

Macromolecular Design

2 units (selection)

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Target This class introduces the generation and functionality of natural and synthetic polymers, in molecular scale, with a view to designing a functional polymer precisely.

Outline Chemical macromolecular (polymer) design at an advanced level will be covered in this course. Emphasis is on the analysis, in atomic scale, of the factors which fulfill the unique polymerizations and the speciality of polymers on the basis of the recognition of polymerization-polymer microstructure-polymer functionality relationships. Application of the analytical information to macromolecular design and recent topics in the design will also be provided in this course.

Keyword *macromolecular design, polymer chemistry, functional polymer*

Relational Lecture “**Lecture in Optical Materials and Devices, Part 3**”(0.5)

Requirement Students are required to have a good understanding of undergraduate-level polymer chemistry

Notice You have to prepare for next lesson and review that day's lesson for 2 hrs respectively against 2 hr lesson to understand the lesson and acquire the credits.

Goal

1. To understand the control of polymerization and polymer structure
2. To understand the characterization and functionality of polymer

Schedule

1. Introduction to macromolecular design
2. Generation and functionality of natural polymers (1)
3. Generation and functionality of natural polymers (2)
4. Generation and functionality of natural polymers (3)
5. Preparation and functionality of synthetic polymers (1): optical polymers
6. Preparation and functionality of synthetic polymers (2): optical polymers
7. Preparation and functionality of synthetic polymers (3): photo and biodegradable polymers
8. Preparation and functionality of synthetic polymers (4): photo and biodegradable polymers
9. Preparation and functionality of synthetic polymers (5): magnetic polymers
10. Preparation and functionality of synthetic polymers (6): magnetic polymers
11. Nanomaterials (1)

12. Nanomaterials (2)

13. Topics in macromolecular design (1)

14. Topics in macromolecular design (2)

15. Topics in macromolecular design (3)

Evaluation Criteria Evaluation by a term paper.

Textbook To be introduced in the class

Reference To be introduced in the class.

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216649>

Contact

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