Course Outline Model (Syllabus)		
Faculty:	Geoscinces	
Name of study program:	Faculty of Geoscinces	
Department:	Materials and Metallurgy	
Level:	Master	
The code of subject:	10	
Subject:	Casting Techniques	
Subject Status:	Elective	
Semester:	Summer	
Total hours:	2+2	
ECTS:	4	
Schedule / Hall		
Academic year:		
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BRIEF CONTENT OF SUBJECT	This course enable the student to acquire knowledge about advanced foundry processes of metals processing in liquid state. The topics of subject are related to the new technology processes, materials, energy, equipment classification and casting process. Relationship with other technologies and the overall environmental impacts depending on the type of technological process. Evaluation of production costs: raw materials, energy, personnel, technological equipment and environmental preservation. Use of the software of CAD / CAM to design the casting process.	
AIMS	The aim is to familiarize students with the most advanced technological methods of making parts by: superalloys, and reactive metal implants, composite metal foam castings ,monocrystals obtained by directed crystallization and dr.Many of these procedures are still in the experimental stage of development or prototypical primarily because of exceptional costs of production.	
EXPECTED LEARNING OUTCOMES	By the end of the module, students should be able to: • Analyze and identify problems in casting product of metallurgical plant ; • Recognize the processes, materials and equipment in advanced processes casting metals, • Propose new technical solutions of casting ; • Asses the value and quality of the product obtained by special technological procedures • Examine the integral parts of designing process and management ; • Create a conceptual design solutions in the form of technical projects for simple problems.	
PROGRAM	**Weeks**	Topic and Readings
	Week - I	Introductions to the course, syllabus reading, (introductory lecture). Concept, Levels and areas of application ;
	Week - II	New technological processes of casting , materials, energy, equipment, and stage of the classification of casting process;

	Week - III	Design structure of the new processes, and management ; Stages in the development of a process;Characteristics of the process industry; Research, technological development, and the design ;
	Week - IV	Relationship with other technologies and overall environmental impacts depending on the type of process technology ;Development of new process stages;
	Week - V	Development of new process stages; Development process obstacles ; Typical problems during the process Plant design for new processes;
	Week - VI	Sources of information; Assessment of the investment cost, Elements of process economics;
	Week - VII	Submission and defense of prepared works of students;
	Week - VIII	Evaluation of production costs: row materials, energy, personnel, equipment and environmental protection technology; Process safety;
	Week - IX	Technological processes, equipment and schedule: Selected cases (examples of preparation of solutions for the selected technological process - work on groups).
	Week - X	Special techniques for spilling details of special alloys , composite materials and reactive metals;
	Week - XI	Special techniques for spilling details of special alloys , composite materials and reactive metals;
	Week - XII	Internal and external factors for development; production management;Efficiency and effectiveness in work;
	Week - XIII	Preparation of special models and the application of modern techniques for simulating casting processes Production quality standard; Using computer CAD / CAM in the design of the casting process
	Week - XIV	Using computer CAD / CAM in the design of the casting process;
	Week - XV	Submission and defense of prepared works of students;
LITERATURE	Basic literature used in the course: M. Rizaj,N.Deva Ligjerata të autorizuara, Mitrovicë, 2015. Metals Handbook, Volume 15, Casting, ASM International, Metals Park, Ohio, 2008. Heine, Loper and Rosenthal, “Principles of Metal Casting”, McGraw-Hill, NY, 2008	

TEACHING METHODOLOGY

Each class will consist of a combination of theoretical lectures , practical lectures in laboratory ineractive discussions in the classroom, seminar paper.

We will try to invite experts from different areas of the metallurgy to give a lecture on the relevant topics , followed by questions and answers.

Delivery tools/ IT tools

Teaching will take place in the classroom and laboratories through lectures, practical assignments, individual and group interpretations, periodic self-assessments, etc.

The ratio between the theoretical and practical part of the study

Theoretically, general scientific knowledge based on contemporary literature will be provided. The practical part will mainly be realized through concrete examples from the literature and practical knowledge of private and public production enterprise. The relationship between the theoretical and the practical part is given in the tabular part of the study program. Theory-practical ratio **:** 60% theory and 50% practice / case study / seminar paper.

Contribution to student workload (which should correspond to student learning outcomes 1 ECTS credit = 25 hours)

Activity	Hours	Day/Week	Total
Lectures	3	15	45
Exercise sessions - theoretical	2	15	30
Field exercises	3	5	15
Practical work	2	5	10
Consultation with the professor / assistant	1	10	10
Colloquiums / seminars	2	5	10
Independent tasks (work)	1	10	10
Student self study time (in library or at home)	1	15	15
Final exam preparation	2	5	10
Time spent in assessment (tests, quizzes, final exams)	1	10	10
Projects, presentations, etc.	2	5	10
Total			**175**

EVALUATION

Evaluation methods [according to the Statute and Regulation of UMIB Studies]	
Tests	2*20% = 40 %
Practical test during exercises	15%
Seminary work (in word)	10%
Interpretation and presentation of seminary work	10%
Tasks and essays during the semester	5%
Final exam	20%

ACADEMIC POLICIES	**Further guidance:** ● **Working with computer** Written papers must be written in computerised form, and is obligatory to respect the criteria required during the written work. ● **Ethics in learning** All students tasks should be the student's work, and therefore is not allowed copying from each other work . ● **Deadlines** The deadlines will be set in agreement with the students, and therefore student absence to class when the task is explained does not justify the student for not submitting the paper. The student has the right to request consultation with the professor whenever he/she needed help for the performance of his / her work. ● **Rules of conduct and academic policies:** o student's active participation in lectures o participation in discussions, comments and free expression of academic opinion, opinion and attitude (with arguments) o mandatory independent work and the use of additional sources of information (various scientific websites, scientific journals, conference proceedings etc.) o silent cell phones during the lectures