

1. Module XXXI: Impact and Application IV (Energy)

1.1. Module Objectives

On completion of this module, the students will be able to extend the basic knowledge and application of microorganisms in hydrocarbon system that applicable to human, for example: bioremediation of petroleum waste and enhanced oil recovery with usage of microorganisms (known as MEOR)

1.2. Module Data

Person in charge	Dr. Isty A. Purwasena
Credits	2
Course	BM4204 Petroleum microbiology
Module examination	Written test

1.2.1. Sub-module I: Petroleum Microbiology

Lecturer	Dr. Dea Indriani Astuti / Dr. Isty a. Purwasena
Semester	8
Type of submodule / course	Elective
Credits	2
Workload - class lecture (hr/sem)	2 hours lectures, 2 hours structured activities, 2 hours individual study, 16 weeks per semester, and total 96 hours a semester
Workload details	Textbook reading assignment, group discussion, paper review, presentation
Classification within the curriculum:	General Studies / Compulsory Course /Elective Course
Type of assessment/examination	Written Test : Midterm exam, Final exam, Assignments Presentation
Language	Bahasa Indonesia
Course Target / Outcome	Students will be able to extend the basic knowledge and application of microorganisms in hydrocarbon system that applicable to human, for example: bioremediation of petroleum waste and enhanced oil recovery with usage of microorganisms (known as MEOR)
Teaching methods	Interactive Teaching
Contents (SAP)	
	1 Introduction
	2 Microorganisms in hydrocarbon system
	3 Hydrocarbon biodegradation
	4

5	Biosurfactan
6	
7	Mid-Term Test
8	Petroleum waste in marine ecosystem
9	Petroleum waste in fresh water ecosystem
10	Petroleum waste in terrestrial ecosystem
11	Microbial Enhanced Oil Recovery
12	Topic Presentation
13	
14	
15	
16	Final Test
Literature / Sources	<ul style="list-style-type: none"> • Atlas, R.M. 1984. Petroleum Microbiology. Macmillan Publ. Co., New York • Kosaric, N. 1993. Biosurfactants: Production, Properties, and Applications. Marcel Dekker, Inc. New York. • Moses, V. and Springham, D.G. 1982. Bacteria and the Enhancement of Oil Recovery. Applied Science Publisher, London.
Other specialties	

