

University of Zagreb

Faculty of Electrical Engineering and Computing



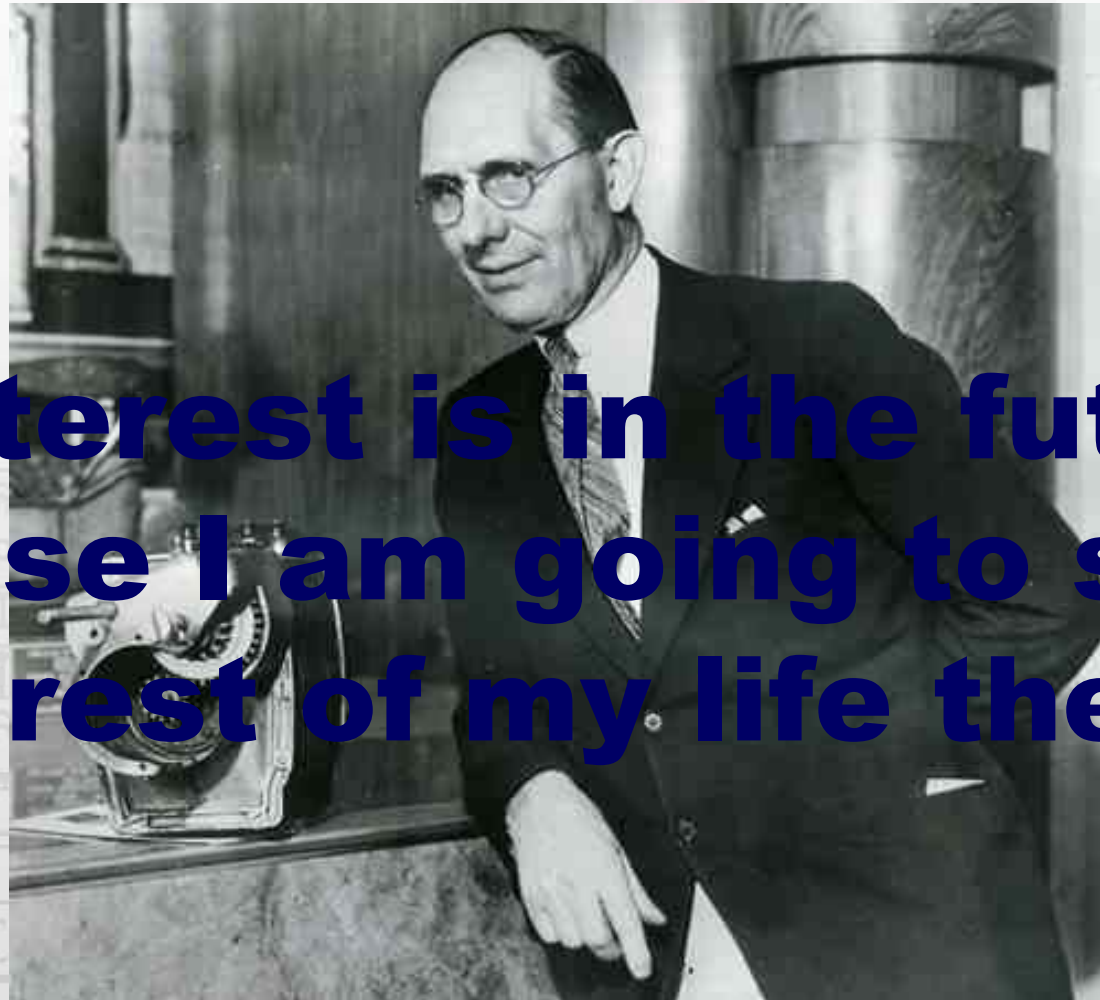
GIS Education at FER Zagreb

Program for the IT focused students with the EU Standards and Bologna process in mind

Charles F. Kettering (1876 - 1958)

(engineer, scientist, inventor)

**My interest is in the future
because I am going to spend
the rest of my life there.**



FER in numbers

- ~ 4300 students
- ~ 650 freshmen
- ~ 450 graduate/year (average duration 6,1 yrs)

- ~ 400 students of postgraduate study
- ~ 120 students of postgraduate PhD Study
- ~ 30 PhD thesis/yr

- 497 employees,
- 143 assistant, associate and full professors (~45g)
- 157 teaching&research assistants

Premises

Building "C"

Main entrance
N 45° 48' 4"
E 15° 58' 15"

Building "B"

Building "A"

Building "D"



43308 m²

Study programs at FER

- FER-1 (last generation)
- FER-2
 - First cycle study programs (3 years)
 - Second cycle study programs (2 years)
- Postgraduate PhD study programs (3 years)
- Specialist study programs (1 year)

First cycle study programs

First cycle study programs	1	<p style="text-align: center;">Study programs:</p> <ul style="list-style-type: none"> • Electrical Engineering and Information Technology • Computing <p style="text-align: center;"><i>(common 1st year for both study programs)</i></p>	
	2	<p>Study program: Electrical Engineering and Information Technology</p>	<p>Study program: Computing</p>
	3	<p>Specializations:</p> <ul style="list-style-type: none"> • Wireless Communications • Electronics • Electronic and Computer Engineering • Control Engineering and Automation • Electrical Power Engineering 	<p>Specializations:</p> <ul style="list-style-type: none"> • Software Engineering • Computer Engineering • Telecommunication and Informatics • Computer Science • Information Processing and Multimedia Systems

ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY STUDY PROGRAM SCHEME

Semester	Course	ECTS points	Lecture hours per week	Lab hours per semester
I	Mathematics 1	7	6	
	Fundamentals of Electrical Engineering	7	5	15
	Digital Logic	6	4	15
	Programming and Software Engineering	6	4	15
	Skills of Communication	3	2	
	Mathematica	1		20
		30	21	
II	Mathematics 2	7	6	
	Physics 1	6	5	15
	Algorithms and Data Structures	6	4	15
	Computer Architecture 1	6	4	15
	Management in Engineering	3	2	
	Autocad	2		30
		30	21	
III	Mathematics 3E	5	4	
	Physics 2	6	5	15
	Electronics 1	7	5	15
	Electrical Circuits	7	5	15
	Quality Management	3	2	
	Matlab	2		30
		30	21	
IV	Probability and Statistics	5	4	
	Signals and Systems	6	4	15
	Energy Technology	6	4	15
	Electromagnetic Fields	6	4	15
	Economics and Managerial Decision Making	4	3	
	Seminar	3	2	
		30	21	
V	Automatic Control	5	4	15
	Communication Systems	5	4	15
	Information Theory	4	3	15
	Specialization course	4	3	15
	Specialization course	4	3	15
	Sustainable Development and Environment Project	2	2	15
		30	19	
VI	Specialization course	4	3	15
	Elective course	4	3	
	Elective course	4	3	
	Elective course	4	3	
	Commercial Law	2	2	
	BSc Thesis	12		
		30	14	

COMPUTING STUDY PROGRAM SCHEME

Semester	Course	ECTS points	Lecture hours per week	Lab hours per semester
I	Mathematics 1	7	6	
	Fundamentals of Electrical Engineering	7	5	15
	Digital Logic	6	4	15
	Programming and Software Engineering	6	4	15
	Skills of Communications	3	2	
	Mathematica	1		20
		30	21	
II	Mathematics 2	7	6	
	Physics 1	6	5	15
	Algorithms and Data Structures	6	4	15
	Computer Architecture 1	6	4	15
	Management in Engineering	3	2	
	Autocad	2		30
		30	21	
III	Mathematics 3C	5	4	
	Physics 2	6	5	15
	Electronics 1	7	5	15
	Operating Systems	7	5	15
	Quality Management	3	2	
	Matlab	2		30
		30	21	
IV	Probability and Statistics	5	4	
	Introduction to Theoretical Computer Science	6	4	15
	Signals and Systems	6	4	15
	Databases	6	4	15
	Economics and Managerial Decision Making	4	3	
	Seminar	3	2	
		30	21	
V	Software Design	8	4	30
	Communication Networks	4	3	15
	Information Theory	4	3	15
	Specialization course	4	3	15
	Sustainable Development and Environment	2	2	
	Software Project	8		
		30	15	
VI	Specialization course	4	3	15
	Specialization course	4	3	15
	Elective course	4	3	
	Elective course	4	3	
	Commercial Law	2	2	
	BSc Thesis	12		
		30	14	

Bachelor Competences (B.Sc.)

- Educational objectives
 - to educate students for a broad range of professional careers,
 - provide the basis for life-long learning, and
 - prepare students for advanced studies at the graduate level
- Program outcomes – to enable students to
 - understand and apply the core science and mathematics principles that form the basis of engineering disciplines
 - understand and apply advanced technology (computers and laboratory equipment) to solve engineering problems
 - understand the importance of the humanities and social sciences as part of a well round B.Sc.ed education and the practice of engineering
 - have a strong sense of the importance of ethics in an engineering setting as well as other aspects of their lives
 - develop communication skills so that they can perform engineering functions effectively.

Second cycle study programs

Second cycle study programs	4	Study program: Electrical Engineering and Information Technology Profiles: <ul style="list-style-type: none">• Control Engineering and Automation• Electrical Engineering Systems and Technology• Electrical Power Engineering• Electronic and Computer Engineering• Electronics	Study program: Information and Communication Technology Profiles <ul style="list-style-type: none">• Information Processing• Telecommunications and Informatics• Wireless Technologies	Study program: Computing Profiles: <ul style="list-style-type: none">• Software Engineering and Information Systems• Computer Engineering• Computer Science
	5			

SECOND CYCLE STUDY PROGRAM SCHEME

Semester	Course	ECTS	Lecture hours per week	Lab hours per semester
VII	Theoretical course	5	3	60
	Theoretical course	5	3	
	Theoretical course	5	3	
	Mathematics and science	4	3	
	Specialization course	4	2	
	Humanistic or social course	2	2	
	Laboratory of the profile, 1	5		
		30	16	60
VIII	Theoretical course	5	3	30
	Theoretical course	5	3	
	Mathematics and science	4	3	
	Specialization course	4	2	
	Specialization course	4	2	
	Humanistic or social course	2	2	
	Seminar	3	2	
Laboratory of the profile, 2	3			
		30	17	30
IX	Specialization course	4	2	
	Specialization course	4	2	
	Elective course	4	2	
	Elective course	4	2	
	Elective course	4	2	
	Humanistic or social course	2	2	
	Project	8		
		30	12	
X	Graduation thesis	30		
		30		

Master Competences (M.Sc.)

- Educational objectives
 - to educate students for a broad range of professional careers and provide the basis for life-long learning
 - to develop engineers who possess a strong foundation in mathematics, science and engineering and are able to link science and engineering principles to identify, formulate and solve complex engineering problems in professional practice and research and development contexts
- Program outcomes
 - Generate engineers who are able to work individually and in teams to identify and solve complex engineering problems and to develop an understanding of interdisciplinary problem solving and system design.
 - Create well-rounded engineers who possess theoretical and practical skills, and understand the significance of humanities and social sciences.
 - Produce graduates who have the necessary teamwork and leadership skills to excel in multidisciplinary team environments.
 - Develop innovative and creative thinking with an understanding of entrepreneurship.
 - Instill in students an appreciation of the impact of engineering solutions in a global and societal context, including the broad implications of professional ethics.
 - Develop the flexibility to adapt to changing technology and an understanding of the need for continuous improvement and lifelong learning.

Postgraduate study programs

Postgraduate study programs	6	Postgraduate PhD study programs <i>Fields and branches:</i> Electrical Engineering <ul style="list-style-type: none">• Automatic Control• Electrical Measurements and Measurement Techniques• Electronics• Electric Machines• Electric Power Engineering• Radiocommunications• Telecommunications and Information Technology Computing	Specialist study Transformers
	7		
	8		

GIS education: FER-1

- Elective course “Geographical Information Systems” – 7th or 9th semestre
- Study program – Electrical Engineering
 - Telecommunications and Information Technology
 - Radiocommunications and Professional Electronics
 - Automation
 - Electric Power Engineering
- Study program – Computing
- Avg. 120 students
- Content is already prepared for FER-2

Moodle - eLearning

Kolegij: Geografski informacijski sustavi - Windows Internet Explorer
http://freddy.cc.fer.hr/moodle/course/view.php

Geografski informacijski sustavi
Prijavljeni ste sustavu kao Davor Škrlec (Odjava)

FER-Moodle ► FER_ZEN05A1

Najsvežije vijesti
Dodajte novu temu...
(No news has been posted yet)

Administracija
Omogući izmjene
Postavke
Assign roles
Ocjene
Outcomes
Grupe
Backup
Restore
Import
Reset
Reports
Pitanja
Datoteke

Uvod
Forum s vijestima
Informacije o predmetu

1 Povijesni korijeni i razvoj GIS-a
Povijesni korijeni i razvoj GIS-a
PDF predavanja
Priča o Anaksimanderu
Priča o Eratostenu
Priča o Ptolomeju
Kako je Eratosten izmjerio Zemlju?
CAD & GIS - razlike i sličnosti
Usporedba CADGIS na primjeru AutoCAD & Autodesk Map 3D

2 Kartografska podloga GIS-a
Kartografska podloga GIS-a
PDF predavanja
Wikipedia - Kartografija
Hrvatska kartografija 1999-2003.
Kartografske projekcije (autor prof. Lapaine-GEOF)
Understanding Map Projections (ESRI)
Odluka o utvrđivanju službenih geodetskih datuma RH
Izmjena Odluke o geodetskom datumu
Obrazloženje Odluke o izmjeni geodetskog datuma
Znanstveno-stručno objašnjenje odluke o izmjeni geodetskog datuma RH
Zakon o državnoj izmjeri

Kalendar
May 2008
Pon Uto Sri Čet Pet Sub Ned
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31

Events Key
Global Course
Group User

Korisnici online
(u zadnjih 5 minuta)
Davor Škrlec

Korisnici
Sudionici

Poruke
No messages waiting
Poruke...

Internet | Protected Mode: Off 100%

Course syllabus

- Course content
 - Historical background and development of GIS
 - Cartographic background of GIS
 - Real world modeling and data format
 - Data sources, collecting and quality
 - GIS databases
 - GIS analysis
 - Interoperability
 - WebGIS
 - Mobile GIS
 - Internet GIS services
 - GIS project management
- Evaluation system
 - Mid-project
 - Final project
 - On-line lessons and self-evaluation exams

GIS education: FER-2

Second cycle study programs	4	Study program: Electrical Engineering and Information Technology Profiles: <ul style="list-style-type: none"> • Control Engineering and Automation • Electrical Engineering Systems and Technology • Electrical Power Engineering • Electronic and Computer Engineering • Electronics 	Study program: Information and Communication Technology Profiles <ul style="list-style-type: none"> • Information Processing • Telecommunications and Informatics • Wireless Technologies 	Study program: Computing Profiles: <ul style="list-style-type: none"> • Software Engineering and Information Systems • Computer Engineering • Computer Science
	5			

Advanced Databases



Geospatial Databases

Geoinformation Systems

Software Engineering and Information Systems – theoretical course
 Computer Science – specialization course

Software Engineering and Information Systems – specialization course

All profiles– elective course

GIS education: Postgraduate study

Geoinformation
Systems

Field: Electrical Engineering
Branches: Telecommunications and
Information Technology; Electric Power
Engineering

Field: Computing

The screenshot shows a Moodle course page for 'Geoinformacijski sustavi' (Geoinformation Systems) in a Windows Internet Explorer browser. The browser address bar shows the URL: <http://moodle.srce.hr/course/view.php?id=57>. The page header includes the 'Merlin' logo and navigation links for 'Sveučilište u Zagrebu' and 'Fakultet elektrotehnike i računarstva'. The main content area displays a course outline with five modules:

1. Uvod u geoinformacijske sustave
 - Uvod u geoinformacijske sustave (slajdovi s predavanja)
 - Kartografske projekcije
2. Prikupljanje i organizacija podataka
 - Prikupljanje i organizacija podataka (slajdovi s predavanja)
3. Distribuirani geoinformacijski sustavi
 - Internet servisi (WebGIS, OpenGeospatial Consortium, Google Maps)
 - Geoinformacijski Internet servisi (slajdovi s predavanja)
4. Distribuirani geoinformacijski servisi
 - Mobilni GIS
 - Mobilni GIS (slajdovi s predavanja)
5. Geoprostorne baze podataka

The right sidebar contains a calendar for 'Svibanj 2008' and a 'Najsvježije vijesti' section. The bottom of the browser window shows 'Internet | Protected Mode: Off' and a zoom level of 100%.

GIS education: Specialist study GIS

Postgraduate study programs	6	Postgraduate PhD study programs <i>Fields and branches:</i> Electrical Engineering <ul style="list-style-type: none">• Automatic Control• Electrical Measurements and Measurement Techniques• Electronics• Electric Machines• Electric Power Engineering• Radiocommunications• Telecommunications and Information Technology Computing	Specialist study Transformers
	7		Specialist study GIS (2009 ... 2010)
	8		

Study structure

Theoretical courses
Specialization courses
Elective courses

Thank you for your attention !



For more information please visit <http://www.fer.hr>