

Accreditation Report

Programme Accreditation of

German University of Technology Oman

**“Computer Science” (B.Sc.), “Urban Planning and Architectural Design (B.Sc.),
“Applied Geosciences” (B.Sc.)**

I Procedure

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II Introduction

The experts would like to thank the representatives of the HEI as well as students that they have taken part in the discussions and willingly shared information and their views during the site visit. The discussions are valuable not only for the assessment of the institution, but also for a better understanding of the legal and sociocultural context of the local higher education system.

Evaluation basis for the peer-review experts is the self-assessment report of the HEI as well as intensive discussions during the site visit with the HEI management, deans and/or heads of the departments, head(s) of the study programmes, study programmes coordinators, teachers, lecturers, administrative staff, students, and graduates.

Main objective of the accreditation procedure is to assess the quality of the study programmes and compliance with the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG). The ESG standards are applied as main assessment criteria in the international accreditation procedure.

A group of experts was set up, which ensured that all areas relevant to the accreditation procedure (e.g. legal, structural, social etc. aspects) are considered. The peer-review experts include professors, representatives of the professional practice and the student representative. A certificate with the ACQUIN seal is awarded upon accreditation of the study programmes.

1 The Higher Education System in Oman

Today's Omani education system was established by the late His Majesty Sultan Qaboos and is hence a relatively young system. This can be seen when looking at the literacy rate: In 2018, the literacy among people aged 65 and older was 56.9%, while it was 95.7% among the total population aged 15 and older. English is taught as a foreign language in school.

Founded in 1986, Sultan Qaboos University (SQU) in Muscat is the nation's first public university and at second Oman's largest HEI, with 18,366 students enrolled as of Fall 2020. In addition, a second public university in Oman was established in January 2020 under the Royal Decree 76/2020. This Royal Decree brought together the former Colleges of Technology, the former Colleges of Applied Sciences and the former Rustaq College of Education to form the University of Technology and Applied Sciences (UTAS), motivated by the Oman Vision 2040. There are also 7 Oman College of Health Sciences and 4 Higher Institute of Health Speciali-

sations throughout the country associated with the Ministry of Health, College of Sharia Sciences under the Ministry of Endowment and Religious Affairs, and a new Military Technological College in Muscat under the Ministry of Defence with a total of 8,037 students in 2019/20.

There are nine private universities³ and nineteen private colleges³ in Oman, established by the *Council of Higher Education*, with a total of 55,827 students in 2019/20. All private HEIs are supervised by MoHERI and must be affiliated to a university outside of Oman. The private colleges must offer study programmes that are (co-)developed and approved by their international partner universities to ensure the international benchmarking of the programmes. Sultan Qaboos University and the University of Technology and Applied Sciences serve different target groups than GUtech (e.g., they often offer two- year diploma programmes, and three-year higher diploma programmes), Figure 1.3 shows which subjects are popular among Omani students.

2 Short profile of German University of Technology in Oman (GUtech)

The **German University of Technology in Oman (GUtech)** is a private university associated with RWTH Aachen University. The university was established in the Sultanate of Oman in 2007 with support of H.E. Abdullah bin Mohammed Al Salmi, the Omani former Minister of Endowments and Religious Affairs, and the German Academic Exchange Service (Deutscher Akademischer Austauschdienst, DAAD) to provide programmes of study and research that enable innovation and are aligned with the German university model created by von Humboldt, where teaching and learning are based on research and practical experience. The University aspires to achieve this by encouraging the exchange of people, knowledge and ideas between the Sultanate of Oman and Germany, thereby strengthening the intercultural understanding between both countries and beyond. The University aims at becoming the leading University in the region, achieving internationally recognized standards in Education, Research, and Innovation.

In September 2012, GUtech moved to its custom-built campus located in Halban at the western outskirts of Muscat. With a total area of 500,000 m², the campus is designed to accommodate the University's growth over the next decades. The facilities built in Phase I and Phase II, i.e., the main academic building, the new building (GU2 Algorismus) and four student/staff dormitories, can house 3,500 students. 2,798 students are enrolled in one of the following programmes as of Academic Year 2022/23.

The Royal Decree No. 41/99 on “Issuing Private Universities Ordinance” and Ministerial Decision No. 36/99 on “ Issuing the Executive Regulations for the Private Universities Ordinance” provide the legal framework for the establishment of the University.

The University was established as a juristic person under the name Oman-German University of Technology pursuant to Ministerial Decision No. 9/2007 published by the Ministry of Higher Education, Research, and Innovation of the Sultanate of Oman on the 17th of March 2007. Ministerial Decision No. 57/2007 determined the start of studies at GUtech as winter semester 2007. Following a royal directive, the name of the University was changed to *German University of Technology in Oman* on the 19th of March 2008. Hereinafter, the term *GUtech* refers to *the German University of Technology in Oman*. The German University of Technology is hence determined to be a non-profit organization.

The study programmes at GUtech do not have unlimited capacity. Most laboratories, e.g., in physics and chemistry, have a maximum capacity. If a class has more students, the lab sessions must be split into several small groups whose lab time cannot overlap. As a consequence, the staff- student ratio is small in these courses. Due to the significant growth of GUtech’s student population, a new building was constructed in 2017 and used starting winter 2018. It houses laboratories, classrooms, lecture halls and design studios. Lecture courses may in principle have larger class sizes, however the largest classrooms at the Halban Campus of GUtech have a capacity up to 250 students, while the majority of classrooms have a capacity of 25 to 40 students. At the moment, GUtech is aiming at a total student enrolment of around 2,800 students, including the Foundation Programme. Since most students must pass through the Foundation Programme, the departments get rough estimates of the next freshman class sizes one year in advance, which greatly assists with the capacity planning.

Affiliation to RWTH Aachen University

The Vision of GUtech is being achieved in affiliation with RWTH Aachen University, one of the leading universities of technology in Europe. GUtech promotes cooperation and exchange with other universities worldwide. The university has signed Memoranda of Understanding (MoUs) with the University of Brescia (Italy), Hochschule Neu-Ulm (Germany), Hochschule 21 Buxtehude (Germany), CBS International Business School(Germany), Brandenburg University of Technology Cottbus-Senftenberg (Germany), Indian Institute of Technology Bombay (India), GUtech also signed agreements with the Munich University of Applied Sciences (Germany), the University of Applied Sciences in Stralsund (Germany), Universiteit Hasselt (Belgium), Executive Academy of Vienna University for Economics and Business (WU) (Austria), University of Salzburg (Austria), University of Bologna (Italy) [G.84], and Wilkes University (USA). An Academic Affiliation Agreement between Oman Educational Services LLC (OES) and RWTH Aachen University in Germany, was signed on the 27th December 2006, and was amended

on 5th May 2010 and renewed on 29th June 2018. The Academic Affiliation Agreement between Oman Educational Services LLC (OES) and RWTH Aachen University in Germany was revised on 2nd February 2021 to establish a mutually beneficial framework for their relationship.

GUtech is designed to be an independently operating university, affiliated to RWTH Aachen University and controlled by the Board of Governors which is chaired by the Rector of RWTH Aachen University, hosting Aachen professors and representatives of public bodies of both countries. With the agreement, Oman Education Services LLC appointed RWTH Aachen University to provide curricula for study programmes, quality assurance and expertise in setting up the operations of GUtech. The collaboration also has the support of the Ministry of Education of North-Rhine-Westphalia, the home state of RWTH Aachen University, and the German Academic Exchange Service (DAAD). RWTH Aachen University, a public technical university located in the German state of North-Rhine-Westphalia, was founded in 1870. As of winter semester 2021/2022, total of 47,269 enrolled students, of which 13,354 are from overseas.

3 General information on the study programmes

Location	German University of Technology in Oman (GUtech): Bachelor of Science in Computer Science (B.Sc.)
Date of introduction	
Faculty/ department	Faculty of Engineering and Computer Science
Standard period of study (semesters)	Four years (eight semesters) excluding Foundation programme
Number of ECTS credits	240
Number of students currently enrolled	245
Target group(s)	Omani and international students
Form of study	Full-time
Tuition fee	2,940 OMR for Omanis and 3,900 OMR for non-Omanis (per semester)

Location	German University of Technology in Oman (GUtech): Bachelor of Science in Urban Planning and Architectural Design (B.Sc.)
Faculty/ department	Faculty of Urban Planning and Architecture/Urban Planning and Architectural Design (UPAD)
Standard period of study (semesters)	Four years (eight semesters) excluding Foundation programme
Number of ECTS credits	240
Number of study places	314
Admission requirements	Omani and international high school graduates
Form of study	Full-Time
Tuition fee	2700 OMR per semester for Omanis, 3750 OMR per semester, for non-Omanis

Location	German University of Technology in Oman (GUtech): Bachelor of Science in Applied Geosciences
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Faculty/ department	Applied Geosciences with focus on Energy, Water and Mineral Resources
Standard period of study (semesters)	Four years (eight semesters) excluding Foundation programme
Number of ECTS credits	240
Number of study places	285
Target group(s)	Omani and international high school graduates
Form of study	Full-Time
Tuition fee	2880 OMR per semester for Omanis 3750 OMR per semester for non-Omanis

4 Results of the previous accreditation

The study programmes “**Computer Science**” (B.Sc.), “**Urban Planning and Architectural Design** (B.Sc.), “**Applied Geosciences**” (B.Sc.) for the first time in 2015: For further development of the study programme, the following recommendations were formulated:

The following overall recommendations are given for the GUtech and its study programmes:

- The communication between the central and decentral level should be strengthened so that the study programmes can be carried out properly.
- A plan for human resource development including transparent criteria for the promotion of staff should be developed.
- In view of the increasing number of students sufficiently large lecture halls and lab facilities and equipment should be provided.
- Research activities should be given support by the university as much as possible.
- The cooperation between GUtech and RWTH Aachen should be optimised regarding lectures in English on the Bachelor level at RWTH Aachen, staff exchange (academic and administration staff), exchange of students and assistance in internship placements in Germany.

Recommendations for “Applied Geosciences” (B.Sc.):

- Laboratories should be sufficiently equipped regarding the size, student number capacity and analytical and computer equipment.
- With respect to the changing labour market and the planned admission of 80 students the additional sectors hydrogeology and mineral resource geology should be strengthened in the curriculum (staff and equipment).
- Electives should be integrated into the curriculum, especially new modules in the area of petroleum engineering.
- Fly-in and drive-in professors should be better integrated in the teaching process of the programme and should provide a teaching concept and the content of their lectures.
- The duration of the block courses should be compatible with the students' learning abilities. The workload of the block courses should be evaluated regularly.

Recommendations for “Urban Planning and Architectural Design” (B.Sc.):

- Competences in the areas of civil engineering, building technology, CAD, traffic transportation, sociology, ecology, environment, building economy and management should be strengthened in the programme.
- Resources for the design and implementation of the Master programme should be provided.
- IT-support for the graphical software programmes should be provided.

III Implementation and assessment of the criteria

1 ESG Standard 1.1: Policy for quality assurance

Institutions should have a policy for quality assurance that is made public and forms part of their strategic management. Internal stakeholders should develop and implement this policy through appropriate structures and processes, while involving external stakeholders.

1.1 Implementation

Strategic development and Quality Policy

GUtech aims to introduce high quality higher education to the Sultanate Oman and the region according to German standards. Graduates shall have the qualification and knowledge to work in both Omani and international companies. Educating students is considered to be the basis of the further development and long-ranging success of the University. To do so, both teaching and research shall be at German and European standards.

A combination of teaching and applied research ensures the employability of its students, matching the needs of the region. This has proven to be a successful concept for RWTH Aachen University and is considered an important step towards the success of GUtech as there is a demand for this in the local region.

The Vision of GUtech is to Become a leading university in the region, achieving internationally recognised standards in education, research and innovation.

The Mission is Provide a diverse student body with the education required to become highly qualified and socially responsible graduates, guided by German excellence in science and technology and with a firm grounding in Oman's culture and heritage. The University fosters creative and critical thinking to advance research and innovation and, through this, aims at serving society as a whole.

The Values of GUTech are: GUtech is committed to ethical principles in all of its undertakings. In particular, the University welcomes students and staff from both genders, and all ethnic, geographical, cultural, and religious backgrounds. The University encourages association in peace and with tolerance, and welcomes further intercultural exchange between Oman, Germany, and the World.

The goal of GUtech is to produce highly qualified graduates with a strong sense of responsibility for business and industry, thereby addressing His Majesty's commitment to providing society with the human resources it requires to thrive.

Students studying at GUtech benefit from an international university education while remaining close to home. They may, during their studies, spend part of their time at RWTH Aachen University in Germany and other universities abroad, thereby gaining valuable exposure outside their home country. Students in Europe will also benefit from hosting visitors from the Arabian Peninsula by gaining an understanding and knowledge of customs and traditions that will bridge cultural gaps and cement international friendships.

Both students and employees shall become aware of the cultural differences that are commonly encountered in today's work environment, especially when working for multinational companies. They are encouraged to discover other cultures and learn from each other. Students shall learn how to work in international teams with people from different backgrounds and cultures.

The University aims at offering varied and flexible education and endowing its students with the ability to solve complex challenges, explore new territory, approach established and new knowledge in a critical manner, and be open to achievement and learning skills in order to communicate and cooperate effectively.

Both the Ministry of Higher Education, Research and Innovation and the Omani shareholders of GUtech are requesting more BSc and postgraduate programmes, with special emphasis on technical subjects. GUtech carefully considers opportunities for new programmes for Master's programmes and a Doctoral degree in accordance with its Strategic Plan.

When designing the study paths and regulations, a variety of legal restrictions, guidelines and recommendations from multiple countries had to be taken into account. Documents considered when designing and conducting the programmes include, but are not limited to Oman. These are:

- Omani National Qualifications Framework (ONQF)
- Higher Education Admission Centre Student Guidebook
- Requirements for Oman's System of Quality Assurance in Higher Education

Quality Policy

The University has been implementing quality control measures at all levels from the beginning. The department of Quality Assurance and Planning reports directly to the Rectorate.

All study programmes need the approval of the Ministry of Higher Education, Research, and Innovation in Oman before they can be offered by the University. The introduction of new Bachelor and postgraduate programmes in technical disciplines as well as areas in line with the strategic plan of the Government of Oman is being considered. This was the reason why

business-related programmes were introduced in 2014 and 2015 that focus on tourism and logistics, and more recently programmes in cyber security and artificial intelligence in 2021.

Structure of the University and its Decision-Making Processes

The overall structure of GUtech is defined in the University's Constitution, which also defines the role of Oman Educational Services LLC (OES), the company owning the University, in the academic operations of the University.

GUtech was established by a collaborative agreement between the Omani shareholders and RWTH Aachen University. GUtech is 100% owned by Omani shareholders and its management is supported by RWTH Aachen University. The shareholders and the Rector of RWTH Aachen University are represented on the Board of Shareholders.

The administration of GUtech is organised in a departmental structure. The governance structure of GUtech is determined by the following bodies: The Board of Shareholders of Oman Educational Services LLC (OES); the Board of Governors of the University, the Rectorate, the Academic Board; the Research, Consultancy and Innovation Board as well as Department Boards and Student Advisory Council.

The senior officers of the university include: The Rector, the Deputy Rectors, the Deans; the Heads of Academic and Administrative Departments and the Professors.

The Board of Shareholders (BoS, or the Board), formerly known as Board of Directors, represents the interests of the shareholders of Oman Educational Services LLC (OES). The BoS shall be responsible for according to their approval and its decisions shall be based on the then prevailing scenarios of the University or on recommendations from the Rectorate and/or from Board of Governors duly constituted in line with the Academic Affiliation Agreement between GUtech and RWTH Aachen University, Germany. The Board of Shareholders comprises all the shareholders of OES.

They are called individually "members" or collectively as "members of the Board. All the shareholders of OES shall have voting rights on the discussion points and recommendations that come to the Board for discussion. Each shareholder shall have one vote for each share owned or represented by him/her. The Chairman of the Board shall have the right to invite any individual or body of persons to attend the meeting and to appoint someone as a secretary of the meeting to record the minutes. Specifically, the Chairman of the Board may invite the Rector of RWTH Aachen University, or a person nominated by him/her, to any Board meeting that includes on its agenda matters related to the German University of Technology in Oman (GUtech).

The Board of Governors is the managing board of GUtech. It is entrusted by the Board of Shareholders of OES with the responsibility of governing the University and formulating the internal regulations for operating and managing the affairs of the University. The Board of Governors' responsibilities are to e.g. ensure that the Vision, Mission, Values, and Objectives are reflected in the detailed planning and institutional activities of the University or to Pass resolutions required to achieve the University's academic, administrative, and financial objectives.

The Rectorate of GUtech is comprised of the Rector (Chair), the Deputy Rector for Administration and Finances, the Deputy Rector for Academic Affairs and the Deputy Rector for Research and Innovation and is chaired by the Rector. Each member of the Rectorate has one equal vote. The Rectorate responsibilities are to e.g. Develop a governance, planning and policy framework that enables the implementation of the University's Vision, Mission, Values, Objectives and Strategies or to Meet regularly with the Student Advisory Council and establish effective channels of communication with the University's student body.

The Academic Board is comprised ex-officio of the Deputy Rector for Academic Affairs (Chair), the Rector (non-voting), the Deputy Rector for Finance and Administration (non-voting), the Associate Deputy Rector for Academic Affairs, the Director of Research, the Deans, the Heads of Academic Departments, the Head of Registry and Student Admissions Department, the Head of Quality Assurance and Planning Department, the Head of the Library, the Head of Campus & Facilities Management Department and the President of the Student Advisory Council. The Academic Board advises the Rectorate on all academic matters, including academic priorities and policies of the University, academic aspects of the University's strategic plan, policies concerning the conditions of appointment and employment of academic staff, the maintenance of academic standards and any academic matters it considers to be of strategic importance.

The Deputy Rector for Academic Affairs is the Chair of the Academic Heads of Department Committee, comprised of the Associate Deputy Rector for Academic Affairs, and all Academic Heads of Departments, including the Head of GUbridge. Where a Head of Department is unable to attend, he/she will nominate a representative from within the Department. The Head of the Department of Quality Assurance & Planning, the Head of the Department of Registry and Student Admissions, the Rector and the Deputy Rectors have a standing invitation to participate in all meetings of the Committee.

The Research, Consultancy and Innovation Board is comprised ex-officio of the Deputy Rector for Research and Innovation (Chair), the Director of Research Centres, one representative from each Academic department, a representative of the Technology Transfer Office (TTO), the Head of the Quality Assurance and Planning Department, a student representative, appointed by the Student Advisory Council and TRC Focal Point (Secretary of the Board). The

members of the Rectorate have a standing invitation to participate in all meetings of the Research, Consultancy and Innovation Board and as non-voting participants. The Chair of the Board can nominate one of the other Rectorate members or another member of the Board as the Acting Chair.

The University currently consists of four faculties, Business and Economics, Engineering and Computer Science, Sciences, and Urban Planning and Architecture, and five departments, Applied Geosciences (AGEO), Computer Science (CS), Engineering (ENG), Logistics, Tourism and Service Management (LTSM), and Urban Planning and Architecture Design (UPAD). Each faculty is headed by a Dean who is elected by members of the faculty. Members of a faculty are all professors (full, associate, and assistant professors) and lecturers with regular employment contracts with a department belonging to a faculty.

In the beginning, the faculties were headed by professors from RWTH Aachen University, the so-called inaugural deans. Professors employed at GUTech later assumed the posts of Head of Department and Dean.

The Academic Department Board comprises of all members of staff in the academic department. The Board is chaired by the Department Head. Each member of the Department Board has one equal vote. In case of equality of vote, the vote of the Head of Department shall decide. The Academic Department Board is responsible for ensuring good academic within the department. It monitors the development and the performance of the teaching, research and community activities within the Department with respect to the needs of the programmes offered by GUTech and with respect to the needs of Oman and the neighbouring countries. It shall advise the Rectorate in matters of long-term, strategic planning and preparation of the annual budget and personnel development with regard to the Department needs. This advisory process requires the mutual exchange of relevant information between the Department and Rectorate.

The Head of Department invites all staff members of the department to regular department meetings. Other than the formal Department and Faculty Board meetings, the Department Meeting shall facilitate simple communication among the staff and dissemination of information and give space to discuss current topics and further developments, making sure everyone is up to date. Interns and other non-permanent staff may participate in the meetings.

The Department Board appoints a Curriculum Committee which is given the task of monitoring and reviewing the teaching and learning occurring within existing study programmes. The task of the Curriculum Committee is to review the study programmes and suggest curricula changes to the Department Board.

Each study programme must have a Board of Examiners.

An External Advisory Board is located in each academic department, with the purpose of providing information and advice to the professors of the department about the needs of stakeholders from both industry and government.

GUtech's Constitution emphasizes its values: In particular, the University welcomes students and staff from both genders, and from all ethnic, geographical, cultural, and religious backgrounds. In addition, discrimination against others is considered non-academic misconduct and is punishable up to the termination of enrolment. The same applies for employees.

GUtech has a Student Advisory Council to ensure the proper representation of student interests on campus. The students in each department elect representatives to the Students Advisory Council. The President of the Student Advisory Council is a member of the Academic Board. The Student Advisory Council is elected by the students at the University and is structured according to the "Manual for the Organization of Student Advisory Councils at Higher Education Institutions" issued by the Ministry of Higher Education, Research, and Innovation (MoHERI). Each study programme is represented on the Council with up to three representatives who are elected by the students in the programme in free, equal, and secret elections. The student representatives shall meet with the Rectorate and the Rector on a regular basis and discuss matters of mutual interest. This includes curricula, assessment procedures, course rules, residential and social facilities, quality assurance and fee payment policies.

The Deputy Rector for Administration and Finance is the Chair of the Administrative Heads of Department Committee. The Administrative Heads of Department Committee is comprised of all Heads of Administrative Departments. Where a Head of Department is unable to attend, he/she will nominate a representative from within the Department. The Rector and other Deputy Rectors have a standing invitation to participate in all meetings of the Committee.

The heads of the administrative departments/units chair the Steering Committees for their respective departments. These Steering Committees comprise stakeholders from academic and other administrative departments and are aimed at ensuring better collaboration and lateral integration between departments.

1.2 Assessment

Quality assurance is a fundamental component of GUtech's academic strategy, as the institution is committed to providing quality education and support services to its students. To ensure that academic programmes and services meet the highest quality standards, GUtech has established a robust quality assurance framework.

GUtech has a formal quality assurance policy. This policy is publicly available and can be accessed through the university's official website. It outlines University's commitment to maintaining high educational standards and the continuous improvement of its academic and administrative processes.

The University's Quality Assurance Policy covers all relevant areas, including teaching and learning, research, administration, student support services and institutional management. It addresses various aspects of quality and ensures a holistic approach to the University's operations.

GUtech actively involves all relevant bodies and institutions in the development and implementation of its quality assurance policy. This collaborative approach includes input from academic staff, administrative staff, students and external stakeholders such as employers and regulatory bodies. The policy is developed and implemented through a participatory process.

GUtech pursues a quality management that aims to ensure and guarantee all aspects of quality. The accompanying systematic monitoring from goal setting and goal achievement deals with the statistical evaluation of data in order to integrate new content development into the study programmes, to secure the material equipment of the university and to meet the teaching staff in all didactic requirements.

The university reviews its strategic objectives with regard to changes in external factors and new key areas of the state policy.

The expert group is convinced that GUtech has developed a quality assurance policy aimed at continuous improvement of the educational process, research activities, and implementation of innovative projects. This policy is based on the mission, vision, and values of the university. The quality policy is reflected in local acts and regulations – internal documents of the university.

GUtech takes a systematic and rigorous approach to implementing, monitoring and revising its quality assurance policy. Implementation is carried out through various mechanisms, including regular assessments, evaluations and feedback mechanisms. The effectiveness of the policy is continuously monitored and necessary revisions are made to address emerging issues and adapt to best practice and evolving educational standards.

The relationship between lecturers and students is characterized by mutual respect and trust; a basis that enables constructive discussions. From the point of view of the expert group, adequate quality assurance measures have been defined and are planned.

The selected evaluation instruments meet the challenges and educational demands of the study programmes. Overall, the impression is that the quality management system of the university with the mentioned deficits is suitable to ensure and further develop the quality of the study programmes reviewed here.

GUtech has adopted clear and inclusive policies and programmes aimed at ensuring a diverse and inclusive learning and working environment. This includes efforts to eliminate discrimination, support underrepresented groups and promote a culture of respect and equality among its staff and students. The University actively participates in initiatives and programmes that support these goals both within the university and in the broader community.

The very good involvement of the students should be particularly emphasized.

GUtech therefore has structures, processes, and personnel in place to ensure quality. It has a long-term strategy for the future, which is to be implemented successively. The strategy is to be communicated and anchored both internally and externally.

The Department of Quality Assurance and Planning structures and accompanies the implementation of the quality policy and obviously evaluates the processes and results regularly and develops them step by step.

The awareness of the need for quality assurance seems to be broadly anchored. The overall strategy of the university seems to be still too young to have already comprehensively penetrated the structures and actions of the staff.

There is no culture of applying for research funding in Oman. GUtech started the attempt to become a research university from its own budget and is pursuing this strategy for the future. However, adjustments to the Omani government are expected. The expert group therefore encourages the university to pursue this path.

Overall GUtech pursues a convincing strategy and can be described as a scientific gateway from the West to the Middle East.

1.3 Conclusion

The criterion is **fulfilled**.

2 ESG Standard 1.2: Design and approval of programmes

Institutions should have processes for the design and approval of their programmes. The programmes should be designed so that they meet the objectives set for them, including the intended learning outcomes. The qualification resulting from a programme should be clearly specified and communicated, and refer to the correct level of the national qualifications framework for higher education and, consequently, to the Framework for Qualifications of the European Higher Education Area.

2.1 Implementation

Oman National Qualifications Framework (ONQF)

The Oman Academic Accreditation Authority (OAAA), now Oman Authority for Academic Accreditation and Quality Assurance of Education (OAAAQA), is responsible for quality management in higher education in Oman by Royal Decree 74/2001. In 2009, it published the Oman Standard Classification of Education Framework (OSCED) which provides a framework to classify all academic study programmes in Oman and which supersedes the older Requirements for Oman's System of Quality Assurance in Higher Education (ROSQA) framework, which was introduced in 2004, a mandatory national accreditation framework.

The Oman National Qualifications Framework (ONQF) which was approved in 2005 is part of OSCED and lists detailed requirements for study programmes at various types of HEIs, as for example general graduate skills. For example, a Bachelor degree at university level requires 480 ONQF credits (equivalent to 192 ECTS credits, since one ONQF credit represents ten hours of work versus 25 hours for one ECTS credit) and a four-year full-time study plan. In September 2018, the Oman National Qualification Framework (ONQF) was introduced. It is a comprehensive, integrated ONQF. It includes both qualifications from public and private sectors of education and training in Oman.

In August 2022, the updated version of the Oman Qualifications Framework (OQF) was published. This OQF Document provides a comprehensive description of the OQF, including its objectives, structure, Level Descriptors and processes for the placement and review of qualifications on the National Register of Qualifications (NRQ). In addition, the document includes the Qualification Arrangements for the range of Omani qualifications offered in general (school) education, academic, technological, professional and technical and vocational education to provide information on the OQF Level and minimum OQF Credit Value of each Qualification Type.

Objectives

Due to the quality of the local high school education system, most students cannot enter the Bachelor programmes immediately after high school but first complete a foundation year at GUtech. GUtech is the only private HEI in Oman asking for an IELTS score of at least 6.0 to start the Bachelor programmes. However, the achievement of this requirement may be delayed until the 4th year if students achieve IELTS 5.5 and seats are available in the respective programmes.

For more than three decades, Oman and Germany have enjoyed successful cooperation in political, economic, and cultural fields. Germany is one of Oman's key economic partners in

the non-oil sector. The two countries hold regular bilateral consultations focusing on both politics and economics. In 2014, Germany and Oman signed a declaration of intent on cooperation on culture, education, science, and research. Guided by his Majesty Sultan Qaboos bin Said's strong commitment to provide excellence in education for the country's youth, the German University of Technology was established in collaboration with RWTH Aachen University to introduce to Oman and the region new, internationally recognised educational opportunities.

Through its affiliation with RWTH Aachen University, the German University of Technology aims at educating highly qualified and responsible students according to German standards and with a firm grounding in Omani heritage. The Degrees offered are recognised both in Oman and the European Union, thereby offering a wide range of options for the future careers of the students.

All degree programmes at GUtech are taught in English, including written and oral tests, seminar papers, and the Bachelor's and Master's theses. Students are also expected to develop communication skills in German as a preparation for possible courses abroad. To ensure that students can sufficiently follow the programme, they have to meet certain language standards upon enrolment. To ensure the necessary language skills among the University's staff as well, applicants must prove their English proficiency during the recruitment process.

Students at GUtech enjoy an education that is very demanding because the study programmes at GUtech are modelled on similar programmes at RWTH Aachen University. Some students have difficulties coping with the demands of a German University education, but in general one can in most students observe a drastic change of attitude and self-study skills over the four years they spend in a Bachelor programme at GUtech. In most programmes, students spend 25–30 hours per week in a classroom or lab. The Department of Student Affairs offers extra-curricular activities, like student clubs and sports activities.

Learning English

GUtech has an IELTS 6.0 entry requirement, which is the highest threshold in Oman (minimum 4.5 is required by the Ministry of Higher Education, Research, and Innovation). Fluency in English is essential for scientists and engineers in a global business environment such as the Gulf region, with a strong mix of local and expatriate workers at all levels of a company. All students take Life Skills Courses worth four ECTS credits for the first six semesters.

Learning German

Students at GUtech study German for at least three semesters. Studying a foreign language broadens their horizons; studying German prepares them for future educational or working visits to Germany or other German speaking countries. It raises their understanding of diverse

cultural, communication and learning issues. They learn to reflect on their own and other perspectives and are challenged to communicate in a foreign language system in unaccustomed situations with a positive effect on their general problem-solving abilities.

Learning a language involves memorising rules and vocabulary which improves overall memory and learning techniques. The students learn to focus on what is relevant and edit out irrelevant information; they improve their analytic and interpretive capacities.

Foundation programme

To prepare students for the demands of the Bachelor programmes

students are required to first pass GUTech's Foundation Programme (FP)⁶ before being eligible to start their Bachelor studies. Since the different Bachelor programmes at GUTech have some subject-specific requirements for the preparatory courses in FP, students usually decide on their future Bachelor programme before entering the FP.

The Foundation Programme is committed to improving students' English language proficiency, developing their ability in the other core subjects, mathematics and information technology. The learning of study skills is integrated in all courses. The decision of the MoHERI to provide only one year of scholarship for Foundation students from 2018-2019 prompted a restructuring of the Foundation Programme for the start of 2018-2019.

Successful completion of GUTech's Foundation Programme requires a pass in English, Mathematics, and Information Technology courses.

Students are expected to achieve a level of proficiency that will allow them to gain entry to and succeed in the academic (i.e., Bachelor) degree programmes offered by GUTech.

English language

The FP programme comprises of two semesters over one academic year. The English Language Foundation Programme Curriculum consists of English Level Courses at eight levels. Students are streamed into one of the four levels in English based on their scores in the Oxford Online Placement Test (OOPT) in semester one at the start of the academic year. A minimum grade of 50% and IELTS is required to pass English Coursework at the end of the academic year.

Depending on their choice of degree programme in the FP (i.e., Computer Science, Engineering, Geoscience, Logistics, International Business and Service Management, or Urban Planning and Architectural Design), students also receive tuition in mathematics and IT to equip them with content specific knowledge and skills.

Information Technology

One of the core courses provides the basics of intermediate computer skills which students need to succeed in environments that require the use of computers and the Internet. The course is using Internet and Computing Core Certification (IC3) that covers Key Applications, Computing Fundamentals, and Living Online. Students who pass all three online examinations will be certified in IC3, a recognised global certification for digital literacy. To pass IT you must obtain a minimum score of 700 in each section (module).

Mathematics

The Mathematics programme is designed to develop core competencies that students require to enrol in undergraduate studies. The objectives of the course are e.g. to consolidate the understanding of the fundamental concepts and principles of mathematics. A minimum mark overall grade of 50% is required to pass Maths.

Bachelor Programmes

Programme Structure

In accordance with the regulations of the Ministry of Higher Education, Research and Innovation of the Sultanate of Oman, all BSc and BEng programmes at GUtech are taught as full-time programmes with a standard duration of eight semesters (i.e., four years). A Bachelor of Science or Bachelor of Engineering in the respective study field is awarded upon successful completion. While developed to be aligned with the structures introduced in Europe after the Bologna Reform, the study programmes must fulfil Omani legislation and take into account the local education system.

The Oman National Qualifications Framework (ONQF) requires a minimum of 480 ONQF credits for all Bachelor programmes in Oman, where one ONQF credit corresponds to a student workload of ten hours. GUtech exceeds the minimum workload by requiring a total workload of 600 Omani credits, equal to 240 ECTS credits, typically 30 ECTS credits per semester with a workload of 25 hours per credit.

One of GUtech's main goals is to make its programmes internationally compatible and align them with European and German standards. Among other approaches, this is achieved by following the guidelines associated with the European Bologna process, including the usage of ECTS credit points, final theses, and outcome-oriented teaching. In particular, GUtech requires all graduates to successfully complete an internship and a Bachelor's thesis to qualify for graduation.

Students usually take all courses in the Sultanate of Oman. The courses are taught by faculty based in Muscat and, occasionally, visiting professors from RWTH Aachen University and

other renowned universities. For courses requiring highly specialised equipment, students may travel to Germany to complete the courses at RWTH Aachen University, for example.

All study programmes are regularly reviewed by the Curriculum Committees of the respective departments.

Academic Calendar

For the Bachelor programmes, each academic year consists of two semesters, the winter semester, and the spring semester. A semester consists of fourteen teaching weeks, followed by an exam preparation week and two weeks of exams.

Learning objectives and modularisation

Formal Structure of the Bachelor Programmes: ECTS

One of GUTech's main goals is to make its programmes internationally compatible and align them to German standards. Among others, this is achieved by following the guidelines associated with the European Bologna process, including the use of ECTS (European Credit Transfer System) credit points and outcome-oriented teaching.

At GUTech, one ECTS credit point corresponds to a student workload of 25 hours. Since one ONQF (Oman National Qualifications Framework) credit point corresponds to ten hours of work, this means that one ECTS credit point is equivalent to 2.5 ONQF credit points. Here, student workload refers to the total time spent on a course, i.e., class time, preparation time, time for homework and exam preparation, etc.

All Bachelor programmes encompass a workload equivalent to at least 240 ECTS credit points, or 600 ONQF credit points, distributed over eight semesters. Each semester requires approximately 30 ECTS credits, or 75 ONQF credits. In daily routine, the ECTS system is more commonly used at GUTech than the ONQF system.

In most cases, the estimated workload and therefore the number of credits awarded for a course is based on experience at RWTH Aachen University and has hence been refined over several years. Moreover, close contact between the students and academic staff as well as the guided form of teaching allow for a good impression of the actual student workload.

Students are only awarded credits if they successfully pass a course. The requirements for passing are stated in the respective course specifications of each study programme.

Modularisation

All programmes at GUTech are modularized programmes, meaning that they consist of individual, subject-grouped courses with lectures, exercises, exams, etc. Each course can be passed and transferred individually (if pre-requisites are met), allowing for individual study paths and international mobility. No course exceeds the duration of one semester.

Course Specifications are regularly reviewed by the respective departmental Curriculum Committees and archived in a repository.

According to the affiliation agreement, RWTH Aachen University, if required, shall provide assistance for developing Programme Specifications at Bachelor, Masters and PhD levels, as well as short courses and training programmes based on mutually agreed terms on a case-by-case basis. The teaching staff may initiate minor changes to the Course Specification. A Course Specification must at least contain the following information: Course Code, Course Title, Credit Points, Catalogue Description, Prerequisite(s), Co-requisite(s), Requirement, Learning Outcomes, Topics, Distribution of Student Workload, Forms of Learning, Forms of Assessment and Weighting, Requirements to pass the Course, Textbooks/Recommended Reading/Supporting Material, Faculty's Member/Instructor, Semester, Start Date and End Date.

Integrating the German Point of View

GUtech takes pride in bringing German education to Oman and the wider region. To do so, experts from RWTH Aachen University and other German universities are involved in the development of curricula and the continuous improvement of the University. However, it is deemed important to also integrate German teaching directly in the education of GUtech's students.

This can be done either by sending students to Germany or by bringing German teaching staff to Oman. The latter can be achieved by either permanently employing German experts at GUtech or by hiring them as fly-ins to conduct certain courses at GUtech.

Sending students to Germany is an immensely immersive learning experience. Some courses in GUtech's curricula make use of expensive equipment available at RWTH Aachen University. Such study trips to Germany also include cultural aspects and give insights to the other university's teaching and research projects. GUtech is grateful that the DAAD has been supporting many of these excursions in recent years, allowing socially disadvantaged students to take part in these important parts of their education at GUtech.

In the current situation at GUtech, the fly-in model has proven to be the best way to integrate the German point of view, both financially and qualitatively. Teaching staff, e.g., from RWTH Aachen University, come to GUtech to teach block courses using English versions of the very same materials they use back home. Department heads are in charge of ensuring that the content of the courses matches the course descriptions and that GUtech's quality standards are met.

Lastly, graduates from European universities are recruited as interns to support GUtech's permanent teaching staff. Since many of these students have already been teaching assistants

at their home universities, they are competent to do the same job at GUTech. Interns are involved in teaching work for the University for at least one semester. Before arrival, interns are provided with an extensive document describing GUTech, the country of Oman, the work environment, and other practical aspects. On arrival, they are given an introduction to GUTech regulations and procedures. Involving the interns in everyday teaching, especially holding tutorials, and supporting labs and project work, is a powerful way to expose GUTech's students to a German (or international) viewpoint and new ideas. The GUTech Aachen Office coordinates the appointments and thereby assures the quality of the interns recruited.

University Graduate Attributes and Skills

The following describes the University Graduate Attributes and Skills that all GUTech graduates should display at the time of their graduation:

- Ethics – The graduates have developed awareness and holistic understanding of their role as responsible citizens in an increasingly globalized context.
- Critical thinking and problem solving – The graduates are able to engage real-world problems in a theoretically informed, rigorous, and questioning manner. They are able to devise solutions, select the most appropriate one, implement it, and reflect on its performance.
- Creative thinking – The graduates are able to think laterally and develop creative ideas.
- Individual and team work – The graduates have the capability to work effectively alone or in
 - a team, to be self-directed, and to show independent judgment.
- Communication – The graduates are effective communicators, using oral, written, and
 - electronic communication skills. They can interact confidently in a variety of settings, with a range of people from both genders, individually and in team situations, from peers to the wider community.
- Life-long-learning – The graduates appreciate that learning is continuous and have the ability to continue learning throughout life. They have developed a variety of approaches to learning, including self-directed, collaborative and self-reflective processes.
- Sustainability – The graduates have acquired knowledge and have been engaged in a range of practices that enables them to implement sustainability in line with the United Nations SDGs and Oman's Vision 2040.

“Computer Science” (CS) (B.Sc.):**Reasons for establishment of the CS Programme**

The BSc in AIT programme was one of the four initial programmes when GUtech was founded. The IT sector is the fastest growing sector among all science and engineering disciplines, and therefore any university of technology must offer IT or CS related study programmes. The Rectorate and Strategic Boards of the University therefore consider the programmes offered by the Department of Computer Science to be essential to GUtech and its contribution to the further development of the country and wider region. The BSc in AIT was then renamed into BSc in CS in 2013. The study programme matches the fields that the Sultanate identified as current and future economic value. It is the clear aim of all GCC countries including Oman to replace the expatriate workforce with trained national personnel. Thus, the industry is in need for more qualified national staff trained at international standards.

Quantitative Objectives**Admission Capacity**

GUtech aims at a total enrolment of around 2,500 students. Before 2017, less than 20 students have been enrolling to the CS programme. As the market has higher demand of qualified computer scientists, the department has accepted around 50-75 students per year for the last 3 years. To date (Fall Semester 2022) all students who have met English entry requirements (e.g. IELTS 6.0) have been enrolled to the programme. There is a clear correlation between student numbers and teaching quality. Due to the strong increase in student numbers since 2017, two new programmes have been introduced (in AI and in Cyber Security). The final aim is to have around 25 students per programme and then diversify the expertise of the graduates.

Objectives and their Evaluation and Development**Programme Objectives**

The aim of the Bachelor of Science in Computer Science (CS) programme is to develop the knowledge and competencies required to meet the demands of the profession of computer science in the Sultanate of Oman and the region. More specifically, the programme provides students with a sound theoretical and practical understanding of computer science in all three sectors — private, governmental, and non-profit — in preparation for careers as computer science professionals in a range of organisations. Through this programme, students will obtain skills and attributes to identify, assess and shape information technology ideas into real business opportunities and to support such ventures through entrepreneurial private, government and civil society initiatives. The graduates of the programme will be ready to enrol in

postgraduate studies in the field of computer science in local and international universities. To meet this end, the programme was developed in cooperation with RWTH Aachen University. Furthermore, the academic standards of the programme are regularly reviewed by academic staff from RWTH Aachen University as well as by panels of experts, e.g., from international accreditation agencies.

Structure – Time and Content

The CS programme was developed under the guidance of RWTH Aachen University (to ensure the quality of the programme and bring in educational expertise) to be tailored to the requirements of the Sultanate of Oman and the region. A strong emphasis of the programme is placed on the employability of GUtech's graduates. Some elements of the programme are therefore accomplished in cooperation with local and international industry partners (i.e., internships). Also, generic skills such as critical thinking, creative thinking, life-long learning, intercultural communication, and teamwork were seen as essential and are integrated into the curriculum. The first two years of the CS programme focus on the fundamentals of applied and theoretical computer science including programming skills and its mathematical foundations, but also on an initial basic understanding of economics, business decision processes, and computer applications in business. In the last two years of advanced studies, the students will be equipped with the skills to understand some of the important subareas of computing, such as data and communications management and software and usability engineering. Students are offered a comprehensive set of advanced electives to enhance the theoretical, technological and business aspects of the programme. They will also spend an internship at a company to learn how computer science is applied in practice. The BSc in CS degree combines a rigorous understanding of the mathematical foundations and theories of automata and computation, studies of applied and theoretical computer science, a business and management background, and practical project and work-based studies working under the guidance of IT professionals. The elective courses of the CS degree focus on advanced topics which are expected to be of major strategic interest for the further development of the Omani economy. Examples include communication technology and security, logistics, and linkages to geographic and engineering information systems.

The Bachelor of Science in Computer Science is taught as a full-time programme. The duration of the programme is eight semesters. The programme is aligned with the programme structures introduced in Europe after the Bologna reform, and it is based on the Informatics Bachelor programme at RWTH Aachen University with a few local adaptations. The programme adheres to the principles of the ACM/IEEE Computer Science Curriculum guidelines as well as the guidelines for university computer science programmes by the German Computer Society (GI). The Bachelor of Science in Computer Science programme focuses on integrating theoretical

and applied aspects of computing, an emphasis on the interaction with engineering, culture and communication, as well as a solid understanding of the business context in which this technology is developed and applied. Many elements of the programme are accomplished in cooperation with local and international industry partners. Also, generic skills such as critical thinking, creative thinking, life-long learning, intercultural communication, and teamwork are seen as essential and are integrated throughout the curriculum. The programme includes management courses from the first year on (i.e., Information Systems minor). Students are also offered a wide range of elective courses that enable them to specialise according to their own interests. In particular, interdisciplinary specialisations with other study programmes at GUTech are encouraged. An important aspect of the programme is its balance between theoretical foundations of computer science and practical applications. Most courses include practical exercises (which are often programming laboratories) and/or case studies. The programme also includes two seminar courses intended to train the analysis and presentation skills of students, a programming project in the web design area, and two in-depth laboratory courses in which students learn teamwork and management skills as well as interdisciplinary cooperation with application partners. In the thesis project, which takes place during the last year of the programme, students apply their acquired knowledge and skills to a specific problem taken from research, business or industry. Interaction with research and industry is integrated into the normal coursework, especially laboratory courses taught by guest lecturers and project tasks. The students are encouraged to take courses in other departments as electives (at least 4 credit points are mandatory). As two new programmes have started (AI and Cyber Security), CS students have more elective courses to choose from. Indeed, they can enrol in any basic (or for which they have completed all prerequisites) AI or Cyber Security course as elective.

A Master of Science in Computer Science started in Spring 2019 and has accepted since then new students each semester. Three MSc students have recently graduated and few more are expected to graduate before the end of 2021.

Initially, two specializations were offered, namely, Data Science and Technology Management. However, as all enrolled students have been interested in data science, only Data Science specialization has been offered so far.

GUTech signed an agreement with Hasselt University (Belgium) according to which, MSc candidates enrolled in the MSc in Computer Science of GUTech have the opportunity to earn a second master degree (in Transportation Science) from Hasselt University, if they choose to spend one more semester at the University campus in Belgium. 2 students have already opted for this option and successfully completed their Master thesis which has been jointly supervised by professors from both universities.

Students with a degree in Computer Science or a related field and a cGPA of 2.5 or higher are accepted into the Masters programme without conditions. Nevertheless, all candidates have to attend an interview with a committee of professors from the CS department in order to make sure that they fit into the programme and that they are aware of challenges and expectations of the programme.

Programme-Specific Graduate Attributes and Skills

More specifically, core courses in the mentioned subfields of the CS programme provide knowledge and skills in the following topics:

- Mathematical foundations and scientific computing (24 credit points): Calculus, Linear Algebra, Probability and Statistics, and Numerical Computation.
- Theoretical foundations of computer science (27 credit points): Logic, Discrete Structures, Theory of Computing, Data Structures, and Efficient Algorithms.
- Information technology (42 credit points): Computer Architecture, Database Systems, Interactive Systems and Computer Graphics, Operating Systems, Introduction to Information Security, and Computer Networks.
- Applied computer science and software engineering (38 credit points): Programming Fundamentals, Web Design and Development, Software Engineering, Mobile Applications, and Internship.
- Research skills (27 credit points): Proseminar, Seminar, Research Methods, and Bachelor Thesis and Colloquium.
- Elective courses (at least 32 credit points): Computing Electives (at least 21 credit points), Theory Electives (at least 7 credit points), and General Electives (at least 4 credit points).

The Information Systems minor comprises a total of at least 26 credit points, consisting of:

- Mandatory courses as Introduction to Business Management, Accounting and Controlling, Computer Applications in Business, and Decision Theory (in total 16 credit points).
- Business elective courses (at least 10 credit points).

Integration of latest developments

CS continuously adapts the teaching and learning context to current requirements and given resources. As technologies are changing relatively fast, the departmental Curriculum Committee yearly reviews the syllabus of most courses in order to make sure that approaches, tools, and technologies are up to date. Decisions are based on benchmarking, lecturers' feedback,

fly-ins' feedback, accreditation bodies' recommendations (ACQUIN), and External Advisory Board recommendations. In particular, the following courses are frequently reviewed:

Programming fundamentals: Python replaced Java as first introductory language.

- The new Topics courses in the CS curriculum do not have a predefined syllabus; instead, these courses are used to teach latest developments in computer science that are not yet part.
- of the main curriculum. For example, Internet of Things has been offered under this course.
- Mobile Applications: the focus shifted from iOS to Android.
- The course Web Design and Development always teaches the latest developments in web programming.

Internships

The aim of the internship is to provide the students insight into the daily activities of an IT professional and to apply classroom knowledge to real life situations. The students typically do their internships in the summer holidays after the 6th semester. The only requirement is that they have reached at least 120 credit points. Students are encouraged to look for internship opportunities both locally and internationally. While the experience from other programmes offered at GUtech shows that many companies in Oman are willing to offer internships to Omani students, it is much more difficult to find internship placement for non-Omani students. The department is therefore working to establish international collaborations to find internship placements for non-Omani students. Most contacts to local companies are based on close personal relations. Among all departments, this has proven to be a successful method in the past due to the Omani culture where personal relations are very important. To ensure the quality of the internships and the achievement of the desired learning outcomes, the internship must be under the supervision of a professor in the CS Department. Clear rules have been set on how to organise internships (. All depicted internships were successfully completed.

Due to the COVID pandemic, some extraordinary measures (including virtual internships) were taken to provide students with internships. In particular, two virtual internships were offered by RWTH Aachen and feedback from Aachen was very positive. Furthermore, as some students were struggling to find industry-related internships in 2021, the CS department allowed a small number of students to participate in research projects for gaining practical experience.

Studies Abroad

In the first few years following the creation of GUtech, all department's students were sent to RWTH Aachen University to attend the Specialist Lab Course (now called Mobile Applications).

In 2012, the University stopped these trips because the course can also be taught at GUTech. Nevertheless, selected students continue to be sent yearly to Germany for short study trips.

While most students stick to the recommended study plan and remain a part of their cohort, GUTech is committed to allow individual study paths for all students if necessary; in particular, it promotes international mobility. The modular structure of all programmes allows for an easy transfer and recognition of study achievements. If a student has already achieved the learning outcomes of a module (e.g., by having passed a similar course at another university), the student may transfer these credits to the GUTech programme. If the University refuses to recognise a student's achievements, it is the duty of the University to prove that the subject passed does not match with any courses taught at GUTech. To facilitate the exchange of students, GUTech has signed cooperation agreements with several institutions of higher education, including RWTH Aachen University, Munich University of Applied Sciences, University of Applied Science Stralsund, Hasselt University, Brescia University, and the University of Salzburg. Students planning to study abroad are encouraged to sign a learning agreement with the host institution and GUTech acknowledges student achievements according to the Lisbon Convention.

Development of Objectives

In the fast-changing area of computer science it is mandatory to constantly review and adapt curricula. The ACM (Association for Computing Machinery, the world's foremost educational and scientific computing society) whose computer science curriculum recommendations are the gold standard for universities all over the world suggests that "the rapid evolution of computer science requires an ongoing review of the corresponding curriculum".

GUTech's Policy on Programme Review and Implementation of Proposed Changes requires each department to set up a Curriculum Committee that should meet at least once in every two years to monitor and review the teaching and learning occurring within the study programmes of the department. In this regards, the CS Curriculum Committee has been meeting at least once a year to revise the CS programme. Based on the comments received from ACQUIN as well as the comments received from the CS External Advisory Board, the Committee implemented several changes for the last years. Furthermore, based on the discussions with the CS External Advisory Board as well as based on data collected from employers, alumni, and students (via surveys), the CS department identified the need to address increasingly important topics that do not represent the main focus of the current CS programme. More specifically, more and more private and governmental agencies are requesting graduates who are specialized in AI or in Cyber Security. Consequently, the department has started two new programmes (in AI and Cyber Security) in parallel with the current CS programme.

Evaluation of Objectives

The graduate attributes and skills are evaluated at the end of the programme in a small number of courses. Instructors use rubrics with a range from 1 to 5 where 5 represents the best performance. The outcome of the evaluation is reported to the Deputy Rector for Academic Affairs and discussed in the Departmental Curriculum Committee. The department aims for an average of 3.5 and higher on individual programme objectives. If this aim is not reached, the department committee decides which adjustments in the coursework have to be made in order to reach the defined objectives.

Programme-Specific Graduate Attributes and Skills

The BSc programme in CS is aimed at high-school graduates who want to start a career in Computer Science and related fields.

Graduates from the Bachelor of Science in Computer Science are expected to develop the following attributes that will allow them to participate effectively in the computer science professions:

- Knowledge and understanding of computer science – Graduates have gained a broad and sound knowledge in mathematics, computer science and business, enabling them to understand the phenomena characteristic to computer science and its applications in the information technology and business world; in particular, the graduates have gained the ability to look at computer science challenges from both the technical and the business perspectives, and they can adapt quickly to the continuous changes in the computer science field.
- Computer science analysis and modelling – Graduates are able to identify, formulate and solve problems particular to computer science with full knowledge of the limitations of computation; in particular, they have the capacity to select from alternative solutions to problems; graduates are also able to analyse products, processes and methods used in their discipline based on scientific facts; they know how to select suitable methods of analysing, modelling, simulating and optimising and apply them with a high degree of competence.
- Software design – Graduates have developed the ability to design computer programs or processes according to specified requirements; they have developed a practically oriented understanding of software design methods and the ability to apply them in a competent manner; in particular, they have knowledge of and practical experience with several computer programming languages and they can plan and carry out software projects.

- Investigations and assessment – Graduates are able to carry out literature research and know how to use scientific databases and other sources of information for their work; in particular, they have developed the skills to identify and employ suitable software tools for their work and pursue in-depth work in a self-elected application domain.
- Computer science practice – Graduates have developed the ability to deal with the different kinds of challenges that may appear in the design, development and implementation of computer science applications, including software design and development, data and communication technology, usability and security engineering, and management challenges of large software systems; graduates are able to plan, control and monitor IT applications and to develop and operate computer systems and equipment; they are also able to independently consolidate the knowledge gained and are aware of the non-technical (e.g., ethical) effects of IT activities

Cooperation in education with Professional Organisations

Academic Approach

Graduates from the CS programme are well prepared to work in the local IT industry, mainly because of the many practice-relevant courses and the mandatory six-week internship in the last study year. But they are also well prepared to pursue an academic career. In seminars, they learn academic research methods, and excellent students are participating in research projects in the department.

Employability

The computer science industry is the fastest growing science and engineering discipline with a shortage of qualified graduates expected to worsen in the next decade. According to the U.S. Department of Labor Bureau of Labor Statistics, the computer and information technology field is expected to grow by 13 percent from 2016-2026, which is faster than the average growth rate of all occupations.

The Bachelor of Computer Science programme is designed to give students a broad foundation in the main areas of computer science so that they can later specialise their knowledge according to the needs of their employers. The mandatory six-weeks internship gives students the opportunity to learn more about the workplace environment in various industries; it is also not uncommon that students join their internship company after graduation. While the CS programme has been designed to meet the requirements of the region, graduates shall also be able to start working for international companies. Since 2014, the CS Department has joined leading university programmes (Cisco NetAcademy, EMC2 Academic Alliance Program, Oracle Academy, and SAP University Alliances Program) to integrate the latest developments in database and networking technology into the CS curriculum.

Personal Development of Students

Students at GUtech enjoy an education at a higher academic level than at most other colleges / universities in Oman. Students in the BSc in CS programme typically spend 25 hours per week in a classroom. The change of attitude of most students in self-study skills observed from freshman to fourth year students is striking. To support this development, we guide students intensively. From our experience self-study time is rarely used in an effectual way. Therefore, repeated guidance is necessary, e.g. understanding the value of reading, using the library, promote general interest in topics not just related to the study subject, working independently.

Life Skills (LS) courses are taught in classes parallel to the BSc programme and provide views beyond the field of study. This includes mandatory language courses in German, a mandatory course in Entrepreneurship and two electives from a wide field of courses. All students take six LS courses worth four ECTS credits during their bachelor's degree.

Through exchange activities with international universities or local field trips students have the opportunity of international and national exposure. Additionally, students are given sufficient time for extracurricular activities. They have the opportunity to take part in various student clubs (e.g. chess, environmental, theatre) and a variety of sports programmes. From winter semester 2014/15, all Tuesday afternoons are kept free of classes (this practice was stopped during the COVID-19 pandemic. Since 2021/2022, it was resumed, but not on a regular basis). Tuesday afternoons leave the students enough time for team projects and extracurricular activities like student clubs and sports activities.

“Urban Planning and Architectural Design (UPAD)” (B.Sc.)

There was a strong strategic and academic interest to establish the UPAD programme as one of the 4 initial programmes when GUtech was founded. The Sultanate of Oman aims to develop future fields for employment and economic success beyond oil and gas. The study programme matches with the fields that the Sultanate identified as future economic value. It is the clear aim of all GCC countries including Oman to replace the expatriate workforce with trained national personnel. Thus, the industry is in need for more qualified national staff trained at international standards.

GUtech is currently aiming at a total student enrolment of 2,000. As the UPAD programme is considered important for the future development of the university and the local industry has a high demand of qualified planners and architects, the department enrolls 80 students per year in the BSc UPAD programme. Currently, all students either passing the Foundation Programme or meeting the requirements for direct enrolment are admitted.

Since the introduction of the programme student numbers have been growing strongly and intake has been far above actual capacity. There is a general increase in students admitted due to an increase in applicants. There is a special increase in student numbers due to a shrinkage of the Foundation Year Programme (from 2 years to 1 year duration).

In general, applicants are strongly lacking basic skills, e.g., in mathematics, arts and humanities which are usually prerequisites for enrolment into planning and architecture-based programmes. At the same time applicants are missing certain stimuli that encourage self-study, perceptivity and motivation in the study subject. Both these factors need to be taken into consideration in the execution and further development of the study programme.

Objectives and their Evaluation and Development

Programme Objectives

The Bachelor of Science in Urban Planning and Architectural Design aims to graduate future urban planners and architects to meet the demands of the profession in the Sultanate of Oman and the region. Key emphasis is placed on the specific aspects of urban development, sustainable growth and architectural design. The region faces major challenges due to rapid economic development and fast population growth. The programme is designed for a young generation of students that is overwhelmed by an urban development that is detached from social, environmental and traditional coherence. Through the programme, students will obtain skills and attributes to successfully identify, assess and comprehend this situation.

Structure – Time and Content

The Bachelor programme runs for four years, which is a directive of the Ministry of Higher Education in Oman.

In the curriculum courses are differentiated into three categories: design, knowledge, and communication. The design studios (red) focus on training a design-based approach to problem-solving in urban and architectural fields. Students are assisted to develop their own ideas for given tasks and thus experience how - with growing complexity over the years - a design project is produced from analysis all the way to presentation. The knowledge-oriented subjects (orange) support the works in the studios by providing essential facts and methods in various fields: historical, technical, societal, and specifically, architectural and urban issues. The visual and verbal communication modes (green) that are specific to architecture and urban design in terms of freehand- and technical drawing, as well as precise language and argumentation, are taught in special classes.

In the first-year courses concentrate on basic knowledge in urban planning and architecture, and introduction to project design. Courses in visual communication are taught over the first

two years, they provide the students with the necessary tools to learn to express themselves graphically.

In the second-year students are introduced to courses in building technology that have a higher level of technical difficulties. Core urban design courses run parallel to building technology courses and provide the foundation for integrated projects in 'City + Landscape' and 'Building + Construction' respectively.

The third year focuses on application of specific knowledge (e.g. economics, planning law). A greater importance is given to the design work of the integrated projects that are rewarded with 9 credit points. The knowledge that was acquired in recent courses is now implemented, especially in the project work.

In the fourth-year students are allowed to specialise in either Urban Planning or Architecture. This is done through elective courses; each student must complete two elective courses in either field. Furthermore, the integrated project must be done with a focus on either urban planning or architecture, depending on the specialisation of the electives. An internship must be completed before the start of the Bachelor Thesis and provides practical training for the students. In the last semester students must complete their Bachelor Thesis with which they are assisted by weekly consultations by a professor.

From the university's experience, graduates work locally in / as:

- Government Bodies (e.g. Ministry of Housing)
- Private Practices (e.g. local design and architectural firms)
- Large Construction and Consulting Companies (e.g. Atkins, Cowi, HMR, ...)
- Research Assistant (e.g. Eco House project at GUTech)
- As interns in various companies

It is important to note that the Sultanates labour market laws and policies favour Omani nationals. This is not only true for government jobs but also private practices. This fact blurs any statistics on alumni students and their occupation. We have often witnessed that very good and dedicated graduates are turned down in favour of Omani graduates with lower grades or abilities.

The UPAD programme is taught as a full-time programme. The duration of the programme is eight semesters. The programme is aligned with the programme structures introduced in Europe after the Bologna reform.

Due to rapid urban development and booming construction industry, concentrated mainly on energy, infrastructure, private housing and tourism, the urban landscape in Oman is changing

dramatically. This is positive in terms of modernisation, negative in terms of hyper-modernisation of solely one-dimensional architectural and urban production. The UPAD department aims to address and investigate these.

Future generations of our graduates in Oman will need to cope with various challenges:

- A globalised economy and the local consequences
- Preparing energy supplies in the post oil age
- A social and demographic fabric that is changing rapidly
- Undefined cultural heritage and identity

The graduates face a tremendous responsibility in their future jobs. The bachelor studies in Urban Planning and Architectural Design allows students to develop a profound perspective and appreciation of their surrounding environment and its development. Our teaching provides students with the ability to design an environment, which is social, spatial, ecological, and economically sound. Together with personal development this enables students to use their knowledge in an appropriate and responsible way.

The university offers one Master program with two specializations, one in Urban Planning and one in Architecture. The prerequisite for these programs is a Bachelor programme that prepares the students equally for both fields: Urban Planning and Architecture or in a related field.

Students are offered a wide range of elective courses that enable them to specialise according to their own interests. In semester 6 general electives are offered to expand knowledge and skills in topics that have been introduced previously. In semester 7 students will decide to either focus their thesis in urban planning or architecture. Therefore electives are offered in both fields.

One ECTS credit corresponds to a student workload of 25 hours. Students typically register for courses worth 30 credits per semester, corresponding to a semester workload of 750 hours. A semester at GUtech is typically divided into fifteen weeks of teaching plus one examination week for UPAD students. The course syllabi detail how the student workload is divided into contact hours (i.e., time the student spends in a classroom) and self-study hours (i.e., time to work in the studio). Our experience shows that students do not work well at home or on their own. Therefore, we encourage and partly supervise self-study in the studio classrooms. Obviously, this is an extra effort that the department has to cover.

The programme is made up of two major disciplines: Urban Planning and Architecture. Both address the similar challenges but operate on different scales. We emphasize that in an undergraduate programme, they are taught together.

The programme was initially focused on Urban Planning with Architecture as a sub discipline. As these two disciplines rely heavily on each other we saw the need to incorporate more additional architecture-based courses into the programme. This created a better balance between the two disciplines.

The programme is based on three categories: Design, Knowledge and Communication. In simple terms: A specific foundation of basic information is needed in order to properly understand design criteria. This 'backbone' is concentrated under the knowledge module. The design module teaches the methodology of the design process. The courses in communication are the means to understand and make understand and work of design.

This was done to give clarity to the overall programme. The student as well as the educator has a better overview of the programme and relationship between modules. Another benefit is that often, a category can be supervised by one person in order to regulate that the courses in a particular category can complement each other.

The largest category is made up of the design projects. Each design project is linked / done simultaneously with a knowledge-based course. Most prominently 'Integrated Projects' are taught in close conjunction to a knowledge-based module. Therefore, it is possible to provide theoretical input followed by a direct application in the design studio. This integration of courses has proved extremely beneficial to the learning outcomes of the student. We find it necessary to teach these courses together in order to bridge the gap between them and to make it obvious to the student what the relationships between courses are e.g. theory applied to a practical situation. Otherwise more often than not and especially in the case of theory-based courses information is lost and knowledge is understood as a detached entity.

Each semester the topic and content of the 'Integrated Project' is based on either 'City and Landscape' or 'Building and Construction', representing the two disciplines mentioned above. In the last study year students can specialise in either discipline through elective courses and the 'Integrated Project'. This allows the students to prepare for their Bachelor Thesis in either discipline, either Urban Planning or Architecture, which can lead to an eventual Masters in either discipline.

Competencies

Programme-Specific Graduate Attributes and Skills

Many of the knowledge-based courses require memorising a lot of facts; design courses focus on understanding concepts and methodology. These skills are learned and enforced in exercises, assignments and projects. Soft skills such as preparing reports and giving presentations are taught in seminar courses, culminating in the Bachelor Thesis. Team working and self-study skills are taught in many of the courses.

In all courses, the students acquire key qualifications including technical, methodical, and scientific competencies, but also soft skills such as writing and presentation skills, and teamwork abilities. Most important for UPAD students is to learn a design process and be able to present and argue logically in favour of their ideas.

Our main goal is to educate the students for the local work environment. We try to match the skill set of the local industry with further education abroad. Initially the first years of the programme require very intensive basic training to bring the students to a certain standard from which we can teach them more complex coherences.

The graduates from the bachelor's degree programmes will also be expected to have the following subject-related competencies:

- Scientific-theoretical and analytical skills: Graduates have developed scientific and analytical skills especially through the modules of history and theory, sociology, economy, law, planning and construction. The students need to acquire these skills in order to analyse specific situations
- Method-based and problem-solving approach: Design exercises within the modules enable graduates to take a targeted approach to problem solving in their work. Depending on the exercise the students learn different methodologies that can be applied to various design tasks.
- Interdisciplinary and integral thinking: Graduates have learned to think in an interdisciplinary way in order to tackle diverse problem solving. The approach of integral thinking is taught especially in project-based courses where many topics and influences come together.
- Creative experience: Graduates have gained creative experience throughout the entire programme particularly in project-based assignments. This safeguards their own creative development in various contexts.
- Practical experience: Graduates are expected to gain practical experience by completing their internship during their time of study. This experience helps the students to understand a real-world application of their acquired skills.
- Communication skills: Graduates have developed communication skills during their work with other students and teachers as well as during the oral presentations of their project-based courses.
- Computer literacy: Graduates have experience using computers as well as a good understanding of essential software used in urban design and urban planning (AutoCAD, GIS, Adobe CS, etc.)

Integration of latest developments

Since 2014, a continuous process of reviewing the curriculum has taken place within the context of internal staff meetings. This usually takes the form of comparing the planned teaching framework with the day-to-day reality of teaching experience. Much of the improvement has been a continuation of the goals set in 2012. Additionally, the input from students, external advisory committees and local professionals have also been considered.

Key observations of improvement have been identified:

- Class sizes greater than 35 students present noticeable challenges in delivering quality.
- General weaknesses persist in developing constructive criticism and a rationale for their work.
- Little opportunity for students to participate in hands-on activities such as building workshops.
- The lower standard for English proficiency (IELTS, now 5.5) has a noticeable effect on the student's comprehension.

Key actions were for the development of the study programme implemented:

- More relevant courses for current needs are developed and implemented first as Elective Courses with new course descriptions to the curricula. This tailored courses ensure to cover different topics which are important for the Omani market.
- Creation of two 'streams' which allow large class sizes to be handled in closer coordination of submissions/ coursework among faculty.

Initiating Masters Program

Following a market survey and under the supervision of the appropriate regulatory committees, UPAD has developed a program for Masters level studies, which commenced in Spring 2020. Although the initial applicant number has been limited (6), it is anticipated that this number will rise once awareness of the program increases.

Overall, the programme of Urban Planning and Architectural Design is very well received. Student applications are well above capacity. Also, the improved curriculum shows a positive effect on the performance of the students. With a growing and diversifying job market in the field of design, architecture and construction we observe and acknowledge the wish from the students to learn more about architecture and related technology in order to pursue a career as licensed architects.

Internships

The aim of the internship is to provide the students insight into the practical work as a planner, designer or architect and to apply classroom knowledge to real life situations. The students typically do their internships in the summer holidays after the 6th semester. Students are encouraged to look for internship opportunities both locally and internationally. Students are trained in preparing a portfolio and given general advice how to apply for their first job. A written internship report must be handed in after successful completion of the internship. This report is evaluated and marked.

Whilst the experience from other programmes offered at GUTech shows that many companies in Oman are willing to offer internships to Omani students, it is much more difficult to find internship placements for non- Omani students. The department is therefore working on international collaborations to finding internship placements for these students. At the same time, the market is limited and the industry is not yet developed enough to recognise the benefits for these short-term internships.

Studies Abroad

In the first few years of the programme, all UPAD students were sent once to RWTH Aachen University as part of the mandatory course 'Excursion'. In 2012, the university stopped these trips due to funding issues; in future, only selected students will be sent to Germany for short study trips.

There is an existing exchange programme between RWTH Aachen and GUTech that allows up to three students per semester to participate in an exchange programme. In 2013 / 14 one German student from Aachen was studying in the 5th semester. This semester we were able to send one student from the seventh semester to RWTH.

There is an existing exchange programme that allows one student per semester to participate in an exchange programme. In 2019, there was an exceptional case where two students were sent from GUTech to RWTH Aachen in 8th semester. And there was one student who participated in an exchange programme from RWTH Aachen in 7th semester.

Development of Objectives

The programme was recently improved based on the accumulated experience of the department in academia and practice in the context of Oman. Students are in need of close supervision and consultation, especially when working on design exercises. The lack of basic knowledge in mathematics and sciences slows the overall progression of the coursework. To counter this, structural improvements were made: the pace of the course modules, especially in the first two semesters was adjusted to the ability and student numbers. Small courses were

combined to larger modules to intensify the learning outcomes. A growing job market in the field of architecture resulted in adjustments concerning the content of the programme. More emphasis was given to course work in Building Technology in place of courses that have proven unsuitable for the overall programme.

The programme provides general abilities, skills and knowledge that support students in their development to become young professionals. On the other hand, the programme provides specific knowledge to compete in a professional environment. Design is taught as a methodology that leads to a solution.

Accordingly, students are well prepared to work hands-on in a professional practice as well as pursuing an academic career. A number of courses are focused on real scale building, such as first semester exercises, building construction courses out of which a number of pavilions were built on campus. In the near future a building yard shall be set up, so that more practical experiences in building can be taught. This is especially important given the limited access that the female students can have to real construction sites.

Academic Approach

The programmes overall aim are supported by research and consultancy work done within the university. This approach has a number of advantages for teachers, students and the university itself.

Professors are obliged to conduct research within their expertise. In our field of study research can often be linked to teaching. A part of a course, e.g., an analysis or a case study done by students, can be integrated into a research project. Students learn to understand that their studies can have a real-life outcome. This approach also supports local and contextual projects. Examples for these are the recently completed Research Council (TRC) funded Eco House as well as the research Towards Sustainable Urbanisation Patterns in Oman; the private sector linked Muttrah Redevelopment Master Plan; the tender to participate in, the Oman Regional Spatial Strategy; and the urban planning project for the city of Al Buraimi initiated by the department.

Professors are also obliged to participate in consultancy work, e.g., the recently held training sessions for the architects of the Muscat Municipality on sustainable urban and architectural design. Permanent staff is continually building up a professional network within the region and therefore are aware of the challenges in the industry. This network proves beneficial for students as well, e.g., for internships and employment after graduation.

Employability

The Bachelor of Science in Urban Planning and Architectural Design provides an application-orientated education that qualifies graduates for various professions in the private and public sector.

Urban planners and architects work in many different fields and play a major role in shaping our social lives with regards to the built environment. The focus of later professional work is on all scales of tasks of planning and building: in administrative and institutional sections of municipal, administrative and government organizations as well as in private-sector design and construction consultancies.

Graduates are well prepared to work in the local industry, mainly because of the many practice-relevant courses and the mandatory six-week internship in the last study year. But they are also well prepared to pursue an academic career. In seminars, they learn academic research methods, and excellent students are participating in research projects in the department, e.g., the Eco House project in which two graduates worked full time for two years.

Personal Development of Students

Students at GUtech enjoy an education at a higher academic level than at most other colleges / universities in Oman. The change of attitude of most students in self-study skills observed from freshman to fourth year students is striking. To support this development, GUtech guide students intensively. From our experience self-study time is rarely used in an effective way. Therefore, repeated guidance is necessary, e.g. understanding the value of reading, using the library, promoting general interest in topics not just related to the study subject, working independently.

Language and Cultural Skills (LCS) are taught in classes parallel to the BSc programme and provide views beyond the field of study.

Through exchange activities with international universities or local field trips students have the opportunity of international and national exposure. Additionally students have enough time for extracurricular activities. They have the opportunity to take part in various student clubs (e.g., chess, environmental, theatre) and GUtech is offering a variety of sports programmes.

“Applied Geosciences (AGEO)” (B.Sc.)

Reasons for establishment of the AGEO Programme

There was a strong strategic and academic interest to establish the AGEO programme as one of the four initial programmes when GUtech was founded. The Sultanate of Oman offers opportunities for employment and economic success in the oil and gas industry and future opportunities in mineral resources mining and water management. The study programme

matches the fields that the Sultanate identified as current and future economic value. It is the clear aim of all GCC countries including Oman to replace the expatriate workforce with trained national personnel. Thus, the industry is in need for more qualified national staff trained at international standards.

Objectives and their Evaluation and Development

Programme Objectives

The Bachelor programme focuses on three areas which are of key importance to the present and future of the Sultanate of Oman and the wider region: energy, water and mineral resources. A strong emphasis is placed on the employability of GUtech graduates, and many elements of the programme are accomplished in cooperation with local and international industry partners. Critical thinking and life-long learning are essential, and soft skills such as communication, teamwork and presentation skills are integrated throughout the curriculum.

The majority of the courses are taught by GUtech faculty staff based in Oman supported by visiting professors from RWTH Aachen University and from other renowned Universities in Europe. The BSc in Applied Geosciences at GUtech is tailored to the requirements of Oman and the region and implemented by the local GUtech staff with the state-of-art expertise accumulated at RWTH Aachen University. Students can get the opportunity for lab courses in Germany to study in an international environment during a short period and can apply for scholarships for conducting internships and/or BSc theses abroad.

The aim of the Bachelor of Science in Applied Geosciences (AGEO) programme is to develop the knowledge and competencies required to meet the demands of the profession of Applied Geosciences in the Sultanate of Oman and the region. Key emphasis is placed on the fields of Petroleum Geology, Hydrogeology and geology of Mineral Resources. More specifically, the programme provides students with a sound theoretical and practical understanding of geoscience in all three sectors — private, governmental, and non-profit — in preparation for careers as geoscience professionals in a range of organizations. Through this programme, students will obtain skills and attributes to identify, assess and shape geoscientific ideas to technology into real business opportunities and to support such ventures through entrepreneurial private, government and civil society initiatives.

The graduates of the programme will be ready to enrol in postgraduate studies in the field of geosciences in local and international universities. To meet this end, the programme was developed in cooperation with RWTH Aachen University. Furthermore, the academic standards of the programme are regularly reviewed by academic staff from RWTH Aachen University as well as by panels of experts, e.g., from international accreditation agencies and external academic and non-academic advisers from Oman.

Structure – Time and Content

The duration of the AGEO BSc programme is four years, which is a directive of the Ministry of Higher Education, Research and Innovation in Oman.

In the first year, courses concentrate on basic knowledge in geosciences and general science subjects, such as mathematics, physics and chemistry with applications relevant for geoscientists.

In the second year, more advanced general geoscience courses like Structural Geology and Sedimentology prepare for the applied geosciences subjects. Geophysics, Geochemistry, Hydrogeology and Introduction to Petroleum Geology are included.

The third year is reserved for the focus on advanced courses related to Petroleum Geosciences, Economic Geology of Mineral Resources, and Hydrogeology. The specialisations are required for a solid, broad basis in the field of applied geosciences.

It is recommended that Internships of six to eight weeks are completed before the beginning of the fourth year to give students the opportunity to select their final year projects according to their interests based on study and work experience.

Field courses accompany the students throughout the 4 years of study with an increasing level of more advanced training and integration of the theoretical study for surface and subsurface applications.

Communication and presentation, scientific reading and writing skills are taught in the Geoscience Seminar in year one, but in year two and three such skills are trained in several other courses; Geological Visualisation in year four. These skills are finally expected to be applied with integration of geoscience knowledge in a team project course and the BSc project for thesis writing.

Elective courses are not included in the AGEO study programme in Semester 1-7. Students are offered to select their internship and BSc thesis themes from the general fields of Petroleum Geosciences, Hydrogeology and Mineral Resources that enable them to specialise according to their own interests.

Currently 64 % of all students from a cohort successfully graduate within 8 semesters. Students who have to repeat a course generally require studying at least one year longer since all courses are offered only once per year. The employability of AGEO graduates is, according to our regular surveys, very high after 12 months from the date of graduation.

One ECTS credit point corresponds to a student workload of 25 hours. Students typically register for courses worth 30 credits per semester, corresponding to a semester workload of 750

hours. A semester at GUtech is typically divided into fifteen weeks of teaching plus two examination weeks. The course syllabi detail how the student workload is divided into contact hours and self-study hours.

Integration of latest developments

AGEO continuously adapts the teaching and learning context to current requirements and given resources. The general introduction to lab methods course was established by RWTH staff and taught in the RWTH labs. The course requires specialised equipment and the students had to travel to Germany to complete the courses at RWTH Aachen University. The installation of Lab facilities at GUtech was completed in 2016. Since 2017 students have used the facility for learning and own research. The AGEO Microscopy lab was expanded and Zeiss polarisation microscopes for student courses are in place since 2014. Four Leitz microscopes from RWTH Aachen University were donated in 2020 and 10 new Zeiss microscopes were bought in 2021, allowing every student in a group to work with a single microscope. Additionally, available funds from DAAD were re-directed to a digital learning resources. A part of the microscopy course will be taught, using the latest inventions of digital microscopy in the computer lab.

Another new invention is the use of sandboxes. Sandboxes with installed laser scanners and projectors are a hands-on learning tool which can be used to visualize the interaction between geology and topography, the risk management of geohazards (slope stability and flash floods) or even geoelectrical potentials in geophysics.

The course descriptions have been revised by the professors responsible for the course. Minor modifications were made in the syllabus and in the forms of learning and assessments, text books and reference books are updated. Contact hours and self-study hours were balanced and adapted to the syllabus.

Some courses had to be renamed to better fit the syllabus and shortened for timetabling and practical use (e.g. Probability and Statistics, Palaeontology, Hydrogeology).

In some cases changing and replacing of courses was necessary to improve the curriculum to better prepare students for the challenges and requirements in industry.

The AGEO programme has been designed for GUtech and Oman very well and only minor changes appeared to be necessary to improve during the starting years due to practical reasons. Current requirements and given resources cause modifications and reflect the development of the study programme.

Internships

The aim of the internship is to provide students with insights into the practical work as an applied geoscientist and to apply classroom, lab and field knowledge to real life situations. Students typically do their internships in the summer break after the 6th semester. Students are encouraged to look for internship opportunities both locally and internationally. The internships are supervised and are expected to take place in a time period of 6-8 weeks. An internship report must be handed in after successful completion of the internship, in cases where internship providers don't let students disclose any information, the report can be substituted by a presentation. This report or the presentation are evaluated by the internship supervisors from GUTech and the company.

Whilst the experience from other programmes offered at GUTech shows that many companies in Oman are willing to offer internships to Omani students, it is much more difficult to find internship placement for non-Omani students. The department is therefore working on expanding international collaborations to find internship placements for these students.

Recently, due to the COVID pandemic, some extraordinary measures including virtual internships were taken to provide students with internships. Nevertheless, students are struggling to find industry-related internships in 2021 and the department is considering to allow a small number of students to participate in research projects for gaining practical experience.

Studies Abroad

In the first few years of the programme, all AGEO students were sent once to RWTH Aachen University as part of the mandatory course "Laboratory Methods". These trips were stopped due to funding issues and the rising number of students. Now, only selected students are sent to Germany for short study trips.

There is an existing exchange programme between RWTH Aachen and GUTech that allows up to three students per semester to participate in an exchange programme. During the last 6 years 3 German students from Aachen were studying in AGEO for an exchange semester. Two AGEO graduates completed their MSc at RWTH's EMR (Geoscience) Group.

Development of Objectives

The programme objectives were defined as well-fitting for the region from the beginning and have been modified between 2015 and 2018. The focus was predominantly on Petroleum Geology and has now more developed in the direction of Hydrogeology and Mineral Resources Geology. Students are in need of close supervision and consultation, especially when working on practical exercises and field studies. The lack of basic knowledge in mathematics and sciences slows the overall progression of the coursework. A growing job market in the field of water management and mineral resources resulted in adjustments concerning the content of the programme. More emphasis was given to course work in Groundwater Modelling, Scientific

Computing, Applied Geophysics and Mineralogy in place of courses that have proven unsuitable for the overall programme.

Evaluation of the Objectives

The graduate attribute and skills are evaluated at the end of the programme in a small number of courses. Instructors use rubrics with a range from 1 to 5 where 5 represents the best performance. The outcome of the evaluation is reported to the Deputy Rector for Academic Affairs and discussed in the Departmental Curriculum Review Committee. The department aims for an average of 3.5 and higher on individual programme objectives. If this aim is not reached, the department committee decides which adjustments in the coursework have to be made in order to reach the defined objectives.

Competencies

The AGEO BSc programme is aimed at high-school graduates who want to start a career in Applied Geosciences with focus on the geology of Hydrocarbons, Water and Mineral Resources.

Cooperation in education with Professional Organisations

AGEO students participated in activities and competitions during conferences and workshops in the Middle East (Oman, UAE, Bahrain) and are already members of the student chapters of International Organisations (AAPG: American Association of Petroleum Geologists, SPWLA: Society of Petrophysicists and Well Log Analysts, EAGE: European Association of Geoscientists and Engineers). Surface and subsurface field and computer lab activities and competitions are additionally organized for AGEO students by the Geological Society of Oman (GSO) as the former President of GSO is teaching the Geology of Oman course in the AGEO BSc programme.

Programme-Specific Graduate Attributes and Skills

Graduates from the Bachelor of Science in Applied Geosciences will also have developed the following attributes that will allow them to participate effectively in the geosciences professions:

- Interdisciplinary thinking: the ability to think across a wide range of knowledge;
- Ability to understand self-similar, complex systems that exist across a wide range of scales in length as well as time;
- Accessing, evaluating and synthesising information: the ability to decide what information is important, where to find it, make valid judgments and synthesise information from a range of sources;

- Method and problem solving orientation: the ability to solve problems through exercises in basic and professional orientated disciplines;
- Practical experience: the ability to use state-of-the-art, complex equipment and software for geoscientific investigations, especially in petroleum and hydrogeological fields;
- Research experience: experience in basic geoscientific research and industrial projects.

Academic Approach

team project or the BSc thesis projects can be integrated into a research or a consultancy project. Students learn to understand that their studies can have a real-life outcome. This approach also supports students working in local projects related to the petroleum industry. Companies like PDO regularly provide data for thesis projects that allow students to work on “real-world” problems. Professors are also required to participate in consultancy work. Ideally, academics build up a professional network within the region and are therefore aware of the challenges in the industry. This network can prove beneficial for students as well, e.g. for internships and employment after graduation.

The programme provides general abilities, skills and knowledge that support students in their development to become young professionals. On the other hand, the programme provides specific knowledge to compete in a professional environment. Accordingly, students are well prepared to work hands-on in a professional practise as well as pursuing an academic career.

Employability

The Bachelor of Applied Geosciences programme is designed to give students a broad foundation in the main areas of geoscience so that they can later specialise their knowledge according to the needs of their employers or continue with post-graduate studies. The mandatory internship gives students the opportunity to learn more about the workplace environment in various industries. It is also not uncommon that students join their internship company after graduation. While the AGEO programme has been designed to meet the requirements of the region, graduates shall also be able to start working for international companies.

A demand for qualified geosciences professionals comes from the exploration and production of natural resources, such as oil, gas, minerals and building materials. In Oman and the region, a dynamic oil and gas sector generated a demand for geosciences professionals, which is expected to increase as more manpower-intensive Enhanced-Oil-Recovery (EOR) operations and exploration for unconventional hydrocarbons were recently introduced. The need for fresh water for a growing population is important, and graduates in Applied Geosciences will have excellent opportunities to contribute in the important fields of water supply and management.

Oman's government is giving a special emphasis to the mining industry for metallic and industrial minerals which was recently re-structured and has experienced strong growth. Graduates are expected to find excellent opportunities for employment in these fields. With Oman's fast economic growth, there is an increasing need for industrial minerals in the construction industry, especially in the infrastructure sector. It is expected, therefore, that some graduates will find employment opportunities in the field of building materials as well as in geological survey work and in environmental areas.

Personal Development of Students

Students at GUtech enjoy an education at a higher academic level than at most other colleges / universities in Oman. The change of attitude of most students in self-study skills observed from freshman to fourth year students is striking. To support this development GUtech guides students

intensively. From our experience self-study time is rarely used in an effectual way. Therefore, repeated guidance is necessary, e.g. understanding the value of reading, using the library, promote general interest in topics not just related to the study subject, and working independently.

Life Skills (LS) courses are taught in classes parallel to the BSc programme and provide views beyond the field of study. This includes mandatory language courses in German, a mandatory course in Entrepreneurship and two electives from a wide field of courses. All students take six LS courses worth four ECTS credits each during their Bachelor degree.

Through exchange activities with international universities or local field trips, students have the opportunity of international and national exposure. Additionally, students are given sufficient time for extracurricular activities. They have the opportunity to take part in various student clubs (e.g. chess, environmental, theatre) and a variety of sports programmes.

UPAD has structures, processes, and personnel in place to ensure quality. It has a short-term and a long-term strategy for the future, which is to be implemented successively.

The programme fits in well with the university's overall strategy. The economic and social transformation processes that have started in the country, in which the university would like to participate, also have a spatial component. With the competencies available here, UPAD can make a substantial contribution in terms of expertise and personnel, which will also have a long-term effect on students.

The programme regularly involves practitioners working in architecture and urban planning via informal contacts. A formal advisory board is in preparation. The perspective of both employers

and employees is taken into account. The board also includes alumni, so that feedback on the study programme is possible.

Students are involved in the ongoing development of the programme through evaluations and regular meetings. Once a semester, a meeting takes place to which all students are invited. In addition, semester spokespersons act as a link for ongoing communication between the program management and the students.

The Bachelor of Science in Urban Planning and Architectural Design aims to graduate future urban planners and architects to meet the demands of the profession in the Sultanate of Oman and the region. Key emphasis is placed on the specific aspects of urban development, sustainable growth and architectural design. The region faces major challenges due to rapid economic development and fast population growth. The programme is designed for a young generation of students that is overwhelmed by an urban development that is detached from social, environmental and traditional coherence. Through the programme, students will obtain skills and attributes to successfully identify, assess and comprehend this situation.

These goals and competencies, which are mentioned in the self-report of the study program, could be confirmed in the course of the inspections, interviews and document review. They fit the requirements of professional practice and represent a good basis for further study programs.

The programme is designed and implemented as a project study. The student projects bundle the learning outcomes from lectures and seminars and enable their learning application. The projects cover essential parts of the fields of architecture and urban planning.

2.2 Assessment

“Applied Geosciences” (AGEO) (B.Sc.):

The design and approval of AGEO is comprehensive and involves multiple stakeholders to ensure that this study programme is current, relevant and aligned with student and labor market needs.

The process includes a thorough analysis of the current academic landscape and an assessment of the institution's strengths and weaknesses. The design of the degree programme therefore experiences regularly review processes that includes input from internal and external views.

The content of the degree programme is built on defined entry qualifications and entry requirements and leads rigorously to the intended qualification objectives. The course title is consistent with the specific course content and the chosen degree is appropriate in terms of content.

The individual study focuses for the AGEO is aligned in such a way that the intended learning objectives and competencies for the qualification for the job market are achieved.

The forms of teaching and learning used are varied and appropriate and adapted to the study formats. All modules are convincingly structured, taking into account the specified entry requirements and qualification objectives.

The course content offered undoubtedly enables students to take up qualified employment.

Student-centred teaching and learning is at the heart of the curriculum, which is ensured by a high degree of communication and close exchange between lecturers and students. Students have the opportunity to choose from a sufficiently wide range of modules.

The structure, organization and implementation of the internships are very well regulated and logically structured. The workload is appropriate, and students report an excellent balance between theory and practice. The excursions are very well organized and important for the student's experience. Oman also contributes to this as an ideal place to study and observe.

Students attest that the degree programme is excellent to study and have expressed a high level of satisfaction in the surveys.

The students praise the very good relationship with the teaching staff. The intensive supervision of students by a highly motivated teaching staff is common to all degree programmes and is certainly a key factor in the demonstrably high attractiveness of the degree programmes.

“Computer Science (CS)” (B.Sc.)

In summary, the students are satisfied with the quality of their degree course and emphasize the well thought-out workload and the good support provided by the teaching staff. The curriculum has a well thought-out and logical module sequence. The Bachelor programme in Computer Science (CS) has been well designed according includes the most important course topics. Learning outcomes are well defined.

There is a good mix of theoretical and practical courses. The students seem to be very well qualified and attractive for the job market in Oman, which was also confirmed by Alumni students.

GUtech also supports students to target for industrial certificates, which might be beneficial for future employments.

The study programme allows several students to work part time during their studies, preparing them even better for the job market. International mobility by students is encouraged, e.g. scholarships, allowing interested students to continue their Master education abroad or to study already a semester during the Bachelor programme.

Urban Planning and Architectural Design” (UPAD) (B.Sc.)

UPAD provides an application-orientated programme. this qualifies graduates for various professions and activities in the private and public sector. Urban planners and architects work in many different fields and play a major role in shaping our social lives, the economy and the ecology with regards to the built and non-built environment. The focus of later professional work is on all scales of tasks of planning and building: in administrative and institutional sections of municipal, administrative and government organizations as well as in private-sector design and construction consultancies.

According to the documents and interviews during the accreditation procedure graduates are well prepared to work in the local industry, mainly because of the many practice-relevant courses and the mandatory six-week internship in the last study year. But they are also well prepared to pursue an academic career. In seminars, they learn academic research methods, and excellent students are participating in research projects in the department.

The job market for architects and urban planners in Oman is still developing. In view of the very dynamic development in the field of construction and planning, it can be assumed that the graduates will be able to further establish themselves well on the labor market in view of their qualifications.

The students workload is sufficiently defined and transparent. As is typical in the profession, students may experience temporary peaks in workload when working on student projects.

An internship must be completed before the start of the Bachelor Thesis and provides practical training for the students. The aim of the internship is to provide the students insight into the practical work as a planner or architect and to apply classroom knowledge to real life situations. The students typically do their internships in the summer holidays after the 6th semester. Students are encouraged to look for internship opportunities both locally and internationally. Students are trained in preparing a portfolio and given general advice how to apply for their first job. A written internship report must be handed in after successful completion of the internship. This report is evaluated and marked.

According to the staff and the discussions with employees a lot of companies in Oman are willing to offer internships to Omani students. It is much more difficult to find internship placements for non-Omanis. The department is therefore working on international collaborations to finding intern-ship placements for these students.

The short duration of the internship presents challenges for employers and students. A voluntary extension is supported by the program managers in terms of content and organization.

The study programme addresses the aforementioned aspects systematically and in a coordinated manner. The students are instructed and encouraged to also dedicate themselves in depth to the mentioned topics in independent work.

In order to further develop the study programme and to ensure its practicability for the job market, specialisation and the introduction of two interdisciplinary Master's programmes with the specialisation tracks a) Urban Planning and b) Architecture should prospectively take place in the future.

In addition, the expert group recommends reducing the cohort size in order to achieve a better student-teacher ratio: Teachers are exposed to a large workload and students would like to pursue smaller cohort sizes for even better supervision and academic training in order to further increase the quality of the bachelor study programme UPAD.

The expert group would like to make the following recommendations for the further development of all degree programmes:

The degree programmes are of very good quality and should benefit from each other. Interdisciplinarity should therefore be strengthened between the degree programmes. In this context the "Life Skills" offer should be supplemented with Computer Science and Data Science and the associated synergy effects should be used.

Within the framework of the excellence strategy, the area of research should be expanded more strongly, and its results should have a feedback effect on the content and thus the design and further development of the study programmes. This should be accompanied by a strengthening of the mid-level faculty, e.g. through teaching assistants.

In order to ensure that the curricula are always up to date, it should be possible and included in the approval procedures to update the module content at any time.

2.3 Conclusion

The criterion is **fulfilled**.

3 ESG Standard 1.3: Student-centred learning, teaching, and assessment

Institutions should ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach

3.1 Implementation

Student Workload

One ECTS credit corresponds to a student workload of 25 hours.

Students typically register for courses worth 30 credits per semester, corresponding to a semester workload of 750 hours. A semester at GUTech is typically divided into fourteen weeks of teaching, one exam preparation week, and two weeks of final exams. Thus, the average weekly student workload is 54 hours. Of this, the students typically spend 25–30 hours in the classroom.

The course specifications detail how the student workload is divided into contact hours (i.e., time the student spends in a classroom) and self-study hours (i.e., time for homework). While contact hours are easy to determine, it is difficult to get accurate estimates for the time students work at home. For example, the students estimate their homework time in their course evaluations.

Learning Context

Didactic Means:

Utech's understanding of the word "curriculum" includes content as well as pedagogy and opportunity to learn, and special emphasis is given to developing a student-centred approach to teaching and learning.

Overall, the University encourages a strong focus on pedagogy, with the aim of developing higher order cognitive skills among students. Assessment of quality of teaching and learning is an essential part of the recruitment process, with applicants for senior academic positions being interviewed by professors from RWTH Aachen University and being asked to give presentations on their areas of expertise.

Newly hired academic staff at GUTech are given a comprehensive induction focusing on GUTech's student profile, learning styles and motivation of students, as well as Omani culture.

The individual forms of teaching for each course are described in the respective course specifications. While the number of students in lectures has increased, tutorials are offered to provide a more personal teaching environment.

In most subjects, the concept of continuous assessment is incorporated to provide immediate feedback regarding the learning success to both students and instructors. Students' achievements throughout the semester are in many cases included in the final mark.

Tutorials

Tutorials are related to specific courses and offered to students by lecturers on a more individual basis. A tutorial is an additional learning forum in a smaller group for supervision of exercises, field and lab reports, homework, assignments and team projects. Students learn general methods, teamwork and improve presentation and report writing skills.

Seminars

Seminars provide students with an overview about research methods, publications, scientific practices including research ethics and allow them to discuss and present specific topics under the supervision of professors and supporting staff.

Project work

Projects are an important didactical element in the study programme. They allow for exploration of solutions, and students apply new knowledge and skills. In the beginning, project work is intensively structured and supervised. In higher semesters, supervision is sustained, but the level of self-study and independent problem-solving increases. Core contents of project work require students to transfer knowledge to applications in a complex environment as well as the visualisation and communication of results. Students develop skills of effective oral and written expression, to improve their ability to relate to others, to learn to think critically and scientifically, and to finally present themselves professionally.

Homework

Homework refers to tasks assigned to students by their lecturers to be completed without supervision. Subjects are developed in self-directed study and can be finally submitted as assignments. It encourages active, analytical and independent learning in students.

Self-study

Self-study serves as the preparation and follow-up of courses, as well as the revision before assessments. By means of the credit points defined for each course, students are able to schedule their workload efficiently.

Forms of Examination

Assessments are governed by GUTech's Assessment and Examination Policy. All assessments should be directly aligned to the learning outcomes of the respective course, and they should be fair and reproducible. The examiners are independent in defining the content of their

examinations, as long as the learning outcomes specified for their courses are being adequately assessed. All passing requirements of a course have to be met before a student is awarded the respective ECTS credits. Learning Outcomes must be clearly stated, achievable and measurable.

The types of assessment as well as the weightings and requirements to pass a course are stated in the respective course specifications of the study programmes. To complement the range of teaching styles appropriate for different subjects and for the competencies which are expected to be acquired, assessment types vary among different courses.

Most courses finish with a final exam to test the theoretical and practical knowledge of the students (summative assessment). However, continuous assessment (formative assessment) and other forms of assessments are also used throughout the semester, e.g., to ensure that the students develop and enhance relevant soft skills. The final grade is usually computed as the weighted average of all assessments.

Distance and Blended Learning

Before Covid-19, the Ministry of Higher Education, Research, and Innovation allowed at most 75% of a course to be in the form of distance learning.

The University started in 2014 a blended learning initiative with the goal of increasing the use of multi-media teaching tools. E-learning techniques are particularly important for all the courses that are still delivered by fly-in professors. A Rector's Delegate for Blended Learning and Exploratory Teaching Space at RWTH Aachen University, has been advising GUTech on the blended learning initiative and has been providing training to the local staff in the form of small workshops at GUTech.

Foreign Languages

The language of tuition at GUTech is English. Students take English classes until they reach a sufficiently high level (i.e., IELTS 6.0). They also learn German as a second foreign language. German is never used in teaching at GUTech, but it is helpful when students visit Germany on field trips and block courses at RWTH Aachen University. Besides English and German, no other languages are taught at GUTech.

Academic Advisers

Academic advising for the Programmes of Study offered by the University is provided to both prospective and enrolled students. The Registry and Student Admissions Department provides advice on matters related to eligibility, entry requirements, availability of study places, programme contents, programme structure and completion requirements. All current students are

assigned an Academic Adviser who provides advice on matters related to the Study Plan, specialisations of the chosen degree programme, and approaches to learning.

Academic Progression

Each student enrolled in an undergraduate programme is assessed for academic progression by the Board of Examiners at the end of the semester. The purpose of the academic progression is to ensure that students are progressing toward graduation. Good students, e.g., with a minimum GPA of 3.3 on both semester and cumulative averages, may be considered for extended course load status which would allow the student to take credits in excess of the normal course load of 30 credits. Weak students on the other hand, i.e., with a semester GPA of less than 1.9, will be placed on probation which means the student can only register after discussing the semester study plan with their Academic Adviser. The Academic Adviser might limit the number of CPs the student is allowed to register in.

Examination System - Organisation of the Examinations

Board of Examiners

Each study programme has a dedicated Board of Examiners whose main task is to monitor all exams and confirm the final grades suggested by academics. It is chaired by the Department Head offering the Programme of Study and includes the Deputy Rector for Academic Affairs or his/her deputy, at least three professors from the Department offering the Programme of Study as well as representatives from other Departments offering Courses in the Programme of Study and the Head of Registry and Student Admissions or his/her deputy. To ensure student privacy, the meetings of the Board of Examiners are not open to the public. The members of the Board of Examiners are under the obligation of confidentiality. The dates for meetings of the Board of Examiners are stated in the academic calendar; in general, they should meet one week after the last exam week to ensure a prompt release of grades.

Grading Scheme

GUtech uses a numerical grading scheme, augmented by a few non-numerical grades.

Change of Grades

Students can request access to examination documents and appeal their grades. The grade appeal process is described in the Grade Appeal Policy. In practice, most grade appeals are resolved in Step 1, the informal resolution. If the instructor recommends a grade change, s/he asks the Chair of the Board of Examiners to approve the change. If the Chair agrees, the Associate Deputy Rector for Academic Affairs also has to approve the change before the grade change is entered into the Student Information System.

Exams and Competence Skills

All assessments must follow the guidelines set in GUTech's Assessment and Examination Policy. Following German academic tradition, examiners are independent in defining the content of their examinations as long as the learning outcomes specified for their courses are being adequately assessed. All passing requirements of a course have to be met before a student is awarded the respective ECTS credits. There is a dedicated examination period at the end of each semester. The exams are centrally scheduled by the Registry and Student Admissions department.

Frequency of Examinations and Student Workload

Exam Period

All final exams should be scheduled in the exam period, which is usually a two-week period, one week after the end of classes.

Checking Exam Papers

All final exams must be signed off on the Final Exam Checklist [G.32] by at least one other professor in the department and by an English language academic staff member before they are submitted to Registry and Student Admissions Office for printing. All exams have a standardised cover sheet.

Invigilation

To ensure that the final exams are graded consistently and avoid the influence of the teaching staff's impression of a student's performance throughout the semester on the final mark, GUTech has incorporated a system of anonymized examinations: Instead of writing their actual names and student numbers on the exam, an individual exam identification tag is applied. The students link their exam with their name via an individualised cover sheet which cannot be accessed by the examiner until the final grades have been submitted. Moreover, final exams are invigilated i.e., the exams are not supervised by the examiners but by independent staff, the invigilators, usually teaching staff from other departments and interns. The academic staff are only available for questions during the first fifteen minutes of an exam.

Repeat Exams

If a student fails a course, he/she has the right to sit for a repeat examination if there is a reasonable chance for the student to pass the course. If this is also not successful, the student fails the course and must retake the course. A student can register at most two times for each course.

The Registry and Student Admissions department keeps all final exams for at least one year.

Transparency

From the very start, GUTech and RWTH Aachen University have been keen on ensuring that all operations of the University are transparent, well- documented, and customer oriented. Hence, there exists a common core set of documents relevant for all programmes. Moreover, the structure of the programme specifications is standardised, yet allowing for individual emphasis and special arrangements.

During the start-up phase of the University, the small class sizes allowed individual solutions and a rather flexible application. This fitted well into the Omani culture. Nevertheless, as the University grew, its policies became increasingly comprehensive. Their consistent implementation plays an important role in the smooth operation of the university.

Student Support

All academic staff are encouraged to communicate their office hours to the students. In addition, students can arrange a meeting with their academic adviser through e-mail.

Policies

The Academic Catalogue contains the Academic Regulations and most other academic policies, as well as additional information about the study environment at GUTech.

Accessibility of Documents

To ensure that all stakeholders have continuous access to the most up-to-date versions of rules and regulations, GUTech uses a tailored web- service based on the Mediawiki platform called Q-Wiki which is linked to the myGUTech Portal. It provides access to the University's Policy Framework (database of manuals, policies, standard operating procedures, and forms), Governance Framework (repository of minutes from all board and committee meetings), and Planning Framework (links to the University's strategic, operational, and functional plans).

Managed by portal editors from different departments, QWiki is accessible to staff and students on the campus network or using GUTech VPN and has significantly contributed to the transparency and efficiency of a wide range of processes within the University. In the future, it may be used for interactive contributions to the review of existing and newly developed policies.

Either Arabic or German are spoken by a majority of the staff and these languages are often used in direct communication on campus and during meetings, all documents at GUTech, including minutes of meetings, must be written in English. This ensures that all information can be accessed by all staff members. In some cases, information is additionally made available in other languages to address certain stakeholders (e.g., Arabic information on study programmes for parents of students).

Documents for Students

Students are made aware of the current version of the Student Handbook and the Academic Catalogue on enrolment. On their first day of studies, the Head of Department welcomes the students and gives them an introduction to the relevant regulations. Moreover, students have access to GUTech's Q-Wiki website, and they may request the documents from the Registry and Student Admissions Department. Students also have access to important information and learning resources through the myGUTech Portal.

As GUTech has an open-door policy, students may approach any staff member, including the Head of Department, with any problems or questions. Preferably, they should first contact their assigned Academic Adviser in their department.

All students and academic staff have access to a university-wide Moodle installation, and most academic staff are now using Moodle to distribute their course materials.

Legal Status of Documents

To come into effect, documents have to be approved by the respective boards or body. All regulations attached to this self- evaluation document, especially – the Programme Specifications as well as the Policy Management Framework the Register of Policies and the Academic Regulations – have been approved and reviewed. Moreover, official documents must be submitted to and agreed by MoHERI, thus ensuring a legal review.

Continuous Improvement of Implementation

GUTech has already implemented several tools to ensure the quality of teaching and facilitate continuous improvement like student course evaluations, External Advisory Committees or Strategic Plan on Alumni Relations.

“Computer Science” (CS) (B.Sc.)

Learning Context

The CS curriculum encompasses minor and major courses. Most minor courses have 4–5 ECTS credits, two weekly contact hours for lectures and one hour for tutorials or labs. Most major courses have 5–7 ECTS credits, 3-4 weekly contact hours for lectures and two hours for tutorials or labs. The University gives lecturers a lot of freedom (e.g., academic freedom) to choose their own teaching style. In particular, they can freely choose teaching style, form of examinations and grading schemes, textbooks, and even implement minor changes in the syllabus, while they cannot change the learning outcomes, credit points, prerequisites, and entry and completion requirements. In general, most courses in the CS curriculum are based on lectures with additional tutorials and/or labs to practice the newly learned material. Lecturers

may also rely on term projects (often programming projects), field trips, or other activities. Approximately half of the courses are rather practical and require the students to do programming projects. Some lecturers also introduce new forms of teaching (e.g., blended learning).

The courses on Life Skills aim at developing language skills directly related to the students' bachelor's programmes, and raising students' awareness of diverse cultural issues which emerge in an environment where many cultures are represented and where international interaction, mainly with Germany and RWTH Aachen University in particular, is frequent. The cultural components of the course explore concepts such 'academic' and 'corporate culture', 'cultural identity' and 'cross-cultural communication' and will involve comparison of cultures and prediction of areas of possible misunderstandings. Based on their language skills and interests, students are given a choice of German courses, offered at different levels of competence. In all cases, students are given a project to work on and present to the class, thus proving their ability to work independently and communicate to larger groups.

Forms of Learning

Lectures/Labs/Exercises

Lectures are the classic method of university teaching to deliver scientific knowledge and methodical understanding. In most cases during the CS study programme lectures and exercises are combined in a course for understanding and applying the content presented in the lectures. Exercises are always guided by professors and support staff. They can be conducted as individual or teamwork and be evaluated as on-course assignments. Lab courses are held in lab classrooms and are combined with interactive lectures and exercises.

“Urban Planning and Architectural Design (UPAD)” (B.Sc.)

Learning Context

GUtech adapts the teaching and learning context to current requirements and given resources. The level of complexity increases during the course of the study programmes. The credit points that are stated for each module outline the quantitative workload of the students.

Regarding the professional competencies such as critical thinking and decision-making, the learning environment offers elective courses in each programme to further develop the students 'soft skills' (e.g. social, communicative competences). Study programmes include specific courses that strive to achieve such learning objectives. Additionally, many opportunities to provide group and teamwork and to enhance presentation and communication skills will be promoted in project groups but also in the context of the general courses. Learning should provide opportunities beyond the knowledge of the subject matter of a particular course.

By means of constant evaluation by students and internal training, the high qualification of the academic teaching staff will be ensured and developed further. The effectiveness of a teaching method has to be evaluated by the degree of its attainment of specific goals.

There are various types of teaching methods and techniques that are used by the instructors.

Lectures/Labs/Exercises

Lectures are the most traditional, long-established method of teaching, containing examples and anecdotes. A lecture intends to present factual material in direct, logical manner and to convey scientific knowledge and methodical understanding. It summarises, synthesises and organises for the student the content of numerous articles and books, and points out relationships that students might not sense or fully comprehend until amplified.

by the instructor. Lecturing widens the intellectual horizons of students, making it possible for the learner to gradually move toward acquisition of self-discovery and self-understanding. Associated with the lecture are tutorials and exercises that draw upon, analyse, illustrate or amplify the topics presented in the lectures.

Field courses

Excursions outside the university allow students to put the concepts and ideas discussed in class in a real-world context. Depending on the programme and course, one day or longer excursions, held in small groups, are either optional or compulsory. They are generally prepared during a lecture and are often followed by class discussion.

Studio

Subjects taught as studios reflect the necessity to break away from the teaching in lectures and exercises, but offer opportunities for project work, which is consulted frequently.

Integrated Project

In the Integrated Project the knowledge which was accumulated in previous or simultaneous courses is applied to a project work. Each integrated project shall be carried out in close link with at least one knowledge-oriented subject.

Besides lectures, projects are an important didactical element in the study programmes. They allow for exploration of solutions for complex issues and students should apply new knowledge and skills. In the beginning, project work will still be intensively structured and supervised. In higher semesters supervision is sustained, but the level of self-study and independent problem solving increases. Core contents of project work require students to transfer knowledge to

applications in a complex environment as well as the visualisation and communication of results. Students should develop skills of effective oral and written expression, to improve their ability to relate to others, to learn to think critically and scientifically.

“Applied Geosciences” (AGEO) (B.Sc.)

Learning Context

The level of complexity increases during the course of the study programme and the basic study leads to a more advanced study including a profound education in all three Applied Geoscience fields, i.e., Petroleum, Water and Mineral Resources. Students can select the preferred specialisation in team projects, internships, and the BSc theses. The credit points reflect the quantitative workload of the students in each course that is generally divided in contact hours and self-study hours.

Lectures/Labs/Exercises

Lectures are the classic method of university teaching to deliver scientific knowledge and methodical understanding. In most cases during the AGEO study programme lectures and exercises are combined in a course for understanding and applying the content presented in the lectures. Exercises are always guided by professors and support staff. They can be conducted as individual or teamwork and be evaluated as on-course assignments. Lab courses are held in lab class rooms with the necessary teaching material and resources available (e.g. minerals, fossil and rock collection, microscopes) and are combined with interactive lectures and exercises.

Field courses

Field excursions for hand-on studies on the exceptional geology of Oman are conducted in all four winter semesters during the study programme. Students carry out several field exercises, like mapping. Theoretical field methods courses are also accompanied by practical field days. They are generally prepared during a lecture and followed by supervision in report writing.

3.2 Assessment

GUtech uses a wide range of teaching and learning methods so that students have access to a broad range of teaching methods. These methods include traditional forms of teaching such as face-to-face lectures, but also e-learning platforms and distance learning tools. It is worth noting that the inclusion of different teaching methods is in line with the principles of modern education, where adaptability and choice are paramount.

Students, for their part, are given considerable influence over the continuous improvement of teaching methods. They have direct channels of communication with their professors that allow them to voice complaints or suggest improvements, creating a culture of openness and responsiveness. This dynamic interaction fosters a culture of transparency, openness and responsiveness within the academic community, where feedback is not only encouraged but also highly valued. This collaboration between students and faculty not only ensures a student-centered approach to education, but also facilitates continuous improvement through the integration of real-time insights and perspectives into the teaching and learning experience.

The admission requirements and the admission procedure are clearly and comprehensibly defined at GUTech University. No major deficiencies were identified in the appropriate administrative means for monitoring progress or other relevant administrative procedures.

The effectiveness and efficiency of the application of innovations and the use of active teaching methods and their impact on the educational process are regularly reviewed at the level of individual departments. The progress of students, their satisfaction with the educational process is evaluated; staff evaluations are taken into account.

GUTech's regulations and documentation relating to assessment are characterized by a precise definition of assessment criteria and methods. These clearly defined guidelines ensure that the assessment process has a high degree of consistency and reliability. The assessment formats used by the University are strongly aligned with the intended learning outcomes of the degree programmes. This alignment ensures that students' assessments are closely linked to the knowledge and skills they are expected to acquire. Such alignment contributes significantly to the overall reliability and validity of the assessment process.

For the further development of the Quality of the study programmes the expert group recommends that the examination format (written paper, presentation, test, etc.) should be determined in advance in accordance with the specified learning outcomes and clearly communicated to students in the syllabi to ensure transparency and competency-based assessment.

The study programmes are all oriented in such a way that study-centered learning is in the foreground. A special focus is placed on the personal development of the students and international competencies are promoted. Upon completion of their studies, students are prepared to work in the international job market as well as in the academic field and can easily familiarize themselves with new fields of activity through the competencies in life-long learning. A particularly positive aspect is that students receive an above-average education in the region, which is particularly appreciated in industry.

Following the last accreditation, some changes were implemented, and the study programs were adapted with the help of the requirements and recommendations of the experts. The

study programs are regularly reviewed and adapted to current changes in the labor market and needs. A very personal quality management, regular evaluations of the programs and contents, and alumni surveys are used to further optimize the study programmes. Even independently of this, student complaints and comments are taken very seriously.

3.3 Conclusion

The criterion is **fulfilled**.

4 ESG Standard 1.4: Student admission, progression, recognition, and certification

Institutions should consistently apply pre-defined and published regulations covering all phases of the student “life cycle”, e.g. student admission, progression, recognition and certification.

4.1 Implementation

University Admission Requirements

While GUtech aims at providing education to a broad group of students, it is necessary to take measures to ensure that the students enrolled in GUtech’s study programmes have the necessary prior knowledge. For the Bachelor programmes, applicants must mainly fulfil two criteria: They must have a valid school entrance certificate, and proof of their proficiency in English, the language of instruction used at GUtech. Students have several entry points into a Bachelor programme, depending on their educational background. Holders of a General Education Diploma of the Sultanate of Oman are usually requested to complete GUtech’s Foundation Programme.

Admission to the Foundation Programme

Admission Requirements for the Foundation Programme are proposed by the relevant academic committee, (ii) approved by the Rectorate of the University and communicated to the Higher Education Admission Centre of the Ministry of Higher Education, Research, and Innovation of the Sultanate of Oman within the stipulated timeframe. Admission to the Foundation Programme requires at least a pass in the General Education Diploma (GED) of the Sultanate of Oman. Additional requirements such as minimum grade in specific subjects, entrance examinations and/or interviews may be required. Admission to the Foundation Programme is subject to the availability of study places in this programme.

Admission to an Undergraduate Programme

Direct admission to any of the University’s Bachelor Programmes requires International Baccalaureate Certificate or Diploma, A-Levels, Indian High School Certificate, Advanced Placement (AP), or equivalent. The specific levels and subjects required are published annually on

the GUtech website. The University reserves the right to decide what qualification it considers to be equivalent.

Applicants with at least a pass in a relevant stream of the University's Foundation Programme are also eligible for admission to the University's undergraduate programmes. Admission to an Undergraduate Programme is subject to the availability of study places in this programme.

Admission to a Postgraduate Programme

Admission to any of the University's Postgraduate Programmes normally requires at least a pass in a relevant undergraduate degree. Additional requirements such as work experience, entrance examinations and/or interviews may be imposed. Specific requirements are published annually on the GUtech website.

Admission is subject to fulfilling the requirements from the Ministry of Higher Education, Research and Innovation of the Sultanate of Oman (e.g. the

submission of a Letter of Equivalency from the Ministry of Higher Education, Research and Innovation for Undergraduate study). Admission to a Postgraduate Programme is subject to the availability of study places in this programme.

Admission to a Postgraduate Programme is subject to the availability of study places in this programme.

Academic Regulations

English Language Requirements

Adequate English language proficiency is a prerequisite for the admission of students to any programme of study leading to the award of a degree by the University. This includes admission to the University's Foundation Programme as well as admission into all the University's undergraduate programmes.

Students admitted into the Foundation Programme must take an English Language Placement Test.

At the discretion of the University, the English Language Placement Test may be waived for students who have acquired their secondary school qualifications in an institution where English is the medium of instruction or for students who can submit language certificates such as TOEFL or IELTS as proof of their English language proficiency.

The minimum language requirement for admission to one of the University's undergraduate and postgraduate programmes is IELTS 6.0 or equivalent. Students must submit language certificates such as TOEFL or IELTS as proof of their English language proficiency. The actual

language requirements for admission to a programme of study are determined by the respective Faculty and may not be lower than the stipulated minimum language requirements.

Selection Procedure

Most Omani students applying to Bachelor programmes at GUtech are centrally assigned to GUtech by the Higher Education Admission Centre (HEAC) [O.2]. GUtech can only decide on the number of students it wants to accept for each study programme. GUtech can specify minimum entry requirements, but it cannot actively select the “best” students. All students meeting the minimum entry requirements must be allowed to join GUtech if there is sufficient capacity in the study programme.

Most Omani students first enrol in the Foundation Programme. Only Omani students from certain private schools and expatriate students may apply for direct entry to a Bachelor programme, which is possible if they have sufficiently high grades in their high school diploma or if they pass a GUtech entry exam.

Recognition of HEI Qualifications

GUtech welcomes students from other universities who want to continue their studies at GUtech. They are assessed individually by the Head of Registry and Student Admissions (responsible for ensuring compliance with Omani legislation) with involvement of the respective academic department, and if possible, former courses are acknowledged in form of a credit transfer. While it is possible in principle to switch programmes, this rarely happens in the Bachelor programmes.

Student Attendance Policy

The University aims at producing life-long learners and therefore encourages students to develop a self-directed approach to learning. Students are expected to be punctual and attend all classes in which they are registered. If a student is absent during a normal class, an acceptable excuse consists of a medical certificate, a police report, or a letter signed by the parents of the student. The latter does not apply if the student was absent during a previously announced test, a midterm examination, or a final examination. Although it is recognised that it may occasionally be necessary for students to be absent from scheduled classes for personal reasons, students are responsible for all material covered in their absences, and they are responsible for the academic consequences of their absences.

Students in the Foundation Programme are more closely monitored than students in the Bachelor Programmes or Master’s Programmes. In the later programmes, students are given more freedom so that they can take more responsibility for their studies and personal development.

Students in the Foundation Programme are required to regularly attend lectures while taking regular attendance is not compulsory for degree programme courses, unless otherwise specified in the course specification and announced at the start of a course in writing.

4.2 Assessment

GUtech goes to great lengths to ensure a clear and transparent admissions process. The admission requirements are clearly defined and provide prospective and current students with a comprehensive understanding of the requirements and procedures. This not only promotes confidence, but also ensures that the admissions process is fair to all who wish to begin their educational journey.

The management of study programmes undergoing accreditation regularly monitors and continuously evaluates the study programmes.

A hallmark of the College's commitment to excellence in education is the effective use of processes to capture, monitor and respond to information about student progression. This dedicated focus on monitoring student progress reflects the GUtech's desire to support students throughout their academic journey. The University ensures the appropriate recognition procedures. In particular, these procedures comply with the Lisbon Recognition Convention, underlining the university's commitment to international standards. The recognition process at GUtech therefore is regulated based on the principles of the Lisbon Convention and national regulations.

This ensures and leave little room for optimization or criticism in this assessment. The admission requirements and the admission process are clearly and comprehensibly defined. No major deficiencies were noted in the appropriate administrative resources for monitoring study progress or other relevant administrative processes. It can be ensured, that the qualifications gained at the GUtech are not only recognized locally, but also have global relevance and provide students with valuable credentials in an increasingly interconnected world.

The monitoring of graduates' employment is carried out on a regular basis.

The institution demonstrates a commendable commitment to excellence in a wide range of aspects. The remarkable clarity and transparency of the admissions process, effective support for student progression, adherence to recognized international standards in accreditation procedures and the provision of meaningful graduation documents reflect the University's unwavering commitment to its educational mission. These strengths are particularly commendable.

4.3 Conclusion

The criterion is **fulfilled**.

5 ESG Standard 1.5: Teaching staff

Institutions should assure themselves of the competence of their teachers. They should apply fair and transparent processes for the recruitment and development of the staff

5.1 Implementation

Qualification of Teaching Staff

Most degree programmes at GUtech were modelled on their corresponding study programmes at RWTH Aachen University. Therefore, academic staff at GUtech must be able to teach at a similar level as in Aachen. This is guaranteed by the fact that all associate and full professors are hired according to the standards of RWTH Aachen University by joint GUtech-RWTH recruitment committees where both sides have a veto right.

Assistant professors and lecturers can be hired by purely local GUtech recruitment committees (applying the same standards), but in the past the local committees also often included representatives of RWTH Aachen University.

The University encourages staff to present their research at scientific and educational workshops and conferences by financially supporting their attendance. Research work and higher education are supported by granting study leaves, work leaves and flexible work schedules. Academic staff are regularly invited to participate in in-house training workshops on education issues (e.g., blended learning, etc.).

University Human Resources

All staff at GUtech are employed according to Omani Labour Law. This means in particular that the University has to achieve a certain quota of Omani staff among its employees, the so-called Omanisation rate. Visas issued to expatriates are valid for two years and can be renewed repeatedly. GUtech aims at employing staff that meet Western standards yet has to compete within the growing sector of higher education in the Middle East and comply with Omani laws.

Academic and administrative staff are recruited based on the University's Academic Recruiting Policy and remunerated according to the University's salary scale. RWTH Aachen University is involved in the recruitment of associate and full professors in the Bachelor and graduate programmes, thus ensuring the quality of the personnel. Contract durations are for two and are renewable.

Newly hired academics are briefed about GUtech by way of the Staff Reference Book. There is also a Staff Induction at the beginning of each semester in which new staff are introduced to GUtech and its policies. In the academic year 2022/23, 74% of the staff teaching in GUtech's undergraduate programmes have a PhD-level qualification, while the remaining 26% (3 AGEO,

1 CS, 1 LSTM, 3 UPAD) have Master's qualifications. The University intends to maintain this high ratio of PhD holders.

The country's overall plan for Omanisation requires that Private Higher Education Institutions achieve Omanisation rates of 16% for academic staff and 100% for non-academic staff. Start-up projects are given a grace period until they reach the desired Omanisation rates, and GUtech has been able to increase its Omanisation during the last few years. In the academic year 2022/23, the Omanisation rates at GUtech were 34% for academic staff and 85% for administrative staff.

Teaching Load

Academic Employees

Academic employees will organise their working hours according to their teaching load.

Academic employees whose Job Profile (JP) does not include the performance of research (i.e., Senior Lecturers and Lecturers) are required to be present at the University site for 5 days per week, unless approval has been given by the Deputy Rector for Academic Affairs for such deviation.

Academic employees whose JP includes the performance of research (i.e., Full Professor, Associate Professor, and Assistant Professor) are required to be present at the University site for a minimum of 4 days per week, unless approval for a deviation has been given by the Deputy Rector for Academic Affairs.

Unless stated otherwise in the employee's contract, the average teaching load per year for academic employees is:

- Assistant Lecturer: 22 Contact hours/week during the semester
- Lecturer: 20 Contact hours/week during the semester
- Senior Lecturer: 20 Contact hours/week during the semester
- Assistant Professor A: 16 Contact hours/week during the semester
- Assistant Professor B: 16 Contact hours/week during the semester
- Assistant Professor C: 14 Contact hours/week during the semester
- Associate Professor A: 12 Contact hours/week during the semester
- Associate Professor B: 12 Contact hours/week during the semester
- Associate Professor C: 12 Contact hours/week during the semester
- Professor: 10 Contact hours/week during the semester

The average teaching loads for the following administrative positions are:

- Dean: 8 contact hours per week during the semester
- Head of Department: 8 contact hours per week during the semester
- Course Coordinator: 15 contact hours per week during the semester

The role of Teaching in the Appointment Policy

Overall, the University encourages a strong focus on pedagogy, with the aim of developing higher order cognitive skills among students. Quality of teaching and learning are an essential part of the recruitment process. While teaching staff are supposed to spend most of their time teaching, the selection process focuses equally on teaching and research. Omani law requires that non-Omani academic staff must have at least three years of teaching experience before they can work in Oman. Research experience is not required by law. Academic staff do not control their own budgets for their courses, but the departments have discretionary funds to purchase required teaching materials.

Research and Consultancy Income

To support the efforts of the University to generate additional income from research, innovation and, consultancy projects and from commercial trainings, the Transfer Technology Office (TTO) was established. Involvement of academic staff in consultancy is governed by the Research, Innovation and Consultancy Policy and the Third-Party Consultancy Policy. TTO has organised and managed several commercial training programmes for companies such as: PDO, Shell, BP Oman, Royal Airforce and Salam Air. As part of the University efforts to encourage research and innovation, improve its outputs and enhance its impact, seed grants, internal support and mentoring are provided to the researchers.

Documents for Staff

The Staff Reference Book contains useful information about GUtech and living in Muscat for new staff. New staff are also required to attend Staff Inductions where they are briefed on important policies, teaching at GUtech, and living in Muscat.

Policies and other documents, e.g., meeting minutes, are available on the QWiki platform. Many documents are also available on GUtech's internal document servers, X-drive (Academic Department) and Y-drive (Admin Department), which can be mounted on any computer on the GUtech network.

The Heads of Department make sure that interns and fly-ins are given all information relevant to their work before they arrive in Muscat. If staff have questions, they can always approach their Heads of Department and the Rectorate.

The Department of “Computer Science (CS)” (B.Sc.)

The Department of Computer Science belongs to the Faculty of Engineering and Computer Science. The Department of Computer Science is currently offering three study programmes: Bachelor of Science in Computer Science (BSc in CS), Bachelor of Science in Cyber Security, and Bachelor of Science in Artificial Intelligence. These programmes, which are all approved by the Ministry of Higher Education, Research, and Innovation (MoHERE) have started in 2007, 2020, and 2022, respectively. Since September 2020, the CS department has been responsible for offering Math courses to the entire university. The CS Department has 7 faculty members, with research interests in AI, transportation, IoT, Blockchain, information security, networking, multi-agent systems, Pure math, etc. At least two more faculty should be hired in the next two years to cover the courses that will be taught for the specific programmes of Artificial Intelligence and Cyber Security Nevertheless, the department occasionally also employs external lecturers for two reasons: The local faculty members would be overloaded to teach all courses, and some specialised courses should preferably be taught by experts (e.g., Business courses, specialized electives, etc.). The department has also one Research and Teaching Assistant who helps with teaching basic courses and research projects. The department also hires 9 interns every semester to work as teaching assistants. In addition to CS alumni, these interns mainly include international graduates with MSc or PhD qualifications. Finally, since Spring 2019, a Master programme in Computer Science has started in the department. This programme is a dual degree that offers to the students the option to earn a MSc in Computer Science from GUTech and a MSc in Transportation Science from Hasselt University (Belgium)The Faculty of Engineering and Computer Science comprises two departments, namely the Department of Computer Science and the Department of Engineering. While the Department of Computer Science is one of the four founding departments of GUTech in 2007, the Department of Engineering was established in 2011. The inaugural dean of the Faculty of Engineering and Computer Science was Prof. Dr. Matthias Jarke from RWTH Aachen University. In December 2012, the Engineering Faculty Board elected Prof. Dr. Rudolf Fleischer as the first local dean. Since then, the faculty has had many deans from both Engineering and Computer Science departments. Following the German University model, the Dean is the representative of the Faculty vis-à-vis the Rectorate, but not a line manager to the Heads of Department.

The CS department was initially in charge of the CS programme. However, since September 2020, GUTech has decided to assign the delivery of all math courses of the university to the CS department. Consequently, math lecturers (and their assistants) are now part of the CS department. All faculty members of the CS Department are sharing the administrative duties of running the department.

The Computer Science department has currently 7 faculty members and one Research & Teaching Assistant (RTA). Two of the eight staff members are responsible for math courses which are offered to students of all departments.

The faculty in the department can cover most of the Computer Science and in the CS BSc Programme and Math courses. The Department still relies on visiting Professors from abroad as well as local experts / Professors hired as consultants for special courses. The local staff is currently teaching 10-20 hours per week. Visiting lecturers teach courses of 28-84 hours per semester.

As supporting staff for practical exercises and tutorials, CS department recruits BSc graduates or MSc/PhD students from international Universities to serve as Interns. The number of junior and senior interns (holding at least a Master degree) has been fixed to nine including 5 for CS courses and 4 for Math courses. As interns are more involved in the teaching process (labs and tutorials), the rectorate allowed, in Summer 2020, academic departments to recruit all interns as Senior interns in order to ensure more quality. Recently, the CS department has also recruited qualified Omani junior interns from the alumni and other universities. In order to maintain the international orientation and demonstrate different learning styles to our students, the proportion of international interns should remain larger than 50 %, including at least one German intern.

An online teaching load system is in place since winter semester 2020/2021, allowing the Head of Department to plan the distribution of teaching activities. It also provides the management with an overview of potential overtime that will be compensated. Professors and lecturers in the CS Department have a teaching load between 10 and 20 contact hours per semester. Department heads and deans have a reduced teaching load (load of 8 hours per semester). Additional teaching load reduction may be applied if a lecturer has special administrative assignments. Newly hired staff members have slight load reductions to allow for the preparation of new course materials. Furthermore, some lecturers have actual teaching loads lower than the contract loads as they are having administrative duties (e.g., internship coordination), building the materials of new courses, supervising BSc thesis projects, teaching several topics, etc.

The teaching load in GUtech is, in general, flexible to make sure that staff are kept motivated as well as give them time to do research, carry out administrative activities or community services, and explore new academic/research collaboration opportunities.

The HR Department receives Requests for Recruitment when it is foreseeable that staff might retire or leave GUtech or when new programmes are to be introduced. The CS department has already recruited a new assistant professor for the cyber security programme. Additional faculty members with AI and Cyber Security backgrounds will be recruited for 2023/2024.

Courses are distributed among the academics according to areas of expertise and availability to teach. The Head of Department ensures that the teaching and administrative loads are distributed in a fair and transparent way among the faculty. In unavoidable cases of overloading, the University pays overtime. In addition, after the new Teaching Load System has been introduced, the rectorate have also a clear overview of the load distribution. Lecturers are responsible for their own exams, there is no workload sharing in preparing and marking exams.

“Urban Planning and Architectural Design (UPAD)” (B.Sc.)

At the moment the Department of Urban Planning and Architectural Design has six permanent staff members: one Full Professor, two Associate Professors, one senior lecturer and one lecturer. Currently the department has eight interns, four Bachelor Graduates from Germany, one Bachelor Graduate from Albania and three Bachelor Graduates from GUTech. Interns support the department in organisational tasks and consultation of students during integrated projects. There is a distinction between junior (BSc graduates) and senior (Master graduates) that results in different salary grades. On average we hire two to four interns per semester.

Fly-in staff teach a number of courses. These courses require specific knowledge and are organised as block courses. On average fly-ins come for two weeks and teach an average of 28 contact hours per course.

Qualification of Teaching Staff UPAD

Joint GUTech-RWTH recruitment committees hire associate and full professors according to standards of RWTH Aachen University. GUTech recruitment committees, applying the same standards, hire assistant professors and lecturers locally. In the past these local committees often also included representatives from RWTH Aachen University although this is not required. The university encourages staff to attend scientific and educational workshops and conferences. Research work and higher education are supported by granting study leave, work leave, flexible work schedules, and support in funding.

All staff is mainly occupied with teaching and above-average administrative workload. The current status quo of all staff teaching at full capacity anticipates that hiring additional staff will be required.

UPAD has started a Master Programme which has shown to require the hiring of additional staff. It is also planned to begin a PhD programme in the future which will require additional staff specially qualified.

Courses are distributed among the professors according to areas of expertise and availability to teach. The Head of Department guides all members of the department to ensure that the

teaching load is distributed equally among the faculty (according to their individual contracts). Teachers are responsible for their own exams, there is no workload sharing in preparing and marking exams. Interns are distributed among the faculty according to demand.

The Department of “Applied Geosciences (AGEO)” (B.Sc.)

The Department of Applied Geosciences (AGEO) belongs to the Faculty of Science. Until September 2020, the Faculty included the Mathematics and Science Department (MAS). MAS was dissolved and the Physics staff incorporated into the AGEO Department, whereas the Maths and Chemistry staff became part of the Engineering Faculty.

The Department of Applied Geosciences currently offers the BSc Programme Applied Geosciences (AGEO) and the MSc Programme Applied Geosciences with specialisations in Petroleum Resources, Mineral Resources, and Hydrogeology. In August 2022 the Ministry of Higher Education, Research and Innovation (MoHERI) approved a PhD Programme in Applied Geosciences.

The Applied Geosciences department has currently nine faculty members, one Research & Teaching Assistant (RTA) and two Lab Technicians. Four faculty members are teaching in the MSc AGEO Programme, however, the majority of the Master courses are taught by experts from universities overseas. The teaching staff provides an international atmosphere and an input from various educational and research backgrounds. The staff is supported by visiting professors from Oman, Germany and The Netherlands in courses where highly specialised skills and expertise is required. This guarantees that students are taught by experts in their field with hands-on experience in practise and research.

Qualification of Teaching Staff CS

The CS programme at GUtech follows the CS programme at RWTH Aachen University. This requires lecturers that can teach on a similar level as in Aachen. This is guaranteed by the fact that all associate and full professors are hired according to the standards of RWTH Aachen University by joint GUtech- RWTH recruitment committees where both sides have a veto right. GUtech recruitment committees, applying the same standards, hire assistant professors and lecturers locally. The university encourages staff to attend scientific and educational workshops and conferences. For instance, a few weeks before the start of COVID-19 pandemic, GUtech sent a representative from each academic department to attend a one-week workshop on distance and blending learning in RWTH Aachen. Acquired knowledge has highly contributed to address the challenges that GUtech has faced during the pandemic.

Research work and higher education are supported by granting study leaves, work leaves and flexible work schedules. During their first two years of employment, academics can apply for a GUTech-funded Seed Grant that allows starting smaller research projects (funding limit 4000 OMR). Another GUTech-internal fund is the Interdisciplinary Research Grant. This grant allows academics from different departments to carry out initial research in preparation for larger research proposal that can be submitted to TRC or other funding agencies. Additionally, an annual financial support scheme is in place to allow faculty the participation in international conferences and to publish in reputable open access journals.

Qualification of the Teaching Staff AGEO

Joint GUTech-RWTH recruitment committees hire associate and full professors according to standards of RWTH Aachen University. GUTech recruitment committees, applying the same standards, hire assistant professors and lecturers locally. The university encourages staff to attend scientific and educational workshops and conferences. Research work and higher education are supported by granting study leaves, work leaves and flexible work schedules. During their first two years of employment, academics can apply for a GUTech-funded Seed Grant that allows starting smaller research projects (funding limit 4000 OMR). Another GUTech-internal fund is the Interdisciplinary Research Grant. This grant allows academics from different departments to carry out initial research in preparation for larger research proposal that can be submitted to TRC or other funding agencies. Additionally, an annual financial support scheme is in place to allow faculty the participation in international conferences and to publish in reputable open access journals.

The faculty in the department can cover in principle most of the Applied Geosciences courses in the AGEO BSc Programme with focus on Hydrocarbon, Water and Mineral Resources. The Department still depends on visiting Professors from RWTH Aachen and other Universities in Europe as well as local Drive-In Professors with industry experience hired as consultants for special courses. The local staff is currently teaching 10-20 hours per week. Visiting teachers teach block courses of 28-42 hours per semester.

As supporting staff for practical exercises and tutorials, AGEO professors recruit suitable MSc and PhD students from renowned Universities in Europe for internships at GUTech. The number of junior and senior interns varies from 6-7 per semester, depending on the requirements in relation to the actual student numbers. Recently, the department also recruited qualified Omani junior interns from own alumni and other universities outside Oman. In order to maintain the international orientation and demonstrate different learning styles to our students, the proportion of international interns should remain larger than 50 %, including at least one German intern.

An online teaching load system is in place since winter semester 2020/21, allowing the Head of Department and the HR Department to plan the distribution of teaching activities. It also provides the management with an overview of potential overtime that will be compensated. Professors and lecturers in the AGEO Department have a teaching load between 10 and 20 contact hours per semester. Newly hired staff has a slight reduction to allow for the preparation of new course material. Additional tasks of student advising, thesis supervision and internship coordination are now considered as part of the overall workload of staff. Department heads and deans have a teaching load reduction of two hours. The HR Department receives Requests for Recruitment when it is foreseeable that staff might retire or leave GUtech or, like in 2016, a higher student intake requires additional student sections in practical classes.

Courses are distributed among the academics according to areas of expertise and availability to teach. The Head of Department ensures that the teaching and administrative loads are distributed in a fair and transparent way among the faculty. The department has one Research and Teaching Assistant (RTA) who assists mainly in practical courses. Additionally, usually seven qualified interns are available during a semester. They are distributed among the faculty according to demand.

5.2 Assessment

GUtech has a staff policy that is clearly defined, and its procedures are publicly available and implemented. The teaching staff of the university is composed of highly qualified and experienced professionals who are committed to providing quality education to students. The institution's recruitment process ensures that only the most qualified and experienced individuals are selected for the teaching staff. The motivation of the teaching staff and the spirit of optimism can be clearly felt at all levels of the university. GUtech faculty members are committed to creating an engaging, interactive and student-centered learning environment. They use a variety of teaching and learning methods, including lectures, discussions, case studies, group projects and experiential learning, to ensure that students can engage with the material and apply what they have learned in real-life situations.

The application and selection processes seem to be efficient and meaningful.

The evaluation procedures of research and teaching personnel are sound and efficient as well.

The university pays attention to well-qualified employees. According to the rectorate, vacancies can be filled well. The university has a choice between applicants. The motivation to apply in Oman is more heterogeneous than in Europe. Often roots in the country or relationships play a role. Therefore, many people from Africa and India apply.

GUtech has highly-qualified and motivated faculty members with teaching load of 8 – 20 hours a week. The faculty members have the appropriate qualifications for teaching and where possible for research. 20 hours per week should be considered as a maximum teaching load in an academic environment. Teaching persons with other administrative responsibilities and research activities have lower teaching load. There is a clear distinction between professors and lecturers, where lecturers do not have big opportunities for research. This somewhat makes it hard for lecturers to keep up with latest developments and trends in the various fields of science. It seems that it is difficult for lecturers to advance to research positions. There are no clear perspectives for lecturers. There is a gap between faculty and students, meaning there are no positions for young scientists (“Mid-level staff/Mittelbau”). The expert group would therefore like to make the following recommendations for the further development of teaching staff:

The teaching staff is well trained and motivated. However, the number of students is comparatively high. The workload of teaching staff should be regularly evaluated in shorter cycles to check whether the workload between research and teaching is appropriate within the framework of the excellence strategy.

The need for gender equality seems to be firmly entrenched in the university. The gender ratio in various functions is analysed and evaluated throughout. In the administrative sector and among students, the proportions of women are generally higher than those of men. Among the scientific staff, the proportion of men is higher. The gender proportions among university staff are not balanced, but are within a normal range, which illustrates the need for efforts to achieve gender equality. The proportion of women professors should be increased stepwise: Women should be particularly encouraged in calls for applications, maybe also with extra incentives (Kinder Garden etc.). When a professorship is advertised, suitable women should be actively approached. For example, this could be expected as evidence in an application procedure. The expert group therefore recommends therefore, that in application procedures, it should always be demonstrated that women are actively asked by the university to apply. Here, special incentives should be created in the application process that led to a higher rate of female applicants.

5.3 Conclusion

The criterion is **fulfilled**.

6 ESG Standard 1.6: Learning resources and student support

Institutions should have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided.

6.1 Implementation

Teaching Resources – Infrastructure

Halban Campus:

The government of the Sultanate of Oman allocated a total area of 500,000 m² to the University for the construction of its main campus in Halban. Another 20,000 m² were allocated in the area of Musannah for a small marine research facility. The main campus at Halban is located along the newly built Southern Express Highway, a ten-minute drive away from Sultan Qaboos University and twenty minutes from Muscat International Airport. In September 2012, construction of the main building and three accommodation buildings of the new GUtech campus was completed, and with the beginning of the winter semester 2012/2013 GUtech moved to its final destination. In autumn 2014, construction started on campus of a History of Science Centre (HSC) and a Sports Complex. The HSC was officially opened on December 28, 2017. In the last quarter of 2017, construction started on campus of the GU2 Aljurismus building and one student accommodation building. These two buildings were officially opened in Winter 2018. GUtech launched the first 3D Printed house in Oman on the occasion of the Building Technology & Standardisation Center inauguration on December 14, 2021. The main objective of this investment is to develop Academic capabilities, Scientific Research innovation, and to qualify national cadres and competencies and build their knowledge in advanced construction fields using 3D printing techniques.

Classrooms, Laboratories, and Workshops

The Halban Campus currently has space allocated for nine IT classrooms, two science laboratories, five engineering workshops, and two geoscience laboratories. The laboratories are equipped with sufficient, functional and up-to-date equipment. Qualified laboratory technicians and IT staff are responsible for the maintenance, operation, and upgrading of the equipment. Students in the BSc in Urban Planning and Architectural Design (UPAD) have access to one big, dedicated studio of 1440 square metres equipped with tools and materials required to build models.

Classroom Resources

As a university of technology, GUtech is equipped with a range of modern teaching resources such as computers, multimedia projectors, smartboards, e-learning platforms, printers, scanners, plotters, whiteboards, and photocopiers.

Every classroom is equipped with one or two whiteboards, a multimedia projector, or a display screen. IT classrooms also have a desktop computer equipped with relevant software, and multimedia speakers. All classrooms have fast and reliable wireless internet connection.

Academic staff can rely on the support of the ITS Department to effectively utilise the available equipment. Classroom furniture can be rearranged by academic staff to allow for either lecture-style or student-centred layouts. Two classrooms are also equipped with smartboards.

Learning Areas

Areas such as the library may be used for private study. The library provides reading areas, working desks, and PC workstations. Unused classrooms may be used for private and group work.

Library Resources

The library is dedicated to acquiring resources that advance and support the academic and research activities of the University. It has a Collection Development Policy that the building of library collections. It aims to create a welcoming environment for study and research. The library is given an annual budget to achieve its goals, which is managed by the Head of Department. The library is open to students and staff from Sunday to Thursday, from 8am to 8pm, and on Saturday, from 10am-3pm, during the exam weeks. A feedback mechanism is used to measure the performance of the library by means of the internal audit and student course evaluations. The library works closely with the academic HODs and staff to identify and select new library materials. As subject specialists, the academic staff are always encouraged to recommend materials that will enrich the total collection.

After the Covid pandemic, the library transitioned to electronic resources to match users' changing information needs. It has upgraded its subscriptions and continues evaluating and acquiring relevant resources. To keep the quality of the collection, the library has just recently weeded out 5,041 obsolete and worn-out books. The library uses the Library of Congress System to organise its collection. The open-shelf system is also observed to maximise student access to the library materials. In 2021, the library acquired a library portal to provide seamless access to resources, both on and off-campus access.

The library has continued to improve its facilities and services. Upgraded in 2021-2022 include Library Management, RFID security system, self-check machine, and a heavy-duty printers/scanners/copiers.

In order to educate users in its proper use, the library provides user skills training and orientation to staff and students and one-on-one tutorials.

Counselling and Campus Life

Besides practicing an open-door policy, academic counselling for the study programmes offered by the University is provided to both prospective and enrolled students. The Registry and Student Admissions Department (RSA) provides advice on matters related to eligibility, entry

requirements, availability of study places, programme content, programme structure, and completion requirements. Upon enrolment, each student can get advice and help with study related problems from their Academic Adviser in their department.

Learning Support

Personal guidance is not only available during classes and tutorials, but students may also approach the teaching staff with their learning problems. When academic staff realise that demand for personal support is high, special consultation hours are offered. In addition, Interns play an important role in assisting students with their learning.

The continuous assessment used in most courses enables students to continuously evaluate their own learning progress.

Campus Life

While the master plan of the Halban Campus has been designed to accommodate up to 20,000 students, the current facilities are capable of housing approx. 3,500 students.

Services Offered in the Main Building

Besides being home to the staff offices, laboratories, lecture halls and other academic facilities, the Main Building offers several facilities to make life on campus more enjoyable and enhance the social life of students and staff. The Services include: Canteen; Fast food restaurant; Cafeteria; juice shop and a coffee shop; Minimart; Prayer rooms; Lockers (free of charge); A sports hall and a gym; Leisure equipment, including table tennis, billiards and table soccer; A first aid room; ATM Machine and Vending Machines.

Housing

Halban Campus offers accommodation for female and male students and for visiting scientists and other guests. All houses have a state-of-the-art kitchen, bathroom, and a communal dining room on each floor of the building. Additionally, each house has a laundry room, a TV room, a study room, and a games room for table soccer and electronic games. Apartments either have the following: A single room apartment with an en-suite bathroom; a double room apartment with an en-suite, a single room with a private bathroom, a triple room occupancy with two bathrooms.

A security guard and a supervisor are in charge of the accommodation for female students. Due to the high demand for additional housing, in the third quarter of 2017 a new construction project was started and completed in Winter 2018 adding a further 473 spaces for students. The new accommodation building has a visitor's area, a laundry room, a prayer room and a gym.

Sustainable Campus

The Halban campus of GUtech is the first green university campus in the Sultanate of Oman. The design of the campus combines the necessary features of a German University of Technology with Omani traditional building features. The main building represents the focal point of the campus. It is a quadratic building with a side length of around 84 m with an inner quadratic courtyard with a side length of about 46 m which is shaded by tarpaulins. The use of water and energy follows three guidelines: reduce, reuse, and recycle.

To keep the main building cool, it was oriented according to the most common wind direction. Most of the seminar rooms and some offices face shaded courtyards, further reducing the impact of the sunlight.

The student and staff houses were built with garden-like inner courtyards. There are plans to later arrange five to six of these houses in a quadrangle as a housing quarter, with a common courtyard as a place to meet and communicate. The distinctive building density takes into consideration traditional Omani architecture, which was formed by the necessity to create a cooling microclimate.

Transportation

Halban Campus is conveniently located just next to the Muscat Expressway. Most students either live on campus or drive there individually. The University shares contacts of bus providers with students looking for transportation. Students have to coordinate directly with bus drivers to sort out their transportation to and from campus.

Local Culture

Being a German University in the Sultanate of Oman, GUtech wants to take into account both cultures on campus. Male and female students are taught in mixed groups (which is not common in Oman) and can freely mix in most common areas (e.g., cafeteria). Only most sports classes are offered separately for male and female groups.

Students and staff are not required to dress in a particular way, yet it is required that they should be dressed in a conservative manner. Students are expected to always dress in a manner that is both professional and respectful of Islamic traditions when they are on campus or when they are

representing the University at some outside events. Traditional Omani dresses are allowed, except that face veils are not allowed on campus.

GUtech Sports, Student Clubs and Recreation Activities

GUtech offers a wide variety of indoor and outdoor sport activities for students and staff. Besides a weekly activity schedule, which includes group fitness classes (e.g., aerobics, body tone, circuit training, etc.) for students and staff, ball sport groups (e.g., volleyball, basketball, futsal, etc.) for females and males, there are student sports team training sessions for those GUtech student teams of both genders that are participating in national and international tournaments and friendly matches. GUtech strives to create an environment where students are encouraged and challenged to join the sports programme. There is a special focus on females' sport due to the fact that the majority of GUtech's students are females and in addition, a lack of community sports programmes/facilities for females is reported in the country.

Financial Resources – Tuition Income

The University has seen a steady growth since its founding in 2007. The tuition fees ensure the financial stability of the University. The fees include the cost of an IELTS and IC3 test in the Foundation Programme, and field trips if they are compulsory for the programme.

As is common in the Sultanate of Oman, a majority of the students receive scholarships from external sponsors. If it is required for students to maintain a minimum GPA or cGPA, GUtech will report their performance every semester to the scholarship provider after the Board of Examiners has finalised the grades.

To support the students, GUtech advises them on issues that need to be taken into consideration, for example a course which is "In Progress", or a make-up assessment which still needs to be completed.

"Computer Science (CS)" (B.Sc.)

The Department of Computer Science occupies the NE corner of the fourth floor of the main building of the Halban Campus (rooms 407M–415M) with four big offices for professors, one smaller office for lecturer, one meeting room, one RTA's office, one windowless storage room, and one big office for CS interns. Since September 2020, and as Math lecturers joined the CS department, one shared office (for both math lecturers) and well as another office for math interns are belonging to the CS department. The CS Department is sharing IT lab classrooms with other departments. These labs are booked for practical CS courses at the beginning of each semester. The department has also a dedicated lab for hardware equipment which is used for 3 courses in particular, namely, Internet of things (selected Topics), Embedded Systems (elective), and Computer Architecture. Hardware equipment includes old computers (used for computer architecture labs), 16 Lego Mindstorm robots EV2, 66 Lego Mindstorm robots EV3, 13 iPad Mini 16GB Wifi, many raspberry pies, many sensors of different types and usage, etc. A task force was assigned to 2 interns in Spring 2022 in order to survey all available

equipment and organize them in the storage areas. All lecture theatres, classrooms and laboratories are equipped with state-of-the-art electronic infrastructure, including LCD projectors and wireless Internet access for all students and staff.

“Applied Geosciences” (AGEO) (B.Sc.)

The AGEO Department has two lab classrooms, the Rocks & Minerals Lab (hosting the rock, mineral and fossil collection) and the Microscopy Lab with 34 student microscopes (10 binoculars and 24 polarization microscopes) including projection and photo facilities. The latter is also equipped with stereoscopes for the Remote Sensing course. A large lab contains two sandboxes with integrated laser scanners and projectors for modelling the interaction between topography, geology and geophysics. The GEO workshop is in a separate workshop building on the campus and is equipped with basic rock preparation tools. The Faculty of Science operates a Physics lab to conduct interdisciplinary courses for AGEO and other BSc programmes.

All lecture theatres, classrooms and laboratories are equipped with state-of-the-art electronic infrastructure, including LCD projectors and wireless Internet access for all students and staff. In the IT labs modern analytical software for petroleum and mineral exploration is installed. Available scientific instruments for field work include: Ground penetrating radar, Laser scanner, Ground magnetometer, Differential GPS, Soil driller (Cobra), Geoelectric field measuring device and Groundwater dip meter. The GEO workshop for sample storage and sample preparation is operational since the beginning of 2018. It comprises four rooms with Core Storage and Display, Dirty Wet Laboratory, Dirty Dry Laboratory and Thin Section and Chemistry Laboratory.

6.2 Assessment

GUtech therefore has a very good teaching and learning infrastructure. The library seems to be well equipped and maintained, both for physically and electronically available books and journals. The university has many locations where students can learn in a self-managed way and interact with other students. Classrooms are well equipped with state of the art technology and they are well maintained. Laboratories for all disciplines, applied geosciences, computer science, Urban Planning and Architectural Design (UPAD) are on up-to-date levels. In particular, the geosciences laboratory with many rock samples and processing equipment were quite impressive. Also, the UPAD facilities with a large space for students to experiment with models were very well perceived. The CS department has sufficient facilities to support student experiments in the area of security, IoT, and networking. Equipment and facilities are well accessible to students. Supervising/managing staff seems to be quite knowledgeable and experienced for the task of maintaining infrastructure and facilities.

Appropriate learning management systems are also provided and well maintained.

The university provides several opportunities to support student mobility such as visiting foreign universities, in particular in Germany. International student mobility is well supported.

The university also supports CS students to get professional certificates, which might be valuable for future employments.

Diversity of students is good and in-presence teaching is priority. There is a strong focus on learning content by practical assignments aligned with the classroom lectures.

More advanced teaching methods such as blended learning or inverted classrooms are available in a few classes and have some potential for further development in the future.

Recommendation for study programme “Urban Planning and Architectural Design (UPAD)” (B.Sc.):

Physical resources should be expanded to include more model workshops.

6.3 Conclusion

The criterion is **fulfilled**.

7 ESG Standard 1.7: Information management

Institutions should ensure that they collect, analyse and use relevant information for the effective management of their programmes and other activities.

7.1 Implementation

GUtech puts an emphasis on timely, impartial, and targeted communication with all relevant stakeholders. In this regard, both internal and external communication are governed by the mission statement's principles, which highlight the significance of transparency and open communication as a core value of GUtech.

In addition, constant communication contributes significantly to the successful implementation of the strategies, particularly GUtech's quality strategy, because it ensures that the quality objectives, processes, and outcomes are communicated regularly and openly to students, employees, and other stakeholders.

GUtech is committed to ensuring that all of its employees, students, and external stakeholders are properly aware of all regulatory changes and updates. This is a crucial component of establishing and continually enhancing the quality culture.

In order to meet this requirement, GUtech has a communication concept that clearly regulates who communicates what, to whom, and in what format. All due care is taken to make sure that communication is launched in a coordinated manner.

GUtech employs many techniques of gathering information. A customized university information software (UIS) provides access to credible data about student development, success, and drop-out rates and other critical performance metrics encompassing all aspects of the profile of the student population.

GUtech's internal quality assurance system is supported by efficient systems for collecting and analyzing data on study programs and other activities. The Quality Assurance Officer collects and analyzes data regarding student satisfaction with their programs. This also applies to the graduating survey, which includes information regarding graduates' career paths.

The marketing team collects and analyzes information regarding potential students' interests, needs, and decision-making criteria.

GUtech considers it essential that students and staff play an active part in giving and analyzing information and to make informed decisions about action plans, while understanding what is working well and what needs attention.

The various employees are involved in the planning and implementation of communication based on their duties. For instance, the Quality Assurance unit is responsible for providing information regarding quality processes and outcomes. In addition, quality assurance procedures are accessible to the public on GUtech's website. In both instances, the fundamental documents are displayed in a highly accessible location.

Monthly faculty meetings are held at GUtech to facilitate communication among all faculty. There is a direct interchange of information regarding current topics, pedagogy, research, and quality development. The administrative staff meetings serve a similar purpose. Current issues of day-to-day business and questions of quality development are discussed in collaboration with administrative management.

Moreover, students are regularly and actively engaged in relevant topics via the learning platform.

IT Infrastructure

Student ID Card

Each student enrolled at GUtech is issued a Student ID Card. The ID card must be displayed during all examinations. It can also be used as an access card to certain restricted areas (e.g., labs especially after working hours).

Similarly, all staff are issued a Staff ID card, which is mainly used to provide access to departments and labs after working hours.

Laptops and PC labs

Equipment generally used in IT labs, maintenance and replacement rules of IT hardware and IT Information Security Risk Management Policy are detailed in the IT Master Policy.

University PCs and laptops are equipped with the latest Windows 10 operating system with the support of Microsoft Office 365 to provide up-to-date technology and a better learning experience (including Microsoft Word, Excel, PowerPoint, etc.) to all students and staff. Other software includes e.g.: Matlab, AutoCAD, ChemCAD, ArchiCAD, Visio, MS Project, Office Professional etc.

Academic staff also have access to the anti-plagiarism software Turnitin, which checks the similarity of student submissions to other sources.

E-mail Access

All staff and students of GUtech are given an email address. Students are obliged to check their email regularly as it is commonly used by administrative and academic staff for official communication.

Internet and Wi-Fi

The University is connected to the outside world via 75MB lease line from Omantel dedicated for staff and server Farm, two lines with each 1 GB ADSL from Ooredoo used for student's network and computer labs and 500MPLS line from Omren network. While hosting of the University web pages and mailboxes has been outsourced, the University has several IP addresses that can be used to connect local web servers to the WWW (e.g., Moodle, myGUtech portal).

The GUtech Campus is covered by password protected wireless networks so that students can work on their homework and assignments anywhere on campus.

Oman Research and Education Network (OMREN)

Oman Research and Education Network (OMREN) was established to develop scientific research and education in the Sultanate. OMREN is a high-speed and efficient electronic network, which links research and academic authorities in Oman and provides electronic applications and packages.

The project has a set of direct and indirect objectives. A key objective is to establish a quality, high-speed electronic network to enable researchers to communicate and engage in global research networks with ease.

GUtech is one among 50 higher-education institutions and research centres in Oman that signed up for the OMREN project. As part of this project, GUtech has a 500MB MPLS line from OMREN and a 75 Mbps Leased line from Omantel. With this project, all the signed-up institutions and research centres get the facility to share the digital resources with one another.

Also, we are using the following facilities from OMREN in GUtech campus: Edu-roam, SSL Certificate, OMREN Federation, MASADER, MLPS line.

Working Off-Campus

GUtech enables the staff and students to access GUtech digital information from outside the GUtech campus by using a VPN connection. VPN facilities allow students to connect to the university's network whenever they are connected to the internet.

E-Learning Platforms

myGUtech portal is the University's unified portal for students and staff, which has links to the different e-platforms within the University. It includes the EduWave (SIS), Moodle, ticketing system; Library meeting room booking; request and purchase of textbooks, request internship letters, etc. EduWave by ITG is the university's student information system. Students may use it to register in courses, check timetable, check grades, etc. EduWave is linked to the Moodle platform which enables the sharing of study materials, continuous assessment grades, online exams and assignments with students. To prevent plagiarism, Turnitin is fully integrated with Moodle.

Printing and Scanning

Printing, photocopying, and scanning facilities in the university are being managed by the ITS Department. Students may use the university's photocopy machines to print, copy and scan. The Papercut printing system allows seamless printing from any connected printer on campus. Students are given fifty free copies or black and white prints per academic year. For additional copies, there is a charge at minimum cost. Students are not charged for hand-outs from their academic staff.

IT services department is responsible for technical issues related to users' accounts, access, configuration of new printers and troubleshooting of available one.

Projectors. Projectors are provided and managed by IT Department. Campus Facilities Management Department is responsible for fixing new projectors in classrooms.

7.2 Assessment

GUtech has a well-functioning information management system. The current and complete data structure is used very well for the internal quality management system. The evaluation of

the data is accompanied by quality assurance measures and the planning of follow-up activities. The information management system of GUtech is comprehensive, and several departments are responsible for statistics and data management at the university level.

The system for collecting, analysing and managing information at the university is based on the use of information and communication technologies and software. The university's education portal is used for information management, where documents containing the university's quality and academic policies are published. Access to information on the administration, planning and implementation of degree programmes is provided via the university's education portal.

A survey of teaching staff and employees is conducted on a regular basis, in which, among other things, the satisfaction of teaching staff and employees with working conditions, professional development opportunities and the administration of the university is examined.

A survey of student satisfaction with the quality and conditions of the degree programmes is also conducted on a regular basis to determine students' opinions on the quality of the University's educational and administrative services.

For degree programmes undergoing accreditation, there is sufficient information to attract applicants.

GUtech thus has the necessary procedures in place to collect and analyse information about the degree programmes at all levels (Bachelor, Master, PhD), including: key performance indicators, information about the student body, level of academic performance, student achievement and examinations. Students are provided with educational resources and student support services. For most of the above criteria, the University has specific activities and utilizes the information received.

The expert group notes that GUtech regularly collects and analyses information on study programmes, students, graduates and its other activities as part of the quality management system and provides it to the internal system for quality assurance.

Both students and teachers at GUtech are involved in the processes through a procedure and existing structures at the university. In addition, graduates and employers are also involved in the process.

Data on students is collected and evaluated as part of the university's quality management system. Based on the university's self-evaluation report and the discussions during the evaluation, the expert group was also able to confirm that the university is implementing the necessary measures to evaluate the quality of teaching.

The workload of students, which consists of attending lectures, seminars and carrying out independent work, is strictly regulated. There are mechanisms for the review and development of higher education programmes at the university.

Information management involves the use of various methods to provide information to learners, employers, stakeholders and teachers of educational programmes.

Confidentiality of information is ensured. The management of information security in the educational process at all levels of education is consistent with the University's mission.

Social networks are also used to disseminate public information, where GUtech events are regularly published.

The University has established an efficient communication system that utilizes various digital platforms to ensure a seamless and efficient flow of information both internally and externally. The university's intranet system serves as an important platform for the publication of notices, announcements and other important content, which is disseminated to all members of the university. In addition, official University correspondence is handled through an electronic information and document management system that enables the efficient and secure management of university documents and other important information.

Overall, GUtech uses a variety of communication channels to ensure that the public is informed about their university and its degree programmes, services and activities and that all inquiries and requests are handled in a timely and professional manner.

The procedures for collecting and analyzing information about the students' needs and problems appear suitable. Additionally, the students confirmed in their talk with the expert group that complaints are taken serious and lead to changes. The student surveys are performed every semester so the up-to-dateness of the collected data is given. Supplementary to the students, the feedback of employers and alumni is collected and analyzed to get a holistic look on the study programmes. The gathered data like the employment status is very useful to evaluate the success of the study programmes. The External Advisory Board is an appropriate instance to guarantee that the economy's interests are considered while the programmes are further developed. The methods to check the teaching staff qualifications and its performance are suitable to guarantee an optimal knowledge transfer during the lectures. The close connection to the RWTH Aachen ensures additionally quality management processes that follow high standards.

7.3 Conclusion

The criterion is **fulfilled**.

8 ESG Standard 1.8: Public information

Institutions should publish information about their activities, including programmes, which is clear, accurate, objective, up-to date and readily accessible.

8.1 Implementation

GUtech releases information about its operations that is valuable for prospective and present students, alumni, other stakeholders, and the general public. GUtech discloses all relevant details about the institution, its personnel, and its partners. This information is always provided in an up-to-date, impartial and comprehensive manner.

GUtech provides full information about its services (study programmes, continuing education programs, research and services) via its website. The information about the study programmes includes the duration of the programmes, the number of ECTS credits, selection criteria, the intended learning outcomes, the qualifications awarded, the teaching model, and assessment procedures used and the and the cost of the programmes. Detailed information, such as study and examination regulations, course handbooks or the General Examination Regulations, are made public. GUtech provides frequent information sessions to supplement its textual materials.

In addition, GUtech provides targeted information to external stakeholders and the general public via a range of information channels. A communication concept coordinates and outlines the communication measures. GUtech, for instance, tells the public about its operations, successes, and completed projects via press releases.

Interested parties are updated via multiple social media channels about education and training, research activities, and services, as well as current developments, new projects and cooperation's, and current employment openings.

GUtech regularly publishes accurate, reliable and detailed information about study programs, degree options and the universities' activities through various information channels.

The information on GUtech`s activities is useful for prospective and current students as well as for graduates, other stakeholders and the public.

8.2 Assessment

GUtech offers detailed information on studying and teaching as well as on the university's main research areas. Organizational documents and relevant regulations are made available on the website. Contact persons and contact points for study programmes and student life are clearly and transparently named.

The information provided to the public about the degree programmes is generally satisfactory. There are many opportunities for prospective students to find out about the university, the faculty and student life.

Information about degree programmes is publicly available (admission criteria, learning outcomes, qualifications awarded, graduate employment information, etc.). Information about degree programmes that meet the University's mission is secured. High school graduates, students, graduates and other interested groups can find out about the activities and offers of the GUTech on its homepage. Contact persons are also provided for further information and questions. The relevant information about the university and its programmes is accessible via the GUTech homepage. In the section "Latest news" the activities of the university are described.

The section "Academics" lists all undergraduate and graduate programmes the university is offering including the graduation title. For each programme, the structure, the academic entry requirements, and the course outline is given. Under the subsection "overview" the basic idea behind the program, the career opportunities and the skills and attributes gained on graduation are explained. The admission process is described in its own section. Additionally, interested persons can inform themselves about the research activities of the university. Consequently, the homepage contains all the information needed by students and other stakeholders as well as the public. Furthermore, the homepage can be considered up-to-date and well structured.

The GUTech provides information about its activities, such as its degree programmes and the selection criteria for admission, the intended learning outcomes of the degree programmes, the teaching, learning and examination methods used, the success rates of the students and the qualifications of the teaching staff.

In addition, GUTech provides information on its homepage about its academic achievements, such as publications, external and internal conferences and events, as well as non-academic achievements, such as cultural and social projects and activities.

The study-related documents and information appear to be accessible to both students and prospective students. All information is up-to-date and useful for stakeholders and the public.

Information on study programmes is publicly available (admission criteria, learning outcomes, qualifications awarded, information on employment of graduates, etc.). Information about degree programmes that align with the university's mission is secured.

GUTech conducts its activities based on the principles of transparency, openness, inclusion and awareness of all stakeholders in educational activities: Students, teaching staff and employers. One of the most important means of providing information is the use of information

technology and media. In addition to the information provided on the University's website, information on the specifics of programmes undergoing accreditation is communicated to the public and applicants through events such as the Open Day.

8.3 Conclusion

The criterion is **fulfilled**.

9 ESG Standard 1.9: On-going monitoring and periodic review of programmes

Institutions should monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews should lead to continuous improvement of the programme. Any action planned or taken as a result should be communicated to all those concerned.

9.1 Implementation

Quality Management Strategy

GUtech has a Quality Assurance and Planning Department with the aim of promoting a culture of excellence through quality assurance". A Quality Assurance Policy, an Operational Plan as well as Action Plans provide a detailed framework for the activities of the Quality Assurance and Planning Department. In particular, the Quality Assurance Policy describes the principles underlying quality assurance at GUtech as well as the related roles and responsibilities for all employees of the University.

The quality management system known as QWiki has also been implemented and plays a central role as repository for important information related to the university's policy planning and governance framework. significant effort has been made over the past years to maintain and improve the skills of its users. Each department has appointed a QWiki content editor, training in the usage of QWiki is organised annually and QWiki audits are carried out every year to ensure that the database is up-to-date. The detailed review and further development of QWiki was included as a major element of the DAAD project Step2Future.

The University's Quality Assurance and Planning Department works closely with the Rectorate and the departments. Among others, it is in charge of conducting regular evaluations of both teaching and the non-academic satisfaction of students. The accreditation processes, both Omani and German (the latter being a voluntary step taken by the University) are considered important to provide valuable input for the further development of all study programmes. Valuable feedback is also provided by the External Advisory Boards. Regular meetings of all staff members and well-defined decision structures ensure that initiatives for improvement are properly assessed and implemented.

It also relies on an extensive external reviewing system for the reviewing of faculties, departments, programmes and services and seeks feedback from internal as well as external sources to ensure continuous improvement.

External reviews are regularly carried out in the form of:

- Visits by MOHERI
- Evaluation of the University by DAAD
- International accreditation by ACQUIN
- OAAAQA Audit report
- Standardized external assessment such as IELTS, IC3
- Annual reports from external and internal auditors

In addition, the department collaborates with RWTH Evaluation Committee where different areas undergo self-review process and feedback taken represents a new and effective approach to monitoring the implementation of the AAA.

Quality of Teaching and Learning

Objectives

GUtech considers quality of teaching and learning as a high priority, as expressed in its Mission Statement. Quality development and quality assurance are therefore integrated into all activities of the University. The goals are to provide high-quality teaching and continuous monitoring of teaching quality. To guarantee high teaching standards it is important to focus on:

- Student satisfaction
- Intensive and comprehensive tutoring of students. o Reduction of obstacles to studying
- Monitoring passing rates
- Monitoring graduation rates
- Regularly evaluating the teaching and reviewing the teaching methods

More quality goals are to produce highly qualified young academics who are aware of their responsibility towards the economy, society, research, and teaching. Integral to the qualification of outstanding young academics are: The provision of professional qualifications. o Instruction providing core qualifications, i.e. the ability to identify and find solutions to complex problems.

In this context GUtech provides training for research, practical applications and solving problems of the future. Research and practically oriented teaching are supported by:

- Aligning teaching contents with the latest research results
- Teaching practical applications
- A wide range of taught subjects
- The attraction and retention of outstanding academic staff and researchers

Tools

The goal of evaluating teaching and learning quality is to identify the strengths and weaknesses of a course (and academic staff), to increase the transparency of the teaching and learning process, and to optimise the learning and examination process.

Different evaluation instruments are implemented for each course to achieve high standards of teaching and learning. An important element is a centrally coordinated evaluation of teaching and learning, and student course evaluations.

Student Course Evaluations

It is essential to monitor teaching methods continuously. Part of this monitoring is the comprehensive surveys every semester in which students evaluate their courses. Until spring semester 2014, RWTH Aachen University's EvaSys system was used for all course evaluations. Starting with the winter semester 2014/15, LimeSurvey has been used with new questionnaires designed by the academic departments at GUTech. In particular, there are different questionnaires for different course types.

The course evaluations not only give students the opportunity to assess the concept of a course, the didactic components, the use of media and other teaching conditions, but also to reflect on their own study behaviour. In addition, there is also space for individual comments, special requests, suggestions, and points of criticism. There are two ways for students to provide feedback on courses, either by informal feedback discussion half-way through the course, or by formal feedback using the Student Course Evaluation Survey which is distributed to all students enrolled in a course.

The findings of the student course evaluations give academic staff valuable feedback on their teaching and appraisal of their courses. They can also reveal certain trends, which can lead to a quick improvement of the quality of teaching. Course evaluations are to be conducted before major final exams (if any) are scheduled. Results of the course evaluations are only released after the Board of Examiners has confirmed course grades. Academic staff are expected to write an action plan based on the course evaluation results and comments and submit it to the HoD and QAP department.

Small Group Tutorials

Although the principle of working in small groups is endorsed during the entire course of studies, the main focus for this type of activity is in the initial phase of studies. Aimed at reducing examination failure rates, tutorials in small groups are particularly important to complement the lectures.

Student Grievances

While faculty are encouraged to directly solve problems with their students, students are entitled to formally submit a grievance concerning any aspect of their experience at the University that can cause distress and/or is perceived as hindering their learning. This may include but is not limited to:

- Harassment, discrimination, or any unfair or improper treatment by a member of staff of the University.
- Quality of teaching, quality of infrastructure relevant to teaching and learning, or quality of teaching and learning support services.

The Student Grievance Policy includes an informal stage of resolution, a formal stage of resolution, and the possibility to appeal the decision taken in the formal stage.

Complaints that do not fall under the category of grievances are dealt with through different channels, i.e., the Grade Appeal Policy, the Student Disciplinary Policy or via the Student Advisory Council or Rectorate.

Students are advised to involve their Academic Adviser for guidance in all aspects of the informal resolution process. If the grievance is against an Academic Adviser, students are advised to request support from any other member of the academic staff.

No reprisals shall be taken by the management, administration or academic staff against any student or staff member because of participation in a grievance, unless that allegation has been proved to have been raised maliciously. The University takes any allegations of reprisals very seriously.

Tools Implemented in the Foundation Programme

In the Foundation Programme, academic staff identified the need to promote self-reflection and self-responsibility of students by bringing to their attention student performance and attendance.

Other tools implemented in the Foundation Programme are mentorship programme, weekly performance check and attendance monitoring.

All students in the Foundation Programme are assigned a Mentor after the first two weeks add/drop period. The Mentor is a staff member who can provide mature advice on academic

as well as legitimate non-academic matters. Academic advising is done by subject academic staff member. The Mentor will communicate with the subject academic staff member to provide the student with additional support if the student faces challenges in their learning. The departmental Curriculum Committees are responsible for defining the course contents. They often do this in cooperation with their partners at RWTH Aachen University (i.e., international quality) and the External Advisory Board (i.e., local quality).

Compilation of Study Data and Development of Study Plans

Data needed for university wide reporting is collected by the Quality Assurance and Planning department responsible for collecting all teaching and learning data of courses and study programmes and for making them available to the departments. The departmental Curriculum Committees analyse the data, recognise weak spots, and improve the curricula of the study programmes.

Quality of Teaching Staff

Teaching Staff Qualifications

The qualifications of the teaching staff are thoroughly evaluated during recruitment. Recruitment committees scrutinize the research and teaching experience of the applicants, and all candidates must give a presentation on their research work. In the case of Associate and Full Professors, RWTH Aachen University is part of the committee and usually joins through video conferencing.

Teaching Staff Performance Evaluation

All academic staff are subject to an annual performance review covering teaching, research, and community service. So far, the review has consisted of an appraisal that the academic staff member has to fill together with the Head of Department who also has to grade the performance. These performance reviews are then used to determine salary increases and promotions.

It is planned to replace these reviews by a system of key performance indicators (KPI) where the individual achievements of an academic staff are evaluated by a formula assigning certain values and weights to the KPIs.

Personal Development and Academic Promotion

GUtech's recruitment model is transparent and ensures that all appointments are based on merit. A robust performance evaluation system is in place to nurture a culture of professional development and growth, and salaries are commensurate with experience. GUtech focuses on individual development of all staff by encouraging them to attend relevant workshops and conferences and by supporting their research work and higher education by granting study

leaves, work leaves and flexible work schedules. There are also annual in-house workshops on pedagogy and teaching technology. Adequate promotion policies are in place.

Programme Development

Institutional Affiliations for Programmes and Quality Assurance

The original Affiliation Agreement between RWTH Aachen University and OES addressed in particular the governance structure of the University, the introduction of the University's first four Bachelor of Science programmes, and the development of robust quality assurance processes. Subsequent revisions of the agreement introduced the option of developing additional programmes, such as Bachelors of Engineering, Masters of Science, and PhD programmes. It also opened the possibility of entering into agreements with other reputable Higher Education Institutions for programmes that are not offered by RWTH Aachen University. Subsequently, GUTech entered into an agreement with the German accreditation agency ACQUIN (a member agency of the European Association for Quality Assurance in Higher Education, ENQA) for the accreditation of their programmes.

GUTech has also signed agreements with several international universities for the purpose of encouraging and regulating student exchange, like RWTH Aachen University (Germany,) University of Applied Sciences Stralsund (Germany), University of Brescia (Italy), Exchange Agreement Wilkes University (USA).

The close collaboration between RWTH Aachen University and GUTech is evident in the following areas of the quality assurance system:

- Governance and management structures of GUTech have strong links to RWTH Aachen University
- Participation of RWTH Aachen University professors in the recruitment processes for associate and full professors at GUTech (with veto rights)
- Teaching visits of RWTH Aachen University professors to teach block courses at GUTech.
- Student exchange from GUTech to RWTH Aachen University
- Student exchange from RWTH Aachen University to GUTech
- Assistance provided by the Institute of Metrology and Quality Management of RWTH Aachen University in the implementation of the QWiki platform at GUTech
- Co-supervision of Bachelor theses of GUTech students by professors at RWTH Aachen University
- Supervision of PhD theses of GUTech staff by professors at RWTH Aachen University

- Virtual internships for Bachelor students during the Covid-19 pandemic
- Handling DAAD scholarships and summer schools by a GUTech liaison office at RWTH Aachen University; and
- Receiving technical advice from RWTH Aachen University for equipping laboratories and other facilities

Internal and External Quality Standards

To ensure the quality of the study programmes at GUTech, RWTH Aachen University (or other partner institutions) are involved in the development of GUTech's programmes. This ensures that the study programmes meet the expectations of all stakeholders in Germany and Oman. As mentioned earlier, the collaboration agreement with RWTH Aachen University states responsibilities and includes a section on quality management. The Chair for Quality Management and Metrology at RWTH Aachen University supports the continuous improvement of GUTech's quality management system. He is also the chair of the RWTH Aachen Evaluation committee.

Alumni Network

Following its first cohort of graduates in 2012, GUTech has been developing formal means to engage effectively with its alumni. Here, GUTech alumni include former students, graduates, and staff. The Alumni Unit of the Student Affairs Department is responsible for maintaining alumni lists, conducting alumni surveys, and inviting them to campus events. The most recent alumni event was held on November 28, 2022 and attended by over 24 alumni.

The mission is to promote and foster a dynamic, enduring and mutually beneficial relationship between GUTech and its alumni. This includes enlisting and encouraging alumni support for the University and providing opportunities for alumni to connect with each other through special programmes and activities. In particular, it includes:

- Ensuring and facilitating a strong connection within the alumni group and with the University
- Ensuring a positive and life-long experience with the University
- Achieving the University's goals with the support of alumni
- Striving for excellence within the alumni engagement

9.2 Assessment

It can be fully confirmed that GUTech periodically monitors and regularly evaluates the study programs that are accredited. The study programs are thus regularly evaluated in order to

ensure quality and to check compliance with the high quality standards. The ongoing monitoring of all degree programs is carried out in accordance with the quality assurance policy. The degree programs are regularly reviewed and if changes are required, these are made. This process is exemplary. The degree programs have various procedures for internal quality assurance, e.g. in the form of student surveys in individual degree programs.

It can also be stated that there is a combination of internal and external quality management in order to offer the degree programs in accordance with the ESG.

An activity plan for monitoring the quality of education has been adopted, according to which the university monitors and regularly evaluates the degree programs in order to achieve the objectives and meet the needs of students and society. To determine the degree to which internal needs are met, the university organizes and conducts a survey of students, faculty and university staff each academic period.

The results of the survey are statistically analyzed, discussed in the administrative meetings and taken into account in the further planning of educational activities. According to the monitoring statistics, from time to time, the academic management analyzes and prepares reports on the results of the meetings, which are submitted to the University Academic Council for consideration in order to take the necessary measures to achieve the desired results.

The existing quality management system functions according to a hierarchical principle. The basis is a functioning control loop between those involved in order to improve the quality of research and teaching (Circle of Quality). This quality circle functions according to the bottom-up - top-down principle.

GUtech therefore regularly reviews its strategy and policies in the area of quality and monitors their implementation. To ensure quality, the university complies with legal requirements, implements international requirements and procedures to improve the quality of education, analyzes the effectiveness of planning and reporting, carries out sociological monitoring of the implementation of the mission and strategy, attracts stakeholders such as social partners, employers and teaching staff and observes the principle of openness of the university management to suggestions.

Overall, it can be said that responsibilities are clearly and comprehensibly regulated, not least because the core processes of quality assurance are documented in the university regulations.

Feedback between students and instructors is a prerequisite for improving teaching and should be introduced. In order to achieve a higher participation rate of students in course evaluations, the expert group recommends, that the evaluation should take place at an earlier point in time so that the results can be fed back to the students in the current semester.

At GUTech, the processes of continuous monitoring and adjustment of study programmes are evaluated through a systematic and cyclical approach. The University actively promotes a culture of continuous improvement and uses data-driven insights to improve study programmes.

Continuous monitoring thus enables continuous and systematic evaluation and thus the further development of study programmes and academic controlling. Central and decentralized measures for quality assurance as well as the evaluations of individual courses initiated by individual lecturers are proof for the expert group that students are actively involved in the design of teaching and learning processes.

Data protection issues are formally taken into account in the evaluations.

Both the participation of students in the measures for efficient course design and the continuous review and readjustment of the course ensure that the course is run in such a way that students are actively involved in the design of teaching and learning processes, which is extremely positive.

The existing evaluation measures at GUTech testify to an extraordinarily positive and appreciative communication culture.

The expert group therefore comes to the conclusion that a mature and functioning quality management system has been implemented at the University. In the discussions with the university, the evaluation regulations were systematically explained and its processes and structures for quality assurance and development were presented.

Overall, the quality assurance and development of the degree programmes is based on a systematic and comprehensible process, which is sustainably enriched by participatory and dialogical opportunities for students to help shape the further development of the two degree programmes. The mechanisms for reviewing quality assurance, such as regular workload surveys and the associated adaptation of the study programmes, are used sensibly and the resulting findings are taken up.

9.3 Conclusion

The criterion is **fulfilled**.

10 ESG Standard 1.10: Cyclical external quality assurance

Institutions should undergo external quality assurance in line with the ESG on a cyclical basis
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10.1 Implementation

The Ministry of Higher Education, Research and Education in Oman (MoHERI) formerly known as the Ministry of Higher Education in Oman (MoHE) is in charge of all affairs regarding the development and strategic decisions on higher education in the Sultanate of Oman. It oversees all aspects of study programmes at private universities in Oman via its Directorate for Private Higher Education Institutions. Any programme change requires approval by MoHERI. New programmes and major programme changes (i.e., changes of more than 30% of the programme) require MoHERI approval after the completion of an external review process. Ministry decisions sometimes take a long time, so it is difficult to implement a quality control cycle that requires the regular review and update of all study programmes.

The Ministry also runs the Higher Education Admission Centre (HEAC), where Omani students can apply online for scholarships and study places at colleges and universities. Students and study places are usually matched in several rounds, right up to the time when classes begin. This gives the HEIs little time to plan properly for incoming student numbers.

The Oman Authority for Academic Accreditation and Quality Assurance of Education (OAAAQA) is responsible for institutional accreditation and is developing standards for programme accreditation all universities and colleges in Oman. Instead of granting accreditation in a simple yes/no decision, the Omani system aims at further improving the quality of an institution's education by providing an outside view of the University as a whole. The OAAAQA established as an independent body under the Ministry of Higher Education, Research, and Innovation, developed standards for institutional accreditation. The current standards for institutional accreditation are very detailed. In March 2013, GUtech participated in a pre-stage for the institutional accreditation, the so-called Quality Audit, and received mainly positive feedback.

The quality audit, the first stage of a comprehensive institutional evaluation by the Oman Academic Accreditation Authority (OAAA, now the OAAAQA), in 2013 brought mainly positive feedback. The standards assessment, the second stage of the institutional accreditation, GUtech submitted its Institutional Standards Assessment Application in September 2018. The visit took place in March 2019. GUtech received conditional accreditation in February 2020. In the same month, GUtech submitted an appeal application, and the appeal was submitted in April 2020. In May 2020, the appeal committee decided that the outcomes should remain the same, indicating in the final report that an appeal was submitted and was not upheld. The university submitted its standards reassessment application in March 2021, for which a visit occurred in May 2021.

The 2nd stage called Institutional Standards Assessment was held in May 2019 and where GUtech was awarded conditional accreditation. Full institutional accreditation was awarded on July 8, 2022, which happened after reassessment in May 2021. Currently, the OAAAQA does not conduct programme accreditations. Standards for programme accreditation are still being developed. All Bachelor programmes have been accredited by ACQUIN (AGEO, CS, IBSM, LOG, UPAD and BEng programmes) except for the two new programmes, “Artificial Intelligence” and “Cybersecurity”. They will be accredited in 2024 by ACQUIN.

The recommendations from the accreditation AGEO, CS, UPAD were all considered for the further development of the study programmes.

10.2 Assessment

As far as the legal framework of quality assurance is concerned, the programmes are carried out in accordance with the rules and guidelines. For the programmes to be accredited, a regular assessment of the study and training outcomes from the point of view of employers and of the re-quired training outcomes from the point of view of the graduates of the programmes are carried out. The procedures for external evaluation of the quality of individual study programmes are conducted in accordance with the requirements of the laws of MoHERI in the field of education. GUtech embraces the concept of Cyclical External Quality Assurance as a process of periodic external evaluation of the quality of higher education institutions, as well as of academic programmes.

Moreover, GUtech views national and international accreditation processes as an opportunity for continuous enhancement and ensures that previous recommendations are thoroughly addressed.

GUtech has a combination of internal and external quality management to provide its own degree programmes in accordance with the ESG. Of particular importance is the collaboration with external stakeholders such as partner universities, graduates, industry and employers to gain momentum for continuous internal quality development. The coherence between external and internal quality assurances is well structured.

The quality management ensures very well that the general quality assurance measures and instruments are constantly updated and transparent. The university fulfils all mandatory aspects of external quality assurance: the various organizational units and levels are sufficiently in place and were explained in detail during the interviews with the university. Both internal and external quality assurance of the university's measures take into account all legal requirements and benefit from each other to advance the quality development of the study programmes. External quality assurance extends to all necessary organizational levels such as financial operations and educational offerings. The internal and external quality assurance mechanisms

for continuous programme development are well developed, and the cyclical operation of programme quality assessment is effective. The quality of the surveys and the processing of the results can be rated as very good. No specific problems in the cyclical external quality assurance were reported for all study programmes.

The follow-up activities of the university's external quality assurance in preparing the next procedure are generally well thought out. The results of the external evaluation and recognition of the quality of the study programmes (reports, expert opinions, etc.) are published on the University's website.

The institution actively uses accreditation processes as a way for improvement. GÜtech is an academic institution that is committed to providing high-quality educational programmes to its students. To ensure that the quality of its programmes remains high, the institution conducts ongoing and periodic reviews of its study programmes.

Overall, while GÜtech conducts ongoing and periodic reviews of its courses to maintain the quality of its programmes, cyclical reviews by external experts are conducted as well.

10.3 Conclusion

The criterion is **fulfilled**.

IV Recommendation to the Accreditation Commission of ACQUIN

1 **Assessment of compliance the Standards and Guidelines in the Higher European Area (ESG)**

The study programmes “**Computer Science**” (B.Sc.), “**Urban Planning and Architectural Design** (B.Sc.), “**Applied Geosciences**” (B.Sc.) were assessed on the basis of the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG).

The expert group concludes that the **ESG standards** 1.1 (Policy for quality assurance), 1.2 (Design and approval of programmes), 1.3 (Student-centred learning, teaching and assessment), 1.4 (Student admission, progression, recognition and certification), 1.5 (Teaching staff), 1.6 (Learning resources and student support), 1.7 (Information management), 1.8 (Public information), 1.9 (On-going monitoring and periodic review of programmes) and 1.10 (Cyclical external quality assurance) are fulfilled.

The assessment criteria are as follows:

Standard 1.1 Policy for quality assurance: Universities have a publicly accessible quality assurance strategy, which is part of their strategic management. This strategy is developed and implemented by internal stakeholder representatives through appropriate structures and processes, involving external stakeholders.

The criterion is **fulfilled**.

Standard 1.2 Design and approval of programmes: Universities have procedures for the design and approval of their courses. The courses are designed in such a way that their objectives, including the desired learning outcomes, can be achieved. The qualification obtained during a degree program is clearly defined and communicated; it refers to the corresponding level of the national qualifications framework for higher education and, consequently, the qualifications framework for the European Higher Education Area.

The criterion is **fulfilled**.

Standard 1.3 Student-centred learning, teaching and assessment: Universities ensure that the courses offered are carried out in such a way as to encourage students to play an active role in the design of the learning process and that this approach is also taken into account when assessing students / examinations.

The criterion is **fulfilled**.

Standard 1.4 Student admission, progression, recognition and certification: Universities ensure that the courses offered are carried out in such a way as to encourage students to play an active role in the design of the learning process and that this approach is also taken into account when assessing students / examinations.

The criterion is **fulfilled**.

Standard 1.5 Teaching staff: Universities ensure the competence of their teachers. They use fair and transparent procedures for the recruitment and further training of their employees.

The criterion is **fulfilled**.

Standard 1.6 Learning resources and student support: The university has adequate funding to finance study and teaching and ensure that there is always a sufficient and readily available range of learning and support available for their studies.

The criterion is **fulfilled**.

Standard 1.7 Information management: Universities ensure that they collect, analyze and use the relevant data relevant to the successful conduct of studies and other activities.

The criterion is **fulfilled**.

Standard 1.8 Public information: Universities publish easily understandable, correct, objective, up-to-date and well-accessible information about their activities and courses of study.

The criterion is **fulfilled**.

Standard 1.9 On-going monitoring and periodic review of programmes: Universities are constantly monitoring their courses and regularly reviewing them to ensure that they achieve the goals set and meet the needs of students and society. The tests lead to a continuous improvement of the courses. All affected parties will be informed about any measures planned or resulting from this.

The criterion is **fulfilled**.

Standard 1.10 Cyclical external quality assurance: Universities regularly undergo external quality assurance procedures in accordance with the ESG.

The criterion is **fulfilled**.

The peer-review experts note that the recommendations from the previous accreditation procedure have been adequately taken into account.

2 Accreditation Recommendation

The peer-review experts recommend the following **recommendations**:

General recommendations

1. Interdisciplinarity should be strengthened between the degree programmes.
2. The "Life Skills" offer should be supplemented with Computer Science and Data Science and the associated synergy effects should be used.
4. The workload of teaching staff should be regularly evaluated in shorter cycles to check whether the workload between research and teaching is appropriate within the framework of the excellence strategy.
5. To achieve a higher participation rate of students in course evaluations, the evaluation should take place at an earlier point in time so that the results can be fed back to the students in the current semester.
6. In application procedures, it should always be demonstrated that women are actively asked by the university to apply. Here, special incentives should be created in the application process that can lead to a higher rate of female applicants.
7. To ensure that the curricula are always up to date, it should be possible to update the module content at any time.

Recommendations for study programme “Urban Planning and Architectural Design (B.Sc.)”:

1. In order to further develop the study programme and to ensure its practicability for the job market, specialisation and the introduction of two interdisciplinary Master's programmes with the specialisation tracks a) Urban Planning and b) Architecture should prospectively take place in the future.
3. Physical resources should be expanded to include more model workshops.

V Decisions of the Accreditation Commission of ACQUIN

Based on the evaluation report of the expert group and the statement of the Higher Education Institution, the Accreditation Commission of ACQUIN has made its decision on the 9 February 2024:

General recommendations for all study programmes:

- Interdisciplinarity should be strengthened between the degree programmes.
- The "Life Skills" offer should be supplemented with Computer Science and Data Science and the associated synergy effects should be used
- The workload of teaching staff should be regularly evaluated in shorter cycles to check whether the workload between research and teaching is appropriate within the framework of the excellence strategy.
- To achieve a higher participation rate of students in course evaluations, the evaluation should take place at an earlier point in time so that the results can be fed back to the students in the current semester.
- In application procedures, it should always be demonstrated that women are actively asked by the university to apply. Here, special incentives should be created in the application process that can lead to a higher rate of female applicants.
- To ensure that the curricula are always up to date, it should be possible to update the module content at any time.

Computer Science (B.Sc.)

The study programme “Computer Science” (B.Sc.) at the German University of Technology Oman is accredited without any conditions.

The accreditation is valid until 30. September 2030.

Applied Geosciences (B.Sc.)

The study programme “Applied Geosciences” (B.Sc.) at the German University of Technology Oman is accredited without any conditions.

The accreditation is valid until 30. September 2030.

Urban Planning and Architectural Design (B.Sc.)

The study programme “Urban Planning and Architectural Design” (B.Sc.) at the German University of Technology Oman is accredited without any conditions.

The accreditation is valid until 30. September 2030.

The following recommendation is given for the study programme “Urban Planning and Architectural Design” (B.Sc.)

- In order to further develop the study programme and to ensure its practicability for the job market, specialisation and the introduction of two interdisciplinary Master's programmes with the specialisation tracks a) Urban Planning and b) Architecture should prospectively take place in the future.
- Physical resources should be expanded to include more model workshops.