

シラバス参照

科目ナンバリング	TCH-BIO305J
開講年度	2024
科目名	化学・バイオ工学Ⅱ
科目名(英語)	Chemical and Biomolecular Engineering II
単位数	2
担当教員	長尾 大輔 石丸 泰寛 大田 昌樹 大野 肇 高橋 征司 中澤 光 諸橋 直弥
メディア授業科目 /Media Class Subjects	○
主要授業科目 /Essential Subjects	○

開講言語	
授業の 目的・ 概要及び 達成方法等	<p>Google Classroomのクラスコードは工学部Webページにて確認すること。 学部シラバス・時間割(https://www.eng.tohoku.ac.jp/edu/syllabus-ug.html)</p> <p>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.</p>
授業の 目的・ 概要及び 達成方法等 (E)	<p>The class code for Google Classroom can be found on the Web site of the School of Engineering: https://www.eng.tohoku.ac.jp/edu/syllabus-ug.html (JP Only)</p> <p>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.</p>
他の授業 科目との 関連及び 履修上の 注意	Knowledge of organic chemistry and biochemistry will be required.
他の授業 科目との 関連及び 履修上の 注意(E)	Knowledge of organic chemistry and biochemistry will be required.
授業計画	<p>0 Introduction</p> <p>1 Protein engineering by Hikaru NAKAZAWA 1-1 Protein engineering of enzyme 1-2 Protein engineering and synthetic biology</p> <p>2 Plant specialized metabolites by Seiji TAKAHASHI 2-1 Basic sciences and histories of use 2-2 Metabolic engineering for production of valuable metabolites</p> <p>3 Plant membrane biotechnology by Yasuhiro ISHIMARU 3-1 Application of plant membranes to biotechnology 3-2 Application of plant membranes to agriculture</p> <p>4 Development of environmentally benign materials by Naoya MOROHASHI 4-1 Host-guest chemistry and separation materials using host molecules 4-2 Separation materials using host molecules</p> <p>5 Process evaluation by Hajime OHNO 5-1 Process simulation for innovative technologies 5-2 Process evaluation based on lifecycle thinking</p> <p>6 Development of chromatography models with Excel by Masaki OTA 6-1 Advection-Diffusion model (Conventional) 6-2 Thermodynamic chemical engineering model (Original)</p>

	<p>7 Process engineering for functional materials by Daisuke NAGAO</p> <p>7-1 Process design of particulate materials</p> <p>7-2 Interface control to design functional materials processing</p>
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<p>授業時間外学習</p>	<p>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.</p> <p>Review: Students should study the handouts supplied in lecture again.</p>
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<p>成績評価方法及び基準</p>	<p>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。</p>
<p>成績評価方法及び基準 (E)</p>	<p>Grades are comprehensively evaluated by reports, assignments, quizzes conducted in classes, etc.</p>
<p>教科書および参考書</p>	
<p>関連 URL</p>	
<p>添付 ファイル</p>	
<p>オフィス アワー</p>	<p>10:00-18:00.</p> <p>Making an appointment is required.</p>
<p>オフィス アワー (E)</p>	<p>10:00-18:00.</p> <p>Making an appointment is required.</p>
<p>連絡先 (メール アドレス等)</p> <p>※Emailは@の置き換えに注意 /Contact (Email, etc.)</p>	<p>クラスルームで連絡可能</p>
<p>備考</p>	
<p>実務・実践的授業 /Practical business</p> <p>※○は、実務・実践的授業であることを示す。 /Note: "○" Indicates</p>	<p>○</p>

the practical business	
🗨️ その他	
🕒 更新日付	2024/03/21 15:51

1単位の授業科目は、45時間の学修を必要とする内容をもって構成することを標準としています。1単位の修得に必要な学修時間の目安は、「講義・演習」については15～30時間に授業および授業時間外学修（予習・復習など）30～15時間、「実験、実習及び実技」については30～45時間の授業および授業時間外学修（予習・復習など）15～0時間です。

One-credit courses require 45 hours of study. In lecture and exercise-based classes, one credit consists of 15-30 hours of class time and 30-15 hours of preparation and review outside of class. In laboratory, practical skill classes, one credit consists of 30-45 hours of class time and 15-0 hours of preparation and review outside of class.