BULLETIN

UNIVERSITY OF DEBRECEN

ACADEMIC YEAR 2015/2016

Faculty of Agricultural and Food Sciences and Environmental Management

FOOD ENGINEERING BSc

Coordinating Center for International Education
# Table of Contents

- UNIVERSITY OF DEBRECEN ........................................................................................................... 4
- DEAN'S WELCOME .......................................................................................................................... 5
- HISTORY OF THE FACULTY ......................................................................................................... 6
- MISSION OF THE FACULTY ......................................................................................................... 7
- THE ORGANIZATIONAL STRUCTURE OF THE UNIVERSITY .................................................... 8
- THE DEPARTMENTS OF THE FACULTY ....................................................................................... 9
- UNIVERSITY CALENDAR ........................................................................................................... 16
- FOOD ENGINEERING BSC PROGRAMME .................................................................................... 17
- CURRICULUM OF THE FULL TIME PROGRAMME ..................................................................... 18
- COURSE DESCRIPTIONS ............................................................................................................. 27
CHAPTER 1
UNIVERSITY OF DEBRECEN

Date of Foundation: 1912 Hungarian Royal University of Sciences 2000 University of Debrecen

Legal predecessors: Debrecen University of Agricultural Sciences Debrecen Medical University Wargha István College of Education, Hajdúböszörmény Kossuth Lajos University of Arts and Sciences

Legal status of the University of Debrecen: state university

Founder of the University of Debrecen: Hungarian State Parliament

Supervisory body of the University of Debrecen: Ministry of Education


Number of Faculties at the University of Debrecen: 14

• Faculty of Law
• Faculty of Medicine
• Faculty of Humanities
• Faculty of Health
• Faculty of Dentistry
• Faculty of Economics and Business (before 1 August 2014 the predecessors of the Faculty were the Faculty of Applied Economics and Rural Development and the Faculty of Economics and Business Administration)
• Faculty of Child and Adult Education
• Faculty of Pharmacy
• Faculty of Informatics
• Faculty of Agricultural and Food Sciences and Environmental Management (before 1 March 2010 the name of the Faculty was the Faculty of Agriculture)
• Faculty of Engineering
• Faculty of Public Health
• Faculty of Sciences and Technology
• Faculty of Music

Number of accredited programmes at the University of Debrecen: 73 degree programmes with the pre-Bologna 5-year-system university education, 41 supplementary degree programmes offering transfer-degree continuation of studies towards the university degree (MSc), 50 degree programmes with the pre-Bologna 3-year-system college education, 67 BSc and 78 MSc programmes according to the Bologna system, 5 unified one-cycle linear training programmes, 35 specializations offering post-secondary vocational certificates and 159 vocational programmes.

Number of students at the University of Debrecen: 28812

according to time of studies: 22888 full-time students, 5899 part-time students having corresponding classes and 25 part-time students having evening classes or distance education according to education level: 944 students at post-secondary vocational level, 17406 students at BSc, 3112 students at MSc, 21 students at college level, 190 students at university level (MSc), 5320 students at one-cycle linear training, 954 students at vocational programmes, 865 students at PhD, 3741 foreign students.

Full time teachers of the University of Debrecen: 1421
194 full college/university professors and 1055 lecturers with a PhD.
DEAN'S WELCOME

CHAPTER 2
DEAN'S WELCOME

Thank you for your interest in our university with a great past and in our agricultural higher education with approximately 150 year old traditions.

The University of Debrecen is one of the institutions offering a wide range of courses and research activities in Hungary. As one of the most significant think tanks in the country and the knowledge centre of the region, we seek to provide unprecedented opportunities for our students to gain state-of-the-art knowledge and to carry out significant activities.

With excellent infrastructure and high level education, the Faculty of Agricultural and Food Sciences and Environmental Management ensures excellent facilities for its students. In addition to gaining in-depth modern experience, a wide range of opportunities are available to perform professional and scientific activities beyond the scope of academic studies. After obtaining their certificates in higher education vocational training and BSc diploma courses, our students acquire a thorough practical knowledge, they can continue their studies in MSc training and then the best ones in Ph.D. training.

We firmly believe that the variety of trainings and courses we offer are attractive to many students who choose the Faculty of Agricultural and Food Sciences and Environmental Management for academic education.
I wish you every success in your studies and hope to meet you personally in the near future.

Prof. Dr. István Komlósi
Dean
CHAPTER 3

HISTORY OF THE FACULTY

History of the Faculty

Agricultural higher education in Debrecen started in 1868 with the foundation of the National Higher Economic School of Debrecen. This date marks the beginning of agricultural higher education in Debrecen and East Hungary. Between 1876 and 1906 the institute's official name was Secondary Economic School. Then it was run under the name Hungarian Royal Academy of Economy until 1944. Between 1944 and 1949 our institute went on with its work as the Debrecen Department of the Agricultural Sciences at the Hungarian Agricultural University. In 1953 tuition began again at the Agricultural Academy. Training of professionals reached University level between 1962 and 1970 at the Agricultural College. Between 1970 and 1999 the institute got its university title and as the Agricultural University of Debrecen it operated with two branch faculties (Szarvas, earlier Hődmezővásárhely, later Mezőtúr).

The University of Debrecen was established with 5 university-, three college faculties and three research institutes on 1st January, 2000. In 2002 the Faculty of Agriculture and Rural Development was established, and by 2006, the university had comprised 15 faculties.
Mission of the Faculty
The mission of the Faculty of Agricultural and Food Sciences and Environmental Management is the multifunctional development of agriculture and rural development in the North Great Plain Region. Accordingly, the institution deals with regional, national and international research and consultancy, as well as the primary goal of training professionals within the Center for Agricultural and Applied Economic Sciences. Our spectrum of educational, training and research areas have broadened, in compliance with the demands of sustainable agricultural and rural development. The interconnection between the branches of science is strengthening, which is desirable both in the long and the short terms. Our aspiration can be used as a motto, as well: "diverse training and mobility".

Our Faculty provides all the personal and infrastructural conditions of linear training. The structure of our educational programs is flexible and provides students with diverse course contents. Our accredited laboratories provide us with the opportunity to impact sectors of the economy in such a way that these can meet the ever-changing demands on markets. Our purpose is to create high-standard student and research laboratories and to provide the conditions for special high-value machines and measurement processes.

The doctoral schools and doctoral programs operating at the Faculty have an ever-widening base - providing talented young people with a suitable environment for scientific development.
CHAPTER 5

THE ORGANIZATIONAL STRUCTURE OF THE UNIVERSITY

RECTOR OF THE UNIVERSITY OF DEBRECEN

Rector: Zoltán Szilvássy M.D., Ph.D, D.Sc.
Address: 4032 Debrecen, Egyetem tér 1.
Phone: +36-52-412-060
Phone/Fax: +36-52-416-490
E-mail: rector@unideb.hu

FACULTY OF AGRICULTURAL AND FOOD SCIENCES AND ENVIRONMENTAL MANAGEMENT

Dean: Prof. Dr. habil. István Komlósi
Address: 4032 Debrecen, Böszörményi út 138.
Phone: +36-52/508-412; 88438
Fax: +36-52/486-292
E-mail: komlosi@agr.unideb.hu

Vice Dean for Educational Affairs: Dr. habil. Csaba Juhász
Address: 4032 Debrecen, Böszörményi út 138.
Phone: +36-52/508-454 88454
Fax: +36-52/508-454 88454
E-mail: juhasz@agr.unideb.hu

Vice Dean of Scientific Affairs: Dr. László Stündl
Address: 4032 Debrecen, Böszörményi út 138.
Phone: +36-52/508-444 88226
Fax: +36-52/486-292
E-mail: stundl@agr.unideb.hu

DEAN’S OFFICE

Head of Dean’s Office: Dr. Mrs. Julianna Fricz Mocsári
Address: 4032 Debrecen, Böszörményi út 138.
Phone/Fax: +36-52/508-412, +36-52/508-489
E-mail: friczj@agr.unideb.hu

REGISTRAR’S OFFICE

Registrar: Dr. Mrs. István Kovács
Address: 4032 Debrecen, Böszörményi út 138.
Phone/Fax: +36-52/508-409, +36-52/508-317
E-mail: ktunde@agr.unideb.hu

Officers
Mrs. Gizella Kerekes Guthy
Mrs. Mónika Bátori Pintye
Ms. Zsuzsanna Házi
László Lévai
CHAPTER 6
THE DEPARTMENTS OF THE FACULTY

INSTITUTE OF AGRICULTURAL CHEMISTRY AND SOIL SCIENCE
Böszörményi út 138., Debrecen, 4032

Full Professor, Head of Institute  János Kátai C.Sc.
Associate Professor  Ms. Andrea Balláné Kovács Ph.D.
                    Ms. Mária Micskeiné Csubák C.Sc.
                    Imre Vágó C.Sc.
Assistant Professor  Ms. Rita Erdei Kremper Ph.D.
                    Ms. Sándorné Kincses Ph.D.
                    Zsolt Sándor Ph.D.
Secretary  Ms. Gizella Szász
Research Assistant  Ms. Magdolna Tállai Ph.D.

INSTITUTE OF ANIMAL SCIENCE, BIOTECHNOLOGY AND NATURE CONSERVATION
Böszörményi út 138., Debrecen, 4032

Full Professor, Head of Institute  István Komlósi D.Sc.

Department of Animal Husbandry
Böszörményi út 138., Debrecen, 4032

Full Professor, Dean, Head of Department  István Komlósi D.Sc.
Professor Emeritus  Imre Bodó D.Sc.
                    Sándor Mihók C.Sc.
Professor  János Gundel C.Sc.
Technical Assistant  Ms. Beáta Babka
                    Ms. Gabriella Gulyás
                    Attila Sztrik
Associate Professor  Béla Béri C.Sc.
                    Károly Magyar C.Sc.
                    Ms. Gabriella Novotniné Dankó Ph.D.
                    József Prokisch Ph.D.
                    László Stündl Ph.D.
CHAPTER 6

Assistant Lecturer
Ms. Nóra Pálfyné Vass Ph.D.

Assistant Professor
Péter Bárszony Ph.D.
Levente Czeglédi Ph.D.
Ms. Anna Pécsi Ph.D.
János Posta Ph.D.

Secretary
Sándor Boros
Ms. Ágnes Gere
Ms. Károlyné Kiss
Ms. Marianna Korcsmárosné Varga
Ms. Anikó Nagy

Department of Nature Conservation, Zoology and Game Management
Böszörményi út 138., Debrecen, 4032

Head of Department
Lajos Juhász Ph.D.

Assistant Research Fellow
László Kövér Ph.D.

Professor
Károly Rédei D.Sc.

Technical Assistant
Norbert Tóth

Assistant Professor
Péter Gyüre Ph.D.
Lajos Kozák Ph.D.
László Szendrei Ph.D.

Department of Animal Nutrition and Food Biotechnology
Böszörményi út 138., Debrecen, 4032

Head of Department
László Babinszky Ph.D.

Associate Professor
Csaba Szabó Ph.D.

Senior Lecturer
Ms. Judit Gálné Remenyik Ph.D.

Animal Genetics Laboratory
Böszörményi út 138., Debrecen, 4032

Head of Department
András Jávor C.Sc.
Professor
András Kovács D.Sc.
Assistant Lecturer
Ms. Zsófia Rózsáné Várszegi Ph.D.
Senior Research Fellow
Ms. Szilvia Kusza Ph.D.
THE DEPARTMENTS OF THE FACULTY

INSTITUTE OF FOOD SCIENCE
Bőszörményi út 138., Debrecen, 4032

Full Professor, Head of Institute  Béla Kovács Ph.D.
Professor  János Csapó D.Sc.
Technical Assistant  Ms. Éva Bacskaíné Bódi
Ms. Andrea Tóthné Bogárdi
Associate Professor  Ms. Erzsébet Karaffa Ph.D.
Péter Sipos Ph.D.
Assistant Lecturer  Ms. Diána Ungai Ph.D.
Assistant Professor  Ms. Nikolett Czipa Ph.D.
Ferenc Peles Ph.D.
Secretary  Ms. Tünde Simon

INSTITUTE FOR LAND UTILISATION, TECHNOLOGY AND REGIONAL DEVELOPMENT
Bőszörményi út 138., Debrecen, 4032

Head of Institute  János Nagy D.Sc.
Professor  Béla Baranyi D.Sc.
Gyula Horváth D.Sc.
Associate Professor  Zoltán Hagymássy Ph.D.
Endre Harsányi Ph.D.
Tamás Rátonyi Ph.D.
Assistant Professor  Imre Andorkó Ph.D.
Ms. Adrienn Széles Ph.D.
András Vántus Ph.D.
Senior Research Fellow  Attila Csaba Dobos Ph.D.
Secretary  Ms. Zsuzsanna Dorogi
Ms. Sándorné Széles

INSTITUTE OF HORTICULTURE
Bőszörményi út 138., Debrecen, 4032

Head of Institute  Imre Holb D.Sc.
Assistant Research Fellow  Ferenc Abonyi
Associate Professor  Ms. Mária Takácsné Hájos C.Sc.
### INSTITUTE OF CROP SCIENCES
Böszörményi út 138., Debrecen, 4032

**Head of the Institute**

Péter Pepó D.Sc.

### Department of Landscape Ecology
Böszörményi út 138., Debrecen, 4032

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>Head of Institute</td>
<td>Péter Pepó D.Sc.</td>
</tr>
<tr>
<td>Professor</td>
<td>Mihály Sárvári D.Sc.</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>József Csajbók Ph.D.</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>Adrienn Novák Ph.D.</td>
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<td>Enikő Vári Ph.D.</td>
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<tr>
<td>Assistant Professor</td>
<td>Lajos Fülöp Dóka Ph.D.</td>
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<td>Erika Kutasy Ph.D.</td>
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<td>András Szabó Ph.D.</td>
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<tr>
<td>Secretary</td>
<td>Gyöngyi Kovács</td>
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<td>Endréné Szendrei</td>
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### Department of Plant Biotechnology
Böszörményi út 138., Debrecen, 4032

<table>
<thead>
<tr>
<th>Role</th>
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<tr>
<td>Professor</td>
<td>Miklós Gábor Fári D.Sc.</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>Szilvia Veres Ph.D.</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>Szilvia Kovács</td>
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<td>Brigitta Tóth Ph.D.</td>
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<tr>
<td>Assistant Professor</td>
<td>Éva Domokosné Szabolcsy Ph.D.</td>
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<td>Zsuzsanna Lisztes-Szabó Ph.D.</td>
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<td>Péter Makleit Ph.D.</td>
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</tbody>
</table>
THE DEPARTMENTS OF THE FACULTY

Genetics Group
Böszörményi út 138., Debrecen, 4032

Head Pál Pepó C.Sc.

INSTITUTE OF PLANT PROTECTION
Böszörményi út 138., Debrecen, 4032

Head of Institute György János Kővics C.Sc.
Associate Professor András Bozsík C.Sc.
László Radócz C.Sc.
Assistant Professor Antal Nagy Ph.D.
Senior Research Fellow Gábor Tarcali Ph.D.
Secretary Ms. Tünde Szabóné Asbolt

AGRICULTURAL LABORATORY CENTRE
Böszörményi út 138., Debrecen, 4032

Assistant Research Fellow Ms. Nóra Őri
Technical Assistant Ms. Nóra Bessenyei Tarpay
Csaba Kiss
Ms. Hajnalka Pákozdy
Ms. Istvánné Sőrés
Gábor Tóth M.D.
Associate Professor Ms. Tünde Pusztahelyi Ph.D.

INSTITUTE OF WATER AND ENVIRONMENTAL MANAGEMENT
Böszörményi út 138., Debrecen, 4032

Deputy Head Csaba Juhász Ph.D.
Head of Institute János Tamás D.Sc.
Assistant Research Fellow Péter Riczu
Ms. Nikolett Szőllősi
Professor Lajos Blaskó D.Sc.
Technical Assistant Ms. Kamilla Berényi-Katona
Ms. Katalin Bökfi
Associate Professor Ms. Elza Kovács Ph.D.
Assistant Lecturer Ms. Tünde Fórián Ph.D.
<table>
<thead>
<tr>
<th>Position</th>
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<tr>
<td>Assistant Professor</td>
<td>Ms. Ildikó Gombosné Nagy Ph.D.</td>
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<td></td>
<td>Ms. Lili Mézes Ph.D.</td>
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<tr>
<td>Secretary</td>
<td>Ms. Attila Nagy Ph.D.</td>
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<td>Csaba Pregun Ph.D.</td>
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<tr>
<td>Assistant Research Fellow</td>
<td>Zoltán Győri Ph.D.</td>
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<tr>
<td>Professor</td>
<td>Csaba Berde C.Sc.</td>
<td>Miklós Herdon Ph.D.</td>
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<tr>
<td>College Professor</td>
<td>Ferenc Kalmár Ph.D.</td>
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<tr>
<td>Associate Professor</td>
<td>Ms. Edit Gizella Szűcs Ph.D.</td>
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<td>Péter Balogh Ph.D.</td>
<td>Zsolt Csapó Ph.D.</td>
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<td>Wiwczaroski Dr. Troy B. Ph.D.</td>
<td>János Felföldi Ph.D.</td>
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<td>István Grigorszky Ph.D.</td>
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<td>Ms. Csilla Juhász Ph.D.</td>
<td>Levente Karaffa Ph.D.</td>
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<td>László Lakatos Ph.D.</td>
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<td>Ms. Ilona Nagyné Polyák Ph.D.</td>
<td>Miklós Pakurár Ph.D.</td>
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<td>Károly Pető C.Sc.</td>
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<td>László Posta C.Sc.</td>
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<td>Sándor Szűcs C.Sc.</td>
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<td>István Szűcs Ph.D.</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>Ms. Mónika Harangi-Rákos</td>
<td></td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>Ms. Andrea Bauerné Gáthy Ph.D.</td>
<td></td>
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<tr>
<td>Position</td>
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<tr>
<td>Research Fellow</td>
<td>Ferenc Buzás Ph.D.</td>
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<tr>
<td></td>
<td>Zoltán Csiki M.D., Ph.D.</td>
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<td>Ms. Zita Hajdu Ph.D.</td>
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<td>Ms. Judit Katonáné Kovács Ph.D.</td>
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<tr>
<td></td>
<td>Ms. Ildikó Tar Ph.D.</td>
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### UNIVERSITY CALENDAR

#### Academic calendar

<table>
<thead>
<tr>
<th>Events</th>
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<tbody>
<tr>
<td>Opening Ceremony</td>
<td>September 6 (Sunday)</td>
</tr>
<tr>
<td>Enrolment week</td>
<td>September 7 - 11</td>
</tr>
<tr>
<td>Study period for not final year students</td>
<td>September 14 - December 18 (14 weeks)</td>
</tr>
<tr>
<td>Study period for final year students</td>
<td>September 14 - November 13 (9 weeks)</td>
</tr>
<tr>
<td>Deadline for thesis submission</td>
<td>October 30</td>
</tr>
<tr>
<td>Examination period for final year students</td>
<td>November 16 - December 4 (3 weeks)</td>
</tr>
<tr>
<td>Examination period for not final year students</td>
<td>December 21 – February 5 (7 weeks)</td>
</tr>
<tr>
<td>Defending of the thesis</td>
<td>November 30 – December 1</td>
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<tr>
<td>Final exam</td>
<td>December 10 - 11</td>
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<tr>
<td>Graduation ceremony</td>
<td>December 19</td>
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<tr>
<td>Enrolment week</td>
<td>February 8 - 12</td>
</tr>
<tr>
<td>Study period for not final year students</td>
<td>February 15 – May 20 (14 weeks)</td>
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<tr>
<td>Study period for final year students</td>
<td>February 15 - April 22 (10 weeks)</td>
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<tr>
<td>Deadline of the thesis</td>
<td>April 22</td>
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<tr>
<td>Examination period for final year students</td>
<td>April 25 – May 20 (4 weeks)</td>
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<tr>
<td>Examination period for not final year students</td>
<td>May 23 - July 8 (7 weeks)</td>
</tr>
<tr>
<td>Defending of the thesis</td>
<td>May 26 - 27</td>
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<tr>
<td>Final exam</td>
<td>June 6 - 7</td>
</tr>
<tr>
<td>Graduation ceremony</td>
<td>June 18</td>
</tr>
</tbody>
</table>
FOOD ENGINEERING BSC PROGRAMME

CHAPTER 8

FOOD ENGINEERING BSC PROGRAMME

About the course:
The BSc in Food Engineering is aimed to train professionals who are able to operate, supervise and develop food processing technologies. The studies contain the physical, chemical and biological basics of engineering with special emphasis on the food quality and safety related issues. Besides becoming acquainted with the operations and technological processes the students also learn economic, management and analytical subjects. Therefore, the main goal of the education is to train people who are able to fully provide the functions in relation with the everyday tasks of operation from the engineering, biological and chemical work to the management duties based on their comprehensive theoretical bases.

Requirements:
Application requirements: General Certificate of Education (G.C.E), upper-intermediate English language certificate
Length of the Study programme: 6 semesters for academic studies+1 semester long farm management practise period
Number of ECTS credits: 180+30

The course consists of lectures and seminars. Attendance at lectures is recommended, but not compulsory. Participation at practice classes is compulsory. A student must attend the practice classes and may not miss more than three times during the semester. In case a student does so, the subject will not be signed and the student must repeat the course. A student can’t make up a practice class with another group. The attendance at practice classes will be recorded by the practice leader. Being late is equivalent with an absence. In case of further absences, a medical certificate needs to be presented. Missed practices should be made up for at a later date, being discussed with the tutor. Active participation is evaluated by the teacher in every class. If a student’s behavior or conduct doesn’t meet the requirements of active participation, the teacher may evaluate his/her participation as an absence because of the lack of active participation in class.

The knowledge of the students will be tested several times depending on the class types during the entire course. The training ends in a Final Exam (FE) of the whole semester material and a minimum of four FE dates will be set during the examination period. Unsuccessful students may repeat. During the semester there are two tests: the mid-term test in the 8th week and the end-term test in the 15th week. Students have to sit for the tests.

Tests are evaluated according to the followings:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-59</td>
<td>fail (1)</td>
</tr>
<tr>
<td>60-69</td>
<td>pass (2)</td>
</tr>
<tr>
<td>70-79</td>
<td>satisfactory (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>excellent (5)</td>
</tr>
</tbody>
</table>

absence for any reason counts as 0%.

If the score of any test is below 60, the student can take a retake test in conformity with the EDUCATION AND EXAMINATION RULES AND REGULATIONS.

An offered grade: It may be offered for the students if the average of the mid-term and end-term tests is at least good (4). The offered grade is the average of them.

Careers:
Graduated students may find employment in the food industry, raw material and product qualification, food analysis, inspection, quality assurance or may work for the authorities. Graduates may progress to MSc in Food Engineering, MSc in Food Quality and Assurance or MSc in Nutrition.
### Compulsory courses

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Neptun code</th>
<th>1st semester</th>
<th>2nd semester</th>
<th>Prerequisites of taking the subject</th>
</tr>
</thead>
<tbody>
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**Compulsory courses**

2. year (continued)
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Compulsory courses

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<tr>
<td>Packaging technology</td>
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<td>Quality control of plant origin products</td>
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<td>Wine microbiology and chemistry</td>
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<td>Baking technology</td>
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<td>Qualification of animal products</td>
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<td>Wine making technology</td>
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CHAPTER 10
COURSE DESCRIPTIONS

Agricultural Laboratory Centre

Subject: **MATHEMATICS I.**
Year, Semester: 1st year/1st semester
Lecture: 2
Practical: 1

**Requirements**

Course content:
Major goal of the subject:
The main goal of the subject is that the students could be introduced to the basic methods and terminology or definitions in mathematics which can be used in economics. The differential calculus of one-variable functions and its practical application is in the center of interest as well as the extreme value and elasticity calculation of one-variable functions. During the course of practical lessons students should gain experience in problem solving from the various topics of the subject.
Main topics:
Theory of sets. Sets of numbers, Classification and characteristics of one-variable real functions. Theorems of limit calculation. Limit calculation, continuity and derivate of functions. Examination of functions, elasticity. Extrame values calculation of functions with practical applications. Practical applications of the differential calculus.

**Required reading materials**

*F. Bíró-Sz. Vincze: A gazdasági matematika alapjai*
*K. Sydsater-P.I. Hammond: Matematika közgazdászoknak*
*G. Denkinger-L. Gyurkó: Analízis gyakorlatok*

Department of Nature Conservation, Zoology and Game Management

Subject: **ZOOLOGY, ANIMAL PHYSIOLOGY I.**
Year, Semester: 1st year/1st semester
Lecture: 2
Practical: 1

**Requirements**

Course content: The target of the course is to ensure the general knowledge of students in zoology, to introduce the structure and functioning of the animal cell, the types of animal tissues, their basic
CHAPTER 10
structure, significance, the general definitions of reproduction and ontogenesis. To introduce the main taxonomic units, and to teach to recognize invertebrate and vertebrate species in practice, to evaluate these species considering their nature conservation and possible economic values and to evaluate the human effects on the world of animals are also educational objectives.

Required reading materials


Department of Plant Biotechnology

Subject: AGRICULTURAL BOTANY
Year, Semester: 1st year/1st semester
Lecture: 2
Practical: 1

Requirements

Course content: Anatomy, morphology and taxonomy of the most important plant families and their species and cultivars.
Thematic plan of lectures:
2. Basic plant cytology 2. Chloroplast and microchondria, vacuole.
5. Plant morphology 1. Root structure, stem structure, leaf structure.
7. Fruit and seed development and structure.

Required reading materials


28
Faculty of Economics and Business

Subject: **ECONOMIC SCIENCES I.**
Year, Semester: 1<sup>st</sup> year/1<sup>st</sup> semester
Lecture: 4

**Requirements**

Course content: The aim of the subject is to make the students get acquainted with the basic theoretical and practical economic knowledge (Microeconomics, Macroeconomics, Agricultural Economics and European Union Studies) for student, which could help them in the following work.

Thematic plan of course:
1. Basic economic theory
2. Demand function and Supply function
3. Consumption behavior
4. Production function, resources
5. Production cost in the short run and in the long run
6. Perfect Competition
7. Monopoly, Price Discrimination
8. Externalities
9. Introduction of the macroeconomics
10. SNA (GDP, GNI, GNDI)
11. Labor market
12. Goods market
13. Money market
14. Financial policy
15. Monetary policy

1. Output of Hungarian agriculture
2. Farm structure
3. Land use
4. Crop production
5. Animal production
6. Agricultural products
7. Employment in Agriculture
8. Basic information about EU
9. EU law, treaties
10. Institutions and bodies
11. Life in the EU
12. EU policies
13. Financed support
15. Rural Development
Required reading materials

*Solt Katalin: Mikroökonómia*

*Bauerné Gáthy Andrea-Odor Kinga-Popovics Péter (szerk.): Mikroökonómia feladatgyűjtemény-Alapszint*
2009.

*Bock Gyula: Mikroökonómiai feladatok*

*Solt Katalin: Makroökonómia*

Subject: HISTORY OF AGRICULTURE AND EU KNOWLEDGE
Year, Semester: 1st year/1st semester
Lecture: 2

Requirements

Course content:
I. Agricultural history
Aim: Introducing students to the universal and Hungarian agricultural history and its development, deepening the specific and general profession culture with special regard to the development history of the European and Hungarian agriculture. In addition to the past, it is also part of the curriculum to describe the present and near future, as well as its development peculiarities.

II. EU knowledge
Aim: Reviewing the past, present, history and interconnections of the general European integration processes, as well as the theory and practice of the European Union subsidisation (structural) policy, with special regard to the basic principles and Hungarian practice of the Common Agricultural Policy (CAP).

Thematic plan of lectures:

Lecture 1. Course requirements, thematics. Fundamental conception.
Lecture 2. Development of agriculture, ancient forms of agriculture in the Worlds and the early Hungarian society
Lecture 3. Feudal economic-social relations in the middle-ages and the late middle-ages and the history of agricultural development in Europe (6th – 15th century)
Lecture 4. Feudal economic-social relations in the middle-ages and the late middle-ages and the history of agricultural development in Europe (10th – 17th century)
Lecture 5. Development history of the capitalist economy and agriculture between the 15th – 19th century
Lecture 6. The economy and agroeconomy of Hungary in the transition era from classic feudalism to capitalism (1711-1867)
Lecture 7. The unfolding and the developed capitalist economy and agriculture in the dualist Hungary (1849-1914)
Lecture 8. Main characteristics and development history of world economy between the two world wars (1920-1945)
Lecture 9. Development history of the Hungarian agriculture between the two world wars (1918-1939)
COURSE DESCRIPTIONS

Lecture 10. Main tendencies of the economic and agricultural development of the developed countries after the second world war
Lecture 11. Development history of the Hungarian agriculture after 1945
Lecture 12. General characteristics and tendencies of the transition of the Hungarian agriculture after the change of the political regime in 1989/90
Lecture 13. Brief development history and regional (structural) subsidisation politics of the EU
Lecture 14. Regions and regionalism in the European Union and Hungary

Required reading materials

*European Commission: Communication from Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions-A Budget for Europe* 2020.

Subject: INFORMATICS
Year, Semester: 1st year/1st semester
Practical: 2

Requirements

Course content:
Irrespective of their preliminary study requirements, students are required to gain advanced IT skills to be used in their further studies and in their graduate professional practical work.
It implies:
- obtaining the necessary knowledge on Internet-use.
- developing an advanced-level knowledge of MS-Office (Word; Excel; Power Point) to be able to solve complex tasks.
The course is basically application oriented, a number of practical tasks are to be solved.

Required reading materials
Institute of Agricultural Chemistry and Soil Science

Subject: GENERAL AND INORGANIC CHEMISTRY
Year, Semester: 1st year/1st semester
Lecture: 2
Practical: 1

Requirements

Course content:
Learn the basics and principles of General and inorganic chemistry. Understanding the agricultural production determining and food processing influencing chemical properties and reactions (plant and animal physiology, plant nutrition and animal feeding, food conservations, etc). Basic knowledge for the learning of organic chemistry, biochemistry, and food chemistry.


Required reading materials

Blake, R.: Introductory chemistry.
Ebbing, D.D., Gammon, S.D.: General Chemistry

Institute of Food Science

Subject: RAW MATERIALS OF FOOD PROCESSING
Year, Semester: 1st year/1st semester
Lecture: 2

Requirements

Course content: The course aims to introduce students the agricultural raw materials of food processing, their grouping, physical and chemical properties important for qualification and valuation, factors influencing their quality and their industrial importance. The detailed topics are:

• Definitions
• Cereals (wheat, rye, oat, rice, corn, millet and others) and pseudocereals
• Legumes, pulses (pea, bean, peanut, soybean, alfalfa, lupin)
• Food industrial crops (sunflower, rape, poppy, tobacco, potato, sugarbeet)

32
COURSE DESCRIPTIONS

• Fruits and vegetables
• Meat (porcine, cattle, ovine, poultry, game meat)
• MilkEgg

Required reading materials

N. L. Kent: Technology of Cereals with special reference to wheat
S. A. Watson, P. E. Ramstadt: Corn: Chemistry and Technology
Springer Publish., 1995.

Subject: THERMODYNAMICS
Year, Semester: 1st year/1st semester
Lecture: 2
Practical: 2

Requirements

Course content:
CHAPTER 10

Required reading materials

Atkins, W., P.: Physical Chemistry
Chang, R.: Physical Chemistry with Applications to Biological Systems

Agricultural Laboratory Centre

Subject: ECONOMIC SCIENCES II.
Year, Semester: 1st year/2nd semester
Lecture: 4
Practical: 1

Requirements

Course content: The main objective of the subject is to make the students get acquainted with the economic aspects of the agricultural entrepreneurs. They have to know the basic economic categories (production value, production cost, profit, efficiency), the economic aspects of resources and functional activities of farms and basic economic calculations of profitability, prime cost, efficiency, and the practice of future and present value calculation.

Thematic plan of course:
1. Basic economic categories. Production value
2. Production cost
3. Profit, profitability, efficiency and its categories
4. Resources of agricultural production. Capital and its characteristics, use and source of capital
5. Fixed assets, investments, use of fixed assets in agriculture
6. Land and its role and use
7. Current assets, tasks of the use of current assets in agriculture
8. Human resource in agricultural production. Territories and tasks of human resource management
9. Forms of entrepreneurs in agriculture
10. Economic aspects of innovation
11. Economic aspects of machinery in agricultural production
12. Economic aspects of fertilization
13. Economic aspects of irrigation
14. Economic aspects of plant protection
15. Economy of scales in agricultural production

Required reading materials

Ernő Pfau-András Nábrádi: Production factors and resources of the agricultural entrepreneurs (lecture notes)
Ernő Pfau-László Posta: Basic economic categories (lecture notes)
Ernő Pfau-Gyula Széles: Agricultural economy II.
Subject: MATHEMATICS II.
Year, Semester: 1st year/2nd semester
Lecture: 2
Practical: 1

Requirements

Course content:
Major goal of the subject:
The course is the continuation of the Mathematics I. from the first semester. The main goal of the subject is that the students could be introduced to methods and definitions in linear algebra (especially matrices, determinants, solution of linear equations) which can be used in economics. On the other hand, students should get acquainted with the derivatives and extreme values of multivariable functions with or without conditions. Probability counting is also in the center of interest as it is also essential for Statistics.
During the course of practical lessons students should gain experience in problem solving from the various topics of the subject.
Main topics:

Required reading materials

D. P. Apte: Probability and combinatorics
K. Sydsater-P.I. Hammond: Essential Mathematics for Economic Analysis
S.T. Tan: Applied Mathematics for Managerial, Life and Social Sciences

Institute for Land Utilisation, Technology and Regional Development

Subject: BASIC EQUIPMENT FOR FOOD INDUSTRIES
Year, Semester: 1st year/2nd semester
Lecture: 2
Practical: 1

Requirements

Course content:
1. Conveyor systems I.
CHAPTER 10

2. Conveyor systems II.
3. Air stream transport systems
4. Grinding machines
5. Classification systems I.
6. Classification systems II.
7. Mixing equipments I.
8. Mixing equipments I.
9. Separation systems
10. Refrigerators
11. Squeezing systems
12. Distillation systems
13. Summary

Required reading materials

Szendrő Péter: Agricultural Machinery
ISBN: 9639121177
Szendrő Péter: Exercices of agricultural machinery
ISBN: 9633562066

Subject: TECHNICAL BASICS OF AGRICULTURAL MACHINERY
Year, Semester: 1st year/2nd semester
Lecture: 2
Practical: 1

Requirements

Course content:
1. Internal combustion engines I.
2. Internal combustion engines II.
3. Farm tractor I.
4. Farm tractor II.
5. Tillage machines I
6. Tillage machines II.
7. Sowing, planting machines I
8. Sowing, planting machines II.
9. Machines of irrigation I
10. Machines of irrigation II.
11. Fertilizer distributors I.
12. Fertilizer distributors I.
13. Mechanization of Plant Protection I
14. Mechanization of Plant Protection II.
15. Summary

Required reading materials

Vas Attila (szerk.): Internal combustion engines in car and tractor technology
ISBN: 9633562120
Szendrő Péter: Agricultural Machinery
ISBN: 9639121177
Institute of Agricultural Chemistry and Soil Science

Subject: ORGANIC AND BIOCHEMISTRY
Year, Semester: 1st year/2nd semester
Lecture: 2
Practical: 1

Requirements

Course content: Organic and biochemistry study the structure and constitutions of organic compounds occurring in plant and animal organisms such as intermediers, monomers and macro molecules. It discusses biological processes (metabolism processes) and their regulations, which take place in plant and animal cells. Energy balance of anabolism and catabolism, and their relationship with each other. Successful understanding of food chemistry and plant physiology is based on this subject. Our objective is to provide for students a thorough understanding in the principles of biochemistry.

Thematic plan of lectures:
1st week Hybridization of carbon: Classification of organic compounds based on their carbon skeleton and functional groups. Types of isomerization, carbon hydrogens, The most important organic chemical reactions (substitution, addition, polymerisation) dienes, polienes (terpenes). Chemical properties of isoprenes compounds.
4th week. Lipids. Classification, physical and chemical properties of lipids. Comparison of combined lipids, the most important lipids. Steroids, Chemical properties of substituted carboxylic acids.
6th week Aromatic compounds. Structure of bensol. Isomerization and its chemical reactions. Most important aromatic hydrocarbon groups. The conditions of aromatic nature. Aromatic alcohols, aldehydes, carboxylic acids. The phenols and quinones linkage system, their main representatives.
8th week: primary and secondary structure of nucleic acids,. Relationship between the structure and the biological function of nucleic acids. The structure of living organisms, and their supra molecular organization. Living organisms and their environment.
9th week: The role of water from the aspect of living beings. Enzymes. The nomenclature, structure and mechanism of enzymes. Factors affecting the activity of enzymes. Classification of
CHAPTER 10

enzymes. The regulation of enzyme activity
10th week Vitamins. Common feature of vitamins their classification. Fat-soluble and water-soluble
vitamins and their mechanisms.
11th week: Hormones. Mechanism of hormones. Hormones of pituitary, thyroid, parathyroid,
pancreas, adrenal Sexual hormones Tissue hormones. Plant hormones. Photosynthesis. Light and
dark photosynthesis. Sucrose and starch synthesis
12th weeks. Breakdown of carbohydrates. Glycolysis, citric acid cycle and the terminal oxidation
reaction and energy balance. The direct oxidation of glucose (pentose phosphate cycle). Fermentation processes.
13th week: Resynthesis of glucose. Glycogen metabolism (Cori cycle). The metabolism of fats. The
biosynthesis of fatty acids. The breakdown of saturated , unsaturated and odd carbon fatty acids,
and their energy balance.
14th week glyoxylic acid cycle. Structure of amino acids. The origin of amino acids C-frame.
Protein synthesis. Stages of protein synthesis, transcription, translation. Initiation, elongation,
termination.
15th week: Hydrolysis of proteins, breakdown of amino acids and their relationship with citrate-
circuit . Urea cycle. Relationship between cellular energy-producing and energy consuming
processes. Representation of homeostasis maintenance enhanced by examples.

Required reading materials

Ida Kincses-Andrea Balla Kovács: Applied biochemistry
2013.
Sally Solomon: Introduczion to general, organic and bilogical chemistry
ISBN: 0070596611
Christopher K. Mathews, K.E. van Holde: Biochemistry
Darnell, James E.: Molecular cell biology
1986. ISBN: 0716714485

Institute of Food Science

Subject: AGRICULTURAL AND FOOD MICROBIOLOGY I.
Year, Semester: 1st year/2nd semester
Lecture: 2
Practical: 1

Requirements

The purpose of this semester of Microbiology is to familiarize the student with those concepts that
are basic to viruses and prokaryotic and eukaryotic cells. The basic topics in this course are: the
general principles for microbial growth, evolution and classification, descriptions of different
prokaryotic, eukaryotic and other life forms; the natural ecology of microorganisms; the human use
of microorganisms; and how microorganisms function in disease.
In the laboratory students will learn basic microbiological techniques, to acquire basic
bacteriological skills and be able to successfully use them.
Subject: **ANALYTICAL CHEMISTRY**  
Year, Semester: 1st year/2nd semester  
Lecture: 2  
Practical: 2

**Requirements**


**Required reading materials**

*Giinzler H. and A. Williams: Handbook of analytical techniques*  
*Ebbing, D.D., Gammon, S.D.: General Chemistry*  
*Danzer K.: Analytical Chemistry. Theoretical and meterological fundamentals.*  
Springer Publish., 2007.  

Subject: **INTRODUCTION TO FOOD SAFETY**  
Year, Semester: 1st year/2nd semester  
Lecture: 2

**Requirements**

Course content: The aim of the course to give knowledge regarding food safety, its importance in the food policy of EU. Students get information about natural, technological toxins that can be found in food. Thematic plan of lectures:  
1. Concept of food safety. Recent principles in food safety policy.  
2. Legal and organization framework and institutions of of the realization of food safety.  
3. Labelling of food.  
4. European trademarks and geographical indications.  
5. General toxicology, rudiments  
7. Foodborne diseases.  
9. Parasites in food.  
10. Mycotoxins.
CHAPTER 10

11. Chemical and physical risks.
12. Food safety and the GM foods.
15. RASFF

Required reading materials

Source-book of the department of Feed and Food Safety of the Agricultural Extension Agency
R. Beier, S. Pillai, T. Phillips, R. Ziprin: Preharvest and Postharvest Food Safety.

Institute of Water and Environmental Management

Subject: ENVIRONMENTAL MANAGEMENT, ENVIRONMENTAL TECHNOLOGY
Year, Semester: 1st year/2nd semester
Lecture: 2

Requirements

Course content: The course gives an introduction about the possible utilizations of the renewable energy sources. Provides an overview of the technologies related to air purity protection and protection against noise. Understanding the input and output methods of pollution reduction and the basic coherences of technological interventions. The role and novelty of the focused subject. The conferences organized by the United Nations. Giving history of Hungarian environmental protection. The law of LIII (1995). The process of air pollution in detailed. Types (local, regional and global scaled) and sources of fair pollution and their characterization. The transmission process. Decrease in harmful effect of garbage. The re-cycling of wastes for raw materials or energy sources. Way leading to make harmless the non re-usable wastes. Water a revolving prime mover under continuous circulation. Emissions mostly from human activities that are responsible for the damages caused on soils and not soil surfaces. Organization of processes that could declines the damages. Frames of the law.

Required reading materials

Hanaki, K.: Urban Environmental Management and technology
Jorgensen, S. E.: Studies in Environmental Science Principles of environmental science and technology
Massachusetts, 2006. ISBN: 9781840646870
New Delhi, 2005. ISBN: 9781840646870
Agricultural Laboratory Centre

**Subject:** BUSINESS STUDIES AND SKILLS IN ENGLISH I.
**Year, Semester:** 2nd year/1st semester
**Lecture:** 2

**Requirements**

Course content: The aim of the subject is to provide the students with essential skills, concepts, processes and phenomena of the world of business and employment and at the same time improve the level of their language competencies. The following topics with case studies offer the context for the development of employment and language skills: sectors of the economy, management (functions, company structures, motivation, cultural diversity at work), employment market demands and trends, job applications (advertisements, CVs, cover and motivation letters, job interviews), promotion seeking, telephoning.

**Required reading materials**

- Ian MacKenzie: *English for Business Studies*  
- Leo Jones-Richard Alexander: *New International Business English*  
- Simon Sweeney: *English for Business Communication*  

**Subject:** ELECTROTECHNICS
**Year, Semester:** 2nd year/1st semester
**Lecture:** 2
**Practical:** 2

**Requirements**

Thematic plan of lectures:
3. The capacity. The condensers serial and parallel contact. Conductivity systems' capacity.
4. The flux and it's electrostatic field. The amperage. Flux density. Space of flow and it's calculation.
5. Reluctance and it's serial and parallel contact. Effect and effect density. Potential and flux generator.
10. Roll and attached rolls.The serial and parallel contact of rolls. Inducated electric gradient.
CHAPTER 10


Required reading materials

László Kerékgyártó: Electrical Engineering
István Gergely: Electrical Engineering
Dr. Fodor György: Theoretical Electrical Engineering
D. Fink-A. McKenzie: Standard Handbook of Electronic Engineering

Subject: INTRODUCTION TO INTERCULTURAL COMMUNICATION I.
Year, Semester: 2nd year/1st semester
Lecture: 2

Requirements

Course content: The learning objectives for this class are:
Intercultural Knowledge and Awareness
Learn what culture is and how it affects and is affected by the communication process. Know how context, history, family, media, and other institutions influence culture and communication. Learn how demography and globalization shape cultural identity and intercultural relations. Identify issues of inequality—racism, sexism, and systems of privilege—and how to address them.
Understanding
Develop and refine an understanding of yourself and others through knowledge, listening, patience, and dialogue. Become more thoughtful of the complexity of intercultural interactions. Become a more willing, self-reflective, flexible, and open communicator. Know how power, stereotypes, and prejudice are manifested in cross-cultural communication.
Intrapersonal, Interpersonal, and Group Communication Skills
Improve your ability to think about intercultural communication issues and your own cultural identity, including your perceptions, strengths and limitations. Improve communication skills with others one-on-one and in small groups. Develop verbal, non-verbal, critical listening, and conflict management skills.
Critical-Thinking Skills
Learn how to examine yourself, others, situations, and texts. Learn to look at and understand issues in different ways, including those that may differ from your own.
Thematic plan:

1-2. Recognizing/recalling and defining specified terms of cultural analysis.
3-4. Describing own cultural heritage/identities (using concepts learned in the course) and how these influence communication.
5-6 Describing in depth the distinctiveness of one national culture via a cultural metaphor.
7-8 Interpreting behaviors of another culture within that culture’s own framework of meaning.
9-10 Applying intercultural communication concepts/theories to personal experiences, social interactions/observations, and media representations of interactions involving members of different cultures.
11-12 Identifying cross-cultural ethical principles.
13-14 Applying ethical standards to intercultural communication cases.
15 Assessing own competence and character in relating with culturally different others.

Required reading materials

Judith N. Martin and Thomas K. Nakayama: Intercultural Communication in Contexts
David Anderson and Brent Zuercher: Letters Across the Divide: Two Friends Explore Racism,
Friendship and Faith

Subject: PROFESSIONAL LANGUAGE SKILLS I.
Year, Semester: 2nd year/1st semester
Practical: 2

Requirements

Course content: The goal of this course is to develop and to hone professional oral business communication skills, i.e. public speaking skills and competencies, on a sound basis of theoretical and practical knowledge. Students are also introduced through logical problem-based learning modules to the fundamentals of intercultural persuasion and negotiation tactics. Students will learn how to give three key types of professional presentations used in everyday business activities.

Thematic plan:
1. Public Speaking I (definitions, levels, fundamentals of rhetorics)
2. Public Speaking I (professional introductions of self, companies and activities)
3. Constructing a logical presentation, methods of focusing on an audience
4. The SPAM method, 1st student oral presentation exercise
5. 1st student oral presentation exercise
6. Critique, Introduction to the 2nd student oral presentation exercise: product and marketing presentations
7. Workshop
8. 2nd student oral presentation exercise
9. 2nd student oral presentation exercise
10. Critique, Introduction to the 3rd student oral presentation exercise: persuasion – changing minds and opinions on processes and services
11. Using a logical matrix and SWAT analysis in presentations. Problems with PowerPoint
12. Workshop
13. 3rd student oral presentation exercise
14. 3rd student oral presentation exercise
15. Critique and review

Required reading materials

Rodgers, Drew: English for International Negotiations
Wiwczaroski, Troy B.: Writing and Professional Communication
Requirements

Course content: The most important aim is students possess those basic knowledge which are in strong connection with organization and logistics, business economic and marketing, extension areas of specialty.

Thematic plan of lectures:
1. Organization and logistics – Operational strategy
2. Organization and logistics – Products and services
3. Organization and logistics – Processions and technologies
4. Management – The concept of management, its evolution and development
5. Management – Organizational forms and group-management
6. Management – Communication and information management
7. Management – Decision and decision making
8. Marketing – Introduction, segmentation
9. Marketing – Consumer and organizational attitude
10. Marketing – Product and price policy
11. Marketing – Distribution and promotion
12. Extension – The extension system
13. Extension – The extension register system
14. Extension – Changing the extension system

Required reading materials

Roóz J.: Vezetésmódszertan
Bakacsi Gy.: Szevezeti magatartás, vezetés
Bauer A.-Berács J.: Bevezetés a marketingbe
2006.
Hajós-Pakurár-Berde: Szervezés és logisztika notes
2007.
Szegedi-Prezenszki: Logisztika-menedzsment
Dr. Kozári József: Szaktanácsadás a mezőgazdaságtanban
Alan w. van den Ban-H. S. Hawkins: Mezőgazdasági szaktanácsadás
Mezőgazda Kiadó, Bp., 1996.
Institute of Agricultural Chemistry and Soil Science

Subject: **FOOD CHEMISTRY**
Year, Semester: 2nd year/1st semester
Lecture: 2

**Requirements**

2nd week: Classification of minerals. Their physiological role. 3rd week Carbohydrates in foods, their classification. Maillard reactions. 4th week: Carbohydrate-based flavorings and additives. 5th week Food proteins. Functional properties of proteins. Denaturation of proteins in foodstuffs changes in food properties due to it. 6th week: Protein based flavorings and additives. Additives increasing nutritional value. 7th week Lipids in foods. Indicator values for fat and oil quality. Problem of rancidity. 8th week: The essential amino acids and fatty acids, the possibilities for their intake. 9th Seven: Vitamins. The change in the amount of vitamins during storage. Their importance. 10th Week: Natural - and artificial dyes. 11th Week: Taste and flavoring. 12th week: Preservation. Preservatives. 13th week: Eggs and egg products, milk and milk products, their chemical composition and its changes during processing and storage. 14th week: The chemical composition of meat and meat products, the changes taking place in them during storage and processing. 15th week: Products of plant origin (corn products, fruit and vegetable preparations), their chemical composition, and their role in our nutrition.

**Required reading materials**

Belitz D., Grosch W., Schieberle P.: *Food Chemistry*

*John M. de Man: Principles of Food Chemistry*

Institute of Animal Science, Biotechnology and Nature Conservation

Subject: **FOOD HYGIENE**
Year, Semester: 2nd year/1st semester
Lecture: 1
Practical: 1

**Requirements**

Course content: In this subject students will learn about handling, preparation, and storage of food in ways that prevent foodborne illness. This includes a number of routines that should be followed to avoid potentially severe health hazards.

Thematic plan of lectures:
CHAPTER 10

3. Basics of food-safety controlling. HACCP.
4. Terms of establishing different works in food industry.
5. General food-hygiene terms, regulations in food industry.
6. Contents, features and production of milk.
7. Milking, handling of milk in farms.
8. Controlling milk production.
9. Hygiene of milk processing.
12. Technological hygiene of meat production (porcine, cattle slaughtering)
15. Meat inspection of poultry and others. Technological hygiene (poultry, rabbit, wild animals).

Thematic plan of practices:
1. Proliferation of microbes in food. Foodborne illnesses.
3. Food wrecking.
5. gyakorlat A húskészítmények előállításának technológiai higiéniája, és a forgalmazás feltételei. Technological hygiene of producing meat-products, and the conditions of distributing.

Discussion.

Required reading materials

*Hayes, P. R., Forsythe, S. J.: Food hygiene, Microbiology and HACCP*


Institute of Food Science

Subject: AGRICULTURAL AND FOOD MICROBIOLOGY II.
Year, Semester: 2nd year/1st semester
Lecture: 2
Practical: 1

Requirements

Course content: The purpose of this subject is to familiarize the student with the scope of food microbiology, microorganisms and food material, factors affecting the growth and survival of microorganisms in foods, microbiology of food preservation and primary food commodities, furthermore fermented and microbial foods.

In the laboratory students will learn microbiological techniques which are used during the microbiological examination of foods.
Required reading materials

Adams M. R, Moss M. O.: Food Microbiology

Subject: PROFESSIONAL PRACTICE
Year, Semester: 2nd year/1st semester
Practical: 80

Subject: UNIT OPERATIONS IN FOOD PROCESSING I.
Year, Semester: 2nd year/1st semester
Lecture: 2
Practical: 2

Requirements

Course content:
Lectures:
Unit operations
Units, Quantities and Dimensions,
The SI System
Conversion of Units
Basic Material and Energy balances
Flow of Fluids
Viscosity
Transportiong of Fluids
Pumps
Size reduction
Mixing
Physical Separation Processes
Filtration
Sieving
Gravity Separation
Centrifugation

Seminars:
Application of fundamental laws and equations

Required reading materials

Romeo L. Toledo: Fundamentals of Food Process Engineering
Springer Media,
Zeki Berk: Food Process Engineering and Technology
Elsevier Publishing,
Agricultural Laboratory Centre

Subject: **BUSINESS STUDIES AND SKILLS IN ENGLISH II.**
Year, Semester: 2nd year/2nd semester
Lecture: 2

**Requirements**

Course content: The subject aims to familiarize the students with important and useful skills, concepts, processes and phenomena of marketing and production furthermore enhance their language proficiency. The subjects and case studies below provide the context for business and language skill (presentation, arguing, discussion, comparison, convincing, explaining and describing operations, etc) improvement. Production, Logistics, Supply chain work flow, Quality, Product and brand management, Market research and analysis, Promotion

**Required reading materials**

*Ian MacKenzie: English for Business Studies*

*Leo Jones-Richard Alexander: New International Business English*

*Philip Kotler: Marketing Management*

DP Publications, 1996.

*Maggie-Jo St. John: Advertising and the Promotion Industry*

Subject: **GRANT PROPOSAL WRITING IN THE TARGET LANGUAGE**
Year, Semester: 2nd year/2nd semester
Practical: 2

**Requirements**

Course content: This course introduces students to the problems and issues of writing grant applications in English, especially as pertains to the European Union and the related questions of the European dimension and administrative linguistic expectations and stylistics. On the basis of real-life documents, students will learn to assess and analyze calls for applications and to create their own grant application documents.

Thematic plan:

1. Introduction to Grant Proposal Writing
2. Elements of Style I - writing for clarity
3. Elements of Style II – using active vocabulary for an international readership
COURSE DESCRIPTIONS

4. Layers of Culture and Identity: The European Dimension in grant application writing
5. Using a logical matrix
6. What is the difference between a thought and an idea: transforming thought into success
7. Partners and networks
8. Formal errors and their avoidance
9. The vocabulary of grant writing I
10. The vocabulary of grant writing II
11. Executive summary writing
12. Presenting analyses of problems for solution I
13. Presenting analyses of problems for solution II
14. Written examination preparation
15. Written Final Examination

Required reading materials

Barbato, Joseph & Daniella S. Furlich: Writing for a Good Cause Fireside
2000.

How to Write Knockout Proposals: What you must know (and say) to win funding every time.
Emerson & Church, 2004.

the Foundation Center, 2008.

Subject: PROFESSIONAL LANGUAGE SKILLS II.
Year, Semester: 2nd year/2nd semester
Practical: 2

Requirements

Course content: Course goals: This course focuses on training students to command the basics of
where written and oral communication intersect in the business world, i.e. designing, writing and
presenting HR-related materials, e.g. advertisements for positions, CVs and cover letters, as well as
business reports, case studies, public administration documents and PR-type activities. Using real
life business documents as guides, students will complete tasks in all these areas and learn to
rigorously use self-critique and professional tools to create professional HR, PR and other business
documents.

Thematic plan:
2. PR events I (PR-related communication activities)
3. PR events II (public speaking in PR in specific situations)
4. CVs: Cultural differences, EUROPASS, Anglo-Saxon cultures
5. Motivation letter writing I
6. Motivation letter writing II
7. Business correspondence I
8. Business correspondence II
9. The job interview
10. Business communication methods I
11. Business communication methods II
12. Public administration documents I
13. Public administration documents I
14. Student public speaking practice
15. Student public speaking practice and critique
Chapter 10

Required reading materials

Rodgers, Drew: English for International Negotiations
Wiwczaroski, Troy B.: Writing and Professional Communication

Institute of Food Science

Subject: COLLOID CHEMISTRY
Year, Semester: 2nd year/2nd semester
Lecture: 2

Requirements

Course content: The science of colloid, historical overview, the concept of the colloidal state, the classification and general characterization of colloidal systems.
The grouping of material systems, classifications of colloidal systems, grouping on the basis of the dispersed nature and the interactions between the particles.
Factors determining properties of colloidal systems, the shape of a disperse system, the size of the dispersed parts, general characterization of the major systems, incoherent systems.
Aero disperse systems, liquid medium disperse systems, gas dispersions, foams. Suspensions, emulsions, solid medium disperse systems, macromolecular colloidal solutions, association colloids.
Coherent systems, gels, liquid medium concentrated disperse systems
Dry powder agglomerations, solid foams, solid macromolecules, kinetic regularities.
General descriptions of the most important laws. Brownian motion, diffusion, osmosis, sedimentation, stability of disperse systems.
Coagulation, stability and coagulation of suspensions, stability of foams, status changes of gels.
Rheological properties, rheological basic concepts, deformations, elastic deformations, flows.
The concepts of strength and consistency, behavior of non-Newtonian liquids, rheology of colloidal systems, viscosity of disperse systems, flow of suspensions.
Viscosity of solutions of yarn shaped polymer molecules, viscosity of emulsions, structural viscosity of disperse systems, main food colloidal systems, food suspensions, food emulsions, food gels.
Protein gels, polysaccharide gels, food foams.
Food complex colloidal systems, food dual systems, other colloidal stabilizers.

Required reading materials

Cosgrove T.: Colloid Science, Principles, Methods and Applications
Belitz D., Grosch W., Schieberle P.: Food Chemistry
Fennema O.: Food Chemistry
Marcel Dekker, 1996.
Mohsenin N. N.: Physical properties of plant and animal materials
Subject: **MEASUREMENT AND CONTROL**
Year, Semester: 2\textsuperscript{nd} year/2\textsuperscript{nd} semester
Lecture: 2  
Practical: 2

**Requirements**

Course content: This subject aims to introduce to the basics of measurement and control processes used in the food industry. Automation and process control systems, sensors and transducers are included. The detailed topics are:

- Definitions of measurement. Units of measure, the SI system. Measurement errors.
- Transducers, signal converters (mechanic, thermodynamic, electric)
- Possibilities for the measurement of water content, water activity, distance, speed, acceleration, mass, force, pressure, flow, temperature, viscosity and other physical parameters.


**Required reading materials**

*T. A. Hughes: Measurement and Control Basics*  
*M. Bhuyan: Measurement and Control in Food Processing*  

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Subject: **PRINCIPLES OF FOOD TECHNOLOGY I.**
Year, Semester: 2\textsuperscript{nd} year/2\textsuperscript{nd} semester
Lecture: 2  
Practical: 2

**Requirements**

Course content: The aim of this course is to introduce students to the processing technologies of plant originated products and byproducts. The students are familiarized with the quality and quality control of the main raw materials of food production, the operations used in the technologies and their effects on the properties of products, storage and processes occur during storage and its effects on the usability.

The detailed topics are

- quality and processing of wheat (storage, milling, baking and pasta industry)
- corn (complex processing)
- potato
- oilseeds
- soybean
- starch – properties and production
- sugarbeet
- malting and brewing industry tobacco
CHAPTER 10

Required reading materials


Subject: UNIT OPERATIONS IN FOOD PROCESSING II.
Year, Semester: 2nd year/2nd semester
Lecture: 2
Practical: 2

Requirements

Lectures:
Energy balances
Energy Terms, Entalphy Changes
Properties of Saturated and Superheated Systems
Heat transfer
Mechanisms of heat transfer
Heat exchange equipments
Thermal process calculations
Radiation heat transfer
Microwave and dielectric heating
Refrigeration, chilling and freezing and their equipment and methods

Required reading materials

Romeo L. Toledo: Fundamentals of Food Process Engineering
Springer Media,
Zeki Berk: Food Process Engineering and Technology
Elsevier Publishing,
P.G. Smith: Introduction to Food Process
Springer Media,

Agricultural Laboratory Centre

Subject: BUSINESS STUDIES AND SKILLS IN ENGLISH III.
Year, Semester: 3rd year/1st semester
Lecture: 2

Requirements

Course content: The subject introduces the following business themes: types of business organizations, sales, international trade, money matters (invoicing, payment methods, banking services, financial statements), business trips, visitors. These topics with relevant case studies allow for the study and/or improvement of business skills like: answering and making enquiries, making offers, placing and acknowledging orders, dealing with problems and complaints, looking after visitors, negotiating and bargaining, calculations.
Required reading materials

*Ian MacKenzie: English for Business Studies*

*Leo Jones-Richard Alexander: New International Business English*

DP Publications, 1996.

*Markham Collins-Rebecca A. Collins: About Finances not only for Financial Experts*
Ernst&Young, 1994.

Subject: **LEGAL ENGLISH I.**
Year, Semester: 3rd year/1st semester
Practical: 2

**Requirements**

Course content: This special purpose language classroom wishes to offer a working knowledge of EU specific legal language vocabulary and phraseology from one of the most relevant EU documents. The certified Hungarian translation gives our communicator students opportunities to study various practical translation skills and techniques, to develop a body of EU terminology, which they can actively use in the employment market and in working communication. The relevant list of EU related web site addresses provides assistance to use databases and on-line vocabularies, as well as offers a broader outlook on the topic.

Required reading materials

*Anna Trebits: EU English*

Subject: **PROFESSIONAL LANGUAGE SKILLS III.**
Year, Semester: 3rd year/1st semester
Practical: 2

**Requirements**

Course content: Applied Negotiation Skills
This course involves the study of verbal and nonverbal communication techniques, as well as business communicative skills building, to assist students in communicating clearly and directly towards achieving business objectives in negotiations. Students will learn the consequences of poor communication and how to avoid it through open communication and fixing communication breakdowns. A study of active listening, tailoring one’s discussion to a target audience, and becoming aware of one’s body language, will help the student to learn how to engage effectively with others. Students will also learn to understand how to set clear expectations and to manage language and cultural barriers with teams working through case studies containing real life business situations.

This course furthermore delves into the intricacies of negotiation. Students learn how to plan their negotiations as individuals, as well as by being parts of negotiation teams. They become familiar
CHAPTER 10

with best practices and typical negotiation mistakes, and must learn to develop strategies to counter
dirty tricks and bad faith negotiations, negotiating "no" with their counterparts, and managing team
negotiations. Thereby, the students learn strategies that will help them to get past impasses and
deadlocks.

The featured role-playing exercises allow the student to practice applying the skills gained in the
previous modules of the professional communication course.

Thematic plan:
1. What is negotiation?
2. Verbal and non-verbal communication in a negotiation
3. Channels of communication: protocol
4. The functions of communicating wants and needs
5. Tyoes of negotiation
6. Using one’s strengths
7. Cooperation vs. hostility
8. Conditions of negotiating: BATNA
9. Preparing for formal negotiation
10. Establishing an agenda and sticking to strategies
11. Building and Leading a negotiating team
12. Negotiation Workshop I
13. Negotiation Workshop II
14. Negotiation Workshop III
15. Negotiation Workshop IV

Required reading materials

Cohen, Steven: Negotiating Skills for Managers

Rodgers, Drew: English for International Negotiations

Faculty of Economics and Business

Subject: STATISTICS
Year, Semester: 3rd year/1st semester
Lecture: 1
Practical: 1

Requirements

Thematic plan of lectures:
1. The aim and role of Statistics, basic concepts. Probability, independence, criterion,
   population, sample.
2. Random sampling, systematic error, parameter. Randomising. Collecting data, sampling
   methods
3. Organizing data into a database, database management systems, characteristics of data,
   levels of measurement. Data transformation procedures: sort cases, select cases, aggregate
   data, merge files.
4. Determining the characteristic values of data belonging to different levels of measurement.
   Mean, variance, standard deviation.
5. Median, range, geometric mean, harmonic mean, variation coefficient. Standard error of mean. Confidence intervals. Reports, pivot diagrams, Data portrayal, graphs and other diagrams.
7. Standard distribution, t- distribution,
8. F- distribution, Chi-square distribution.
9. Hypothesis analyses. Compare means: u-test, one sample t-test, independent-samples t-test, paired-samples t-test, one-way ANOVA.
10. General linear models (GLM) 1. Concept. One-way models
11. General linear models (GLM) 2. Multifactoral (two and three factors) models
12. Post hoc multiple comparisons for observed means.

Required reading materials

Chris Spatz: Basic Statistics: Tales of Distributions
Charles Henry Brase and Corinne Pellillo Brase: Understanding Basic Statistics
Rachad Antonius: Interpreting quantitative data with SPSS,
Andy Field: Discovering Statistics Using SPSS

Institute of Food Science

Subject: BASIC OF QUALITY ASSURANCE
Year, Semester: 3rd year/1st semester
Lecture: 2

Requirements

Course content: The purpose of this subject is to familiarize the student with the concepts and basics of quality and quality assurance, demand satisfaction process, national quality control system, good practices, HACCP, ISO standards (9000, 9001, 9004, 14001, 22000), TQM, quality awards, furthermore accreditation and certification.

Required reading materials

Inteaz Ali: Food Quality Assurance
Steve Crossley-Yamine Motarjemi: Food safety management tools
ILSI EUROPE, 2011.
M. van Schothorst: A simple guide to understanding and applying the HACCP concepts
Requirements

Thematic plan of lectures:
1. Hygienic conditions of food production (178/2002/EK regulation)
2. Food hygiene (852/2004/EC; 853/2004/EC regulations)
3. Quality assurance for cereal processing plants and their products milling and baking industry
4. Quality assurance for dry pasta and vegetable oils industry
5. Quality assurance for beer and wine production
6. Quality assurance of confectionery
7. Quality assurance of crystallized sugar production
8. Quality assurance of meat industry and products
9. Quality assurance of dairy industry
10. Quality assurance of mineral water production
11. Canning and freezing industry
12. Quality management in public catering and hotel trade
13. Quality of Hungarian traditional products 1.
14. Quality of Hungarian traditional products 2.

Required reading materials

FAO-WHO: Assuring Food safety And Quality: Guidelines For strengthening National Food Control Systems
A. Vasconcellos: Quality Assurance for the Food Industry: A Practical Approach
M. Clute: Food Industry Quality Control Systems

Requirements

Topics of lectures
Lecture 1: Introduction, history of analytical chemistry.
Lecture 2: Basic concepts in analytical chemistry, the process of analysis, the accuracy and forms of the results, basic statistical concepts, validation of measurement methods.
Lecture 3: Classical methods of qualitative analysis, typical reactions, flame colouring and other methods.
Lecture 4: Basic physical measurements in analytical chemistry. Mass, volume, density,
conductivity and pH.

Lecture 5: Classical analytical measurement methods. Precipitation based on classical analytical methods, gravimetry. Titrations.
Lecture 7: The UV/VIS photometry. Apparatuses, methods and applications. Infrared spectroscopy.
Lecture 8: Flame photometry (FES). Flame atomic absorption spectrometry (AAS). Graphite furnace atomic absorption spectrometry (GF-AAS).
Lecture 9: Inductively coupled plasma optical emission spectrometry (ICP-OES).
Lecture 10: Chromatographic methods principles, classification, fields of application.
Lecture 11: GC and HPLC methods, apparatuses, fields of application.
Lecture 12: Mass spectrometry, mass spectrometry coupled systems (GC-MS, HPLC-MS, ICP-MS)
Lecture 13: Comparing of analytical methods.
Lecture 14: Sample preparation methods.

Topics of laboratory practices
Lecture 1: Information of fire-protection and laboratory accident. Training of laboratory safety, system of laboratory and the description of practices. Knowledge test.
Lecture 5: Quiz I. of calculations. Discussion of the midterm essay (the tasks and the problems).
Lecture 6: Repeat of the quiz I. of calculations. Sampling, sample preparation, moreover determination of mass, volume and density.
Lecture 7: Determination of nitrate in water samples and food ingredients.
Lecture 8: Classical analytical procedures based on precipitation and volumetric analyses in food and food ingredients.
Lecture 9: Classical analytical procedures based on acid-base and complexometric titration in food and food ingredients.
Lecture 10: Application of FAAS for determination of calcium and sodium contents in food and food ingredients.
Lecture 11: Analysis of organic components with an HPLC and an amino acid analyzer equipments in food and food ingredients.
Lecture 12: Analysis of inorganic components with an ICP-OES and an ICP-MS equipments in food and food ingredients, moreover introduction of sample preparation.
Lecture 13: Set-up of an automatic pipette, and checking of their accuracy and calibration.
Lecture 14: Quiz II. of calculations. pH measurement. pH-metric titration and their application for food analysis.

Required reading materials

Boss, C. B. & Fredeen, K. J.: Concepts, instrumentation, and techniques in inductively coupled plasma optical emission spectrometry
Perkin Elmer, USA, 1997.
Cresser, M. S.: Flame spectrometry in environmental chemical analysis
Montaser, A.: Inductively coupled plasmas mass spectrometry
Montaser, A.&Golightly, D. W.: Inductively coupled plasmas in analytical atomic spectrometry
CHAPTER 10
*Pare J.R.J. and J.M.R. Belanger: Instrumental methods in food analysis.*
Environment Canada, Environmental Technology Center, Ottawa, Ontario, Canada, Elsevier, Amsterdam, Lausanne, New York-Oxford-Shannon-Tokyo,

Subject: **PROFESSIONAL PRACTICE**
Year, Semester: 3*rd* year/1*st* semester
Practical: **80**

Subject: **THESIS PROJECT**
Year, Semester: 3*rd* year/1*st* semester
Practical: **2**

Subject: **UNIT OPERATIONS IN FOOD PROCESSING III.**
Year, Semester: 3*rd* year/1*st* semester
Lecture: **2**
Practical: **2**

**Requirements**

Course content:
Lectures:
mass transfer
type of diffusion and mass transfer
extration
types of extraction processes
solid-liquid extraction (leaching)
supercritical fluid extraction
membrane processes
adsorption and ion-exchange
distillation
crystallization and dissolution
evaporation
dehydration
freeze drying (lyophilization)
Seminars:
Application of fundamental laws and equations

**Required reading materials**
*Romeo L. Toledo: Fundamentals of Food Process Engineering*
Springer Media,
*Zeki Berk: Food Process Engineering and Technology*
Elsevier Publishing,
*P.G. Smith: Introduction to Food Process Springer Media,*
58
Agricultural Laboratory Centre

Subject: **ENGLISH FOR ENVIRONMENTAL MANAGEMENT AND POLITICS**  
Year, Semester: 3\(^{rd}\) year/2\(^{nd}\) semester  
Lecture: 2

**Requirements**

Course content: The aim of the subject is to provide the students with the basic concepts, the most important phenomena and processes in environmental protection, management and politics with the help of English language texts, articles and exam tasks. The following topics to be discussed allow for the improvement of reading, speaking and skills:

- What is environmental science?  
- What do environmental scientists do?  
- Energy resources, renewables  
- Air, water and soil pollution  
- Environmentally friendly agriculture  
- Waste management, recycling  
- Biodiversity  
- Sustainability

**Required reading materials**

- Richard Lee: *English for Environmental Science in Higher education Studies*  
- Garnet Education,  
- *What on Earth? környezetvédelmi szaknyelvi jegyzet (középfok)*  
- *Feladatgyűjtemény az angol írásbeli vizsgához (agrár- és környezettudomány, középfok)*  

Subject: **FOOD INDUSTRY ECONOMICS**  
Year, Semester: 3\(^{rd}\) year/2\(^{nd}\) semester

**Requirements**

Course content:  
The students have to familiarize with the system of processing, storage and conservation of agricultural products in the given economic environment. Organisation and public administration of the food industry and the selected sub-branch. Presentation of some important food-chains from several sub-branches. The privatisation of food industry and its effects on Hungarian agribusiness. The key issues of EU joining. The situation, regulation and competitiveness of the EU food industry. The connections of market regulation and the subsidy system. The basis of food-industry marketing.

Thematic plan of lectures:
1. The importance and the role of food economy, its position in the national economy  
2. The evolution of food processing industry, characteristics. The social role of food economy  
3. The economic environment of food economy, food politics. Economic aspects in processing.  
4. The evolution of Hungarian food-industry till change of regime.  
5. The evolution of Hungarian food-industry after the change of regime  
6. The structure of food sector and its branches, the main economic indicators
CHAPTER 10

7. The strategy of food industry enterprises, strategic types.
8. The planning of food industry enterprises
9. The structure of business plan of food industry enterprises
10. Vertical and horizontal integration in the food industry sector. The characteristics of production systems.
11. The situation and regulation of food industry in EU. The effects of EU joining on food economy.
12. Food industry logistics, Innovation trends in food industry.
13. The characteristics and situation of food trade sector.
15. The criteria of integrated production (examples), the mechanism of integrated production.

Required reading materials

W. B. Trail-E. Pitts: Competitiveness in the Food Industry.
W. B. Trail-K. G. Grunert: Product and process Innovation in the Food Industry

Subject: INTERCULTURAL COMMUNICATION
Year, Semester: 3rd year/2nd semester
Practical: 2

Requirements

Course content: This course introduces students to the problems of culture and interculturality, as well as cultural and ethnic conflict areas and stereotypes to be avoided, when conducting professional business activities. Additionally, there is the question of identity and the problem of national identity vs. otherness. Other areas of study include globalization, non-verbal communication and business etiquette.

Thematic plan:
1. Introduction to Intercultural Communication
2. Definitions of Culture
3. Culture Shock
4. Layers of Culture and Identity: Cultural autobiography
5. Written Examination I
6. Otherness: Taboos, indiscretions, interpreting metacommunication
7. Cultural dimensions: Business communication between cultures
8. Stereotypes and business cultures
9. Written examination II
12. Media, Film and the Internet I: World Culture, Pop Culture and Reactions
13. Media, Film and the Internet II: Language and Culture
14. Language and Culture: dialects, accents and discrimination
15. Written Final Examination

Required reading materials

James Neuliep: Intercultural Communication: A Contextual Approach
Milton J. Bennett: Basic Concepts of Intercultural Communication: Selected Readings
Bridging the Cultural Gap: A Practical Guide to International Business Communication
William B. Gudykunst and Young Yun Kim: Communicating with Strangers: Approach to
Intercultural Business Communication
Lillian H. Chaney and Jeanette S. Martin: Intercultural Communication: A Reader
Linda Beamer and Iris Varner: Intercultural Communication in the Global Workplace

Subject: LEGAL ENGLISH II.
Year, Semester: 3rd year/2nd semester
Practical: 2

Requirements

Course content: The course will focus on the following body of knowledge: Contract types (Buy-sell, loan, employment, study agreement, consultancy agreement, processing agreement etc., as requested), special legal cases, e.g. business civil rights, crime environment, immigration labor, personal injury politics product liability, supreme court, traffic etc.

Required reading materials

Marietta Pókay & Judit Ormai: English for Law Students 1.

Subject: PROJECT WORK
Year, Semester: 3rd year/2nd semester
Practical: 3

Requirements

Course content: This course represents the research thesis project for the professional language communication course module. This component is in preparation for the final examination, and will take the form of a case study (minimum length 25 pages), presented in a standardized business report format, as outlined below:

1. Title page
2. Generation and evaluation of alternative solutions
3. Recommendation(s)
4. Implementation
Subject: REGULATION AND ADMINISTRATION OF AGRICULTURE
Year, Semester: 3rd year/2nd semester
Lecture: 2
Practical: 1

Requirements

Thematic plan of lectures:
1. Prelude, basic concepts of law, hierarchy of the legal system, legislators.
2. Fundamentals of Civil Law and Civil Procedure Law, subjectives of the legal action, the hungarian judicial system, orders, the lawsuit process.
3. European Union Law, treaties, legislatures, supremacy, internal market and free movement, Common Agricultural Policy.
4. The history of the development of agricultural law in Hungary.
5. Fundamental of substantive law I.; property, protection of property, asset, immovable estate.
6. Fundamental of substantive law II., original and derivative feature of ways of acquisition, overbuilt, use.
7. The Structure of Hungarian Soil Use, regulation, delimation of acquisition of soil.
8. Special Rules of Acquisition, in the sylviculture, water management.
9. Regulation of Soil Use, contracts of soil use.
10. Agricultural Register, history, development, operative rules.
11. Regulation of Farmers’ co-operation.
12. Regulation of the Food Chain.
13. Supports of Agriculture.

Required reading materials

László Fodor-Zoltán Mikó: Agricultural Law
Bibor Publisher, 2000.

Robert P. Achenbach, Jr.: Agricultural Law
Matthew Bender publisher, ISBN: 9780820513034

Csilla Csák-Zoltán Nagy-István Olajos-Gábor Orosz-Ágnes Szabó-János Ede Szilágyi-Géza Török: Agricultural Law. The Development of Agricultural Law in the EU
Novotni Publisher, 2010. ISBN: 9789639360532

Blackstone's EU Treaties&Legislation 2012-2013: Blackstone's EU Treaties&Legislation 2012-2013
Requirements

Course content:
1. In the frame of the course students get theoretical knowledge about different macro and micro components of food and are able to study the methods for their determination in practice.
3. The role of the water in food. Determination of moisture content/dry matter content, methods and equipments.
4. Determination of ash and mineral content.
5. The rules of sampling for the baking quality of wheat. Baking quality of wheat: mixture, moisture content, test weight, grinding, crude protein, gluten content, gluten index.
10. Gravimetric determination of crude fat content. Determination of acidic number and peroxide number, correlations. Fatty acids and determination.
13. Enzymes. Parameters that influence the enzyme activity.

Required reading materials

Manz, A.-Pamme, N.-Iosifidis, D.: Bioanalytical Chemistry
J. Csapó-Cs. Albert Zs. K. Csaponé: Food Analytics

Subject: PRINCIPLES OF FOOD TECHNOLOGY II.
Year, Semester: 3rd year/2nd semester
Lecture: 2
Practical: 2
Requirements

Course content:
The course aims to introduce students the quality, rating, storage and processing of fruits and vegetables, the properties and requirements of main product groups and the factors influencing their quality. The detailed topics are

1. quality of fruits and vegetables; chemical and physical parameters
2. maturation – physiology, methods to determine the maturity stage
3. storage – the processes during storage and storage losses. Factors influencing storage. Storage methods
4. general operations of food and vegetable processing
5. cooled and frozen products
6. dried products
7. concentrated products
8. preservation using heat treatment
9. fermented fruits and vegetables
10. chemical and combined preservation novel methods

Required reading materials