295765 - 295EM125 - New Challenges in Additivation and Degradation of Plastic Materials

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 702 - CEM - Department of Materials Science and Engineering
Academic year: 2019
Degree: MASTER'S DEGREE IN MATERIALS SCIENCE AND ADVANCED MATERIALS ENGINEERING (Syllabus 2019). (Teaching unit Optional)
ERASMUS MUNDUS MASTER'S DEGREE IN ADVANCED MATERIALS SCIENCE AND ENGINEERING (Syllabus 2014). (Teaching unit Optional)
ECTS credits: 6 Teaching languages: Spanish

Teaching staff

Coordinator: Orlando Santana Pérez
Others: Maria Lluïsa Maspoch
Jonathan Cailloux
Profesores invitados (conferencias).

Degree competences to which the subject contributes

Specific:
- CEMCEAM-01. (ENG) Dissenyar i desenvolupar productes, processos i sistemes, això com l'optimització d'altres ja desenvolupats, atenent a la selecció de materials per aplicacions específiques.
- CEMCEAM-02. (ENG) Aplicar métodos innovadores para el diseño, simulación, optimización y control de procesos de producción y transformación de materiales
- CEMCEAM-03. (ENG) Realizar estudios de caracterización y evaluación de materiales según sus aplicaciones
- CEMCEAM-05. (ENG) Interpretar y aplicar normativas y especificaciones relativas a los materiales y sus aplicaciones
- CEMCEAM-06. (ENG) Evaluar el tiempo de vida en servicio, la reutilización, la recuperación y el reciclaje de productos atendiendo a las características de los materiales que lo conforman

Transversal:
- 02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
- 05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
- 06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
- 07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

Learning objectives of the subject

1. Study the main requirements for ecodesign and circular economy in polymeric materials.
2. Know the main families of thermoplastics, both fossil and biobased, their relevant characteristics and challenges related
3. Introduce the main families of elastomers, their most relevant characteristics and challenges related to eco-design and circular economy in this type of materials.
4. Know the main mechanisms of thermo-oxidative degradation, UV.
5. Know the main stabilization additives against degradation-decomposition and the challenges that arise from the eco-design and circular economy.
6. Introduce technological aspects and European initiatives related to the revaluation of polymer material recycled.

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Bibliography

Basic:


Complementary: