Course Outline Model (Syllabus)		
Faculty:	Geoscinces	
Name of study program:	Materials and Metallurgy	
Department:		
Level:	Master	
The code of subject:	3	
Subject:	Research methodology	
Subject Status:	M	(Compulsory or Elective)
Semester:	I	(Winter / Summer)
Total hours:	3+2	(According to approved programe)
ECTS:	6	(According to approved programe)
Schedule / Hall		
Academic year:		
Professor:	Prof. Asoc. Nurten Beligradi-Deva	
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BRIEF CONTENT OF SUBJECT	This course enables the student to acquire knowledge about the definion , development history of sciense. The course contains variety topics about scientific principles, aim of scientific research work , research methodology, scientific methods , laboratory support for research , collection of data generated during research ,etc,. In particular the course focuses on paper publication in journals in line with scientific ethics ,prezenatation in conferences , and implementation of the data obtained in order to improve continuously development of sciense . Furthermore, this is course encourages the student to apply the data gained in practical work.
AIMS	The purpose of this subject is to develop student's understanding of the methods of research through the identification, planning and execution of an appropriate research project in a area of chosen subject .Students will develop the ability for sense for the methodological aspects of their respective disciplines. This module provide the student with the necessary knowledge, understanding and skills needed to not only encourage the practice of research, but also to conceive a scientifically written, fully implementable, academically and methodologically accepted research proposal.
EXPECTED LEARNING OUTCOMES	By the end of the module, students should be able to: ● Identify the reserch problems , and apply relevant theory to the problem ; ● Define the problem clearly in order to avoid the obstacles, and difficulties; ● Make use of the published literature in areas appropriate to the area of the research; ● Analyse the information gained/results of the project ● Choose the methodology of professional and scientific work; ● Take part in effectively as a member of a team, communicate effectively verbally and in writing ; ● Compile an analytical document into specific areas of research, Collect, analyse, organize and critically evaluate information; ● Communicate the work and its outcomes in a variety of formats - report, poster and academic paper;

PROGRAM	Weeks	Topic and Readings
	Week - I	Introductions to the course, syllabus reading Methodology and methods of scientific researchwork. Organization of the scientific research work
	Week - II	Organization of the scientific research work Research, and sciense ;
	Week - III	Writing and communication skills, Planning and design,
	Week - IV	Setting of problem, Review of related literature, Discovery of knowledge,Data collected
	Week - V	Writing the research proposal, Methodologies of research design, Types of sampling
	Week - VI	First test coloqfium
	Week - VII	Bias in research, Role of statistics as a method of adding meaning to data, Experimental method, Measurement and evaluation
	Week - VIII	Experimental method, Measurement and evaluation
	Week - IX	Validity and reliability, Production of technical research report
	Week - X	Presenting the results of research, Writing the research report, Style format and readability of report,
	Week - XI	Implementation of the experiment in practice
	Week - XII	Research work and practical work in systematizing the obtained data
	Week - XIII	Project proposal presentation, written proposal, progress presentation and reports, final report and presentation
	Week - XIV	Second colloqfium ;
	Week - XV	Case study presentation ;

LITERATURE

Basic literature used in the course:

1. Leksione te metalurgjise ,Gian Mario Palucci ,2006

2. H.Chandler, Metallurgy for Non-Metallurgist, ASM International, 1998, 298

3. W.D. Callister, Jr., D.G. Rethwisch, Materials science and engineering: an introduction, 8 - th edition, John Willey and Sons, New York, 2010, ISBN: 978-0-470-41997-7 (Original title)

4. I. Gabrić, S. Šitić, Materijali I, Split, 2012.

5. Osnovi Metalurgije , Podgorica, 2006

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 40% 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	3	5	15
Consultation with the professor / assistant	1	10	5
Colloquiums / seminars	2.5	4	10
Independent tasks (work)	1	5	5
Student self study time (in library or at home)	1	15	15
Final exam preparation	1	15	15
Time spent in assessment (tests, quizzes, final exams)	1	10	10
Projects, presentations, etc.	1	10	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