
- micronutrient problems development about microminerals and macrominerals

C. SUB TOPIC

- Vitamin A deficiency, Anemi, IDD (Iodium Deficiency Disorder)
- Micronutrient fortification and supplementation
- asses and deficiency of micronutrient fortification
- asses and deficiency of micronutrient supplementation

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|---|----------------------|-------------------|
| OPENING | 1. Explain topic of micronutrient problems development. 2. Explain the advantage of learning micronutrient problems development. 3. Explain competention, TGI | Give attention | LCD Projector |

| | | | | |
|----------|--|---|---|------------------------------|
| | | and TSI | | |
| TEACHING | | 1. Explain about micronutrient problems development about vitamins, microminerals and macrominerals 2. Giving examples 3. Giving practices | Give attention and ask | Whiteboard and LCD Projector |
| CLOSING | | 1. Giving questions about micronutrient problems development. 2. Explain the answering of students to judge successfully teaching 3. Identify students problems | <ul style="list-style-type: none"> • Discussion • Answering the questions • Asking about the unclear topic | Whiteboard and LCD Projector |

E. EVALUATION

Giving formative test such as short question about micronutrient problems development about vitamins, microminerals and macrominerals to know successfully teaching.

F. REFERENCE

- Almatsier, S. 2002. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta
- Cams, GF. 1992. The Vitamins. Academic Press. USA.
- Berddanier, CD. 1998. Advanced Nutrition Micronutrients
- Stipanuk, Martha H. 2000. Biochemical and Physiological Aspects of Human Nutrition. WB Saunders Company.
- Watts DL. 1998. Trace Elements and Other Essential Nutrients. USA.
- Zimmerman. 2001. Pocket Guide to Micronutrients in Health and disease. Thieme Stuttgart.

OUTLINES PROGRAM OF EDUCATION

SUBJECT : NUTRITION SOCIOANTHROPOLOGY

CODE/SCS : MPK106/3

SEMESTER : III

DESCRIPTION

Socioanthropology history, associaton of socioanthropology with nutrition science, man history to get food, food with social status, culture with food.

TARGET OF GENERAL INSTRUCTIONAL

In the end of this lesson, students can understan socioanthropology history, associaton of socioanthropology with nutrition science, man history to get food, food with social status, culture with food.

| No. | Target of Specific Instructional | Topic | Sub Topic | Literature |
|-----|--|--|--|--|
| 1. | Students can explain nutrition socioanthropology history (2 meeting) | <ul style="list-style-type: none"> • Introduction of nutrition socioanthropology • Anthropology history | <ol style="list-style-type: none"> 1. Definition 2. Understanding of anthropology and sociology 3. Health promotion approach 4. Anthropology development phase 5. Science which associate with anthropology | <ul style="list-style-type: none"> • Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994. • Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002. |
| 2. | Students can explain the important of socioanthropology for nutrition expert (3 meeting) | <ul style="list-style-type: none"> • Why nutrition expert learn nutrition socioanthropology • association of anthropology, sociology and nutrition | <ol style="list-style-type: none"> 1. Human need 2. Human life style 3. Social problems 4. Nutrition problems 5. Nutrition problem and culture change | <ul style="list-style-type: none"> • Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003. • Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986. |

| | | | | |
|----|--|--|--|--|
| 3. | Students can learn human habits to get food (3 meeting) | <ul style="list-style-type: none"> • Human evolution • Knowledge application of food anthropology on food production • Food concept | <ol style="list-style-type: none"> 1. Human development process 2. Human biology evolution on human evolution 3. Food anthropology 4. How people get food 5. Association food with ecosystem 6. Factors arranged lifestyle about food habit 7. Concept to get food 8. Food function at social | |
| 4. | Students can learn culture and social problems (6 meeting) | <ul style="list-style-type: none"> • Culture • Individu and society • Family individu and society • Social structure • Social change • Social problems | <ol style="list-style-type: none"> 1. Socioculture 2. Learn process 3. Definition of Individu and society 4. Individu and society approach 5. Definition of Family individu and society 6. Association family individu and society 7. Definition of social structure 8. Identity of social structure 9. Function of Social structure in socialize 10. Definition of social change 11. Factors cause social change 12. Definition of social problems 13. Social problems | |

TEACHING CONTRACTS

| | |
|--------------------|--|
| SUBJECT | : Nutrition Socioanthropology |
| CODE | : CKB123 |
| SCS | : 3 |
| SEMESTER | : III |
| SUBJECT SUPERVISOR | : dr. Nurkukuh, MKes |
| LECTURER | : 1. dr. Nurkukuh, MKes 2. Nuryanto, S.Gz |
| DAY /TIME | : Tuesday/ 10.00-13.20 |
| LOCATION | : Class C |

1. ADVANTAGE OF SUBJECT

This subjects give advantages to students about the important of socioanthropology in nutrition field.

2. SUBJECT DESCRIPTION

Socioanthropology history, associaton of socioanthropology with nutrition science, man history to get food, food with social status, culture with food.

3. INTRUCTIONAL TARGET

TARGET OF GENERAL INSTRUCTIONAL

In the end of this lesson, students can understan socioanthropology history, associaton of socioanthropology with nutrition science, man history to get food, food with social status, culture with food.

TARGET OF SPECIFIC INSTRUCTIONAL

After follow this subject students can:

1. Students can explain nutrition socioanthropology history
2. Students can explain the important of socioanthropology for nutrition expert
3. Students can learn human habits to get food
4. Students can learn culture and social problems

4. TEACHING STRATEGY

To reach the objective of this subject arranged methods and education tools.. Teaching methods which used are discourse, discussion, and practice on laboratory.

5. REFERENCE

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

6. SCORING

| Score | Point | Range |
|-------|-------|-------|
| A | 4 | --- |
| B | 3 | --- |
| C | 2 | --- |
| D | 1 | --- |
| E | 0 | --- |

To determine final score, will used:

| | |
|-------------------|-------|
| Attendance | : 10% |
| Mid semester test | : 30% |
| Final test | : 40% |
| Assignment | : 20% |

6. TEACHING SCHEDULE

| MEETING | TOPIC | LECTURER |
|--------------|---|--------------------|
| Meeting I | Introduction of nutrition socioanthropology | dr. Nurkukuh, MKes |
| Meeting II | Anthropology history | dr. Nurkukuh, MKes |
| Meeting III | Why nutrition expert learn nutrition socioanthropology | dr. Nurkukuh, MKes |
| Meeting IV | Associaton of anthropology, sociology and nutrition Culture | dr. Nurkukuh, MKes |
| Meeting V | Human evolution | dr. Nurkukuh, Mkes |
| Meeting VI | Culture | dr. Nurkukuh, MKes |
| Meeting VII | Nutrition problems on culture change | Nuryanto, S.Gz |
| Meeting VIII | Individu and society | Nuryanto, S.Gz |
| Meeting IX | Family individu and society | Nuryanto, S.Gz |
| Meeting X | Knowledge application of food anthropology on food production | Nuryanto, S.Gz |
| Meeting XI | Food concept | dr. Nurkukuh, MKes |
| Meeting XII | Social structure | dr. Nurkukuh, MKes |
| Meeting XIII | Social change | dr. Nurkukuh, MKes |
| Meeting XIV | Social problems | dr. Nurkukuh, MKes |

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : 1

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understan nutrition socioanthropology
- 2. TSI** :
- Student can understan definition of nutrition socioanthropology
 - Student can understan science which associate with anthropology
 - Student can explain nutrition socioanthropology concept

B. TOPIC : Introduction of nutrition socioanthropology

C. SUB TOPIC :

1. Definition
2. Sociology and anthropology understanding

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain definition and Sociology and anthropology concept. | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : II

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understan nutrition socioanthropology
- 2. TSI** :
• Student can understan anthropology history
• Student can understan science which associate with anthropology

B. TOPIC : Anthropology history

C. SUB TOPIC :

1. Athropology development phase
2. Science which associate with anthropology

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain Anthropology history | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : III

A. INTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understan nutrition socioanthropology
2. TSI :
• Student can understan why nutrition expert learn nutrition socioanthropology
• Student can explain human need

B. TOPIC : Why nutrition expert learn nutrition socioanthropology

C. SUB TOPIC : Human need

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain why nutrition expert learn nutrition socioanthropology | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min.
MEETING : IV

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understan nutrition socioanthropology
- 2. TSI** :
- Student can explain associaton of anthropology, sociology and nutrition Culture
 - Student can explain some sociology problems which associate with nutrition

B. TOPIC : Associaton of anthropology, sociology and nutrition Culture

C. SUB TOPIC :

1. Human life style
2. Social problems

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain associaton of anthropology, sociology and nutrition Culture | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : V

A. INTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understan nutrition socioanthropology
2. TSI :
 - Student can explain Human development process
 - Student can explain Human biology evolution on human evolution

B. TOPIC : Human evolution

C. SUB TOPIC :

1. Human development process
2. Human biology evolution on human evolution

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain human evolution | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : VI

A. INTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understan nutrition socioanthropology
2. TSI :
• Student can explain Socioculture
• Student can explain Learn process

B. TOPIC : Culture

C. SUB TOPIC :

1. Socioculture
2. Learn process

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain culture | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : Nuryanto, S.Gz
TIME : 2 x 50 min
MEETING : VII

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understan nutrition socioanthropology
- 2. TSI** :
• Student can explain Nutrition problems
• Student can explain Nutrition problems on culture change

B. TOPIC : Nutrition problems on culture change

C. SUB TOPIC :

1. Nutrition problems
2. Nutrition problems on culture change

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain Nutrition problems on culture change | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : Nuryanto, S.Gz
TIME : 2 x 50 min
MEETING : VIII

A. INTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understan nutrition socioanthropology
2. TSI :
• Student can explain Definition of Individu and society
• Student can explain Individu and society approach

B. TOPIC : Individu and society

C. SUB TOPIC :

1. Definition of Individu and society
2. Individu and society approach

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain Individu and society | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Firal test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapån). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK.106
SCS : 3
LECTURER : Nuryanto, S.Gz
TIME : 2 x 50 min
MEETING : IX

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understan nutrition socioanthropology
- 2. TSI** :
 - Student can explain Definition of Individu and society
 - Student can explain Individu and society approach

B. TOPIC : Family individu and society

C. SUB TOPIC :

1. Definition of family individu and society
2. Association family individu and society approach

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain family individu and society | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : Nuryanto, S.Gz
TIME : 2 x 50 min
MEETING : X

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understand nutrition socioanthropology
- 2. TSI** :
- Student can explain concept of anthropology at food production
 - Student can explain how people get food
 - Student can explain association food with ecosystem
 - Student can explain factors arranged lifestyle about food habit

B. TOPIC : Knowledge application of food anthropology on food production

C. SUB TOPIC :

1. Food anthropology
2. How people get food
3. Association food with ecosystem
4. Factors arranged lifestyle about food habit

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain knowledge application of food anthropology on food production | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.

2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : Nuryanto, S.Gz
TIME : 2 x 50 min
MEETING : XI

A. INTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understan nutrition socioanthropology
2. TSI :
 - Student can explain definition of food concept
 - Student can explain Food function at social

B. TOPIC : Food concept

C. SUB TOPIC :

1. Concept to get food
2. Food function at social

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain food concept | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : XII

A. INSTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understand nutrition socioanthropology
2. TSI :
 - Student can understand social structure
 - Student can explain function of social structure at socialize

B. TOPIC : Social structure

C. SUB TOPIC :

1. Definition of social structure
2. Identity of social structure
3. Function of Social structure in socialize

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain Social structure | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : XIII

A. INTRUCTIONAL TARGET

- 1. TGI** : In the end of this lesson, students can understan nutrition socioanthropology
- 2. TSI** :
- Student can understan Definition of social change
 - Student can explain Factors cause social change

B. TOPIC : Social change

C. SUB TOPIC :

1. Definition of social change
2. Factors cause social change

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain Social change | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

TEACHING EVENT UNIT

SUBJECT : Nutrition Socioanthropology
CODE : MPK 106
SCS : 3
LECTURER : dr. Nurkukuh, MKes
TIME : 2 x 50 min
MEETING : XIV

A. INTRUCTIONAL TARGET

1. TGI : In the end of this lesson, students can understan nutrition socioanthropology
2. TSI :
 - Student can understan Definition of social problems
 - Student can explain social problems

B. TOPIC : Social problems

C. SUB TOPIC :

1. Definition of social problems
2. Social problems

D. ACTIVITY OF TEACHING

| ACTIVITY | ACTIVITY OF LECTURER | ACTIVITY OF STUDENTS | TOOLS OF TEACHING |
|----------|--|-------------------------------------|-----------------------|
| OPENING | <ul style="list-style-type: none">• Explain TGI and TSI• Explain topic and subtopic | Give attention and typing | LCD projector, laptop |
| TEACHING | Explain Social problems | Give attention and typing | LCD projector, laptop |
| CLOSING | Resume the topic Close the class (giving salute) | Give attention and answering salute | LCD projector, laptop |

E. EVALUATION :

- Mid test
- Final test

F. REFERENCE :

1. Abdulsyani. Sosiologi (Skematika, teori dan terapan). Jakarta. Bumi Aksara. 1994.
2. Goode. WJ. Sosiologi Keluarga. Jakarta. Bumi Aksara. 2002.
3. Supriyadi G., Guno T. Budaya Kerja Organisasi Pemerintah. Jakarta. LAN. 2003.
4. Widjaja. AW. Individu Keluarga dan Masyarakat. Jakarta. Akademika Presindo, 1986.

OUTLINES PROGRAM EDUCATION
(*Garis-garis Besar Program Pengajaran GBPP*)

SUBJECT : Food Microbiology
 CODE : KUG335/ 2SCS (System Credit Semester)
 SEMESTER : IV

DESCRIPTION

This subject learn life bases various type of microorganism, relation between microorganism with food, prevention of factors which harming role of microorganism in food industry, and also the way of determination of type and amount of microorganism in food.

GENERAL INSTRUCTIONAL TARGET(*Tujuan Instruksional Umum/TIU*)

After following this program, student in the fourth semester *Program Study Ilmu Gizi* expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

| | Specific Instruksional Target (<i>Tujuan Instruksional Khusus/TIU</i>) | Topic | Sub Topic | Source of Bibliography |
|---|---|---|---|---|
| 1 | Can explain microbiological growth | Microbiology History | Abiogenesis, biogenesis | 1. Srikandi Fardiaz, - Dasar-dasar Mikrobiologi pangan - Mikrobiologi pangan lanjut 2. Frazier, Food Microbiology 3. Pelzar and Chan Microbiology 4. Smith, Principle of Microbiology 5. Adam and Moss, Food Microbiology 6. Bebianna W Lay Microbiology 7. Anshori Rahman, fermentasi |
| 2 | Can explain various type of microorganism | Classification of microorganism | World of Protista, eukariotik, kariotik | |
| 3 | Can differentiate morphology of microorganism | Types of Microorganism. | Morphology of Bakteri, mould, and khamir. | |
| 4 | Can differentiate metabolism and physiology of microorganism. | physiology and Metabolism | physiology, metabolism, enzym | |
| 5 | Can explain microorganism and food | Relation between microorganism and food | Biotik, abiotik, growth | |
| 6 | Can explain role of beneficial microorganism and harm. | Role of microorganism in food. | Role of microorganism in food important microbe in food; beneficial microbe type; role of microbe in food industry, ferment, change during ferment, microbe which harming, toksikologi, desinfektan. | |
| 7 | Can analyse qualitative and is quantitative microorganism in food. | Analysis qualitative and is quantitative. | Principle and insulation technique, analysis principle and type, sterilization and media. | |

CONTRACT LECTURING.

| | |
|------------------------------|--|
| SUBJECT | : Food Microbiology |
| CODE | : KUG335 |
| SCS (System Credit Semester) | : 2 SCS |
| SEMESTER | : IV |
| SUPERVISOR | : Drs. Soesanto, M. Kes |
| LECTURER | : 1. Drs. Soesanto, M. Kes 2. Wiwik Wijaningsih |
| SCHEDULE | : Tuesday/ 09.50-11.30 AM |
| MEETING PLACE | : Building Faculty Of Mediciness of UNDIP room C. |

1. **BENEFIT of SUBJECT**

Giving basic knowledges about role of microorganism in food-stuff both profiting and which harming and also how to identify and its exploiting.

2. **DESCR.PTION of SUBJECT**

This subject study life bases various type of microorganism, relation between microorganism with food, prevention of factors which harming role of microorganism in food industry, and also the way of determination of type and amount of microorganism in food.

3. **INSTRUCTSIONAL TARGET**

General Instructional Target

(*Tujuan Instruksional Umum/TIU*)

After following this program, student in the fourth semester Program Study Nutrition Science (*Ilmu Gizi*) expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and quantitative.

Specific Instructional Target

(*Tujuan Instruksional Khusus/TIU*)

1. Explain microbiological growth
2. Explain various type of microorganism
3. Differentiate morphology of microorganism.
4. Differentiate metabolism and physiology of microorganism
5. Explain relation between microorganism and food
6. Explain general principle insulation of microorganism
7. Elaborate role of microorganism in ferment food industry
8. Explain change that happened during ferment process
9. Elaborate effect and cause damage of microorganism in food.
10. Explain factor and type influencing growth of microbe of pathogen in food
11. Analysis qualitative and quantitative of microorganism in food-stuff
12. Identify bacteria pathogen in food-stuff

4. LECTURING STRATEGY

To reach the target of this subject, it has to be compiled in measurable education media and method. Lecturing method utilized is discourse, discussion, assignment, and practice (demonstration).

5. READING LECTURING

Book / fundamental reading in this lecturing are:

1. Srikandi Fardiaz, Dasar-dasar Mikrobiologi pangan
2. Srikandi Fardiaz, Mikrobiologi pangan lanjut
3. Frazier, Food Microbiology
4. Pelzar and Chan Microbiology
5. Smith, Principle of Microbiology
6. Adam and Moss, Food Microbiology
7. Bebiana W Lay Microbiology
8. Anshori Rahman, fermentasi

6. DUTY

1. Making of hand out and practice report (demonstration)

7. ASSESSMENT CRITERIA

Assessment will be conducted by instructor by using the following criteria:

| Value | Point | Range |
|-------|-------|--------|
| A | 4 | 83-100 |
| AB | 3,5 | 79-82 |
| B | 3 | 73-78 |
| BC | 2,5 | 69-72 |
| C | 2 | 63-68 |
| CD | 1,5 | 59-62 |
| D | 1 | 53-58 |
| E | 0 | < 53 |

In determining final value, will be used the following weight :

| | |
|-------------------------|------|
| Absence | 10 % |
| Mid semester evaluation | 30 % |
| End semester evaluation | 50 % |
| Duty | 10 % |

8. LECTURING SCHEDULE

| MEETING | TOPIC | LECTURER |
|--------------|--|------------------------|
| LECTURING 1 | History, biogenesis, abiogenesis | Drs. Sosanto MKes |
| LECTURING 2 | Protista, Eukariotik, and Prokariotik | Drs. Sosanto MKes |
| LECTURING 3 | Morphology of microorganism | Drs. Sosanto MKes |
| LECTURING 4 | Physiology and Metabolism | Drs. Sosanto MKes |
| LECTURING 5 | Relation between microorganism and environment | Wiwik Wijaningsih, STp |
| LECTURING 6 | Beneficial microba | Wiwik Wijaningsih, STp |
| LECTURING 7 | Fermentation | Wiwik Wijaningsih, STp |
| LECTURING 8 | Mid Semester Evaluation | TEAM |
| LECTURING 9 | Change during fermentation | Wiwik Wijaningsih, STp |
| LECTURING 10 | Harming microbe | Wiwik Wijaningsih, STp |
| LECTURING 11 | Toxicology and Desinfektant | Drs. Sosanto MKes |
| LECTURING 12 | Sterilization and Media | Drs. Sosanto MKes |
| LECTURING 13 | Isolation Technique | Drs. Sosanto MKes |
| LECTURING 14 | Quantitative Analyze | Drs. Sosanto MKes |
| LECTURING 15 | Qualitative Analyze and Identification | Drs. Sosanto MKes |
| LECTURING 16 | End Semester Evaluation | TEAM |

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN/SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 1

A. INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester Program Study Nutrition Science (*Ilmu Gizi*) expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain about history of Microbiology Growth

B. TOPIC

History of microbiology growth

C. SUB TOPIC

- History of microbiology growth
- Abiogenesis Theory
- Biogenesis Theory

D. LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|---|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain history of microbiology | Listening, writing, asking | Transparency OHP |
| | Discourse explain abiogenesis theory | Listening, writing, asking | Transparency OHP |
| | Discourse explain biogenesis theory | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E. EVALUATION

Written test (enclosed)

F REFERENCES

1. Mikrobiologi : Bebiana W Lay
2. Dasar-dasar Mikrobiologi : Dwijo Saputro

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 2

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester *Program Study Ilmu Gizi* expected can identify beneficial mikroorganisme and harm and also can determine mikroorganisme qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain variety of microorganism

B TOPIC

Microorganism Classification

C. SUB TOPIC

- Kingdom of Protista
- Prokariotik
- Eukariotik

D. LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA AND INSTRUMENT LECTURING |
|-------------------|---------------------------------------|----------------------------|--------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain world of protista | Listening, writing, asking | Transparency OHP |
| | Discourse explain prokariotik | Listening, writing, asking | Transparency OHP |
| | Discourse explain eukariotik | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E. EVALUATION

Written test (enclosed)

F REFFERENCES

1. Mikrobiologi : Bebiana W Lay
2. Fundamental of Microbiology : Pelzar

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN/SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 3

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester *Program Study Ilmu Gizi* expected can identify beneficial mikroorganisme and harm and also can determine mikroorganisme qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain at ut history Morphology of Microorganism

B. TOPIC

Types of microbiology growth

C SUB TOPIC

- Morphology of bacteria
- Morphology of *kapang*
- Morphology of *khamir*

D. LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|--|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain morphology bacteria | Listening, writing, asking | Transparency OHP |
| | Discourse explain morphology <i>kapang</i> | Listening, writing, asking | Transparency OHP |
| | Discourse explain morphology <i>khamir</i> | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E. EVALUATION

Written test (enclosed)

F. REFERENCES

1. Mikrobiologi : Bebiana W Lay
2. Fundamental of mikrobiologi : Pelzar

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN SAI')

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 4

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester Program Study Nutrition Science (*Ilmu Gizi*) expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain about history Physiology and metabolism of Microorganism

B. TOPIC

Physiology and metabolism of Microorganism

C. SUB TOPIC

- physiology of Microorganism
- metabolism of Microorganism
- enzym

D LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|--|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain microorganism fisiologi | Listening, writing, asking | Transparency OHP |
| | Discourse explain microorganism metabolism | Listening, writing, asking | Transparency OHP |
| | Discourse explain microorganism enzym | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E EVALUATION

Written test (enclosed)

F REFERENCES

1. Dasar Mikrobiologi Pangan : Srikandi Fardiaz
2. Food Microbiology : Frazier

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN/SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 5

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester Nutrition Science (*Ilmu Gizi*) expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain relation between microorganism and environment

B. TOPIC

Abiotic & biotic factors, and influencing growth.

C. SUB TOPIC

- Abiotic Factor
- Biotic Factor
- Growth

D. LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|---------------------------------------|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain abiotic factor | Listening, writing, asking | Transparency OHP |
| | Discourse explain biotic factor | Listening, writing, asking | Transparency OHP |
| | Discourse explain growth | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E. EVALUATION

Written test (enclosed)

F. REFERENSI

1. Dasar Mikrobiologi Pangan : Srikandi Fardiaz
2. Food Microbiology : Frazier

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 6

B. INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester *Program Study Ilmu Gizi* expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain beneficial microorganism in food

B. TOPIC

Role of beneficial microorganism in food

C. SUB TOPIC

- group of microba which is important in food
- group of beneficial microba
- role of microba in food industry

C. LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|--|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain group of microba in food | Listening, writing, asking | Transparency OHP |
| | Discourse explain group of beneficial microba | Listening, writing, asking | Transparency OHP |
| | Discourse explain role of microba in food industry | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E. EVALUATION

Written test (enclosed)

F. REFERENSI

1. Mikrobiologi Pangan Lanjut : Srikandi Fardiaz
2. Food Microbiology : Frazier

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN/SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 7

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester Program Study Nutrition Science (*Ilmu Gizi*) expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain fermentation

B. TOPIC

Role of microorganism in fermentation

C. SUB TOPIC

- definition of fermentation
- type of microba able to ferment
- fermentation product

D LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|---|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain definition of fermentation | Listening, writing, asking | Transparency OHP |
| | Discourse explain type of microba able to ferment | Listening, writing, asking | Transparency OHP |
| | Discourse explain fermentation product | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E. EVALUATION

Written test (enclosed)

F. REFERENCES

1. Mikrobiologi Pangan Lanjut : Srikandi Fardiaz
2. Food Microbiology : Frazier
3. Fermentation : Anshori Rahman

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 8

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester Program Study Nutrition Science (*Ilmu Gizi*) expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain change during fermentation

B. TOPIC

Role of microorganism in fermentation

C. SUB TOPIC

- change of carbohydrat
- change of chemistry
- change of physical organoleptic

D LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|---|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain change of carbohydrat | Listening, writing, asking | Transparency OHP |
| | Discourse explain change of chemistry | Listening, writing, asking | Transparency OHP |
| | Discourse explain change of physical organoleptic | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E EVALUATION

Written test (enclosed)

F REFERENSI

1. Mikrobiologi Pangan Lanjut : Srikandi Fardiaz
2. Food Microbiology : Frazier
3. Fermentation : Anshori Rahm

UNIT of EVENT INSTRUCTION
(SATUAN ACARA PENGAJARAN/SAP)

SUBJECT : Food Microbiology
CODE : KUG335
SCS (System Credit Semester) : 2 SCS
LECTURER : Drs. Soesanto, M.Kes
TIME MEETING : 100 Minutes
MEETING : 9

A INSTRUCTIONAL TARGET

General Instructional Target (Tujuan Instruksional Umum/TIU)

After following this program, student in the fourth semester Program Study Nutrition Science expected can identify beneficial microorganism and harm and also can determine microorganism qualitative and is quantitative.

Specific Instructional Target (Tujuan Instruksional Khusus/TIU)

After following this program, student can explain harming microorganism

B. TOPIC

Harming microorganism

C. SUB TOPIC

- type of harming microorganism
- deterioration
- rancid

D LECTURING ACTIVITY

| PHASE of ACTIVITY | LECTURER ACTIVITY | STUDENT ACTIVITY | MEDIA & INSTRUMENT LECTURING |
|-------------------|---|----------------------------|------------------------------|
| ANTECEDENT | Discourse explain the target of study | Listening | Transparency OHP |
| PRESENTATION | Discourse explain type of harming microorganism | Listening, writing, asking | Transparency OHP |
| | Discourse explain deterioration | Listening, writing, asking | Transparency OHP |
| | Discourse explain rancid | Listening, writing, asking | Transparency OHP |
| CONCLUSION | Concluding | writing | |

E EVALUATION

Written test (enclosed)

F REFERENSI

1. Mikrobiologi Pangan Lanjut : Srikandi Fardiaz
2. Food Microbiology : Frazier
3. Fermentation : Anshori Rahm