

**Accreditation Report**  
**Concerning the Application for Accreditation by**  
**Technical Trainers College Riyadh**  
**1192-xx-2**

Name of the Study Program according to the examination regulations	Degree	Beginning of Studies/ Implementation of the Course	ECTS-Points	Standard Period of Study	Kind of Program:	Annual Intake Capacity
Bachelor Study of Engineering Technology for Vocational Trainers in the fields	Bachelor of Engineering Technology	Sept. 2009	240	4 years	Full time	

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*Hannover/12/03/2012*

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## Part I: Peer Report

### 1 Technical Trainers College of Riyadh

Many years ago the government of the Kingdom of Saudi Arabia started the long-term oriented program of "Saudisation". One of the intentions of the "Saudisation program" is to prepare young Saudis for the challenges of the future Saudi-Arabian labour market so that they will be qualified to take over jobs which are currently being held by skilled and highly skilled foreign workers and by that enhance the percentage of Saudi-Arabian skilled workers within their home economy in line with the needs of business and industry. The "Saudisation" program requires that future Saudi-Arabian skilled workers receive appropriate, high-quality training by high-level vocational teachers and trainers. To this end the "Technical Trainers College of Riyadh" (TTC) was founded. It is the aim of the TTC to educate and train highly qualified technical-oriented vocational teachers.

The Technical Trainers College Riyadh was founded within the vocational track of the Saudi-Arabian educational system. The Technical and Vocational Training Corporation (TVTC), within the Saudi-Arabian Ministry of Labour, which is responsible for all TVET institutions in the Kingdom, is also responsible for the TTC. In this regard the TVTC has a function as a German Ministry of Education. The Technical Trainers College of Riyadh was founded and established by GIZ ("Deutsche Gesellschaft für Internationale Zusammenarbeit") in agreement with TVTC in September 2009. TTC is taking over tasks and responsibilities from the GIZ.

Since February 2011 the Dean of TTC (on behalf of and in agreement with GIZ) is responsible for the entire management of TTC including all daily activities and tasks, lecturers, equipment and premises while the ultimate responsibility remains with TVTC. The GIZ headquarters in Germany support the development of the Technical Trainers College of Riyadh, providing assistance, equipment and other things needed to build a successful "College of Higher Education".

Education and training at TTC started with the enrolment of 191 students in September 2009. Further students were enrolled in February 2010 (219), in September 2010 (221), in February 2011 (222) and in September 2011 (210). At present a total number of 887 students is educated at TTC. The number of applicants is distinctly higher than the intake capacity. In February 2011, for example, 1975 applicants applied for 210 places. TTC is going to award Bachelor's degrees to the first batch of graduates in June 2012. At that time about 1200 students will be enrolled at TTC.

### 2 Education and Training in Saudi Arabia

Generally, school education in the Kingdom comprises three stages: six years of primary school followed by three years of intermediate school and a three-year phase at high school:

#### *Elementary School:*

Length of program in years: 6

Age level from: 6 to 12

Certificate/diploma awarded: Elementary Education Certificate

#### *Intermediate School:*

Length of program in years: 3

Age level from: 12 to 15

Certificate/diploma awarded: Intermediate School Certificate

*Secondary School:*

Length of program in years: 3

Age level from: 15 to 18

Certificate/diploma awarded: Tawjihiyah

Secondary school education lasts for three years following upon three years of intermediate education. Pupils can choose between General Secondary and Industrial Secondary Institutes.

In the recent years the government of Saudi-Arabia has strengthened the establishment of so called "Colleges of Technology". These colleges were established with the aim of providing the labor market with technically qualified national personnel and meet the needs of the country for these cadres. It is the prime objective of the Colleges of Technology to provide Saudi Arabians with a scientific and practical education in the field of technology. For establishing, running, expanding and improving of the diploma programs at the Colleges of Technology, the Technical and Vocational Training Corporation (TVTC) was in need for technical trainers to work in this Colleges.

Riyadh College of Technology was established in 1983 as the first College of Technology in the Kingdom. During their stay in Saudi Arabia the peers were given the opportunity to visit this institution. At the moment 1500 students are studying at Riyadh College of Technology; in total, the training program encompasses 3 years (6 trimesters). TVTC has significantly advanced the foundation of new "Colleges of Technology": the Saudi government aims at establishing 50 new Colleges of Technology in the country until 2014; about 35 have already been opened. In this way the Saudi government wants to offer high-quality technical and vocational education and training to the youth of the country in order to meet its social and economic needs. In the last years TVTC has developed curricula for a total of 85 professions for the different types of schools, the Technical Colleges its Technically Secondary Schools and for the Vocational Centers

### **3. Bachelor Study of Engineering Technology for Vocational Trainers in the fields**

#### **3.1 Qualification Objectives of the Study Programme Concept**

*The criterion is fulfilled.*

It is the prime function of Technical Trainers College to educate trainers and teachers for the vocational track of the education system of the Kingdom of Saudi Arabia. Graduates are expected to be not only technical experts in their respective field, but also effective educators (communicators, teachers, trainers, mentors, tutors, coaches, counsellors etc.). An efficient and effective teacher must have pedagogical, didactic and methodological competencies which go beyond mere expertise in a special vocational discipline. The TTC's vision is rooted in its commitment to contribute significantly to the establishment of a knowledge-based society. Establishing and developing Technical Trainers Colleges (TTC's) shows the aim for raising the quantity and especially the quality of trainers and teachers within the vocational track of the Saudi Arabian education system and making it an integral part of higher education. As part of this process students need to acquire the ability to apply scientific methods for the solution of complex problems and need to be fit to take social responsibilities. Therefore the curricula include two modules "Islamic Studies" which reflect the basic principles of the Saudi-Arabian social system.

Further specific characteristics of the study programs are the integration of theory and practice and an interdisciplinary approach (integration of a vocational discipline, pedagogy

and English). The concept of the study program, its educational goals and its specific characteristics are implemented into everyday teaching and learning at TTC. In this way the students obtain the necessary practice and experience to act independently and to take responsible decisions. Furthermore, TTC gives students the intellectual freedom they need to develop their individual identity. The conceptual design of the study program is in agreement with

- the European Qualification Framework EQF (Bachelor level),
- the European Credit Accumulation and Transfer System ECTS,

The study program takes into account both scientific standards and the professional challenges of technical oriented teachers and trainers. The vocational disciplines covered by the program are consistent with the requirements of the employment market in Saudi Arabia. With a view to the increasing demand for pedagogically qualified staff in initial and continuing vocational education, the program prepares students to work in the following areas:

- Teaching positions in TVTC training institutions and other public institutions in KSA as well as in trade and industry,
- Management of training programs in initial and continuing vocational education and training in the Kingdom of Saudi Arabia,
- Management of projects in the field of vocational education and training, particularly in international development organizations.

Students are to acquire:

- Knowledge skills, competencies and understanding in their vocational discipline
- ability to apply knowledge and understanding
- communication skills
- learning skills
- social and personal competencies.

The experts emphasize that the qualification objectives of the study programme are precisely described.

### **3.2 Study Programme Concept**

*The criterion is partially fulfilled.*

As mentioned above, the objective of the Technical Trainers College is to educate and train trainers and teachers for the vocational track of the educational system of the Kingdom of Saudi Arabia. The study program takes into account both scientific standards and the professional challenges of the technical oriented teachers and trainers. The vocational disciplines covered by the program are consistent with the requirements of the employment market in Saudi Arabia. The study program includes the following eight vocational disciplines:

- Electrical Machines
- Electrical Power
- Electronics
- Information and Communication Technology, Application Development
- Telecommunications
- Networks and System Administration
- Production Technology
- Refrigeration and Air Conditioning

The program covers a total time span of 4 years within which 240 ECTS are awarded. To gain access to Technical Trainers College applicants must not only have successfully completed secondary school but must also have successfully absolved a two-year training program at one of the post-secondary Colleges of Technology in Saudi Arabia. In accordance with the European regulations for the recognition of prior learning TTC recognizes 50% of this two-year-training course (i. e. 60 ECTS points), which reduces the amount of time that the students spend at the Technical Trainers College to three years.

The level of entrance qualification of TTC students and the consideration of this level with the design of the modules must be examined and adapted. In particular, this applies to the aforementioned 60 ECTS points earned at a College of Technology. In this context the peers would like to ask TTC to submit a concept for the recognition of credits earned at a College of Technology. The experts also point out that the desired entry qualification of TTC students should be taken into account during the revision of the first semester curriculum at the TTC.

The study program is taught in English to enable students to work with relevant information and to communicate with specialists and non-specialists of the program. A solid foundation in written and spoken English is a precondition for all students in order to follow the subject matter taught and to effectively participate in classes and workshops. During the program the focus shifts from basic technical English to English for academic purposes. The students are to develop the ability to interact and communicate in English by enhancing their reading, writing, listening and speaking abilities. Also, the program is characterized by a strong focus on Vocational Pedagogy. Courses in this field are organized and designed by the Department of Vocational Pedagogy. Building on a solid foundation of pedagogical knowledge, the curriculum is designed to combine the theoretical with the practical aspects of teacher's education, thus helping the students to form their own identity as future professional educators. During the entire program all students must attend 10 units of Vocational Pedagogy, which impart modern methods of training and teaching. These are accompanied by 4 units in Applied Vocational Pedagogy, which deal with the practical aspects of teaching such as planning and preparing classroom lessons effectively.

The experts recommend reducing the number of modules from the field of Vocational Pedagogy in favor of modules dealing with engineering subjects. Furthermore, the links between these two main topical areas should be drawn out more clearly.

The vocational disciplines covered by the study program can be described as follows:

#### *Electrical Machines; Electrical Power; Electronics*

The first part of the study program focuses on the basics of electrical and electronic principles and builds upon the syllabus of the Colleges of Technology. The students' knowledge is built on a solid foundation of basic physics and mathematics. Furthermore, students are instructed to the basics of electro technology and the writing and reading of technical documents and drawings. The design of digital, combinational and sequential circuits and instruction on different types of measurements furthermore forms an important part of the syllabus for all three specializations mentioned above. The students will have the option to take courses in their chosen field of specialization after the fifth semester. Students choosing "Electronics" will learn to plan, develop and maintain advanced laboratory experiments and to overview different types of embedded systems such as microcontrollers. Within the specialization the students will furthermore learn fundamental aspects of electricity and electronics and develop technical expertise in this field. This includes computer programming, process control and automation as well as Programmable Logic Control.

The "Electrical Power" program conveys knowledge in fundamental electric power engineering concepts and develops technical expertise about the transmission of electricity and installation of power systems (from the power station to the consumer). Other major topics are the



field of Automatic Control and Protection. Students specializing in “Electrical Machines” will acquire detailed knowledge in the handling, rewinding, maintaining and repairing of different electrical devices such as single and three phase motors. Additionally they will be trained to operate and control sophisticated electrical machines, motors and industrial installations ranging from power stations to factories.

*Information and Communication Technology, Application Development; Telecommunication; Networks and System Administration*

During the first part of the curriculum these three specialisations of the study program cover the same subject matter, focusing on the fundamentals of Information and Communication Technology and building upon the syllabus of the Colleges of Technology. These core courses provide a strong technical foundation: students are introduced to programming languages relevant for software development and get to understand the basic concepts of programming and application languages. Courses in Mathematic and Data Communication furthermore increase the students’ understanding of the basic principles of their chosen vocational discipline. The later stages of the study program provide students with thorough study in their field of specialization. In particular, the Application Development program conveys knowledge of Programming, Algorithm and Data Structures, Information Management, Web Technology and Multimedia Technology.

Within the specialization of “Telecommunication” the students learn about fundamental aspects of Antenna’s Theories, Microwave and Satellite Communications, Mobile Communications and Communication Systems. Within the specialization of “Networks and System Administration” students are introduced to fundamental aspects of Computer Hardware and Architecture, Operating Systems, Architectures of different Networks, Network Configuration, devices, ICT Maintenance (Software Support, Hardware Maintenance and Network Maintenance).

*Production Technology; Refrigeration and Air Conditioning*

The specialisations in “Production Technology, Refrigeration and Air Conditioning” share several identical modules, such as mechanics, materials and technical drawing, and build upon the syllabus of the Colleges of Technology. The later stages of the programs provide students with thorough study in their field of specialization. Students of Production Technology are introduced to conventional machining technology, forming technology, welding technology, machine elements, electrical power and control circuits. Within the specialisation the students learn fundamental aspects of production technology and develop technical expertise about the function, application, maintenance and repair of manufacturing systems. Other major topics are quality control with software application, advanced metrology, heat treatment and material testing, combined forming and production and advanced manufacturing. On the other hand, students of Refrigerating and Air Conditioning profit from subjects like thermodynamics, technical drawing CAD, Refrigerating and Air Conditioning system components configuration, electrical power and electrical control circuits, (non-)detachable joints and heat transfer, cooling energy needs. Within this specialisation the students learn about fundamental aspects of Air Conditioning and Refrigeration and develop technical expertise about the function, application and preventive maintenance/repair of Refrigeration and Air Conditioning systems, as well as troubleshooting strategies. Other major topics are Hydrodynamics and Aerodynamics in Refrigeration and Air Conditioning, performance inspection and redesign, advanced Air Conditioning systems, (re-) design and combined joining as well as Refrigeration and Air Conditioning control systems.

The experts welcome TCC’s letter of intent which announces a clarification of the final degree awarded (“Bachelor of Engineering Technology”) in the Diploma Supplement. It must also be made transparent in the Diploma Supplement that the program is specifically de-

signed to qualify graduates for teaching positions.

The experts appreciate TTC's efforts to strengthen its cooperative relationships with companies, preferable in the Riyadh area. Partners from industry will be able to give valuable impulses regarding the strategic development of projects, internships and the curriculum. However, the structure and the content of the internships should be continuously improved.

### **3.3 Academic Feasibility**

*The criterion is partially fulfilled.*

In all courses the students work in small groups with a maximum of 30 participants. In this way students are to cope with learning difficulties. Especially, they are to learn to apply their knowledge to the solution of concrete problems. The lecturers are supported by peer tutorials. Students are also given individual advice and support by the lecturers and the Trainee Affairs Administration. Each module is completed with an overall grade. The final module grade is calculated as the arithmetic average of all partial grades achieved, which are weighted by the number of contact hours dedicated to the individual parts of the module. In this way a concrete grade is allocated to each module (see examination regulations). The teaching faculty defined the learning outcomes of each program component on the basis of the learning outcomes of the entire study program, described the learning activities and estimated the amount of time that average students need to complete these activities. Proposals were collected, analysed and synthesised and the estimated workload was expressed in ECTS points.

The experts would like to explicitly point out that the study program has not yet been modularized in a satisfactory way. On principle, modules should constitute larger units with a maximum duration of two successive semesters. Also, a module should consist of more than one course. Module descriptions for the Bachelor Thesis and the internships still need to be submitted, as well as a description of the units (lessons). The chosen form(s) of examination should be specified in the module descriptions. TTC must also verify the excessively high workload calculated for the fifth and seventh semester. There should be a more even distribution of workload throughout the entire program.

### **3.4 Examination System**

*The criterion is partially fulfilled.*

The module examinations are mostly split into two or three partial exams, especially in modules that span two semesters. During the expert talks the lecturers ensured that the total amount of time required for all partial exams never exceeds the total examination time calculated for the whole module. Written examinations take a maximum of 4 hours, depending on the overall workload entailed by a module. Oral exams comprise 45 minutes.

A module counts as passed as soon as all lessons/units of the module have been passed, provided the final module grade is at least satisfactory (4.0). In the later stages of the study program the examinations cover an increasing amount of topics and become more interdisciplinary in nature. TTC should make sure that interdisciplinary aspects and the interrelationship between different areas, especially between the vocational disciplines and the field of Pedagogy remain central topics of the examinations.



The experts recommend that there should not be more than one single examination per module in order to reduce the exam workload for both students and lecturers. The number of written examinations should be lowered in favour of oral examinations, presentations and project group work. In paragraph 1.1.8 (6) of the study and examination regulations a clarification is needed, which kind of student performance (up to 30 %) will be accepted by TTC. Furthermore, the examination board should also include student representatives.

### 3.5 Facilities

*The criterion is not fulfilled.*

The education and training of vocational teachers and trainers at third level is a new challenge for Saudi Arabia. To provide the Riyadh Technical Trainers College with the necessary expertise TVTC and GTZ have agreed to recruit lecturers from Germany and other European countries. In addition to their academic qualifications, the lecturers in the Vocational Disciplines and in Vocational Pedagogy must have international experience in the field of vocational education and training as well as intercultural competence. Furthermore, special didactic and pedagogical abilities, skills, competences and professional experiences are required, especially the ability to apply action-oriented methods. It is the declared goal of the TTC management to increase the number of lecturers with a PhD degree. At present, only a few of the lecturers of TTC have this qualification.

The English language is a constitutive part of the study program. The students (and graduates, respectively) are to enable to communicate with other experts in English, to explain the contents of their study program and to teach trainees in English. Students and graduates should also be able to discuss the topics mentioned above with experts and non-experts taking into account implications for business and economy. Therefore, teachers of English must have sufficient professional experience to impart the described skills and knowledge. The management of TTC has declared its intention to install and realise a further education program for its staff, especially for the lecturers, in order to enhance their academic and didactical qualifications.

At the time of the on-site visit (at the end of November 2011) the TTC faculty consisted of 61 lecturers (Vocational Pedagogy, Vocational Disciplines) and 20 teachers of English. The number of teaching faculty required had been calculated based on an assumed number of 1200 students. All lecturers teach a maximum of 18 hours per week, with the exception of the heads of the departments who teach 9 hours and the teachers of English who teach 24 hours per week. According to TTC representatives a total number of 1505 teaching hours per semester is needed. Each semester, TTC offers 7 courses in Pedagogy and Islamic Studies (with 30 participants per course), 14 courses in English (15 students per course) and one course in each Vocational Discipline (30 students per course, 15 participants in the workshops on Production Technology and Refrigeration and Air Conditioning).

From the experts' point of view the small number of lecturers with a doctoral degree constitutes a decisive weakness of the study program. It is an urgent task for TTC to fill all vacant positions with lecturers holding a doctorate as soon as possible. The experts would also like to point to the fact that only lecturers who hold at least a Bachelor's degree are allowed to function as examiners in module exams. Therefore, TTC should submit an updated organisational plan.

The infrastructure at TCC (lecture rooms, workshops, laboratories, offices, technical equipment, information technology and communication technology) fulfils the requirements and is suitable to achieve the objectives of the study program. The technical equipment of the dif-

ferent laboratories is at a high international standard. However, the experts recommend guaranteeing all students access to these well-equipped workplaces.

The qualitative and quantitative resources of the library are inadequate. TTC must urgently extend its collection by adding more literature in English and by increasing the number of scientific journals available. This should be done with a special view to the reference literature used in the courses.

### **3.6 Transparency and Documentation**

*The criterion is fulfilled.*

The study programme, the curriculum and the examination requirements have been documented and published. The first TTC Students' Handbook has already been released in print. As a next step an electronic version of this handbook is planned.

### **3.7 Quality Assurance and Further Development**

*The criterion is partially fulfilled.*

The management of TTC aims at developing a policy and associated procedures in order to assure the overall quality of its study program and the maintenance of standards. All members of TTC should commit themselves explicitly to the development of an institutional culture which recognises the importance of quality and quality assurance. To achieve this, TTC intends to develop and implement a strategy for the continuous enhancement of quality. The policy and the associated procedures will be official and binding documents.

The quality assurance policy will include:

- a quality strategy and quality standards,
- information regarding the organisation of the quality assurance system,
- allocation of responsibilities of the TTC management, the departments and other organisational units and individuals.

The involvement of the students in the quality assurance process is going to be of particular significance. Up to now, the students have had the possibility to evaluate the study conditions, the infrastructure, the organization and the lecturers of the study program. The target group of the survey were students enrolled in the winter semester 2010/2011, a total of 515 students, 315 or 61.2% participated in the evaluation. The results of this evaluation were primarily positive.

TTC must nominate persons responsible for quality assurance. In this context it is also necessary that the results of evaluations are communicated to the students. The experts welcome TTC's intention to set up an advisory board for quality assurance which includes representatives of "Feeder Colleges" and local companies. Student representatives should be given more opportunities for participation in the central boards of TTC than in the past.

## Part II: Final Vote of the Expert Panel

### Recommendations

- The experts recommend reducing the number of modules from the field of Vocational Pedagogy in favor of modules dealing with engineering subjects. Furthermore, the links between these two main topical areas should be drawn out more clearly.
- The experts appreciate TTC's efforts to strengthen its cooperative relationships with local companies. Partners from industry will be able to give valuable impulses regarding the strategic development of projects, internships and the curriculum. However, the structure and the content of the internships should be continuously improved.
- The experts recommend that there should not be more than one single examination per module in order to reduce the exam workload for both students and lecturers. The number of written examinations should be lowered in favour of oral examinations, presentations and project group work.
- TTC must take measures to verify the excessively high workload calculated for the fifth and seventh semester. There should be a more even distribution of workload throughout the entire program. TC should make sure that all students get access to the high-quality infrastructure and equipment provided.
- The experts appreciate TTC's efforts to strengthen its cooperative relationships with companies, preferable in the Riyadh area. Partners from industry will be able to give valuable impulses regarding the strategic development of projects, internships and the curriculum. However, the structure and the content of the internships should be continuously improved.
- Student representatives should be given more opportunities for participation in the central boards of TTC than in the past.

### **Recommendation to the Standing Accreditation Commission (SAK)**

*The expert panel prospects the accreditation of the study programme "Bachelor Study of Engineering Technology for Vocational Trainers in the fields" with the degree "Bachelor of Engineering Technology", if the following conditions will be complied.*

- From the experts' point of view the small number of lecturers with a doctoral degree constitutes a decisive weakness of the study program. It is an urgent task for TTC to fill all vacant positions with lecturers holding a doctorate as soon as possible. Only lecturers holding at least a Bachelor's degree are allowed to function as examiners in module exams. Therefore, TTC should submit an updated organisational plan.
- The experts ask TTC to submit an updated organisational plan.
- The qualitative and quantitative resources of the library are inadequate. TTC must urgently extend its collection by adding more literature in English and by increasing the number of scientific journals available. This should be done with a special view to the reference literature used in the courses.
- The experts welcome TCC's letter of intent which announces a clarification of the final degree awarded ("Bachelor of Engineering Technology") in the Diploma Supplement. It must also be made transparent in the Diploma Supplement that the program is specifically designed to qualify graduates for teaching positions.

- The study program has not yet been modularized in a satisfactory way. On principle, modules should constitute larger units with a maximum duration of two successive semesters. Also, a module should consist of more than one course.
- TTC must submit module descriptions for the Bachelor Thesis and the internships as well as a description of the units (lessons).
- The chosen form(s) of examination should be specified in the module descriptions.
- TTC must nominate persons responsible for quality assurance. In this context it is also necessary that the results of evaluations are communicated to the students.

## Part III: Further Course of the Accreditation Procedure

### 1 Response of the Institution

#### 20. April 2012 : Comments TTC

##### Part 1: Report by the Peers

##### 1 Technical Trainers College of Riyadh

No remarks.

### Education and Training in Saudi Arabia

The training programs at the Colleges of Technology are 2-year programs (6-trimester-Program).

### Bachelor Study of Engineering Technology for Vocational Trainers

#### 3.1 Qualification Objectives of the Study Program Concept

No remark.

#### 3.2 Study Programme Concept

(1) Explanatory Note to the recognition of achievements obtained at a Saudi Arabian College of Technology: achievements, which were obtained at one of the Saudi Arabian Colleges of Technology follows the following principles and rules: The objectives of the study programs of the Colleges of Technology are knowledge, understanding and the ability to describe, to explain, to distinguish, to define, to identify, and to classify. Trainees may also be required to calculate, prepare, select, or – seldom – apply knowledge in order to solve tasks. When taking up their studies at TTC students come equipped with the essential knowledge and understanding in order to start their third semester of the study program. Detailed descriptions of the content of the respective plans of study at the Colleges of Technology as well as their respective qualification aims, which must have been successfully completed in order for a candidate to be admitted at TTC may be reviewed in Annex 7. Corresponding curricula at the various colleges in Saudi Arabia are identical. The objectives of the TTC study programme include of knowledge and understanding.

In addition, however, and first and foremost the skills and competences to use knowledge and understanding for the resolution of specific practical tasks, take a preeminent place at TTC study objectives. Likewise, the ability to arrive at judgments and decisions that express reflection on relevant social, scientific or ethical issues take an important place at the TTC study programme. The concept of recognition of achievements obtained at a Saudi Arabian College of Technology is explained in detail in the attached appendix 1.2. and 7.(2) Explanatory note to „reducing the number of modules from the field of Vocational Pedagogy in favor of modules dealing with engineering subjects“: It is important to note, that in contrast to the German approach the TTC study program follows a one-phase program structure without a practical teaching phase („Referendariat“). This requires a stronger integration of Vocational Pedagogy Modules. Please find details in part 2.

#### 3.3 Academic Feasibility

Explanatory Note: The criteria given by the German Accreditation Council has not been fulfilled to some extent. However, the accreditation should be carried out according European Standards. TTC views the criteria as defined in the ECTS Users' Guide, especially the criteria concerning the size of the modules, as fulfilled. Nevertheless, a revision of the study program will be carried out under consideration of the recommendations provided by the accreditation experts. TTC proposes that this revision should be undertaken with reasonable care and due diligence. Please find details in part 2.

### 3.4 Examination System

Explanatory Note: The specific learning environment and experiences of Saudi Arabian students has to be taken into account. Details in part 2.

### 3.5 Facilities

The proportion of lectures with PhD at TTC lies at approximately 25 % at the moment. This is higher than in many European Higher Education Institutions, whose study programs were accredited without objections consistent with European Accreditation Standards. Nonetheless, TTC aims at increasing the proportion of lecturers with PhD.

### 3.6 Transparency and Documentation

No remarks.

### 3.7 Quality Assurance and Further Development

No remarks.

## Part 2: Final Vote of the Expert Panel

### Recommendations:

#### Engineering subjects vs. Vocational Pedagogy

The recommendation to reduce the proportion of lectures / modules in the area of vocational pedagogy in favor of engineering subjects / modules and to integrate lectures / modules in vocational pedagogy more systematically with engineering modules will be given priority in the coming discussions concerning the further development of the TTC study program. The integration of vocational pedagogy with engineering modules is a constitutive tenet of the TTC study program. This is already applied, but with the potential to be expanded. For instance, at the moment half of the modules in „Applied Vocational Pedagogy“ are under the responsibility of lectures belonging to the Departments covering the engineering disciplines. These lectures have not only high academic qualifications in engineering subjects and vocational pedagogy but also practical teaching experience. More lectures with this professional profile will be employed in the near future. Special recruitment efforts are under way to engage lectures in the vocational pedagogy department, who will be qualified in engineering disciplines taught at the TTC. Furthermore, the following ideas are under consideration: The arrangements and coordination between the lectures in the Engineering Departments and the vocational pedagogy Department should be expanded. For some core modules of the TTC study program „Team Teaching“ might be introduced. In the engineering-related lectures project work which necessitates presentations of results will be integrated. However, it has to be taken into account that in contrast to teacher training in Germany the TTC study program is modeled on a one-phase training structure. A practical phase („Referendariat“) as part of the training of a teacher is not earmarked. As a consequence, a reasonable proportion of vocational pedagogy content is necessary in order to achieve adequate professional



standards enabling the graduate to perform his duties as a teacher in a vocational school. Therefore, the proportion of vocational pedagogy content cannot be reduced arbitrarily. The onephase teacher training does not comply completely with the teacher training model in Germany. However, core elements of the German training model of vocational teachers are evident in the TTC study program, particularly practical orientation, and relevance for working world and local business demands and a solid scientific basis in engineering as well as pedagogical / didactical subjects. In this context reference is made to the training provided by Universities of Applied Sciences in cooperation with Universities in Germany. For the continuous improvement of the quality of TTC graduates it is planned to employ a majority of them in so-called Foster-Colleges as their first duty station. These Foster Colleges are in the process of establishment. TTC Mentors will for a limited period of time support the newly trained teachers in their professional development. In addition, TTC will assist the Foster Colleges to revise and modernize the curricula and learning materials in line with the vision of TTC. These considerations are very new and have been initiated by TVTC. Concrete plans and actions had not been available at the time of submission of the accreditation request to ZEvA. These new developments have to be taken into consideration with regard to the further development of the TTC Study program. In case that after careful and intensive discussions and reviews the one-phase teacher training model will be continued, TTC will reflect if and to which extent it should reduce lectures / content in the vocational pedagogy in favor of engineering-related disciplines. Irrespectively of this, TTC will realize a better integration of engineering-related modules with modules in the field of vocational pedagogy. With the application for re-accreditation a detailed account of the discussions and reviews concerning the further development of the mentoring of TTC-Graduates and concepts with regard to TTC study program will be provided.

## **2. Cooperation of TTC with companies**

The cooperation with local companies is expanded continuously. The interest of local companies to accept trainees for an internship, which as a practical element is compulsory for TTC trainees, has increased substantially. The improved communication and cooperation with local companies is a valuable source for ideas to upgrade the curricula in order to meet local business needs. The internships under the „Company Field Practice“ Element at the TTC are a new experience for the companies and the students. These experiences are used systematically to improve the set-up and quality of internships. For the future, TTC aims at improving the students better for their internship. As part of this companies will receive extensive information on the goals and particulars of the TTC study program. Moreover, companies will be made aware of the benefits of teacher training for the companies within the „Saudization“ Framework. In addition, a semester abroad is planned for a certain number of students (5.-7. Semester at TTC). Individual modules or parts of it would be taught by German Partner institutions in line with TTC Curriculum and quality standards. As a complementary measure students would during this stay abroad over 1/2 or 1 semester be given the opportunity to connect with German companies. TTC leadership is currently in specific discussions with potential cooperation partners. Implementation of the model is scheduled for spring 2013. TTC plans to build up a consortium of higher education institutions in Germany. A formal agreement detailing the areas of cooperation will define the legal framework for the consortium. Among other things the cooperation in the field of human resource management will be given high priority. It can be expected that this cooperation will open new partnerships with companies in Germany which can be used to providing additional international internships for TTC students. This long-term development may be evaluated at re-accreditation.

## **3. Module Examinations**

The timely examination load does not increase with the partition of a module examination in partial examinations. The total examination duration in case of partial examinations shall not be higher than the duration in case of an undivided examination. Students tend to prefer par-

tial examinations, when a module is taught over two semesters. The experience shows that especially for the 1 – 3 semester Saudi Arabian students feel more comfortable with this arrangement as they are used to examination to the end of the semester. Therefore module exams are split into two or three partial exams in consideration of the fact that Saudi Arabian students at TTC are placed within a study context that is totally new for Saudi Arabia, forcing them to cope with an unusual didactical approach and taking into account study in a foreign language: English. Furthermore, immediate examinations at the end of the semester may reduce the workload for exam preparation in comparison to an exam after a two-semester module which has not been split. Modules, whose lectures are completely covered in one semester, will be examined with an undivided examination. This applies also for modules, which will be taught over two semesters; in case of several lectures in one semester only a partial examination will be carried out. The scheduled study program reform will ensure that a module is completed in one semester and that there will be only one examination at the end of a module. It is planned that the study program reform will be finalized at the latest before the reaccreditation. Exceptions should be possible due to the special experience of Saudi Arabian students with examinations. Modalities of course or module exams can include the following: oral examinations, written exam, Essay, Multiple choice, tasks or problems to be solved, combination of the modalities above, oral presentation (with or without written handout), written presentations, Essays, seminar papers, projects. Other modalities are possible, if these ones are useful or necessary in order to achieve the learning outcomes of the respective module, considering article. Examination Regulation: Article 1.1.7: Modalities and deadlines for examination performances must be specified by the lecturer at the beginning of each course or module and brought to the students' attention. This variety of exam methods will be used more in the future. In the Manuel of Modules as well as in the Table of Modules suitable exam methods will be described in more details (Appendix 1.3). At the start of a semester students receive detailed information about the exam methods applied in the modules, for which they have registered.

#### **4. Apportion of ECTS-Credits over the semesters**

In connection with the review and – where appropriate – changes of the modules the recognition of ECTS-credits will also be looked at to ensure a more equal apportion over the semesters. The differences in the ECTS-Credits in the semesters, especially the workload of 33 credits, are the result of the practice phases „Company Field Practice“. These practical phases of two 6 week blocks are placed between the end of lectures of the summer semester and the beginning of lectures of the winter semester (End of 4th./Begin of 5th Semester/End of 6th./Begin of 7th Semester), that means between Mid-June and End of August. As a result the 2 x 3 ECTS-Credits of the two Company Field Practices have been divided per 3 ECTS per semester. In case that these credits are not accounted for, the amount of ECTS-Credits in the semesters concerned would not exceed 30 credits. The only exception is the 4<sup>th</sup> semester in the specialization Refrigeration and Air Conditioning with 31 Credits. The experience so far did not show any problems for the students with a workload exceeding 30 ECTS. Notwithstanding – as outlined above – TTC a more equal distribution over the semesters is aspired. This should be carried out in connection with the review of the study program and its modularization.

#### **5. Equipment & Facilities**

The TTC has at its disposal an area for seminar rooms, workshops, laboratories, library, office rooms as well as rooms for other use which is far more than in comparable institutions in Germany. The modifications of the buildings took more time as initially planned, but will be finalized in the near future. The students can access an information- and communication infrastructure in the seminar rooms and IT-rooms which are more than adequate. The eventual completion of the modifications and re-constructions of the TTC buildings, students will also benefit from Self-Study-Work Places with excellent facilities, especially with regard to IT.

At the moment two of such rooms are already in use. Beyond those measures, TTC Management has submitted a proposal to TVTC Management which outlines a package of measures towards a more "Student and Learning-centered Campus". Related changes include a complete landscape design with specifically designed "communication islands", as well as cafeteria, sports facilities and study/reading rooms. Pending approval by TVTC this package of activities will be implemented beginning summer/early fall 2012.

## 6. Membership of students in TTC bodies and committees

The participation of student representatives in the examination committee is currently under discussion. This issue has been discussed before. It is important that all information related to examination cases are treated with the highest degree of confidentiality. The TTC management would like to bring to the attention of the accreditation commission that the necessary degree of confidentiality cannot be guaranteed due to cultural differences and lack of experience of Saudi Arabian students with participatory elements in the management of higher education institutes. Therefore, the TTC has decided not to include student representatives in the examination committee at the moment. This decision will be reviewed regularly. The TTC is still in under development. The establishment and filling of TTC bodies is under discussion and decisions will be taken as soon as the TTC constitution / charter is in place. The establishment of a Governing Board is part of the GIZ-TVTC contract; its establishment is scheduled for the autumn semester 2012/13. The point of student participation will be submitted to the Governing Board upon its inception. The results will be communicated in the application for re-accreditation. At the moment a „Trainee Council“ is in place at TTC. This council was organized by the lecturer for Islamic Studies at the TTC and aims at giving students a voice in college matters.

## Recommendations to the Standing Accreditation Commission

### Personal

In the accreditation application and documentation the senior management of the TTC developed the following human resource planning perspective: *“Professional experiences and qualifications will be crucial criteria for the selection of lecturers also in the future. Nevertheless, TTC will increase its percentage of PhD degree holders. The ratio of lecturers with a PhD-degree compared to lecturers without terminal doctoral degree is planned to be at 50%. With this ratio TTC will be comparable to many accredited universities in several European countries.”* In this context the following aspects are worth to be considered: Also in Germany it is a challenge to find adequate and highly qualified lecturers for the training of teachers in technical subjects. Although the proportion of lecturers at the TTC with PhD degree is currently below target, the quality of training at TTC for the first student generation is very good. This has been confirmed several times by experts, including the accreditation commission. The proportion of lecturers with PhD in the Department „Information and Communication Technology“ is nearly at 50%, in the Department „Vocational Pedagogy“ nearly at 30%. There is still need for an increase in lecturers with PhD in the Departments „Electrical Technology and Electronics“ and „Mechanical Technology and Refrigeration and Air Conditioning“. Altogether the proportion of lectures with PhD is at 25%. In higher education institutions in several European countries the proportion of lecturers with PhD is lower than the one currently observed at TTC. This is particularly the case with the universities of cooperative education („Berufsakademien“) in Germany. Despite this situation, the accreditation of study programs at these higher education institutions has not been negatively affected. Furthermore, it is also does not violate European regulations. TTC seeks a higher proportion of lecturers with PhD within its faculty. The concept of TTC views the integration of practical elements as a prerequisite to ensure that TTC graduates work goal-orientated and efficiently at their work places. The goal should be achieved until the application for re-accreditation in five years. After 3 years substantial progress towards the achievement of the goal should be at-

tained (mile stone). In order to increase the proportion of lectures with PhD the following measures have been taken:

TTC plans to create strategic partnerships with universities and other higher education institutes which train teachers for vocational schools (for example in Baden-Wuerttemberg and North-Rhine-Westphalia). One major aim of these partnerships is the cooperation in providing qualified lectures for a short-term (one semester) or long-term perspective (2 years and more). The discussions do not exclude the formal establishment of joint lecturing positions. In addition, the cooperation should also provide professional training opportunities for Saudi Arabian lecturers, which might be employed at the TTC after the completion of their training. The strategic partnership should consist of several German universities and be governed by a formal consortium. This idea has already been discussed with 4 higher education institutes in Germany. More details will be negotiated in the summer semester 2012. Since summer semester 2012 job announcements have been more focused and communicated more effectively. For instance the job requirements and working conditions as well as the specific challenges to work as a lecturer at the TTC have been described in more detail. Reference to a ZEvA accreditation would be beneficial in TTC efforts to recruit qualified lecturers. Moreover, additional media will be considered to reach the target group of potential lecturers. The recruitment approach has been internationalized to reach potential qualified candidates outside Germany. With more international applications coming in, the success of this new approach has been proven. The contact to the target group of university lecturers will be enlarged by the cooperation with German higher education institutes. In this context personal networks will also be accessed. The structure of personnel will be geared more effectively towards the goals of the study program. Apart from lecturers, responsible for the academic modules and lectures, assistant lecturers will take over the instruction in the workshops and other more practical parts of the study program. Where applicable, tutors and mentors for tutorials will be employed. Tutors and mentors could be engaged at TTC under cooperation agreements. The further development of the staff structure will be linked with the reform of the study program including its modularization. Results will be reported at the time of re-accreditation. The above mentioned measures should ensure that current vacancies are filled as soon as possible. Since October 2011 10 vacant lecturer positions have been filled, 4 in the Department Mechanical Technology and Refrigeration and Air Conditioning, 2 in the Department Electrical Technologies and Electronics and 4 in the Department Vocational Pedagogy. The proportion of applications of candidates with PhD is increasing. TTC is currently recruiting an additional large number of lecturers, to join TTC in the fall of 2012. Special effort is being placed on increasing the number of Ph.D. holders. The examination of modules and the corresponding allocation of ECTS-points carried out only by lectures who obtained at least a Bachelor degree. This was – apart from some exceptions - the case since the commencement of operations in September 2009. In cases of exception (2 lecturers in Department Mechanical Engineering and RAC and one lecturer in the Department Electrical Technology and Electronics) the lecturers concerned had qualifications which according to European regulations concerning the recognition of qualifications were equivalent to a Bachelor degree. Two of the three mentioned staff members will leave the TTC in the near future. The third staff member, who will remain at the TTC, will only contribute to examination as long as practical aspects in the workshops are concerned. In future only lecturers with at least a Master degree or equivalent will be eligible to undertake exams. Concerning English-Teachers a Bachelor degree is necessary to work as an English Teacher at TTC.

## 2. Organisation set-up

The latest organizational chart may be found in appendix 1.1. In the meantime the position of Vice-Dean Training has been filled with Dr. Frohberg.



### 3. Library

TTC acknowledges that the library is not in a satisfactory condition. The senior management of the TTC views the improvement of the library as an issue of highest priority and has particularly included this point in the above mentioned Campus Development Plan. In the last few weeks the lecturers of the TTC have provided us with recommendations for more than 1000 specialist books based on the literature lists of the modules. The required books have already been ordered and will arrive at the TTC in the near future. The development of the library will be continued. With the start of the next semester, the library should be equipped adequately so that students have access to books and specialist journals necessary for their studies. In addition, the library will move into larger rooms in the main building. This will allow TTC to create a Multi Media Center with well-equipped work places and study rooms. The TTC students have – irrespectively of the continued efforts to build up a high class library – the opportunity to make full use of the King Faisal library of the city of Riyadh as well as the library of the King Saud University in Riyadh. TTC students can borrow books and international journals. A cooperation agreement with the King Saud University concerning the usage of the library by TTC students is under preparation.

### 4. Diploma Supplement

Concerning the characteristics of the TTC study program the Diploma Supplement provides the following clarifications: The study program of “Bachelor Study of Engineering Technology for Vocational Trainers” is a basic scientific study program with concrete practical applications that leads to a first professional academic degree. It provides the knowledge, skills and competences required for a professional career involving the use of scientific methods in order to cope with the professional challenges. Technical Trainers College’s mission is providing an all-round education and training for vocational trainers in a number of vocational subjects in line with international standards. The study / training program integrates up-to date knowledge and skills in vocational pedagogy and in the vocational discipline theory and practice. The study program is carried out in English language. The study program includes a vocational discipline, pedagogy, technical and vocational English and Islamic studies. The real challenges lay in bridging the academic-professional gap; lecturers and students / trainees relate theory-focused university studies to the practical demands of the world of work. The formulation in the Diploma Supplement with regard to „Access to Further Study“ has been changed in comparison with the application as follows: *“Master program with an adequate field of study”*

### 5. Modularization

Modules are the smallest entity of a study program, which leads to a partial qualification within a study program. The European regulations according to ECTS User Guidelines have been taken into account during the design of the study program. In this context the modules have been divided in lecturers, without affecting the entity of the modules. However, in line with European regulations not all modules were divided in lectures. The European criteria (ECTS User Guide) require that modules should not be too small, but also not be too large. Modules should not be too small to prevent a fragmentation of the study program in too many entities. Such a fragmentation cannot be observed for the TTC study program “Bachelor Study of Engineering Technology for Vocational Trainers” as the following information proves:

Specialization Production Technology: All modules have 6 or more ECTS-Credits;

Specialization Refrigeration and Air Conditioning: All modules have 6 or more Credits;

Specialization Application Development: 9 of 11 modules have 5 or more Credits, one module has 4 and another module 2 credits. Both modules cannot be combined due to reasons of content.

Specialization Telecommunication: 10 of 11 modules have 5 or more ECTS-Credits, 1 module has 4 Credits;

Specialization Network and System Administration: 8 of 11 modules have 5 or more Credits, 3 modules have 4 Credits each;

Specialization Electrical Machines: 8 of 9 modules have 5 or more Credits, 1 module has 3 Credits (exercise in the last semester which goes beyond the module)

Specialization Electrical Power: 7 of 8 modules have 5 or more Credits, 1 module has 3 Credits, (exercise in the last semester which goes beyond the module);

Specialization Electronics: 6 of 7 modules have 5 or more Credits, 1 module has 3 Credits; exercise in the last semester which goes beyond the module.

Only the modules of the subject vocational pedagogy have a larger portion of lower credits: 4 modules have 3 ECTS-Credits each, while the other 5 modules have 6 Credits. It is possible to create larger modules. This will be addressed in the context of the planned review of the TTC study program. The lecturers already see the necessity of changes in the study program based of their experiences so far. In addition, the increasing number of lecturers will bring new expertise for the TTC. In the future, modules will be evaluated regularly on the basis of experience made during teaching. This includes – at the latest before the reaccreditation – the restructuring of the modules including the fine-tuning of allocation of credits on the basis of empirical data about the work load. Already revised are the modularization of the specializations „Production Technology“ as well as „Refrigeration and Air Conditioning“; these new structures can be found in appendix 1.3. Similar plans are also discussed for the specialization „Telecommunication“. With the application of re-accreditation a reformed study program and modularization concept will be submitted.

## **6. Module description „Bachelor Thesis“ and Company Field Practice“**

The module descriptions for the Bachelor-Thesis as well as for the Company Field Practice can be found in appendix 1.4.

## **7. Exams methods**

The examination regulations provides for the following methods of examination: Modalities of course or module exams can include the following:

- oral examinations:
- written exam
- Essay
- Multiple choice
- Tasks or problems to be solved
- Combination of the modalities above
- oral presentation (with or without written handout)
- written presentations
- Essays
- Seminar papers
- Projects



Other modalities are possible, if these ones are useful or necessary in order to achieve the learning outcomes of the respective module, considering article.

Examination Regulation: Article 1.1.7: Modalities and deadlines for examination performances must be specified by the lecturer at the beginning of each course or module and brought to the students' attention. This variety of exam methods will be used more in the future. In the Manuel of Modules as well as in the Table of Modules suitable exam methods will be described in more details (Appendix 1.3). At the start of a semester students receive detailed information about the exam methods applied in the modules, for which they have registered.

## 8. Quality Assurance

TTC will employ a Quality Manager, who will report directly to the Dean. This position is already included in the TTC budget. Initial interviews with suitable candidates have been carried out already. While the college-wide Quality Management is located in the Dean's Office, the budget draft for the coming academic year also provides for a Quality Specialist under the supervision of the Vice-Dean Training to support the Vice Dean in ensuring highest academic standards. An advisory council will be established as soon as the Quality Manager has been recruited. The results of the evaluation of the lecturers through the students will be communicated to the students and the lecturers in a suitable format. TTC Management discusses the results of the evaluations and decides on measures if necessary. From next semester onwards an entrance examination will be carried out. This modality will ensure that new students have the necessary skills and knowledge to follow the course of study at TTC.

### Dr. Michael Klees GIZ SA

Dean / Director  
Technical Trainers College (TTC) Riyadh

## 2. SAK-Resolution from 15/05/2012

### TOP 5.7

Accreditation of the study program „Bachelor Study of Engineering Technology for Vocational Trainers“ offered by the Technical Trainers College (TTC), Riyadh, Kingdom of Saudi Arabia (1192.xx-1)

### General remark

Being aware of the social reality in the Kingdom of Saudi Arabia the panel of experts has deliberately omitted the accreditation criterion of “gender equity”. The Standing Accreditation Commission (SAK) of the Central Evaluation and Accreditation Agency Hanover, Germany (ZEvA) wishes to emphasize, however, that “equal opportunity for women” is not only a human rights issue, but also an issue of quality in education. If the segregation of men and women is allowed to persist at the university level (despite the ratification by Saudi Arabia of the UN-Convention on the Elimination of all Forms of Discrimination against Women) the consequences will be very costly in terms of intellectual potential forgone and as a consequence of the limitation of competition implicit to the segregation of the two sexes. Girls tend to outperform boys in processes of formal education and will put them under pressure if a direct comparison of performance is possible; thus boys will be motivated to work harder if girls are present.

Even if women are predominantly employed as pre-school, grade school, and secondary school teachers their educational opportunities must encompass the entire spectrum of academic subjects if the lack of interest among youths in mathematics, the natural sciences,

engineering, or informatics shall be overcome. To that end the advancement of women well into the highest ranks of university teachers and researchers must be a priority aim of higher education policy, because the success of a strategy of “educating the educators” depends on the educational level that can be achieved by educators at the top of the pyramid.

Therefore it will not suffice to establish one new university like KAUST in Jeddah that does not practice the segregation of men and women; it should rather be an important goal for TTC to open its doors to young women who are interested in the teaching profession at vocational schools.

### **Accreditation decision**

*On May 15 2012 the program leading to the academic degree “Bachelor of Engineering Technology” has been accredited by the SAK of ZEvA on the condition that the following caveats will be remedied within three years after receipt of the decision. Unless renewed beforehand the accreditation will expire at the end of the summer term 2017. Within two years TTC must submit an updated action plan for approval.*

#### **Caveats:**

- 1. The small number of lecturers holding a doctoral degree constitutes a decisive weakness of the study program. It is an urgent task for TTC to fill all vacant positions with lecturers holding a doctoral degree. TTC is therefore asked to prove to SAK that the vacant positions have been filled with suitably qualified academic staff.*
- 2. Only teaching staff holding at least a Bachelor’s degree should be allowed to function as examiners in module exams. Therefore, TTC is asked to submit revised regulations regarding the appointment of examiners.*
- 3. The qualitative and quantitative resources of the library are inadequate. TTC must urgently expand its collection by adding more literature in English and by increasing the number of scientific journals accessible. This should be done with special attention to the reference literature used in the courses.*
- 4. The study program has not yet been modularized in a satisfactory way. In principle, modules should consist of more than one course, thus constituting larger thematically coherent units of maximum duration of two successive semesters. A revised concept must be submitted to the accreditation commission.*
- 5. TTC is asked to nominate persons responsible for the management and further development of the quality assurance system. The results of class evaluations must be communicated to the students.*