Syllabus

Basic data of the subject	
Academic unit:	**Faculty of Engineering and Informatics**
Title of the subject:	**Finite Element Analysis**
Level:	**Bachelor**
Course Status:	**Core**
Year of studies:	**III/Semester 5**
Number of hours per week:	**4**
Value of Credits - ECTS:	**6**
Time / location:	
Course lecturer:	**Prof.Asoc.dr. Ferit Idrizi**
Contact details:	**ferit.idrizi@ushaf.net**
Course Description	*This course teaches students the basics of Analysis of Elementary Elements (AEF) with practical experience in numerical application and its applications in solving complex engineering problems using various software applications.*
Objectives of the course:	*This subject teaches students the basics of |Finite Element Analysis (FEA) with practical experience in numerical application and its applications in solving complex engineering problems using various software applications.*
Expected learning outcomes:	*Upon successful completion of this subject, student will be able to:* • *demonstrate a basic understanding of the concepts of FEA, mathematical formulation and numerical application of FEA in solid materials* • *analyse complex problems using commercial FEA software;* • *develop FEA models that adequately and realistically represent physical systems;* • *demonstrate the ability to give a professional report of their work to the FEA and its presentation.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures with lab tutorials	4	15	60
Internship			
Contacts with teacher / consultations	3	3	9
Field exercises			
Midterm, seminars and projects.	20		20
Homework			
Self-learning time student (at the library or at home)	4	15	60

Final preparation for the exam			
Time spent on evaluation (tests, quiz and final exam)			
Projects and presentations.	1		1
Total			**150**

Teaching methodology:	*Lectures combined with laboratory exercises using AEF applications*
Assessment methods:	*70% seminar work and presentation with 30% weight overall rating*
Literature	
Basic Literature:	*Jacob Fish, Ted Belytschko, A First Course in Finite Elements, Wiley 2007*
Additional Literature:	*Daryl L. Logan, A First Course in the Finite Element Method, Cengage Learning, 2011*
The ratio of theory and practice	*60% theory with numerical exercises and 40% laboratory work.*

Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	*Introduction to AEF procedures*
Week two:	*The basics of mechanics*
Week three:	*Introduction to application software of AEF*
Week four:	*Laboratory work*
Week five:	*Formulation of finite elements*
Week six:	*AEF in a dimension*
Week seven:	*Triangle Element 2-D*
Week eight:	*Laboratory work*
Week nine:	*Laboratory work*
Week ten:	*Tetrahedron element 2-D*
Week eleven:	*Isoparametric Elements 2-D*
Week twelve:	*Elements 3-D*
Week thirteen:	*Laboratory work*
Week fourteen:	*Laboratory work*
Week fifteen:	*Presentation of seminar papers*

Academic policies and rules of conduct
Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.