

Report on the Accreditation of Study Programmes at

**Tishk International University
(formerly Ishik University),
Erbil, Iraq**

Reference Number I-1720-1



05. Meeting of the ZEvA Commission on February 26, 2019

Item 04.1

Study Program	Degree	Program Duration	Type of Program	Maximum annual intake
Computer Engineering	B.Sc.	4 years	Full-time	50
Information Technology	B.Sc.	4 years	Full-time	80

Accreditation contract signed on: June 03, 2018

Date of site visit: October 16-17, 2018

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Hanover, Germany, February 11, 2019 (updated on March 13, 2019)



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I. Final Vote of the Expert Panel and Decision of the Accreditation Commission

1. Decision of the ZEvA Commission

The ZEvA Commission follows the experts' report and recommendations and takes note of the university's response.

The Commission decides to accredit the following degree programs as offered by Tishk International University (formerly Ishik University), Erbil:

- *“Computer Engineering” (B.Sc.)*
- *“Information Technology” (B.Sc.)*

The accreditation of the study programs is valid for a period of five years.

This decision is based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), the Framework of Qualifications of the European Higher Education Area and the recommendations of the ECTS Users' Guide as referred to in the ZEvA Manual for the External Assessment of Study Programmes.

2. Final Vote of the Expert Panel

2.1 General

2.1.1 General Recommendations:

- The experts recommend reviewing the quality of existing international co-operations (Memorandums of Understanding) and take steps to activate promising agreements and engage in establishing long-term bilateral relations with a continuous exchange of staff and/or students.
- A policy with provisions for disabled students should be implemented.
- The experts recommend further measures to increase the female share of teaching staff and in governing positions.
- Ishik University should communicate with the Ministry of Higher Education and Research to give the University the respective Departments more leverage to assess and restructure the application requirements for incoming students, e.g. by setting a more differentiated scheme for entry grades in mathematics or by enabling discipline-specific entrance exams.
- The range of topics and its attractiveness within the 'Technical Electives' should be further strengthened. It is recommended to develop the Technical Electives both in Information Technology and Computer Engineering curricula.
- To support the strategic objective of Ishik University and the Departments to increasingly generate 'top-class' research and develop Master programs, the experts give the following recommendations:
 - Computer Engineering and IT include up-to-date and promising fields of research and development, including machine learning and data mining. Focusing resources and enabling research in this discipline would be a profitable investment ('lighthouse projects').
 - The high teaching and administrative workload of academic staff should be lowered. Supporting and expanding staff mobility schemes would be appreciated. Incentives for research work by faculty should be established.
 - Scientific methods should take a more prominent role already on the Bachelor level. To support the interest in Bachelor students and graduates to pursue future Master's programs with a research-oriented focus, the University and Faculty leadership should consider developing an "Y-model" (one track oriented towards academic career, the other track with stronger focus on workplace-related career).
- The evaluation of teaching staff is comprehensive and includes innovative instruments and sets clear measures for unsatisfactory performances. The experts, however, recommend enhancing pedagogical and didactic support measures, also by using in-house best practices and instruments of (collegial) peer-review.

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2 Final Vote of the Expert Panel

- The experts recommend increasing the share of staff that has been recruited from outside Ishik University. For Ishik academic staff, measures of international staff mobility should be supported
- The robotics lab should be primarily expanded qualitatively, e.g. by acquiring recent micro-controller development boards for in-depth learning experiences. Furthermore, specific prototyping equipment like 3D printer and laser cutter may also strengthen the attractiveness of the labs both for researcher, students, and the public. Even a (public) 'makerspace' could be one of the steps towards modern, outstanding labs at Ishik campus.
- The experts highly recommend expanding the library in regard to media; the University should focus on often demanded standards textbooks for IT and Computer Engineering and e-resources. Adding a VPN remote-access to library resources for both staff and student members is also recommended. Access to state of the art professional online literature and literature search is highly recommended (e.g. ACM Digital Library, IEEE, Elsevier, Springer). It is also recommended to add multimedia and video recording of specific local lectures as well as links to other international MOOC initiatives.
- To support an upcoming institutional accreditation procedure, the experts would like to give some recommendations for further development of the internal quality management:
 - The large number of committees should be reduced and/or tasks should be clearly delineated. Central bodies/actors should be clearly indicated.
 - In the quality cycle, the last step of 'acting', i.e. drawing conclusions and taking measures, should be taken on in a more vigorous manner (including clear location of responsibilities).
 - Results of teaching staff evaluations by students, peers etc. should primarily lead to enhancing measures and capacity development initiatives. Sanctions should be handled carefully and reasonably.
 - More formal processes of feedback from students to staff/leadership – and back to students – should be set. This would be supported by establishing an institutional representation of students with formalized rights and responsibilities and include students more broadly in the committees at university level.

2.2 Program 'Computer Engineering'

2.2.1 Recommendations:

- The experts recommend strengthening hardware-related aspects in the overall profile of the program, including measures to expand the curriculum and the supporting infrastructure.
- The experts recommend the following aspects for further development of the curriculum:
 - Taking the profile and objectives of the program into account, the hardware-related components of the curricula should be strengthened.

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2 Final Vote of the Expert Panel

- The chronological sequence of courses in programming/software should be revised (see report for details).
- The imparting of knowledge on research and methodological skills should be intensified and more structured (see report for details). The courses ‘Supervised Independent Study & Research’ and ‘Graduation Project’ should be included in the Course Catalogue.
- The courses “Advanced English” and “Technical English” in the first year could be both targeted on technical, disciplinary-specific English.
- Graduation projects should be more closely related to the research fields of academic staff/supervisors.
- The internship could be improved by extending it from one month to at least 1.5 months/6 weeks. In addition, it should be included in the course descriptions and credited.
- The naming of courses should be more indicative of the course content.

2.2.2 Recommendation to the ZEvA Commission for International Affairs:

The expert group recommends the accreditation of the Bachelor program “Computer Engineering” for the duration of five years without conditions.

2.3 Program ‘Information Technology’

2.3.1 Recommendations:

- The experts recommended reviewing the Learning Outcomes, as some would profit from more clarity and less overlap.
- The experts recommend the following aspects for further development of the curriculum:
 - The use of different programming languages (C, C++, Java) should be sincerely re-evaluated. A deeper knowledge of at least one language could be useful, especially for students who would like to go into coding and programming.
 - Additional engaging (curricular or extra-curricular) offerings like organizing a (public) ‘hackathon’ would add value (and fun) to the program and might also be used to strengthen the positioning of the program for the regional citizens and the media.
 - Graduation projects should be more closely related to the research fields of academic staff/supervisors.
 - The internship could be improved by extended to at least 1.5 months/6 weeks. In addition, ‘Summer Practice’ should be included in the course descriptions and credited.
 - Overall, the naming of courses should be more indicative of the course content.

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2.3.2 Recommendation to the ZEvA Commission for International Affairs:

The expert group recommends the accreditation of the Bachelor program “Information Technology” for the duration of five years without conditions.

II Evaluation Report of the Expert Panel

0 Introduction: Purpose, Design and Context of the Accreditation Procedure

II. Evaluation Report of the Expert Panel

Introduction: Purpose, Design and Context of the Accreditation Procedure

It is the purpose of the accreditation procedure to assess the quality of the Bachelor's study programs "Computer Engineering" and "Information Technology", offered by Ishik University, Erbil/Iraq, against international standards. The assessment is based on ZEvA's "Assessment Framework for the Evaluation of Study Programmes" as laid out in the "Manual for Evaluation and Certification of Study Programmes".¹ This assessment framework is in part based on the "European Standards and Guidelines for Quality Assurance in Higher Education (ESG)" (ENQA 2015), the "Framework for Qualifications for the European Higher Education Area" (2005) and the "ECTS Users' Guide" (European Communities, 2015).

For the purpose of assessing the study programs, Ishik University and its Departments of Information Technology (Faculty of Science) and Department of Computer Engineering (Faculty of Engineering) submitted a self-report. Apart from detailed descriptions of the university as a whole and the study programs, the self-report included a number of additional documents, as e.g. course program, selected course syllabi, CVs of teaching faculty and sample questionnaires for as well as results of course evaluations. All documents were submitted in English.

In December 2018, Ishik University has been renamed 'Tishk International University'. All evaluations in this report relate to the new institution unmodified.

This evaluation report is based on the experts' assessment of the self-report submitted by Ishik University and on their findings during the site-visit on October 16th and 17th 2018. It will serve as a basis for ZEvA's Commission to decide on the accreditation of the university's study programs. In the case of a positive decision by the Commission, ZEvA will award its quality seal for a limited time period, after which the university can reapply for accreditation.

The experts would like to thank the President and Vice-Presidents of Ishik University, the Heads of the respective Faculties and Departments and their staff for professionally organizing the stay at the institution. Special thanks go to the Coordinator of Accreditation and Quality Management System as well as to the students. The experts enjoyed the open, self-reflective and constructive atmosphere during their on-site talks in Erbil. With this report, the experts do not only assess the programs, but would also like to give recommendations for further developing the quality of both programs.

¹ <https://www.zeva.org/international/information-in-english/>

II Evaluation Report of the Expert Panel

1 Governance, Management and Profile of the University

1. Governance, Management and Profile of the University

Ishik University was founded in 2008 as a private institution in Erbil, the capital of the Kurdistan Region in Iraq. In 2009 five Bachelors' programs were established and in 2010/11 it moved to a new campus at the outskirts of Erbil. As today, Ishik offers 21 Bachelor's programs in eight faculties: Dentistry, Engineering, Science, Education, Economics and Administrative Science, Law. All programs except Law are entirely taught in English. Ishik University also houses, among others, a Prep School, a Center for Continuing Education and a TOEFL IBT Test Centre. A second campus is located in Sulaimani, the second-largest city in Iraqi Kurdistan.

From 2017 onwards, Ishik University has established joint Master's programs with public regional universities; Erbil Polytechnic University (Civil Engineering, Computer Engineering, Mechanical and Energy Engineering), Salahaddin University (MBA, Master of Laws, Architecture Engineering, English Language Teaching, and English Literature) and Hawler Medical University (Dentistry).

The language of communication on the campus is generally English, also made necessary by a diverse teaching faculty and staff originating from Iraq, Turkey, Syria and other countries.

As a private institution, Ishik University has been part of the Fezalar Education Group, which was established in Erbil in 1994 by Turkish and local investors. In 2008, it has been licensed as an officially recognized private university by the Kurdish Ministry of Higher Education; in 2017 it has become recognized by the Iraq Ministry of Higher Education. The University is governed by a Board of Trustees.

Ishik University does not receive state funding and raises fees from students. The institution and its programs are – as all private higher education institution in the Kurdistan Region – under supervision by the Ministry for Higher Education and Scientific Research and its Inspection and Quality Assurance Unit. While the current status gives Ishik (and other private) University a certain degree of autonomy, some central issues like tuition fees, number of intake in each program per year, the hiring and assignment of full- and part-time faculty staff or the license to offer new Bachelors' and Masters' programs are regulated or at least observed by the Ministry in considerable detail.

Organizational Structure and Mission of the University

The University is strategically governed by the Board of Trustees, The President and the University Council, the latter comprising the President, Vice-Presidents, Faculty Deans and the Head of International Relations. President and Council are responsible for academic and operative planning and implementation as well as financial management. Each Faculty is headed by a Dean and has a Faculty Council as a body to develop academic strategies and planning (which then have to be decided by the President & University Council). On the lower level, each of the 20 Departments – each responsible for one study program – also have a Head and a Council, responsible for evaluation and improvement of program-related aspects.

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In addition, Ishik states an additional 20 committees at the university level, including

- Exam Committee
- Committee of Appeals
- Accreditation Coordinating Committee
- University Scientific Committee
- Quality Management Systems Implementation Committee
- Quality Assurance Committee
- Central Quality Development Committee

As the experts learned during the on-site talks, the central Scientific Committee has a pivotal position regarding curricular revision and restructuring, mirrored by Scientific Committees on the Departments' level.

In the self-report, the University describes its vision and mission as follows:

ISHIK University Vision

To be a leading university in the country and region in the areas of education, research and development as well as service to the community by raising educated individuals with universal ethical values.

ISHIK University Mission

To raise well-prepared, productive and competent individuals with a research-oriented spirit, who possess professional ethics and sensitiveness to the realities of the country and the world, in order to serve to fundamental human values; contribute to the improvement of the quality life of humanity based on regional and universal needs.

These general strategic aims have been developed in a strategic process from 2014 onwards with the help of a Strategy Commission, including the institution's leadership and the Deans of all eight Faculties.

On a lower level, the Faculty of Engineering has also developed a distinct vision:

To be a faculty capable of leading in the scientific field, aimed to the application and theory of education, training, research and development by taking a global approach into consideration from a local angle.

A mission statement of the Faculty e.g. includes the following points:

- *Take scientific, ethical and universal values into consideration through local context.*
- *Pay attention to the information produced by humans to be environmentally friendly and try to find scientific solutions to social problems.*
- *Train graduates who have professional competence and professional ethics.*
- *Train free, critical, productive individuals with innovative ideas.*
- *[...]*
- *Develop projects by strengthening relationships with industry and service sectors to contribute to the development of the country.*

The Faculty of Science, which has so far included only the IT Department/program (now also the newly established Department/program "Medical Analysis") states its objectives as follows (webpage):

The Faculty of Science seeks to educate and foster future leaders of scientific endeavour and to ac-

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tively partner the development of innovative industries. Faculty of Science has 284 students as of education year 2013-14. 15 faculty members are teaching the classes offered. The language of the department is English for all departments. Faculty of Science houses the Information Technology (IT) Department.

The University and its institutional subdivisions have communicate its strategic and educational goals in a variety of documents, i.e. Staff Handbook, Ishik Educator's Guide, Student Handbook, and developed it into more detailed and applicable rules, guidelines and regulations. These include e.g. sanctions for causing "polarization due to differences of language, race, color or religious sect" (cf. Student Handbook), or "using position [...] for partisan political or religious purposes" (Staff Handbook).

In the academic year 2017/18, 2,870 students have been enrolled at Ishik University, of which 5 per cent study Computer Engineering and 9.4 per cent Information Technology. The intake in these programs has been between 30 and 40 for Computer Engineering and between 50 and 75 for IT – with a somewhat decreasing tendency, in large parts due to general societal and economic factors in the Kurdistan region.

Ishik University has been audited against the ISO 9001:2008 and was certified in May 2015 by British Certification Inc. (BCI). This certification procedure had been organized by its Quality Management Division which was also responsible for organizing and supporting the present evaluation. A re-certification against ISO 9001:2015 has been granted in May 2018.

The University also has taken considerable measures to align its study programs along the standards of the European Higher Education Area (so called 'Bologna area'). This includes program-related aspects like the ECTS credit-system, documented intended learning outcomes on the program and course level and on a wider level the notions of student-centered learning and external as well as internal measures of quality assurance, embedded in a transparently documented governance structure.

Student Mobility and Internationalization

Ishik University has formulated the internationalization of students and staff as one of its strategic priorities and named several efforts to support this goal:

- English as the sole language of teaching and studying, but also providing opportunities to learn additional languages like Arabic, Kurdish or Turkish.
- Raising the number of international (currently 22) and non-Kurdish Iraqi students (currently 56).
- Establishing an International Relations Office in 2013 that supports outgoing students. An exchange program has been established and used by around 40 students so far.
- Expanding co-operation agreements (MoUs) with universities abroad (currently about 58 universities). A Dual Diploma Program with North American University in Houston/TX, USA, has been successfully established.
- Developing a program for staff exchange.

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- Holding international conferences at Ishik University in different disciplines, including Civil and Computer Engineering.
- Re-structuring programs according to Bologna standards also to facilitate international mobility and exchange.

During the site visit students of the Computer Engineering program also remarked positively on the co-operations with universities abroad and a general outlook that goes beyond the Kurdistan region. They were also very interested in pursuing postgraduate studies in European countries. The Department and the coordinator of the International Relations Office also described during the site visit procedure for recognition of courses/credits which include an ex post-check of the foreign and home curricula and recognition is then approved by the Scientific Committee of the Department.

Equal Opportunities

Providing equal opportunities for students and staff has been described as one of Ishik University's 'Points of Strength' in the self-report. It is stressed that student admission and progress as well as staff hiring and promotion is solely based on performance indicators and that one strictly adheres to a policy of non-discrimination regarding race, color, religion, sex, age, disabilities, national origin or ancestry.

The student and the staff handbook set differentiated rules and regulations in this regard, including rules on equal payment for staff and policies on sexual harassment (between staff and between staff and students; cf. Staff Handbook) as well as sanctions regarding unethical conduct like sexual discrimination or harassment in any form (cf. Student Handbook).

A considerably high share of graduates in both programs has been female, about 50 percent in Computer Engineering and about 40 percent in IT.

There are no special regulations or support structures for students or staff with disabilities. However, the campus buildings are barrier-free accessible and non-attendance in courses or exams due to illness can be excused.

Experts' Appraisal

The experts applaud the University's commitment to position the institution with a focus on educational quality and internationalization. Considerable progress has already been made, including the adaption of 'Bologna'-principles and tools (ECTS system, course descriptions, matrix of learning outcomes on program and course level etc.) and the establishment of international co-operations and exchange programs.

The University's strategy is based on a vision and mission that encloses central as well as decentral (Faculties, Departments) units. It has been documented in different forms like Student or Staff Handbook, regulations and policies.

The overall governance structure of Ishik University appears quite hierarchical at first, document-based site, with a rather complex interplay of councils, commissions, and positions. Yet, regarding the manageable current size of the University, the experts positively value the

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practical, collegial spirit experienced during the talks. In effect, the different institutional levels seem to cooperate quite closely with a shared vision of quality-related objectives.

The general use of English as the sole language of teaching and administration gives the graduates a considerable advantage and the adaption of Bologna-oriented structures like student-centered learning or application of the ECTS-system will further facilitate student mobility. The International Relations Office has set up schemes for students' and staff exchange that provides substantial support for mobility. Additional, extra-curricular activities like Clubs ("Future Builder") provide valuable opportunities to strengthening students' generic and career-related skills.

The experts thus *commend* this strategic as well as practical commitment to quality development and internationalization that not only includes leadership and staff, but also the student body. It *recommends* reviewing the quality of existing international co-operations (often based on Memorandums of Understanding) and take steps to make use of promising agreements. It is also *recommended* to step-up in the existing MoUs, establish long term bilateral relations by targeting a continuous exchange of students and / or staff.

The experts' panel also *commends* the steps taken by Ishik University to provide a non-discriminative environment for its students and staff. However, a policy with provisions for disabled students *should* be implemented.

In addition, it is considered favorably that a nearly balanced share of female and male graduates exist in both programs. During the talks, female students were engaged and courageous, indicating to a successful policy of equal opportunity. Yet, the experts *recommend* further measures to increase the female share of teaching staff and in governing positions.

2. Assessment of the Study Programs

2.1 Common Features and Strategic Dimension of the Programs

While located administratively in different Faculties, both programs share considerable characteristics and also courses and teaching staff.

The programs in Computer Engineering (CompEng), offered by the Faculty of Engineering, and Information Technology, offered by the Faculty of Science, both lead to a Bachelor of Science (BSc) degree. It can be completed in four years/eight semesters and has an intake capacity of about 50/80 students per year.

All courses are taught in English language and are credited. Ishik University now generally uses the ECTS credit system, based on the overall workload students need on average to achieve the intended learning outcomes, including self-study time. Most of the courses are credited with five to seven ECTS credits, while the 'non-technical electives' (Turkish, Art etc.) and non-core courses (like Kurdology) mostly have only three credits. Each semester has a course load of 30 ECTS credits, at completion, students attain 240 ECTS credits. Each academic year is structured in a fall and a spring semester. The Student Handbook (Ch. 3 Article 12: 2019) sets an overall maximum of seven years for a four-year program. All courses in both programs can be completed in one semester. Ishik University uses a letter-based grading system, ranging from AA (90-100 per cent) to FF (0-39 per cent), for courses and the final exam, reaching at least 70 per cent (CC) is the level for passing a course/exam.

Ishik University also offers a six-week Summer Term where students can take a maximum of three courses out of a selection of courses offered by the University and respective Faculty. It gives students the possibility to pre-empt later courses or repeat an already passed course to increase their overall Grade Point Average (GPA).

Entry Requirements, Student Admission and Selection

The entrance of undergraduate students into Ishik University is regulated by the results achieved in standardized High School exams. Applicants for CompEng need a minimum score of 75 (percent), applicants for IT a minimum of 60 (percent) (compared to 93.5 for Dentistry and 50 for Business Management). Students also have to prove their English language skills and therefore might attend the one-year Prep School in Ishik Campus. No additional entry examination or regulation applies.

During the on-site talks, the application regulations were an important topic for Ishik's staff and leadership, both being quite critical of the Ministry-set intake standards. First, both Departments are much in favor of taking at least additional criteria into account, i.e. a proficiency test or at least a separate grade level for mathematics/calculus and physics with a minimum of 75 percent.

The different intake levels for both programs also have considerable effect on the curricula and didactical approach to the respective groups of students (see *chapter 2.3.1 and 2.3.2*).

Experts' Appraisal

Based on the written documentation and verbal communication during the site visit, the experts recognize the substantive, if not vast, differences between both study programs. Both show considerable differences in regard to profile and curriculum, even if sometimes only at second sight (e.g. same courses but with different content, level and didactics). Some distinctions are based on the different entry requirements and also the number of yearly student intake, which makes Computer Engineering the more exclusive (but not necessarily more valuable) program of both. Even if relevant entry regulation like grades and intake numbers are governed not by the University, but by the Ministry of Higher Education and Scientific Research, the experts *recommend* to give the University and the respective Department more leverage to assess and restructure these requirements, e.g. by setting a more differentiated scheme for entry grades in mathematics or by enabling discipline-specific entrance exams.

A common objective of Ishik University and the Department is to increasingly generate 'top-class' research and increasingly develop Master programs (possibly as joint institutional programs with public universities in the Kurdistan region, but also as international joint programs). The experts *support* this strategic aim and thus would like to give the following *recommendations*:

- Computer Engineering and IT includes very up-to-date fields of research and development, including current and promising fields like machine learning and data mining. Thus, focusing resources and enabling research in this discipline would be a profitable investment. Yet, it is advisable to focus on a narrow, defined field of research with rather 'lighthouse projects' than broad research efforts.
- The University's intention to become a "*leading university in the country and region in the areas of education, research and development*" would entail to lower the currently high teaching and administrative workload of academic staff. Supporting and expanding the staff mobility schemes would also be appreciated.
- Scientific methods should take a more prominent role already on the Bachelor level, including the CompEng and IT program. To support the interest in Bachelor students and graduates to pursue future Master's programs with a research-oriented focus, the University and Faculty leadership should consider developing an "Y-model" for both programs, with one track oriented towards an academic career while the other track with a stronger focus on workplace-related skills and competencies.
- The range of topics available within the 'Technical Electives' is very relevant. Its attractiveness should be strengthened systematically, e.g. by linking its content to the technologies available in the labs, the research of staff members, or internships of the students. It is also recommended to develop the Technical Electives in Information Technology *and* Computer Engineering curricula. A set of certain specialization paths could be supported by the Electives as well.

2.2 Intended Learning Outcomes

2.2.1 Program 'Computer Engineering'

Coupled with the strategic mission and objectives of the University and the Faculty of Engineering describe above, the Department of Computer Engineering has developed and documented a detailed sequence of Mission Statement, Learning Outcomes and Learning Objectives, based on the general aim to develop “the manpower needs in key technologies required to provide the foundation for the 21st century technological developmental base for the community, marketing forces, and regional needs”:

The mission of the Computer Engineering Department at Ishik University is to develop highly competent professionals, preparing them for entry-level positions in computer engineering, further study in graduate school, life-long learning, and societal leadership.

The main aims [...] are to educate engineers for the purposes specified below:

1. *Providing high quality education through well-designed curricula and modern teaching methods.*
2. *Improving the students' skills to enable them to handle the professional and leadership challenges of their careers.*
3. *Coordinating the industry-academia relationships.*
4. *Serving community through research, creativity, problem solving, and application development.*
5. *Providing graduates to take the responsibilities associated with engineering practice, including the professional, societal, and ethical context in which they do their work.*

For the program, specific 'Learning Objectives' have been formulated (abbreviated):

- Apply theories and principles of science and mathematics in designing and integrating hardware systems, software systems, network systems and solving technical problems.
- Pass smoothly from academic environment to careers with companies, organizations, academic institutions or entrepreneurial environments.
- Employment as practicing engineers in fields like networking, software development, web developing, manufacturing, academic research, operations and service systems.
- Lifelong learning to maintain knowledge and skills in the discipline.
- Understanding responsibilities associated with engineering practice.

In addition, twelve more specific 'Learning Outcomes' have been formulated, including

- Apply knowledge of mathematics, science, and engineering.
- Analyze, design, and implement software and hardware solutions.
- Identify, interpret, and analyze stakeholder needs
- Apply problem solving, design, and decision-making methodologies to develop components, systems and/or processes.
- Model the structure and behavior of real or virtual systems, components and processes.
- Having skills for self-organization, self-review, personal development and lifelong learning.
- Have knowledge of contemporary issues.

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2 Assessment of the Study Programs

The learning outcomes and objectives have been combined in matrixes and then been broken down unto course level. The course catalogue thus states for each course the specific course objectives and learning outcomes and describes the specific skills and competencies to be achieved as well as content of the course.

The general profile of the Computer Engineering program (also in comparison to the IT program) has been a focal issue in the talks during the site visit. It became evident that graduates of the CompEng program should be versed in software engineering as well as specialist for hardware, embedded solutions and maintenance. Graduates mostly pass directly into the regional (Kurdish) labor market, yet, about 10 to 15 percent proceed to a Master's program at a public University. From both teaching staff and students the high English skills of graduates have been named as a prominent feature of graduates that facilitates the careers.

Experts' Appraisal

The experts assert that the Faculty of Engineering and the Department of Computer Engineering have taken great efforts to set up a Bachelor's program that is based on transparent strategic goals as well as detailed learning outcomes on program and course level. With higher intake requirements concerning High School grades, a profile has been developed with a focus on the hardware as well as the software side of computer science and with a strong focus on career building in the (regional) industry after graduation.

The experts *commend* the approach of making goals and outcomes of the program transparent and documented, including skills and competencies that go beyond pure disciplinary, technical aspects of education. However, the disciplinary profile of the program has not been entirely clear from the beginning; the experts rather expected a more hardware-focused profile (also related to the naming as Computer *Engineering*). While the actual, broader profile of the program is acceptable, the hardware side should not be neglected. This also relates to the curricular structure and lab facilities/equipment (see *chapters 2.3, 2.5*).

2.2.2 Program 'Information Technology'

Similar to the previously described study program, the Department of Information Technology has developed and documented a detailed sequence of Mission Statement, Learning Outcomes and Learning Objectives, based on the general aim to develop "the manpower needs in key technologies required providing the foundation for the 21st century technological developmental base for the community, marketing forces, and regional needs":

The mission of the Information Technology Department is to provide quality undergraduate education to build skills in both the theoretical and applied foundations of computer science and information technology in order to fulfill the needs of the market and to keep abreast of the changes in the business environment, that is through the continuous development of the educational process and training students to effectively apply this education to solve real-world problems.

For the program, specific 'Learning Objectives' have been formulated (abbreviated):

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- To have practical and theoretical knowledge and skills of computer science and information technologies that enable them [graduates] to contribute to the economic development of the region.
- Prepare students to do post-graduate studies.
- To have the ethics expected of computer scientists and software engineers and appreciate the social impact of computing.
- To recognize the importance of and [to] possess the skills necessary for lifelong learning.

In addition, twelve more specific 'Learning Outcomes' have been formulated, including

- Define and use computing requirements to analyze and solve problems.
- Meet the technical requirements by designing, implementing and evaluating IT-based items like systems, processes, components, and programs.
- Work in teams and understand professional and ethic responsibilities.
- Utilize recent techniques, skill, and tools required for IT-systems.
- Use and apply current technical concepts and practices in the core information technologies of human-computer-interaction, information management, programming, networking, web systems, and technologies.
- Recognize user needs and consider them in the selection, creation, evaluation, and administration of IT-based systems.

The learning outcomes and objectives have been combined in matrixes and then been broken down unto course level. The course catalogue thus states for each course the specific course objectives and learning outcomes and describes the specific skills and competencies to be achieved as well as content of the course.

The general profile of the Information Technology program (also in comparison to the CompEng program) has been discussed during the site visit. It became evident that graduates of the IT program are regarded more as generalists (than as pure IT specialists or software programming/coding experts) with a broad profile in different aspects of computer science. Graduates should be able to (and obviously do) work in different positions in companies, often at the interface between business/user and IT or in IT management functions that need a broader skill base and general problem-solving skills. From the point of the Department and teaching staff, the education of previous graduates is fitting the demand of regional employers, including larger companies like Korek (telecommunication), quite well. Again, the high English skills of graduates have been named as a prominent feature of graduates that facilitates the careers.

Experts' Appraisal

The experts assert that the Faculty of Science and the Department of Information Technology have taken great efforts to set up a Bachelor's program that is based on transparent strategic goals as well as detailed learning outcomes on program and course level. With lower intake requirements concerning High School grades (as in CompEng), a profile has been

developed that focus more strongly on overall IT-related management and problem-solving skills and less on in-depth competencies i.e. in programming/coding. The post-graduation career is plausibly focused on the regional labor market, including local as well as international companies.

The experts *commend* the approach of making goals and outcomes of the program transparent and documented, including skills and competencies that go beyond pure disciplinary, technical aspects of education. (Yet, it is *recommended* to review the Learning Outcomes, as some would profit from more clarity and some seem quite overlapping.)

As with Computer Engineering, the disciplinary profile of the IT program has not been entirely clear from the beginning; the experts rather expected a more software-focused profile. The actual, broader profile of the program is, however, acceptable and obviously successfully adapted to the needs of the regional labor market.

2.3 Concept and Structure of the Study Programs

2.3.1 Program 'Computer Engineering'

The program in Computer Engineering is structured in four academic years with two semesters which have between five and nine courses. Each semester is credited with 30 ECTS credits (with one credit equivalent to a student workload of 25 hours).

During the first year, students take mostly basic courses in 'Calculus', 'General Physics' and 'Computer Programming'. In addition, smaller units like 'Academic Debate and Critical Thinking', 'Kurdology' (compulsory by Ministry) or English are located in this section. In the second year, basic disciplinary subjects are taught, like 'Object-oriented Programming', 'Electrical Circuits' and 'Programming Languages'. The third year contains further specialized topics like 'Operating Systems', 'Digital Logic Design', 'Computer Networks' or 'Web Programming'.

The curriculum encompasses a range of 'Technical Electives' and 'Non-technical Electives'. From the latter, located in the second year, two courses have to be selected, that generally deal with more generic topics like 'History of Art', sports or 'Engineering Economy'. The Technical Electives are situated in the fourth year where seven courses can be selected from a list of 15 electives. They include 'Robotics', 'Cryptography', 'Data Mining' or 'Management Information Systems', each credited with 6 ECTS.

The fourth year includes one course 'Supervised Independent Study and Research' (6 credits, first semester) and one course 'Graduation project' (5 credits, second/last semester). In addition, between the third and fourth year a compulsory 'Summer Practice' is included in the curriculum, but not credited. The selection of internship placements is supported by the Career Centre or can be done individually by contacting companies; the regional government also offers an internship program. There is an ex post evaluation of the internship, including student and employer's side. It became obvious that the one month-internship 'Summer Practice' is regarded as a valuable part of the program by students and lecturers alike.

During the on-site talks with leadership, staff and students, the overall curricular framework

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had been intensively discussed by the experts. This included a clarification of learning outcomes and content of courses like 'Calculus', which start at High School level and then go into functional algebra, integral calculus etc. Also the ordering of courses has been discussed, e.g. the location of 'Computer Programming' in the first year, followed by 'Object-oriented Programming' and 'Programming Languages' in the second year. In addition, the share of hardware-related courses was considered quite low by the experts, regarding the profile and naming of the program.

As described in the course catalogue, a 'Guide for BSc Thesis and Dissertation Studies', and according to the Department's teaching staff, both components are closely interlinked and follows defined steps, often springing also from the internship ('Summer Practice').

Experts' Appraisal

The experts conclude that the program generally matches the intended learning objectives and learning outcomes and is aligned with the profile elaborated above, i.e. includes hardware- as well as software-related competencies. It is well-documented with elaborated course descriptions and graduate achieve the standards and levels of comparable first cycle, Bachelor programs in the Framework for Qualifications in the European Higher Education Area. It serves its intention to prepare students for the regional labor market and also for further postgraduate Master programs.

The (informal) linkage of internship, 'Independent Study' course and final 'Graduation Projects' is regarded as a positive structural element in the progression of the curriculum.

Based on the documentation and the on-site talks, the experts like to *recommend* the following aspects for further development of the curriculum:

- Taking the profile and objectives of the program into account, the hardware-related components of the curricula should be strengthened. This relates also to corresponding laboratory equipment (see *chapter 2.6*).
- The chronological sequence of courses in programming/software should be revised. It is proposed to order as follows: 'Formal Languages', 'Programming Languages', 'Programming I and II', 'Object Oriented Languages'.
- The imparting of knowledge on research and methodological skills should be intensified and more structured. The courses on 'Academic Debate' (1st year), 'Supervised Independent Study & Research' and 'Graduation Project' (4th year) are not as clearly building on each other as in the IT-program curriculum (cf. *chapter 2.3.2*). In addition, the last two courses should get descriptions in the Course Catalogue.
- As students should have proven adequate levels of English, the two courses "Advanced English" and "Technical English" in the first year could be both targeted on technical, disciplinary-specific English.
- Graduation projects should be more closely related to the research fields of academic staff/supervisors. In case of installing the proposed 'Y-Model' (applied track/research

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track), the projects could also be a practical project supervised jointly by academic staff and company.

- The well-supervised internship establishes valuable relationships with employers in the regional business sector (and sometimes beyond). This could be improved by extending it from one month to at least 1.5 months/6 weeks – what students already often do on their own initiative. In addition, this ‘Summer Practice’ should be included in the course descriptions and credited (according to the intentions of the ECTS Users’ Guide that the workload for each educational component that supports the learning outcomes should be credited).
- Overall, the naming of courses (e.g. ‘Calculus I and II’) should be more indicative of the course content.
- The course ‘Introduction to Computers’ *should* additionally include an ‘understanding of how computers work’ to establish a solid basis for subsequent programming courses.
- The courses ‘Computer Programming 1’ and ‘2’ as well as ‘Algorithms and Data structures’ all use C++ as Programming Language. The university *should* stick to this language in ‘Object Oriented Programming’, too, as the concepts here can be explained in C++ as well. (The university could also decide to only use JAVA for all their courses.)

2.3.2 Program ‘Information Technology’

The program in Information Technology is structured quite similar to the program in Computer Engineering: four academic years with two semesters which have between five and eight courses. Each semester is credited with 30 ECTS credits (1 credit = 25 hours workload).

Also in this program, during the first year students take mostly basic courses in ‘Calculus’, ‘General Physics’ or ‘Programming Fundamentals C+’. In addition, smaller units like ‘Academic Debate and Critical Thinking’, ‘Kurdology’ (compulsory by Ministry) or English are located in this section. In the second year, IT-related courses like “Programming I and II/C++”, “Logic Design” and “Database Systems I/II” are to be taken by the students. The third year contains further specialized topics like “Data Communications and Networking I/II”, “Operating Systems” and “Web Programming” are part of the curriculum.

The curriculum also encompasses a range of ‘Technical Electives’ and ‘Non-technical Electives’. From the latter, located in the second year, two courses have to be selected, that generally deal with more generic topics like ‘History of Art’, sports or ‘Academic Writing Skills’. The Technical Electives are situated in the third and fourth year where six courses can be selected from a list of ten electives (which are quite different from the selection in the CompEng program). They include ‘Open Source OS’, “Introduction to AI and Robotics” and ‘Server Management’, each credited with 6 ECTS.

The third year includes a course “Research Methodology”, aimed at gaining knowledge and competencies of standards, methodologies and process of research, which should prepare

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students for their graduation project in the fourth year. The fourth year thus includes two courses “Graduation Project I/II” in which students shall get an introduction into framing their own software design or develop devices in terms of research initiation, literature research, project proposal (first course) and then carry out their project as a team and present a study (second course).

As in the CompEng program, between the third and fourth year a compulsory ‘Summer Practice’ is included in the curriculum, but not credited. The selection of internship placements is supported by the Career Centre or can be done individually by contacting companies; the regional government also offers an internship program. There is an ex post evaluation of the internship, including student and employer’s side. It became obvious that the one month-internship ‘Summer Practice’ is regarded as a valuable part of the program by students and lecturers alike.

During the on-site talks with leadership, staff and students, the overall curricular framework of both programs had been discussed by the experts. This included a clarification of learning outcomes and content of courses and a reflection on the ordering of courses. For the IT program, especially the consecutive order of programming languages was discussed, i.e. the use of C and C++ (“Programming Fundamentals I and II” as well as ‘Data Structures and Algorithms I and II’) and in between Java (‘Object Oriented Programming’) or further OOP-languages. Staff teaching in this program explained that incoming students often have a marginal knowledge of ‘computer literacy’ and teaching thus has to start with the very basics (simple functions in programming) and then primarily try to impart problem-solving skills and less in mastering the programming languages (“We tell them that switching between languages is not complicated when you know the basic structures.”). Also for (regional) career purposes, a wider (but more basic) knowledge of different programming languages is a useful conceptual choice. However, the Department would offer additional courses on programming for different languages.

Also in this program, students explained that the internship, besides being quite short, often offers good chances for developing graduation projects or gaining job opportunities during the study or after graduation.

Experts’ Appraisal

The experts conclude that the program generally matches the intended learning objectives and learning outcomes and is aligned with the profile elaborated above, i.e. is geared towards a broader set of skills that allows graduates to work in quite different, often IT-related managerial positions in regional companies. The program and its components are well-documented with elaborated course descriptions and graduate achieve the standards and levels of comparable first cycle, Bachelor programs in the Framework for Qualifications in the European Higher Education Area. The program serves its intention to prepare students for the regional labor market and also for further postgraduate Master programs.

The experts commend the relatively strong focus on research methodology and the detailed description of the ‘Graduation Project’-courses. The (informal) linkage of internship, and final

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'Graduation Projects' is regarded as a positive structural element in the progression of the curriculum.

It also became clear that this program has to cope with a relatively low income level of students, including little 'computer literacy'. The experts *commend* that leadership and teaching staff obviously try to turn this challenge into an opportunity by developing a tailored curricular structure that starts from a technically basic level and still manages to engage students with the IT discipline, i.e. by using examples and small projects. Students also were quite enthusiastic about the growth of skills and knowledge during the course of this program.

Based on the documentation and the on-site talks, the experts like to *recommend* the following aspects for further development of the curriculum:

- While the program profile and the course progression are obviously adapted to the needs and intake level of the students, the experts would strongly *recommend* re-evaluating the use of different languages (C, C++, Java) and instead choosing one language, e.g. C#, from the beginning. This would allow a deeper knowledge of at least one language, especially as some students would like to go into coding and programming. It would also help students focusing on the topics covered in the various courses rather than being faced with the challenge of learning another programming language in parallel.
- In addition to using examples quite early in the program, additional engaging (curricular or extra-curricular) offerings like organizing a 'hackathon' would add value (and fun) to the program. A public 'hackathon' may also be used to strengthen the positioning of Ishik University's information technology program for the regional citizens and the media.
- Graduation projects *should* be more closely related to the research fields of academic staff/supervisors.
- The well-supervised and valuable internship (see *chapter 2.3.1*) could be improved by extended to at least 1.5 months/6 weeks. In addition, 'Summer Practice' should be included in the course descriptions and credited.
- Overall, the naming of courses (e.g. 'Calculus I and II', 'Introduction to IT II') *should* be more indicative of the course content.

2.4 Methods of Teaching and Student Assessment

The teaching and learning methods of both programs are laid down in the course descriptions, often given as a range of different forms like 'lectures, practical sessions, presentations, case study'. As understood by the experts, courses are often given in a mixed format, combining lecturer's presentation, discussions and laboratory/programming sessions.

Class attendance is checked and may not be below 80 per cent in theoretical and 85 per cent in laboratory courses (cf. Article 17 Student Handbook). Students have to enroll in the courses set for each semester plus courses that have been failed in the previous semester

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(except Electives). Courses descriptions often state prerequisites for courses that are rather general ('basic knowledge in...') than related to specific preceding courses. However, the curricula have a general consecutive structure, thus predefining the overall curriculum for each cohort.

All courses stipulate several examinations, usually a mid-term and a (written) final exam, each accounting for 30 and 40 per cent of the final course grade. In addition, further varied, but marked assignments are set like attendance, homework, projects and presentations. The percentage weight of each is stated in much detail in the course descriptions. For each semester a Semester Point Average is calculated and a continuous Grade Point Average is computed during the course of study, relating grades to accomplished credits – it can also be improve by taking a course and its exams again. Failed exams can be repeated without any limits; for these make-up exams specific dates are set by the administration. However, an overall number of study years are determined for each program.

The so-called 'summer term' is a six-week, intensive offer of either additional courses, i.e. tutorials for mathematics/calculus, or regular courses with double hours and the chance for makeup exams. During the site visit, students as well as teaching staff saw this summer offer as a valuable chance for improving the student experience and contributing to a high graduation rate of about 60 to 70 percent of students in regular time. There is a cap on overall study-time being seven years for both four year programs. A change between both programs during in between study years is not possible.

The regulations provide for an appeals procedure (cf. Article 27 Student Handbook): A student may submit a petition to the Directorate of Student Affairs; the petition will then be assessed by the respective examination committee and Faculty Board.

During the on-site talks, students and alumni mentioned no structural problems with the overall examination system. The relatively high number of small and larger assessments was rather commented favorably as fostering learning progress.

All examination regulations are laid down transparently in document like the Student Handbook, examination rulers for examiners and supervisors etc. plus supported by documents like the Graduation Thesis Handbook.

Experts' Appraisal

Based on the documentation and informed by the site visit talks, the experts conclude that both Departments have implemented a student-centered learning process. There is a notable competence-orientation in the detailed Learning Outcomes on program and course level, but also implemented in educational practice.

The achievement of Learning Outcomes is assessed by a wide variety of forms of examinations, including standard written exams as well as projects, presentations etc., so supporting a variety of disciplinary and general skills. The course descriptions and the regulations give clear and transparent information on forms, regulations and procedures for examination while the Student Handbooks and additional document give general rules for the different roles (student, examiner, examination committee etc.).

2.5 Teaching Faculty

Ishik University has documented encompassing regulations and processes for staff hiring, evaluation and promotion, e.g. in the 'Human Resources Process' handbook.

The hiring and recruitment procedure begins as in internal process in which the Faculty Deans report their planning for personnel resources to the University Council which decides on approving of the plans. After publication of vacancies, the incoming applications are assembled into a shortlist and candidates are invited for interviews. A Recruitment Committee with participation of the Dean and respective Head of Department then evaluate the visiting candidates and propose. A central Hiring Committee then decides on the hiring. There is obviously no interference or approval by the Ministry needed. The University has set criteria and obligatory documentations for hiring academic staff. These includes general characteristics like professional competence and academic preparation, but also minimum requirements, including holding at least a Masters' degree, a 'pedagogical formation certificate' a verifiable level of English and good computer skills.

For the promotion of academic faculty, an elaborated system of promotion ('Continuous Academic Development') has been documented, based on defined issues that take into account, e.g., scientific and research activities, students' evaluation ('Student Feedback') and other evaluative instruments like class room observation by peers. Respective processes have been defined and documented via the Quality Management unit. The evaluation cycle of teaching staff also includes a catalogue of consequences in cases of unsatisfactory performance. This includes, as elaborated during the site visit, primarily supportive measures, but can also lead to termination of contracts.

Ishik University has a total teaching staff of about 290 academics with at least Bachelor degree level graduation; about 100 are holders of PhD.

For the Computer Engineering program the following staff has been documented and CVs provided:

- 5 full-time academic staff
- 10 part-time academic staff
- of these 15:
 - 7 PhD
 - 8 MSc

For the Information Technology program the following staff has been documented and CVs provided:

- 6 full-time academic staff
- 11 part-time academic staff
- of these 17:
 - 6 PhD
 - 11 MSc

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Despite being located in different Faculties some staff overlap exists between both programs, i.e. an Assistant Lecturer teaches full-time (or at least mostly) Mathematics in the CompEng program and part-time in the IT program.

Experts' Appraisal

The experts conclude that there is a sufficient number of academically qualified teaching staff for both Bachelor programs. The hiring and promotional criteria are well documented and provide incentives for further academic development of the present staff.

Overall, the experts come to a very positive conclusion regarding the motivation, language skills, open-mindedness and pedagogical approaches of the teaching staff. They saw a genuine engagement especially in the IT program with its special challenges (lower qualification of student applicants, less 'computer literacy').

This positive evaluation was also reflected by evaluation results and especially by students and alumni during the site visit who mentioned a high level of personal support, engaging forms of teaching and academic qualification.

The evaluation of teaching staff is comprehensive, also includes innovative instruments like peer-to-peer classroom evaluation, and sets clear measures for unsatisfactory performances. The experts, however, *recommend* to enhance pedagogical and didactic support measures, also by using in-house best practices and instruments of (collegial) peer-review.

Yet, in regard to the strategic goal of supporting high quality research, the overall teaching and administrative load *should* be lowered. This holds especially true, if the introduction of Master programs is envisioned in these disciplinary fields. Further support for research should also include a matching infrastructure (see *chapter 2.6*) and building an overall appreciation of a 'research culture'. It is also recommended to explicitly incentivize the research work done by faculty members to maintain and enhance quantity and quality of international research activities.

In addition, the experts recommend increasing the share of staff that has been recruited from outside Ishik University. For Ishik academic staff, measures of international staff mobility should be supported

2.6 Infrastructure, Resources and Student Support

Infrastructure, Technical Equipment, Library

The Faculty of Science and the Faculty of Engineering as well as both Departments are located in a central and recent campus building in Erbil. The classroom and laboratory facilities could be visited by the experts. All classrooms are equipped with digital projectors with interconnected computers and some with whiteboards. The labs include a robotics lab as well as IT labs.

The campus houses a central library; however, opening hours and equipment with books and journals was described as just adequate by staff and students alike.

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Overall, the campus houses several buildings and include premises for extracurricular activities like a sports field/center, cafeterias, accommodation etc. The main building provides elevators and special ramps for disabled students.

Student Support Services

Ishik University has established a range of services to support students in academic matters. It includes the International Relations Office that supports students in international mobility with information on exchange programs, grants and recognition procedures. A Career Center advises students on career planning and an Alumni Office works on using graduate networks also to advise current students. A recently established Research Center works toward the improvement of research initiatives, including partnership development.

The University also regularly organizes competitions and charity projects, e.g. teaching in refugee camps outside of Erbil.

During the on-site talks, students favorably mentioned the overall accessibility of the teaching and administrative staff. In addition, special initiatives like a 'Future Builder Club' for acquiring career-relevant skill have been praised.

The institutional rules and regulations of student conduct, examinations etc. are comprehensively made transparent in a Student Handbook that all students receive at the start of their study and that can be downloaded via the website in an updated format each academic year. An online Student Information Systems provides information on curricula, syllabi, grades etc. In addition, Moodle was set up as an online learning platform and is used in both programs.

Experts' Appraisal

The experts regard the overall teaching facilities as well equipped and modern. Accessibility is high for disabled people. The IT-labs are adequate for achieving the intended learning outcomes of the courses on a Bachelor level. The robotics lab – which is one of the best selling point of the Computer Engineering program – is an interesting feature, but should be primarily expanded qualitatively, i.e. not only adding more robotic sets, but e.g. micro-controller sets for in-depth learning experiences (e.g. Raspberry Pi's, latest Arduino devices, ESP32, ESP8266 or the latest Google AIY devices available – all are quite affordable and should not fall under import restrictions). Furthermore, specific prototyping equipment like 3D printer and laser cutter may also be very beneficial to strengthen the attractiveness of the labs both for researcher, students, and the public. Even a (public) 'makerspace' could be one of the future steps towards modern, outstanding labs at the Ishik campus.

The library is regarded as small with a limited number of media (books, journals). The experts highly *recommend* expanding the library in regard to media; the University should focus on often demanded standards textbooks for IT and Computer Engineering (e.g. Springer Publishing) and professional e-resources (journal databases like IEEE Xplore, Compendex, ACM Digital Library; and search tools like Inspec, Google Scholar etc.). This is also regarded as a necessity for developing research and establishing Master programs in these disciplines. Adding an out-campus, remote VPN-access to library resources is also recommended.

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In addition to the established activities in online learning, it is also recommended to add multimedia and video recording of specific local lectures as well as links to other international MOOC initiatives.

Overall, the support and advice of students appears very positive, obviously sustained by an engaged and committed teaching staff and program leaderships. This includes extra-curricular social and civil activities of both staff and students.

2.7 Quality Assurance

With the self-report and during the site visit, Ishik University has provided detailed information on standards, processes, responsibilities and results of its quality assurance system, regarding the University in general and both programs in particular. It goes under the heading of "Total Quality Management Policy" and laid out in an encompassing, 50-pages "Quality Assurance Policy at Ishik University" guideline.

The quality management is headed by the Director of the Quality Assurance Unit under the responsibility of Vice President for Educational Affairs. In addition, each Faculty and Department designates a decentral quality assurance representative. Responsibilities and an overall, yearly timetable make the system transparent. Quality management is supported by an additional Coordinator of QMS and Accreditation which also organizes external assessments like ISO certification, Ministry audits and ZEvA accreditation.

The processes for quality assurance and development of the individual programs have been described in detail. They include different tools and evaluative instruments, including

- an Risk/Opportunities Assessment,
- monitoring of achievement of quality objectives,
- pre-graduation survey,
- alumni survey,
- employers' satisfaction service,
- internal auditing cycle,
- students' survey.

The latter instrument is applied every semester for each course in all academic programs. The surveys' results are compiled and forwarded to the Director of Quality Assurance who evaluates and forwards them to the Vice President of Academic Affairs. They are also presented to the Quality Assurance Committee and the University Council. Actions are mostly directed towards the individual lecturer's level and can be enhancement-oriented (debates, workshops) but also lead to a critical assessment and consequences like termination of contracts.

In 2013, Ishik University has been successfully audited against ISO 9001:2008 requirements; a first surveillance audit has taken place in May 2016 (report included in self-report). Re-certification (ISO 9001:2015) has been successful in May 2018.

During the site visit, procedures and results of the internal quality management had been

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discussed, on the university-wide level and on the level of both programs. It was demonstrated and documented that a range of QA-processes are in place for on the program level, including a general surveys on students' satisfaction, alumni satisfaction and syllabus evaluation. A broad range of documents have been presented that guide these and other processes and use of instrument.

Each course and teacher is evaluated with a questionnaire that includes items on course objectives and their attainment, teaching quality and overall behavior of lecturer, provided resources and materials and student support.

Also significant data on student success rates, grades, and place of employment after graduation were available for both programs.

In addition to these procedural evaluations and monitoring, the leadership and academic staff of the departments described a process of reviewing and further developing its Bachelor programs.

Students' representatives are included in University and Faculty processes. Students during the site visit explained an established system of class representatives and were generally positive about formal and informal ways of giving feedback on courses and teaching staff. However, they could not give information on any results or feedback on actions taken. A Students' Council or Students' Union seems not to exist currently.

Experts' Appraisal

The experts gained a very positive overall impression of the structure and functioning of Ishik University's quality assurance system. The core processes and responsibilities are transparently documented and well conceptualized. The range of evaluative instruments and their periodic application is impressive and up-to date to Bologna quality assurance standards.

In regard to an upcoming institutional accreditation procedure, the experts would nevertheless like to give some recommendations:

- The large number of committees (often with likely roles in QA processes) should be reduced and/or tasks should be clearly delineated. Central bodies like the Scientific Committee (University and Department level) should be clearly indicated as (presumably) central actors in quality review and development on the institutional and program level.
- While the first steps of a quality cycle (plan, do, check) are obviously implemented to a considerable degree, the last, challenging step of 'acting', i.e. drawing conclusions and taking measures and thus further developing the quality of the programs should be taken on in a more vigorous manner. It did not become transparent who is taking responsibility for implementing and monitoring these measures.
- Results of teaching staff evaluations by students, peers etc. should be primarily lead to enhancing measures and capacity development initiatives. Sanctions should be handled carefully and reasonably.
- While feedback from students to staff and leadership obviously works well in informal,

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collegial ways, more formal processes of feedback from students to staff/leadership – and back to students – should be set. This would be supported by establishing an institutional representation of students, i.e. a Student Council, with formalized rights and responsibilities and include students more broadly in the committees at university level.

Overall, the engaged Quality Assurance Office and the QMS and Accreditation Office appear as pivotal actors in Ishik's quality assurance system, including the provision of support, data and ideas.

The continuous certification against ISO 9001:2009/2015 has obviously been very helpful in defining procedures, responsibilities and benchmarks on a wide variety of quality-relevant issues.

2.8 Transparency and Public Information

Ishik University has presented a comprehensive profile of the institution, Faculties and Departments. Most documents – all in English language – are accessible via the University's website, some are provided to enrolled students and academic staff. General policies are laid down in written form, as are human resource and quality management processes and regulations.

The Student and the Staff Handbook provide detailed information regarding the most important study and assessment regulations (including disciplinary rules/code of conduct). Detailed examination rules and extensive course descriptions document the curricular core of the programs.

Experts' Appraisal

The experts have gained a positive impression of the public information policy at Ishik University. All enrolled students have sufficient access to the central documents regulating the study process. Policies, regulations and rules are detailed, appear fair and balanced and should be adequate to regulate teaching and learning at Ishik University.

Documentation on the program level, i.e. course catalogues; individual course descriptions are for the most part existing (except internship and some graduation project components) and detailed. For the most part, they are fully aligned with Bologna standards and show a student-centered system of teaching and learning, including a credit system and a diploma supplement, both measures that can be used for enhancement of post-graduate careers as well as national and international mobility.

2.9 Summary of the Findings and Appraisal

Ishik University has further developed as an ambitious higher education institution. Based on a specific vision and mission, demanding strategic objectives have been set, including a strengthening of international engagement, excellent education offers and high quality re-

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search. The adaptation of core 'Bologna Standards' (ESG, ECTS etc.) and of an international perspective (English language, student mobility etc.) in the programs of 'Computer Engineering' and 'Information Technology' is very well-advanced, including the setting of learning objectives and outcomes, a student-centered concept of teaching and assessment, and the aim to take academic education as well as employability into account.

The experts assert that both Faculties and Departments have taken great efforts to set up and further develop programs that meet the demands of incoming students, graduates and the labor market. While the profile of each program is not readily discernible from the respective naming alone, the actual curricular realization is convincing and substantially aligned to the own educational goals and learning outcomes.

The Bachelor program in Computer Engineering would, however, profit from a more hardware-oriented emphasis and some curricular restructuring. The program in Information Technology adapts very well to its special application rules, but would also benefit from a deepening of software/programming knowledge. Both programs would be enhanced by an expansion of lab facilities and library resources

Overall, the already highly developed quality assurance systems supports further improvements of the programs – both of them sustained by an engaged teaching staff, active students, and a receptive and open-minded leadership

III Appendix

1 Statement of the University in Response to Experts' Report, February 21, 2019

III. Appendix

1. Statement of the University in Response to Experts' Report, February 21, 2019

Statement of Tishk International University in Response to the Experts' Report for the programs "Computer Engineering" and "Information Technology"

1. Introductory Provisions

The top management, the administrative staff and the academic staff of Tishk International University highly appreciate the professional evaluation performed by the experts' panel. The report has been discussed thoroughly by the University Council, the Computer Engineering Department Committee and IT Department Committee. We really appreciate all the thoughtful comments and recommendations provided, they are greatly being considered in the quality improvement plans of the Programs and the University.

2. Free Comments on the Content of the Report

2.1 The General Recommendation Part

Page I-4: *"The experts recommend reviewing the quality of existing international co-operations (Memorandums of Understanding) and take steps to activate promising agreements and engage in establishing long-term bilateral relations with a continuous exchange of staff and/or students."*

Comment:

We quite agree that more efforts shall be paid to activate the existing agreements. And as this requires more involvement of the Academic Department in the MoU's establishment process, IRO Committee (which involves representatives from each Academic Department at the University) is holding weekly meetings and organizing many seminars and workshops in this regard.

Page I-4: *"The experts recommend further measures to increase the female share of teaching staff and in governing positions."*

Comment:

We totally agree that increasing the female representation in the labor force in general and in the teaching staff specially is essential for growth and development of the society, therefore Tishk International University made some developing steps in this regard, for example:

- Tishk Gender Studies Center was established.
- Supporting many female research assistants to do postgraduate studies (internally and abroad) so they can join the teaching staff of the University when they complete their studies.

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- Full implementation of the "Equal Opportunity Policy" in the hiring process.

Although that the current female share of teaching staff is less than the male share, this share has been grown remarkably during the past 3 years. The percentage of female teaching staff at Tishk was increased by 58.3% between the two academic years (2015-2016 and 2017-2018). Also, the percentage of Female Research Assistants (who are mostly proceeding in the educational career) for the current academic year 2018-2019 is relatively high.

Additionally, many female staff occupy influential positions in the governing body of the University. For this academic year, the first female joined the University council as a Dean of Nursing Faculty.

Page I-4: *"Tishk International University should communicate with the Ministry of Higher Education and Research to give the University the respective Departments more leverage to assess and restructure the application requirements for incoming students, e.g. by setting a more differentiated scheme for entry grades in mathematics or by enabling discipline-specific entrance exams."*

Comment:

Although that the Ministry of Higher Education and Scientific Research imposes some entry conditions (for example, the entry conditions for Computer Engineering Program 2017-2018 were: 1- Total Marks Average of High School should be greater than 70%. 2- Total Marks Average of Physics and Mathematics Shouldn't be less than 135), we do agree with the content of this recommendation that more differentiated requirements shall be acquired. Therefore, the University will try to communicate the ministry in this regard prior to the start of the coming academic year. In case of rejection, the University may apply on of the following two plans:

- Either to consider math courses as prerequisite courses.
- Or to establish a Math Proficiency Exam and to consider its score as a criteria for students enrolment (to apply rules similar to the Tishk English Proficiency Exam Rules).

Page I-4: *"The range of topics and its attractiveness within the 'Technical Electives' should be further strengthened. It is recommended to develop the Technical Electives both in Information Technology and Computer Engineering curricula."*

Comment:

At Tishk International University, the Technical Electives are generally designed according to the market needs. Also, the availability of resources has a role in setting the list of Electives. However, we do emphasize on the necessity of providing a broader variety of topics within the Electives since this would support a wider range of career paths for the student. Therefore, the University Council decided in November 2018 to direct the scientific committees of the faculties to enlarge the range to Electives, this is supported by:

- The remarkable expansion in the infrastructure of the University in 2017-2018 and

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2018-2019 (constructing new buildings and new floors).

- The establishment of new labs
- Hiring more Full-Time Academic Staff.
- Hiring international academic staff from other countries with specializations that Iraq lack off.

Page I-4: *“Incentives for research work by faculty should be established.”*

Comment:

Academic Staff at Tishk International University are financially supported to be active in the research fields, as mentioned in the Staff Handbook Chapter (18 –Incentives for Academic Achievements) (ST-1). The mentioned Chapter is attached. Also, a sample of the Quarterly Incentives Payment Decision (Nov2018-Jan2019) is attached as well (ST2).

Page I-4: *“For Tishk International University academic staff, measures of international staff mobility should be supported.”*

Comment:

We totally agree with this recommendation. Internationalization is always an important component of the University's Strategic Plan. Although that the process of international staff mobility is affected by the political situation of the region and the country, but Tishk International University always seeks to find international mobility and international training opportunities for the staff through Staff Exchange Programs, Summer Training Programs, Winter Training Programs. In March 2019, four of our staff will participate in the Winter Training Session that will be held at Potsdam University/Germany.

Also, for this academic year 2018-2019, many international staff joined our team to have as total (91) international staff from (15) different countries around the world.

Page I-4: *“The evaluation of teaching staff is comprehensive and includes innovative instruments and sets clear measures for unsatisfactory performances. The experts, however, recommend enhancing pedagogical and didactic support measures, also by using in-house best practices and instruments of (collegial) peer-review.”*

Comment:

Thank you for this recommendation. The peer-review is implemented indeed and is part of the class observation process which can be conducted by the dean, head of department, director of quality assurance, members of academic promotion committee and peers.

Page I-5: *“The experts highly recommend expanding the library in regard to media; the University should focus on often demanded standards textbooks for IT and Computer Engineering and e-resources. Adding a VPN remote-access to library resources for both staff and student members is also recommended. Access to state of the art professional online litera-*

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ture and literature search is highly recommended (e.g. ACM Digital Library, IEEE, Elsevier, Springer). It is also recommended to add multimedia and video recording of specific local lectures as well as links to other international MOOC initiatives..”

Comment:

Totally agree with this recommendation. For this academic year, our University dedicated a larger budget for the library (3 times the previous budget). All the points you suggested in this recommendation will be studied seriously and will be taken into consideration.

Page I-5: *“The large number of committees should be reduced and/or tasks should be clearly de-lined. Central bodies/actors should be clearly indicated”*

Comment:

It may seem that a large number of committees were established at Tishk International University, but these committees varies in the levels of Authority and have different degrees of workload. Also, some of these committees have duties all through the Academic Year while others are limited to few defined tasks.

At our University, we tend to make decisions through committees rather than making individual decisions since that hearings from interest groups and representatives play key roles in floor debate about most of the administrative and academic issues.

The Functional Committees are identified at the Staff Handbook (page28), they are: Board of Trustees, University Council, Hiring Committee, Disciplinary Committee, Financial Committee, Exam Committees, Promotion Committee and Quality Assurance Committee.

Page I-5: *“More formal processes of feedback from students to staff/leadership – and back to students – should be set. This would be supported by establishing an institutional representation of students with formalized rights and responsibilities and include students more broadly in the committees at university level.”*

Comment:

This recommendation seems quite convenient to us. Lately, the University has prepared and issued a brief guideline for the Student Engagement Framework in each of:

- Teaching and Learning
- Governance and Management
- Quality Review

The Tishk International University Student Union was established in 2014, this union is an independent organization of the students which does not perform any economic, politic or religion activity. The fundamental objective of Tishk International University Students Union is to ensure both the academic development and the social and personal growth of students.

Please refer to the attached file (Student Engagement Framework)(ST-3).

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2.2 Program 'Computer Engineering'

Page I-5: *"The experts recommend strengthening hardware-related aspects in the overall profile of the program, including measures to expand the curriculum and the supporting infrastructure."*

Comment:

The curriculum of the Computer Engineering Program includes some courses that concentrate on hardware components such as Robotics, Electronic Circuits and Devices, Electrical Circuits, Digital logic design, and Control Systems, however, the Scientific Committee in the Computer Engineering Department has strategies and tactics to add more courses related to hardware components for the coming academic years such as "IoT Course" and we are planning to open new labs for this purpose. Knowing that updating the curriculum in Kurdistan is subjected to the observation and the approving process of the Ministry of Higher Education and Scientific Research.

Page I-6: *"The chronological sequence of courses in programming/software should be revised (see report for details)."*

Comment:

Based on the experts' recommendation during the site-visit and based on the regulations of the "Association of Computing Machinery (ACM)", the Scientific Committee of Computer Engineering Department made a broad discussion to reorder the sequence of some courses such as "Data Structure Course" from semester 4 to semester 3 and "Mobile Applications Development" Courses from semester 6 to semester 7, to name only a few.

Page I-6: *"The internship could be improved by extending it from one month to at least 1.5 months/6 weeks. In addition, it should be included in the course descriptions and credited."*

Comment:

Based on the experts' recommendation during the site-visit, the Engineering Faculty Board decided (after the approval of the University Council) to extend the duration of the Internship Program from 4 weeks to 6 weeks.

Page I-6: *"The courses "Advanced English" and "Technical English" in the first year could be both targeted on technical, disciplinary-specific English."*

Comment:

The courses "Advanced English" and "Technical English" are comprehensive courses of "English Language of Computing". Students in these two courses acquire language skills to understand the world of computers. The content of these courses includes a wide variety of contents starting from computer essentials through programming, web design, job hunting, and future technologies. Moreover, there is a focus on terminology combined with vocabulary and grammar practice to give students the tools to use English in areas such as describing features and functions, discussing the world of ICT.

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Page I-6: *“The naming of courses should be more indicative of the course content.”*

Comment:

Based on the Experts' Recommendations, The Name Of our “Calculus Course” changed to “Analysis of Continuous Functions”, and “Discrete Math” to “Discrete Structures” which cover wider range of topics related to Computer Engineering.

2.3 Program ‘Information Technology’

Page I-6: *“The experts recommended reviewing the Learning Outcomes, as some would profit from more clarity and less overlap.”*

Comment:

We will review the Learning Outcomes once more through our Scientific Committee in the basis of curricula recommended by ACM.

Page I-6: *“The use of different programming languages (C, C++, Java) should be sincerely re-evaluated. A deeper knowledge of at least one language could be useful, especially for students who would like to go into coding and programming.”*

Comment:

In KRG, there are no standards or centralized control in the IT field, this led to differentiated needs regarding programming languages usage. Therefore, we are trying to teach different programming languages which give the main aspects of programming and ability to move to any other programming languages easily.

Page I-6: *“Additional engaging (curricular or extra-curricular) offerings like organizing a (public) ‘hackaton’ would add value (and fun) to the program and might also be used to strengthen the positioning of the program for the regional citizens and the media.”*

Comment:

We are joining Google Hash Code and NICE (National Innovation Contest on Engineering in Tishk International University) competitions every year. And we are organizing internal Programming Contest between Computer Engineering and IT Department students. We are planning to attend to ACM Programming Contest next year and to get involved in more competitions as Hackathon.

Page I-6: *“Graduation projects should be more closely related to the research fields of academic staff/supervisors.”*

Comment:

We agree with this recommendation, It is really necessary to increase Graduation Projects which are more closely related to the research fields when the required facilities are availa-

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ble.

Page I-7: *“Overall, the naming of courses should be more indicative of the course content.”*

Comment:

This will be considered in our next curriculum review.