# ASIIN Accreditation Report

## Bachelor's Degree Programmes

***Computer Engineering***
***Electrical & Electronics Engineering***
***Industrial Engineering***

offered by

**GIRNE American University, North Cyprus**

Last update: 07.12.2012

ASIIN Accreditation procedure including an on-site visit for

**Bachelor's Degree Programmes**

***Computer Engineering***

***Electrical & Electronics Engineering***

***Industrial Engineering***

offered by

**GIRNE American University, North Cyprus**
**on 24 and 25 July, 2012**

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## Quality Labels Applied For

Within the scope of assessing the degree programmes, GIRNE American University applied for the award of these labels:

- ASIIN seal for individual degree programmes
- EUR-ACE® Label for all degree programmes

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## Audit Team

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| Dr.-Ing. Diedrich Baumgarten | Volkswagen Group |
| Prof. Dr.-Ing. Dieter Beschorner | University of Ulm |
| Prof. Dr. Hartmut Ernst | University of Applied Sciences Rosenheim |
| Prof. Dr. Michael Hoffmann | University of Ulm |
| Prof. Dr. Thomas Ottmann | University of Freiburg |
| Prof. Dr. Kati Schmengler | University of Applied Sciences Duesseldorf |

*Prof. Beschorner has been unable to participate because of illness.*

ASIIN staff member: Dr. Siegfried Hermes

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# A Preliminary Remarks

The on-site visit for the Bachelor's degree programmes *Computer Engineering, Electrical & Electronics Engineering and Industrial Engineering* took place at GIRNE American University in North Cyprus on 24 and 25 July, 2012.

Prior to the talks with the representatives of the university, the peers met to prepare their questions and to discuss the self-assessment report. Prof. Hoffmann was asked to act as speaker of the audit team for the aforementioned degree programmes. ASIIN's Technical Committees 02 – "Electrical Engineering and Information Technology" and 04 – "Computer Science and Informatics" as well as 06 – Industrial Engineering are responsible for the accreditation procedure of these programmes.

The peers held discussions with the following groups: university management, responsible managers of degree programmes, teaching staff, and students.

Additionally, the auditors inspected the infrastructure and the technical equipment at GIRNE American University.

**The following chapters** relate to the report provided by GIRNE American University in June 2012 as well as to the discussions and information provided during the on-site visit including samples of exams and final theses.

The assessment and the award of the ASIIN-seal are always based on the "Standards and Guidelines for Quality Assurance in European Higher Education Area" (ESG). Additionally, in case of the award of other seals or labels, the criteria of the respective seal or label-owner are considered.

Based on the "EUR-ACE Framework Standards for the Accreditation of Engineering Programmes", ENAEE as owner of the label, has authorized ASIIN to award the EUR-ACE® Label. The assessment for the award of the EUR-ACE® Label is based on the General Criteria of ASIIN as well as on the Subject-Specific Criteria (SSC) of the Technical Committee 02 – Electrical Engineering and Information Technology and 06 – Industrial Engineering.

The report has the following structure: Chapter B presents the facts which are necessary for the assessment of the requested seals. The information principally stems for the self-assessment report and related appendices provided by the Higher Education Institution. The following chapters include separate assessments of the peers about the compliance with the criteria for the requested seals. The statement of the HEI is subsequently included with the exact wording. The final recommendations of the peers and the Technical Committees as well as the final decision of the Accreditation Commission will take into account the statement of the HEI (and additional documents, if applicable).

Any gender-specific terms used in this document apply to both women and men.

# B Description of the degree programmes

## B-1 Formal specifications

| a) Name & Awarded Degree | b) Profile | d) Study-Mode | e) Programme Duration & Credit points | f) first & annual enrollment | g) expected intake | h) fees |
|---|---|---|---|---|---|---|
| Computer Engineering / B.Sc. | n.a. | Full time | 8 semester 240 CP | Study Year 1992<br>Fall / Spring semester | 70 per year | 2,250 per year (home students)<br>5,500 per year (International Students) |
| Electrical & Electronics Engineering / B.Sc. | n.a. | Full time | 8 semester 240 CP | Study Year 1992<br>Fall / Spring semester | 70 per year | 2,250 per year (home students)<br>5,500 per year (International Students) |
| Industrial Engineering / B.Sc. | n.a. | Full time | 8 semester 240 CP | Study Year 1992<br>Fall / Spring semester | 70 per year | 2,250 per year (home students)<br>5,500 per year (International Students) |

## B-2 Degree Programme: content concept & implementation

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| **Objectives of the degree programme** | For the Bachelor's degree programme Computer Engineering, see Self Report (SER), p. 7:<br>"The main aim […] is to prepare […] students to be able to adapt themselves to new and improving technologies in whatever career path they choose to pursue. [The] program provides the students with an excellent foundation of many areas in Computer Engineering including computer networks, computer software, database systems, computer architecture, hardware and operating systems. In addition, the program offers a solid scientific base for students so that they will demonstrate initiative and perform leadership in an ethical manner in engineering and other diverse careers. Some working areas of […] graduates are as follows: Communications and networking, IT departments, research and development centers, software design companies, etc."<br>For the Bachelor's degree programme Electrical and Electronics Engineering, see SER, p. 8:<br>"The main aim of the Electrical & Electronics Engineering programme is to offer high quality contemporary education at the undergraduate level. The programme not only focuses on setting up a strong engineering background needed in the field of electrical and electronics engineering, it also encourages students to develop |

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| | initiative capabilities and personal responsibility with an ability to communicate, to work in teams and to understand the broad implications of their work. The balanced, integrated curriculum provides an education, which is strong both in the fundamentals and in state-of-the-art knowledge, appropriate for immediate professional practice as well as graduate study and lifelong learning. Graduates of the Electrical and Electronics Engineering program have broad job opportunities. Graduates are capable of working as an engineer or researcher in various related areas, such as communications and networking, energy and power systems, control systems, electrical project/applications, and airline and navigation center, etc."<br><br>For the Bachelor's degree programme Industrial Engineering, see SER, pp. 7f.:<br><br>"Industrial Engineering aims to prepare the student for the application of engineering methods and the principles of scientific management to the design, improvement, and installation of integrated systems of people, materials, information, equipment, and energy. The industrial engineer is concerned with the design of total systems, and is the leader in the drive for increased productivity and quality improvement. [The] programme provides the students with an excellent foundation of many areas including the mathematical, physical, and social sciences, together with the methods of engineering analysis and design. [The] programme also encourages the students to gain interpersonal, leadership and communication skills by course and graduation projects involving team-work and on-site applications. Although industrial engineering is especially important to all segments of industry, it is also applied in other types of organisations, such as health care, public utilities, agriculture, transportation, defense, government, and merchandising. Industrial engineering is finding increasing application in service industries. With increasing emphasis on quality and productivity for successful international competition, it is expected that […] graduate industrial engineers will be in increasing demand in the coming decades, with their knowledge, skills and competences. Some working areas of our graduates are as follows: Aerospace & airplanes, aluminum & steel industries, banking, materials testing, medical services, military, construction, consulting, mining, oil & gas industries, forming, electronics assembly, energy, retail, ship building, insurance, state government, transportation, etc."<br><br>The **aims** of the respective study programmes are accessible to the relevant stakeholders on the website of each programme. |
| **Learning outcomes of the degree programme** | Common Programme Outcomes, see SER, p. 9:<br><br>"After completion of the programme, the students will possess the following:<br><br>• Ability to understand and apply knowledge of mathematics, science, and engineering;<br>• Ability to design and conduct experiments as well as to analyze |

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| | and interpret data;<br>• Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct;<br>• Ability to apply systems thinking in problem solving and system design;<br>• Knowledge of contemporary issues while continuing to engage in lifelong learning;<br>• Ability to use the techniques, skills and modern engineering tools necessary for engineering practice;<br>• Ability to express their ideas and findings, in written and oral form;<br>• Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints;<br>• Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner."<br><br>"Subject specific learning outcomes for the Bachelor's degree programme Computer Engineering, see SER, p.9:<br>• Ability to apply design and development principles in the construction of software systems;<br>• Ability to find appropriate technical information to solve computer engineering problems."<br><br>"Subject specific learning outcomes for the Bachelor's degree programme Electrical and Electronics Engineering, see SER, p.9:<br>• Strong foundation on the fundamentals of Electrical and Electronics Engineering such as Circuit Theory, Signals, Systems, Control and Communications, which are necessary for successful practice in the field;<br>• Awareness on the contemporary requirements, methods and applications of the Electrical and Electronics Engineering."<br><br>"Subject specific learning outcomes for the Bachelor's degree programme Industrial Engineering, see SER, p.10:<br>• Ability to design systems, processes or products by applying modern methods of work study, ergonomics, production systems and simulation while fulfilling requirements under realistic conditions;<br>• Ability to plan and improve system performance using production planning, quality planning and control, information system design and project planning techniques."<br><br>The **learning outcomes** of the respective study programmes are accessible to the relevant stakeholders on the website of each programme. |

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| **Learning outcomes of the modules/module objectives** | The objectives of the individual modules are described in a module handbook.<br>The module descriptions (course syllabus) are available to students on the Website of each programme (though not on the respective subpage Courses Catalogue Description but on the subpage Curriculum). |
| **Job market perspectives and practical relevance** | As to the job perspectives for the graduates the HEI generally states:<br>• Working fields for graduates of the Faculty of Engineering are mostly the fields of plastics, food, textile and chemical manufacturing sectors, airlines, communication and networking, software design companies as well as oil and gas industries, banking and transportation sectors.<br>• A sample list of the companies where graduates are employed is given in the Annexes of SER.<br>• The Faculty of Engineering declares to have good and bidirectional relations with the professional NGO's in North Cyprus and Turkey, thereby ensuring up to date study programmes in regard to scientific expertise and professional demands as well.<br>• It also considers the links between the HEI and industry a pivotal element to tailor its study programmes along regional industrial needs and demands.<br>• This way, curricula are to be kept up to date by offering new core/ elective courses upon the regional requirements, the demand of employers, international organizations, job market representatives and NGOs.<br><br>Practical relevance of the programmes shall be achieved by ...<br>• lectures given by professionals from various sectors;<br>• organizing technical tours to the local industrial facilities for providing the students with real examples to support the education;<br>• renewing course contents periodically based on the job market needs in order to fulfill companies human resource needs (alumni, summer training and fair organizations are considered important for that purpose);<br>• providing essential computer usage skills as an integral part of any program at the higher education level (computer skills courses in every programme);<br>• providing project based learning in courses with term projects. Also, summer practice and graduation project courses (EE400, CE401, CE402, EE401, EE402, IE401 and IE402) are |

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| | designed to encourage the project team work which should facilitate work in cooperation and collaboration with peers. SER, p. 23 reads: “Graduation projects of all the programs mostly involve practical applications both in manufacturing and service sectors.”<br>• a summer practice (internship) of six weeks duration (30 working days) in order to integrate knowledge and theory to practice in the fields Computer Engineering, Electrical and Electronics Engineering and Industrial Engineering. |
| **Admissions and entry requirements** | “§ 37 of Turkish Republic of Northern Cyprus Law of Higher Education stipulates the following **entry requirements**:<br>(1) The following minimum conditions are required for Higher admittance to universities: (A) To be a graduate of a high school or its equivalent and to submit affidavit(s) of support. (B) For TRNC nationals: To be successful in the criteria determined by the Ministry involved in educational matters, Interuniversity Coordination Board and YODAK and to be placed to a program in a university; or To be successful in internationally accepted exams (International Baccalaureate, GCE, IGCSE, SAT or similar level qualifications) at the level approved by YODAK for admittance. (C) The nationals of the Turkish Republic should be placed to a program in a university based on their results in the entrance examination conducted by the Student Selection and Placement Center (D) Students other than TR and TRNC nationals are admitted to a program in a university based on the criteria set forth by the university in line with the provisions of this law and approved by YODAK.<br>(2) […]<br>(3) It is mandatory that the criteria determined for vertical or horizontal transfer between institutions of higher learning or programs should be observed.<br>(4) In addition to taking the entrance examinations, the student should submit supportive documents indicating his/her proficiency in the foreign language or be successful in the proficiency examination administered by the university.<br>(5) Those who fail to submit supportive documents to indicate their foreign language proficiency or those who do not demonstrate success at the desired level in the Proficiency exam administered by the university, have to attend the preparatory school/program and only upon successful completion of this school/program, will they be allowed to register to the degree program.<br>(6) Reasons and governing rules leading to a student's dismissal from the university due to failure, lack of attendance, discipline and/or similar matters are prepared taking into consideration |

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| | the views of YODAK, by the universities and stated clearly in their by-laws or regulations.<br>(7) The university governing rules clearly state, observing the principles of transparency, equality and justice, the student's right to appeal to the decisions, and the procedures and processes of how he/she will defend him/herself.<br>(8) […]"<br><br>To amplify this the HEI states, SER, p. 19ff.:<br><br>"The majority of our students who come from Turkey must pass the nationally administered 'LYS (Undergraduate Placement Examination)' entrance exam. Their grades in different sections of the exam, particularly mathematics, determine the specialization that they are allowed to enter and to which they are assigned by the centralized system. Computer Engineering and Electrical-Electrical Engineering programmes are also accepting students, who have a related associate degree (A.Sc.) and attend a general exam (DGS-Vertical Transfer Examination) in Turkey." (19)<br><br>Turkish students are required to provide, inter alia, a Health Report. As to this SER states: "This should be from a Government Hospital in the home town or city of the student. In order to satisfy requirements for the university it is mandatory for the student to have a medical check for illnesses such as HIV, Hepatitis B and Typhus." (20)<br><br>The policy of the HEI in recruiting international students "is generally to adopt the same requirements as are demanded in their home country". (20)<br><br>"Home students are required to sit the 'Entrance and Scholarship Exam' that is held every year in June. Students have 3 choices to make before the exam and they are placed in a programme according to the score they receive from the exam."<br><br>As to the **recognition of external achievements** the Girne American University Teaching and Examination By-Law for Associate and Bachelor's Degrees, Art. 29 stipulates:<br><br>"The courses [of students who attended a university or an equivalent higher education institution for at least one semester] that will be accepted as transfer courses taken from previous institution by successful candidates with a grade C and above will be identified by the relevant department board and are registered to the program."<br><br>Regarding this SER, p. 21 explains as follows: "A student may be exempted from courses in his/her chosen program at GAU, on the basis of having completed equivalent coursework at the other institution. The relevant department at GAU will make decisions concerning equivalence and comparability." |

**Curricula / Contents**

**Curriculum of the Bachelor's degree programme Computer Engineering**

## FRESHMAN YEAR

| First Year Fall Semester (16/16 Credits, 30/30 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT111 | Calculus I | (3,2)4 | 7 | MT | - |
| ENG103 | Computer Aided Design | (2,2)3 | 5 | EF | - |
| PS111 | General Physics I | (2,2)3 | 6 | NS | - |
| CH101 | General Chemistry | (3,0)3 | 6 | NS | - |
| ENG101 | Introduction to Computers | (3,0)3 | 5 | EF | - |
| TURK001 | Turkish I | (1,0)0 | 1 | UC | - |

| First Year Spring Semester (16/32 Credits, 30/60 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT112 | Calculus II | (3,2)4 | 7 | MT | MT111 |
| PS112 | General Physics II | (2,2)3 | 6 | NS | PS111 |
| ENG102 | Computer Programming I | (2,2)3 | 6 | EF | ENG101 |
| MT104 | Linear Algebra | (3,0)3 | 5 | MT | - |
| ENG106 | Fundamentals of Industrial Engineering | (3,0)3 | 5 | EF | - |
| TURK002 | Turkish II | (1,0)0 | 1 | UC | - |

## SOPHOMORE YEAR

| Second Year Fall Semester (18/50 Credits, 30/90 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT211 | Calculus III | (3,2)4 | 7 | MT | MT112 |
| MT207 | Probability Theory | (3,0)3 | 5 | MT | - |
| ENG201 | Fund. of Electrical Engineering | (2,2)3 | 6 | EF | - |
| ENG203 | Computer Programming II | (3,2)4 | 6 | EF | ENG102 |
| ENG205 | Logic Circuit Design | (3,2)4 | 6 | DC | - |

| Second Year Spring Semester (17/67 Credits, 30/120 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT212 | Engineering Mathematics | (3,0)3 | 6 | MT | MT211 |
| MT206 | Differential Equations | (4,0)4 | 7 | MT | MT112 |
| ENG202 | Physical Electronics | (2,2)3 | 6 | EF | - |
| ENG204 | Intro. to Modelling and Optimisation | (3,0)3 | 5 | EF | - |
| ENG206 | Digital Systems | (3,2)4 | 6 | DC | ENG205 |

## JUNIOR YEAR

| Third Year Fall Semester (18/85 Credits, 30/150 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| CEN301 | Microprocessors | (3,2)4 | 7 | DC | ENG206 |
| CEN303 | Data Structures & Algorithms | (3,2)4 | 6 | DC | ENG102 |
| CEN305 | Object Oriented Programming | (2,2)3 | 6 | DC | ENG203 |
| CEN307 | Operating Systems | (3,2)4 | 7 | DC | - |
| ELXXX | Free Elective | (3,0)3 | 4 | UE | - |

| Third Year Spring Semester (17/102 Credits, 30/180 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| CEN302 | Structured Prog. Languages | (3,2)4 | 6 | DC | ENG102 |
| CEN304 | File Organization & Access Methods | (2,2)3 | 6 | DC | - |
| CEN306 | Database Systems | (3,2)4 | 7 | DC | - |
| ENG304 | Engineering Economy | (3,0)3 | 5 | EF | - |
| MT308 | Numerical Analysis | (3,0)3 | 6 | EF | MT112 |

## SENIOR YEAR

| Fourth Year Fall Semester (15/117 Credits, 31/211 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| CEN401 | Graduation Project I | (2,2)3 | 6 | GP | - |
| CEN403 | Software Design | (2,2)3 | 6 | DC | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| ELXXX | Free Elective | (3,0)3 | 4 | UE | - |
| NH001 | National History I | (1,0)0 | 1 | UC | - |
| EE400 | Summer Training | - | 2 | SI | - |

| Fourth Year Spring Semester (15/132 Credits, 29/240 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| CEN402 | Graduation Project II | (2,2)3 | 6 | GP | CEN401 |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| ELXXX | Free Elective | (3,0)3 | 4 | UE | - |
| NH002 | National History II | (1,0)0 | 1 | UC | - |

MT : Maths, NS : Natural Sciences, EF : Engineering Foundation, DC : Departmental Core, DE : Department Electives,
UE : University Electives, GP : Graduation Projects, SI : Summer Internship, UC : University Compulsory

**Curriculum of the Bachelor's degree programme Electrical and Electronics Engineering**

## FRESHMAN YEAR

| First Year Fall Semester (16/16 Credits, 30/30 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT111 | Calculus I | (3,2)4 | 7 | MT | - |
| PS111 | General Physics I | (2,2)3 | 6 | NS | - |
| CH101 | General Chemistry | (3,0)3 | 6 | NS | - |
| ENG101 | Introduction to Computers | (3,0)3 | 5 | EF | - |
| ENG103 | Computer Aided Design | (3,0)3 | 5 | EF | - |
| TURK001 | Turkish I | (1,0)0 | 1 | UC | - |

| First Year Spring Semester (16/32 Credits, 30/60 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT112 | Calculus II | (3,2)4 | 7 | MT | MT111 |
| MT104 | Linear Algebra | (2,2)3 | 5 | MT | - |
| PS112 | General Physics II | (2,2)3 | 6 | NS | PS111 |
| ENG102 | Computer Programming I | (2,2)3 | 6 | EF | ENG101 |
| ENG106 | Fundamentals of Industrial Engineering | (3,0)3 | 5 | EF | - |
| TURK002 | Turkish II | (1,0)0 | 1 | UC | - |

## SOPHOMORE YEAR

| Second Year Fall Semester (18/50 Credits, 30/90 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT211 | Calculus III | (4,0)4 | 7 | MT | MT112 |
| MT207 | Probability Theory | (3,0)3 | 5 | MT | MT112 |
| ENG201 | Fund. of Electrical Engineering | (2,2)3 | 6 | EF | - |
| ENG203 | Computer Programming II | (3,2)4 | 6 | EF | ENG102 |
| ENG205 | Logic Circuit Design | (3,2)4 | 6 | DC | - |

| Second Year Spring Semester (17/67 Credits, 30/120 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| MT212 | Engineering Mathematics | (3,0)3 | 6 | MT | MT211 |
| MT206 | Differential Equations | (4,0)4 | 7 | MT | MT112 |
| ENG202 | Physical Electronics | (2,2)3 | 6 | EF | ENG201 |
| ENG204 | Intro. to Modelling and Optimization | (3,0)3 | 5 | EF | - |
| ENG206 | Digital Systems | (3,2)4 | 6 | DC | ENG205 |

## JUNIOR YEAR

| Third Year Fall Semester (18/85 Credits, 30/150 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| EEN301 | Electronic Circuits I | (3,2)4 | 7 | DC | ENG202 |
| EEN303 | Circuit Theory | (3,2)4 | 7 | DC | ENG201 |
| EEN305 | Electrical Measurements and Inst. | (2,2)3 | 5 | DC | ENG201 |
| EEN307 | Signals and Systems | (2,2)3 | 5 | DC | MT112 |
| EEN347 | Electromagnetic Theory I | (4,0)4 | 6 | DC | PS112 |

| Third Year Spring Semester (18/103 Credits, 30/180 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| EEN302 | Electronic Circuits II | (3,2)4 | 7 | DC | EEN301 |
| EEN304 | Feedback Control Systems | (4,0)4 | 6 | DC | EEN307 |
| EEN348 | Electromagnetic Theory II | (4,0)4 | 6 | DC | EEN347 |
| ENG304 | Engineering Economics | (3,0)3 | 5 | EF | - |
| MT308 | Numerical Analysis | (3,0)3 | 6 | EF | MT112 |

## SENIOR YEAR

| Fourth Year Fall Semester (15/118 Credits, 31/211 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| EEN401 | Graduation Project I | (2,2)3 | 6 | GP | - |
| EEN403 | Communication systems | (2,2)3 | 6 | DC | EEN307 |
| ELXXX | Free Elective | (3,0)3 | 4 | UE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| NH001 | National History I | (1,0)0 | 1 | UC | - |
| EE400 | Summer Training | - | 2 | SI | - |

| Fourth Year Spring Semester (15/133 Credits, 29/240 ECTS) | | | | | |
|---|---|---|---|---|---|
| Course Code | Course Name | Credit | ECTS | Category | Prerequisite(s) |
| EEN402 | Graduation Project II | (2,2)3 | 6 | GP | EEN401 |
| ELXXX | Free Elective | (3,0)3 | 4 | UE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 6 | DE | - |
| NH002 | National History II | (1,0)0 | 1 | UC | - |

MT : Maths, NS : Natural Sciences, EF : Engineering Foundation, DC : Departmental Core, DE : Department Electives,
UE : University Electives, GP : Graduation Projects, SI : Summer Internship, UC : University Compulsory

**Curriculum of the <u>Bachelor's degree programme Industrial Engineering</u>:**

## FRESHMAN YEAR

| First Year Fall Semester (16/16 Credits, 30/30 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| MT111 | Calculus I | (3,2)4 | 7 | MT | - |
| ENG103 | Computer Aided Design | (2,2)3 | 5 | EF | - |
| PS111 | General Physics I | (2,2)3 | 6 | NS | - |
| CH101 | General Chemistry | (3,0)3 | 6 | NS | - |
| ENG101 | Introduction to Computers | (3,0)3 | 5 | EF | - |
| TURK001 | Turkish I | (1,0)0 | 1 | UC | - |

| First Year Spring Semester (16/32 Credits, 30/60 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| MT112 | Calculus II | (3,2)4 | 7 | MT | MT111 |
| PS112 | General Physics II | (2,2)3 | 6 | NS | PS111 |
| ENG102 | Computer Programming I | (2,2)3 | 6 | EF | ENG101 |
| MT104 | Linear Algebra | (3,0)3 | 5 | MT | - |
| ENG106 | Fundamentals of Industrial Engineering | (3,0)3 | 5 | EF | - |
| TURK002 | Turkish II | (1,0)0 | 1 | UC | - |

## SOPHOMORE YEAR

| Second Year Fall Semester (17/49 Credits, 30/90 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| MT211 | Calculus III | (3,2)4 | 7 | MT | MT112 |
| MT207 | Probability Theory | (3,0)3 | 5 | MT | - |
| ENG201 | Fund. of Electrical Engineering | (2,2)3 | 6 | EF | - |
| ENG203 | Computer Programming II | (3,2)4 | 6 | EF | ENG102 |
| ECON201 | Introduction to Economics I | (3,0)3 | 6 | BE | - |

| Second Year Spring Semester (16/65 Credits, 30/120 ECTS) | | | | | |
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| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| MT212 | Engineering Mathematics | (3,0)3 | 6 | MT | MT211 |
| MT206 | Differential Equations | (4,0)4 | 7 | MT | MT112 |
| ENG202 | Physical Electronics | (2,2)3 | 6 | EF | - |
| ECON202 | Introduction to Economics II | (3,0)3 | 6 | BE | - |
| ENG204 | Intro.to Modelling&Optimisation | (3,0)3 | 5 | EF | - |

## JUNIOR YEAR

| Third Year Fall Semester (15/80 Credits, 30/150 ECTS) | | | | | |
|---|---|---|---|---|---|
| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| IE303 | Fundamentals of Work Study | (3,0)3 | 7 | DC | - |
| IE307 | Operations Research I | (3,0)3 | 7 | DC | - |
| IE311 | Engineering Statistics | (3,0)3 | 7 | DC | MT207 |
| ACCT101 | Introduction to Accounting | (3,0)3 | 5 | BE | - |
| ELXXX | Free Elective | (3,0)3 | 4 | UE | - |

| Third Year Spring Semester (15/95 Credits, 30/180 ECTS) | | | | | |
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| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| ENG304 | Engineering Economy | (3,0)3 | 5 | EF | - |
| MT308 | Numerical Analysis | (3,0)3 | 6 | EF | - |
| IE308 | Operations Research II | (3,0)3 | 7 | DC | IE307 |
| IE312 | Production Systems | (3,0)3 | 6 | DC | - |
| IE314 | Manufacturing Technology | (3,0)3 | 6 | DC | - |

## SENIOR YEAR

| Fourth Year Fall Semester (15/110 Credits, 32/212 ECTS) | | | | | |
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| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| IE401 | Industrial Engineering Project | (2,2)3 | 6 | DC | - |
| IE405 | Production Planning & Control | (3,0)3 | 6 | DC | - |
| IE407 | Quality Planning & Control | (3,0)3 | 7 | DC | IE311 |
| TELXXX | Technical Elective | (3,0)3 | 5 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 5 | DE | - |
| NH001 | National History I | (1,0)0 | 1 | UC | - |
| EE400 | Summer Training | - | 2 | SI | - |

| Fourth Year Spring Semester (15/125 Credits, 28/240 ECTS) | | | | | |
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| **Course Code** | **Course Name** | **Credit** | **ECTS** | **Category** | **Prerequisite(s)** |
| IE402 | Graduation Project | (2,2)3 | 6 | DC | - |
| IE412 | Production Information System Mgmt. | (3,0)3 | 6 | DC | - |
| TELXXX | Technical Elective | (3,0)3 | 5 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 5 | DE | - |
| TELXXX | Technical Elective | (3,0)3 | 5 | DE | - |
| NH002 | National History II | (1,0)0 | 1 | UC | - |

MT : Maths, NS : Natural Sciences, EF : Engineering Foundation, DC : Departmental Core, DE : Department Electives,
UE : University Electives, GP : Graduation Projects, SI : Summer Internship, UC : University Compulsory,
BE : Economics & Business

With technical resp. free electives on offer, students of all three Bachelor's degree programmes can choose a certain specialization track to get a more distinguished qualifications profile.

### B-3 Degree programme: structures, methods and implementation

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| **Structure and modularity** | Mostly, the modules are given 5 to 7 CP, with the exception of some electives, which are awarded 4 CP, and Turkish language as well as national history modules being credited with less than 4 CP.<br><br>Opportunities for study abroad are described as almost given for students |

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| | passing their summer training (internship) which can be either local or abroad. |
| **Workload and credit points** | According to the self-assessment report 1 ECTS is allocated for roughly 25 - 30 hours of student workload. According to the HEI, the ECTS has been adapted recently for all programmes offered at GAU and is presented along with the GAU credit system. As being told, GAU national credits do not take into account the workload of students considered for ECTS calculations based on time or effort spent both inside and outside the classroom.<br><br>Each semester is composed of 28 -31 ECTS.<br><br>For an award of credits for summer practice (internship) students have to submit a written summer training report (see for eligibility, formal and subject specific requirements and evaluation “Summer Training Evaluation Rules and Regulations”). |
| **Educational methods** | The following educational methods are in use: traditional class work, different kinds of practical exercises and laboratory experiments (for example programming, computer simulation, and computer integrated experiments), course projects (thereby requiring the students to provide reports and presentation of results), poster presentations, usage of a distance learning system.<br><br>Options for elective modules (technical and free electives) are available in all programmes under consideration. |
| **Support and advice** | Offers for the support and advise of students are provided as described below:<br><br>• Academic Advisor: each student is assigned an Academic Advisor, who assists with matters related to scheduling, course selection after the online registration approval, registration, and related matters. The advisor is usually a faculty member in the academic department in which the student is enrolled. Students must obtain their advisor's approval for the following transactions: registration, selection of core and elective courses, adding, dropping or withdrawing courses from the schedule.<br>• Weekly office hours of all Faculty members.<br>• Student Clubs: many student clubs of the main groups of academic, social and arts. According to SER, this way, students are given the chance of performing recreational and social activities, and, additionally, the chance of having academic improvements by the help of the support provided by academic student clubs.<br>• Psychological Counselling and Guidance Centre supporting students in adapting to university life, developing self-esteem, becoming aware of responsibilities and accepting these, coping with stress and time pressure, and for adapting to changes.<br>• Special orientation programme for new entrants to the University.<br>• International Admissions Office for supporting the international students during the admission and educational process at the HEI.<br>• Summer School: Additional course offer of the Faculty of Engineering for improving student’s grades resp. accelerating student’s progress. |

### B-4 Examinations: system, concept and organisation

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| **Exam methods** | According to the self-assessment report and the information gathered during the discussions, the exam methods described subsequently are foreseen:<br>• For each course, at a minimum one and at a maximum three mid-term exams and a final examination are obligatory; any number of quizzes, homeworks, lab applications, projects or presentations may be required according to the course content and intended learning outcomes. All examinations are held written, oral or both.<br>• At the courses being taught by more than one instructor, the exams are held as common and questions are prepared by the Course Coordinator with the participation of the instructors of the course.<br>• The weight of the final exam must not exceed 50 % and not fall short of 40%.<br>• The course syllabus contains, inter alia, detailed information on the examination method, examination weights, grading policy and any other requirements which the students are obliged to obey.<br>• The study programmes under consideration end with two final graduation projects in the senior year. Students can carry out an assigned project independently or as a team at the level of the qualification they are aiming at. Both graduation projects may be intertwined or conducted separately.<br>• Each graduation project is awarded 6 CP. In both projects the students are expected to show their abilities on designing, developing, orally discussing, presenting and documenting a project. That is to say, the students are expected to display their social and communication competencies as well as their technical skills and abilities.<br>• Supervisors and examiners of the graduation projects belong to the body of full-time lecturers who deliver the programme.<br>• According to the HEI, graduation projects of all programs mostly involve practical applications both in manufacturing and service sectors. They ought to be supervised by faculty members who support the students by making the necessary arrangements (finding, contacting, etc.) for the companies where students are requested to perform practical applications. |
| **Exam organisation** | • Final examinations are generally held after the termination of classes. The examination period lasts one week.<br>• No mid-term exam can be held during the week prior to the course termination.<br>• The design objective for the schedule of final examinations is for each student to have one examination scheduled each day and to keep as small as possible the number of students with more than one exam on a single day. |

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| | • Midterm and final examination papers must be marked and announced (upload to the online registration system) within the four working days following the completion of the examination period.<br>• Repetitions of exams are unlimited by decision of the supervising authority (Yodak).<br>• In case students are unable to attend an exam during the semester because of valid reasons they are offered a make-up exam. The make-up exams for midterm exams or quizzes are held at least two weeks before the final exams. Incomplete exams (make-up for final exams) are held before the beginning of the following semester.<br>• Students who have taken all the required courses for graduating from the department but failed to satisfy the graduation requirements, under certain conditions have a chance of attending the graduation make-up exams.<br>• The right of students to object the result of an exam (incl. final exam) is valid within a week following the result announcement. |

### B-5 Resources

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| **Staff involved** | According to the HEI, the teaching staff is composed of 3 professors, associate professors, 3 assistant professors, 4 PhDs, 15 senior lecturers, 4 teaching assistants and technical staff.<br><br>According to SER, currently eight research laboratories are established at the GAU Technopark, focusing on Life Science and Environment and Software Development, since North Cyprus is a country without its own energy resources. The Alternative Energy Laboratory, in cooperation with leading research institutes and companies in the United States, is told to evaluate the utilization of alternative energy in North Cyprus, including high technology approaches such as fuel cells. The GAU Technopark aims to contribute to the advancement of new technologies by promoting research and development, collaborations, entrepreneurship and technopreneurship. Another objective is, as the HEI states, to promote regional innovation activities. That way, GAU Technopark is said to run Technology Innovation Forums that aim to stimulate open discussions to foster Research & Development and set up a long-term plan for the development of future strategic industries that suit to the local economy. Research work is mainly attributed to the laboratories (as for example the Information Technologies Research and Development Laboratory, Research and Software Development Laboratory, and the Computer Integrated Manufacturing Laboratory). |
| **Staff development** | • The university encourages its academic staff to attend, at least twice a year, a seminar, a conference or a training session organized by professional bodies. Academic staff who submits a paper to an international conference is financially supported to attend that event. |

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| | • The university also encourages its academic staff without a PhD degree to complete their PhD education at GAU on full scholarship basis. In-service training programmes are held regularly to equip all staff with current pedagogical teaching methods, measurement and assessment methods and other technological innovations.<br>• The university encourages and supports its academic staff to use the latest information technology when they are delivering their courses. In this respect, internal trainings on the utilization of specific software and other contemporary tools used in higher education are reported (MOODLE inter alia). |
| **Institutional environment, financial and physical resources** | Girne American University in North Cyprus was founded in 1985 as an independent, non-profit institution of higher education. According to the HEI, from its establishment the university has been focused on providing access to an American-style higher education. Girne American University is comprised of the East and West Campus Area, the former encompassing the above mentioned TECHNOPARK.<br><br>The Faculty of Engineering and Architecture has been established in1992 and then separated into two faculties in 2009. The Faculty of Engineering, responsible for the study programmes under consideration, started to function from 2009-2010 academic year on. The premises of the Engineering Faculty *inter alia* encompass the laboratories. According to SER, nine new laboratories for student education have been added to the existing educational laboratories. The new ones include laboratories for basic science (Chemistry, Physics), electrical engineering (Electronics, PLC/Microprocessor, Power & High Voltage, Microwaves Communication), computer engineering (Application, CISCO Network), and industrial engineering (Work Study & Ergonomics, Computer Integrated Manufacturing (CIM)). Other laboratories at the disposal of the Engineering Faculty are: Mechatronics Laboratory, Alternative Energy Laboratory, Computer Laboratory, Information Technologies Research and Development Laboratory, Research and Software Development Laboratory, Electrical Machinery Laboratory<br><br>The financial basis of the programmes is described in detail in SER. According to this, the university has invested in the development of its physical facilities consistent with its Strategic Development Plan. In particular, the Engineering Faculty has made investments in establishing new laboratories and improving the current ones in the last two years.<br><br>According to SER, educational partnerships have been developed in India, Kazakhstan, Pakistan, Sri Lanka, Kyrgyzstan, Turkey, the USA, the UK, the Czech Republic and Hong Kong. Reportedly, these partnerships include student and faculty exchanges and the opportunity for students to experience different cultures and learning experiences. |

### B-6 Quality Management: further development of degree programmes

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| **Quality assurance and further development** | As stated in SER, the University has established a Quality Improvement Commission in year 2006. Each faculty is represented in this commission. According to the report, the Quality Improvement Commission meets at least once a year to discuss and take decisions on a) development of quality policies in accordance with strategic plans and objectives, b) coordination, follow-up and harmonization of quality improvements within the context of the Bologna process, c) discussion of changes to be made in the organization of units to realize quality policies, d) evaluation of suggestions for the development of the process, determination of priorities and evaluation of applications, e) evaluation of process reports, f) development of values, ethics and social responsibilities that support institutional culture, g) encouraging and supporting educational activities and taking appropriate actions in line with their outcomes, h) encouraging total quality management processes and rewarding successful units and teams, i) taking appropriate measures to ensure that total quality management applications are carried out with the leadership of the heads of each unit, to ensure participation, and ensure the allocation of sources necessary for educational and improvement processes.<br><br>In cooperation with GAU authorities and administration the Faculty of Engineering in an effort to institutionalize quality assurance in teaching and research at faculty level has established several committees, amongst them the Quality Assurance and Accreditation Committee. The faculty considered it to be an integral part of its quality assurance concept to keep close contacts to its stakeholders, such as Chambers of Engineering and others. Also, the faculty has strong ties to the professional organizations which in turn some are given some influence on the development of the curricula.<br><br>For the last 5 years, surveys among students to evaluate the performance of education and academic staff have been conducted at the end of each semester. These surveys have been coordinated by the Quality Improvement Commission and carried through anonymously; they are planned to be organized in online format. The results have been evaluated and shared with the stakeholders.<br><br>One of the most important survey instruments – according to SER – is “The Student Course and Instructor Evaluation” which reportedly is a practice of long standing. After the analysis of results for all instructors and courses, instructors should be advised if deemed necessary. Each instructor is given an insight in the evaluation results of his courses. |
| **Instruments, methods & data** | Quality Assurance for the programmes under consideration rests mainly upon several surveys which are conducted on a regular basis:<br>• Student Satisfaction Survey (first applied 2010)<br>• Student Course and Instructor Evaluation<br>• Summer Training Survey<br>• Alumni Survey (newly constructed by the Engineering Faculty and |

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| | applied in the 2011 Fall semester via social media or by e-mails or face-to-face interviews.<br>• Faculty Satisfaction Survey (according to SER, also a new survey and applied first time in the 2012 Spring semester for all full-time academic staff)<br>• *planned*: Graduate Exit Survey (starting from 2012 Fall semester)<br>• *planned*: Employer Survey (starting from 2012 Fall semester)<br>The HEI gathered and documented data of the Student Course and Instructor Evaluation Survey performed in Spring 2011, data of the Spring 2011-2012 Faculty Satisfaction Survey, Student-Course and Student-Section Ratios as well as Student-Staff Ratio from study year 2009/10 (Spring) through 2011/12 (Spring), Student Statistics from study year 2004 through study year 2011, Average Duration of Study according to Nationalities resp. Degree Programmes from 2004 through 2012. |

### B-7 Documentation and transparency

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| **Relevant regulations** | The regulations below have been provided for assessment:<br>• Higher Education Law in North Cyprus, Higher Education Law No 2547 in Turkey (*both put into force*)<br>• GAU-Teaching and Examination By-Law for Associate and Bachelor's Degrees (*put into force*)<br>• GAU-Regulations for Examinations and Assessment (*put into force*)<br>• GAU-Regulations for Summer Semester Courses (*put into force*)<br>• GAU-Regulations for Students Discipline (*put into force*)<br>• GAU-Regulations for English Foundation School Programs, Education and Examinations (*put into force*)<br>• GAU-Regulations for the Minor Program (*put into force*)<br>• GAU-Disciplinary Regulations for Administrators, Academic and Non-Academic Staff (*put into force*)<br>• GAU-Academic Staff Promotion and Appointment Code (*put into force*)<br>• Rules and Regulations for Graduation Projects (*put into force*)<br>• Rules and Regulations for Summer Training (*put into force*)<br>• Quality Assurance Regulations (*put into force*) |
| **Diploma Supplement and qualification certificate** | Samples of the Diploma Supplement in English language are annexed to the self-assessment report. They provide information on study objectives and learning outcomes, as well as the nature, level, content and status of the studies, the and, eventually, about the composition of the final grade. In addition to the national grade, an ECTS grading table according to the ECTS User's Guide is *not yet* foreseen. |

# C Assessment of the peers – ASIIN Seal and EUR-ACE-Label

The following assessment is based on the General Criteria for the Accreditation of Degree Programmes and the Subject-Specific Criteria of Technical Committees 02 – Electrical Engineering/Information Technology and 04 – Informatics/Computer Science valid at the time of conclusion of the contract.

**Re 1: Formal Specifications**

The auditors considered the name of the degree programmes as overall adequate to reflect the objectives and content of the programmes. They also saw the awarded degree ("Bachelor of Science") as adequate, thereby taking into account traditions.

Furthermore, the peers took note of the tuition fees as well as of the different types of scholarships available to a relatively large number of national and international students. Furthermore, they noted that the budget of the programmes mostly stems from tuition fees.

They positively took notice of relatively high percentages of international and female students.

**Re 2: Degree Programme: content concept & implementation**

2.1 Objectives of the degree programmes

In general, the level of objectives of the study programmes seemed to comply with the level of European first cycle programmes. Still, the wording of these objectives might be drafted in a more direct correspondence to the EQF, so that the level of qualifications being aimed at in the respective Bachelor's programme appears more clearly stated. Nevertheless, the auditors deemed it sufficient to just indicate this without any further suggestion to that point.

2.2 Learning outcomes of the degree programmes

Overall, the learning outcomes are well described and fit to the level of European first cycle programmes. Nevertheless, in this regard auditors saw a potential for further improvement in all programmes under consideration (as to the Bachelor's programme Computer Engineering see below).

The "ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct" is one of the explicitly stated outcomes for all programmes. Therefore, the auditors questioned whether the curricula of the programmes convincingly convey the notion that team competences could be acquired by students. With respect to this question, programme coordinators mainly referred to the graduate projects and other project work. However, auditors were told that these projects are often conducted by only one or two students, and quite rarely in groups of students comprising more persons. Therefore, they judged this not to be sufficient with regard to achieving the team related learning outcomes. From the perspective of the auditors, the team competences of students must be improved and adequately assessed.

Also, concerning the subject specific learning outcomes the qualifications profiles of the three study programmes seemed to be adequately distinguished. While this judgement appeared to be reasonable on the whole, the auditors learned from SER and the discussions with university

representatives that students of each programme are expected to acquire a more individual qualifications profile through following the different tracks that are eligible in each Bachelor's programme. After all, not only do the electives affect the individual qualifications profile but they also have to be regarded as reference for the subject specific learning outcomes. Therefore, auditors require the Higher Education Institution (HEI) to provide a catalogue of electives (free and technical electives) for all Bachelor programmes under consideration. On the same grounds, they considered it helpful to get an overview of the different specialization tracks of the Bachelor's programme Electrical and Electronics Engineering. Consequently, they request the HEI to provide guidelines clarifying the course scheme for the different specialization tracks.

Concerning the Bachelor's Programme Computer Engineering, the peers doubted whether they correctly grasped the HEI's understanding of "Engineering". In their view, the disciplinary content of the programme only vaguely matches the respective recommendations of the relevant international professional organisations/associations, as for example the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE). Moreover, the defining competences for the "engineering" qualifications appear to be assembled almost exclusively in the electives area of the curriculum. While this wasn't questioned seriously for the other study programmes, the auditors concluded that study plans exemplifying the different specialisation tracks (see the preceding chapter) wouldn't be satisfactory in case of the Bachelor's programme Computing Engineering. In that study programme, the marked specialisation tracks for the graduate projects indicate qualification profiles, which are so heterogeneous that their description in the subject specific learning outcomes remained at the surface. Additionally, the curriculum, though generally comprised of a broad array of courses in the subject areas of informatics, computer science and information technology, in view of the peers doesn't conclusively arrange the modules in a manner that shows the different tracks as clearly identifiable specialisations. From the peers' perspective, this corresponds to an allocation of compulsive and elective modules which they didn't find entirely conclusive (for further discussions see below C-2.6). In summary, auditors consider an adjustment necessary, such that the intended learning outcomes for the said programme (and the structure of its related curriculum) are clearly recognizable.

*Assessment for the award of the EUR-ACE® Label:*

The peers concluded that the *intended* learning outcomes of the degree programmes Electrical and Electronics Engineering and Industrial Engineering are in accordance with the engineering specific part of Subject-Specific Criteria (SSC) of the Technical Committees 02 – Electrical Engineering/Information Technology resp. 06 – Industrial Engineering. Otherwise, they found that there are some shortcomings which, as a result, may affect the accomplishment of programme outcomes, most obviously in the area "Transferable skills", at least implicitly in the areas "Engineering analysis" and "Engineering design" as well (see for further discussion above C-2.2, and below C-3.3, C-4). Therefore, peers will make their decision on awarding the EUR-ACE label in their final statement thereby taking into account the HEIs comment on the report. Since the Bachelor's programme Computer Engineering substantially relates to the field of Informatics/Computer Science, rather than to other engineering disciplines, peers suggest applying for the Euro Inf quality label rather than for the EUR-ACE label. The former is

applicable to study programmes in the field of informatics/computer science. The auditors recommend applying for this quality label along with the HEIs comment on the report, so that they may decide on the case during the process of giving their final statement.

2.3 Learning outcomes of the modules/module objectives

The auditors very much appreciated informative module descriptions. In particular, they assessed that the learning outcomes have been described sufficiently and transparently yielding a sound basis for the assessment of the students' and graduates' knowledge, skills and competences. The stated objectives and learning outcomes provided the peers with a reference for the evaluation of the programmes' curricula and resources.The peers encourage programme coordinators and teaching staff alike to further develop and optimize the module descriptions.

In addition, the peers saw that the descriptions and other relevant study information are available electronically to students, teachers and other interested parties. With regard to module descriptions now misleadingly available under the subpage *Curriculum*, they suggest a clear-cut navigation by establishing an appropriate link to the respective subpage *Courses Catalogue Description* of each programme.

2.4 Job market perspectives and practical relevance

The peers generally acknowledged that job perspectives in the fields of the said degree programmes are good, which may be due to the apparently close links of the Engineering Faculty to companies and professional NGOs in North Cyprus and Turkey. In particular, they strongly support the industrial placement as a mandatory element of the curriculum because of its vital importance for acquiring fundamental competences needed in professional work environments. Nevertheless, they deemed the duration of the so-called summer practise of only six weeks hardly sufficient to achieve the main aim of an industrial placement, that is, not only to monitor company processes but also to actively and responsibly take part in working tasks and processes. With view to that, the peers recommend extending the duration of the internship in order to improve students' ability to individually and responsibly conduct profession- and subject-related tasks in a company and also to support opportunities for practical placements abroad.

Moreover, the audit team found that the current integration of practical elements into the curriculum is suitable to prepare students for handling tasks and problems in their future work positions.

2.5 Admissions and entry requirements

The auditors discussed with the representatives of the higher education institution (HEI) as to what extent the admission requirements have an impact on the quality of the degree programme. They received the impression that the applicable regulations are transparent and accessible to all stakeholders involved.

However, they principally questioned the Health Report Turkish students are required to submit. The justification for this requirement given in the talks with University representatives did not convince the auditors. First of all, the requirement would mark a negative discrimination of Turkish applicants. Furthermore, the peers consider the health status of students hardly falling within the responsibility of the HEIs but rather within that of immigration agencies. From their

point of view universities are not the primary enforcement agencies of such rules nor should they be so. Since the auditors saw no binding regulation of the HEI to that respect, they assumed this requirement to be part of an area of discretion which the HEI can and (from their point of view) should use in favour of the students principally. They suggest the HEI addressing this assessment in its statement.

Existing regulations concerning the recognition of activities completed externally are roughly in accordance with ASIIN requirements and chapter III of the Lisbon Convention. Nevertheless, it is suggested to incorporate more clearly the idea of competence orientation in the framework of regulations for recognition of equivalence and/or comparability of externally acquired competences in comparison to internally acquired competences.

2.6 Curriculum/content

Overall, the auditors considered the presented Bachelor's degree programmes as well-founded study concepts that in particular integrate a good education of fundamentals in mathematics and natural sciences.

Students are free to choose in their last study year technical and other free electives in order to specialize in a certain field (see above C-2.2). To make this more transparent, peers request to provide students with a catalogue of electives. Also with regard to the study programme Electrical and Electronics Engineering, they require the Engineering Faculty to provide guidelines demonstrating the different specialization tracks. Without these, consistent and meaningful qualification profiles covered by the formulated learning outcomes would be difficult to see.

As the peers have also concluded previously (see below C-2.2), in case of the Bachelor's programme Computer Engineering they urge programme coordinators to partition the curriculum into different specialization tracks consistently. By doing so, the structure of the curriculum is to be adjusted in such manner that different specializations are worked out identifiably. Consequently, the subject specific learning outcomes for the programme should be modified accordingly. In this context, auditors noted that some basic and essential subjects of informatics are not part of the mandatory curriculum; they only belong to the area of electives or are covered only incidentally in some modules but not in adequate depth. Thus, it is not assured that all CE students gain a thorough understanding of central notions and conceptions of informatics like "algorithm" and "computer" in an abstract form which is not dependent on actual technical realisation (cf. ASIIN SSC-04, c. 2 "Specialist Competences"). As an example, topics covered in elective courses like "Automata Theory and Formal Languages", "Computer Architecture", and "Computer Networks" should be included into the compulsory curriculum. Furthermore, some topics are missing in the current curriculum at all, though being essential for every professional working in the field of computing. In that respect, it should be assured, for instance, that all graduates of the CE programme have an understanding of the problems and risks involved in the information technology, of professional ethics in the field, and that they will be aware of and understand international and global developments in information technology and their possible effects on business and society (cf. ASIIN SSC-04, c. 2).

On the other hand, some of the (mandatory) common courses (like General Chemistry or Turkish) are not seen as indispensable to achieve the intended learning outcomes. Since the latter applied to all three Bachelor's programmes, the peer group strongly recommends expanding the core curriculum by reducing the number of common courses. By doing so, subject related learning outcomes may be achieved more sustainably.

In the same vein, peers suggest to programme coordinators of the Bachelor's programme Industrial Engineering to include relevant issues like Human Resources, Marketing and Sales as well as Intercultural Relations to the core curriculum, rather than to have them as elective subjects only. Peers request a list of electives (technical and free) as additional information to make this more transparent. Additionally, they recommend to conveniently enlarge core competences of students in the subject areas Human Resources, Marketing and Sales as well as Intercultural Relations respectively, and to indicate these competences in the module descriptions, where applicable.

**Re 3: Degree programme: structures, methods and implementation**

3.1 Structure and modularity

The audit team found that the ASIIN-criteria for modularization are met. Usually, each module consists of different didactic elements such as theoretical lectures and practical elements in subject related laboratories of the Engineering Faculty. Overall, the auditors considered the modules constituting coherent and consistent components of teaching and learning. Basically, they judged the planned internship (six weeks of "summer training") as a suitable instrument to acquire relevant profession related knowledge and competences within the regular study duration. However, as has been argued earlier in this report, from their point of view an extension of that practical placement may result in achieving this objective more effectively. That is why they assessed such a prolongation as desirable (see above C-2.4).

3.2 Workload and credit points

The audit team found that the ASIIN-criteria for the award of credits following the European Credit Transfer System (ECTS) are met. They particularly valued the detailed workload planning which has been undertaken to allocate ECTS credits to the lectures, practical sessions and self-study periods of the modules. Since the introduction of the ECTS system is comparably new and the planning could not yet be checked against the students' actual workload, the peers recommend including mechanisms in the quality management system in order to verify whether the estimated workload matches the actual workload of the students. In case of differences, ECTS credits must be adjusted.

While talking with students, peers received the impression that the latter didn't have a precise understanding of the ECTS. Since students were used to the Girne credit point system with working hours of the teaching staff as its basis, the peers suggest intensifying the information on the ECTS, in particular with regard to its accentuation of the students' workload. This seemed important, since a realistic calculation of students' workload in the meaning of ECTS is a prerequisite for an adequate allocation of credit points.

3.3 Educational methods

The auditors received the impression that the teaching methods used for implementing the didactical concept are appropriate to support the attainment of the learning objectives.

In general, a fair ratio of contact hours to self study seemed to be implemented in the study programmes ensuring the achievement of the defined objectives. On the other hand, the auditors deemed the time available for carrying out independent scientific work not sufficient, which is mostly attributed to the graduate projects in the last study year, (for further discussion see below C-4).

As has been mentioned earlier in this report, the auditors weren't really convinced that students could acquire team competences sufficiently well, since not all of them must carry out an effectively team oriented work or project. They took notice of the argument of the Industrial Engineering teaching staff that the programmes' project works are essentially designed as team oriented, usually comprising the coordinated work of 3 to 4 persons. Unfortunately, no evidence has been given for that in SER or by the materials presented to the auditors during the onsite visit. In fact, seminar/literature papers which are named *inter alia* in the module descriptions do not require the students to prove any team competences. Because of its overarching relevance for any professional activities, the auditors deemed it indispensible that team competences of students are improved and adequately assessed.

3.4 Support and advice

The peers saw sufficient resources to guarantee support and counselling for students. They particularly emphasized the good student-teacher relations and the open-door policy which allows ad hoc and informal solutions to problems the students encounter.

**Re 4 Examinations: system, concept and organisation**

The auditors received the impression that the chosen exam types are partially oriented at the learning objectives. While some of the written exams seemed to focus merely on the retrieval of factual and conceptual knowledge, the peers learned that practical, more independent exams are carried out in the laboratories. Nevertheless, apart from presentations, no oral exams are conducted. As to that, peers stressed that graduates in their daily professional work will be confronted with subject related problems requiring communication skills to deal with, especially under time pressure. Thus, with regard to all degree programmes under consideration, the peers required that students' competence in orally discussing a problem within their specialist area must be strengthened. Furthermore, the need to demonstrate possible solutions in the context of the subject makes an effective assessment possible. Generally, auditors deemed it desirable to revise examination methods so that the latter consistently reflect the intended learning outcomes of the individual modules.

From the selection of graduation projects provided by the HEI, the auditors received the impression that these are not complex enough to successfully prove that graduates have achieved the objective of coherently and systematically grasping problems in their disciplinary fields at a Bachelor level. This applies particularly for the "ability to design and integrate systems, components or processes to meet desired needs within realistic constraints". From the perspective of the peers, this could best be assessed in a capstone project (or another final

thesis), wherein the student proves that he is capable to carry out an assigned task independently and at a Bachelor's level of qualification. Because they deemed this as a necessary precondition of graduation, they urged the HEI to integrate such a work into the curriculum of the Bachelor's programmes to be accredited.

The auditors found the rules for examinations and advancement rather complicated. However, they noted that students and teachers had a very good grasp of the regulations. In the discussions with students they learned that the organisation of examinations supported the achievement of the study objectives in general. However, the organization might be optimized with respect to information on examination dates and preparation time for exams. Accordingly, peers recommend adjusting the organization of examinations with respect to students' timely information on examination dates and sufficient preparation time, in order to avoid any effects which may cause extensions of the normal period of study.

## Re 5 Resources

5.1 Staff involved

The auditors considered the composition and qualification of the staff to be adequate in order to facilitate the achievement of the objectives of the degree programmes.

The auditors noted that research activities are only carried out on a small scale by the teaching staff. They were informed, though, that some projects in cooperation with industry and research activities were carried out by some staff members.

Particularly, the peers noted that industry or research institutions' experience is a valuable qualification in application oriented programmes and might also be considered when hiring staff members. In accordance with that, they recommend engaging external experience in the recruitment procedure for staff members.

5.2 Staff development

The auditors took note that various instruments to develop and train their didactic and professional skills are available to the staff members already, and that they make use of them. The peers discussed with the university representatives means of further developing the academic and professional qualifications of staff members and recommend increasing the incentives for doing so. This seems advisable in particular with regard to already existing or planned Master's programmes and to ensure that the programmes will remain consonant with market developments and future developments in the fields of computing, electrical engineering and industrial engineering as well.

5.3 Institutional environment, financial and physical resources

During the on-site visit, the peers visited a variety of labs and the library. Overall, the auditors found that the resources are sufficient in order to facilitate the achievement of the objectives of the degree programmes.

## Re 6 Quality Management: further development of degree programmes

6.1 Quality assurance and further development

On principle, the means of quality assurance introduced, established and put into practice through the HEI and the Engineering Faculty were convincing. Peers took note of the decision

of the HEI that responsibility for operating quality management and quality assurance is implemented on the faculty level, mostly. Against this background, the peers acknowledged the efforts of the Engineering faculty to institutionalize its own quality management of teaching and learning.

While the quality assurance system seemed to be generally conclusive, the auditors received the impression that some quality processes are not yet responsive with regard to building a reliable benchmark for substantially checking whether the intended objectives are achievable and reasonable, or for identifying any failure in achieving those objectives. To this end, they found that some feedback loops still need to be closed. In particular, the discussion with students brought to light that the results of course evaluations, which were conducted on a regular basis, weren't effectively communicated to students and discussed with the lecturers. Students therefore felt unable to assess whether there were any improvements derived from the evaluation results. Because of their good direct relations to the teachers and the possibility of solving problems that way, students seemed not really worried about this malfunction. In addition, the late date of course evaluations at the end of the semester obviously constrained an effective closing of the feedback loop. Similarly, peers saw hardly anything to demonstrate how the results of the different surveys really contribute to measures taken in purposeful controlling and improving the study programmes.

Altogether, the auditors advise the HEI to further implement and develop the quality management system and to use its results for continual improvements of the degree programmes. In particular, students should participate in the evaluation process and the use of its results on a regular basis.

6.2 Instruments, methods & data

The peers took notice of the set of tools for quality assurance that were already in use or that are planned to be implemented. Specifically with regard to an adequate and reasonable allocation of credit points and also with view to the conformity of the programmes' objectives and content to the demands of economy and society, they recommend that further development of the quality management system should systematically focus on student workload and graduates' employment success in order to check whether the study objectives and quality expectations of the HEI are achieved.

**Re 7 Documentation and transparency**

7.1 Relevant regulations

The peers took note of the regulations made available. They found that the regulations include all the information necessary about the admission, course and completion of the degree.

7.2 Diploma Supplement and qualification certificate

The auditors took note of the respective Diploma Supplement for each study programme. They received the impression that it provides sufficient information as to the study objectives and the learning outcomes, the nature, the level, the content and the status of the studies, the success of graduates as well as about the composition of the final grade.

Yet, the peers missed statistical data in addition to the final mark according to the ECTS User's Guide so as to assist in interpreting the individual degree, or any regulation concerning the comparability of the individual degree in the European Higher Education Area (EHEA). They recommend adjusting the Diploma Supplement accordingly.

# D Additional Information

Before preparing their final recommendation, the auditors ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

1. All degree programmes: Catalogue of electives (free and technical electives)
2. Ba Electrical and Electronics Engineering: Submission of guidelines which clarify the course scheme for the different specialization tracks.

# E Comment of the HEI (02.11.2012)

**Re 2: Degree Programme: content concept & implementation**

**2.1 Objectives of the programmes**

The HEI has taken into consideration the recommendation of the peers for drafting the wording of objectives of the study programmes in a more direct correspondence to the EQF.

**2.2 Learning outcomes of the degree programmes**

The peers' comments about achieving the team related learning outcomes for all programmes have been taken into consideration. The HEI will work on improving and adequately assessing the team competences of students hence to achieve the team related learning outcomes. The curriculum committee will work on improvement of the curricula of the programs to further convey the notion that team competences are acquired by the students. Currently, team competences are referred to the graduation projects which are required improvements. But, alternative ways to improve these competences will also be considered.

The HEI has taken into consideration the peers comments about providing the catalogue of electives and guidelines clarifying the course scheme for different specialization tracks. The required documents are provided as additional information and they are attached to this report.

The HEI is aware of the comments of the peers about adjusting the intended learning outcomes and the structure of the curriculum of the Bachelor programme in Computer Engineering. The HEI will take into consideration the recommendations of ACM and IEEE while improving the current curriculum of Bachelor programme in Computer Engineering. Moreover, the curriculum committee will work on improving the curricula of the Bachelor programmes in Electrical and Electronics Engineering and Industrial Engineering most obviously in the area "Transferable skills" and at least implicitly in the areas "Engineering analysis" and "Engineering design". The curriculum committee will submit the improved curricula's to the Rector's Senate for a final approval.

***Assessment for the award of the EUR-ACE Label:***

At the beginning of the accreditation procedure, the HEI couldn't find a technical committee which was directly related to Computer Engineering, therefore the field "04- Computer Science

and Informatics" was selected. Later, an email from the Secretary General of ASIIN was received informing the HEI that degree programmes in Computer Science/Informatics cannot be awarded the EUR-ACE label but rather the EURO-INF Quality label. The proposal of ASIIN is not suitable for the HEI since the Computer Engineering Programme has been established 20 years ago as a "Computer Engineering" Department and many of its graduates have been working as Computer Engineers in many fields of Computer Engineering in different countries (Please see Annex 3 of the SER).Therefore the Secretary General was informed that the HEI was not interested in applying for the EURO-INF Quality label and asked for a suggestion on how to apply for the EUR-ACE label. Then, we were informed that our initial request for being awarded with the EUR-ACE label (for all degree programmes) was included in the offer and the Computer Engineering programme will be assessed by the representatives of the technical committees for Electrical Engineering/Information Technology and Computer Science/Informatics.

The audit team is proposing the HEI to apply for the EURO-INF Quality label instead of EUR-ACE label for Computer Engineering programme as a result of analysis of the curriculum and programme outcomes. As it is stated in their report, concerning the Bachelor's Programme Computer Engineering, the peers doubted whether they correctly grasped the HEI's understanding of "Engineering". It is also pointed out that a number of subjects/modules that should be mandatory for a typical Computer Engineering programme are in the elective area of the curriculum. In order to solve this problem, during the meeting with the programme coordinators, the peers suggested to embed some of these courses in mandatory part of the curriculum by decreasing the common engineering courses. This idea is shared with the faculty members and the curriculum committee has already started to work on this issue. The committee started to recheck the recommendations of ACM and IEEE on the computing curricula and Subject-Specific Criteria (SSC) of the Technical Committee for Electrical Engineering and Information Technology. From the HEI's perspective, there are remarkable numbers of digital design, hardware and computer networks courses in the study programme of computer engineering to distinguish this program from the other computer science/informatics programs. Therefore, as the Computer Engineering Department, we are not willing to accept the suggestion of the peers for the application to EURO-INF label and we still want to continue on our application for the EUR-ACE label.

**2.3 Learning outcomes of the modules/module objectives**

The HEI has made the required changes about establishing an appropriate link to the respective subpage *Courses Catalogue Description* of each programme in the web site.

**2.4 Job market perspectives and practical relevance**

The peer's recommendation about extending the duration of the internship in order to improve students' ability to individually and responsibly conduct profession- and subject-related tasks in a company and also to support opportunities for practical placements abroad has been taken into consideration.

**2.5 Admissions and entry requirements**

A correction needs to be made that the Health Report is requested from all prospective students regardless of their nationality due to the fact that all students have to go through the immigration procedure of the Turkish Republic of Northern Cyprus (TRNC).

However, the HEI has taken into consideration the peers comments about the requirement of the Health Report from the prospective students and it has been decided that the prospective students will be informed about the immigration procedure they will have to go through once

they arrive at the TRNC and they will *no longer* be asked to provide Health Reports during their admission procedure to the HEI.

**2.6 Curriculum/content**

The curriculum committee will make the necessary changes in the curriculum of Bachelor programme in Computer Engineering to make some of the basic and essential subjects part of the mandatory curriculum. Topics such as “Automata Theory and Formal Languages”, “Computer Architecture”, and “Computer Networks” and similar topics will be considered to be included for the compulsory curriculum to make sure the students gain a thorough understanding of central notions and conceptions of informatics.

The peers’ comments about the mandatory courses like General Chemistry or Turkish has been taken into consideration. The HEI has already started working on the recommendation of the peers in reducing the number of common courses.

The peers’ suggestion to include relevant issues like Human Resources, Marketing and Sales, Intercultural Relations to the core curriculum of Bachelor programme in Industrial Engineering has also been taken into consideration.

**Re 3: Degree Programme: structure, methods and implementation**

**3.2 Workload and credit point**

The peers’ recommendation about including mechanisms in the quality management system to verify whether the estimated workload matches the actual workload of the students will be met by the HEI by conducting a specially designed survey to gather data on students actual workload.

As regards to increasing the students understanding of the ECTS, information about ECTS will be made available in the Student Handbooks and in the website.

**3.3 Educational Methods**

The HEI has taken note of the comments of the peers about the insufficient team competences of the students. The HEI will make sure to improve the team oriented work or projects of the students to the desired level. Evidence of projects works will be provided in the next SER.

**Re 4: Examinations: system, concept and organisation**

The HEI is aware of the importance of the requirement of oral examination in all degree programmes. The module coordinators will evaluate the course assessment policies to include the oral examination in some courses which will help the students to strengthen their competence to orally discuss a problem within their specialist area.

The HEI agrees to consider your recommendation about integrating a capstone project into the curriculum of the Bachelor programmes in the accreditation process and the curriculum committee has already started to revise the curriculum in this respect.

The HEI already gives emphasis to organising the examinations with respect to students’ timely information on examination dates and sufficient preparation time. But more emphasis will be given to avoid any effects which may cause extensions of the normal period of study.

**Re 5: Resources**

**5.1 Staff involved**

The HEI has taken note of the recommendation of the peers about engaging external experience in the recruitment procedure for staff members. However, this decision cannot be taken by the Engineering Faculty therefore the University Executive Board will be informed about this recommendation, for consideration.

**Re 6: Quality Management: further development of degree programmes**

**6.1 Quality assurance and further development**

The Quality Improvement Commission of the HEI is already working on mechanisms to close the feedback loops. The HEI will continue to further implement and develop the quality management systems.

**6.2 Instruments, methods & data**

The HEI has also taken note of the peers' comments about focusing on student workload and graduates employment success to check whether the study objectives are achieved or not. The HEI already uses the surveys as the main source in developing and updating curriculums and in the Quality Assurance of the Institution.

**Re 7: Documentation and transparency**

**7.2 Diploma supplement and qualification certificate**

The HEI has taken the peers recommendation into consideration in respect to adjusting the Diploma Supplement so that it provides the statistical data as to assist in interpreting the individual degree or any regulation concerning the comparability of the individual degree in the EHEA. The Quality Assurance and Accreditation Committee will refer to the ECTS User's Guide while preparing the required additional information for the Diploma Supplement.

# F Final Assessment of the peers (date)

### Assessment

The **additional information** provided by the HEI is judged as follows:

- The peers take positive notice of the list of free and technical electives eligible in each study programme under consideration. They strongly suggest integrating a reasonable sample of full module descriptions for each branch of electives into the module handbook of the respective programme.
- The peers recognize the additional information about the course scheme for the two specialisation tracks in the Electrical and Electronics Engineering Programme which they deem sufficient, provided that students are informed accordingly by their advisors and that a guide for selection of the technical elective courses will be prepared and published via the web page for students and other stakeholders. In order to assist this proposition of the HEI and to focus the underlying concern, the peers add a corresponding recommendation (see below recommendation 9).

The peers welcome the **comments** given by the HEI:

- They acknowledge the HEI's mostly positive account of the critical comments, recommendations and suggestions in their report. Furthermore, they appreciate the multifold measures the HEI has taken already in response to their evaluations. Nevertheless, since these provisions, measures or actions haven't got binding force as yet, the peers generally do not propose altering their former conclusions (which doesn't exclude particular modifications, see the above comment on the additional information provided by the HEI).
- Specifically, the peers take note of the HEI's announcement that students "will *no longer* be asked to provide Health Reports during their admission procedure to the HEI". With respect to their impression that there aren't any binding rules requesting the health report from students by now, the peers deem this declaration sufficient to yield the health status of students to the appropriate (immigration) institutions.
- As to the application for the EUR-ACE® Label for *all* study programmes under consideration the peers confirm their tentative conclusion in the report that the more serious deficiencies in regard to the capstone project, to the students' competence in orally discussing problems within their specialist area, and to the formation of team competences do not allow for the awarding of the label at this stage. Concerning the Bachelor's programmes Computer Engineering and Industrial Engineering, peers altogether doubt whether these programmes adequately convey the specific engineering-related learning outcomes in the areas of engineering analysis, engineering design and engineering practice. Peers concede that students get fundamental knowledge in mathematics and in natural sciences during their first and second study years. But any consolidation of engineering specific skills and competences which normally would follow in the course of the study depends on the proper choice of technical electives (or specialisation tracks) here. Nevertheless, this wouldn't provide *all* graduates with the respective engineering skills and competences and, therefore, put into question the awarding of the EUR-ACE® Label to the programmes. In sum, the peers suggest postponing the final assessment on awarding the label up to the fulfilment of requirements (see especially below requirements 1 -3) while at the same time highlighting their rather critical assessment regarding the Computer and Industrial Engineering programmes.
- Concerning the study programme Computer Engineering in particular, peers take notice of the HEI's argument for considering the programme as essentially being an engineering programme which meets the related learning outcomes in the areas of engineering analysis, engineering design and engineering practice respectively. They still assume the Euro Inf Label more suiting with regard to the content and learning outcomes of the programme. Nevertheless, they are willing to reconsider their initial assessment that this programme belongs to the Computer Science/Informatics area. Referring to their already stated general objections and as the HEI proposes to carry through some major modifications in the curriculum of the Computer Engineering programme which, in turn, will affect its character as an engineering programme, the peers deem it reasonable to subject the final decision on the awarding of the EUR-ACE® Label for this programme to the course of fulfilling the requirements (see below requirements 1 - 3, and additionally requirement 4).

The peers recommend the award of the requested seals as described hereafter:

| Degree Programme | ASIIN-seal | Subject-Specific label[1] | Accreditation valid until (max.) |
|---|---|---|---|
| Ba Computer Engineering | with requirements | EUR-ACE®<br>- decision after fulfilment of requirements - | 30.09.2018 |
| Ba Electrical & Electronics Engineering | with requirements | EUR-ACE®<br>- upon fulfilment of requirements - | 30.09.2018 |
| Ba Industrial Engineering | with requirements | EUR-ACE®<br>- decision after fulfilment of requirements - | 30.09.2018 |

**Requirements and recommendations for the requested seals and labels**

| **Requirements** | **ASIIN** |
|---|---|
| **For all Bachelor's degree programmes** | |
| 1. The programme must encompass a capstone project (or other equivalent to a final thesis), wherein the student proves that he is capable to carry out an assigned task independently and at the Bachelor level of qualification. | 4 |
| 2. Students' competence must be strengthened in orally discussing a problem within their specialist area. Along with that, students need to be able to demonstrate potential solutions within the context of the subject. These abilities must be assessed on an objective basis. | 4 |
| 3. The team competences of students must be improved and adequately assessed. | 3.3, 2.2 |
| **For the <u>Bachelor's degree programme Computer Engineering</u>** | |
| 4. The subject specific learning outcomes for the programme and the structure of the curriculum are to be tailored and coordinated according to identifiable specializations (in line with the tracks of the graduation projects). | 2.2, 2.6 |

[1] Requirements / recommendations and deadlines for subject-specific label correspond to those for the ASIIN-seal.

| | |
|---|---|
| **Recommendations** | |
| **For all degree programmes** | |
| 1. It is strongly recommended to expand the core curriculum by reducing the number of common courses. By doing so, subject related learning outcomes may be achieved more sustainably. | 2.6 |
| 2. It is recommended to extend the duration of the internship in order to improve students' ability to perform subject and profession related tasks in a company individually and responsibly. This will also enhance students' opportunities for practical placements abroad. | 2.3, 3.1 |
| 3. It is recommended to ensure students' early information on examination dates so as to provide for sufficient preparation time. Thus, effects causing extensions of the normal period of study may be avoided. | 4 |
| 4. It is recommended revising examination methods such that they consistently reflect the intended learning outcomes of the individual modules. | 4 |
| 5. It is recommended to improve conditions and opportunities of lecturers for further development of subject-relevant knowledge and teaching skills. | 5.2 |
| 6. It is recommended to engage external experience in the recruitment procedure for staff members.<br>7. It is recommended that, in addition to the final mark, statistical data should be provided in the Diploma Supplement according to the ECTS User Guide so as to assist in interpreting the individual degree. | 5.1 |
| 8. It is recommended to further implement and develop the quality management system which has been described, and to use its results for continual improvements of the degree programmes.<br>a. In particular, students should participate in the evaluation process and the use of its results on a regular basis.<br>b. Student workload and graduates' employment success should be assessed systematically in order to check whether the workload expectations and study objectives of the HEI are met. | 6.1<br>6.2 |
| **For <u>the Bachelor's degree programme Electrical & Electronics Engineering</u>** | |
| 9. It is recommended to ensure that the study guide for the different specialization tracks is available for students. | 2.2, 2.6 |

# G Comments of the Technical Committees

## G-1 Technical Committee 02 – Electrical Engineering and Information Technology (19.11.2012)

**Assessment:**
The Technical Committee discusses the report of the peers and fully approves the proposed requirements and recommendations. As to the application for the EUR-ACE label, the Technical Committee backs the critical assessment of the peers which it considered reasonable, particularly with regard to the required engineering specific learning outcomes. At least indirectly, these are considered to be seriously affected by requirements 1 -3, so that it seems expedient to postpone a final decision on awarding the label until the proper fulfilment of the requirements has been proven. As to the study programme Computer Engineering, the Technical Committee also deems applying for the Euro-Inf label as more suitable on a first glance, but nevertheless accepts to reassess the application for the EUR-ACE label in light of possible modifications in the programmes in the course of fulfilling the said requirements.

**Awarding of seals:**
The Technical Committee recommends the award of the requested seals as described hereafter:

| **Degree Programme** | **ASIIN-seal** | **Subject-Specific label** | **Accreditation valid until (max.)** |
|---|---|---|---|
| Ba Computer Engineering | with requirements | EUR-ACE®<br>- decision after fulfilment of requirements - | 30.09.2018 |
| Ba Electrical & Electronics Engineering | with requirements | EUR-ACE®<br>- upon fulfilment of requirements - | 30.09.2018 |
| Ba Industrial Engineering | with requirements | EUR-ACE®<br>- decision after fulfilment of requirements - | 30.09.2018 |

## G-2 Technical Committee 04 – Informatics/Computer Science (circular resolution in November 2012)

**Assessment:**
The Technical Committee discusses the report of the peers. It agrees to the requirements and recommendations as stated in section F with the exception of requirement 2. With regard to the wording of the requirement, it considers the first sentence altogether sufficiently clarifying the

problem that needs to be solved. From the Technical Committees' point of view the phrase "These abilities must be assessed on an objective basis." seems to be particular unclear and, moreover, the fulfillment of this part of the requirement will be difficult to prove anyway. Consequently the Technical Committee suggests deleting the second and third sentence of requirement 2.

**Awarding of seals:**

The Technical Committee recommends the award of the requested seals as described hereafter:

| **Degree Programme** | **ASIIN-seal** | **Subject-Specific label** | **Accreditation valid until (max.)** |
|---|---|---|---|
| Ba Computer Engineering | with requirements | EUR-ACE®<br><br>- decision after fulfilment of requirements - | 30.09.2018 |

Recommended modification of the requirements and recommendations as stated in section F:

| **Requirements** | **ASIIN** |
|---|---|
| 2. Students' competence must be strengthened in orally discussing a problem within their specialist area. | 4 |

### G-3 Technical Committee 06 – Industrial Engineering (23.11.2012)

**Assessment:**

The Technical Committee discusses the report of the peers and fully approves of the requirements and recommendations as stated in section F.

**Awarding of seals:**

The Technical Committee recommends the award of the requested seals as described hereafter:

| **Degree Programme** | **ASIIN-seal** | **Subject-Specific label** | **Accreditation valid until (max.)** |
|---|---|---|---|
| Ba Industrial Engineering | with requirements | EUR-ACE®<br><br>- decision after fulfilment of requirements - | 30.09.2018 |

# H Decision of the Accreditation Commission (07.12.2012)

**Assessment:**
The Accreditation Commission discusses the procedure. For the purpose of clarifying its meaning it shortens and reformulates requirement 2 (problem solving competence in an oral discussion of subject related issues). Furthermore, the Accreditation Commission intensely debates whether the EUR-ACE label may be awarded to the Bachelor degree programmes Computer Engineering and Industrial Engineering as applied for by the HEI. Taking into account the peers' and Technical Committees' argument, it considers the awarding inappropriate at present. Nevertheless, modifications in the resp. curricula in the course of fulfilment of requirements might prove it reasonable. Therefore, the Accreditation Commission concludes to reserve the final decision on this matter to the time when the fulfilment of the requirements has to be confirmed. Additionally, in regard to the study programme Computer Engineering it suggests considering an application for the EUR-ACE label in view of the more engineering related tracks of the programme and for the Euro-Inf label with respect to those tracks falling within the Computer Science area. As to the Electrical & Electronics Engineering study programme, the awarding of the EUR-ACE label solely depends on successful fulfilment of requirements 1 to 3. Otherwise, the Accreditation Commission agrees to the assessment of the peers and Technical Committees.

**Awarding of seals:**
The Accreditation Commission decides awarding the following labels:

| | | | |
|---|---|---|---|
| Ba Computer Engineering | with requirements | EUR-ACE®<br>- decision after fulfilment of requirements - | 30.09.2018 |
| Ba Electrical & Electronics Engineering | with requirements | EUR-ACE®<br>- upon fulfilment of requirements - | 30.09.2018 |
| Ba Industrial Engineering | with requirements | EUR-ACE®<br>- decision after fulfilment of requirements - | 30.09.2018 |

| **Requirements** | **ASIIN** |
|---|---|
| **For all Bachelor's degree programmes** | |
| 1. The programme must encompass a capstone project (or other equivalent to a | 4 |

| | |
|---|---|
| final thesis), wherein the student proves that he is capable to carry out an assigned task independently and at the Bachelor level of qualification. | |
| 2. Students' competence in orally discussing a problem within their specialist area must be strengthened and assessed. | 4 |
| 3. The team competences of students must be improved and adequately assessed. | 3.3, 2.2 |
| **For the <u>Bachelor's degree programme Computer Engineering</u>** | |
| 4. The subject specific learning outcomes for the programme and the structure of the curriculum are to be tailored and coordinated according to identifiable specializations (in line with the tracks of the graduation projects). | 2.2, 2.6 |
| **Recommendations**<br><br>**For all degree programmes** | |
| 1. It is strongly recommended to expand the core curriculum by reducing the number of common courses. By doing so, subject related learning outcomes may be achieved more sustainably. | 2.6 |
| 2. It is recommended to extend the duration of the internship in order to improve students' ability to perform subject and profession related tasks in a company individually and responsibly. This will also enhance students' opportunities for practical placements abroad. | 2.3, 3.1 |
| 3. It is recommended to ensure students' early information on examination dates so as to provide for sufficient preparation time. Thus, effects causing extensions of the normal period of study may be avoided. | 4 |
| 4. It is recommended revising examination methods such that they consistently reflect the intended learning outcomes of the individual modules. | 4 |
| 5. It is recommended to improve conditions and opportunities of lecturers for further development of subject-relevant knowledge and teaching skills. | 5.2 |
| 6. It is recommended to engage external experience in the recruitment procedure for staff members.<br>7. It is recommended that, in addition to the final mark, statistical data should be provided in the Diploma Supplement according to the ECTS User Guide so as to assist in interpreting the individual degree. | 5.1 |
| 8. It is recommended to further implement and develop the quality management | |

| | |
|---|---|
| system which has been described, and to use its results for continual improvements of the degree programmes.<br>a. In particular, students should participate in the evaluation process and the use of its results on a regular basis.<br>b. Student workload and graduates' employment success should be assessed systematically in order to check whether the workload expectations and study objectives of the HEI are met. | 6.1<br>6.2 |
| **For the <u>Bachelor's degree programme Electrical & Electronics Engineering</u>** | |
| 9. It is recommended to ensure that the study guide for the different specialization tracks is available for students. | 2.2, 2.6 |