






Course Code: TB37091

Subject Numbering	TCH-MAC303J
Year	2021
Subject	Chemical and Biomolecular Engineering I
Credit(s)	2
Instructor	YAMATO HAYASHI SHINYA TANAKA MASAYA MITSUISHI TOMOHIITO KAMEDA KEIICHI TOMISHIGE PICHIERRI FABIO KEISHI SUGA

Language	英語
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「3ivu5os」です。
Object in Class subject and Object and summary of class and Goal of study	<p>Google Classroom class code: 3ivu5os</p> <p>Purpose/Abstract We are surrounded by a large number of chemical products manufactured with various types of materials including organic, inorganic and their composite materials. Even in our body, biological materials are constantly being produced with the help of specialized enzymes and biochemical reactions. The objective of the present course is to provide chemistry-oriented topics concerned with the development of functional materials in various areas of engineering.</p> <p>Goal Students will learn some basic aspects of chemical production, with special emphasis on environmentally friendly methodologies for the synthesis of fine chemicals and advanced materials.</p> <p>Contents This course is offered in the Spring semester with the goal of understanding chemical and biomolecular engineering. Various topics will be presented by different instructors, as listed in the course schedule below, with each instructor giving two lectures for each topic.</p>
Other subject is relevant and complete a point to notice(J)	
Other subject is relevant and complete a point to notice	It would be desirable that the students attending this class have wide knowledge of fundamental chemistry at the undergraduate course level.
Contents and progress schedule of class(J)	
Contents and progress schedule of class	<ol style="list-style-type: none"> 1. Chemistry of carbon nanomaterials by Assoc. Prof. Fabio PICHIERRI <ol style="list-style-type: none"> 1-1. Structure and bonding in organic molecules 1-2. Fullerenes, carbon nanotubes and graphene 2. Chemistry of polymer nanoassemblies by Prof. Masaya MITSUISHI <ol style="list-style-type: none"> 2-1. Polymer nanosheets 2-2. Cyclosiloxane building blocks 3. Catalytic production of chemicals from biomass by Prof. Keiichi TOMISHIGE <ol style="list-style-type: none"> 3-1. Production of pure platform chemicals from biomass 3-2. Conversions of biomass-derived platform chemicals 4. SDGs nanomaterial processing by Assoc. Prof. Yamato HAYASHI <ol style="list-style-type: none"> 4-1. Concept of nanomaterial processing in SDGs 4-2. Application of nanomaterial processing in SDGs 5. Fine synthetic organic chemistry using metallic reagents by Senior Lec. Shinya TANAKA <ol style="list-style-type: none"> 5-1. Carboxylation reactions with carbon dioxide 5-2. Synthesis and use of cyclic functional molecules

	<p>6. Chemistry of surfactant and amphiphile in water by Assoc. Prof. Keishi SUGA 6-1. Basic aspects of surfactant self-assembly 6-2. Application of self-assemblies: food, cosmetic, and medicine</p> <p>7. Technology for protection and purification of aquatic environment by Assoc. Prof. Tomohito KAMEDA 7-1. Water treatment technology for hazardous substances 7-2. Application of inorganic compounds</p>
 self study(J)	ノートや配布資料を復習し、理解を深める。
 self study	To deepen understanding after each class, review and summarize the content of learning looking back at one's own notes, the handout or prints that were delivered by each instructor.
 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	Evaluation is performed comprehensively based on reports, homework, short tests etc.
 Textbook and references	
 URL	
 Attached file	
 Office hours(J)	
 Office hours	After each lecture in the class room, otherwise any time at his/her office but an appointment should be made in advance.
 Notes	The handout and/or prints will be delivered by each instructor in his/her class.
 Practical business	
 In addition	
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