UNIVERSITETI "KADRI ZEKA" UNIVERSITY

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<u>**SYLLABUS**</u>
Course: **Combinatory with Graph Theory**

Basic information of the course	
Academic unit:	**FAS**
Course Title:	**Combinatory with Graph Theory**
Level:	**Bachelor**
Program:	**Mathematic Education**
Course status:	**Obligatory**
Academic year:	**2019/2020**
Year of study:	**Year II, Semester IV**
Number of hours per week:	**3+2**
Credits – ECTS:	**7 ECTS**
Timer / Location:	
Professor of subject:	**Prof. Ass. Dr.**
Contact details:	
Description, Objectives and expected resultes	
Course description:	*Contents of the course include*: **Permutations; Variations; Combinations; Partitions; Compositions; Meaning of graph; Path and circuits in graph, Euler and Hamilton Graph; Problem of shortest path; operations with graph; planar graph.**
Objectives of the course:	*Combinatory with Graph Theory* **aims to integrate training of professionals in the field of science mathematics education bachelor studies.** **The course objective is to acquaint students with the basics of knowledge in** *Combinatory with Graph Theory*. **Another goal is to develop the skills and abilities of students so that they successfully solve concrete problems in field of mathematics whenever required implementation** *Combinatory with Graph Theory*.
Expected learning outcomes:	**After successful completion of the course** *Combinatory with Graph Theory*, **students will be able to:** • **To implement knowledge about, Variations; Combinations; Partitions; Compositions and in solving various problems in graph theory and generally in mathematics.** • **recognize the concept and understanding of, Meaning of graph; Path and circuits in graph, Euler and Hamilton Graph; Problem of shortest path.** • **recognize and understanding planar graph and operations with graphs.**

Student contribution				
Activity	Hours	Day / Week	Total	
Lectures	2	15	30	
Theoretical exercises / laboratory	2	15	30	
Contacts with teacher / consultations	1	15	15	
Collocfiums, seminars	3	2	6	
Homework	1	15	15	
Self-learning time student (at the library or at home)	1	15	15	
Final preparation for the exam	2	15	30	
Projects, seminars, presentations, etc.	3	3	9	
Total			**150**	

150:25≈5 ECTS.

Teaching methodology and assessment methods

Teaching methodology:	Regular lessons, lectures, consultations, discussions, individual independent work, term papers (homework), presentations.
Methods of assessment:	The exam consists of a written part and the oral part. The assessment is based on the following activities: Participation and engagement in hours (10%) (Koll.) Test 1-40% (written examination) (Koll.) Test 2-40% (written examination) Seminar papers (individual independent work) - 10% Final exam: 80% (for those who do not pass colloquiums). Points Score 91-100 10 81-90 9 71-80 8 61-70 7 51-60 6

Literature

Base literature:	• **Vasillaq Kedhi, Tiranë 2000, Grafet dhe rrjedhat në grafe** • **Dr.Sc. Qefsere Doko Gjonbalaj-Prishtinë 2011. Matematika III drejtimi komjuterikës.** • **Edward A. Bender & S. Gill Williamson 2005. Basic Concepts in Graph Theory**

Designed teaching plan:

Week	The lecture to be held
I - week :	**Permutations. Practice examples.**
II - week :	**Permutations of total disorders. Permutations with inversions**
III - week :	**Combinations. Practice examples.**
IV - week :	**Variations. Practice examples.**
V - week:	**Divisions and compositions**
VI- week	**Combinational Configurations**
VII-week	**First assessment.**
VIII-week	**Intuitive understanding of graph. Definition of non-orientated and orientated graph.**

IX-week	**The power of vertices. Neighborhood and incidence Matrix. Path in the graph. Connected graph.**
X-week	**Isomorphism of graphs. Operations with graphs.**
XI-week	**Euler's Graph and Hamilton's Graph**
XII-week	**Planes graphs**
XIII-week	**Coloring of graphs**
XIV-week	**Determining the shortest route in the graph. Algorithms.**
XV-week	**Second assessment.**
Academic policies and rules of etiquette:	

Regular attendance of students assessed with 10 points,
- Students are free to ask questions and active participation in all teaching activity.
- They are not allowed cell phones, late arrival or departure from the class without reason.
- Plagiarism and copying in exams are penalized under the statute and other regulations of the university.
- The Code of conduct applies to both students and teachers.