AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY

Module name: Special Glasses

Academic year: 2019/2020 Code: CIMT-1-073-s ECTS credits: 3

Faculty of: Materials Science and Ceramics

Field of study: Materials Science Specialty: —

Study level: First-cycle studies Form and type of study: Full-time studies

Lecture language: English Profile of education: Academic (A) Semester: 0

Course homepage: —

Responsible teacher: dr inż. Pawlik Justyna (pawlikj@agh.edu.pl)

Module summary

The Special Glasses course will provide knowledge about glasses processing technologies and glass modifications for specific and innovative applications. Throughout this course students will be encouraged to explore and develop their engineering competences.

Description of learning outcomes for module

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Connections with FLO	Method of learning outcomes verification (form of completion)
Social competence: is able to			
M_K001	Student is able to a critical view in selection of data from various sources.	IMT1A_K01	Participation in a discussion, Presentation, Activity during classes
Skills: he can			
M_U001	Student can describe types, fabrication techniques and properties of Special Glasses.	IMT1A_U03	Participation in a discussion, Presentation, Activity during classes
M_U002	Student can describe the importance and application of Special Glasses.	IMT1A_U01	Participation in a discussion, Presentation, Activity during classes
M_U003	Students will gain basic information of new techniques and technologies of Special Glasses production.	IMT1A_U05	Participation in a discussion, Presentation, Activity during classes
Knowledge: he knows and understands			

M_W001	Student knows and understands the important roles for Glass surfaces and the methods for Glass surface functionalization.	IMT1A_W03	Participation in a discussion, Presentation, Activity during classes
M_W002	Student knows and understands the types and properties of Special Glasses, as well as characterization techniques.	IMT1A_W01, IMT1A_W03	Participation in a discussion, Presentation, Activity during classes

Number of hours for each form of classes

	Form of classes										
Suma	Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Prace kontrolne i przejściowe	Lektorat
30	0	0	0	0	0	30	0	0	0	0	0

FLO matrix in relation to forms of classes

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Form of classes										
		Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Prace kontrolne i przejściowe	Lektorat
Social competence: is able to												
M_K001	Student is able to a critical view in selection of data from various sources.	-	-	-	-	-	+	-	-	-	-	-
Skills: he can												
M_U001	Student can describe types, fabrication techniques and properties of Special Glasses.	-	-	-	-	-	+	-	-	-	-	-
M_U002	Student can describe the importance and application of Special Glasses.	-	-	-	-	-	+	-	-	-	-	-
M_U003	Students will gain basic information of new techniques and technologies of Special Glasses production.	-	-	-	-	-	+	-	-	-	-	-
Knowledge: he knows and understands												
M_W001	Student knows and understands the important roles for Glass surfaces and the methods for Glass surface functionalization.	-	-	-	-	-	+	-	-	-	-	-

M_W002	Student knows and understands the types and properties of Special Glasses, as well as characterization techniques.	-	-	-	-	-	+	-	-	-	-	-

Student workload (ECTS credits balance)

Student activity form	Student workload
Udział w zajęciach dydaktycznych/praktyka	30 h
Preparation for classes	15 h
przygotowanie projektu, prezentacji, pracy pisemnej, sprawozdania	30 h
Realization of independently performed tasks	15 h
Summary student workload	90 h
Module ECTS credits	3 ECTS

Additional information

Module content

Seminar classes

Special Glasses course covers comprehensive approach to the fabrication techniques, chemical composition and characterization methods of glasses with special properties.

During this course particular focus will be placed on:
•Glasses with improved properties – i.e. toughened glass, fire and bullet proof glass
•Glass surfaces and coatings for new/improved functionality i.e. self-cleaning glass, anti-reflective glass, low-emissivity glass, decorative glass
•Glasses for biomedical applications
•Glass as a component of composites
•The challenges/strategies/future trends in Glass Technology

Teaching methods and techniques:

Seminar classes: Na zajęciach seminaryjnych podstawą jest prezentacja multimedialna oraz ustna prowadzona przez studentów. Kolejnym ważnym elementem kształcenia są odpowiedzi na powstałe pytania, a także dyskusja studentów nad prezentowanymi treściami.

Warunki i sposób zaliczenia poszczególnych form zajęć, w tym zasady zaliczeń poprawkowych, a także warunki dopuszczenia do egzaminu:

Warunkiem zaliczenia zajęć jest aktywny udział Studentów oraz opracowanie zagadnień naukowych na zajęciach seminaryjnych.

Zasady udziału w poszczególnych zajęciach, ze wskazaniem, czy obecność studenta na zajęciach jest obowiązkowa:

Seminar classes:
– Attendance is mandatory: Yes

– Participation rules in classes: Studenci prezentują na forum grupy temat wskazany przez prowadzącego oraz uczestniczą w dyskusji nad tym tematem. Ocenie podlega zarówno wartość merytoryczna prezentacji, jak i tzw. kompetencje miękkie.

Method of calculating the final grade
OK = 0.7 P + 0.3 Ob

gdzie
P – przygotowanie i wygłoszenie prezentacji
Ob- obecność Studenta na zajęciach

Sposób i tryb wyrównywania zaległości powstałych wskutek nieobecności studenta na zajęciach:
Ustalane indywidualnie ze Studentem.

Prerequisites and additional requirements
Znajomość języka angielskiego na poziomie umożliwiającym zrozumienie i komunikację w trakcie zajęć. Podstawy angielskiej terminologii technicznej.

Recommended literature and teaching resources
Publikacje naukowe będą podawane na bieżąco przez prowadzącego zajęcia.

Scientific publications of module course instructors related to the topic of the module
Publikacje naukowe osób prowadzących zajęcia dostępne są w Bibliografii Publikacji Pracowników AGH (https://bpp.agh.edu.pl/)

Additional information
None