

Course title: Microencapsulation techniques and applications – selectable / ~~regular course~~

Number of contact hours: 60 hours (24h lectures/24 Lab/ 12 Project)

ETCS credits: 6

Course description: The aims of the module are:

1. To develop student's knowledge and understating of microencapsulation principles, advantages and applications;
2. To introduce the students to the main microencapsulation techniques and characterization methodologies;
3. To provide students with the ability to apply microencapsulation techniques;
4. To provide students with the ability to apply relevant physical, chemical and biological tests to characterize a microencapsulated system;
5. To develop student's skills in the selection of a microencapsulation process having in view a final application.

Education effects (P6S_UW, P7S_WG):

At the end of the module, the learner is expected to be able to:

1. Identify, choose, and apply microencapsulation techniques;
2. Know, select and apply physical, chemical and biological methodologies to characterized a microencapsulated system;
3. Select and propose encapsulating materials and microencapsulation techniques to develop a final product.

Literature:

- 1) S.K. Ghosh (Editor), Functional Coatings by Polymer Microencapsulation, Wiley-VCH, 2006, Chapters 1, 5; pages 1-26, 153-184.
Hae-Soo Kwak (Editor), Nano- and Microencapsulation for Foods, Wiley-Blackwell, 2014. Chapters 1; pages 17-38.
- 2) S.K. Ghosh (Editor), Functional Coatings by Polymer Microencapsulation, Wiley-VCH, 2006, Chapters 5; pages 153-184.
Hae-Soo Kwak (Editor), Nano- and Microencapsulation for Foods, Wiley-Blackwell, 2014. Chapter 4, 14; pages 65-88, 345-358.
- 3) No specific literature (to be selected by the student according to the developed project)

Assessment method:

| LOs | Assessment methods | Weight |
|-----|--|--------|
| 1 | Laboratory work and written exam | 25% |
| 2 | Laboratory work and written exam | 25% |
| 3 | Project work, oral presentation and discussion | 50% |

Prerequisites: Before the course unit the learner is expected to be able to:

1. Demonstrate knowledge on the fundamentals of basic sciences;
2. Demonstrate knowledge on Instrumental Methods of Analysis.

Primary target group:

Lecturer: Filomena Barreiro and Isabel Ferreira - Polytechnic Institute of Bragança