# BULLETIN

# UNIVERSITY OF DEBRECEN

## INTERNATIONAL FOUNDATION YEAR

## INTENSIVE FOUNDATION SEMESTER

**Coordinating Center for International Education**

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# 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.

**Founder of the University of Debrecen:** Hungarian State Parliament

**Supervisory body of the University of Debrecen:** Ministry of Education

**Accreditation dates and statute numbers:** Debrecen University of Agricultural Sciences: 17th December 1996, MAB/1996/10/II/1. Debrecen Medical University: 5th July 1996, OAB/1996/6/II/6 Wargha István College of Education, Hajdúböszörmény: 5th July 1996, OAB/1996/6/II/2 Kossuth Lajos University of Arts and Sciences: 5th July 1996, OAB/1996/6/II.5. University of Debrecen: 3rd October 2012, MAB/2012/8/VI/2.

**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 1st 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 1st 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 programs at the University of Debrecen:***
73 degree programs with the pre-Bologna 5-year-system university education, 41 supplementary degree programs offering transfer-degree continuation of studies towards the university degree (MSc), 50 degree programs with the pre-Bologna 3-year-system college education, 67 BSc and 78 MSc programs according to the Bologna system, 5 unified one-cycle linear training programs, 35 specializations offering post-secondary vocational certificates and 159 vocational programs.

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 programs, 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.

# CHAPTER 2
## LEADERS AND STAFF

| RECTOR OF THE UNIVERSITY OF DEBRECEN | |
|---|---|
| Rector | Prof. Zoltán Szilvássy M.D., Ph.D., D.Sc. |
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| | |
| **COORDINATING CENTER FOR INTERNATIONAL EDUCATION** | |
| Director | Prof. Attila Jenei Ph.D. |
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| | |
| NON-MEDICAL PROGRAMS | |
| Program Director | László Kozma, Ph.D. |
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| | |
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| EDUCATIONAL OFFICE OF THE FOUNDATION PROGRAMS | |
| Neptun officer | Imre Varga |
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## COORDINATING CENTER FOR INTERNATIONAL EDUCATION

Nagyerdei krt. 94., Debrecen, 4032

| | |
|---|---|
| Director | Mr. Prof. Attila Jenei, Ph.D. |
| Program Director | Mr. László Kozma Ph.D. |
| Admission officer | Ms. Ibolya Kun |
| Administration officer | Mr. Ádám Losonczi |

# CHAPTER 3
# INFORMATION ON THE HUNGARIAN HIGHER EDUCATION SYSTEM

## Types of Institutions and Institutional Control

The establishment and operation of higher education institutions are regulated by Act No. 204 of 2011 (National Higher Education Act). Operating within the legal framework of the National Higher Education Act, Hungarian higher education institutions are recognized state (public) or non-state (church or private) institutions. The list of recognized institutions is indicated in Annex 1 of the National Higher Education Act. Higher education studies are offered at two types of higher education institutions, egyetem (university) and főiskola (college). Universities and colleges may offer courses in all three training cycles. The programs are identical at both types of institutions.

## Types of Programs and Degrees Awarded

The consecutive training cycles of higher education leading to a higher education degree are alapképzés (Bachelor course), mesterképzés (Master course) and doktori képzés (Doctoral course). In cases set by government decree or legislation, Master degrees can also be awarded after the completion of integrated, one-tier training. In addition to the aforementioned, higher education institutions may conduct non-degree vocational higher education programs and postgraduate specialist trainings and may offer adult education within the framework of lifelong learning as well. Higher education institutions apply a credit system based on the European Credit Transfer and Accumulation System. Accordingly, one credit stands for an average of 30 hours of student workload.

## Approval/Accreditation of Programs and Degrees

In the case of each vocational higher education program, Bachelor and Master course, the program and outcome requirements are set in legal regulations, i.e. the level of the training, the professional qualification that can be obtained and all the competencies the acquisition of which are the preconditions for obtaining the diploma in the given program. Upon request of the higher education institution, the Educational Authority – after having obtained the expert opinion of the Hungarian Accreditation Committee – licenses and registers the launching of all vocational higher education programs, a Bachelor or Master courses or Doctoral schools. Also, the operating licenses of higher education institutions are revised by the Educational Authority in every 5 years, taking into account the expert opinion of the Hungarian Accreditation Committee. The above mentioned procedures apply for all recognized, state or non-state higher education institutions, except for religious studies, since the Hungarian Accreditation Committee and the Educational Authority have no competence over the quality assurance in this field. In the case of religious studies only the requirements in respect of infrastructure can be examined.

## Organisation of Studies

Students studying in vocational higher education programs, Bachelor and Master courses, as well as postgraduate specialist trainings complete their studies by passing a final examination. The final examination may consist of the defense of the degree thesis or diploma project, and additional oral, written or practical examinations.

- **Vocational Higher Education Programs**

From 1 September 2013 higher-level vocational training has been replaced by vocational higher

education programs. This type of training no longer forms part of the National Register of Vocational Qualifications. The diploma obtained after the completion of a vocational higher education program testifies a vocational higher education qualification, but it is not per se an

academic degree. A vocational higher education program requires the completion of 120 to 150 credits; generally the length of the program is 4-5 semesters.

- **First/Second Cycle Degree Programs**

The first higher education degree is the alapfokozat (Bachelor degree) ending in a professional qualification. A Bachelor course requires the completion of 180 to 240 credits. The length of the program is 6-8 semesters. The second higher education degree is the mesterfokozat (Master degree) ending in a professional qualification. Based on a Bachelor course, Master courses require the completion of 60 to 120 credits. The length of the program is 2-4 semesters.

- **Integrated Programs**

The integrated, one-tier programs, which are based on the secondary school leaving examination (érettségi vizsga), lead to mesterfokozat (Master degree), have the length of 10-12 semesters and require the completion of 300 to 360 credits. Besides teacher education, religious studies and some programs of arts, e. g. the following programs are offered as integrated programs: veterinary medicine, architecture, dentistry, pharmaceutics, law and medicine.

- **Specialised Graduate Studies**

Higher education institutions may also offer szakirányú továbbképzés (postgraduate specialist training) for Bachelor and Master degree holders in this type of a training. Through the completion of 60 to 120 credits a specialised qualification can be obtained. The length of the program is 2-4 semesters.

- **Doctoral Programs**

Based on a Master degree the doktori képzés (Doctoral course) requires the completion of at least 180 credits. The length of the program is 36 months. Following the Doctoral course, or within the framework of the Doctoral course through a separate degree obtaining procedure, the scientific degree "Doctor of Philosophy" (abbreviation: PhD), or in the field of art "Doctor of Liberal Arts" (abbreviation: DLA) may be obtained. The maximum length of the degree obtaining procedure is 2 years.

## Grading Scheme

The performance of students is generally assessed following a five-grade scale: excellent (5), good (4), satisfactory (3), pass (2), and fail (1) or a three-grade scale: pass with merit (5), pass (3), and unsatisfactory (1). Nevertheless, higher education institutions may also use other systems for assessment if they are comparable to those mentioned above.

## Access to Higher Education Programs

The ranking of students applying for higher education programs is primarily based on their secondary school grades and their érettségi vizsga (secondary school leaving examination) results or based solely on the latter. The requirement for admission to vocational higher education programs, Bachelor and integrated Master courses is the secondary school leaving examination taken – as a rule – after

the completion of the 12th grade of a secondary school, certified by the Érettségi bizonyítvány (secondary school leaving certificate). The admission to certain programs may also be based on health or professional requirements or aptitude tests. To Master courses students holding a Bachelor degree can be admitted. To postgraduate specialist trainings students holding a Bachelor or a Master degree may be admitted. To Doctoral courses only applicants holding a Master degree can be admitted. Higher education institutions may set additional requirements for admission to Master, postgraduate specialist and Doctoral courses.

**Additional Sources of Information**

Hungarian ENIC/NARIC (http://www.naric.hu, Ministry of Human Capacities (http://www.kormany.hu/en/ministry-of-human-resources), Educational Authority

(http://www.nefmi.gov.hu/english/hungarian-equivalence/educational-authority), Hungarian Accreditation Committee (http://www.mab.hu/), Educatio (http://www.educatio.hu/).

# CHAPTER 4
## INTERNATIONAL FOUNDATION YEAR

**International Foundation Year (from September till May)**

For those students who require additional instruction or review in sciences and in English language we offer foundation year courses to prepare them to study in their chosen degree program. Offering a range of courses, including intensive English language study, which bridges the gap between the students' current qualifications and background and the knowledge and skills required for honors courses, the International Foundation Year provides students with the necessary skills to proceed to study their chosen discipline.

Education of basic science subjects - biology, physics, mathematics and chemistry is quite demanding in Hungarian High Schools. The Foundation Year program is recommended for those applicants who do not have enough knowledge in biology, physics, chemistry, mathematics or in any of these subjects according to Hungarian standards, and need further studies and a period for acclimatization before entering an engineering, IT or business program. In addition to these basic scientific subjects, courses in Academic English and Hungarian languages are also included in the program.

Those students who have been studying at the International Foundation Year and achieve a grade average of **minimum 3.5 in one semester and 4.0 in the other semester** can enter the first year of their chosen program without sitting for an entrance exam.

**Grade average calculation method:**

$$\frac{\text{Credit index} * \Sigma \text{ completed credits}}{\Sigma \text{ credits taken}}$$

The grade averages will be calculated on the basis of the grades entered into Neptun by the instructors (except for grades in Hungarian Language and Introduction to Hungarian Culture, which will not be included in the calculation). Please note: if you failed in one of your courses in the exam subjects (Math / Chemistry / English / IT / Physics) you **must** take the entrance exam (it's not possible to calculate a grade average)!

**Students who pass the entrance exam or achieve the above requirements and turn out to be eligible for being admitted to first year will get an admission letter that will be issued within 1 week after the entrance exam period.**

**Exam subjects of the study programs:**

| **IT-related programs** | | |
|---|---|---|
| **Study program** | **Exam subjects** | |
| Business Informatics, BSc | Mathematics (written and oral) | |
| Computer Science, BSc | | |
| Computer Science Engineering, BSc | | |

Continued on the next page

| **Chemistry-related engineering programs** | | |
|---|---|---|
| **Study program** | **Exam subjects** | |
| Agricultural Engineering, BSc | Mathematics (written and oral) | Chemistry (written and oral) |
| Biochemical Engineering, BSc | | |
| Chemical Engineering, BSc | | |
| Food Engineering, BSc | | |
| **Physics-related engineering programs** | | |
| **Study program** | **Exam subjects** | |
| Business Administration and Management, BSc | Mathematics (written and oral) | English (written and oral) |
| Civil Engineering, BSc | Mathematics (written and oral) | Physics (written and oral) |
| Electrical Engineering, BSc | | |
| Mechanical Engineering, BSc | | |
| Mechatronics Engineering, BSc | | |
| Professional Pilot, BSc | | |
| Vehicle Engineering, BSc | | |
| **Business-related programs** | | |
| **Study program** | **Exam subjects** | |
| Business Administration and Management, BSc | Mathematics (written and oral) | English (written and oral) |
| Commerce and Marketing, BSc | | |

# CHAPTER 5
# UNIVERSITY CALENDAR FOR THE INTERNATIONAL FOUNDATION YEAR

### University Calendar for International Foundation Year - 2021/2022

| | |
|---|---|
| Registration week: | 30th August - 3rd September 2021 (1 week) |
| 1st semester study period<br>(classes run) | From 6th September till 10th December 2021<br>(14 weeks) |
| Bank Holiday - Day of the Republic, commemorating the revolution of 1956 | 23rd October 2021 |
| Bank Holiday - All Saints' Day | 1st November 2021 |
| Bank Holiday - Christmas | 25th - 26th December 2021 |
| Bank holiday - New Year's Day | 1st January 2022 |
| Registration week | 31st January - 4th February 2022 (1 week) |
| 2nd semester study period<br>(classes run) | From 7th February till 13th May 2022<br>(14 weeks) |
| Bank Holiday - commemorating the Hungarian Revolution of 1848 | 15th March 2022 |
| Bank Holiday - Good Friday | 15th April 2022 |
| Bank Holiday - Easter | 18th April 2022 |
| Bank Holiday - Labour Day | 1st May 2022 |
| | |
| **Entrance Exam period** | **From 16th May till 20th May 2022** |
| Bank Holiday - Pentecost | 6th June 2022 |

# CHAPTER 6
## CURRICULUM OF THE INTERNATIONAL FOUNDATION YEAR PROGRAM

In the frame of the International Foundation Year Program students have to choose one of the following specializations, depending on which major they wish to apply for:

- **IT-related programs (IT):**
  Business Informatics BSc; Computer Science BSc; Computer Science Engineering, BSc

- **Chemistry-related engineering programs (CE):**
  Agricultural Engineering BSc; Biochemical Engineering BSc; Chemical Engineering BSc; Food Engineering BSc

- **Physics-related engineering programs (PE):**
  Civil Engineering BSc; Electrical Engineering BSc; Mechanical Engineering BSc; Mechatronics Engineering BSc; Professional Pilot BSc; Vehicle Engineering BSc

- **Business-related programs (B):**
  Business Administration and Management BSc; Commerce and Marketing BSc

Some of the courses are compulsory for all specializations, others are compulsory for only some of the specializations, as indicated in the table.

| Code | Course name | Total hours | Credits | Exam/ Pract. | Specialization | Semester |
|---|---|---|---|---|---|---|
| Compulsory courses | | | | | | |
| TTIF_ALGE | College Algebra | 56 | 6 | P | All | 1 |
| TTIF_DISC | College Discrete Mathematics | 56 | 6 | P | All | 1 |
| TTIF_GEOM | College Geometry | 56 | 6 | P | All | 2 |
| TTIF_ANAL | College Analysis | 56 | 6 | P | All | 2 |
| TTIF_COMP1 | IT Skills 1 | 56 | 6 | P | All | 1 |
| TTIF_COMP2 | IT Skills 2 | 56 | 6 | P | All | 2 |
| TTIF_ENGL1 | English Language 1 | 56 | 3 | P | All | 1 |
| TTIF_ENGL2 | English Language 2 | 56 | 3 | P | All | 2 |
| TTIF_ENGLW | Academic Writing | 56 | 3 | P | B | 2 |

Continued on the next page

| Code | Course name | Total hours | Credits | Exam/ Pract. | Specialization | Semester |
|---|---|---|---|---|---|---|
| Compulsory courses | | | | | | |
| TTIF_BUSMAT | Business Mathematics | 28 | 3 | P | B | 2 |
| TTIF_ENGLB1 | English for Business 1 | 28 | 2 | P | B | 1 |
| TTIF_ENGLB2 | English for Business 2 | 28 | 2 | P | B | 2 |
| TTIS_ENGA_IT1 | Academic English for IT 1 | 56 | 3 | P | IT | 1 |
| TTIS_ENGA_IT2 | Academic English for IT 2 | 56 | 3 | P | IT | 2 |
| TTIF_ENGA_E1 | Academic English for Engineering 1 | 56 | 3 | P | CE;PE | 1 |
| TTIF_ENGA_E2 | Academic English for Engineering 2 | 56 | 3 | P | CE; PE | 2 |
| TTIF_PHYS1 | College Physics 1 | 56 | 6 | P | PE | 1 |
| TTIF_PHYS2 | College Physics 2 | 56 | 6 | P | PE | 2 |
| TTIF_CHEM1 | College Chemistry 1 | 56 | 6 | P | CE | 1 |
| TTIF_CHEM2 | College Chemistry 2 | 56 | 6 | P | CE | 2 |
| TTIF_PROG | Introduction to Programming | 56 | 6 | | IT | 2 |
| TTIF_COMM | Communication | 28 | 3 | P | B | 1 |
| Elective courses | | | | | | |
| TTIS_HUNG_LANG1 | Hungarian Language 1 | 40 | 2 | P | All | 1 |
| TTIS_HUNG_LANG2 | Hungarian Language 2 | 40 | 2 | P | All | 2 |
| Required optional courses (at least one course is compulsory) | | | | | | |
| TTIS_HUNG_CULT1 | Introduction to Hungarian Culture 1 | 28 | 3 | P | All | 1 |
| TTIS_HUNG_CULT2 | Introduction to Hungarian Culture 2 | 28 | 3 | P | All | 2 |
| P: practical exam | | | | | | |

# CHAPTER 7

## COURSE DESCRIPTIONS OF THE INTERNATIONAL FOUNDATION YEAR PROGRAM

Subject: **ACADEMIC ENGLISH FOR ENGINEERING 1**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
What is engineering? Fields and tasks of engineering. Presentation skills. Technology in use. Elements and materials. Industrial processes. Engineering designs. Innovation, technical development. Automation in industry. Research and development. Health and safety regulations. Energy sources – non-renewable sources. Energy sources – renewable sources.

**Recommended Readings:**
1. Michael McCarthy, Felicity O'Dell: *Academic Vocabulary in Use,* Cambridge University Press
2. Mark Ibbotson: *Cambridge English for Engineering,* Cambridge University Press

Subject: **ACADEMIC ENGLISH FOR IT 1**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
Technology and Society. Branches of engineering. Studying to become an engineer. Making a presentation. People who have made it big in Technology. Inventions that have changed our lives. Writing an essay. Scientific prizes. Smart homes. Green energy. New ideas in transport. Applying for a job.

**Recommended Readings:**
1. Michael McCarthy, Felicity O'Dell: *Academic Vocabulary in Use,* Cambridge University Press
2. Eric H. Glendinning: *Technology 1-2,* Oxford University Press

Subject: **COLLEGE ALGEBRA**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
Real numbers, introduction of real numbers. Properties of real numbers. The order of operations and grouping symbols. Special Subsets of the Set of Real Numbers. Exponentiation. Integer exponents. Radicals. Rational exponents. Introduction to algebraic expressions. Polynomials. Basic operations on polynomials. Division of polynomials by monomials. Factorization of polynomials. Factorization by factoring out the greatest common monomial. Special factorization formulas. Factorization by grouping terms. General strategy of factorization of a polynomial. Roots of polynomials. Simplification and amplification of rational algebraic expressions. Multiplication and division of rational expressions. Addition and subtraction of rational algebraic expressions. Simplification of complicated algebraic expressions. Algebraic expressions containing roots, rationalizing the denominator. Simplification of complicated algebraic expressions containing roots. Introduction to equations. Linear equations. Quadratic equations. The real number line. Ordering of the real numbers. Intervals. The absolute value of a real number. Introduction to inequalities. Linear inequalities. Table of signs. The sign of linear expressions. The sign of quadratic expressions. Quadratic inequalities. Solving inequalities using table of signs. Equations containing absolute values. Biquadratic equations. Multi-quadratic equations. Reciprocal equations. Irrational equations. Exponential equations. Logarithms, definition of logarithms, basic properties of logarithms. Logarithmic equations. Systems of equations.

**Recommended Readings:**
A. Bérczes, Á. Pintér: *College Algebra*
http://math.unideb.hu/media/berczes-attila/College-Algebra.pdf

Subject: **COLLEGE CHEMISTRY 1**
Year, Semester: 1st year/1st semester
Lecture: **28**
Seminar: **28**

**Requirements**

**Topics:**
Subject of chemistry. Atomic structure. Quantum theory. Quantum numbers and their meanings. Multielectron atoms. Building-up principle of atomic orbitals. Periodic system. Structure of periodic table. Periodically changing properties. Mole concept, relative, average atomic mass, molar mass. Naming elements. Inorganic compounds and ions. Empirical, molecular and structural formula. Isomers. Chemical bonds: ionic, covalent, metallic. Hybridization. Molecular geometry. Non-ideal bonds. Polarity of covalent bonds. Intermolecular interactions, H-bonding. Physical states: gases, liquids and solids. Chemical equations. Balancing chemical equations. Rate of reactions. Rate law. Overall rate. Rate constant. Abundance, occurence and production of the elements. Hydrogen. Noble gases. Group 17 elements and their compounds. Group 16 elements and their compounds. Group 15

elements and their compounds. Group 14 and 13 elements and their

compounds.

**Recommended Readings:**
Ebbing: *General chemistry*
Holtzclaw, Robinson: *College Chemistry*

Subject: **COLLEGE DISCRETE MATHEMATICS**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
Introduction to the course. Introductory combinatorial exercises. Sets, number of subsets. Division algorithm. Euclidean algorithm. Numeral systems. Number of subsets again. Sequences. Permutations. The number of ordered subsets. Anagrams. The number of subsets of a given size. Distributing money. Balls and urns. Number of positive integer solutions of linear equations.
Proof techniques: Mathematical induction. Proof by contradiction. Pigeon hole principle.
The Binomial Theorem. Pascal's triangle. Fibonacci numbers. Recursive sequences.

**Recommended Readings:**
G. Horváth and Sz. Tengely: *Lecture Notes for College Discrete Mathematics*, 2013 http://math.unideb.hu/horvath-gabor/teaching/colldiscrmath.html

Subject: **COLLEGE PHYSICS 1**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
Mathematical concepts. Physical units (Scientific notation. Significant values. Physical quantities. Physical units. Conversion of units.). Mathematical foundation (Trigonometry. Scalars and vectors. The components of a vector. Vector addition and subtraction.). Kinematics in one dimension (Displacement. Speed and velocity. Acceleration. Equations of kinematics for constant acceleration. Freely falling bodies.). Kinematics in two dimensions (Displacement. Velocity. Acceleration. Equations of kinematics in two dimensions. Projectile motion. Relative velocity.). Forces and Newton's laws of motion (Concepts of force and mass. Newton's laws of motion.). Types of forces (The gravitational force. The normal force. Static and kinetic frictional forces. The tension force). Equilibrium applications of Newton's laws of motion. Non-equilibrium Applications of Newton's laws of motion. Dynamics of uniform Circular motion (Centripetal acceleration. Centripetal force. Banked curves. Satellites in circular orbit). Work and energy (Work by a constant force. Work-energy theorem. Kinetic energy. ). Gravitational potential energy. Conservation of mechanical energy. Power.

Other forms of energy. Work done by a variable force. Impulse and momentum (Impulse–Momentum theorem. Principle of conservation of linear momentum.). Collisions in one

and two dimensions. Center of mass.

**Recommended Readings:**
John. D. Cutnell and Kenneth W. Johnson: *Essentials of Physics*, John Wiley and Sons Inc

Subject: **COMMUNICATION**
Year, Semester: 1st year/1st semester
Seminar: **28**

**Requirements**

**Topics:**
The course is designed to improve students' abilities to communicate in English. During the course students will be exposed to a number of communication strategies that they will analyze, compare, and ultimately put into practice. The course will increase students' awareness of communication in a general sense, and get them to take a fresh look at their strategies in their mother tongue as well as in the foreign language. Learners will develop their English language skills by discussing various topics and get the chance to bring their own opinions to bear on complex business dilemmas. They will be encouraged to think about aspects of communication such as cross-cultural awareness and stereotyping. The discussed topics will be: Getting acquainted. Smoke Signals. A Pirate's Dilemma. A Year in Fashion. Big Fish Don't Jump. The Barbecue. Plague and Prejudice. The Abalone Mystery. The Hohokum Virus. Wall Street Blues. Dirty work. The Write Stuff. Selling your soul.

**Recommended Readings:**
David Evans: *Decisionmaker*, Cambridge University Press, 2003, ISBN 0521-44805-0

Subject: **ENGLISH LANGUAGE 1**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
Family Life. People and Society (Reading, Listening. Use of English. Writing. Situational role-play. Presentations. Speaking.). Shops and Services. Home (Reading. Listening. Use of English. Writing. Speaking. Situational role-play. Presentations.). Shopping on the internet. Nature. School (Reading. Listening. Use of English. Writing. Speaking. Situational role-play. Presentations.).

**Recommended Readings:**
*Oxford Exam Excellence*, Oxford University Press, ISBN 0-19-443004-9

Subject: **ENGLISH FOR BUSINESS 1**
Year, Semester: 1st year/1st semester
Seminar: **28**

**Requirements**

**Topics:**
Brands. Branding. Brand stretching. Case study: Caferoma, problems with famous brands. Business travel. Special needs of business travellers. Business organisations. Ranking, promotion at work. Mid-term paper. Change at work. Money matters. Advertising. Modern vs traditional ways of advertising. Corporate culture.

**Recommended Readings:**
as supplied by instructor

Subject: **HUNGARIAN LANGUAGE 1**
Year, Semester: 1st year/1st semester
Seminar: **40**

**Requirements**

**Topics:**
The Hungarian alphabet. A selection of basic words. Who are you? Nationality adjectives. Greetings. Numbers. First responders. Hungarian money. How are you? What language do you speak? Everyday problems. What are you doing? Days. Basic activity verbs. Where are you going tonight? Basic venues of entertainment, hospitality. What would you like? Basic items of food. Formal you ("vous"-ing) in H. Would you like a coffee? Can/want to/like to/would like to + activity verbs. Basic verbs of free-time activities. What's the weather like today? Weather adjectives/verbs. At the post office/railway station. Basic vocab used at these venues. Words of foreign origin. What are we going to eat tonight? Cooking (a recipe). I like your dress. Colours & patterns. Articles of clothing. The human body. Adjectives of appearance and general appearance.
Grammar: Vowel harmony. A few rules of phonetics. Personal pronouns. Conjugation of the verb lenni. The concept of "countable/uncountable" in H. Language adjectives. Word formation with -ul, -ül. Present tense verbal endings. Adverbs of time -on, -en, -ön, -n. Past and future of lenni. Adverbs of place-ba, -be. Object endings. Word formation with -os, -as, -es, -ös, -s. Plural marker. Word formation with -ni. Irregular verbs in present tense. Double negation. The negative of van, vannak. Possessive endings in H. The verb lenni with adjectives. Comparative and superlative adjectives.
Language function: Introduction. Formal & informal greetings. Basic situations. Asking for/giving phone numbers. Feelings, activities in the present. Schedules. Likes/dislikes & intentions. The weather. A basic situation in a fast-food place. At mealtime. Basic expressions of general situational language. Basic compliments. Situational language. Characterizing people.

**Recommended Readings:**
Marschalkó, G.: *Hungarolingua Basic Level 1*. Debrecen Summer School: Debrecen, 2010. ISBN 978-963-86592-9-3

Subject: **IT SKILLS 1**
Year, Semester: 1st year/1st semester
Seminar: **56**

**Requirements**

**Topics:**
Files, folders – copy, move, rename, etc. Sending e-mails with attachments. Basics of PowerPoint: Creating presentations, slides, content. Picture manipulation – Move, Resize, Crop, Rotate, Reflect, Recolor, Corrections. Presentation design – Templates, Color schemes, Slide layouts, Backgrounds. Creating a presentation – Texts and illustrations for a presentation. PowerPoint Animations and transitions. Creating an MS Word document. Basics of word processing. Letters, special characters. Paragraph formatting. Paragraph styles. Headings. Table of contents.

**Recommended Readings:**
1. *MS Word Topics, Tech on the Net*:
http://www.techonthenet.com/word/index.php
2. *PowerPoint: help and how-to*:
http://office.microsoft.com/en-us/powerpoint-help/powerpoint-help-and-how-to-FX101816832.aspx?CTT=97#

Subject: **INTRODUCTION TO HUNGARIAN CULTURE 1**
Year, Semester: 1st year/1st semester
Seminar: **28**

**Requirements**

**Topics:**
Orientation. The University and Debrecen. Getting acquainted. General discussion. Assigning oral presentations. Setting the main targets of the course. Walking tour of downtown Debrecen. Hungary Basics: Discussion of stereotypes of Hungary and Hungarians on the basis of the students' background. A look at the Hungarian national symbols: flags, anthems, coats of arms, etc. Facts and figures about Hungary. Hungarian geography and climate. Famous Hungarians. Hungarian society and minorities: Hungarians and minorities; the Roma question; Slovaks, Rumanians, South Slavs and Germans in Hungary. Problems of upward social mobility.
Hungarian Culture and Identity: The building blocks of national identity and pride, poetry and music. Hungarians in film and TV history, hungarikumok. The Hungarian political system and elections: the 1949 constitution and its revised version of 1989. Changes in the form of government in Hungary in the 20th century. The new constitution of 2012. The system of national and local elections. Politics at the university in the US and in Hungary.
Turning points in Hungarian history 1: From the House of Árpád to the Turkish Wars: occupation of the Carpathian basin. Founding of the Hungarian Kingdom. St. Stephen. The Turkish wars: Nándorfehérvár. Mohács, Eger, the reoccupation. Study Trip.
Turning points in Hungarian history 2: Hungary's wars for independence: Bocskai. Rákóczi. 1848-49. The Compromise of 1867.
Turning points in Hungarian history 3: World War I and Trianon. World War II. The Holocaust in Hungary. 1956, and 1989: a review of key historical events in Hungary in the 20th century.

**Recommended Readings:**
Power Point slides will be made available on a weekly basis. The course comes with a REQUIRED printed textbook which will be dealt out in the first class.

Subject: **ACADEMIC ENGLISH FOR ENGINEERING 2**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Academic writing skills.
Technology and society: Information technology. Electronic technology. Chemical technology. Telecommunication technology. Medical technology. New ideas in transport. Logistics. Environmental issues. Innovations that have changed our lives. The future of technology. Careers in technology - Applying for a job.

**Recommended Readings:**
1. Michael McCarthy, Felicity O'Dell: *Academic Vocabulary in Use* (Cambridge University Press)
2. Mark Ibbotson: *Cambridge English for Engineering* (Cambridge University Press)

Subject: **ACADEMIC ENGLISH FOR IT 2**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
What is electricity? Early Experiments. AC vs DC, Edison and Tesla. Radio technology. Laser, compact discs and digital data storage. Communications technology. Medical technology. Computer Architectures. Internet and the World Wide Web. Cyber crime. Artificial Intelligence. Robotics. Nanotechnology.

**Recommended Readings:**
1. Michael McCarthy, Felicity O'Dell: *Academic Vocabulary in Use,* Cambridge University Press
2. Eric H. Glendinning: *Technology 1-2,* Oxford University Press

Subject: **ACADEMIC WRITING**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
**Paragraph format and narrative paragraphs (1). Paragraph format and narrative paragraphs (2). Writing summaries (1). Paragraph structure and descriptive paragraphs (1). Writing summaries (2). Paragraph structure and descriptive paragraphs (2). Logical division of ideas and process paragraphs (1). Logical division of ideas and process paragraphs (2). Comparison/contrast Paragraphs and Definition Paragraphs (1). Comparison/Contrast Paragraphs and Definition Paragraphs (2). Essay Organisation and descriptive essays (1). Essay organisation and descriptive essays (2). Essay organisation and opinion essays (1). Essay organisation and opinion essays (2).**

**Recommended Readings:**
1. Alice Oshima and Ann Hogue: *Introduction to Academic Writing (Level 3,*
ISBN: 978-1-4058-1291-7
2. Michael Vince: *Advanced Language Practice,* ISBN: 978-1-4058-1291-7

Subject: **BUSINESS MATHEMATICS**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
Simple interest. Word problems. Supply and demand, cost and demand equations. Market research, break-even analysis. Miscellaneous problems. Compound interest. Future value of annuity. Present value of annuity.Amortization schedule.

**Recommended Readings:**
**Ess**entials of College Mathematics, by Raymond E. Barnett and Michael R. Ziegler, Dellen Publishing House, 1989.

Subject: **COLLEGE ANALYSIS**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Relations and Functions. A "Friendly" Introduction of Functions. The graph of a function. The graph

of equations or relations. The vertical line test. The Y -intercept and the X-intercepts of functions. Linear functions. Quadratic functions: normal form, canonical form, factorized form. Quadratic functions:
The X-intercepts. The Y-intercept. The extremal point and the graph of a quadratic function. Polynomial functions: Definition, graph of a polynomial functions. Euclidean division of polynomials. Horner's scheme. Solving polynomial equations of higher degree by finding their rational roots. Power functions. Exponential functions. Logarithmic functions. New functions from old ones, the sum, difference, product and quotient of functions. Composite functions. Shifting graphs. Properties of functions. Trigonometric functions: Measures for angles. Degrees and Radians. Rotation angles. Definition of trigonometric functions for acute angles of right triangles. Basic formulas for the trigonometric functions defined for acute angles. Trigonometric functions of special angles. Definition of the trigonometric functions over R. The period of trigonometric functions. Symmetry properties of trigonometric functions. The sign of trigonometric functions. The reference angle. Basic formulas for trigonometric functions defined over R. Co-function formulas. Quotient identities. The trigonometric theorem of Pythagoras. Trigonometric functions of special rotation angles. The graph of trigonometric functions. Sum and difference identities Double and triple angle formulas. Complete analysis of functions

**Recommended Readings:**
A. Bérczes, A. Gilányi: *Analysis textbook*

Subject: **COLLEGE CHEMISTRY 2**
Year, Semester: 1st year/2nd semester
Lecture: **28**
Seminar: **28**

**Requirements**

**Topics:**
General characterization of metallic elements. P and s block metals and their compounds. D block metals and their compounds. The origins of organic chemistry. Bonding and molecular properties. Families of organic compounds. Functional groups. The priority order. An overview of organic reactions. Nomenclature of hydrocarbons and drawing of organic structures. Alkanes, cycloalkanes. Alkynes. SRreactions. Aromatic compounds and their SEAr reactions. Alkyl Halides. Alcohols, ethers, thiols. Nomenclature and SNreactions. Applications. Amines – classifications, nomenclature, reactions. Examples from nature. Chemistry of carbonyl Compounds: aldehides, ketones. Their AdN reactions. Silver mirror test. Carboxylic acids and their derivatives: anhydrides, amides, esters, nitriles. Amino acids, peptides, proteins. The essential amino acids.

**Recommended Readings:**
Ebbing: *General chemistry*
Holtzclaw, Robinson: *College Chemistry*

Subject: **COLLEGE GEOMETRY**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
General computational skills: Numbers. Polynomials. Functions. Equations in one variable. Quadratic equations. Inequalities.
Elementary geometry: Right triangles. Pythagorean and related theorems. Trigonometry in right triangles. The extension of trigonometric expressions. General triangles. Lines and circles in a triangle, sine and cosine rules. Quadrilaterals. Sum of the interior angles, area. Special quadrilaterals. Polygons.Decomposition into triangles. Sum of the interior angles. Area. Regular polygons. Circles, tangent and bitangent segments. The area of a circle, tangential and cyclic quadrilaterals. Geometrical transformations, isometries and similarity transformations.
Coordinate geometry: The analytic model of Euclidean geometry. Distance between points in the coordinate plane. Equation of lines (slope-intersect form) and circles. Parallelism and perpendicularity. Distance of a point from a line. Intersections (line-line, line-circle, circle-circle). Tangent lines to a circle from an external point. Conics (ellipse, hyperbole, parabola). Coordinate geometry on the sphere: longitudes and latitudes.

**Recommended Readings:**
L. Kozma, Cs. Vincze: *Elementary Geometry*
http://math.unideb.hu/media/nagy-abris//Collegegeom-main-1.pdf

Subject: **COLLEGE PHYSICS 2**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Rotational kinematics (Angular displacement. Velocity and acceleration. Equations of rotational kinematics. Tangential Variables. Rolling motion.). Rotational dynamics (Action of forces and torques on rigid objects. Rigid objects in equilibrium. Center of gravity. Moment of inertia. Newton's second law for rotational motion about a fixed axis.). Rotational work and energy. Angular momentum. The principle of conservation of angular momentum. Simple harmonic motion and elasticity (Ideal spring and simple harmonic motion. Reference circle.). Energy and simple harmonic motion (Elastic potential energy.). The pendulum. Elastic deformation (Stress. Strain. Hooke's law.). Static fluids (Mass density. Pressure. Pascal's principle. Archimedes' principle.). Fluids in Motion (The equation of continuity. Bernoulli's equation. Applications of Bernoulli's equation. Viscous flow.). Electric forces (Charged objects and the electric force. Conductors and Insulators. Charging by contact and by induction. Coulomb's law.). Electric fields (Electric field lines. Gauss' law.). Electric potential energy and the electric potential (Potential energy. The electric potential difference. The electric potential difference created by point charges.). Equipotential surfaces and their relation to the electric field. Capacitors and dielectrics. Electric circuits (Electromotive force and current. Ohm's law. Resistance and resistivity. Electric power. Series and parallel wiring. Kirchhoff's rules. Alternating voltage and current.). Magnetic forces and magnetic fields (Force on a moving charge.

Motion of charged particles in a magnetic field.). Force on a current in a magnetic field. The torque on a current-carrying coil (Electric motors). Magnetic fields produced by currents. Ampere's law. Magnetic materials.

**Recommended Readings:**
John. D. Cutnell and Kenneth W. Johnson: *Essentials of Physics*, John Wiley and Sons Inc.

Subject: **ENGLISH LANGUAGE 2**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Work. Health (Reading. Listening. Use of English. Writing. Situational role-play. Presentations). Sport. Free time and Culture (Reading. Listening. Use of English. Writing, Speaking). Travel. Science and Technology (Reading. Listening. Use of English. Writing. Speaking. Situational role-play. Presentations.).

**Recommended Readings:**
*Oxford Exam Excellence*, Oxford University Press, ISBN 0-19-443004-9

Subject: **ENGLISH FOR BUSINESS 2**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
Employment. Recruitment. International Trade. Trade barriers. Fair Trade. Ensuring quality. Business ethics. Unethical business practices. Leadership styles. Innovation in the 21st century. Competition. Aiming to be the best.

**Recommended Readings:**
as supplied by instructor

Subject: **HUNGARIAN LANGUAGE 2**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
Where do you live? Home, rooms. Furniture and household objects. How often do you do the cleaning? Verbs of daily routine. I've found a good flat. Flat rental. What do I do from morning till night? How has your day been? Daily routine. Have you been to the new library yet? Personal info. Where are you going on your summer holidays? Family, relatives. Occupations. Verbs: activities associated with work. Festive occasions. Terms, dates, other relevant vocab. How do we get to the theatre? Giving directions. In the town. Shops, services in town. What sport do you do? Sports, relating verbs. In the bank. Vocab of money matters. Telephone calls. Grammar: Van, megy, jön + postpositions of place. Habitual actions with szokott and adverbs of frequency. Special verbal and adverbial ending. Verbs with prefixes in affirmative and imperative. Past tense, Indefinite and definite conjugation, -val, -vel + consonant assimilation. Genitive case. Dative case: -nak,-nek. Imperative. Word formation: nominal suffixes: -ás, -és. Permission and obligation. Language function: A form of personal details. Short dialogues about family information. Describing your home The daily routine. Sharing info about place, movement. Dialogue about daily routine. Digs, planning a holiday. Short dialogues with dates/times.

**Recommended Readings:**
Marschalkó, G.: *Hungarolingua Basic Level 2.,* Debrecen Summer School, Debrecen, 2015, ISBN 978-963-89522-5-7

Subject: **IT SKILLS 2**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Inserting Pictures. Tables. Numbering. Formatting a complex Word documents with many elements. Formatting and writing a thesis. Excel basics: cells, mouse pointers, select, copy, move, entering data, data types, format cells. Simple formulas. Basic functions: SUM, AVG, MIN, MAX, COUNT. Diagrams. Absolute and relative references. Excel functions: COUNTA, COUNTIF, COUNTBLANK. Conditional Excel functions: SUMIF, AVERAGEIF, IF. Managing data. Sort. Filters.

**Recommended Readings:**
1. *MS Word Topics, Tech on the Net*, http://www.techonthenet.com/word/index.php
2. *Excel Functions*, http://www.excelfunctions.net
3. *MS Excel Topics, Tech on the Net,* http://www.techonthenet.com/excel/index.php

Subject: **INTRODUCTION TO HUNGARIAN CULTURE 2**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
Orientation: Getting acquainted. General discussion. Setting the main targets of the course. Discussing readings and requirements. The Language of Film: what film can and cannot do, what film is good for, the basic language of film. Hungarian Film: a cursory overview of Hungarian film, with special focus on the films watched in class. Egri Csillagok/The Stars of Eger (Zoltán Várkonyi, 1968): watching and discussing the movie. A napfény íze/Sunshine (István Szabó, 1999): watching and discussing the movie. Study Trip. A tanú/The Witness (Péter Bacsó, 1969): watching and discussing the movie. Kontroll (Nimród Antal, 2013): watching and discussing the movie.

**Recommended Readings:**
The course is supplemented by a textbook/course packet.
1. John Cunningham: *Hungarian Cinema: From Coffee House to Multiplex,* New York and London, Wallflower Press, 2004
2. Lonnie R. Johnson: *Central Europe. Enemies, Neighbors, Friends,* 3rd. ed., New York and Oxford, 2011
3. Brian Cartledge: *The Will to Survive: A History of Hungary. Rev. ed.,* New York, Columbia University Press, 2011
4. Okasan Buranbaeva and Vlanja Mladieno: *Culture and Customs of Hungary,* Santa Barbara and Oxford, Greenwood Press, 2011

Subject: **INTRODUCTION TO PROGRAMMING**
Year, Semester: 1st year/2nd semester
Lecture: **28**
Seminar: **28**

**Requirements**

**Topics:**
Introduction. Base concepts of computer systems. Number systems (decimal, binary, hexadecimal). Data types. Data representation. Problem solving. Software life cycle. Problem solution design. Break-out-diagrams. Algorithm (definition, properties, representations). Algorithms by flowchart representation. Algorithms by pseudocode representation. Exercises with algorithms. Testing strategy development. Implementation and coding (Syntax, semantics, testing). Documentation. Maintenance.

**Recommended Readings:**
1. Adrian Kingsley-Hughes: *Beginning Programming,* Wiley, 2005
2. Metrowerks CodeWarrior: *Principles of Programming*, Metrowerk Inc., 1993

# CHAPTER 8
## INTENSIVE FOUNDATION SEMESTER

**Intensive Foundation Semester (from February till June)**

For those students who require additional instruction or review in sciences and in English language we offer foundation courses to prepare them to study in their chosen degree program. Offering a range of courses, including intensive English language study, which bridges the gap between the students' current qualifications and background and the knowledge and skills required for honors courses, the Intensive Foundation Semester provides students with the necessary skills to proceed to study their chosen discipline.

Education of basic science subjects -physics, mathematics and chemistry is quite demanding in Hungarian High Schools. The Foundation Year program is recommended for those applicants who do not have enough knowledge in physics, chemistry, mathematics or in any of these subjects according to Hungarian standards, and need further studies and a period for acclimatization before entering an agriculture, engineering, IT or business program. In addition to these basic scientific subjects, courses in academic English and Hungarian languages are also included in the program.

Those students who have been studying at the Intensive Foundation Semester and achieve a **grade average of minimum 4.0** can enter the first year of their chosen program **without sitting for an entrance exam.**

**Grade average calculation method:**

$$\frac{\text{Credit index} * \Sigma \text{ completed credits}}{\Sigma \text{ credits taken}}$$

The grade averages will be calculated on the basis of the grades entered into Neptun by the instructors (except for grades in Hungarian Language and Introduction to Hungarian Culture, which will not be included in the calculation). Please note: if you failed in one of your courses in the exam subjects (Math / Chemistry / English / IT / Physics) you **must** take the entrance exam (it's not possible to calculate a grade average)!
**Students who pass the entrance exam or achieve the above requirements and turn out to be eligible for being admitted to first year will get an admission letter that will be issued within 1 week after the entrance exam period.**

**Exam subjects of the study programs:**

| **IT-related programs** | | |
|---|---|---|
| **Study program** | **Exam subjects** | |
| Business Informatics, BSc | Mathematics (written and oral) | |
| Computer Science, BSc | | |
| Computer Science Engineering, BSc | | |

Continued on the next page

| **Chemistry-related engineering programs** | | |
|---|---|---|
| **Study program** | **Exam subjects** | |
| Agricultural Engineering, BSc | Mathematics (written and oral) | Chemistry (written and oral) |
| Biochemical Engineering, BSc | | |
| Chemical Engineering, BSc | | |
| Food Engineering, BSc | | |
| **Physics-related engineering programs** | | |
| **Study program** | **Exam subjects** | |
| Business Administration and Management, BSc | Mathematics (written and oral) | English (written and oral) |
| Civil Engineering, BSc | Mathematics (written and oral) | Physics (written and oral) |
| Electrical Engineering, BSc | | |
| Mechanical Engineering, BSc | | |
| Mechatronics Engineering, BSc | | |
| Professional Pilot, BSc | | |
| Vehicle Engineering, BSc | | |
| **Business-related programs** | | |
| **Study program** | **Exam subjects** | |
| Business Administration and Management, BSc | Mathematics (written and oral) | English (written and oral) |
| Commerce and Marketing, BSc | | |

# CHAPTER 9
# UNIVERSITY CALENDAR FOR THE INTENSIVE FOUNDATION SEMESTER

### University Calendar for Intensive Foundation Semester - 2021/2022

| | |
|---|---|
| Registration week | 31st January - 4th February 2022 (1 week) |
| 2nd semester study period<br>(classes run) | From 7th February till 3rd June 2022<br>(17 weeks) |
| Bank Holiday - commemorating the Hungarian Revolution of 1848 | 15th March 2022 |
| Bank Holiday - Good Friday | 15th April 2022 |
| Bank Holiday - Easter | 18th April 2022 |
| Bank Holiday - Labour Day | 1st May 2022 |
| | |
| **Entrance Exam period** | **From 6th June till 10th June 2022** |
| Bank Holiday - Pentecost | 6th June 2022 |

# CHAPTER 10
## CURRICULUM OF THE INTENSIVE FOUNDATION SEMESTER PROGRAM

In the frame of the Intensive Foundation Semester Program students have to choose one of the following specializations, depending on which major do they wish to apply for:

- **IT-related programs (IT):**
  Business Informatics BSc; Computer Science BSc; Computer Science Engineering, BSc

- **Chemistry-related engineering programs (CE):**
  Agricultural Engineering BSc; Biochemical Engineering BSc; Chemical Engineering BSc; Food Engineering BSc

- **Physics-related engineering programs (PE):**
  Civil Engineering BSc; Electrical Engineering BSc; Mechanical Engineering BSc; Mechatronics Engineering BSc; Professional Pilot BSc; Vehicle Engineering BSc

- **Business-related programs (B):**
  Business Administration and Management BSc; Commerce and Marketing BSc

Some of the courses are compulsory for all specializations, others are compulsory for only some of the specializations, as indicated in the last column of the table.

| Code | Course name | Total hours | Credits | Exam/ Pract. | Specialization |
|---|---|---|---|---|---|
| Compulsory courses | | | | | |
| TTIS_ALGE | College Algebra, Intensive | 40 | 4 | P | All |
| TTIS_DISC | College Discrete Mathematics, Intensive | 40 | 4 | P | All |
| TTIS_GEOM | College Geometry, Intensive | 40 | 4 | P | All |
| TTIS_ANAL | College Analysis, Intensive | 40 | 4 | P | All |
| TTIS_COMP | IT Skills, Intensive | 56 | 6 | P | All |
| TTIS_ENGL | English Language, Intensive | 56 | 3 | P | All |
| TTIS_ENGLW | Academic Writing, Intensive | 56 | 3 | P | B |
| TTIF_BUSMAT | Business Math, Intensive | 28 | 3 | P | B |
| TTIS_ENGA_E | Academic English for Engineering, Intensive | 56 | 3 | P | CE; PE |
| TTIS_ENGA_IT | Academic English for IT, Intensive | 56 | 3 | P | IT |
| TTIS_PHYS | College Physics, Intensive | 56 | 6 | P | PE |

Continued on the next page

| Code | Course name | Total hours | Credits | Exam/ Pract. | Specialization |
|---|---|---|---|---|---|
| Compulsory courses | | | | | |
| TTIS_CHEM1 | College Chemistry 1, Intensive | 28 | 2 | | CE |
| TTIS_CHEM2 | College Chemistry 2, Intensive | 56 | 6 | | CE |
| TTIS_PROG | Introduction to Programming, Intensive | 56 | 6 | | IT |
| TTIS_COMM | Communication, Intensive | 28 | 3 | P | B |
| Elective courses | | | | | |
| TTIS_HUNG_LANG1 | Hungarian Language 1, Intensive | 40 | 2 | P | All |
| Required optional courses (at least one course is compulsory) | | | | | |
| TTIS_HUNG_CULT | Introduction to Hungarian Culture | 28 | 3 | P | All |
| TTIS_HUNG_CULT2 | Introduction to Hungarian Culture 2 | 28 | 3 | P | All |
| P: practical exam | | | | | |

# CHAPTER 11

## COURSE DESCRIPTIONS OF THE INTENSIVE FOUNDATION SEMESTER PROGRAM

Subject: **ACADEMIC ENGLISH FOR ENGINEERING, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **56**

### Requirements

**Topics:**
What is engineering? Fields and tasks of engineering. Presentation skills. Technology in use. Elements and materials. Industrial processes. Engineering designs. Innovation, technical development. Automation in industry. Research and development. Health and safety regulations. Energy sources – non-renewable sources. Energy sources – renewable sources. Academic writing skills.
Technology and society: Information technology. Electronic technology. Chemical technology. Telecommunication technology. Medical technology.
New ideas in transport. Logistics. Environmental issues. Innovations that have changed our lives. The future of technology. Careers in technology - Applying for a job.

**Recommended Readings:**
1. Michael McCarthy, Felicity O'Dell: *Academic Vocabulary in Use,* Cambridge University Press
2. Mark Ibbotson: *Cambridge English for Engineering,* Cambridge University Press

Subject: **ACADEMIC ENGLISH FOR IT, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **56**

### Requirements

**Topics:**
Technology and society. Branches of engineering. Studying to become an engineer. Making a presentation. People who have made it big in Technology. Inventions that have changed our lives. Writing an essay. Scientific prizes. Smart homes. Green energy. New ideas in transport. Applying for a job. What is electricity? Early Experiments. AC vs DC, Edison and Tesla. Radio technology. Laser, compact discs and digital data storage. Communications technology. Medical technology. Computer architectures. Internet and the World Wide Web. Cyber crime. Artificial intelligence. Robotics. Nanotechnology.

**Recommended Readings:**
1. Michael McCarthy, Felicity O'Dell: *Academic Vocabulary in Use,* Cambridge University Press
2. Eric H. *Glendinning: Technology 1-2,* Oxford University Press

Subject: **ACADEMIC WRITING, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Paragraph format and narrative paragraphs (1). Paragraph format and narrative paragraphs (2). Writing summaries (1). Paragraph structure and descriptive paragraphs (1). Writing summaries (2). Paragraph structure and descriptive paragraphs (2). Logical division of ideas and process paragraphs (1). Logical division of ideas and process paragraphs (2). Comparison/contrast paragraphs and definition paragraphs (1). Comparison/contrast paragraphs and definition paragraphs (2). Essay organisation and descriptive essays (1). Essay organisation and descriptive essays (2). Essay organisation and opinion essays (1). Essay organisation and opinion essays (2).

**Recommended Readings:**
1. Alice Oshima, Ann Hogue: *Introduction to Academic Writing (Level 3)*,
ISBN: 978-1-4058-1291-7
2. Michael Vince: *Advanced Language Practice*, ISBN: 978-1-4058-1291-7

Subject: **BUSINESS MATH, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
Simple interest. Word problems. Supply and demand, cost and demand equations. Market research, break-even analysis. Miscellaneous problems. Compound interest. Future value of annuity. Present value of annuity.Amortization schedule.

**Recommended Readings:**
**Ess**entials of College Mathematics, by Raymond E. Barnett and Michael R. Ziegler, Dellen Publishing House, 1989.

Subject: **COLLEGE ALGEBRA, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
Real Numbers. Introduction of real numbers. Properties of real numbers. The order of operations and grouping symbols. Special subsets of the set of real numbers. Exponentiation. Integer exponents. Radicals. Rational exponents. Introduction to algebraic expressions. Polynomials. Basic operations on polynomials. Division of polynomials by monomials. Factorization of polynomials. Factorization by factoring out the greatest common monomial. Special factorization formulas. Factorization by grouping terms. General strategy of factorization of a polynomial. Roots of polynomials. Simplification and amplification of rational algebraic expressions. Multiplication and division of rational expressions. Addition and subtraction of rational algebraic expressions. Simplification of complicated algebraic expressions. Algebraic expressions containing roots, rationalizing the denominator. Simplification of complicated algebraic expressions containing roots. Introduction to equations. Linear equations. Quadratic equations. The real number line and ordering of the real numbers. Intervals. The absolute value of a real number. Introduction to inequalities. Linear inequalities. Table of signs. The sign of linear expressions. The sign of quadratic expressions, Quadratic inequalities. Solving inequalities using table of signs. Equations containing absolute values. Biquadratic equations, Multi-quadratic equations. Reciprocal equations. Irrational equations. Exponential equations. Logarithms, definition of logarithms, basic properties of logarithms. Logarithmic equations. Systems of equations.

**Recommended Readings:**
A. Bérczes, Á. Pintér: *College Algebra*:

http://math.unideb.hu/media/berczes-attila/College-Algebra.pdf

Subject: **COLLEGE ANALYSIS, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
Relations and functions. A "Friendly" introduction of functions. The graph of a function. The graph of equations or relations. The vertical line test, The Y -intercept and the X-intercepts of functions. Linear functions.

Quadratic functions: Normal form. Canonical form. Factorized form.

Quadratic functions: The X-intercepts. The Y-intercept. The extremal point and the graph of a quadratic function.

Polynomial functions: Definition. Graph of polynomial functions. Euclidean division of

polynomials. Horner's scheme. Solving polynomial equations of higher degree by finding their rational roots. Power functions. Exponential functions. Logarithmic functions. New functions from old ones. The sum. Difference. Product and quotient of functions. Composite functions. Shifting graphs. Properties of functions.

Trigonometric functions: Measures for angles: Degrees and Radians, Rotation angles. Definition of trigonometric functions for acute angles of right triangles. Basic formulas for the trigonometric functions defined for acute angles. Trigonometric functions of special angles. Definition of the trigonometric functions over R. The period of trigonometric functions. Symmetry properties of trigonometric functions. The sign of trigonometric functions. The reference angle. Basic formulas for trigonometric functions defined over R. Cofunction formulas. Quotient identities. The trigonometric theorem of Pythagoras. Trigonometric functions of special rotation angles. The graph of trigonometric functions. Sum and difference identities, double and triple angle formulas. Complete analysis of functions.

**Recommended Readings:** A. Bérczes, A. Gilányi: *Analysis textbook*:

Subject: **COLLEGE CHEMISTRY 1, INTENSIVE**
Year, Semester: 1st year/2nd semester
Lecture: **14**
Seminar: **14**

**Requirements**

**Topics:**
Subject of chemistry. Atomic structure. Quantum theory. Quantum numbers and their meanings. Multielectron atoms. Building-up principle of atomic orbitals. Periodic system. Structure of periodic table. Periodically changing properties. Mole concept. Relative, average atomic mass. Molar mass. Naming elements. Inorganic compounds and ions. Empirical, molecular and structural

formula. Isomers. Chemical bonds: ionic, covalent, metallic. Hybridization. Molecular geometry. Non-ideal bonds. Polarity of covalent bonds. Intermolecular interactions. H-bonding. Physical states: gases, liquids and solids. Chemical equations. Balancing chemical equations. Rate of
reactions. Rate law. Overall rate. Rate constant. Abundance, occurrence and production of the elements. Hydrogen. Noble gases. Group 17 elements and their compounds. Group 16 elements and their compounds. Group 15 elements and their compounds. Group 14 and 13 elements and their compounds.

**Recommended Readings:**
Ebbing: *General chemistry*
Holtzclaw, Robinson: *College Chemistry*

Subject: **COLLEGE CHEMISTRY 2, INTENSIVE**
Year, Semester: 1st year/2nd semester
Lecture: **28**
Seminar: **28**

**Requirements**

**Topics:**
General characterization of metallic elements. P and s block metals and their compounds. D block metals and their compounds. The origins of organic chemistry. Bonding and molecular properties. Families of organic compounds. Functional groups. The priority order. An overview of organic reactions. Nomenclature of hydrocarbons and drawing of organic structures. Alkanes, cycloalkanes. Alkynes. SR reactions. Aromatic compounds and their SEAr reactions. Alkyl Halides. Alcohols, ethers, thiols. Nomenclature and SN reactions. Applications. Amines – classification, nomenclature, reactions. Examples from nature. Chemistry of carbonyl Compounds: aldehides, ketones. Their AdN reactions. Silver mirror test. Carboxylic acids and their derivatives: anhydrides, amides, esters, nitriles. Amino acids, peptides, proteins. The essential amino acids.

**Recommended Readings:**
Ebbing: *General chemistry*
Holtzclaw, Robinson: *College Chemistry*

Subject: **COLLEGE DISCRETE MATHEMATICS, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
Introduction to the course. Introductory combinatorial exercises. Sets. Number of subsets. Division algorithm. Euclidean algorithm. Numeral systems. Number of subsets again. Sequences. Permutations. The number of ordered subsets, anagrams. The number of subsets of a given size. Distributing money. Balls and urns. Number of positive integer solutions of linear equations.

Proof techniques: Mathematical induction. Proof by contradiction. Pigeon hole principle.
The Binomial Theorem. Pascal's triangle. Fibonacci numbers. Recursive sequences.

**Recommended Readings:**
G. Horváth and Sz. Tengely: *Lecture Notes for College Discrete Mathematics*, 2013.:
http://math.unideb.hu/horvath-gabor/teaching/colldiscrmath.html

Subject: **COLLEGE GEOMETRY, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
General computational skills: Numbers, polynomials, functions. Equations in one variable. Quadratic equations. Inequalities. Elementary geometry: Right triangles. Pythagorean and related theorems. Trigonometry in right triangles. The extension of trigonometric expressions. General triangles. Lines and circles in a triangle. Sine and cosine rules. Quadrilaterals. Sum of the interior angles. Area. Special quadrilaterals. Polygons. Decomposition into triangles. Sum of the interior angles. Area. Regular polygons. Circles, tangent and bitangent segments. The area of a circle, tangential and cyclic quadrilaterals. Geometrical transformations. Isometries and similarity transformations. Coordinate geometry: The analytic model of Euclidean geometry. Distance between points in the coordinate plane. Equation of lines (slope-intersect form) and circles. Parallelism and Perpendicularity. Distance of a point from a line. Intersections (line-line, line-circle, circle-circle). Tangent lines to a circle from an external point. Conics (ellipse, hyperbole, parabola). Coordinate geometry on the sphere: longitudes and latitudes.

**Recommended Readings:**
L. Kozma, Cs. Vincze: *Elementary Geometry*:
http://math.unideb.hu/media/nagy-abris//Collegegeom-main-1.pdf

Subject: **COLLEGE PHYSICS, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Mathematical concepts. Physical units (Scientific notation. Significant values. Physical quatities. Physical units. Conversion of units.). Mathematical foundation (Trigonometry. Scalars and vectors. The components of a vector. Vector addition and subtraction.). Kinematics in one dimension (Displacement. Speed and velocity. Acceleration. Equations of kinematics for constant acceleration. Freely falling bodies.). Kinematics in two dimensions (Displacement. Velocity. Acceleration. Equations of kinematics in two dimensions. Projectile motion. Relative velocity.). Forces and

Newton's laws of motion (Concepts of force and mass. Newton's laws of motion.). Types of forces
(The gravitational force. The normal force. Static and kinetic frictional forces. The tension force.). Equilibrium and non-equilibrium Applications of Newton's laws of motion. Dynamics of uniform circular motion (Centripetal acceleration. Centripetal force. Banked curves. Satellites in circular
orbit.). Work and energy (Work by a constant force. Work-energy theorem. Kinetic energy. Gravitational potential energy. Conservation of mechanical energy. Power.). Impulse and

momentum (Impulse–momentum theorem. Principle of conservation of linear momentum.). Collisions in one and two dimensions. Center of mass. Rotational kinematics (Angular displacement. Velocity and acceleration. Equations of rotational kinematics. Tangential variables. Rolling motion.). Rotational dynamics (Action of forces and torques on rigid objects. Rigid objects in equilibrium. Center of gravity. Moment of Inertia. Newton's second law for rotational motion about a fixed axis.). Rotational work and energy. Angular momentum, the principle of conservation of angular momentum. Simple harmonic motion and elasticity (Ideal spring and simple harmonic motion. Reference circle.). Energy and simple harmonic motion (Elastic potential energy). The pendulum, elastic deformation (Stress. Strain. Hooke's law.)

**Recommended Readings:**
John. D. Cutnell and Kenneth W. Johnson: *Essentials of Physics,* John Wiley and Sons Inc.

Subject: **COMMUNICATION, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
The course is designed to improve students' abilities to communicate in English. During the course students will be exposed to a number of communication strategies that they will analyze, compare, and ultimately put into practice. The course will increase students' awareness of communication in a general sense, and get them to take a fresh look at their strategies in their mother tongue as well as in the foreign language. Learners will develop their English language skills by discussing various topics and get the chance to bring their own opinions to bear on complex business dilemmas. They will be encouraged to think about aspects of communication such as cross-cultural awareness and stereotyping. The discussed topics will be: Getting acquainted. Smoke Signals. A Pirate's Dilemma. A Year in Fashion Big Fish Don't Jump. The Barbecue. Plague and Prejudice. The Abalone Mystery.The Hohokum Virus. Wall Street Blues. Dirty work. The Write Stuff. Selling your soul.

**Recommended Readings:**
David Evans: *Decisionmaker*, Cambridge University Press, 2003, ISBN 0521-44805-0

Subject: **ENGLISH LANGUAGE, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Introduction. Organisation of the course. Family life. Home. People and society. Shops and services. Nature. Schools. Work. Health. Sport. Free time and culture. Travel. Science and technology.

**Recommended Readings:**
*Oxford Exam Excellence*, Oxford University Press, ISBN 0-19-443004-9

Subject: **HUNGARIAN LANGUAGE 1, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
The Hungarian alphabet. A selection of basic words. Who are you? Nationality adjectives. Greetings. Numbers. First responders. Hungarian money. How are you? What language do you speak? Everyday problems. What are you doing? Days. Basic activity verbs. Where are you going tonight? Basic venues of entertainment. Hospitality. What would you like? Basic items of food. Formal you ("vous"-ing) in H. Would you like a coffee? Can/want to/like to/would like to + activity verbs. Basic verbs of free-time activities. What's the weather like today? Weather adjectives/verbs. At the post office/railway station. Basic vocab used at these venues. Words of foreign origin. What are we going to eat tonight? Cooking (a recipe). I like your dress. Colours & patterns. Articles of clothing. The human body. Adjectives of appearance and general appearance
Grammar: Vowel harmony. A few rules of phonetics. Personal pronouns. Conjugation of the verb lenni. The concept of "countable/uncountable" in H. Language adjectives. Word formation with -ul, -ül. Present tense verbal endings. Adverbs of time -on, -en, -ön, -n. Past and future of lenni. Adverbs of place -ba, -be. Object endings. Word formation with -os, -as, -es, -ös, -s. Plural marker. Word formation with -ni. Irregular verbs in present tense. Double negation. The negative of van, vannak. Possessive endings in H. The verb lenni with adjectives. Comparative and superlative adjectives.
Language function: Introduction. Formal & informal greetings. Basic situation., Asking for/giving phone numbers. Feelings. Activities in the present. Schedules. Likes/islikes & intentions. The weather. A basic situation in a fast-food place. At mealtime. Basic expressions of general situational language. Basic compliments. Situational language. Characterizing people.

**Recommended Readings:**
Marschalkó, G.: *Hungarolingua Basic Level 1.* Debrecen Summer School: Debrecen, 2010, ISBN 978-963-86592-9-3

Subject: **HUNGARIAN LANGUAGE 2, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **40**

**Requirements**

**Topics:**
Where do you live? Home, rooms. Furniture and household objects. How often do you do the cleaning? Verbs of daily routine. I've found a good flat. Flat rental. What do I do from morning till night? How has your day been? Daily routine. Have you been to the new library yet?

Personal info. Where are you going on your summer holidays? Family. Relatives. Occupations. Verbs: activities associated with work. Festive occasions. Terms, dates, other relevant vocab, How do we get to the theatre? Giving directions. In the town. Shops, services in town, What sport do you do? Sports, relating verbs, In the bank. Vocab of money matters. Telephone calls. Grammar: Van, megy, jön + postpositions of place. Habitual actions with szokott and adverbs of frequency. Special verbal and adverbial ending, Verbs with prefixes in affirmative and imperative, Past tense, Indefinite and definite conjugation, -val, -vel + consonant assimilation. Genitive case. Dative case: -nak,-nek. Imperative. Word formation: nominal suffixes: -ás, -és. Permission and obligation.
Language function: A form of personal details. Short dialogues about family information. Describing your home. The daily routine. Sharing info about place. Movement. Dialogue about daily routine. Digs. Planning a holiday. Short dialogues with dates/times.

**Recommended Readings:**
Marschalkó, G.: *Hungarolingua Basic Level 2.* Debrecen Summer School: Debrecen, 2015, ISBN 978-963-89522-5-7

Subject: **IT SKILLS, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **56**

**Requirements**

**Topics:**
Files, folders – copy, move, rename, etc.. Sending e-mails with attachments.
Basics of PowerPoint: Creating presentations. Slides. Content. Picture manipulation – Move. Resize. Crop. Rotate. Reflect. Recolor. Corrections. Presentation design – Templates. Color schemes. Slide layouts. Backgrounds. Creating a presentation – Texts and illustrations for a presentation. PowerPoint Animations and transitions. Creating an MS Word document. Basics of word processing. Letters. Special characters. Paragraph formatting. Paragraph styles. Headings. Table of contents. Inserting Pictures. Tables. Numbering. Formatting a complex Word documents with many elements. Formatting and writing a thesis. Excel basics: Cells. Mouse pointers. Select. Copy. Move. Entering data. Data types. Format cells. Simple formulas. Basic functions: SUM.
AVG. MIN. MAX. COUNT. Diagrams. Absolute and relative references. Excel functions: COUNTA. COUNTIF. COUNTBLANK. Conditional Excel functions: SUMIF. AVERAGEIF. IF. Managing data. Sort. Filters.

**Recommended Readings:**
1.*Excel Functions:*
http://www.excelfunctions.net
2. *MS Excel Topics: Tech on the Net:* http://www.techonthenet.com/excel/index.php.
3. *MS Word Topics:Tech on the Net:* http://www.techonthenet.com/word/index.php
4.*PowerPoint: help and how-to:*
http://office.microsoft.com/en-us/powerpoint-help/powerpoint-help-and-how-to-FX101816832.aspx?CTT=97#

Subject: **INTRODUCTION TO HUNGARIAN CULTURE 1, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
Orientation. The University and Debrecen: Getting acquainted. General discussion. Assigning oral presentations. Setting the main targets of the course. Walking tour of downtown Debrecen. Hungary Basics: discussion of stereotypes of Hungary and Hungarians on the basis of the students' background. A look at the Hungarian national symbols: Flags. Anthems. Coats of arms, etc. Facts and figures about Hungary. Hungarian geography and climate. Famous Hungarians. Hungarian society and minorities: Hungarians and minorities. The Roma question. Slovaks. Rumanians. South Slavs and Germans in Hungary. Problems of upward social mobility. Hungarian Culture and Identity: The building blocks of national identity and pride. Poetry and music. Hungarians in film and TV history. Hungarikumok. The Hungarian political system and elections: The 1949 constitution and its revised version of 1989,. Changes in the form of government in Hungary in the 20th century. The new constitution of 2012. The system of national and local elections. Politics at the university in the US and in Hungary.
Turning points in Hungarian history 1: From the House of Árpád to the Turkish Wars: occupation of the Carpathian basin, founding of the Hungarian Kingdom, St. Stephen, the Turkish wars: Nándorfehérvár. Mohács, Eger, the reoccupation. Study Trip.
Turning points in Hungarian history 2: Hungary's wars for independence: Bocskai, Rákóczi, 1848-49. The Compromise of 1867.
Turning points in Hungarian history 3: World War I and Trianon, World War II, the Holocaust in Hungary, 1956, and 1989: a review of key historical events in Hungary in the 20th century.

**Recommended Readings:**
Power Point slides will be made available on a weekly basis. The course comes with a REQUIRED printed textbook which will be dealt out in the first class.

Subject: **INTRODUCTION TO HUNGARIAN CULTURE 2, INTENSIVE**
Year, Semester: 1st year/2nd semester
Seminar: **28**

**Requirements**

**Topics:**
Orientation: getting acquainted. General discussion. Setting the main targets of the course. Discussing readings and requirements.
The language of film: What film can and cannot do. What film is good for. The basic language of film. Hungarian Film: a cursory overview of Hungarian film, with special focus on the films watched in class. Egri Csillagok/The Stars of Eger (Zoltán Várkonyi, 1968): watching and discussing the movie. A napfény íze/Sunshine (István Szabó, 1999): watching and discussing the movie. Study Trip. A tanú/The Witness (Péter Bacsó, 1969): watching and discussing the movie. Kontroll (Nimród Antal, 2013): watching and discussing the movie.

**Recommended Readings:**

The course is supplemented by a textbook/course packet.
1. John Cunningham, Hungarian Cinema: *From Coffee House to Multiplex,* New York and London: Wallflower Press, 2004
2. Lonnie R. Johnson, Central Europe: *Enemies, Neighbors, Friends*, 3rd. ed. New York and Oxford, 2011
3. Brian Cartledge: *The Will to Survive: A History of Hungary,* Rev. ed., New York, Columbia University Press, 2011
4. Okasan Buranbaeva and Vlanja Mladieno: *Culture and Customs of Hungary,* Santa Barbara and Oxford: Greenwood Press, 2011.

Subject: **INTRODUCTION TO PROGRAMMING, INTENSIVE**
Year, Semester: 1st year/2nd semester
Lecture: **28**
Seminar: **28**

**Requirements**

**Topics:**
Introduction. Base concepts of computer systems. Number systems (decimal, binary, hexadecimal). Data types. Data representation. Problem solving. Software life cycle. Problem solution design. Break-out-diagrams. Algorithm (definition, properties, representations). Algorithms by flowchart representation. Algorithms by pseudocode representation. Exercises with algorithms. Testing strategy development. Implementation and coding (Syntax, semantics, testing). Documentation, maintenance.

**Recommended Readings:**
1. Adrian Kingsley-Hughes: *Beginning Programming*, Wiley, 2005
2. Metrowerks CodeWarrior: *Principles of Programming*, Metrowerk Inc. 1993