



განათლების ხარისხის განვითარების ეროვნული ცენტრი
NATIONAL CENTER FOR EDUCATIONAL QUALITY ENHANCEMENT

Higher Education Institution Authorisation Experts' Report Georgian Technical University

Expert Panel Members

Chair: Sokratis Katsikas, Open University of Cyprus, Cyprus & Norwegian University of Science and Technology, Norway

Members:

Lia Glonti, National Tempus Office/National Erasmus+ Office, Expert, Georgia

Irine Darchia, Tbilisi State University, Expert, Georgia

Lily Shatberashvili-Gogiashvili, University of Bremen, Expert, Germany

Maia Shishniashvili, Innova LLC, Employer Expert, Georgia

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Giorgi Kurdiani, Tbilisi State Academy of Arts, Student Expert, Georgia

Tbilisi
2018

Authorisation Report Resume

General information on the educational institution

The Georgian Technical University (GTU) is the main and largest technical university of Georgia. It is located in the capital city of Tbilisi. It was founded in 1922 as the polytechnic faculty of the Tbilisi State University. It transformed in 1928 into an independent "Georgian Polytechnic Institute" and later achieved University status in 1990. It comprises 12 faculties with 72 Departments and 15 research institutes. The majority of the faculties are technology oriented, with two faculties (Faculty of Law and International Relations, and Faculty of Engineering Economics, Media Technology and Social Sciences) covering non-technical disciplines. GTU employs 4.609 persons (1.165 academic staff, 363 scientific staff, 1.156 affiliated academic staff, 1.178 invited staff and 2.260 administrative and support staff), and offers 170 educational programmes (69 Bachelor, 58 Master and 42 Doctoral) in Georgian, English, and Russian, to 22.516 active students (18.964 Bachelor, 2267 Master, and 1285 Doctoral). Its total budget is 69.467.144 GEL, the budget allocated to research is 12.684.185 GEL, and the budget allocated for library development and operation is 186.000 GEL.

Brief overview of the evaluation process for authorisation: SER and Site visit

The Rector of GTU issued, on 01.12.2017, Order N228, according to which all units of GTU have been involved in the self-evaluation process. A responsible unit and a number of providers were assigned to each of the authorization standards and their components. In parallel, based on the Rector's Order N249 of 25.12.2017, a group of "authorization status seekers" was formed, consisting of 15 members of GTU leadership and senior management. The self-evaluation group put together the Self Evaluation Report, which was submitted to the NCEQE and later delivered to the panel of experts. The Self-evaluation process should become more open, transparent, inclusive and analytical, with real and not formal involvement of different internal and/or external stakeholders. Information provided in the SER should be more comprehensive and precise. The site visit started on the afternoon of 09.07.2018 with the panel visiting GTU's sites and continued with full day meetings for interviews of the panel with GTU leadership, management, and staff on 10.07.2018, 11.07.2018, and 12.07.2018. The last interviews were conducted in the morning of 13.07.2018 and were followed by a four-hour deliberation of the expert panel, during which the majority of the experts agreed on their assessment of the extent of compliance of GTU with the authorization standards and their components. A different opinion considering evaluation of standards #3 and #6 was expressed by expert L.Glonti, pleading for "partial compliance" in component 3.1, "substantial compliance" in component 6.2 and "non-compliance" in component 6.3. The chair of the panel delivered a brief overview of the panel findings first to GTU leadership and then to a wide GTU audience. The expert panel was accompanied in the site visit by Lasha Margishvili and Tinatin Dvalishvili of the NCEQE.

Overview of the HEI's compliance with standards

GTU has been found to be substantially compliant with the authorization standards, with the exception of standards #2 (Organizational structure and management), and #7 (Material, information, and library resources), in which it has been found to be partially compliant. In terms of standard components, GTU has been found to be fully compliant with 3 components (2.3, 6.2, and 7.3); substantially compliant with 8 components (1.1, 3.1, 3.2, 4.2, 5.1, 5.2, 6.1, and 7.2); and partially compliant with 8 components (1.2, 2.1, 2.2, 3.3, 4.1, 6.3, 7.1, and 7.4). There were no components with which GTU was found non-compliant.

Summary of Recommendations

- Redefine the mission statement in order to state GTU's role locally and/or internationally and to reflect GTU's distinct characteristics to give society and all stakeholders a clear notion of what GTU stands for.
- Review the strategic planning methodology, to make sure that organization collects and analyses all relevant data.
- For the purposes of strategic development plan and action plan, develop measurable, time bound objectives, and assign resources to specific actions.
- Develop detailed action plans for all organizational units.
- Develop and set in motion rules and procedures to monitor the implementation of the strategy and action plans.

- Revisit the organizational structure with a view towards increasing efficiency and effectiveness, including by rationalizing human resources according to the volume of work performed, and by re-defining functions and responsibilities of the structural units to avoid overlap of competences and responsibilities and duplication of effort.
- Develop a plan, or a set of plans, that will ensure the continuity of all GTU major business processes. These plans must take into account all possible risks, must provide for a mechanism for their prevention and, in case prevention is not possible, lay out a strategy for mitigating them.
- Develop and apply mechanisms for feeding the outcomes of the quality assurance process to the management bodies of the university, to ensure that leadership decisions are properly informed by the findings of the quality assurance process.
- Apply quality assurance mechanisms systematically, regularly and periodically.
- Optimize the processes related to the implementation of the quality assurance mechanisms.
- Ensure the anonymity of the student surveying process and make students aware of pertinent measures.
- Consolidate existing quality assurance mechanisms and supplement these with all necessary additional ones, to formulate a quality assurance manual that will fully and accurately describe GTU's quality assurance system.
- Develop a methodology for planning the student contingent and for improving the relevant mechanism.
- The Self-evaluation process should become more open, transparent, inclusive and analytical, with real and not formal involvement of different internal and/or external stakeholders. Information provided in the SER should be more comprehensive and precise.
- Follow the PDCA cycle for programme evaluation and consider subject-specific characteristics of programmes and availability of resources (both human and material).
- Provide teacher training in teaching and assessment methods and use the resources of the Center of Professional Development.
- Ensure adequate infrastructure for study programmes.
- Ensure adequate financial resources for study programmes, especially for their research components.
- Review teaching materials in syllabi with special focus on outdated literature and language of instruction.
- Reconsider the volume of independent students' work in line with provided teaching materials.
- Ensure that all interested parties at GTU are aware of the assessment appeal procedures.
- Follow the PDCA cycle for the assessment system and adjust where necessary.
- Develop the feedback system for students in order to ensure better academic performance and transparency of the assessment system.
- Develop a strategy for recruiting highly qualified young employees to take academic and scientific positions.
- Establish clear rules about compulsory and regular trainings for the staff - both academic and administrative employees.
- Elaborate a systematic and well defined evaluation plan of the qualifications of academic and administrative staff, of the satisfaction and the needs of personnel, of the quality of teaching and research activities and the monitoring of the strict implementation of that plan.
- The academic, affiliated and invited staff should be better informed about the regulations on workload based on the Bologna rules.
- GTU has to appoint a single point of contact (person or unit) that will be responsible for Career Support Services, for communicating with employers, and with alumni, and for helping students to find a proper job.
- Improve GTU Tables by making information available in the English and Russian languages as well.
- Introduce anonymous survey for students.
- Start formalising some of its processes regarding scholarships and create a standard that will be public, available for everyone equally and will be giving equal opportunities to Georgian and international students.
- Reorganize the PhD defense and award process. Significantly increase the number of the dissertation council members and make the participation of more external members mandatory. The defense of a PhD thesis must be conducted before a thesis committee, which must include external experts. PhD theses have to be approved not only by the corresponding faculty councils but by the academic council or some other central unit of the University.
- Place CV and publication list of academic and research staff at the web page.
- Organize creating Google Scholar profiles for research staff.
- Include impact factor of the journal (Scopus impact factor or ISI impact factor) in the bibliographical description of research articles at GTU database (<http://science.gtu.ge/>).
- The Strategic and Action Plans should be updated regarding the material resources.

- Needs assessment of each building should be done in order to identify compliance with the criteria of the authorization standard 7.1.
- The updated strategic and action plans should provide the stakeholders with clear strategic vision, timetable and financial calculation on the improvement of the infrastructure.
- More effective measures should be taken in order to fill the gaps and achieve the correspondence with the criteria of authorization standard which need less financial resources.
- The staff of the library/"reading halls" should be further trained on the use of international library databases.
- Special measures should be taken by the University and faculty administration to raise the awareness of the academic, scientific and invited staff, as well as the students on the existence, the potential, and the use of international library databases.
- The students and staff surveys, focus groups should be organized in order to measure the students' and staff' satisfaction with the development of library services. The results of the assessment should be used for strategic planning and quality culture development.
- The action plan of the University should be revised to include financial calculations of planned activities as well as key performance indicators.
- An effective and efficient risk management system should be developed and implemented.
- The priority areas for educational and scientific activities should be identified, considering the available financial resources.

Summary of Suggestions

- GTU has many goals. Their implementation requires huge human and financial resources. Setting priorities may be one solution to reduce these needs.
- Foster the development of a quality culture in GTU.
- Adopt measures that aim at preventing plagiarism.
- The election committees for the selection of academic staff should include some members of GTU.
- The teaching content of the courses on teaching methods, operated by the Professional Advancement Center should be reviewed and regularly updated.
- Rethink the strict regulations of Affiliation Rules for the purpose of giving the possibility to the candidates to be more flexible in designing their working relations.
- The distribution of workload of the academic, affiliated and invited staff should be updated each semester.
- GTU needs to introduce new methods which will decrease the rate of students with suspended status. Financial support and/or scholarships could be one of the main possibilities. Both Georgian and international students should be eligible for these scholarships.
- Individual study plans should be only for the selected few rather than a recurring/common practice offered to larger numbers at the university.
- Define more precisely the meaning of "high impact factor journal" and generally the requirements for the PhD thesis.
- Increase participation of Georgian scientists in scientific conferences organized by GTU and generally. Make sure that travel funds are present in internal and other grant projects and also in the budgets of the research institutes.
- The intellectual property protection unit should be modernized. Intellectual property ownership (usually university) and inventor share percentages should be defined in individual contracts with academic and research staff.
- It will be good if GTU involves more young academic and scientific staff in research and development.
- Central library computers are slow. They are 8 years old and should be replaced, at least partly.
- Considerable part of information existing in attached files and on the GTU web page was not given in the SER. Corresponding web page links were not given. More attention should be paid to compiling the SER.
- In order to achieve efficient communication with Russian speaking students and raise the quality of study process management, it is suggested to make the university webpage in Russian as well.
- As there are up to 70 authorized Higher Education Institutions in Georgia and all of them need automated electronic systems for study process management, GTU staff representatives may consider commercialization of the electronic systems they already have developed and implemented in the University.
- With some additional efforts from the university staff and administration, more products of applied research done by the local professors and scientists can be commercialized.

Summary of the Best Practices

- GTU contributes to the development of the society and to knowledge dissemination. For these

purposes GTU provides numerous services to businesses and to state organizations, it provides consulting and expertise, and it offers training programs. It must be noted that one of the strategic directions of GTU is the commercialization of the research work through cooperation with the local and international business community and state organizations. This is a good example of GTU's activity towards knowledge dissemination and input of scientific work for the development of society.

- GTU has long standing collaboration with major telecommunication, energy generation, energy distribution, metallurgy, mining, agriculture and other companies of Georgia. The interview with the management of these companies clearly indicated their commitment to have GTU as their major collaborator in the fields of technical expertise and staff training. At the same time these companies are the main employers of GTU graduated students.
- GTU has well organized database of articles, patents and grant projects searchable by scientific institutes, author names, dates etc.
- GTU provides internal grants worth more than 2.000.000 GEL per year for research and development.
- GTU has established long standing strategic collaboration with world class research centers, such as the Juelich Research Center (Juelich, Germany), the particle physics Research Center CERN (Geneva, Switzerland), and JINR (Dubna).
- GTU participates in many international funded research projects.
- Autumn lectures, during which 20 professors from the Juelich Research Center regularly come to GTU and give lectures for GTU and other Georgian university students. Regular workshops within the project "Georgian German Science Bridge".

Summary Table of Compliance of HEI with Standards and Standard Components

	Standard	Compl ies wit h Req uire me nts	Subs tanti ally com plies with requ ireme nts	Parti ally Com plies with Req uireme nts	Does not Compl y with Req uireme nts
1.	Mission and strategic development of HEI	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.1	Mission of HEI	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Strategic development	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	Organisational structure and management of HEI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.1	Organisational structure and management	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.2	Internal quality assurance mechanisms	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.3	Observing principles of ethics and integrity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Educational Programmes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1	Design and development of educational programmes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Structure and content of educational programmes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Assessment of learning outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Staff of the HEI	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1	Staff management	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.2	Academic/Scientific and invited Staff workload	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Students and their support services	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1	The Rule for obtaining and changing student status, the recognition of education, and student rights	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2	Student support services	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Research, development and/or other creative work	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.1	Research activities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2	Research support and internationalisation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3	Evaluation of research activities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Material, information and financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.1	Material resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.2	Library resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.3	Information resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7.4	Financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Signature of expert panel members

1. Sokratis Katsikas 

2. Lika Glonti *Lika Glonti*

3. Irine Darchia 

4. Lily Shatberashvili 

5. Maia Shishniashvili 

6. Avtandil Tavkhelidze 

7. Giorgi Kurdiani 

Compliance of the Applicant HEI with the Authorisation Standard Components

1. Mission and strategic development of HEI

Mission statement of a HEI defines its role and place within higher education area and broader society. Strategic development plan of HEI corresponds with the mission of an institution, is based on the goals of the institution and describe means for achieving these goals.

1.1 Mission of HEI

Mission Statement of the HEI corresponds to Georgia's and European higher education goals, defines its role and place within higher education area and society, both locally and internationally.

Descriptive summary and analysis of compliance with the standard component requirements

The Georgian Technical University (GTU) is a multi-profile, large university. Its mission statement is broad and reflects its main fields in learning and scientific research as well as its role to develop professionals focused on the needs of economy and society. At the same time, its mission statement lacks information about its role locally and/or internationally. Moreover, the mission statement does not give the reader information about how GTU differentiates from another technical university of similar size.

During the interviews the panel has learned that the leadership of GTU, identifies distinct qualities and characteristics of the organization, and has a well-developed vision about the perspectives of development of GTU. The vision shared by the leadership implies the following distinct characteristics of the HEI:

- The HEI tends to strengthen the direction of applied sciences;
- Four pillars are identified - learning, innovation, science, production;
- Development of multidisciplinary learning.

One of the main characteristics described by the leadership, and then confirmed in interviews with management and staff, is a direction to commercialize GTU's activities, through providing consulting and expertise services; production of exclusive and highly innovative products developed by academic staff and students; and research and innovation for businesses and government organizations.

During the interviews panel of experts observed that community of the HEI identifies GTU's distinct characteristics and shares its vision.

Evidences/indicators

- Mission statement.
- Interviews with leadership.
- Interviews with management and staff.

Recommendations:

- Redefine the mission statement in order to state GTU's role locally and/or internationally and to reflect GTU's distinct characteristics to give society and all stakeholders a clear notion of what GTU stands for.

Suggestions:

None

Best Practices (if applicable):

None

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

1.2 Strategic Development

- HEI has a strategic development (7-year) and an action plans (3-year) in place.
- HEI contributes to the development of the society, shares with the society the knowledge gathered in the institution, and facilitates lifelong learning
- HEI evaluates implementation of strategic and action plans, and duly acts on evaluation results.

Descriptive summary and analysis of compliance with the standard component requirements

GTU has a methodology for strategic planning. The methodology implies linking the mission, the vision and the strategy; situational analysis; identification of the strategic priorities; and setting goals.

A strategy has been developed based on the indicated methodology. In its strategic development plan GTU provides situational analysis and SWOT analysis.

For the purposes of strategic planning GTU collects internal data, statistics, admission information of competing universities, and it conducts desk research regarding import-export data, government policy, etc. It must be noted that GTU does not perform in-depth qualitative or quantitative research of its own. The leadership considers it useless, as "all the information that we need for strategic planning is available". It may be true that all information needed for comprehensive planning is available, but data collection methods must be reviewed and modified, because the results of the current work are not satisfactory. Specifically, the panel has observed that for its strategic planning purposes GTU has identified only one threat, namely "Scarcity of infrastructure relevant to the modern European standards due to the non-existence of the basic financing and low program financing." In a highly competitive local and international market, it is unusual to observe such situations. During the interviews the panel observed that management and staff see additional obstacles and threats that are present, and they influence GTU, yet they are not described in the strategic development plan. One example of such threats, named by HEI representatives, as a problem during the interviews, is the low quality of education provided in Georgian high schools, a consequence of which is a high number of dropouts among the first-year students. During the interviews at least one more threat was named by HEI representatives (the Georgian society thinks that the professions given by the GTU are not demanded by the market; there are low intakes because of that. In reality, the demand for certain technical skills is increasing annually. The negative attitude of potential customers is a threat). Of course the experts' visit is not a time and place to brainstorm HEI SWOT, but nevertheless, these two problems named during the interviews by the staff of HEI give the experts the notion that more work could be done in this direction. The inability to identify and prevent threats is a potential risk to the organization.

It seems that management and staff and other stakeholders were involved in strategic planning. Staff and management are mostly aware of the actions assigned to their organizational units.

The panel has observed that GTU has 10 strategic goals and numerous sub-goals that must be accomplished in the period 2018-2020. A strategic development plan and an action plan cover all aspects which are vital to the operation of an institution.

Management and staff confirmed that all goals are equally important. At the same time, most of the actions in the action plan do not have a specific deadline; instead 2018-2020 is indicated as a time span. Resources needed for the implementation of the specific actions are not indicated. The actions themselves and the implementation indicators are not measurable; for instance, one planned action is to "enrich library resources", a respective indicator is "number of purchased literature" and the deadline is 2018-2020. During the interviews, the panel was informed that each organizational unit has its own action plan which is in line with the organization's action plan and is more detailed, measurable and time bounded. The panel has requested several action plans, and has observed that in some cases there is more detail and dates are more specific, but mostly the departments' action plans simply repeat the organization's action plan, the time span is again 2018-2019, and resources are not indicated. There is also one case, where the action plan of a faculty is not included in the organization's action plan.

There is no mechanism for the management to control implementation and assess the effectiveness of responsible staff.

Taking into consideration the number of goals, the actions and the centralized organizational structure, implementation of the plans may prove to be difficult.

GTU contributes to the development of the society and to knowledge dissemination. For these purposes GTU provides numerous services to businesses and state organizations, it provides consulting and expertise, and it offers training programs. The GTU's action plan includes a number of activities intended for further development of lifelong learning. It must be noted that one of the strategic directions of GTU is the commercialization of the research work through cooperation with the local and international business community and state organizations. This is a good example of GTU's activity towards knowledge dissemination and input of scientific work for the development of society.

At the present moment GTU does not have an effective mechanism in place to monitor the implementation of its strategic and action plans, but it does have plans to establish rules and procedures to this end. During the interviews, the panel was informed that such a system will be developed and set in motion as of September 2018.

Evidences/indicators

- Mission and vision
- Strategy development methodology
- Strategic development plan
- Action Plan of GTU
- Action Plans of faculties and departments
- Interviews with leadership and staff

Recommendations:

- Review the strategic planning methodology, to make sure that organization collects and analyses all relevant data.
- For the purposes of strategic development plan and action plan, develop measurable, time bound objectives, and assign resources to specific actions.
- Develop detailed action plans for all organizational units.
- Develop and set in motion rules and procedures to monitor the implementation of the strategy and action plans.

Suggestions:

- GTU has many goals. Their implementation requires huge human and financial resources. Setting priorities may be one solution to reduce these needs.

Best Practices (if applicable):

- GTU contributes to the development of the society and to knowledge dissemination. For these purposes GTU provides numerous services to businesses and to state organizations, it provides consulting and expertise, and it offers training programs. It must be noted that one of the strategic directions of GTU is the commercialization of the research work through cooperation with the local and international business community and state organizations. This is a good example of GTU's activity towards knowledge dissemination and input of scientific work for the development of society.

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

2. Organisational Structure and Management of HEI

Organisational structure and management of the HEI is based on best practices of the educational sector, meaning effective use of management and quality assurance mechanisms in the management process. This approach ensures implementation of strategic plan, integration of quality assurance function into management process, and promotes principles of integrity and ethics

2.1 Organisational Structure and Management

- Organisational structure of HEI ensures implementation of goals and activities described in its strategic plan
- Procedures for election/appointment of the management bodies of HEI are transparent, equitable, and in line with legislation
- HEI's Leadership/Management body ensures effective management of the activities of the institution
- Considering the mission and goals of HEI, leadership of the HEI supports international cooperation of the institution and the process of internationalization.

Descriptive summary and analysis of compliance with the standard component requirements

As seen in its organizational chart, GTU has an unnecessarily complex organizational structure. GTU lacks a tree-like hierarchical organizational structure, with the majority of its structural units reporting directly to the Rector. Further, two lines of management are visible, with many of GTU's structural units reporting to both the Rector and the Head of Administration or the Deputy Head of Administration; only two structural units report to the latter. Appointing academics as managers of structural units is the rule; inasmuch this option may be a cultural issue, it does not ensure as effective and efficient management as the appointment of professional managers would. Several structural units are overstaffed (e.g. the "Diplomas Issuing Service") while others (e.g. the IT department) are largely understaffed. Considering both their mandate and the volume of work performed, the need for maintaining specific distinct structural units (e.g. the "Military Mobilization Department") is not readily forthcoming. Similarly, considering the job descriptions, the concurrent existence of some roles is not justified (e.g. Faculty managers, Coordinators, Curators). In contrast, some structural units are mandated with diverse and irrelevant tasks (e.g. the "International Relations and Standards Service"). The mandate of some of the structural units overlaps with that of others. For example, common elements are found in the mandates of the "Teaching Department" and of the "Department of Methodical Maintenance of Educational Process"; in the mandates of the "Teaching Department" and of the "Quality Assurance Service"; in the mandates of the "Quality Assurance Service" and of the "International Relations and Standards Service" etc. This overlapping of mandates leads to lack of clarity of each mandate, to difficulty in coordination and to internal communication overhead, which in turn is a source of inefficiency; it also explains, to a certain extent, why different structural units provided very different data on same issues during the interviews. Overall, there is considerable room for improving GTU's organizational structure.

GTU's identified top-tier management bodies are the Academic Council; the Council of Representatives; the Rector; the Head of Administration; and the Quality Assurance Service. At the faculty level, the corresponding management bodies are the faculty Board; the Dean; and the Faculty Quality Assurance Service. Rules for the election of management bodies of GTU, and of faculty and independent scientific and research units have been adopted by the Academic Council and have been approved by the Council of Representatives. These are described in the document entitled "Rules for Elections of Georgian Technical University and faculty management bodies (management bodies)", where the requirements for election in or appointment to the management bodies are defined; these include, where appropriate, review of the vision and of the action plan of the candidates. The pertinent procedures have been approved, they are transparent, fair and in compliance with the law.

GTU employs several automated information systems in support of its management functions; these allow the decisions of the management bodies that relate to academic, scientific and administrative issues, to be mostly made in a timely and effective manner. GTU has adopted its "Unified regulations of file recording", that describe the principles and regulations for managing and handling managerial business documents. These regulations have been adopted in accordance with applicable Georgian legislation. The Self Evaluation Report lists a number of IT systems (e.g. software for supporting the issuing of diplomas; software supporting the HR management department; software for support of the head of business administration; software for archiving chancellery file records etc.) that constitute elements of an electronic document processing system. However, an integrated electronic document processing system is not mentioned. In compliance with Order N127/N (July 22, 2011) of the Minister of Education and Science of Georgia on the "Approval of Registry handling of Educational Institutions", the Registry team of GTU's Education Department is mandated to maintain the Registry of Educational Institutions.

GTU has formulated its "Information Technology (IT) Management Policy and Procedures, The plan for business process continuity". This was approved by the Rector on May 14, 2018. Despite its title, this document does not include a business continuity plan of GTU's IT systems. Moreover, no plans for ensuring the continuity of major business processes of the institution have been prepared. Only a few risks have been identified within GTU's strategic plan and accordant action plans; however, a

systematic risk identification, assessment, and management process is not in place. Overall, there is some room for improving the effectiveness of GTU's management of its activities.

GTU has elaborated an internationalization policy and strategy; this was recently (2 April 2018) approved by the Academic Council, in its resolution N01-05-04/97. Despite the recent formalization of the policy, there is ample evidence (see standards #3, #5, and #6) that GTU actively supports the international mobility of its students and staff, the development/implementation of joint programmes/projects, and its participation into international research activities. This suggests that the leadership of GTU has ensured the implementation of internationalization activities; however, the achieved results in this domain fall short of GTU's capabilities, they are still below expectations, and they are not systematically influencing the work of the institution. Even though accurate assessment of the results will be possible after the internationalization policy and strategy has been implemented for some time, and after a systematic mechanism for monitoring and assessing the results has been put in operation, current findings suggest that there is considerable room for improving GTU's performance as regards internationalization.

Evidences/indicators

- GTU organizational chart (<http://gtu.ge/Eng/Info/Structure/Structure.php>);
- Mandates (provisions) of GTU's structural units;
- Decision N1 of January 29, 2014 by the Council of Representatives of GTU (Senate) on "Rules for elections of Georgian Technical University and faculty management bodies (management bodies)";
- Resolution No. 29 of February 6, 2018 of the Rector of the Technical University of Georgia on approval of "Unified regulations of file recording";
- "Information Technology (IT) Management Policy and Procedures, The plan for business process continuity";
- "The internationalization policy and strategy of Georgian Technical University", approved by Resolution No. 01-05-04 / 97 of April 2, 2018 by the GTU Academic Council;
- Self-Evaluation Report;
- Interviews with GTU leadership, management and staff.

Recommendations:

- Revisit the organizational structure with a view towards increasing efficiency and effectiveness, including by rationalizing human resources according to the volume of work performed, and by re-defining functions and responsibilities of the structural units to avoid overlap of competences and responsibilities and duplication of effort.
- Develop a plan, or a set of plans, that will ensure the continuity of all GTU major business processes. These plans must take into account all possible risks, must provide for a mechanism for their prevention and, in case prevention is not possible, lay out a strategy for mitigating them.

Suggestions:

None

Best Practices (if applicable):

None

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

2.2 Internal Quality Assurance Mechanisms

- Institution effectively implements internal quality assurance mechanisms. Leadership of the institution constantly works to strengthen quality assurance function and promotes establishment of quality culture in the institution.
- HEI has a mechanism for planning student body, which will give each student an opportunity to

get a high quality education.

Descriptive summary and analysis of compliance with the standard component requirements

The GTU's Quality Assurance service has developed "Mechanisms for internal quality assurance". This document describes GTU's approach to quality assurance; it discusses the principles that govern the quality assurance system and describes the internal quality assurance standards. The latter covers (i) the quality assurance policy; (ii) the elaboration and approval of programs; (iii) student-oriented learning, teaching and evaluation; (iv) admission, progression, recognition and certification of students; (v) teachers/lecturers; (vi) educational resources and support to students; (vii) information management; (viii) public information; (ix) current monitoring and periodic evaluation of programs; and (x) periodical external quality assurance, and follow the corresponding standards of Part I of the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). GTU's approach to quality assurance also follows the ISO 9000 standard, for administrative functions; this is under the responsibility of the International Relations and Standards Service.

The formulation of the above document constitutes an important step towards establishing a systematic and consistent, institution-wide approach to quality assurance and quality enhancement. Mechanisms for monitoring the academic performance of the students, and of the teaching performance of the staff (including several surveys and recordings of lectures), as well as for the evaluation and improvement of educational programmes (including input from external stakeholders), are in place and evidence exists that the results of their implementation are being used for the improvement of the education process. However, not all of these mechanisms are activated on a regular basis and the attendant processes have not been optimized. The fact that the student surveys are performed electronically, in a way not ensuring anonymity should not be left unattended. It is also important to ensure that students are made aware of the measures taken to ensure their anonymity when participating in surveys. Thus, all in all, GTU is still far from having established a quality assurance *system*, that will span all of GTU's services and activities and will be described in a quality assurance *manual*, and is even farther from having established a quality *culture*. Thus, more effort is needed to ensure the continuous assessment and development of the institution's activities and of its resources and for systematically making management decisions that are informed by the outcomes of the quality assurance process.

In accordance with the requirements of the Law of Georgia on Higher Education, in GTU the Quality Assurance Service is operating. The structure, functionality and development of the quality assurance mechanism in GTU are based on the requirements of the International Standards of Quality Management ISO 9000 Series. According to the Provision of the Quality Assurance Service, the goal of the service is "to systematically evaluate study and scientific-research activity of university, as well as professional development of staff, in case of improvement of situation based on evaluation or satisfactory situation preparation of the proposals and recommendations for its maintaining and further improvement". By the decree of the academic council of GTU about "Quality assurance mechanisms, monitoring and evaluation of efficiency" an internal mechanism of quality assurance has been established.

GTU has developed "Instructions for formation and mobility of students' contingent of GTU". The document sets out the requirements for determining the student contingent; however, according to the SER, the methodology for planning the student contingent and for improving the mechanism is still under development.

Evidences/indicators

- Resolution N531 of September 27, 2011 by the Academic Council on "Assessment system of professors and teachers of GTU and response";
- Resolution No. 482 of the Academic Council of June 17, 2010 on "Instruction of Formation and Mobility of GTU Student Contingent";
- Order No. 42 of March 28, 2016 of the Rector of the GTU on "Faculty Commissions for Evaluation of Educational Programs";
- Resolution No. 01-06-02 / 06 of February 14, 2018 of the GTU Council of Representatives (Senate) on "Regulations of Quality Assurance Service of Georgian Technical University";
- "Mechanisms for internal quality assurance";
- "Instructions for formation and mobility of students' contingent of GTU"
- Results of surveys;
- Self-Evaluation Report;
- Interviews with GTU leadership, management and staff.

<p>Recommendations:</p> <ul style="list-style-type: none"> • Develop and apply mechanisms for feeding the outcomes of the quality assurance process to the management bodies of the university, to ensure that leadership decisions are properly informed by the findings of the quality assurance process. • Apply quality assurance mechanisms systematically, regularly and periodically; • Optimize the processes related to the implementation of the quality assurance mechanisms; • Ensure the anonymity of the student surveying process and make students aware of pertinent measures; • Consolidate existing quality assurance mechanisms and supplement these with all necessary additional ones, to formulate a quality assurance manual that will fully and accurately describe GTU's quality assurance system; • Develop a methodology for planning the student contingent and for improving the relevant mechanism.
<p>Suggestions:</p> <ul style="list-style-type: none"> • Foster the development of a quality culture in GTU.
<p>Best Practices (if applicable):</p> <p>None.</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input type="checkbox"/> Substantially complies with requirements <input checked="" type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements
<p>2.3. Observing Principles of Ethics and Integrity</p> <ul style="list-style-type: none"> • HEI has developed regulations and mechanisms that follow principles of ethics and integrity. Such regulations are publicly accessible. • Institution has implemented mechanisms for detecting plagiarism and its prevention. • HEI follows the principles of academic freedom.
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>GTU has developed its Ethics Code since 2014. The code applies to academic, administrative, scientific, teacher and supplementary staff, as well as invited specialists and university students, it defines the rules of conduct for all members of the academic community, it ensures respect of academic freedom, and is mandatory for all. The code is publicly available through GTU's website. GTU has acquired anti-plagiarism software and has been using it routinely for detecting incidents of plagiarism. Some more attention should be paid to measures that aim at preventing rather than detecting plagiarism.</p>
<p>Evidences/indicators</p> <ul style="list-style-type: none"> • Resolution N1 of October 15, 2014 by the Council of Representatives of GTU (Senate) that approved the "Ethics Code of Georgian Technical University LEPL and regulations for discipline responsibility"; • Special software package (Strikeplagiarism) acquired by the University for the purpose of identification and combating plagiarism (license agreement, of March 23, 2018); • Rules for using software Strikeplagiarism; • Resolution No. 01-05-04 / 44 of 9 March 2018 of the Academic Council on "Regulations of Doctoral Studies of Georgian Technical University";
<p>Recommendations:</p> <p>None</p>

<p>Suggestions:</p> <ul style="list-style-type: none"> • Adopt measures that aim at preventing plagiarism.
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Complies with requirements <input type="checkbox"/> Substantially complies with requirements <input type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements

3. Educational Programmes

HEI has procedures for planning, designing, approving, developing and annulling educational programmes. Programme learning outcomes are clearly defined and are in line with the National Qualifications Framework. A programme ensures achievement of its objectives and intended learning outcomes

3.1 Design and Development of Educational Programmes

HEI has a policy for planning, designing, implementing and developing educational programmes.

Descriptive summary and analysis of compliance with the standard component requirements

Since March 2014 (significantly updated version – February 2018) GTU has “Regulations for planning, adoption, assessment and development of educational programmes”, according to which programme development is a participatory process and starts with a labor market study. Staff, students, graduates, employers and professional associations shall be involved in programme development, as stated in the regulations. Interviews with the above mentioned stakeholders proved that they were indeed involved in the curriculum development process, while taking part in surveys and filling in specially developed questionnaires.

The regulations have been followed during the last modification of GTU programmes: all 169 degree-leading study programmes were modified between April and June 2018 (even those first introduced in 2017). The Quality Assurance service named the following reasons for this massive modification: a) upcoming institutional authorization - programmes needed to be updated in order to be compliant with the new standards; 2) changes in student assessment methods. As stated during interviews, some study programmes have been changed significantly in terms of content (new topics, new subjects, changed modular structure, new literature, etc.); in other cases only the format was changed.

As a result of this total programme modification, all study programmes and syllabi at 12 faculties have a standardized format and share the same structure, despite their possibly differing profile. All bachelor programmes (69) have obligatory practical and research (bachelor thesis) components; the volume of the research component at the master level has been increased – now all 58 master programmes have 45 ECTS for the research project. It is obvious that both practical and research components require additional human and material resources. The “Regulations for planning, adoption, assessment and development of educational programmes” clearly demand availability of resources and programme sustainability prognosis, including financial sustainability. Representatives of GTU administration stated that resources are available for all study programmes, but during further discussion it became clear that no serious calculation has been performed to ensure the achievement of programme objectives.

The “Regulations for planning, adoption, assessment and development of educational programmes” require consideration of other important aspects, such as:

- perspectives of internationalization of programmes – during a random check of provided curricula the panel could not find any example of that;
- employment prognosis – very important aspect of programme development, since current statistics on graduate employment are varying from 25% at the Faculty of Construction to 69% at

the Faculty of Chemical Technology and Metallurgy; (N.B. it shall be noted that employment data are different in the SER (p.42) and the provided annex 4 (pp. 155-162);

- programmes shall have maps of learning outcomes – this rule is followed: all programmes checked had Learning Outcomes maps;
- learning outcomes shall be in line with NQF – this rule is followed;
- programmes for bachelor level have to have a block of elective subjects, while at the master and doctoral level they may have elective subjects – programmes checked prove that this rule is also followed;
- adequate infrastructure to ensure the achievement of programme objectives and learning outcomes – situation is different at different faculties, ranging from newly equipped physics and agriculture departments to old soviet type laboratories. GTU acknowledges that infrastructure needs to be updated – it is stated in the SER “Areas for improvement” under standard #3. Unequal level of infrastructure development could pose threat to programme implementation;
- the SER praises high qualification of academic staff under GTU’s strengths: since 2016 the teaching process has been observed via visual monitoring – the majority of auditoria are equipped with video-monitoring facilities and monitoring results confirm the teaching competence of the staff. At the same time alumni and employers noted during interviews that the academic staff need to be trained in modern methods of teaching. Unified curriculum and syllabus templates provide a list of teaching methods and, as stated by the QA service, the majority of GTU academic staff have been trained to acquire these methods. The GTU Center for Professional Development also provides trainings for staff in teaching and assessment methods, in close collaboration with US colleagues, but the Center was not consulted and not involved during extra trainings for modified programmes;
- students’ academic records and attendance rates shall be assessed and may be considered as reasons for programme modification – the SER provides data on graduation rates, attendance rates (later corrected to activity rates) and academic achievement – they are alarmingly low and it is not clear how these data have been used for programme assessment and why a unified approach has been chosen as a reaction on these data.

The same regulations also stipulate rules for development of joint programmes. The SER reports only one joint programme at GTU – Master Programme in Biomedical Engineering, involving two other Georgian HEIs, whereas during interviews the panel learned about the existence of another joint master programme in logistics, with a German partner university.

GTU has an elaborate system for development and assessment of educational programmes involving academic staff, different administrative units (Department of Methodological Support of Study Process, Teaching Department, QA Service, Faculty Commissions), students and external stakeholders. All these parties were involved in the modification of study programmes, but it was clearly a top-down approach, standardizing programmes without taking into consideration discipline characteristics and available resources. Surprisingly, both administrative and academic staff, as well as students, seem to agree with this approach.

At this stage the efficiency and the sustainability of the educational programmes at GTU cannot be demonstrated, as all 169 of them have been changed shortly before the authorization visit and will be implemented in modified form from the 2018-2019 academic year.

Evidences/indicators

- Regulations for planning, adoption, assessment and development of educational programmes (14.02.2018)
- Catalogue of educational programmes http://gtu.ge/pdf/profesiulis_katalogi_1.pdf
- Regulation of the permanent commissions for the assessment of educational programmes (23.03.2016) <http://gtu.ge/quality/Files/Pdf/brdz%20kom.pdf>
- GTU Self Evaluation Report
- Interviews with GTU administrative and academic staff and employers

Recommendations:

- Follow the PDCA cycle for programme evaluation and consider subject-specific characteristics of programmes and availability of resources (both human and material);
- Provide teacher training in teaching and assessment methods and use the resources of the Center of Professional Development;
- Ensure adequate infrastructure for study programmes;
- Ensure adequate financial resources for study programmes, especially for their research components.

<p>Suggestions:</p> <p>None</p>
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <p><input type="checkbox"/> Complies with requirements</p> <p><input checked="" type="checkbox"/> Substantially complies with requirements</p> <p><input type="checkbox"/> Partially complies with requirements</p> <p><input type="checkbox"/> Does not comply with requirements</p>
<p>3.2 Structure and Content of Educational Programmes</p> <ul style="list-style-type: none"> • Programme learning outcomes are clearly stated and are in line with higher education level and qualification to be granted • With the help of individualized education programmes, HEI takes into consideration various requirements, needs and academic readiness of students, and ensures their unhindered involvement into the educational process.
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>As mentioned above, after the pre-authorization modification of all degree leading programmes, a unified structure has been applied to all curricula, irrespective of the profile of the programme. All postgraduate programmes of the 12 faculties, including classical engineering disciplines, design, chemistry and pharmacy, agriculture, law, international relations and theology, are designed in the same manner, they have the same structure, the same volume of research component, etc. (see above). Greater variety is observed at the bachelor level, where obligatory and elective components may have different volumes at different faculties/programmes.</p> <p>Teaching and assessment methods, as well as teaching materials shall consider sectoral specifics and ensure achievement of learning outcomes, as stated in the SER. Methods of achieving of learning outcomes are listed in each curriculum and relevant methods for specific programme are marked.</p> <p>A random analysis of provided syllabi showed that the majority of the textbooks used are developed by GTU professors that lead specific courses, and are published locally at the GTU publishing house. The core literature generally is in the Georgian language for programmes with Georgian language of instruction. Further titles provided under main and additional literature are in the Georgian, Russian and English languages – it is not clear if students at the bachelor level, just having their foreign language classes and aiming to achieve B2 level, may really and efficiently use the indicated literature in English and Russian. The same is true for Russian programmes, where the literature in some syllabi is indicated in the Georgian language. It has to be specially mentioned that syllabi for programmes with Russian and English languages of tuition are presented in Georgian language - it is not clear how Russian and English speaking students can understand content of these syllabi.</p> <p>Although the educational programmes were recently modified, there is still space for further improvements: outdated textbooks - from 60s-70s of the previous century - have been found in many syllabi as additional literature; the volume for student independent work could be calculated more accurately – in some syllabi up to 70 hours of independent work are indicated, while the required reading material spans only 200 pages. Absence of preconditions for some subjects is questionable.</p> <p>The learning outcomes of all programmes are clearly defined in line with the NQF.</p> <p>GTU provides quite complex administrative support for educational programmes at the implementation stage: persons/structures in charge are the dean, the head of the programme, the manager of the programme, the coordinator of the programme, the faculty QA service. A specialist of inclusive education has been hired to ensure implementation of individualized vocational programmes for students with special needs. The same approach will be used if necessary for individual programmes at the higher education level. At the moment, individual programmes have been</p>

<p>developed for Erasmus+ students returning back from international mobility and requiring some adjustments of the academic calendar.</p> <p>Information about programmes is available online in the form of a course catalogue in the Georgian and English languages.</p>
<p>Evidences/indicators</p> <ul style="list-style-type: none"> • Catalogue of educational programmes http://gtu.ge/pdf/profesiulis_katalogi_1.pdf • Provided programmes and syllabi • Interview with GTU staff and students • GTU Self-Evaluation Report
<p>Recommendations:</p> <ul style="list-style-type: none"> • Review teaching materials in syllabi with special focus on outdated literature and language of instruction; • Reconsider the volume of independent students' work in line with provided teaching materials.
<p>Suggestions:</p> <p>None</p>
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input checked="" type="checkbox"/> Substantially complies with requirements <input type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements
<p>3.3 Assessment of Learning Outcomes</p> <p>HEI has law-compliant, transparent and fair system of learning outcomes assessment, which promotes the improvement of students' academic performance.</p>
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>GTU has a system of learning outcomes assessment regulated by internal rules (Regulations for planning, adoption, assessment and development of educational programmes) and in line with national legislation. The assessment system was changed in spring 2018 from unified and rigid to more flexible and individual. The old assessment system was partly blamed for low academic achievements of GTU students – both academic and administrative staff hoped that modified assessment methods would enhance students' performance. This can only be checked after the modified programmes will have been implemented; therefore, at the current stage it is not possible to demonstrate the efficiency of the updated assessment system, as it will be implemented starting from the 2018-2019 academic year. At the same time, it is not clear if GTU has a feedback mechanism for students about goals achieved, existing gaps and ways of improvement - given the history of low academic performance it shall be considered as very important.</p> <p>A special assessment system is elaborated for the practical and research components of educational programmes. For example, for the newly introduced obligatory bachelor's project/thesis, the GTU Academic Council adopted the "Rule for conducting bachelor's project" (26.03.2018) that includes also an assessment scheme. The same is true for the master and doctoral theses assessment system – criteria and procedures are clearly defined.</p> <p>The panel had the opportunity to check randomly master and doctoral theses from past years; the quality of research is very different at different faculties, ranging from very good (physics) to quite weak (some engineering disciplines, like welding), although the assessment (scoring) for these theses was equally high. It is not clear if this is a reflection of flaws in the assessment system or of problems of academic integrity.</p>

<p>GTU has an appeals procedure in place: changes in the "Instruction of study process management" were introduced on 26.06.2018 (less than one month before the authorization visit) and so far neither students nor professors are well informed about these procedures.</p>
<p>Evidences/indicators</p> <ul style="list-style-type: none"> • GTU Self-Evaluation Report • Provided programmes and syllabi • Academic Council order 03-05-04/167 (26.06.2018) on changes in the "Instruction of study process management" • Academic Council order 01-05-04/88 (26.03.2018) "Rule for conducting bachelor's project" • Interviews with GTU staff and students
<p>Recommendations:</p> <ul style="list-style-type: none"> • Ensure that all interested parties at GTU are aware of the assessment appeal procedures; • Follow the PDCA cycle for the assessment system and adjust where necessary; • Develop the feedback system for students in order to ensure better academic performance and transparency of the assessment system.
<p>Suggestions:</p> <p>None</p>
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input type="checkbox"/> Substantially complies with requirements <input checked="" type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements

4. Staff of the HEI

HEI ensures that the staff employed in the institution (academic, scientific, invited, administrative, support) are highly qualified, so that they are able to effectively manage educational, scientific and administrative processes and achieve the goals defined by the strategic plan of the institution. On its hand, the institution constantly provides its staff with professional development opportunities and improved work conditions.

4.1. Staff Management

- HEI has staff management policy and procedures that ensure the implementation of educational process and other activities defined in its strategic plan.
- HEI ensures the employment of qualified academic/scientific/invited/administrative/ support staff.

Descriptive summary and analysis of compliance with the standard component requirements

GTU has elaborated a management policy focused on staff development, which includes:

- Human Resource Management Policy and Strategy of GTU, which describes in detail the rules and procedures used by the GTU management for administering GTU administrative, supportive, academic and invited personnel. It includes staff attraction, selection, hiring and professional development mechanisms;
- Rules of Procedure, which regulate in detail procedures about conclusion, implementation and termination of employment contracts;
- Affiliation Rule of GTU Academic Staff, which includes rules about the affiliation of the elected

academic staff with GTU and the involvement of academic and scientific personnel in educational, research, creative, performing and other important decision-making processes;

- Code of Ethics and Disciplinary Responsibilities, which defines principles of fairness and ethics in the institution;
- Other documents, e.g. orders of the rector concerning announcement of academic position competitions etc.

In GTU the Human Resource Management Department is operating, which carries out its activities in accordance to active legislation of Georgia, regulatory documents of GTU and its own rules.

The demographic distribution of the current academic staff within GTU is as follows: by gender 45 % females, and 55 % males; by age, 52% are 65 and older.

The ratio of academic staff number to the number of students is 0,12, the set benchmark is 0,12; the ratio of the academic staff number to the total number of the administrative and support staff is 0,67, the target benchmark - 0,73; retention rate of the academic staff is 100%; ratio of the affiliated staff number to the number of students is 0,05, the target benchmark 0,05; Retention rate for administration and support staff is 100%; the employment index of alumni by their qualification is 40%, the target benchmark 45%. All of these figures and targets are reasonable and can be achieved in the course of implementation of the action plan.

The development plan of GTU explains as one of the strategic goals the attraction of young people as a means for lowering the average age of the workforce.

However, there is no strategy for recruitment of highly qualified young employees to take academic and scientific positions.

GTU internal regulations provide a transparent and objective procedure of hiring of personnel, which provides to attract and employ qualified staff in academic, scientific, invited, administrative and supplementary positions. Information about vacant places is published on the GTU web site and is available to anyone interested.

GTU has clearly defined qualification requirements for academic, scientific, and administrative staff, that consider job descriptions and distribution of functions in accordance with GTU regulations and valid legislation.

In order to hire new academic personnel, the rector of GTU issues an order about the announcement of an open competition, and the Academic Council issues a decree about establishing the Election Committees.

A randomly chosen decree shows the composition of members in the committees, which comprise almost exclusively external experts. Surely, this ensures a free and objective choice of the highly qualified specialists. The question is, whether this rule provides the selection of candidates in the best interests of GTU, if there is no representative of GTU in the committee.

In 2012 a Center for Gender Studies was founded in GTU. According to its Statute, the Center is conducting events and trainings related to gender equality, to the role of women and prevention of domestic violence, it organizes information campaigns on the subject of gender etc. However, it is not clear if and whom might women contact for any need in order to get information about their legal situation.

GTU approved in 2017 "The Rule of Affiliation of Academic Staff of Georgian Technical University", under which the winner of the academic position competition shall be obliged to sign the Affiliation Agreement according to which he / she agrees to be affiliated (only) with GTU. An affiliated person is obliged to identify its affiliation only with GTU, to participate on behalf of GTU in the development and knowledge sharing process, to carry out basic educational, research / scientific activities, and the results on behalf of the GTU and be actively involved in decision making processes on education, research and other important issues. According to statistics, more than 90 % of the academic staff are affiliated with GTU.

GTU announces the existence of the Professional development and training program for employees. According to Strategic Goal 5, II Direction of Priority – "Development of quality-oriented educational and scientific-research activity" of the Strategic Development Plan of GTU, provision of teaching and learning quality is foreseen; also the Action Plan for 2018 -2020, Goal N 5, Task 5.4 provides for the introduction of innovative methods of pedagogy and learning.

Since 2011 GTU has been involved in the Erasmus Mundus Program, which covers mobility of students and also of young researchers and academic/administrative staff to higher educational institutions of European countries. Within the scope of 28 projects, GTU have implemented mobility to coordinator universities (22 academic/administrative staff), and from these universities to GTU (27 academic/administrative staff).

Within GTU a Center for Professional Development is established, which is responsible for training of the academic and administrative staff of GTU. The Center is involved with international cooperation and has been implementing some joint projects. However, there are no clear rules established by GTU about compulsory and regular trainings for the staff. Further, the teaching content of the courses on teaching methods has to be improved to meet the didactic needs of the target groups.

In accordance with the requirements of the Law of Georgia on Higher Education, in GTU the Quality Assurance Service is operating. The structure, functionality and development of the quality assurance mechanism in GTU are based on the requirements of the International Standards of Quality Management ISO 9000 Series. According to the Provision of the Quality Assurance Service, the goal of the service is "to systematically evaluate study and scientific-research activity of university, as well as professional development of staff, in case of improvement of situation based on evaluation or satisfactory situation preparation of the proposals and recommendations for its maintaining and further improvement". By the decree of the academic council of GTU about "Quality assurance mechanisms, monitoring and evaluation of efficiency" an internal mechanism of quality assurance has been established.

The Institution provided one students survey, in which about 1800 students participated, and which showed some results concerning the satisfaction of students with the academic competence of lecturers; this was only 48%. The respondents during the interviews were rather surprised about these data. So we could see, that there were no real analyses and reflections of the survey results, hence, there was no strategy on the improvement of the situation.

The staff satisfaction survey, which was announced by GTU, could not be provided.

There is no strict rule concerning the systematic and well-defined evaluation of the qualifications of academic and administrative staff, of the satisfaction and the needs of personnel, of the quality of teaching and research activities. The evaluations are carried out, but spontaneously, without a fixed time-frame (e.g. at the end of a semester, or a study year, of a calendar year etc.).

Evidences/indicators

- Georgian Technical University Human Resource Management Policy and Strategy
- Rules of Procedure of Georgian Technical University
- Ethics Code of Georgian Technical University LEPL and regulations for discipline responsibility
- Resolution N531 as of September 27, 2011 by the Academic Council on "Assessment system of professors and teachers of GTU and response
- Regulations of Quality Assurance Service of Georgian Technical University
- Quality assurance mechanisms, monitoring and evaluation of efficiency
- Statistical indicators about staff, including: academic, scientific, invited, administrative and supplementary staff
- The Rule of Affiliation of Academic Staff of Georgian Technical University
- The Statute on Professional Advancement Center
- Statute of the Center for Gender Studies.

Recommendations:

- Develop a strategy for recruiting highly qualified young employees to take academic and scientific positions;
- Establish clear rules about compulsory and regular trainings for the staff - both academic and administrative employees;
- Elaborate a systematic and well defined evaluation plan of the qualifications of academic and administrative staff, of the satisfaction and the needs of personnel, of the quality of teaching and research activities and the monitoring of the strict implementation of that plan.

Suggestions:

- The election committees for the selection of academic staff should include some members of GTU;

<ul style="list-style-type: none"> The teaching content of the courses on teaching methods, operated by the Professional Advancement Center should be reviewed and regularly updated.
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input type="checkbox"/> Substantially complies with requirements <input checked="" type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements
<p>4.2. Academic/Scientific and Invited Staff Workload</p>
<p>Number and workload of academic/scientific and invited staff is adequate to HEI's educational programmes and scientific-research activities, and also other functions assigned to them</p>
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>GTU has academic and invited staff. The ratio of the academic and scientific staff to the total number of the administrative and support staff is 0,67; the ratio of the academic and scientific staff to the of invited staff is 1,55; the ratio of the affiliated staff to the total number of academic and invited staff is 0,49.</p> <p>GTU has a scheme of time schedule for academic staff, which covers assigned functions and duties associated with learning or/and scientific and research duties. The "Instruction of calculation and distribution of academic time schedule of GTU" regulates the workload of academic and invited professors which covers learning (lecture, practice, laboratory, course project/paper, etc.) or/and research components as well as their workload in other institutions. The workload scheme is updated every semester. The scheme includes teaching, scientific, research and other workload according to academic staff's functions and duties. The affiliated persons of GTU, who are also working in other educational institutions, are obliged to notify before the start of each academic year (as well as any case of increase of work hours, within one week after such changes) about the number of work hours, among them about supervising Masters and Doctorates.</p> <p>The number of academic, invited and administrative staff provides the proper fulfillment of the functions and duties imposed about educational programs, research and other. For this purpose, the schedule for academic staff of GTU must not exceed 1100 hours, including their work load in other universities.</p> <p>GTU elaborated "The rule for planning, elaboration, evaluation and development of educational program at Georgian Technical University" on the basis of Law "On Higher Education" and of the Order № 3 of the Ministry of Education and Science on "Higher Education Programs Credits Calculation Rule" to ensure programme sustainability, while planning the number of academic, scientific and invited staff.</p> <p>The interviews showed that there is a need for better information of the academic staff about the workload of students and the academic personnel, particularly regarding the calculation in ECTS-Credits.</p>
<p>Evidences/indicators</p> <ul style="list-style-type: none"> The Rule for planning, elaboration, evaluation and development of educational program at GTU The Rule of Affiliation of Academic Staff of GTU Personal files of staff Workload of academic staff Job contracts

<p>Recommendations:</p> <ul style="list-style-type: none"> • The academic, affiliated and invited staff should be better informed about the regulations on workload based on the Bologna rules;
<p>Suggestions:</p> <ul style="list-style-type: none"> • Rethink the strict regulations of Affiliation Rules for the purpose of giving the possibility to the candidates to be more flexible in designing their working relations; • The distribution of workload of the academic, affiliated and invited staff should be updated each semester.
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input checked="" type="checkbox"/> Substantially complies with requirements <input type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements

5. Students and Their Support Services

HEI ensures the development of student-centred environment, offers appropriate services, including career support mechanisms; it also ensures maximum awareness of students, implements diverse activities and promotes student involvement in these activities. HEI utilizes student survey results to improve student support services

<p>5.1. The Rule for Obtaining and Changing Student Status, the Recognition of Education, and Student Rights</p> <ul style="list-style-type: none"> • For each of the educational levels, HEI has developed regulations for assignment, suspension and termination of student status, mobility, qualification granting, issuing educational documents as well as recognition of education received during the learning period. • HEI ensures the protection of student rights and lawful interests.
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>The University's website (http://gtu.ge), the SER and the interview results, together with sampling the contract templates provided by the University demonstrate that the regulations for assignment, suspension and termination of student status, mobility, qualification granting and recognition of education are transparent and fair and are in line with current legislation. This information is public and accessible by everyone. Information acquired from web links presented in the SER, as well as other web-links which are identified in the list of evidence stand as proof that the documentation is available in the English, Russian and Georgian languages. It has to be mentioned that according to the SER GTU has over 410 foreign (Russian and/or English speaking) students out of a total 22516.</p> <p>As identified from the interviews from few selected students, from different faculties, it is evident that GTU ensures effective and timely implementation of the above mentioned procedures in order to protect student rights and lawful interests.</p> <p>From the visit it became evident that University has a mechanism for protection of student rights and interest. As understood from the visit - Commission of ethics - is responsible for both ethical and non- ethical issues. Yet an important aspect, from the student's point of view - it was not clear for them who they should have addressed if ethical or non-ethical problems would have occurred. Students present at the interviews have pointed out that they never had issues, and they never needed to protect their interests which means, there was no need for them to address the committee of ethics and they could not discuss this with the panel. Yet, according to them, in case of some problems, first they would have addressed their Dean or supervisor for advice, rather than SSG or Department of Culture, Sport and Social Issues. (who are considered to be student support services) We would recommend the University to help students understand the value in student support services, as the responsibilities of these departments are not equally clear to everyone.</p>

Most of the international Students –as shown in the interviews during the visit - have private (Non University related) companies financing their education. Invited and academic staff has confirmed that this financing is directly related to the high motivation that students have to attend all subjects. It encourages them to have higher grades, and are more competitive. (in particular, as an example: students from Azerbaijan who are financed from *SocarLtd*).

According to the SER, GTU has 22516 Active students and 5669 students in Suspended status. Having such a high rate of students with their status suspended was a reason of concern for the panel of experts. The site visit confirmed that the University is aware of the main reason of these suspensions, which relates to the inability of students to pay for their education, or for their personal and family related matters.

As heard in interviews, there are multiple *fellowship scholarships* for outstanding performance, or non GTU related grants for education, yet many of which are only for Georgian students. International students have clearly stated that they are responsible for finding scholarships for themselves, from outside the university.

As a result, the experts believe that this could lead to one of the suggestions in this standard that relates to financial support in the form of increased scholarships (both for Georgian and international students) and such encouragement for students could potentially decrease the suspension rate in GTU. It would be to the best interest of GTU to remain in contact with its students at all times, and to encourage them to return and finish their education and graduate with a relevant degree.

The panel of experts has discussed some details from student contract with students and representatives of the Student Self-Governance (SSG); especially bullet points which relate to financial payment methods for education. The panel confirmed with the above mentioned interviewees that the contract between the HEI and a student protects student rights and lawful interests.

As clarified in the interviews with students and with the Department of Culture, Sport and Social Issues, this office is obliged to inform students about their rights and obligations included in the contract. The representatives of this department meet with the students at the time of registration and they identify main bullet points from the contract that students should be aware of, they provide them with all relevant information with regard to the educational programs, extracurricular activities, the structure of GTU and the Ethical-Code - which is as well publicly available.

The Ethical-Code is communicated to all students, and according to the interviews they all feel well-informed about their rights and responsibilities and the consequences of cheating or plagiarism. In case of any violation of the Ethical-Code, the case is brought to the Commission of Ethics – as per the regulations.

The SSG is the second department that is responsible for student support services. One third of this board membership are students.

Evidences/indicators

- <http://gtu.ge>
- http://gtu.ge/Study-Dep/Files/Pdf/stud_kont_form_mobil_instr_SD_10082017.pdf Instruction for formation of contingent and mobility of GTU students - GEO
- http://gtu.ge/Eng/Pdf/Instruction_for_formation_ing.pdf Instruction for formation of contingent and mobility of GTU students - ENG
- http://gtu.ge/Eng/Pdf/Instruction_for_formation_ru.pdf Instruction for formation of contingent and mobility of GTU students – RUS
- http://gtu.ge/Study-Dep/Files/Pdf/martvis_%20instruqc_18_SD.PDF Teaching process management instruction in GTU – GEO
- http://gtu.ge/Eng/Pdf/Instructions_for_managment_ing.pdf Teaching process management instruction in GTU – ENG
- http://gtu.ge/Eng/Pdf/Instruction_for_management_ru.pdf Teaching process management instruction in GTU – RUS
- <http://gtu.ge/AboutStu/Ethical-Code.php>
- <http://gtu.ge/pdf/dadgenilebebi/dadgenileba856.pdf>
- Meeting with students; Alumni; with Academic Staff; with University representatives; with representatives of IT department; with the IQA office; Student Self Governance (SSG); with Department of Culture, Sport and Social Issues;

<p>Recommendations:</p> <ul style="list-style-type: none"> • Help students understand the value in student support services, as the responsibilities of these departments are not equally clear to everyone.
<p>Suggestions:</p> <ul style="list-style-type: none"> • GTU needs to introduce new methods which will decrease the rate of students with suspended status. Financial support and/or scholarships could be one of the main possibilities. Both Georgian and international students should be eligible for these scholarships.
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input checked="" type="checkbox"/> Substantially complies with requirements <input type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements
<p>5.2 Student Support Services</p> <ul style="list-style-type: none"> • HEI has student consulting services in order to plan educational process and improve academic performance • HEI has career support service, which provides students with appropriate counselling and support regarding employment and career development • HEI ensures students awareness and involvement in various university-level, local and international projects and events, and supports student initiatives • HEI has mechanisms, including financial mechanisms to support low SES students
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>GTU's Student Support Services are very comprehensive and include the Student Self-Governance (SSG) and the Department of Culture, Sport and Social Issues, which are both responsible for students with each having its own mandate. Both of them have multiple responsibilities - some of which, they tend to manage well, and they are both successful in improving their own quality in certain aspects. There are few points that have to be identified as possible best practices, such as for example a new app, that they introduced, called "GTU Tables", which provides all relevant information directly to students. This includes weekly schedules, programme descriptions, all electives and it even allows to set an alarm for certain subjects and/or possible exams or presentations. This tool could be identified as a possible best practice, because it has its advantages but lacks at certain aspects, which could easily be improved. All Georgian language students have identified this app as a main tool that they are proud of and they described it as a "huge advantage" which simplifies information exchange and eases the access to updated schedules and program details. This app works both ways. It is the main source for gathering information for the university as well. It is used to share information with students and acquire answers from students via questionnaires, which are prepared by the Academic personnel, and the QA Office. Yet, in regard to this matter, it must be noted that in order to access this app, the student needs to login via his/her personal credentials. This means that information that students provide to the University is NOT anonymous. Students are aware of it. Yet it has to be noted that in GTU there is no other method to acquire anonymous information from students, except for paper-based assessments which are not conducted regularly. The results of the provided questionnaires are mainly based on the information gathered via this app. In defence of the University, it has to be mentioned that the information which is acquired from student questionnaires is available to very few people in the IT department, and it is protected. (A recommendation regarding the anonymity of questionnaires and the problems that could be caused because of it can be found in standard 2.1.)</p> <p>This app - GTU Tables - was designed to function in three languages, Georgian, Russian and English. Yet it is not as useful for international students and the reason for that is, that despite the fact that the app itself is designed in three languages, all information inside the app, regarding schedules,</p>

questionnaires, study program and/or updated news feed, functions only in the Georgian language. As international students have described it, this app is completely useless for them. The panel of experts agrees, that if this app will be able to function in all languages similarly as it functions for Georgian speaking students, and all information will be available in foreign languages as well, this tool could easily be described as the best practice in student support services which GTU has created. Yet as it seems, the international students find it hard to be equally involved in all aspects of students support services that GTU provides them with.

It is a fact that the SER and the documentation presented to the authorisation panel seriously lack the evidence of involvement of GTU alumni in any academic matters; however, the site visit has demonstrated evidence of the involvement of graduates in the process of decision making for the purpose of improvement of the programs. In regard to the involvement of international students and their support services, there are other matters of concern. The fact that GTU has SSG and Department of Culture, Sport and Social Issues, both responsible for students, in case of any need of assistance, be it information regarding scholarships, extracurricular activities or job vacancies, the students mainly address their supervisors and deans of the faculty, rather than addressing the student support services. Most of the students have stated a wish to have a single person responsible for communicating with them. According to the international students it would be preferable if the person in charge would be fluent in a foreign (English) language, as they sometimes face difficulty in acquiring the needed information from their faculty members, as they are their main source of information, and some of them are not fluent in foreign languages. Moreover, some of the international students have stated a wish to be able to learn and improve the Georgian language in the University, and to improve their communication skills. In regard to this aspect, it has to be noted that GTU already has a *Georgian Language Club*, (which was identified by the representatives of the Students Self-Government) and in spite of having many international students interested in this extracurricular activity (according to statistics presented by the university during the interviews), none of the international students at the interviews knew about this opportunity that the university provides to them. The existence of the *Language Club* was not mentioned in any documents which were provided. It should not be a surprise that it stands as a concern and implies that GTU does not have a well-managed information exchange system among University representatives who are responsible to deliver this information to students and actual International students who are accepted at the GTU. International students should be a main focus for improvement, as apparently for Georgian students *GTU tables* is a big help for communication.

According to the SER, the Employment Office, or the Career Services are among the many responsibilities of the Department of Social Affairs, Sport and Culture activities. The main evidence that the SER offers is the online web-page *cvonline.ge* (in the SER it is erroneously written as CV.ONLINE.GE, which does not function). This is meant to be a network, where it is possible to connect students with potential employers. On one hand, this website seems to have a great potential, yet its benefits could not be assessed, as it is new and it still operates in test mode. If improved, it could manage GTU's large network of employers and the job vacancies and if administered further it could help students to prepare for potential job vacancies, but this could be evaluated only at a later time. On the other hand, in the present, there are few aspects that do not function the way they should. As seen during the site visit, and interviews, the students are not keen on using this website. Similarly to the students, employers also identified few relevant aspects. First of all, they have never used this website themselves, as they prefer to be contacted directly from the University and/or contact the University if they need a student with specific skills. The second issue is that, as they have mentioned, there is no single person or representative that they are aware of that is in charge of career support. They are always contacted by different people from GTU. As suggested by both students and employers, the appointment of a single representative, or a single office, in career advancement services and career support for student graduates, should be another recommendation for possible improvement, in addition to the *cvonline.ge* website, which GTU has introduced and should definitely keep improving it.

The SSG in GTU is involved in the planning of the educational processes and the improvement of academic performance, managing extracurricular activities. GTU students are strongly encouraged by the SSG to get involved in some of the many extracurricular activities, 14 different clubs, sports or cultural activities offered among the university activities. It is possible to submit the documents for becoming a member of the SSG from the day of the enrolment at the university, with the only requirement being to be accepted at GTU, and to have a Personal ID.

After being accepted at GTU, it is the responsibility of the Department of Social Affairs, Sport and Culture to run an introductory meeting, during which the new intakes receive all relevant information about programmes and learning itineraries, laws and regulations, their rights and duties (including ethical issues), the library and IT services; all entrants have free access to personal GTU e-mail

address. The SSG makes sure that the student support services are continuously improved. They provide international students with fliers and booklets with all information about Georgia or what they could potentially need. Yet, as the panel found out during the site visit, this information is not enough to keep foreigners updated about daily events. Despite the fact that the SSG organizes a variety of activities which are targeting Georgian and international students., not all international students are equally informed about such university activities in time. The reason behind this could be that some web pages which are meant for students (<http://stunet.ge/>) are mainly in Georgian language and are not directed at international students.

Even though GTU has an appeals procedure in place, defined in the "Instruction of study process management", because changes to this document were made in June 2018, neither students nor teaching staff are well informed about the procedure.

The SSG assists students who need financial support to acquire fellowship scholarships for outstanding performance, but as already pointed out in the previous standard many scholarships are not available for international students as they are for Georgians. Similarly, the information regarding scholarships, funding, grants are mainly regulated as exceptions, and are not clearly defined. Hence the panel recommends that GTU should start formalising some of its processes regarding scholarships and create a standard that will be public, available for everyone equally and will be giving equal opportunities to Georgian and international students.

Yet another suggestion to the GTU is to focus on the number of students with individual study plans. (eligible for those students who are employed in their profession and have no possibility for attending lectures – thus individual study plans are created which frees them from attending lectures) We don't know exact numbers, however as identified through the interviews, it's a frequent and recurring case at the university. It must be noted that individual study plans shall be offered to the selected few, rather than to the majority of students. In our opinion it will have direct impact on the learning outcomes on a larger scale.

Evidences/indicators

- <http://gtu.ge>
- Meeting with students; Alumni; with Academic Staff; with University representatives; with representatives of IT department; with the IQA office; Student Self Governance (SSG); with Department of Culture, Sport and Social Issues; Site visit.

Recommendations:

- GTU has to appoint a single point of contact (person or unit) that will be responsible for Career Support Services, for communicating with employers, and with alumni, and for helping students to find a proper job;
- Improve GTU Tables by making information available in the English and Russian languages as well;
- Introduce anonymous survey for students;
- Start formalising some of its processes regarding scholarships and create a standard that will be public, available for everyone equally and will be giving equal opportunities to Georgian and international students.

Suggestions:

- Individual study plans should be only for the selected few rather than a recurring/common practice offered to larger numbers at the university.

Best Practices (if applicable):

None

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

6. Research, development and/or other creative work

Higher Education Institution, considering its type and specifics of field(s), works on the strengthening of its research function, ensures proper conditions to support research activities and improve the quality of research activities

6.1 Research Activities

- HEI, based on its type and specifics of its fields, carries out research/creative activities.
- Ensuring the effectiveness of doctoral research supervision
- HEI has public, transparent and fair procedures for the assessment and defense of dissertations which are relevant to the specifics of the field

Descriptive summary and analysis of compliance with the standard component requirements

GTU realizes the integration of teaching, research and industry, collaborates with economic agencies and supports innovative development. GTU has identified the research priorities and areas. The university is focused on fundamental sciences, applied sciences and innovative technologies. GTU connects research with the high-tech industry.

The dynamic of funding allocated for research, ensures performing all PhD programs and research activities which GTU has indicated in the SER and in the strategic and action plans.

In collaboration with local and foreign companies, many products have been developed and implemented: A total of 53 products are listed in SER.

The following 21 products were examined briefly during the site visit and in interviews with the research institutes. These are high quality (on average) products. Further, some of them are unique (e.g. Original folding space reflector, with new types of drivers and prototypes for quick assembly bridges for multiple applications).

- SCADA laboratory training apparatus;
- High-temperature ceramic superconductor and four-probe samples;
- Electro hydraulic device for processing of nanoparticles (magnetic nanoparticles enclosed with ascorbic acid; magnetic nanoparticles powder);
- Position sensor of angular motion;
- Adaptive microprocessor system for monitoring temperature and humidity in multi-layer storages;
- Frequency regulation equipment;
- Electric tuning fork;
- Diamond pipe type drills - for processing of 12 - 400 mm diameter natural stones, concrete, reinforced concrete, ceramic, glass etc.;
- Diamond discs - to cut 300 - 600 mm diameter natural stones, concrete, reinforced concrete, asphalt, ceramic etc.;
- Thermal insulation materials and concrete fillings for energy efficient buildings;
- Accelerated and high-grade concrete;
- Original folding cosmos reflector, with new types of drivers and prototypes for quick assembly bridges for multiple applications;
- Designing and manufacturing of various analytical tools and automated information-measuring systems: Conductivity meter CEL-1M2 to measure any type of specific conductivity; kidney local hypothermia machine, which is used in surgery and urology; device for measurement of corrosion and restoration potential in different ions; PH meter to measure corrosion and restoration potential in water ions; natural gas leakage meter;
- Machines for production and treatment of hardwood materials, new tools and instruments;
- System of regulation of water level and temperature regulation in reservoirs, for complex automation of water purification;
- Electricity wireless transmission system;
- Electricity transmission system to long distance;
- Fridge operating based on the principle of electromagnetic resonance;
- Aerodynamic robot;
- Luminescence and LED light modified management system;

- Micro processing ion metric device on graphic display base with Georgian interface.

GTU has long standing collaboration with major telecommunication, energy generation, energy distribution, metallurgy, mining and other companies of Georgia. The interview with the management of these companies clearly indicated their commitment to GTU as a main collaborator in the field of technical expertise and staff training. More than 900 orders have been received over the last five years, exceeding 3 million GEL, and have a growing tendency. At the same time, these companies are the main employers of GTU graduates.

The main research funding source in GTU is the government funded research institutions (18.5 Million GEL). Besides this, research funding based on the grant policy, includes funding from Shota Rustaveli National Foundation (1.5 Million GEL) and international scientific funds, internal university grants (2 Million GEL) and PhD and MS student grants. The total number of funded grant projects from 2013 is 200. Among these, international projects including consortia with Cranfield University - England; Pierce Technological University - Greece, "Intelligentsia" Consultants - Belgium; France (Grenoble Academy); Portuguese Promoter Country (Spanish University); Georgia Partner Country Moldova - Moldovan State University; Azerbaijan Technical University; Romania - Jassi University; Greece - Agricultural University; Italy - Rome Uninetown University; Spain - Girona University; Bulgaria - Plovdiv Agrarian University, Sweden - Stockholm University, Ukraine - Taras Shevchenko University, Germany - "Steinbeis Innovation gGmbH, SIG" Coordinator; Romania - Cluj-Napoca Technical University; Slovakia - Slovak Agricultural University in Nitra; Ukraine - NTUU KPI; PEWI; NIP Ukraine; Belarus - BSATU.

GTU has memoranda for collaboration and student exchange agreements with 200 foreign and local organizations.

GTU hosted 14 scientific conferences (most of them international) during 2018. The level of scientific conferences is high but more GTU scientists and students should participate in these, more actively. This could be done by ensuring that travel funds are present in internal and other grant projects and also in the budgets of the research institutes.

GTU academic and scientific staff publish articles in university journals, as well as in high-impact factor and other scientific periodicals. The total number of publications is high. The university web site contains an updated base of academic and scientific staff of Faculties and Research Institutions, including monographs, textbooks and supporting textbooks, papers published in Georgia and abroad, local and international conferences, inventions registered in Georgia and abroad, GTU and Shota Rustaveli National Science Foundation and international grants and other types of information.

GTU is ranked among Georgian Universities number 11 according to Webometrics (<http://www.webometrics.info/en/Europe/Georgia%20>)

The PhD Theses evaluation and its defense at GTU are regulated by the Doctorate Regulatory Provision and the Dissertation Board Provision, by virtue of which public availability, transparency and legitimacy are ensured. We examined about 20 PhD and Master thesis during the visit. Most theses were low quality. References were made to old literature (like from 1960 es). In many of them cited literature was just internet web pages. However, there were few high quality thesis in Physics.

The ratio of PhD students and their supervisors in GTU is presented in the SER appendix and is 2,16 in average. Our interviews confirmed this ratio. According to interviews, supervisors are satisfied with their personal workload regarding PhD student supervision. PhD students themselves say that they are satisfied by the quality of supervision.

The Intellectual Property (IP) Protection Unit should be modernized. Currently, it is not suited to interact with new Georgian patent office and international IP offices (like WTO, US patent office, EU patent office etc.). Intellectual property ownership (usually university) and inventor share percentages should be defined in individual contracts with academic and research staff.

Evidences/indicators

- HEI mission;
- Scientific/creative activity of HEI academic and scientific personnel <http://science.gtu.ge/>;
- Memoranda signed with the international and local institutions;
- 7-year plans of scientific research institutes;
- GTU annual reports;
- Current and implemented research projects (<http://science.gtu.ge/cat/1>);

- Order №01-05-04 / 44 of 9 March 2018 of the GTU Academic Council, "GTU Doctoral Degree";
- "Regulation of University Dissertation Board" of GTU, №2324 of February 27, 2017;
- Ratios of Leaders and Doctoral Students;
- Results of Student Survey conducted by GTU;
- Order №2356 of March 29, 2017, on Academic Council of Georgian Technical University "On Procedure for Presentation, Review and Evaluation of Project Proposals of Grant Nomination";
- Scientific Conferences of GTU (<http://gtu.ge/Science/Conference/>);
- Information on Government funded projects (<http://science.gtu.ge/cat/14>);
- Products realized at GTU;
- GTU Monographs - <http://publishhouse.gtu.ge/ge/cat/mono>;
- Manuals - <http://publishhouse.gtu.ge/ge/cat/books>;
- "Ratio of Heads and PhD students in 2015-2016" and "Ratio of Heads and PhD students in 2016-2017";
- The University internal grants (<http://science.gtu.ge/cat/13>)

Recommendations:

- Reorganize the PhD defense and award process. Significantly increase the number of the dissertation council members and make the participation of more external members mandatory. The defense of a PhD thesis must be conducted before a thesis committee, which must include external experts. PhD theses have to be approved not only by the corresponding faculty councils but by the academic council or some other central unit of the University.

Suggestions:

- Define more precisely the meaning of "high impact factor journal" and generally the requirements for the PhD thesis.
- Increase participation of Georgian scientists in scientific conferences organized by GTU and generally. Make sure that travel funds are present in internal and other grant projects and also in the budgets of the research institutes.
- The Intellectual Property Protection Unit should be modernized. Intellectual property ownership (usually university) and inventor share percentages should be defined in individual contracts with academic and research staff.

Best Practices (if applicable):

- GTU has long standing collaboration with major telecommunication, energy generation, energy distribution, metallurgy, mining, agriculture and other companies of Georgia. The interview with the management of these companies clearly indicated their commitment to have GTU as their major collaborator in the fields of technical expertise and staff training. At the same time these companies are the main employers of GTU graduated students.
- GTU has well organized database of articles, patents and grant projects searchable by scientific institutes, author names, dates etc.

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

6.2. Research Support and Internationalisation

- HEI has an effective system in place for supporting research, development and creative activities
- Attracting new staff and their involvement in research/arts-creative activities.
- University works on internationalisation of research, development and creative activities.

Descriptive summary and analysis of compliance with the standard component requirements

Funding of research and development in GTU includes: Internal University Grants (in 2012-2017 amounted to 2.367.932 GEL), Co-financing by Shota Rustaveli National Science Foundation, GTU (in 2012-2017 amounted to 1.273.654 GEL) and State Funding (in 2013-2017 amounted to 18.574.073 GEL).

There are public, transparent and fair procedures for research funding at GTU. Specifically, according to the Representative Council resolution #2 of April 3, 2017, the number "Rules for the Submission, Consideration and Evaluation of Project Proposals".

The above mentioned rule aims to increase and improve scientific potential and research quality, staff and students' intellectual, creativity activities, promote the development of science and its commercialization. A project can be submitted by anyone from scientific research entity and the University. Only the university staff and students can be members of an implementing group. The projects are funded annually by the university or the faculties, from their own budgets. In addition, projects may be financed from other sources that are approved by the legislation. Winning projects are identified on the basis of the competition, which is conducted by the Competition Commission. Projects are evaluated by the established rules and criteria. Evaluation criteria are directly related to the quality of projects and the Commission should have the necessary information for their objective assessment. After the nomination of winners by the Competition Commission the results are published on the university web-site. Internal grants are a very good practice. They allow to solve small research and development problems which are not worth of writing large project proposal to external funding source.

By the above mentioned rule the created product is a joint ownership of the project authors and the university. In case of need, state, international and other competitions review of a proposal that has to be applied on behalf of the University is provided by a commission that is created according to this provision. However, the meaning of joint ownership is not clearly defined.

The Central and Faculty Libraries of GTU give an opportunity to the university personnel and students to take advantage of international scientific publications and monographs. The library is regularly supplied with scientific publications, monographs and textbooks. There is access to international scientific and technological databases. However, the central library workstations are 8 years old and should be renewed at least partly.

Young researchers and students are actively involved in international collaborations with CERN, JRC, JINR etc.

Since 2015, new programs have been launched - Horizon 2020 (previously FP7) and ERASMUS+. In Erasmus Mundus and Erasmus+ exchange projects professors and teachers participate, together with students and administrative staff; these have an opportunity within the program to give lectures or seminars at partner institutions of higher education, improve their skills, get experience and contribute to the University's internationalization process. Foreign Professors were invited from world leading universities (43 professors: USA, Germany, Austria, Italy, Netherlands, Canada, Switzerland, Poland, Portugal).

GTU actively participates in the Tempus program aimed at facilitating higher education reform and developing co-operation in EU partner countries, envisaging the introduction of European standards, development of modern educational programs, etc. GTU implemented 15 projects of the Tempus Program.

GTU participates in the EU-funded FP7 program, which provides support for research. The University has implemented six projects of the Seven Framework Program for Research and Technology Development.

The University has successfully implemented the ERASMUS+ application process and is currently implementing 3 projects for grant institutional development of Erasmus+ KA2 and 13 projects have been submitted for the competition.

GTU has partnership relationships with leading educational and scientific research organizations around the world. It has signed more than 200 memoranda with local and international higher education institutions and organizations, including in the US and Europe as well as Asian countries.

GTU is providing information on the projects on the GTU Web, Social Media and STUNET video portal.

The University facilitates organization and coverage of international scientific conferences, symposia, seminars and other events at the university in the framework of research support and internationalization.

GTU is a member of Thomson Reuters International Web Site, which enables academic, scientific staff and students to use hundreds of high-profile publications. The network also provides the possibility of

establishing a connection with the authors of the works; this is very important for strengthening international relations.

For the implementation of high standard research and teaching, GTU is planning to introduce new organizational units, which will facilitate the establishment of institutional networks among higher education institutions at regional and international levels. New organizational units Faculty, University Institutions will be established – for Doctoral and Master Phases (Schools and colleges). For Highly Rated Research Groups - "Excellent Clusters" (Excellent Cluster) and knowledge transfer structures, which will ensure the identification of new research topics, their systematic support and strengthening. Furthermore, modernization and strengthening of traditional organizational units (faculty, field department), where different types of study-research that is essential for the functioning of the HEI are performed. At the same time, traditional structures should cooperate with new structures in the best possible way, that is a prerequisite for the complexity and dynamic development of science. Thus, the different levels and variants of the matrix organization are essential components of a modern university.

GTU has a student engineering academy, the Center for Supporting Young Scientists and Students Innovative Activities "Together", "Student Service Center". The above mentioned service facilitate the research potential of young people and encourage their interest in engaging in research. The university promotes students' creative activities.

GTU is a member of many international networks or associations, including the European Association of Universities (EUA), International Telecommunication Union (ITU), Black Sea Universities Network (BSUN), American College and Universities (AAC & U), etc.

GTU has successful partnerships with leading educational and scientific research organizations such as: Japan's High Energy Accelerator Research Organization - KEK, the German Juelich Research Center, CERN - European Organization for Nuclear Research (Switzerland), the Joint Institute of Nuclear Research - JINR (Dubna, Russia), the Institute of Lyell Institute of Nuclear Physics - INFN and others.

Four joint projects were successfully implemented within the framework of the mutual agreement between GTU and CMS (LHC, CERN). In addition, GTU is involved in the Millennium Challenge Fund - Georgia project, which includes San Diego State University (SDSU) and Georgian Technical University, Iv. Javakishvili Tbilisi State University and Ilia State University implement three bachelor's educational programs in Georgia. There are also two educational programs of ABET Accredited Bachelor's Degree Program: Civil Engineering and Construction Engineering.

Within the framework of the memorandum signed between GTU and Iowa State University, the universities implement joint projects, including the International Information Fund, USAID and NATO-funded projects. Within the framework of the agreement concluded with the Iowa State University, GTU is implementing educational programs for bachelor's degree in agriculture, agronomy and soil and water engineering. The agreement envisages the introduction of existing programs in the Iowa University within the framework of the partnership. Foreign colleagues were invited from Iowa University to GTU.

Since 2015, the universities of Wiltshire, Flensburg and Brandenburg and the GTU Logistics Department are carrying out an educational Bachelor's Program for Logistics.

Within the framework of the Georgian-German scientific bridge, GTU is cooperating with the German Juelich Research Center. The goal of cooperation is to facilitate the involvement of undergraduate, master and doctoral students in the leading scientific-research centers of the world by sharing experience including scientific and educational projects in the research center of Juelich. In 2012-2015 the grant competition of Shota Rustaveli Scientific Foundation and Juelich Research Center was announced and the GTU won graduates and PhD students conducted research in Juelich. 2010-2017 49 students of GTU spent their internship at the Juelich Research Center. With the support of the Institute of Neuromedicine and Medicine of the Center, GTU is conducting a program on "Medical Physics".

Along with A.Tsereteli State University and Tbilisi Medical University, GTU performs a joint master's educational program on "Biomedical Engineering" that was developed in the framework of the EU TEMPUS project - BME-ENA Biomedical Engineering Education Tempus Initiative in Eastern Neighboring Area (Project number:543904-TEMPUS-1-2013-1-GR-TEMPUS-JPCR). Within the framework of the project the laboratory base is improved. The program passed through accreditation of the Accreditation Council of Educational Programs № 125, 25.08.2010. Accreditation was granted

for 7 years.

Within the international program "Autumn Lectures in Tbilisi", 2013 and 2015 "Autumn Lectures in Tbilisi-1" and "Autumn Lectures in Tbilisi -2", students of the universities of Italy and Germany participated along with GTU students. Lectures were delivered by professors and teachers of the Juelich Research Center. Within the scope of the contract, the Juelich Scientific Research Center handed over technical equipment to a GTU laboratory, that will provide international standards research projects.

In cooperation with Georgian-Belarusian companies, for the first time in Georgia, the production of passenger and cargo lifts relevant to modern and European standards started at the GTU Scientific-Industrial Center.

The list of international grant projects, international collaborations and student exchange is impressive. During the site visit the panel came across many such examples. These are also well presented on the web page <http://science.gtu.ge/>, which has well searchable databases (unfortunately only in Georgian).

Evidences/indicators

- Procedure for presenting, reviewing and appraisal of proposals of grant nomination approved by the Representative Council on the basis of Resolution No. 2 of April 3, 2017;
- Mission of the University;
- University Charter;
- Strategic and Action Plans for University Development;
- Budget of GTU;
- Results of Student Survey conducted by HEI;
- Internationalization policy and strategy;
- Decree No. 2 of 3 April 2017 of the Representative Council on Procedure for Submission, Review and Evaluation of Project Proposals of Grant Nomination;
- The dynamics of research, development and financing of creative / performing activities envisaged in the budget for the last 5 years;
- Mechanisms supporting researches and creative activities;
- Young researchers (MAs, PhD students) initiatives supported by the University;
- Results of Student Survey conducted by HEI;
- Joint research / artistic activities with international organizations;
- Institutional Cooperation with International Research Units;
- Involvement of staff and students in international scientific / artistic and creative activities;
- Statistics of co-facilitation of foreign and local professors;
- GTU student conferences per year;
- International project for the management of robots and automated vehicles;
- Provision of students of the Engineering Academy;
- GTU's provision of "Center for Supporting Innovative Activities of Young Scientists and Students - Together";
- Tbilisi Open Championship in Computer Sport (World Cup Qualifying Tournament) GameFest 2017 - Festival;
- Student conferences collections;
- International links of the research Institutes and Faculties of GTU;
- Atlas Project of the European Center for Nuclear Studies;
- Protocol of Intentions on Establishment of Livestock Combined Production in Georgia (GTU from Georgia and "MogiliovLiftMash" from Belarus);
- Institutional Cooperation with International Research Units;
- GTUs contracts with international organizations;
- Agreements with International Research Centers and Universities;
- Students' success in competitions and other activities under international cooperation;
- Joint Master and Doctoral programs or the plan to find and contracting potential partners to perform them;
- Foreign and local professors' statistics, student certificates "Georgian German Science Bridge" <http://collaborations.fz-juelich.de/ikp/cgswhp/cgswhp12/index.shtml>

Recommendations:

None

Suggestions:

- It will be good if GTU involves more young academic and scientific staff in research and development.
- Central library computers are slow. They are 8 years old and should be replaced, at least partly.

Best Practices (if applicable):

- GTU provides internal grants worth more than 2.000.000 GEL per year for research and development.
- GTU participates in many international funded research projects.
- GTU has established long standing strategic collaboration with world class research centers, such as the Juelich Research Center (Juelich, Germany), the particle physics Research Center CERN (Geneva, Switzerland), and JINR (Dubna).
- Autumn lectures, during which 20 professors from the Juelich Research Center regularly come to GTU and give lectures for GTU and other Georgian university students. Regular workshops within the project "Georgian German Science Bridge".

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

6.3. Evaluation of Research Activities

HEI has a system for evaluating and analysing the quality of research/creative-arts activities, and the productivity of scientific-research units and academic/scientific staff.

Descriptive summary and analysis of compliance with the standard component requirements

Decree №2356 of March 29, 2017 of the Academic Council of Georgian Technical University "On Procedure for Presentation, Review and Evaluation of Project Proposals of Grant Nomination" sets the rules for evaluating proposals to be submitted for external funding to national and international agencies.

The Regulations of Quality Assurance Service of GTU include in its Art. 3 – 2, P.h the rule about assessment of scientific-research works at GTU. However, evidence of such an assessment having been conducted has not been made available.

GTU has developed its own system for evaluating and analyzing the quality of research. This is an automatic system for the evaluation of academic and research staff contribution in internal grant projects which was developed on the basis of internal funding (project number 17/04/2016). It contains developing of evaluation methods, evaluation criteria and evaluation personnel lists. It describes evaluation process and gives the resulting lists of evaluation criteria, evaluation results and evaluation expert names. Developed system is automatic and contains interfaces which are given in above cited report in the form of pictures (computer Print Screen).

GTU has developed a well searchable database of research products (<http://science.gtu.ge/>). The database is searchable by institutions, author names, dates, publication types (article, patent etc.), grant projects (internal, external, international) conferences etc. It also has a statistics section, where one can find all of the above in numbers. Unfortunately, the database is in only Georgian language.

GTU systematizes and publishes summary information on the research projects of the faculties and research institutes on its website (<http://gtu.ge/Eng/Research-And-Development/achievements/projects-of-scientific-research-centers.php>); it also publishes bibliometric information, including the citation index of its academic and scientific personnel (<http://gtu.ge/Eng/Research-And-Development/achievements/citation-index-of-academic-and-scientific-personnel.php>).

The text on 6.3 in the SER is short but there are quite a lot of supporting documents attached as files. Surprisingly evidence/ indicators were given without corresponding links in 6.3 of the SER. GTU has made analysis of grant projects received from RSNSF and international grants with outcomes and recommendations (attached files). University has made analysis of research activities of faculties and

research institutions including annual reports of all research units and also some additional information on such important research units as institute of Cybernetics, Institute of Quantum Physics and Engineering technologies and Nuclear Engineering center. The Georgian version of documents contains agreements of co-supervision (to GTU PhD students) signed by foreign scientists. Documents themselves are in English. There is a file containing the description of GTU products (in Georgian) with pictures from the exhibitions (many of products described in 6.1 are present). GTU regularly participates in "Expo Georgia".

These evaluation results are used for the further development of research activities. Particularly: to formulate 3 and 7 year action plans of the research institutions; to work more actively for stimulation of patenting for innovative technological projects, for selection of new target partners, for more intensive participation in international and local technological projects.

Evidences/indicators

- Rule on submission, consideration and evaluation of project proposal of grant nomination (grant financed under the university budget) <http://gtu.ge/Eng/Research-And-Development/services-of-scientific-field/grant-regulation-mechanisms.php>, (English);
- Regulation mechanism of university grant <http://gtu.ge/Eng/Research-And-Development/services-of-scientific-field/grant-distribution-rule.php>,(English);
- Auxiliary mathematical model for grant evaluation (the stage of awarding grant) and evaluation of final results and appropriate software <http://ideametrika.gtu.ge/> (Georgian);
- Annual reports of the faculties (departments) of GTU's structural units, research institutions http://gtu.ge/Science/research/Research_institutes_faculty_scientific_reports.php (Georgian) and short annotations in English <http://gtu.ge/Eng/Research-And-Development/achievements/budget-projects-of-research-institutes.php>;
- Citation indices of scientific and academic staff of GTU's research institutes and faculties (staff citation study is considered under four systems) <http://gtu.ge/Eng/Research-And-Development/achievements/citation-index-of-academic-and-scientific-personnel.php> (English);
- Total activities of faculties and research institutes;
- Grants awarded by Shota Rustaveli National Science Foundation <http://gtu.ge/Eng/Research-And-Development/achievements/shota-rustaveli-national-science-foundation.php>;
- International grants;
- GTU's internal university grants <http://gtu.ge/Eng/Research-And-Development/achievements/internal-university-grants.php>;
- Annotations for grant projects;
- Reports of internal university grants http://gtu.ge/Science/research/Internl_university_grants.php;
- Brief annotations of the results of research institutes http://gtu.ge/Science/research/saertashoriso_proegtebi.php (Georgian);
- Finished end products of commercial value obtained as a result of university scientific researches;
- Analysis of results of Shota Rustaveli National Science Foundation, International grants, internal university grants and projects with commercial value.
- Scientific conferences at GTU <http://gtu.ge/Eng/Research-And-Development/achievements/conferences-of-gtu.php> (English)
- European research and Innovation Program description FP7-INCO-2013-9 http://gtu.ge/Science/research/pdf/11kervalishvili_reziume_evrograntebi.pdf
- JINR activity description http://gtu.ge/Science/research/pdf/birtvuli_gaertianeba_tavxelidze.pdf (Georgian).
- CERN activity description http://gtu.ge/Science/research/pdf/evropuli_centri_atlasi_tavxelidze.pdf (Georgian).

Recommendations:

- Place CV and publication list of academic and research staff at the web page.
- Organize creating Google Scholar profiles for research staff.
- Include impact factor of the journal (Scopus impact factor or ISI impact factor) in the bibliographical description of research articles at GTU database (<http://science.gtu.ge/>).

Suggestions:

- Considerable part of information existing in attached files and on the GTU web page was not given in the SER. Corresponding web page links were not given. More attention should be paid to compiling the SER.

Best Practices (if applicable):

None

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

7. Material, Information and Financial Resources

Material, information and financial resources of HEI ensure sustainable, stable, effective and efficient functioning of the institution, and the achievement of goals defined through strategic development plan.

7.1 Material Resources

- The institution possesses or owns material resources (fixed and current assets) that are used for achieving goals stated in the mission statement, adequately responds to the requirements of educational programmes and research activities, and corresponds to the existing number of students and planned enrolment.
- HEI offers environment necessary for implementing educational activities: sanitary units, natural light possibilities, and central heating system.
- Health and safety of students and staff is protected within the institution.
- HEI has adapted environment for people with special needs

Descriptive summary and analysis of compliance with the standard component requirements

The SER of GTU did not provide the panel with sufficient information on the material, library, information and financial resources of the Institution. The informational gap was filled by the expert panel during the site visit and interviews. However, the information presented in the SER in many cases did not match with the results of the interviews. Besides, not all participants of the interviews were well informed about the processes run in the institution and in some cases the information provided was contradictory.

The analysis of the supporting documentation revealed that material resources – fixed and liquid assets – of GTU are under the ownership or lawful possession of the institution and they substantially serve to the educational and research purposes of the university which include a big range of the disciplines from engineering to law, humanities and social sciences. The material resources of GTU also correspond to the number of the existing and planned student body.

The list of the buildings under the ownership or lawful possession of GTU is very impressive and it can be considered as one of the strongest sides of the Institution. The expert panel visited 9 buildings of different faculties with a big range of laboratories and reading rooms, and also the central library. The site visit revealed that the visited buildings of GTU have all compulsory sections, educational and auxiliary spaces (which are separated based on the measurement drawings of the buildings).

A part of the visited buildings is already renovated and corresponds to the best international standards and practices, but a big part of the buildings still needs renovation. Despite the fact that the improvement of the infrastructure is included in the strategy of the institution, there are no clear answers about the financial resources needed for further improvement. The expert panel understands the specifics of the Georgian Higher Education System – no basic or performance-based funding for the universities – which don't allow the institutions to make realistic planning and sustainable development, but even with such limitations, more precise strategic planning could be done at least with regards to needs assessment, possible ways of problem solving and financial estimates.

The visited buildings of GTU – the classrooms, reading rooms, central library, laboratories etc. – are equipped with the necessary facilities and IT equipment for educational programs and research activities and ensure the achievement of the objectives and of the planned learning outcomes. The Institution also provided the written evidence (agreements, invoices, inventory materials etc.) that

certifies rights to liquid assets. In all visited teaching and scientific-research laboratories there are the written safety regulations and/or warning signs on the walls, clearly visible to all visitors. In some cases, the visitors/students/staff are provided with special safety equipment and clothing.

GTU has an uninterruptible power supply system, and divided sanitary units with continuous water supply. The sanitary units substantially observe sanitary-hygienic conditions, they have uninterruptible artificial lights, but they do not have ventilation (e.g. buildings I, II, IV, VI, VIII, X).

All classrooms and laboratories have both natural and artificial light possibilities, except in some cases due to their peculiarity (e.g. laboratory of media technologies, laboratory of metallurgy, material science and metal processing etc.). All visited buildings have a central heating system; this can be considered as one of the strongest sides of GTU's material resources.

GTU has developed and implanted fire prevention and safety, first aid and order mechanisms. Fire fight equipment with instructions for using it is located on each floor of the buildings; so do the updated evacuation plans, officially by the competent body.

The buildings of GTU have emergency exits but none of them corresponds to the requirements of the VII authorization standard, that is, the emergency exits do not open inside out and most of them are made of iron. It should be mentioned that the strategic and action plans of the GTU do not envisage any action aiming to improve the existing conditions.

GTU has the possibility to provide first aid to the staff and students. There is a medical cabinet with first aid tools, natural and artificial light, natural ventilation and constant supply of cold water. Even though required by the authorization standard, and possible to implement even with the very limited financial resources at GTU's disposal, there is no hot water in the medical cabinet.

GTU provides the students and staff with a safe environment. The security staff is allocated in all buildings of GTU in order to assure order throughout the perimeter of the institution, to protect material resources and to react timely on violation of order. Security video cameras are installed inside and outside of the university, as well as throughout the premises.

GTU does not have an environment adapted for people with special needs (except of some newly renovated buildings); this should be considered as one of the weakest points of the institution's infrastructure. This issue was discussed during the interviews and the expert panel are not fully convinced with the argument of the University that the problem is caused by the fact that some buildings of GTU are "historical monuments protected by the state"; according to best international practices, even the archeological sites can be adopted to the needs of the people with disabilities.

There are parking lots for people with disabilities, but these persons cannot freely navigate and move around the building. Buildings are equipped with elevators, but they can only be entered by staircases. In most cases adapted sanitary units do not exist. According to the university regulations, the security staff is obliged to provide people with disabilities with help and support; however, this cannot be considered as a sufficient measure for ensuring a smooth teaching and learning process. There are only some general statements on adapting the infrastructure to the needs of people with disabilities, but these should be further elaborated.

As the material resources of GTU do not correspond to some criteria of the authorization standard (e.g. issues of sanitary units, medical cabinet, emergency exits, poor infrastructure for people with special needs) and there is no strategic vision, concrete action plan and financial calculations on the improvement, GTU partially complies with requirements of standard 7.1.

Evidences/indicators

- SER of GTU;
- Site visit;
- Annex I - list of the facilities visited during the site visit;
- Interviews;
- Supporting documents: extracts from Public Registry, agreements, invoices, payment orders, inventory materials etc.

Recommendations:

- The Strategic and Action Plans should be updated regarding the material resources;
- Needs assessment of each building should be done in order to identify compliance with the criteria of the authorization standard 7.1;
- The updated strategic and action plans should provide the stakeholders with clear strategic

<p>vision, timetable and financial calculation on the improvement of the infrastructure;</p> <ul style="list-style-type: none"> • More effective measures should be taken in order to fill the gaps and achieve the correspondence with the criteria of authorization standard which need less financial resources.
<p>Suggestions:</p> <p>None</p>
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <p><input type="checkbox"/> Complies with requirements</p> <p><input type="checkbox"/> Substantially complies with requirements</p> <p><input checked="" type="checkbox"/> Partially complies with requirements</p> <p><input type="checkbox"/> Does not comply with requirements</p>
<p>7.2. Library Resources</p>
<p>Library environment, resources and service support effective implementation of educational and research activities, and HEI constantly works for its improvement.</p>
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>GTU is one of the richest universities in Georgia with the number and range of library resources (books, periodicals, newspapers, some rare and unique editions etc.). The Institution has a Central Library (building VIII) and different faculty libraries/"reading halls" (referred by the staff of GTU in two different ways). There are developed, approved and implemented regulations of library use, in accordance with the requirements of the authorization standard 7.2 (the library is available 6 days a week, 60 hours).</p> <p>The internal regulations (library statute, faculty statutes, etc.) and the interviews showed up that GTU has established procedure for development and renewal of the library resources, but the expert panel did not identify the mechanism for further improvement of library services (e.g. neither student or staff surveys, nor focus groups or thematic meetings/interviews on this topic), which should be identified as an area for further improvement.</p> <p>As the budget and the interviews revealed, the University continuously updates the library resources in order to adjust to changing needs of academic society and students. The library resources ensure the achievement of educational programs' goals and of the learning outcomes. The purchase of new books depends on the demand from the faculties' staff.</p> <p>As a big number of the courses are taught with the handbooks/readers developed by the local staff and published by the local publishing house, the main literature listed in the syllabi is available in the library. The fact that the study material is easily obtainable online, in the university library and/or university bookstore is very positive, but during the accreditation the validity of this study material in some cases should be assessed in accordance with the best international practices.</p> <p>As the site visit revealed, GTU's libraries/"reading halls" have book archives, office space, library staff, meeting and group workspaces, IT equipment spaces etc. There are WI-FI, computers connected to internet, printers, copy machines and scanners. The books/periodicals are processed according to the library regulations and they can be found in the electronic catalogue and the electronic search system. The students and staff, even external visitors, have access to international library databases, which are quite rich, despite the limited financial resources of the University.</p> <p>The University administration insisted that the library staff provides information to the students and staff on the resources and services offered, and that the librarians have appropriate competence to assist the library users with using the international library databases, but the expert panel found very poor evidence of the accuracy of such statements. For example, in none of the so-called "reading halls" of different faculties, the librarians were able to find any periodical asked by the panel members. Some of the librarians did not have any information about the available international library databases. Only in the central library, the librarian after some efforts managed to provide the</p>

<p>assistance needed.</p> <p>According to the statistics provided, the international library databases are sufficiently used by GTU. Despite the positive statistics, only one or two participants of the interviews with academic and invited staff, research institutes' personnel and students, appeared to have used the databases and managed to refer to the different periodicals that they in fact use in their scholarly work. This means that there is a lack of information about the facilities, which may have negative impact on the quality of research and doctoral education. It should be mentioned that none of the doctoral theses in humanities and social sciences that were reviewed during the site visit referred to the contemporary periodicals which could be found in international library databases.</p> <p>Based on the experience gained through the site visit, the expert panel suggests that there is a substantial compliance with the standard 7.2.</p> <p>In order to achieve full compliance with the standard, the staff of the library/"reading halls" should be further trained on the use of international library databases. Special measures should be taken by the University and faculty administration to raise the awareness of the academic, scientific and invited staff, as well as the students on the existence, the potential, and the use of international library databases. These two steps may contribute to more effective and efficient use of the library resources which are purchased by joint efforts of the University and the Ministry of Education and Science of Georgia.</p>
<p>Evidences/indicators</p> <ul style="list-style-type: none"> • SER of GTU; • Site visit; • Interviews; • Electronic Catalogue of GTU Library; • International Library Databases available at GTU; • Supporting documents: University budget, statute of the Library.
<p>Recommendations:</p> <ul style="list-style-type: none"> • The staff of the library/"reading halls" should be further trained on the use of international library databases; • Special measures should be taken by the University and faculty administration to raise the awareness of the academic, scientific and invited staff, as well as the students on the existence, the potential, and the use of international library databases; • The students and staff surveys, focus groups should be organized in order to measure the students' and staff' satisfaction with the development of library services. The results of the assessment should be used for strategic planning and quality culture development.
<p>Suggestions:</p> <p>None</p>
<p>Best Practices (if applicable):</p> <p>None</p>
<p>Evaluation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Complies with requirements <input checked="" type="checkbox"/> Substantially complies with requirements <input type="checkbox"/> Partially complies with requirements <input type="checkbox"/> Does not comply with requirements
<p>7.3 Information Resources</p> <ul style="list-style-type: none"> • HEI has created infrastructure for information technologies and its administration and accessibility are ensured • Electronic services and electronic management systems are implemented and mechanisms for their constant improvement are in place • HEI ensures business continuity • HEI has a functional web-page in Georgian and English languages.
<p>Descriptive summary and analysis of compliance with the standard component requirements</p> <p>The "information services" is one of the best elaborated sections in the SER of GTU. Besides, as the</p>

site visit and the interviews revealed, the University has strong capacity in human resources and ICT infrastructure development.

GTU has well developed and successfully implemented IT infrastructure, in compliance with the university business processes, with IT risk management and data protection. The only question raised during the site visit concerned the usage of fingerprints of the staff for monitoring purposes, but the explanation provided by the responsible persons have been considered by the expert panel satisfactory (The university administration uses fingerprints only after getting permission from the staff. If the staff member disagrees, his/her fingerprints are not used).

The IT infrastructure of GTU involves computer and specialized laboratory equipment, as well as relevant software, which are easily accessible to students, academic, scientific, administrative and support staff of the University.

As the interviews and site-visit revealed, GTU effectively and efficiently uses the following electronic services and systems: electronic mail, internet, WI-FI, Microsoft licensed programs, electronic system of students' academic performance monitoring, lecturers' registration system, united automated system for study process management and issuing diplomas, as well as for creating schedules of classes, automated system for accounting, e-learning and electronic/online examinations via MOODLE, students electronic surveys for quality assurance issues, "strike plagiarism" etc. As there are up to 70 authorized Higher Education Institutions in Georgia and all of them need automated electronic systems for study process management, GTU staff representatives may consider commercialization of the electronic systems they already have developed and implemented in the University.

The webpage of the University is very informative (regularly updating) in Georgian and quite informative in English. The web page contains comprehensive information about the university mission, strategy, structure, educational and research activities, educational programs' catalogue, students' assessment system, international collaboration, teaching and learning management, various internal regulations etc. As the institution provides educational programs in Russian, the relevant information should be provided on the web page in Russian too. Only very limited information about Russian Language programs can be found on English web page, but neither the students nor the representatives of the administrative and support staff were informed about it. Therefore, in order to achieve efficient communication with Russian speaking students and raise the quality of study process management, it is recommended to make the university web page in Russian as well.

In the view of expert panel, GTU fully complies with the requirements of the standard 7.3.

Evidences/indicators

- SER of GTU;
- Site visit;
- Interviews;
- Onsite checking of available electronic systems and services.

Evaluation

- Fully complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements

Recommendations:

None

Suggestions:

- In order to achieve efficient communication with Russian speaking students and raise the quality of study process management, it is suggested to make the university webpage in Russian as well.
- As there are up to 70 authorized Higher Education Institutions in Georgia and all of them need automated electronic systems for study process management, GTU staff representatives may consider commercialization of the electronic systems they already have developed and

implemented in the University.

Best Practices (if applicable):

None

7.4 Financial Resources

- Allocation of financial resources described in the budget of HEI is economically achievable
- Financial standing of HEI ensures performance of activities described in strategic and mid-term action plans
- HEI financial resources are focused on effective implementation of core activities of the institution
- HEI budget provides funding for scientific research and library functioning and development
- HEI has an effective system of accountability, financial management and control

Descriptive summary and analysis of compliance with the standard component requirements

The financial resources of GTU have been analyzed in the framework of the Georgian legislation and the Higher Education funding policy, taking into consideration the issues and limitations caused by the mentioned factors.

The sources of funding are as much diversified as allowed by the Georgian legislation, though with some additional efforts from the university staff and administration, more products of applied research done by the local professors and scientists can be commercialized. As concerns the risk management, neither the SER and its supporting documents, nor the interviews revealed a clear vision of the University on this issue.

There is a strategic development plan and action plans of GTU, which – according to the authorization standard 1.2. – should provide the information about human and material, financial resources for achieving the strategic goals. The action plan developed by the working group and approved by the Academic Council of the University, doesnot have financial calculations for planned activities. This means that the Institution did not envisage adequate and sufficient funds to effectively perform the activities stated out in its strategic and action plans. In order to meet this requirement of the standard 7.4, substantial revision of the action plan is needed.

Allocation of financial resources described in the budget is financially achievable, but there is no reliable evidence that the financial resources provide sustainable and further development of the University’s educational and research activities, due to the existing funding system – “the money follows the student”. This means that in order to meet this requirement of standard 7.4, effective communication and joint efforts between the University and governmental stakeholders, and respective legislative changes are required.As such, this aspect does not affect the assessment of the expert panel.

The financial resources of GTU are limited; this has been mentioned several times during the interviews. At the same time the University have not identified real priority areas. According to the strategic development plan, all fields are of equal priority;this is not a realistic vision. The biggest part of the budget is allocated to staff salaries and there are less funds for institutional development and for research activities. Therefore, the achievement of the strategic goals of the university, as well as of the goals and the planned outcomes of teaching and research is questionable, based on the available funds. The budget analysis and the interviews revealed that the University allocates funds for the operation and the continuous development of the library and for the participation of students and staff in conferences, but the expert panel did not find any evidence of funding for publishing articles in international peer-reviewed journals.

There is a managerial and financial accountability system in place at GTU, according to the requirements of the Law on Higher Education of Georgia and the Statute of the University. As concerns the lawful, transparent, economical, efficient and productive use of the resources, the lawfulness and transparency are assured by continuous reporting and external financial audit, but the efficiency and productiveness cannot be measured, as there were no key performance indicators (KPI) used in the strategic planning and/or university management process.

As the supporting documents revealed, the financial reports of GTU meet all the requirements of the Georgian legislation, they are correct, fair and comprehensive. The reports of the audit company with relevant financial statements has been presented to the expert panel.

In the view of the expert panel, GTU partially complies with standard 7.4. due to the following issues: lack of risk management system, no financial calculations in the action plan (that is, no evidence for financial aspects of achieving the strategic goals), insufficient funding for "unlimited" priorities, lack of measurable performance indicators (that is, no evidence for productive and efficient use of the resources).

Evidences/indicators

- SER of GTU;
- Interviews;
- GTU budget;
- Financial Reports;
- External Audit Reports.

Recommendations:

- The action plan of the University should be revised to include financial calculations of planned activities as well as key performance indicators.
- An effective and efficient risk management system should be developed and implemented.
- The priority areas for educational and scientific activities should be identified, considering the available financial resources.

Suggestions:

- With some additional efforts from the university staff and administration, more products of applied research done by the local professors and scientists can be commercialized.

Best Practices (if applicable):

None

Evaluation

- Complies with requirements
- Substantially complies with requirements
- Partially complies with requirements
- Does not comply with requirements