Course Code: TB37101

Subject Numbering	TCH-BIO305J
Year	2021
Subject	Chemical and Biomolecular Engineeing II
Credit(s)	2
Instructor	NAOMI KITAKAWA TORU NAKAYAMA SMITH RICHARD LEE JR. TETSUTARO HATTORI KOSUKE INO MITSUO UMETSU HIDEYUKI AOKI

Language	English
Object in Class subject and Object and summary of class and Goal of study(J)	---------- Google Classroom用のクラスコードは「ppkqboc」です。 ---------- Chemical and Biomolecular Engineering II refers to any technological applications of chemical and biological systems, such as biomolecules and environmental materials to make or modify products or green processes for specific purposes. This class focuses on biomaterials, biomedical engineering, membrane transport, protein engineering, environmentally benign materials and reactions, biomass conversion, fluid dynamics, green process and industrial processes. Students will learn some basic aspects of engineering for biotechnology, biological and environmental materials.
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Other subject is relevant and complete a point to notice(J)	Knowledge of organic chemistry and biochemistry will be required.
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Contents and progress schedule of class(J)	1 Protein engineering by Mitsuo UMETSU 1-1 Protein engineering for medicine 1-2 Protein engineering for nanotechnology 2 Electrochemical biosensing by Kosuke INO 2-1 Probe device for sensing 2-2 Chip device for sensing 3 Metabolism biotechnology by Toru NAKAYAMA 3-1 Microbial metabolism and biotechnology 3-2 Plant metabolism and biotechnology 4 Development of environmentally benign materials by Tetsutaro HATTORI and Yuichi KITAMOTO 4-1 Host-guest chemistry 4-2 Supramolecular chemistry 5 Reaction engineering for sustainable process by Naomi SHIBASAKI-KITAKAWA 5-1 Process engineering for biofuel production 5-2 Process engineering for biobased materials production 6 Energy process engineering by Hideyuki AOKI 6-1 An introduction to energy conversion and management 6-2 An application of energy conversion and management 7 Transformation of biomass into chemical products by Richard SMITH 7-1 Hydrothermal processes 7-2 Green solvent processes
Contents and progress	1 Protein engineering by Mitsuo UMETSU 1-1 Protein engineering for medicine

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self study(J)	Preparation: If students are asked to read some textbooks and handouts, they should read them before the lecture and understand the theories of not being clear. This gives you more from the lecture. Review: Students should study the handouts supplied in lecture again.
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Record and evaluation method(J)	レポート、課題、授業で実施する小テスト等により学修目標への達成度を総合的に評価する。
Record and evaluation method	Grades are comprehensively evaluated by reports, assignments, quizzes conducted in classes, etc.
Textbook and references	
URL	
Attached file	
Office hours(J)	10:00-20:00. Making an appointment is required.
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Notes	
Practical business	
In addition	
Last Update	2021/03/16 11:21