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EUROPEAN UNIVERSITY FOR CUSTOMISED EDUCATION

STUDY GUIDE

SUMMER SCHOOL: BIOINSPIRED CHEMISTRY – FROM MATERIALS TO SUSTAINABLE DEVELOPMENT

Organised by

Poznan University of Technology

1. IDENTIFYING DATA.	
· Course Name.	Summer School in Bioinspired Chemistry – from Materials to Sustainable Development
· Coordinating University.	Poznan University of Technology
· Partner Universities Involved.	University of Mons (Belgium), the University of Catania (Italy)
· Course Field(s).	Bioinspired systems, Biomimetics, Biomaterials, Functional Macromolecules, Nanomedicine, Biointerfaces, Sustainable & Environmental Chemistry, Smart Materials
· Related Study Programme.	-
· ISCED Code.	ISCED 0531
· SDG.	Goal 3 Good Health and Well-Being Goal 7 Affordable and Clean Energy Goal 9 Industry, Innovation and Infrastructures Goal 10 Reduced Inequalities within and among countries Goal 12 Responsible Production and Consumption Goal 13 Climate Action
· Study Level.	3rd year of Bachelor (B), Master (M) and PhD students
· EUNICE Key Competencies.	

Problem solving	strongly
Teamworking	strongly
Communication	strongly
Self-management	moderately
Cognitive flexibility	moderately
Digital competence	partially
Technical competence	not at all
Global intercultural competence	partially

· Number of ECTS credits allocated.	6
· Mode of Delivery.	Blended Intensive Programme
· Language of Instruction.	English
· Course Dates.	Online module: 1-4 September On-site part at PUT: 8-12 September
· Precise Schedule of the Lectures.	On-site part: 8 h of courses with partner university lectures and guest experts, 10 h of teamwork, mini-panel discussions, a round table with experts and a pitching competition. Half-day excursion to an industrial site, half-day workshop on 3D printing for medical applications. Online and on-site: self-study, team consultations and pitch preparation.
· Key Words.	Bioinspiration, Sustainable Chemistry
· Catchy Phrase.	"Bioinspired Chemistry: Where Chemistry Meets Nature"

· Prerequisites and co-requisites.	I. 3rd year of Bachelor, Master or PhD students II. Background in Chemistry/Physics/Biology/Engineering III. B2 English level
· Number of EUNICE students that can attend the Course.	15
· Course inscription procedure(s).	**Students from Poznan University of Technology**: send filled registration form to eunice.admissions@put.poznan.pl **Other EUNICE students** (from Brandenburg University of Technology Cottbus-Senftenberg, University of Catania, Université Polythecnique Hauts-de-France, Karlstad University, University of Mons, University of Peloponnese, Poznan University of Technology, University of Vaasa or Polytechnic Institute of Viseu): **contact your university's** International Relations Office

2. CONTACT DETAILS.

· Department.	Faculty of Chemical Technology
· Name of Lecturer.	Magdalena Regel-Rosocka (magdalena.regel-rosocka@put.poznan.pl)
· E-mail.	eunice.admissions@put.poznan.pl
· Other Lecturers.	Marta Woźniak-Karczewska (marta.wozniak-karczewska@put.poznan.pl)

3. COURSE CONTENT.

The sector of bioinspired chemistry has a potential leading role to play in addressing some of the most important challenges that humanity must solve, such as developing new biomaterials for health, drug-delivery systems, adaptive materials with life-like properties, improved catalysts that function in water, high-density information storage systems, etc., while responding to ecological and sustainable transition challenges.

4. LEARNING OUTCOMES.

- Gaining knowledge of bioinspired materials, their manufacturing, characterisation, applications.
- Ability to validate different approaches to address the scientific challenges and propose solutions.
- Ability to identify, select, and critically analyse various specialised resources to synthesise the data and prepare a presentation.
- Developing team work and pitching skills.

5. OBJECTIVES.

The objective of the Summer School is to familiarise students with the issues of bioinspired materials, their properties and applications (especially in health, sustainability, and as advanced materials), enabling them to undertake scientific challenges in their team projects (assigned during the virtual part), and engage them in scientific collaboration and communication. By practical aspects such as a workshop and excursion, the Summer School will foster a forward-looking perspective on research and innovation in the field of bioinsipired chemistry.

6. COURSE ORGANISATION.

UNITS	
1.	Artificial enzymes
2.	Bioinspired photonics
3.	Biomimetic materials

4.	Pharmaceutical and medical applications
5.	Sustainable material design and circular bioeconomy

LEARNING RESOURCES AND TOOLS.

- e-learning
- On-site seminars
- Workshop on 3D printing for medical applications
- Excursion to an industrial site

PLANNED LEARNING ACTIVITIES AND TEACHING METHODS.

Content: **virtual consultations** on team projects in the field of Bioinspired Chemistry, on-site seminars on advances in Bioinspired Chemistry (artificial enzymes, bioinspired photonics, biomimetic materials, pharmaceutical and medical applications), a **workshop** on 3D printing for medical applications and an **excursion** to an industrial site. Students will also be involved in international teams (of 2-3 students), collaborating on projects within the broad field of Bioinspired Chemistry.

The activities will be led by lecturers from the University of Mons (Belgium), the University of Catania (Italy), the Poznan University of Technology (Poland), and guest lecturers. They will also provide support and mentoring to the project teams.

7. ASSESSMENT METHODS, CRITERIA AND PERIOD.

Active participation in the virtual and on-site parts of the Summer School is required. The evaluation of a pitch presentation of a team project in front of a jury comprising the participating lecturers, on 12 September.

OBSERVATIONS.

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8. BIBLIOGRAPHY AND TEACHING MATERIALS.

Will be provided by lecturers during the Summer School.