

Course title: Data and system protection

Course code	Course status	Semester	Number of ECTS credits	Lecture hours
132005230	Mandatory	V	6	3+0+1

Study program:

Basic applied studies, ELECTRICAL ENGINEERING, study program: Computer engineering (studies last for 6 semesters, 180 ECTS credits).

Prerequisites: No prerequisites required.

Course aims:

During this course students are introduced with basics of cryptography based protection, current issues dealing with encryption based safely data exchange, as well as computer and computer networks protection from viruses and network attacks.

Teacher(s) and assistant(s):

Ph.D. Vladan Vujičić, assistant professor – teacher, Dipl. ing. Vladan Mijović– assistant, M.Sc. Enis Kočan – assistant.

Teaching method:

Lectures and laboratory exercises performed in computer classroom/laboratory. Studying and doing home exercises. Consultations.

Course synopsis:

Preliminary weeks	Preparation and semester enrolment.
I week	Introducing lecture. Basic ideas in cryptography. Substitution cipher.
II week	Classical ciphers and cipher devices.
III week	DES cryptosystem: algorithm description and properties.
IV week	An overview of other symmetric cryptosystems. Functioning principles of symmetric cryptosystems.
V week	AES cryptosystem: algorithm description and properties.
VI week	First test
VII week	Free week
VIII week	Basic principles of public key cryptosystem. Diffie-Hellman protocol.
IX week	RSA cryptosystem.
X week	An overview of other public key cryptosystems.
XI week	Hash function, digital signature and digital certificate.
XII week	Protection from computer viruses; virus types and basic functioning principles of antivirus programs.
XIII week	Second test
XIV week	Internet attacks and protection elements.
XV week	Functions and topologies of network firewall.
XVI week	Final exam
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

per week	per semester
6 credits x 40/30 = 8 hours	Teaching and the final exam: (8 h) x 16 = 128 h
Working hours structure: 3 hours for teaching 1 hour for laboratory exercises 4 hours for individual work, including consultations.	Necessary preparation (before semester): 2 x (8 h) = 16 h Total work hours for the course: 6 x 30 hours = 180 hours Additional hours for preparing correction of the final exam, including the exam taking: up to 36 hours (the rest of the time from the first two items, up to the total work hours for the course, 180 hours). Work hours structure: 128 h (lectures) + 16 h (preparation) + 36 hours (additional work)

Lessons attendance is mandatory for students, as well as doing laboratory exercises and both tests.

Literature: Handbook: V.Vujičić: Zaštita podataka i sistema, Podgorica 2004.
Laboratory exercises tutorial.

The forms of knowledge testing and grading:

- 3 laboratory exercise tests carry 6 points total (2 point each).
- Each test carries 22 points (44 points total).
- Final exam carries 50 points.

Student gets the passing grade by collecting 51 points at least.

Special remarks for the course:

Teacher(s) who provided the information: Ph.D. Vladan Vujičić, assistant prof.

Remark: