II. 3.4. Description of each course – BASIS COURSES
Literature necessary for course


Course content

Course content

An advanced study of the factors involved in the design and operation of chemical reactors for both homogeneous and heterogeneous system. This course integrates the concepts of chemical kinetics, mass and energy phenomena with those of conservation of energy and mass to form a basis for designing various types of reactors (both batch and continuous flow) for operation under both isothermal and nonisothermal condition. Development and application of mathematical techniques of particular interest for formulation of reactor models. Mass transfer with simultaneous chemical reaction and heat transfer will be examined with regard to their application to practical systems. Other topics include transient and steady – state operation, residence time distributions, stability and selectivity control.
Course: CATALYTIC REACTION ENGINEERING
CATALYSTS DEACTIVATION

Lecturer: PhD. Stanka Zrnčević, full professor

Institution: Faculty of Chemical Engineering and Technology, Zagreb

ECTS: 12

Course type: Basis

Name of study: Chemical engineering

Study: Doctoral study

Term: 1st term

Lecture type: Lectures

Knowledge verification: oral exam

Literature necessary for course


Course content


**Course**  
ADVANCES COURSE IN BIOCHEMICAL ENGINEERING  
BIOCATALYSTS AND BIOTRANSFORMATIONS

**Lecturer**  
PhD. Đurđa Vasić-Rački, full professor

**Institution**  
Faculty of Chemical Engineering and Technology, Zagreb

**ECTS**  
12

**Course type**  
Basis

**Name of study**  
Chemical engineering

**Study**  
Doctoral study

**Term**  
1st term

**Lecture type**  
Lectures, seminars

**Knowledge verification**  
Writing exam, oral exam

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**Literature necessary for course**


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**Course content**

Integrated bioprocesses. Macrokinetics. Bioprocess engineering: the critical times concept, relations between parameters, the optimization scheme.
Course content

Course: SEPARATION PROCESSES
Lecturer: PhD. Aleksandra Sander, assistant professor
Institution: Faculty of Chemical Engineering and Technology, Zagreb
ECTS: 12
Course type: Basis
Name of study: Chemical engineering
Study: Doctoral study
Term: 1st term
Lecture type: Lectures
Knowledge verification: oral exam

Literature necessary for course

3. C. J.Geankoplis, Transport Processes and Unit Operations

Course content

**Course**
AN OVERVIEW OF MATHEMATICS FOR ENGINEERING

**Lecturer**
PhD. Ivica Gusić, associate professor

**Institution**
Faculty of Chemical Engineering and Technology, Zagreb

**ECTS**
12

**Course type**
Basis

**Name of study**
Chemical engineering

**Study**
Doctoral study

**Term**
1st term,

**Lecture type**
Lectures, demonstrations

**Knowledge verification**
Writing exam, oral exam, homework

**Literature necessary for course**


**Course content**

We study the basic concepts of algebra, linear algebra, geometry, analysis (differentiation, integration, ordinary differential equations, partial differential equations), numerical analysis, probability and statistics. We introduce the concept directly, through definitions, and illustrate them by simple examples (or by more sophisticated examples in some cases). After that we connect (some of) the concepts with concrete problems in engineering as well as with their solving. Finally, we point out the procedures from Mathematica that are significant in numerical and symbolic operating with the concepts.
**Course** MATHEMATICAL MODELING

**Lecturer** PhD. Želimir Kurtanjek, full professor

**Institution** Faculty of Food Technology and Biotechnology, Zagreb

**ECTS** 12

**Course type** Basis

**Name of study** Chemical engineering

**Study** Doctoral study

**Term** 1st term

**Lecture type** Lectures

**Knowledge verification** oral exam, seminar report

---

**Literature necessary for course**


---

**Course content**

The course provides students of chemical engineering with information on methodologies of mathematical modeling techniques and numerical methods with support of computer software. The course is based on systems view on modeling of chemical engineering processes. Methodological units are:

Course: TRANSPORT PHENOMENA
DYNAMIC MODELLING OF DEEP BED FILTRATION

Lecturer: PhD. Antun Glasnović, full professor

Institution: Faculty of Chemical Engineering and Technology, Zagreb

ECTS: 12

Course type: Basis

Name of study: Chemical engineering

Study: Doctoral study

Term: 1st term,

Lecture type: Lectures

Knowledge verification: Writing exam, oral exam

Literature necessary for course


Course content

**Course**  
TREATMENT PROCESSES OF WASTE SUBSTANCES

**Lecturer**  
PhD. Felicita Briški, associate professor

**Institution**  
Faculty of Chemical Engineering and Technology, Zagreb

**ECTS**  
8

**Course type**  
Optional

**Name of study**  
Chemical engineering

**Study**  
Doctoral study

**Term**  
2nd term,

**Lecture type**  
Lectures, seminars

**Knowledge verification**  
Writing exam, oral exam

---

**Literature necessary for course**


**Course content**

**Course**  INDUSTRIAL ENERGY  
**Lecturer**  PhD. Rajka Budin, full professor  
**Institution**  Faculty of Chemical Engineering and Technology, Zagreb  
**ECTS**  8  
**Course type**  Optional  
**Name of study**  Chemical engineering  
**Study**  Doctoral study  
**Term**  2nd term  
**Lecture type**  Lectures  
**Knowledge verification**  oral exam  

**Literature necessary for course**


**Course content**

Literature necessary for course

4. E. Beer, Priručnik za dimenzioniranje uređaja kemijske procesne industrije, SKTH/KUI, Zagreb, 1994

Course content

**Course**  
MONOLITHIC AND MEMBRANE REACTORS

**Lecturer**  
PhD. Vesna Tomašić, assistant professor

**Institution**  
Faculty of Chemical Engineering and Technology, Zagreb

**ECTS**  
8

**Course type**  
Optional

**Name of study**  
Chemical engineering

**Study**  
Doctoral study

**Term**  
2nd term

**Lecture type**  
Lectures

**Knowledge verification**  
oral exam and seminar work

---

**Literature necessary for course**


---

**Course content**

Integrated approach to design of catalysts and reactors. Monolith structures, materials and properties. Comparison with conventional catalytic reactors. Monolithic reactors: Types of monolithic reactors; Preparation and characterization; Application for mobile sources (automotive exhaust gas treatment); Application for stationary sources (selective reduction of NOx, destruction of volatile organic compounds, catalytic combustion for gas turbine applications); Emerging applications (hydrogen generation for the fuel cell, steam reforming of hydrocarbons, fast catalyst screening and kinetic studies, other applications); Hydrodynamics, heat and mass transfer, kinetics and pressure drop; Modeling of monolith reactors Modeling of monolith reactors in three-phase processes; Scale-up aspects. Membrane reactors (monolithic reactors with permeable walls): The advantages of catalyst-membrane system; Permeability, permselectivity and stability of membranes; Membrane structure and shape; Membrane preparation; Flow patterns; Mechanisms of selective transport through inorganic membranes; Types of membrane reactors.
<table>
<thead>
<tr>
<th><strong>Course</strong></th>
<th>CATALYSTS DEACTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lecturer</strong></td>
<td>PhD. Stanka Zrnčević, full professor</td>
</tr>
<tr>
<td><strong>Institution</strong></td>
<td>Faculty of Chemical Engineering and Technology, Zagreb</td>
</tr>
<tr>
<td><strong>ECTS</strong></td>
<td>8</td>
</tr>
<tr>
<td><strong>Course type</strong></td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Name of study</strong></td>
<td>Chemical engineering</td>
</tr>
<tr>
<td><strong>Study</strong></td>
<td>Doctoral study</td>
</tr>
<tr>
<td><strong>Term</strong></td>
<td>2nd term</td>
</tr>
<tr>
<td><strong>Lecture type</strong></td>
<td>Lectures</td>
</tr>
<tr>
<td><strong>Knowledge verification</strong></td>
<td>oral exam</td>
</tr>
</tbody>
</table>

**Literature necessary for course**


**Course content**

Course: POLYMERIZATION ENGINEERING
Lecturer: PhD. Marko Rogošić, associate professor
Institution: Faculty of Chemical Engineering and Technology, Zagreb
ECTS: 8
Course type: Optional
Name of study: Chemical engineering
Study: Doctoral study
Term: 2nd term
Lecture type: Lectures, seminars, consultations,
Knowledge verification: seminar work, oral exam

Literature necessary for course


Course content

Polymer molecular structure: basic ideas and definitions, nonuniformity, molecular weight distributions, molecular weight averages, chemical composition distributions of copolymers, average chemical composition.
Kinetics of chain and step homo and copolymerizations, influence of kinetic parameters on polymer product properties.
Polymerization thermodynamics.
Polymerization reactions in industry, homogeneous and heterogeneous polymerizations, bulk, solution, suspension and emulsion polymerizations, polymerizations on phase boundaries.
Polymerization reactors, modeling on macro, mezo and micro scale
Modeling and optimization of polymerization process according to the predefined product properties.
Literature necessary for course


Course content

<table>
<thead>
<tr>
<th>Course</th>
<th>MECHANICAL ASPECTS OF PROCESS EQUIPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer</td>
<td>PhD. Veljko Filipan, assistant professor</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Chemical Engineering and Technology, Zagreb</td>
</tr>
<tr>
<td>ECTS</td>
<td>8</td>
</tr>
<tr>
<td>Course type</td>
<td>Optional</td>
</tr>
<tr>
<td>Name of study</td>
<td>Chemical engineering</td>
</tr>
<tr>
<td>Study</td>
<td>Doctoral study</td>
</tr>
<tr>
<td>Term</td>
<td>2nd term</td>
</tr>
<tr>
<td>Lecture type</td>
<td>Lectures, seminars</td>
</tr>
<tr>
<td>Knowledge verification</td>
<td>oral exam</td>
</tr>
</tbody>
</table>

**Literature necessary for course**


**Course content**

Structure elements of process equipment: common components for various types of equipment, possibilities of modular approach in designing and manufacture, elements standardization, technical regulations and safety requirements, standards. Analysis of loadings, strains and stresses applied to process equipment components: the influence of manufacture and assembling process (initial and installation stresses, residual stresses), environment impacts (thermal stresses), influence of shaping (suitable cross sections, stresses distribution and concentration), dimensioning, operational strength and lifetime, estimation of safety and remaining lifetime, consideration on causes of fracture and surface damages. Generation procedure: process design, construction, the analysis of variant solutions, choosing of material and manufacture process, optimisation. Evaluation requirements and criteria: functionality, applicability, replace ability, assembly, type and mode of loading, manufacture process, transport possibility, convenient serving, maintenance, energy efficiency, environmental protection.
ADVANCE COURSE IN BIOREACTION ENGINEERING

PhD. Bruno Zelić, assistant professor

Faculty of Chemical Engineering and Technology, Zagreb

ECTS: 8

Chemical engineering

Doctoral study

2nd term

Lectures

oral exam


Course: ENVIRONMENTAL ENGINEERING AND MANAGEMENT

Lecturer: PhD. Natalija Koprivanac, full professor

Institution: Faculty of Chemical Engineering and Technology, Zagreb

ECTS: 8

Course type: Optional

Name of study: Chemical engineering

Study: Doctoral study

Term: 2nd term

Lecture type: Lectures, consultation, case study

Knowledge verification: Writing exam, oral, seminar

Literature necessary for course


Course content

Course: CEMENT MATERIALS  
Lecturer: PhD. Tomislav Matusinović, full professor  
Institution: Faculty of Chemical Engineering and Technology, Zagreb  
ECTS: 8  
Course type: Optional  
Name of study: Chemical engineering  
Study: Doctoral study  
Term: 2nd term  
Lecture type: Lectures  
Knowledge verification: Oral exam

Literature necessary for course


Course content

**Course**

**DEGRADATION AND RECYCLING OF PLASTIC WASTE**

**Lecturer**

PhD. Zlata Hrnjak-Murgić, associate professor

**Institution**

Faculty of Chemical Engineering and Technology, Zagreb

**ECTS**

8

**Course type**

Optional

**Name of study**

Chemical engineering

**Study**

Doctoral study

**Term**

2nd term

**Lecture type**

Lectures

**Knowledge verification**

Writing exam, oral exam

---

**Literature necessary for course**


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**Course content**

Overview of sources of plastic waste: during processing and post-used. Pollution of environment during processing polymers; a) emission of gases b) water vapour condensation c) separation and treatment of solvents in use d) plastic waste in process. Sorting and separation techniques. Plastic waste management: a) source reduction b) in-process recycling c) waste treatment d) recycling and reuse and f) landfills. Recycling technique of plastic waste can be primary, secondary, and tertiary. Feedstock recycling-pyrolysis, hydrogenation, gasification, and chemical recycling as well. Incineration of plastic waste with energy recover. Economics of plastic waste management. Legislative and standards requirements concerning environment pollution.
**Course**  
DYES AND ENVIRONMENTAL PROTECTION

**Lecturer**  
PhD. Sanja Papić, assistant professor

**Institution**  
Faculty of Chemical Engineering and Technology, Zagreb

**ECTS**  
8

**Course type**  
Optional

**Name of study**  
Chemical engineering

**Study**  
Doctoral study

**Term**  
2nd term

**Lecture type**  
Lectures, seminars

**Knowledge verification**  
oral exam, seminar report

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**Literature necessary for course**


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**Course content**

Classification systems for dyes, chemical and usage classification. Correlations between the chemical structures of dyes and their applications. The basic steps of dye manufacture and equipment. Production processes of important dye classes. Eco-friendly processing. Industry's responsible management of synthetic organic dyes. Environmental impact assessment in different industries of dye application, textile, leather, paper and many others. Products safety information. Special regulations for dyes. Treatment methods for wastewater containing dyes and dye intermediates such as coagulation/flocculation, adsorption and different types of advanced oxidation processes.
Course POLYMER PROCESSING AND STRUCTURE/PROPERTY INTERRELATION

Lecturer PhD. Vesna Rek, full professor

Institution Faculty of Chemical Engineering and Technology, Zagreb

ECTS 8

Course type Optional

Name of study Chemical engineering

Study Doctoral study

Term 2nd term

Lecture type Lectures, seminars

Knowledge verification oral exam, seminars

Literature necessary for course

5. V. Eisele, Introduction to Polymer Physics, Spring Verlag, New York, 1990.

Course content

Course content


Course ADVANCED PETROLEUM REFINERY PROCESSES  
Lecturer PhD. Katica Sertić-Bionda, associate professor  
Institution Faculty of Chemical Engineering and Technology, Zagreb  
ECTS 8  
Course type Optional  
Name of study Chemical engineering  
Study Doctoral study  
Term 2nd term  
Lecture type Lectures  
Knowledge verification oral exam, seminar

Literature necessary for course


Course content

Strategy and developments of new refinery processes: the influence of hydrocarbon and nonhydrocarbon contents in petroleum fuels on their applied properties and ecological characteristics. Additives for fuels and lubricants characteristics improvement. Catalytic reforming: process engineering aspects; reaction mechanisms, thermodynamic conditions, catalyst properties, kinetic and reactor models. The ecological process aspects: decreasing of benzene content in catalytic reforming feed and products in relation to C5-C6 isomerization and aromatics production. The processing of higher petroleum fractions: catalytic cracking, hydrocracking, hydrodesulfurization; engineering aspects of new technological designs, decreasing of sulphur content. Alkylation and oligomerization processes and production of motor gasoline additives, reactions, catalysts and processing units design.
### Course
MODIFICATION OF POLYMER MATERIALS

### Lecturer
PhD. Jasenka Jelenčić, full professor

### Institution
Faculty of Chemical Engineering and Technology, Zagreb

### ECTS
8

### Course type
Optional

### Name of study
Chemical engineering

### Study
Doctoral study

### Term
2nd term

### Lecture type
Lectures

### Knowledge verification
oral exam, seminar

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**Literature necessary for course**


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**Course content**

Course ENGINEERING OF BOUNDARY LAYERS
Lecturer PhD. Vera Kovačević, full professor
Institution Faculty of Chemical Engineering and Technology, Zagreb
ECTS 8
Course type Optional
Name of study Chemical engineering
Study Doctoral study
Term 2nd term
Lecture type Lectures, seminars
Knowledge verification oral exam

Literature necessary for course


Course content

<table>
<thead>
<tr>
<th>Course</th>
<th>ADHESIVE PROCESSES AND MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer</td>
<td>PhD. Mirela Leskovac, assistant professor</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Chemical Engineering and Technology, Zagreb</td>
</tr>
<tr>
<td>ECTS</td>
<td>8</td>
</tr>
<tr>
<td>Course type</td>
<td>Optional</td>
</tr>
<tr>
<td>Name of study</td>
<td>Chemical engineering</td>
</tr>
<tr>
<td>Study</td>
<td>Doctoral study</td>
</tr>
<tr>
<td>Term</td>
<td>2nd term</td>
</tr>
<tr>
<td>Lecture type</td>
<td>Lectures, seminars</td>
</tr>
<tr>
<td>Knowledge verification</td>
<td>oral exam</td>
</tr>
</tbody>
</table>

**Literature necessary for course**


**Course content**

**Course** METAL CORROSION INHIBITORS

**Lecturer** PhD. Ema Stupnišek-Lisac, full professor

**Institution** Faculty of Chemical Engineering and Technology, Zagreb

**ECTS** 8

**Course type** Optional

**Name of study** Chemical engineering

**Study** Doctoral study

**Term** 2nd term

**Lecture type** Lectures

**Knowledge verification** oral exam

---

**Literature necessary for course**


**Course content**


Economical and environmental suitability of metal corrosion inhibitors. Evaluation of the inhibitor toxicity. Analysing of the possibilities of replacing toxic corrosion inhibitors with new environmental friendly
<table>
<thead>
<tr>
<th>Course</th>
<th>APPLIED TRANSPORT PHENOMENA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer</td>
<td>PhD. Tine Koloini, full professor</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Chem. and Chem. Technology, Ljubljana, Slovenia</td>
</tr>
<tr>
<td>ECTS</td>
<td>8</td>
</tr>
<tr>
<td>Course type</td>
<td>Optional</td>
</tr>
<tr>
<td>Name of study</td>
<td>Chemical engineering</td>
</tr>
<tr>
<td>Study</td>
<td>Doctoral study</td>
</tr>
<tr>
<td>Term</td>
<td>2nd term</td>
</tr>
<tr>
<td>Lecture type</td>
<td>Lectures</td>
</tr>
<tr>
<td>Knowledge verification</td>
<td>oral exam</td>
</tr>
</tbody>
</table>

**Literature necessary for course**


**Course content**

Course: HIGH-PRESSURE PROCESS TECHNOLOGIES
Lecturer: PhD. Željko Knez, full professor
Institution: Fakultet za kemijo in kemijsko tehnologijo, Univerze v Maribor
ECTS: 8
Course type: Optional
Name of study: Chemical engineering
Study: Doctoral study
Term: 2nd term
Lecture type: Lectures
Knowledge verification: oral exam, seminar

Literature necessary for course


Course content

Thermodynamic properties at high pressure, kinetic properties at high pressure, design and construction of high pressure equipment for research and production, industrial reaction units, separation operations and equipment, safety and control in high pressure plant design and operation, economics of high pressure processes, applications of: chemical reactions in Supercritical Solvents (SCFs), enzymatic reactions and hydrogenation under supercritical single-phase conditions, Supercritical Water Oxidation (SCWO) and their application to industrial wastewater treatment, high pressure polymerisation with metallocene catalysts, supercritical fluid extraction and fractionation from solid materials, high pressure polymer processing, precipitation of solids with dense gases, pharmaceutical processing with supercritical fluids, treating microorganisms with high pressure, dry cleaning with liquid carbon dioxide.
Course          DYNAMIC MODELLING OF DEEP BED FILTRATION
Lecturer        PhD. Antun Glasnović, full professor
Institution     Faculty of Chemical Engineering and Technology, Zagreb
ECTS            8
Course type     Optional
Name of study   Chemical engineering
Study           Doctoral study
Term            2nd term
Lecture type    Lectures
Knowledge verification  Writing exam, oral exam

Literature necessary for course


Course content

Course** PARTIAL DIFFERENTIAL EQUATION  
**Lecturer** PhD. Ivan Perić, associate professor  
**Institution** Faculty of Food Technology and Biotechnology, Zagreb  
**ECTS** 8  
**Course type** Optional  
**Name of study** Chemical engineering  
**Study** Doctoral study  
**Term** 2nd term  
**Lecture type** Lectures, simulation on Wolfram’s Mathematica  
**Knowledge verification** oral exam

**Literature necessary for the course**


**Course content**

The aim of this course is to present the basic analytic and numeric methods for solving partial differential equations (PDE) with emphasis on parabolic PDE. Special attention is dedicated to qualitative analysis (convergency, consistency, stability) of finite difference schemes. Some topics are: classification of PDE, parabolic, hyperbolic elliptic PDE. Fourier analysis. Eigenfunctions. Laplace transform. Finite difference scheme. Convergency, consistency. Well-posed and stable initial-boundary value problems.

After introductory part, classifications of PDE, consideration of convection-diffusion equation with initial –boundary conditions, we develop some analytical methods for solving PDE also necessary for qualitative of numerical methods (Fouerier analysis). In the third part finite difference schemes are introduced, and finally we give qualitative analysis of given schemes for parabolic PDE. Some of the problems will be solved and simulated on Wolfram’s Mathematica.
Course BIOCATALYSTS AND BIOTRANSFORMATIONS
Lecturer PhD. Đurđa Vasić-Rački, full professor
Institution Faculty of Chemical Engineering and Technology, Zagreb
ECTS 8
Course type Optional
Name of study Chemical engineering
Study Doctoral study
Term 2nd term
Lecture type Lectures, thesis oriented research
Knowledge verification Oral exam

Literature necessary for course


Course content

II. 3.5. Rhythm of studying and students’ obligations

Students sign up for three basic courses in 1st semester and three elective ones in 2nd semester. The total number of ECTS credits for subjects is 60. The elaboration of doctoral thesis is 120 ECTS credits, that means 180 ECTS credits total. Students must publish one scientific work in CC magazine before defending the doctoral thesis.

II. 3.6. System of leading through the study

The study of Chemical Engineering has the leader of the study who directs the students into the choice of courses and monitors their work. The Faculty Council determines the mentor for each student on the suggestion of the leader of the postgraduate study. As a rule, the mentor is the lecturer at the Faculty, while the mentors outside the faculty must be approved by the Faculty Council for each particular case.

II. 3.7. List of subjects from other postgraduate studies

Students of Chemical Engineering can sign up for courses from postgraduate doctoral study Engineering Chemistry and Ecoengineering as well as from specialized programs Ecoengineering and Corrosion and protection. Students can also choose the subjects from other postgraduate doctoral and specialist studies from the faculties of the University in Zagreb in the percent of 20%, that is 12 ECTS credits.

II. 3.8. List of subjects that can be taught in foreign language

All the mentioned subjects can be taught in English.

II.3.9. Criteria and conditions for transfer of ECTS credits

If the student signs up for courses from other studies at the faculty or courses from studies from other faculties at the University of Zagreb, they have the same number of credits as the elective subjects that is 8 ECTS credits.

II.3.10. The way of finishing the study and conditions for recording the doctoral thesis theme

During the study, no later than the end of 1st year of the doctoral study, the student is obliged to suggest the theme and explanation of his final work in accordance with the mentor. The theme with the explanation is accepted by the Faculty Council and it is confirmed by the Faculty Senate. During the doctoral study, the student is obliged to have one presentation of the doctoral theme. Before defending the doctoral theme the student must publish one scientific work from the field comprised in the doctoral theme. Doctoral theme which is not defended in the course of 6 years from the day of the theme acceptance is subjected to the renewed acceptance process. Doctoral theme is defended in front of the Commission consisting of three members (exceptionally five members) and one member as the substitute in the scientific-teaching profession and in the field and area connected with the doctoral theme. Student’s mentor cannot be the president for evaluating and defending the theme. One member of the Commission for evaluating and defending the doctoral thesis must be out of the faculty. Defending of doctoral thesis is open to public and must be announced on the bulletin board of the faculty at least eight days before the presentation. The Commission composes and signs the record of theme defending.

II. 3.11. Conditions under which the students who interrupted their study or who lost right to study at one courses can continue their study

The book of rules will solve all the conditions of transition and possibilities of continuation the study.

II. 3.12. Conditions under which the attendant gets the right on confirmation about becoming eligible for the part of the doctoral study as the part of the whole-life education
II. 3.14. Maximal length of studying from the beginning to the end
The studying length is three years, and the maximal studying length from the beginning up to the end is six years.

II.4. Conditions of course performing

II.4.1. Places for course program performing
Course programs are performed in lecture-room, laboratories and computer class-rooms of the Faculty.

II.4.2. Data about the facilities and equipment foreseen for course performing
The Faculty has at its disposal:

a) lecture-rooms:

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big lecture-room at Marulićev trg (Marulić square) 20</td>
<td>120 places</td>
</tr>
<tr>
<td>Big lecture-room at Marulićev trg (Marulić square) 19</td>
<td>180 places</td>
</tr>
<tr>
<td>Small lecture-room at Marulićev trg (Marulić square) 20</td>
<td>70 places</td>
</tr>
<tr>
<td>Small lecture-room at Marulićev trg (Marulić square) 19</td>
<td>50 places</td>
</tr>
<tr>
<td>Big lecture-room in Savska cesta (Savska street) 16</td>
<td>80 places</td>
</tr>
<tr>
<td>Small lecture-room in Savska cesta (Savska street) 16</td>
<td>30 places</td>
</tr>
<tr>
<td>3 lecture-rooms of the Department each having</td>
<td>10 places</td>
</tr>
</tbody>
</table>

b) laboratories:

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marulićev trg 20</td>
<td></td>
</tr>
<tr>
<td>Students’ laboratory</td>
<td>160 working places</td>
</tr>
<tr>
<td>Research laboratory</td>
<td>55 working places</td>
</tr>
<tr>
<td>Marulićev trg 19</td>
<td></td>
</tr>
<tr>
<td>Students’ laboratory</td>
<td>62 working places</td>
</tr>
<tr>
<td>Research laboratory</td>
<td>19 working places</td>
</tr>
<tr>
<td>Vukotinovićeva cesta 2</td>
<td></td>
</tr>
<tr>
<td>Students’ laboratory</td>
<td>10 working places</td>
</tr>
<tr>
<td>Research laboratory</td>
<td>6 working places</td>
</tr>
<tr>
<td>Savska cesta 16</td>
<td></td>
</tr>
<tr>
<td>Students’ laboratory</td>
<td>78 working places</td>
</tr>
<tr>
<td>Research laboratory</td>
<td>21 working places</td>
</tr>
</tbody>
</table>

c) computer class-room Marulićev trg 20 8 working places

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>computer class-room Savska cesta 16</td>
<td>16 working places</td>
</tr>
</tbody>
</table>

Faculty has over 300 computers networked over servers marie and pierre and placed on Marulićev trg 20 and in Savska cesta 16.

d) offices of Faculty teachers and cooperators are on Marulićev trg 20, Marulićev trg 19, Savska cesta 16, Ilica 36, Ilica 53 and Vukotinovićeva 2.

e) library information center (LIC)
Library with its book totals covers the area of Chemical Engineering, Chemistry, Physics, Mathematics and Science of Environment.
Periodicals (about 330 titles, 75 of which are in LIC) while monographs (about 22000) from the specialized areas of computer sciences are processed in placed in the corresponding Departments at the Faculty.
INSTRUMENTS

Potentiostat/galvanostat, Solartron SI 1287
Equency analyzer, Solartron SI 1260
Electrochemical crystal nanoquartz balance
Potentiostat/galvanostat, Elchema PS-205B
Potentiostat/galvanostat, Ametek 273A
Potentiostat/galvanostat, Ametek 263A
Equency analyzer, Ametek FRD 1025
Optical microscope Olympus SZH10
Potentiostat/galvanostat, EG&G PAR model 273
Equency analyzer, EG&G PAR model 5301 "lock-in" amplifier
Bipotentiostat/galvanostat, Elektrolab BPG-200
Rotating ring-disc electrode, Tachyprocesseur Radiometer Analytical
Differential Scanning Calorimeter
Dynamic Mechanical Analyzer
Rotational Viscosimeter
Equipment for accelerate ageing; High pressure Quartz mercury vapour lamp
FTIR spectrophotometer Perkin Elmer Spectrum One
UV chamber SUN-TEST CPS HERUS 7281785 6259
Thermostatic chamber Memmert
Ozone generator MIC System Inc
Liquid chromatography Shimadzu
Spectral photometer SPEKOL 210 MA-9525 4581
Organic halide analyzer Dohrman
Apparatus TOC -total organic carbon analyzer
UV/VIS spectrophotometer
Photoreactor
Apparatus for ASTM distillation
Apparatus for determination of aniline point
Apparatus for determination of inflammation point
Abbe refractometer
Apparatus for determination of mechanical properties of materials
Apparatus for determination of impact strength
Apparatus for preparation of test specimens for mechanical studies
Apparatus for reverse osmosis and membrane testing (self-made)
Carbon Analyser
Contact Angle Measuring System, OCA 20, DataPhysics
Universal Testing Machine
Spectrophotometer, UV-1601, Shimatzu
Bioreactor, Biostat MD
Electrophoresis system, E-100
Electrodialysis system, Type 02
HPLC, Sykam
Gas Chromatograph, Siemens
High Pressure Reactor (Parr)
Gas Chromatograph (VARIAN 3300)
pH-meter INOLAB-LEVEL
Hydrogen generator (Packard)
Pulse Chemisorb 2700 (Micromeritics)
Ultraviolet spectrophotometer (Pye UNICAM)
Ion Chromatograph, Dionex, model DX 600
High Performance Liquid Chromatograph, Varian, ProStar,
CAMAG TLC Scanner II
Atomic Absorbent Spectrometer, Perkin Elmer 37
Flame photometer Model III, Carl Zeiss, Jena
Spectrophotometer, Perkin Elmer 124
Spectrophotometer, MA 9525-SPEKOL 210,
Spectrophotometer, Perkin Elmer, Lambda 1,
Digital pH meter, E940, Orion Research
Digital pH meter, 801/A, Orion Research
Microwave Accelerated Reaction System for Extraction and Digestion, Varian, MARS X,
Ion coupled plasma – mass spectrometer
Gas chromatograph - mass spectrometer
UV-Vis spectrophotometer Varian DMS-80
UV-Vis spectrophotometer Varian Cary 100
Polarograph Potentiostat/Galvanostat PAR 263A
Spectrophotometer HACH DR/2400
SRI 8610C Gas Chromatograph,
Buck scientific Inc
Composting bioreactor with mechanical agitation and forced aeration
Microscope OLYMPUS BX50
Kjeltec 2100 Distillation Unit with 2006 Digestion System
ASAP Micromeritics – instrument for specific surface and pore size distribution determination
RHEOMETER BROOKFIELD DVIII+
COULTER COUNTER ZM – instrument for particle size distribution determination
Varian Cary 50 Scan UV-Visible Spectrophotometer
UV Perkin Elmer Double Beam Spectrophotometer 124
Varian CARY ECLIPSE Fluorescence Spectrophotometer
IR-Perkin Elmer M-297 Spectrophotometer
IR-Perkin Elmer M-137 Spectrophotometer
GC-MS (Varian CP-3800 Gas Chromatograph-Varian Saturn 2200)
Varian NMR EM360L Netzch, STA409 simultaneous thermal analyser (DSC/TGA)
Netzch, DSC200 thermal analyser (DSC)
Phillips, powder X-ray diffractometer
Fritsch, Pulverisette 6, planetary mill
II.4.3. List of scientific and technological projects for doctoral study

<table>
<thead>
<tr>
<th>Number</th>
<th>Senior Researcher</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>0125001</td>
<td>Stanka Zrnčević</td>
<td>Environmental Catalysis</td>
</tr>
<tr>
<td>0125002</td>
<td>Tomislav Matusinović</td>
<td>Development of Hydration Process Model</td>
</tr>
<tr>
<td>0125009</td>
<td>Rajka Budin</td>
<td>Promoting Energy Efficiency in Industry Sector</td>
</tr>
<tr>
<td>0125013</td>
<td>Vera Kovačević</td>
<td>Particulate Filled Microcomposites, Nanocomposites and Polymer Blends</td>
</tr>
<tr>
<td>0125014</td>
<td>Sanja Martinez</td>
<td>Experimental Investigation and Calculus Models in Corrosion Protection Systems</td>
</tr>
<tr>
<td>0125018</td>
<td>Natalija Koprivanac</td>
<td>Advanced Oxidation Processes for Reduction Waste of Organic Chemical Industry</td>
</tr>
<tr>
<td>0125019</td>
<td>Helena Jasna Mencer</td>
<td>Novel Materials for Specific Purposes</td>
</tr>
<tr>
<td>0125021</td>
<td>Đurđa Vasić Rački</td>
<td>Biocatalysts and Biotransformations</td>
</tr>
<tr>
<td>0125059</td>
<td>Vesna Rek</td>
<td>Modification and Stability of Multiphases Polymeric Systems</td>
</tr>
<tr>
<td>0125060</td>
<td>Antun Glasnović</td>
<td>Process Properties of Dispersed Systems</td>
</tr>
</tbody>
</table>
# Technological projects

<table>
<thead>
<tr>
<th>Coordinator</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natalija Koprivanac, PhD</td>
<td>AOP in Treatment of Industrial Waste Water</td>
</tr>
<tr>
<td>Alojz Caharija, PhD</td>
<td>Distributed Laboratory for Remote Leading of Processes and Education</td>
</tr>
<tr>
<td>Tomislav Matusinović, PhD</td>
<td>New Cement Materials</td>
</tr>
<tr>
<td>Ljubica Matijašević, PhD</td>
<td>New Reactor Line and Washing System of Waste Gases in NPK Fertilizer Plant</td>
</tr>
<tr>
<td>Nenad Bolf, MSc</td>
<td>Procedure of Thermographic Diagnostics for Process Equipment</td>
</tr>
<tr>
<td>Stanislav Kurajica, PhD</td>
<td>Transparent nanocrystalinic glass-ceramic</td>
</tr>
<tr>
<td>Alojz Caharija, PhD</td>
<td>Equipment for testing hydrocarbons thermical composition</td>
</tr>
<tr>
<td>Jasenka Jelenčić, PhD</td>
<td>Washable leather</td>
</tr>
</tbody>
</table>
II.4. List of lecturers
**Lecturer data**

<table>
<thead>
<tr>
<th>Surname, Name</th>
<th>PhD. Marin Hraste, full professor</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail adress</td>
<td><a href="mailto:mhraste@fkit.hr">mhraste@fkit.hr</a></td>
</tr>
<tr>
<td>Course</td>
<td>ENGINEERING OF PARTICULATE SYSTEM</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Chemical Engineering and Technology, Zagreb</td>
</tr>
</tbody>
</table>

**Curriculum vitae**

Born: Sisak, Croatia, September 24, 1938.

Education: B.A. at Faculty of Technology, University in Zagreb 1962, M.Sc. at Faculty of Pharmacy, University of Zagreb 1967 and Ph.D, at Faculty of Technology, University of Zagreb 1972. Trainee in Boots Pure Drug Co. Nottingham, England and Kali - Chemie A.G. Hannover, Germany.

Years within the firm: From 1963 on Faculty of Chemical Engineering and Technology, University of Zagreb teaching assistant, assistant professor, associate professor and from 1982 Professor of Chemical Engineering. From 1993 to 1997 Faculty Dean. Visiting scientist: National Research Council of Canada, Ottawa, Canada and University of Technology, Dresden, Germany.

Courses taught at University: Unit operation, Transport phenomena and Engineering of particulate systems. Research interest: Particle technology with emphasize on mechanical processes for transforming materials, such as size reduction, size enlargement, separation and contacting.

Membership: Croatian Academy of Engineering and associate fellow of Croatian Academy of Science and Art. Representative of Croatian Society of Chemical Engineers to European Federation of Chemical Engineering. Member of EFCE Section for Product Design and Engineering.

**Date of last election**


**Referent publications of lecturer**


**List of papers in last 5 years**

Lecturer data
Surname, Name PhD. Zoran Gomzi, full professor
E-mail adress zgomzi@fkit.hr
Course CHEMICAL REACTOR ANALYSIS
Institution Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae
Born 25.3.1940. in Karlovac, Croatia. B.Sc. degree 1963, Ph.D. 1975, Faculty of chemical technology, University of Zagreb. Job record: three years in industry (battery factory), 1964 – 1967., assistant 1967 – 1975, assistant professor 1975 – 1983, associate professor 1983 – 1988, full professor 1988-, all at Faculty of Chemical Engineering and Technology, Zagreb. Research activities: Published more than fifty scientific papers, twenty four in Journals CC cited. Published fifteen professional papers. Principal investigator in three scientific projects and collaborator in four projects. Ten projects and other studies conducted for industry. Main research topics: Applied reaction kinetics, particular reactor types (monolithic, multiphase), modeling and numerical methods in chemical engineering.

Date of last election
12.01.1999.

Referent publications of lecturer

List of papers in last 5 years
Curriculum vitae

Stanka Zrnčević (born in Zagreb, Croatia, January 2, 1946) is full professor of Chemical Engineering at the Faculty of Chemical Engineering and Technology University of Zagreb and the author or co-author over 60 papers maintains professional interests in chemical reaction engineering and catalysis and in particular catalyst deactivation and a variety of phenomena involving transport-kinetic interaction.

She received her BS (1969) and MS (1976) degrees in chemistry and PhD (1981) in chemical engineering from the Faculty of Technology University of Zagreb. From 1995 to 1997 she was Vice-dean and from 1997 to 2001 Dean of the Faculty of Chemical Engineering and Technology. She teaches catalysis and catalysts, catalytic reaction engineering, and laboratories that go with them. She is the member of Croatian Academy of Engineering, Croatian Society of Chemical Engineering, American Institute of Chemical Engineers and representative in the European WP Chemical Engineering in Catalyst Application.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

4. V. Tomašić, Onečišćenje okoliša. emisija štetnih plinova u atmosferu, Kem. Ind. 50(1)(2001) 87.
Lecturer data
Surname, Name
PhD. Đurđa Vasić-Rački, full professor
E-mail adress
dvracki@fkit.hr
Course
ADVANCES COURSE IN BIOCHEMICAL ENGINEERING
Institution
Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Đurđa Vasić-Rački was born in 1946 in Zagreb, Croatia. She graduated in 1971 with B.Sc. degree in Chemical Engineering from Faculty of Chemical Engineering, University of Zagreb. After graduation she has employed as an assistant at Faculty of Chemical Engineering, Zagreb. She completed postgraduate studies in Chemical Engineering at Faculty of Chemical Engineering, University of Zagreb. She received MSc in 1976. In 1981 she received Ph.D. in Chemical Engineering at University of Zagreb. In 1983 she was appointed Assistant Professor and in 1985, Associated Professor in Chemical Engineering, at Faculty of Chemical Engineering, Zagreb. In 1992 she became a Full Professor. During 1985-86 she was a visiting researcher at Institute of Biotechnology, Research Center, Jülich, Germany. Since 1986 she is a member of editorial board of the journal "Chemical and Biochemical Engineering Quarterly" and a member of WP "Applied Biocatalysis" of EFB. Since 1993 she is a member of IOBB.

Prof.dr.sc. Đurđa Vasić-Rački's research interests have been firmly in the area of biochemical engineering and, more specifically, enzyme reaction engineering.

Date of last election

Referent publications of lecturer


List of papers in last 5 years


Lecturer data
Surname, Name: PhD. Marko Rogošić, associate professor
E-mail address: mrogosic@fkit.hr
Course: CHEMICAL ENGINEERING THERMODYNAMICS
Institution: Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Born on 9 March 1969 in Split, Croatia. Received B.Sc. degree at the Faculty of Chemical Engineering and Technology, University of Zagreb, in 1991, M.Sc. degree at the same Faculty in 1994 and Ph.D. degree in 1998 with the thesis entitled: "Investigations of the Miscibility and Interactions of Styrene and Acrylonitrile Copolymers". Since 1991, employed at the University of Zagreb, Faculty of Chemical Engineering and Technology as a junior researcher. In 1999 became assistant professor at the same faculty, elected for the graduate course Chemical Engineering Thermodynamics. His primary fields of research are physical chemistry of polymers and chemical engineering thermodynamics, as well as polymerization engineering. His list of publications comprises over 15 original scientific, professional, review and conference articles.

Date of last election
21.06.2005.

Referent publications of lecturer


List of papers in last 5 years


**Lecturer data**

<table>
<thead>
<tr>
<th>Surname, Name</th>
<th>PhD. Aleksandra Sander, assistant professor</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail adress</td>
<td><a href="mailto:asander@fkit.hr">asander@fkit.hr</a></td>
</tr>
<tr>
<td>Course</td>
<td>SEPARATION PROCESSES</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Chemical Engineering and Technology, Zagreb</td>
</tr>
</tbody>
</table>

**Curriculum vitae**

B.A.: at Faculty of Chemical Engineering and Technology, University of Zagreb (1994)
M.Sc.: at Faculty of Chemical Engineering and Technology, University of Zagreb (1999)
Ph.D.: at Faculty of Chemical Engineering and Technology, University of Zagreb (2003)
Years within the firm: Since 1994. on Faculty of Chemical Engineering and Technology, University of Zagreb (2003)
Research interest: Heat and Mass Transfer, Thermal Separation Processes
Courses: Thermal Separation processes (lectures); Laboratory and Seminars (Transport Phenomena, Thermal Separation Processes)

**Date of last election**
21.06.2005.

**Referent publications of lecturer**


**List of papers in last 5 years**

7. A. Sander, A. Glasnović, Mathematical Modelling of Drying, 15th International
**Curriculum vitae**

Ivica Gusić was born on October 8, 1954, in Grab (nearby Sinj). He received his B.Sc. in 1977, his M.A. in 1983 with thesis *The Enriques classification of two-dimensional algebraic varieties*, and his Ph.D. in 1996 with thesis *A contribution to the arithmetic of elliptic curves and abelian varieties*, under the leadership of academician Marko Tadić (all from the University of Zagreb). He participates on The seminar for representation of Lie groups and on The seminar for number theory and algebra (and he is a coleader of it). He is interested in arithmetic of algebraic varieties, number theory, algebra, ordered structures, teaching of matematics, popularisation of mathematics and mathematics terminology.

**Date of last election**


**Referent publications of lecturer**

1. Ivica Gusić, Convex functions on lattice ordered groups, Ann.Math. Silesianae 11, 1997, 7-20

**List of papers in last 5 years**

Lecturer data
Surname, Name
PhD. Želimir Kurtanjek, associate professor
E-mail adress
zkurt@pbf.hr
Course
MATHEMATICAL MODELING
Institution
Faculty of Food Technology and Biotechnology, Zagreb

Curriculum vitae

Želimir Kurtanjek in 1979 received Ph. D. degree in chemical engineering from University of Houston, TX, USA. His mentor was Prof. Dan Luss from the Laboratory for Reaction Engineering. He completed his postdoctoral studies with Prof. G. Froment at the Department of Chemical Engineering, University of Gent, Belgium. Presently he is employed at Faculty of Food Technology and Biotechnology, University of Zagreb as a professor of chemical engineering and is teaching reactor engineering, mathematical modelling and process control to students of biotechnology. In his scientific work he is interested in modelling and control of reactors, modelling of bioprocesses and food engineering, and application of AI methods in process control. He has published over 50 papers in international and national journals. He is editor of international journal Chemical and Biochemical Engineering Quarterly, and is a member of editorial board of international journal Food Technology and Biotechnology.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

Lecturer data
Surname, Name  PhD. Antun Glasnović, full professor
E-mail adress  aglasnov@fkit.hr
Course  TRANSPORT PHENOMENA
Institution  Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae
Antun Glasnović, born in Zagreb, Croatia, December 6, 1948. Education: Chemical Technical School (1967); B. Sc. (1972); M. Sc. (1974) and Ph. D. (1980) at Faculty of Technology, University of Zagreb.
Employment and duties: From 1972. he is on Faculty of Chemical Engineering and Technology, University of Zagreb; teaching assistant, assistant professor, associate professor, and from 2003. Professor of Chemical Engineering. From 2002. he is Faculty Vice-dean.
Study visits: University of Technology, Dresden, Germany (1989).

Date of last election
08.07.2003.

Referent publications of lecturer

List of papers in last 5 years
PhD. Felicita Briški, associate professor
fbriski@fkit.hr
TREATMENT PROCESSES OF WASTE SUBSTANCES
Faculty of Chemical Engineering and Technology, Zagreb

In 1975 graduated at Faculty of Technology, Department of Biotechnology, University of Zagreb. From 1979 worked as microbiologist and after it as head of Department of Development and Technical-Technological Control in mineral water filling facility Bade-Jamnica. Master of science degree got in 1984, and in 1987 started to work as research assistant at Faculty of Chemical Engineering and Technology, Division of Industrial Ecology. PhD got in 1991 and from 1991-1995 had a position of research fellow. From 1995 is assistant professor. As author and co-author has published 20 scientific works in national and international journals and was participant at many national and international conferences. Speaks, reads and writes English, uses German and Hungarian.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

7. F. Briški, Z. Gomzi, A. Hublin, M. Vuković, Aerobno kompostiranje otpadaka voća i...


Lecturer data
Surname, Name: PhD. Rajka Budin, full professor
E-mail adress: rbudin@fkit.hr
Course: INDUSTRIAL ENERGY
Institution: Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Rajka Budin, born in Zagreb, holds a B.Sc., M:D. and Ph.D. in chemical engineering from Faculty of Chemical Engineering and Technology, University of Zagreb. She works at the same Faculty, Department of thermodynamics and energy since 1962 as assistant, assistant professor and presently full professor. She teaches several courses on undergraduates and postgraduates courses. In 1979/80 she joined the Department of Mechanical and Industrial Engineering at the University of Illinois Urbana-Champaign as an assistant professor. Dr. Budin has published numerous articles in the areas of energy and power especially in energy savings strategies.

Dr.sc. Rajka Budin received the Fran Bošnjaković and Hrvoje Požar award for research on development of the energy management, as well as J.J.Strossmayer for book in the field of technical knowledges.

Date of last election

Referent publications of lecturer


List of papers in last 5 years


Lecturer data
Surname, Name: PhD. Ljubica Matijašević, assistant professor
E-mail address: ljmatijas@fkit.hr
Course: SYNTHESIS AND DESIGN OF PROCESSES
Institution: Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae
Name and position: Ljubica MATIJAŠEVIĆ, Assistant Professor
Institution: Faculty of Chemical Engineering and Technology, University of Zagreb, Department of Reaction Engineering and Catalysis Professional schools attended: Degree B.Sc (1974), Faculty of Technology, University of Zagreb, M.Sc (1981), Faculty of Chem.Eng.& Technology, University of Zagreb, Ph.D (1992), Faculty of Chem.Eng.& Technology, University of Zagreb Memberships: : HDKI, Consulting Club Croatian Cleaner production centre, New York Academy of Sciences, American Chemical Society, biography in Who’s Who in the World, Who’s Who in the Science & Technology. Main duties consisted in supervising students, in laboratories for Unit operations, Reaction Engineering and Catalysis including the major aspect of Plant Design as related to the overall design project. The results of scientific research were presented at the international congresses and published in several publications.

Date of last election
20.03.2000.

Referent publications of lecturer

List of papers in last 5 years
5. Lj. Matijašević, Adaptation of unit operation for separation i-pentane, Slovenski kemijski
Ms. Vesna Tomašić was born in Sisak in 1964. In 1990 graduated from the Faculty of Technology in Zagreb. In 1991 applied for postgraduate study of engineering chemistry, course Chemical Engineering. Master’s degree in chemical engineering, then doctorate (in 1999). From 2002, she has worked as an assistant professor. At the Department of Reaction Engineering and Catalysis conducts the exercises in «Catalysis and Catalysts», «Reaction Engineering» and «Catalytic Reaction Engineering». Since 1999, acts as a mentor in «Chemical Engineering Exercises”. From 1990. is collaborator in three scientific-research projects supported by the Croatian Ministry of Science and Technology and a principal investigator in the project of young researchers. Ms. Vesna Tomašić works on catalytic reaction engineering, with special emphasis on the topics related to air protection. She has published 17 (+3 in press) scientific papers, of which 11 (+2 in press) in journals and proceedings with international referee, and has participated at 11 international and 15 local scientific and professional conferences.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

4. V. Tomašić, Onečišćenje okoliša. emisija štetnih plinova u atmosferu, Kem. Ind.50(1)(2001) 87.


Lecturer data
Surname, Name  PhD. Veljko Filipan, assistant professor
E-mail address  vfilipan@fkit.hr
Course  MECHANICAL ASPECTS OF PROCESS EQUIPMENT
Institution  Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Veljko Filipan was born in 1957 in Hlapičina. He graduated mechanical engineering and obtained master’s and doctoral degrees at the Faculty of Mechanical Engineering and Naval Architecture University of Zagreb. From 1981 to 1990 he worked in Electro technical institute in Zagreb. From 1991 he has been employed at the Faculty of Chemical Engineering and Technology University of Zagreb, first as an assistant and later as a senior lecturer and assistant professor, teaching the subjects of Mechanical Engineering, Engineering Thermodynamics and Process Equipment. He has been involved in some scientific projects and in solving the particular problems for domestic industry. He authored many scientific and professional articles for journals and proceedings and participated at numerous domestic and international congresses. He also wrote more scientific and professional reports, studies and surveys. He is an expert mechanical engineer and member of Croatian Chamber of Architects and Building Engineers. He is active member of some domestic and international scientific and professional associations and of some technical committees of Croatian State Office for Standardization and Metrology. He can read and write English, German and Russian.

Date of last election
08.05.2000.

Referent publications of lecturer


List of papers in last 5 years

4. V. Filipan: “Sniženje temperature tehnoloških otpadnih voda primjenom sustava rekuperacije otpadne topline u Tvornici konca Unitas Zagreb”, Elaborat, Tvornica


### Lecturer data

**Surname, Name**  
PhD. Bruno Zelić, assistant professor

**E-mail address**  
bzelic@fkit.hr

**Course**  
ADVANCE COURSE IN BIOREACTION ENGINEERING

**Institution**  
Faculty of Chemical Engineering and Technology, Zagreb

### Curriculum vitae

Bruno Zelić PhD was born 1973 in Osijek. In 1996 he completed his undergraduate studies in chemical engineering and received his B. S. in chemical engineering from the Faculty of Chemical Engineering and Technology, University of Zagreb. From 1996 to 2003 he worked as assistant at the Faculty of Chemical Engineering and Technology. In 1999 he completed his graduate studies in chemical engineering and received his M. S. in chemical engineering from the Faculty of Chemical Engineering and Technology. In 2003 he received his PhD in chemical engineering at the University of Zagreb. From 2003 he worked as assistant professor at the Faculty of Chemical Engineering and Technology. 6 scientific and professional publications, 2 patent applications, and 9 oral and poster presentations on the international conferences present his scientific work.

### Date of last election

27.10.2003.

### Referent publications of lecturer


### List of papers in last 5 years


Curriculum vitae


Date of last election

Referent publications of lecturer


List of papers in last 5 years

Lecturer data
Surname, Name PhD. Natalija Koprivanac, full professor
E-mail adress nkopri@fkit.hr
Course ENVIRONMENTAL ENGINEERING AND MANAGEMENT
Institution Faculty of Chemical Engineering and Technology, Zagreb
Curriculum vitae


Date of last election
02.02.1999.

Referent publications of lecturer


List of papers in last 5 years


Lecturer data
Surname, Name            Ph.D. Zlata Hrnjak-Murgić, associate professor
E-mail adress            zhrnjak@fkit.hr
Course                    DEGRADATION AND RECYCLING OF PLASTIC WASTE
Institution               Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Zlata Hrnjak Murgić was born 1958, in Karlovac, Croatia. Graduated in 1982 study of Chemical Technology, University of Zagreb Faculty of Technology, (B. Sc. Chem. Eng), master degree in 1988 at study of Chemical Engineering, University of Zagreb(M. Sc. Chem.) and in 1996 –doctor’s degree, University of Zagreb Faculty of Chemical Engineering and Technology. Teaching and lecturing at undergraduate and at graduate study. Research work: published 20 scientific papers, gave 8 invited lectures, participated at 26 conferences. Active researcher at 9 scientific projects, tow International project ALIS LINK, 1997, and project leader of the project “Application of Coated PCC Nanofiller in Immiscible SAN/EPDM Blend” 2003. Field of research interest: characterization of cross-linked polymers, degradation of polymers, study of miscibility of blend polymers, synthesis of graft copolymers and recycling of polymers.

Date of last election

Referent publications of lecturer


List of papers in last 5 years


Proceedings

**Lecturer data**

**Surname, Name**  
PhD. Sanja Papić, assistant professor

**E-mail adress**  
spapic@fkit.hr

**Course**  
DYES AND ENVIRONMENTAL PROTECTION

**Institution**  
Faculty of Chemical Engineering and Technology, Zagreb

---

**Curriculum Vitae**

Sanja Papić was born 1958 in Zagreb, received her chemical engineering diploma in 1983, M.Sc. diploma in 1989, and Ph.D in 1997, from University of Zagreb, Faculty of Chemical Engineerin and Technology. Presently assistant professor at the same faculty. Areas of research field are organic industrial processes, synthesis and characterization of dyes, cleaner production processes in the synthesis of dyes, environmental engineering, study of organic industry wastewater treatment processes including advanced technologies for water purification. Published 20 scientific articles, participated at number of meetings and conferences, worked at 6 scientific projects, currently projects titled Advanced Oxidation Processes for Organic Chemical Industry Waste Minimization and An International Collaboration on Electrical Discharge Reactors for Degradation of Organic Dyes.

**Date of last election**  
29.01.2001.

**Referent publications of lecturer**


**List of papers in last 5 years**

1. S.Papić, N.Koprivanac and A.Meteš, Optimizing Polymer-Induced Flocculation Process to Remove Reactive Dyes from Wastewater, Environmental Technology, 21, 97-105 (2000).
Curriculum vitae

Vesna Rek is professor at Faculty of Chemical Engineering and Technology, University of Zagreb. She is born in Zagreb. She obtained her B.Sc. degree (1965), M.Sc. degree (1972) and PhD degree (1997) from Faculty of Technology, University of Zagreb in the field of Chemical (Polymer) Engineering. Since 1965-1967, she was working in industry. From 1967, she works at Faculty of Chemical Engineering and Technology, FKIT, in Department of Polymer Engineering and Organic Chemical Technology. From 1992, Vesna Rek is professor in technical science in the field of chemical engineering, fields of material and analysis and synthesis of processes. Her scientific work is connected with polymeric materials, with interrelation between structure and properties in production and processing, its stability and changes in ageing processes. She is teaching at ungraduated and graduated study at FKIT-u. She works as a head at Project supported by Ministry of Science of Croatia. She published over fifty scientific and professional papers. Vesna Rek took part at many international and domestic meetings and conference, with papers and invited paper and took part in many elaborates for industry. She was mentor of a great number diplomas works and many magistrate work and dissertations. She was a member of organising committee and scientific committee and leader of many meetings and conferences.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

1. V. Rek, Vesna; Barjaktarović, Zrinka; Holjevac Grgurić, Tamara, The rheological properties of aged polymer bitumen, Natural and Artificial Ageing


Lecturer data
Surname, Name: PhD. Katica Sertić-Bionda, associate professor
E-mail adress: ksertic@fkit.hr
Course: ADVANCED PETROLEUM REFINERY PROCESSES
Institution: Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Katica Sertić-Bionda was born 1951 in Brinje, received her Chemical Engineering diploma in 1976, M.Sc. diploma in 1985 and Ph.D in 1989., from University of Zagreb, Faculty of Technology (now Faculty of Chemical Engineering and Technology). She is presently associated professor at the same faculty. Her fields of research interest are: toluene hydrodealkylation, catalytic reforming, catalytic cracking, hydrodesulfurization, isomerization, production and application of gasoline and lubricating oil additives. Katica Sertić-Bionda published 36 scientific and professional articles, worked at six scientific projects, brought at number of meetings and conferences, supervisor of more than ten diploma students and one doctor student. She is a member of Scientific Committee of Petroleum, HAZU, Technical Committee for Petroleum Products and Lubricants, DZNM, Croatian Society for Fuels and Lubricants, Croatian Society of Chemical Engineers.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

4. D. Plavšić, N. Lerš, K. Sertić-Bionda: On the relation between W ’/W index, hyper-
Lecturer data
Surname, Name: PhD. Jasenka Jelenčić, full professor
E-mail address: jjelen@fkit.hr
Course: MODIFICATION OF POLYMER MATERIALS
Institution: Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae
Jasenka Jelenčić was born 1946 in Zagreb, where in 1965 she completed secondary school, graduated 1969, master degree 1971, and doctor's degree in 1975 at Faculty of Technology, University of Zagreb, obtained at the same Faculty. After graduation she took a job on Faculty of Technology as assistant on Department of Polymer Engineering and Organic Chemical Technology and her positions are assistant professor from 1977, associated professor from 1982 and full professor from 1987.

She lectures the courses: Process of Polymerization and Nature and Synthetic Polymers on graduated study, and Modification of Polymeric Materials on postgraduate study.

The scientific interest of Jasenka Jelenčić is field of the polymeric materials, degradation and stabilization of polymers, including the processes of polymerization. She published more than sixty scientific papers.

From 1997 she was a vice dean of science and education, and from 2001 she is a dean of Faculty of Chemical Engineering and Technology University of Zagreb.

Date of last election

Referent publications of lecturer


List of papers in last 5 years

Lecturer data
Surname, Name: PhD. Vera Kovačević, full professor
E-mail address: vkovac@fkit.hr
Course: ENGINEERING OF BOUNDARY LAYERS
Institution: Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Born in Zagreb. 1971. B.Sc. Faculty of Technology, University of Zagreb. 1983 Ph.D. From 1971- working at Faculty of Technology, from 1988. Faculty of Chemical Engineering and Technology (FKIT), University of Zagreb. Professor from 1992. Specializations at Universities of Bath and Loughborough, UK. Foreign languages: English and German. The main fields of research interests are engineering of polymer materials, composites and blends, nanocomposites, surface engineering, aging and wearing of polymer materials. Published as author and co-author 98 papers; 57 scientific (37 CC cit.) and 41 profess. papers. Main researcher in 2 domestic scientific and 2 foreign scientific projects. Mentor of several diploma. Magisterial and Ph.D. works. Involved with several subjects in under- and postgraduate education processes.

Date of last election

Referent publications of lecturer


List of papers in last 5 years


Lecturer data
Surname, Name  PhD. Mirela Leskovac, associate professor
E-mail adress  mlesko@fkit.hr
Course  ADHESIVE PROCESSES AND MATERIALS
Institution  Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Born in Zagreb. 1988. B.Sc. Faculty of Technology, University of Zagreb, 2000. Ph.D. at Faculty of Chemical Engineering and Technology University of Zagreb. From 1990- working at Faculty of Chemical Engineering and Technology (FKIT), University of Zagreb. Docent from 1993. Specializations at Universities of Bath, UK. Foreign language: English. The main fields of research interests are chemical engineering, engineering of polymer materials (copolymers and composite polymer systems, kinetics of degradation), surface engineering (adhesion, interphase in composites). Published as author and co-author 9 scientific papers; involved in 12 international and 10 domestic scientific conferences. The winner of reward for the representing the paper at Intern. Conf. on Polym. Charact. North Texas, 1995.

Date of last election
16.06.2003.

Referent publications of lecturer


List of papers in last 5 years


Lecturer data
Surname, Name  PhD.Ema Stupnišek-Lisac, full professor
E-mail adress  elisac@fkit.hr
Course  METAL CORROSION INHIBITORS
Institution  Faculty of Chemical Engineering and Technology, Zagreb

Curriculum vitae

Ema Stupnišek-Lisac, was born in Zenica 1943. She completed Secondary school in Zagreb 1962. In the year 1967. she graduated on Faculty of Technology, University of Zagreb, obtained her Master degree in 1972. at Faculty of Technology, University of Zagreb and Doktors degree 1975. at the same Faculty. In the academic year 1973/74 Ema Stupnišek-Lisac was on specialisation in Laboratoire Physique des Liquides et Electrochimie, Universite Pierre et Marie Curie, Paris, France. In the 1968. she took a job as assistant in Institute of Physical Chemistry, University of Zagreb. From 1976. she works as assistant, assistant professor, associated professor and full professor at the Faculty of Chemical Engineering and Technology University of Zagreb. From 2001. she is Vice-Dean for Education and Recherche at the Faculty of Chemical Engineering and Technology, University of Zagreb. The field of her research is corrosion and corrosion protection of metals. The main research activities are dedicated to protection of metals from corrosion in very aggressive solutions by addition of non-toxic corrosion inhibitors. She published more than 50 scientific papers.

Date of last election 18.11.2003.

Referent publications of lecturer


List of papers in last 5 years

3. Gašparac, R., Martin, C. R., Stupnišek-Lisac, E., Mandić, Z. In-situ and Ex-situ Studies...


Lecturer data
Surname, Name  PhD. Tine Koloini, full professor
E-mail adress  tine.koloini@uni-lj.si
Course  APPLIED TRANSPORT PHENOMENA
Institution  Faculty of Chem. and Chem. Technology, Ljubljana, Slovenia

Curriculum vitae


Date of last election

Referent publications of lecturer

**Lecturer data**

**Surname, Name**  
PhD. Željko Knez, full professor

**E-mail adress**  
zeljko.knez@uni-mb.si

**Course**  
HIGH-PRESSURE PROCESS TECHNOLOGIES

**Institution**  
Fakultet za kemijo in kemijsko tehnologijo, Univerze v Maribor

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**Curriculum vitae**

**Affiliation and official address:** Faculty of Chemistry and Chemical Engineering University of Maribor, Smetanova 17, 2000 Maribor, Slovenia.  
**Education:** B. Sc.- 1977 University of Maribor, Slovenia, M. Sc.- 1979 University of Ljubljana, Slovenia, Ph. D.- 1984 University of Maribor, Slovenia.  
**Research Interest:** High Pressure technologies, phase equilibria with SC fluids, mass transfer in the system with SC fluids, high pressure micronisation processes, enzymatic reactions in SC fluids.  
**Publications:** articles refereed journal 41, chapters to 10 books (Elsevier, Blackie Academic), patents and patent applications 25 (EU, CAN, JAP, USA, PCT 4X), conferences:over 200.  
**Industrial projects:** Several industrial projects in chemical, food, cosmetics and pharmaceutical industry (national, USA and EU).  
**International scientific projects:** Germany-Slovenia, France-Slovenia, UK-Slovenia, Greece- Slovenia, Bavaria-Slovenia, COST D10, D29, D30, CEEPUS.A-19, EU project 5th framework-PRONUTRA, EU project 5th framework-Marie Curie Training site.  
**Membership in scientific associations:** European Federation of Chemical Engineering (WP high pressure Technologies) –Frankfurt, Germany, European Federation of Chemical Engineering-executive board, GVC-VDI f.a. “Hochdruck Verfahrenstechnik”, American Oil Chemists Society -Washington, USA, ISASF (International Society fo Advancement of Supercritical Fluids) - Nancy, France, Slovenian chemical Society -Ljubljana, Slovenia, Editorial Board Member of Acta Chimica Slovenica.  

**Date of last election**  
1995.

**Referent publications of lecturer**
Lecturer data
Surname, Name            Ph.D. Ivan Perić, associate professor
E-mail adress           iperic@pbf.hr
Course                  PARTIAL DIFFERENTIAL EQUATION
Institution             Faculty of Food Technology and Biotechnology, Zagreb

Curriculum vitae
I was born on 4.9.1955. in Zagreb. I got my Ph.D. 1997. on PMF-Mathematics Department. I was elected associate professor in 2004. Until 1991. I worked as assistant and lecturer at Mathematics Department of Technical Military Academy in Zagreb. From 1992. till 2000. I worked as assistant and assistant professor at Faculty of Chemical Engineering and Technology in Zagreb. From 2000. I have been working at Faculty of Food Technology and Biotechnology.

I have so far published 19 scientific papers in international journals, 9 of which are CC journals. I’m one of the co-mentors of Seminar for Inequalities and Applications at PMF-Mathematics Department, and also one of the researchers on scientific project Bounds for functionals on function spaces mentored by prof. Sanja Varošanec.

Date of last election
31.03.2004.

Referent publications of lecturer:
II.4.7. The list of teaching places
   See the item II.4.2.

II.4.8. Optimal number of students
   Optimal number of students concerning the space, equipment and number of lecturers is between 30 and 50 maximal.

II. 4.9. Costs evaluation of the doctoral Study
   The costs for studing the doctoral program is 42,000,00 kn total.

II. 4.10. Financing of the doctoral study
   The doctoral programs are financed exclusively by the school fee of the students. They either pay by themselves or they get paid by the institution in which they work. If the students are junior researchers, the school fee is partly refunded by the Ministry of science, education and sports with the support of scientific projects, which they are scientific active on.

II. 4.11. Quality of the doctoral study
   During the study the students evaluate the quality and the successfulness of the doctoral study via students’ anonymous polls. In the same way, by means of polls, they monitor the improving of the doctoral study and the Faculty only performs the evaluation process of the mentioned study.