განათლების ხარისხის განვითარების ეროვნული ცენტრი

NATIONAL CENTER FOR EDUCATIONAL QUALITY ENHANCEMENT

Accreditation Expert Group Report on Higher Education Programme

Big Data Systems

Georgian Technical University

Date(s) of Evaluation

October 4, 2017

Report Submission Date

Tbilisi
2017

HEI's Information Profile

Name of Institution Indicating its Organizational Legal Form	Georgian Technical University
HEI's Identification Code	211349192
Type of Institution	University

Higher Education Programme Information Profile

Name of the Programme	Big Data Systems
Level of Education	Bachelor's Degree
Qualification Granted Indicating Qualification Code	Bachelor's Degree in Informatics 0401
Language of Instruction	English
Number of Credits	240
Programme Status (Authorized/ Accredited/New)	New

Expert Panel Members

Chair (Name, Surname, University/organization/Country)	George A. Papadopoulos, University of Cyprus, Cyprus
Member (Name, Surname, University/organization/Country)	Azir Aliu, South East European University, FYROM
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Accreditation Report Executive Summary

- **General information on the education programme** The programme in question is a 4-year 8-semester 240 ECTS Bachelor in Big Data Systems.

2

The programme consists of 210 ECTS in the main specialty and 30 ECTS in free electives. From the 210 ECTS, 12 ECTS are electives and 6 ECTS are for practical training. Each course is worth either 5 or 6 ECTS.

- **Brief overview of the accreditation site-visit**

The site visit took place on October 4. The expert panel first met with the administration of the University, followed by a meeting with the self-evaluation team as well as with a number of the academic staff who will be involved in the programme. The expert panel visited a number of University premises' relevant to the programme, including laboratories, classrooms, offices and the University Library. The expert panel had meetings also with students, alumni and employers interested in the programme.

- **Summary of education programme's compliance with the standards**

The programme complies with the general requirements for a Bachelor's degree in the Georgian educational system, comprising 240 ECTS, split over 8 semesters with 30 ECTS per semester. The overall syllabus is mostly consistent with the intended aims and scope of the programme. However, a number of weaknesses in the specific courses and topics offered have been identified and are listed later on in the report in the appropriate sections. The entry requirements are consistent with those defined by the Ministry of Education and Science for both Georgian nationals as well as foreigners (for the latter these requirements focus on the knowledge of the English language). Learning outcomes and competencies are somewhat aligned with those that are expected in a Bachelors degree. However, a number of shortcomings have been identified and are being mentioned in the relevant sections of the report. Overall, the programme needs to be enhanced with a number of additional courses, in order for it to be internationally competitive. The infrastructure is adequate for such a programme and it is considered a positive point.

- **Summary of Recommendations**

1. The programme should become more focused to the needs of national industry and the expected outcomes for a Bachelors degree.
2. It is recommended to reconsider the formulation of mission and objectives of the programme.
3. The objectives of the programme should be clear and along with an implementation plan per objective.
4. The program should be compliant to some framework of university level ICT curricula recommended by an international organization (for example ACM /IEEE), and also the description of the programme should present evidence that the programme follows international standards and best practices in the teaching of Big Data at Bachelor's level (e.g. ACM or IEEE curricula).
5. The course contents should include more cutting-edge topics that are massively and increasingly used in IT professional activities and that are currently underrepresented in the study programme.
6. With respect to the expected learning outcomes, the list of competencies and skills needs to specify more: General competencies, Transversal Competencies and Specific Competencies.
7. The teaching methodology should be enhanced with additional cases studies and simulation activities.
8. A clear strategy for cooperation with industry should be established, involving formal procedures for the engagement of employees in specifying learning outcomes and content creation.

9. Establish formal relationship with the industry for internships of students to gain practical experience.
10. Give teachers the opportunity to define their assessment methods by considering the specificity of the subject and their own experiences.
11. More information should be provided for criterion 3.3 and an associated internship strategy and corresponding implementation plan should be established.
12. Academic staff should aim at publishing more papers in international conferences.
13. The expected learning outcomes should be formulated specifically enough to allow adequate validation.
14. Prepare a feasibility analysis demonstrating the financial viability of the programme.
15. The Learning Management System (LMS) platform that the institution is using for teaching activities and communication with the students should be further developed.
16. The institution should increase the printed editions and e-books, especially for those resources that are directly relevant to the proposed programme.
17. The institution should offer all services relevant to students (especially foreign ones) in the English language. This includes the ability of personnel to communicate in English.
18. The library classification and retrieval system should be automated. Make the library resources available to the eligible individuals also from outside the campus. The library should have more material in Big Data and Computer Science. More contemporary and internationally established textbooks in English should be available.
19. Establish clear procedures for evaluating the effectiveness of the academic programme the quality of the offered services. Improve the quality assurance system through the PDCA cycle.
20. The whole philosophy of the programme needs re-thinking, as currently on the one hand the scope is rather narrow (e.g. influenced by the needs or recommendations of certain organizations such as CERN), while on the other hand the learning outcomes are over ambitious for a Bachelors programme. Such a programme, in order to be internationally competitive (thus, being able to attract international students, which is a main aim of the institution), should include courses in visualization, law, ethics, psychology, social media and application areas of big data other than business (e.g. health).
21. It is important that clear information is given as to who actually teaches each course and what qualifications this person has to teach the course in question. The academic staff should be strengthened with people that perform research in mainstream Computer Science and more to the point in Big Data topics.
22. There is lack of human resources with academic level of knowledge of foreign languages (notably English). The Faculty should put more effort in encouraging and motivating academic and administrative staff to improve their level of English.

- **Summary of Suggestions**

1. Increase cooperation with industry through the organisation of guest lectures, applied research collaborations and the students developing soft skills (e.g. entrepreneurship).
2. Increase cooperation with national industry and organisations that are in real need of big data science.
3. Assign a personal tutor to each student, especially to first year students.
4. Increase the access facilities to legal and doctrinal data (international and national levels).
5. Consider the possibilities to enlarge subscription to scientific electronic resources (possibly in cooperation with other relevant institutions) and try to subscribe to more Digital Libraries, especially the IEEE, ACM and Springer ones.
6. The institution should consider adopting the more general title of Data Science for the proposed programme.

7. For securing more resources for research, increase cooperation with other universities, as well as the labour market is needed.
8. Effort should be made to increase the intake of international students, as this provides a more robust financial model.

- **Summary of best practices (If Applicable)**

  N/A

- **In case of accredited programme, summary of significant accomplishments and/or progress (If Applicable)**

  N/A

Compliance of the Programme with Accreditation Standards

1. Educational programme objectives, learning outcomes and their compliance with the programme

1.1 Programme objectives are clearly defined and achievable; they are consistent with the mission of the HEI and take into consideration labour market demands

Descriptive summary and analysis of compliance with standard requirements

- The aim of the programme is to give to a Bachelor's degree graduate the knowledge about basic problems of the big data systems - systematical, methodological, information-technological and information-analytical knowledge on the modern level that will allow successfully to realize the exploitation, the realization and the regulation of consumer service. Because in the mission of the University the main declaration is: "The mission is to provide higher education and scientific research based on innovations", due to the greatness of the data, it can be said that they are interconnected.

- The programme overall complies with the mission of the institution as this is presented on the University's web site. The programme takes into consideration market needs to a rather limited extent, as it is evident from the interviews with industry representatives. However, the mission and outcomes of the program are far too ambitious, reflecting a Masters course more than a Bachelors one. Although the programme's objectives are overall clearly stated, it is not equally clear how these will be met via the offered programme, especially with respect to some cutting edge technologies which are directly applicable in the industry (such as visualization, legal matters and social media). The institution's administration appears to be aware of how big data can be used in the country.

Evidences/indicators

- The expert panel has examined the stature of the institution, its mission statement and also the courses to be offered. Relevant questions were asked during the on-site meetings with the administration and the faculty as well as industry representatives.

Recommendations:

- The programme should become more focused to the needs of national industry and the expected outcomes for a Bachelors degree.
- It is recommended to reconsider the formulation of mission and objectives of the programme. o The objectives of the programme should be clear and along with an implementation plan per objective.

Suggestions for programme development:

- Increase cooperation with national industry and organisations that are in real need of big data science.

Best Practices (if applicable):
o N/A
In case of accredited programme, significant accomplishments and/or progress
o N/A
Evaluation
☐ Partially complies with requirements

1.2 The content of a programme component (a course, a module, etc.) ensures the achievement of the objectives and student learning outcomes of the component, considering the number of credit hours allocated for it and teaching methods utilized
Descriptive summary and analysis of compliance with standard requirements   o The courses are overall consistent with the aims of the programme. The description of each course is consistent with the intended learning objectives of the course, as well as the number of ECTS that this course carries. Teaching methods include homework and exams as well as lab based exercises. There is no overlap of know how between the offered courses and each course is complementary to the rest of the programme. Also, there is a concern regarding the content of teaching units. There are some topics that should belong to the core of each computer science study programs and that are not mentioned in the syllabi neither as mandatory or elective courses (ex: Visualization, IoT, social software, linked/open data, law, ethics, psychology, virtualization, social media.). The literature for each course is satisfactory and up-to-date textbooks are being used. However, the program is not compliant to any framework of university level ICT curricula recommended by an international organization (for example ACM /IEEE).
Evidences/indicators   o The expert panel has examined the courses to be offered. Relevant questions were asked during the on-site meetings with the administration and the faculty.

Recommendations:

- o The program should be compliant to some framework of university level ICT curricula recommended by an international organization (for example ACM /IEEE), and also the description of the programme should present evidence that the programme follows international standards and best practices in the teaching of Big Data at Bachelors level (e.g. ACM or IEEE curricula).
- o Update the course contents with the above mentioned topics that are massively and increasingly used in IT professional activities and that are currently underrepresented in the study programme.

Suggestions for programme development:

Best Practices (if applicable):

o N/A

In case of accredited programme, significant accomplishments and/or progress

o N/A

Evaluation

☐ Partially complies with requirements

1.3 Programme components ensure the achievement of programme objectives and student learning outcomes of the appropriate level of qualification in the National Qualifications Framework

Descriptive summary and analysis of compliance with standard requirements

The programme components are overall consistent with the programme objectives (however, we have noted above that some of their programme objectives are too ambitious for a Bachelors degree). The learning outcomes described in the program are more relevant to the level of MA, so it is not synchronized with syllabus learning outcomes. The level of material to be covered in each course is consistent with the basic structure of the Georgian NQF. However, for the programme to address more effectively the needs of the market as well as to be internationally competitive, it needs of cover a number of areas that are related to effective processing of Big Data (notably visualization techniques), ethical and legal issues that are emerging from the processing of big quantities of data (possibly including personal information) and cutting edge application areas such as social media.

Evidences/indicators
o The description of the syllabus, the interviews with the academic staff and industry representatives and the general documentation on the Georgian NQF.
o Recommendations: o o The expected learning outcomes should be formulated specifically enough to allow adequate validation.

Suggestions for programme development:

N/A

Best Practices (if applicable):

o N/A

In case of accredited programme, significant accomplishments and/or progress

o N/A

Evaluation

☐ Partially complies with requirements

1.4 Programme learning outcomes ensure the competitiveness of its graduates on educational (at the next level of education) and labour markets

Descriptive summary and analysis of compliance with standard requirements

- o The programme has some positive aspects, regarding the successful absorption of its graduates by the local labour market. Aside from the theoretical foundations, the student is also involved in practical courses. However, there is a need to further strengthen the cooperation with the industry. The programme covers only the business area of applications, while other areas where big data is used extensively (such as health) are not covered. Interviews with industry representatives gave the impression that there was little consultation between the institution and industry regarding the formation of the program curriculum. Regarding the continuation of the students' studies at graduate level, it is noted that the course is missing a number of topics that would give its students further leverage in competing for graduate courses. Nevertheless, it is noted that the institution has agreements with Universities abroad (such as India, Latvia, Lithuania and Spain) to encourage the application of the programme's graduates for graduate studies in these Universities.
- o There is no harmonization of curriculum and relevant academic procedures to International standards, as results academic program do not promote local and international mobility.

Evidences/indicators

- o The syllabus, interviews with the faculty members and the representatives of the industry, examining memorandums of cooperation.

Recommendations:

The curriculum should be harmonized with those that adhere to international standards.

With respect to the expected learning outcomes, the list of competencies and skills needs to specify more: General competencies, Transversal Competencies and Specific Competencies

-In the teaching methodology, increase cases studies and simulation activities

Increase the agreements with private and public institutions. Investigate organizations that will be able to provide students with practical experience and sign a memorandum with them.

Suggestions for programme development:

Increase cooperation with industry through the organisation of guest lectures, applied research collaborations and the students developing soft skills (e.g. entrepreneurship).

Best Practices (if applicable):

- o N/A

In case of accredited programme, significant accomplishments and/or progress

N/A

Evaluation
☐ Partially complies with requirements

1.5. The mechanism of stakeholders' (employers, academic staff, students, graduates) participation in the establishment of programme learning outcomes and programme development, is established and implemented
Descriptive summary and analysis of compliance with standard requirements   ○ From the self-evaluation report and the interviews with the academic staff, it appears that the latter were partially involved in the design and establishment of the programme. There is little evidence that the students were also involved. There is also little evidence that the employers were involved in the design of the programme, but they have commented positively for its design. ○ Faculty lacks with strategy for close collaboration with industry which do not correspond to international standards.
Evidences/indicators ○ Based on the self-assessment report, interviews with faculty staff, students and employers.
Recommendations: Create clear strategy for close collaboration with industry. This should involve establishing formal procedures of the involvement of employers in specifying programme learning outcomes and content creation.
Suggestions for programme development:
Best Practices (if applicable):
○ N/A
In case of accredited programme, significant accomplishments and/or progress   N/A
Evaluation ☐ Partially complies with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements
Educational programme objectives, learning outcomes and their compliance with the programme		X	

2. Teaching methodology and organization, adequate evaluation of programme mastering

2.1. Programme admission preconditions are transparent and ensure the admission of students of relevant knowledge, skills and values necessary to master programme learning outcomes
Descriptive summary and analysis of compliance with standard requirements ○ From the self-evaluation report and relevant documentation, it is evident that the institution follows the generally accepted rules for admission. The Georgian citizens must pass the unified national exams and the foreign citizens must comply with the rules set by the Ministry of Education and Science and the English language requirements.
Evidences/indicators ○   The self-evaluation report, interviews with stakeholders and studying relevant documentation.
Recommendations:
Suggestions for programme development:
Best Practices (if applicable): ○ N/A
In case of accredited programme, significant accomplishments and/or progress N/A
Evaluation ☐ Complies with requirements

2.2 Teaching methods utilized in various components of the programme ensure the achievement of programme learning outcomes

Descriptive summary and analysis of compliance with standard requirements

- The overall structure of the programme is consistent with the intended aims and scope. The courses are described in sufficient detail. Prerequisites are appropriate. There is a sufficient number of lab based teaching and coursework. There is no internship with industry, in order to apply the gained knowledge in a real environment, although there is a cooperation with CERN where apparently some students can pursue practical work.

Evidences/indicators

- The description of the programme, the interview with the staff and the additional material that the institution has provided the expert panel with by email.

Recommendations:

Establish formal relationship with the industry for internships of students to gain practical experience.

Suggestions for programme development:

Increase the access facilities to legal and doctrinal data (international and national levels).

Best Practices (if applicable):

o N/A

In case of accredited programme, significant accomplishments and/or progress

N/A

Evaluation

☐ Partially complies with requirements

2.3 The sequence and admission preconditions of programme components are logical

Descriptive summary and analysis of compliance with standard requirements

- The distribution of courses per semester satisfies the recommended workload of 30 ECTS per semester. The sequence of prerequisites is appropriate with the syllabus of each course. The placement of advanced courses and the project in the final year is consistent with international practices.

Evidences/indicators

- The description of the programme, the interview with the staff and the additional material that the institution has provided the expert panel with by email.

Recommendations:

Suggestions for programme development:

Best Practices (if applicable):

- N/A

In case of accredited programme, significant accomplishments and/or progress

N/A

Evaluation

☐ Complies with requirements

2.4 The evaluation methods of each programme component ensures the achievement of student learning outcomes of this component, which is proved by evaluation results

Descriptive summary and analysis of compliance with standard requirements

- The students are evaluated for every course they attend in a number of ways, including intermediate and final assessments. The description of its course provides a student with the necessary information he needs in order to know how he will be assessed. However, the overall methodology of student assessment is somewhat inflexible (this is not a problem with the programme per se, as this is a general procedure for the whole University). This leads to an assessment methodology which is not directly related to the learning outcomes of each course, thus leading to inadequate evaluation of the latter.

- Number of evaluation scale is irrelevant and formal for practical use ((eg by 0.1 or 0.25 points). Evaluation of activity is used in assessment which actually records student attendance and cannot be regarded as an evaluation criterion.

Evidences/indicators

- The description of the courses and the interviews with staff, students and industry representatives.

Recommendations:

Give teachers the opportunity to define their assessment methods by considering the specificity of the subject and their own experiences.

Suggestions for programme development:

Best Practices (if applicable):

   o N/A

In case of accredited programme, significant accomplishments and/or progress

    N/A

Evaluation

☐ Partially complies with requirements

2.5 Student evaluation criteria are transparent; students are informed about the achievement of learning outcomes, their gaps and ways for improvement

Descriptive summary and analysis of compliance with standard requirements

   o Overall, there is sufficient transparency in how the students' effort is assessed. They are aware from the beginning of what sort of exams they will be having. Students have sometimes the opportunity to discuss their progress with their teachers but there is no tutor assigned to each student.

Evidences/indicators

   o From the description of the programme, the self-assessment exercise and interviews with staff and students.

Recommendations:

Suggestions for programme development:

Assign a personal tutor to each student, especially to first year students.

Best Practices (if applicable):

   o N/A

In case of accredited programme, significant accomplishments and/or progress

   o N/A

Evaluation

☐ Complies with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements
Teaching methodology and organization, adequate evaluation of programme mastering		X	

3. Student achievements and individual work with them

3.1 Students receive appropriate consultations and support regarding the determination of their profile, planning of learning process and improvement of their academic achievement
Descriptive summary and analysis of compliance with standard requirements o Upon entering the University, students are given the description of the programme and the requirements for successfully completing each step. They are given individual accounts and email addresses in the institution's electronic management system. However, this system allows to see only the evaluation and there is with limited number of services. There is also an e-service that offers useful information, albeit this is mostly in the local language.
Evidences/indicators o Examining relevant documentation, on site visit of the institution's central facilities, interviews with students and staff.
Recommendations: o Electronic management system should be expanded by functional opportunities and an English version should be created.
Suggestions for programme development: Tutorial system should increase the quality of study program. Assigning a personal tutor to each student, from the first year to the end. The mentor will support, motivate and help to the student during its study cycle.
Best Practices (if applicable): o N/A
In case of accredited programme, significant accomplishments and/or progress
N/A

Evaluation

☐ Partially complies with requirements

3.2 Academic staff workload scheme includes individual work with students

Descriptive summary and analysis of compliance with standard requirements

o It is expected that at the beginning of the semester, the students receive information from the staff on how they can meet are receive individual counselling. Individual work with students is also planned during the undertaking of the final year project.

Evidences/indicators o Self study report, interviews with staff and students, description of courses.

Recommendations:

Suggestions for programme development:

Best Practices (if applicable):

o N/A

In case of accredited programme, significant accomplishments and/or progress

N/A

Evaluation

☐ Complies with requirements

3.3 The institution supports students' involvement in research projects and extra-curricular activities, and also offers them components developing practical skills

Descriptive summary and analysis of compliance with standard requirements

o It is not sufficiently documented that this criterion is met by the institution. The students were unable to refer to any research projects in which they could be involved. The staff does not appear to pursue research directly in areas related to big data, so it is unlikely that they will offer a student the opportunity to work on a research project. The students that were interviewed were also unable to provide concrete information about extracurriculum activities, nor the experts panel was shown any facilities for such activities. There is no internship with industry, in order to apply the gained knowledge in a real

environment, although cooperation with CERN was mentioned, albeit it appears that this is for graduates of the programme rather than internship for students.
Evidences/indicators   o   Self study report, interviews with staff and students, information on the institution's web site, onsite visit, CVs of staff.
Recommendations: More concrete information should be provided on this criterion. Develop Internship Strategy and corresponding Action Plan for its implementation.
Suggestions for programme development: Where possible, involvement of students in research projects pursued by the academic staff.
Best Practices (if applicable):   o
In case of accredited programme, significant accomplishments and/or progress   N/A
Evaluation ☐ Does not comply with requirements

3.4 The institution aims to internationalise its teaching and scientific work as well as the employability of its graduates

Descriptive summary and analysis of compliance with standard requirements

o The use of the English language overall was rather limited, with most of the interviews that the experts panel held needing the use of an interpreter, for all stakeholders involved: academic staff, administrative personnel and students. The information available on the web site as well as throughput the institution's premises was often mostly in the national language. The institution's library has little relevant material in English. Despite these facts, the institution does have overall close to 800 foreign students and there are a number of memorandums of cooperation with foreign institutions. The CVs of the academic staff indicate that very few of them pursue the publication of their work in international conferences. This evidently limits the capability

of the institution to become known outside the national boundaries and thus has a negative impact in attracting foreign students.

Evidences/indicators

o The self-study report, interviews with staff and students, on-site visit of the institution's facilities, memorandums of cooperation with foreign institutions.

Recommendations:

Develop a Research Strategy and corresponding Action Plan for its implementation.

Staff should aim to publish more in international conferences.

Increase the agreements with private and public local institutions. The agreements have to include the type of practice to do, the number of hours, the student's evaluation and the supervision by a person of the partner institution.

Suggestions for programme development:

Subscribing to more Digital Libraries from abroad.

Organizing regular research seminars conducted in the Faculty.

Best Practices (if applicable):

o N/A

In case of accredited programme, significant accomplishments and/or progress

N/A

Evaluation
☐ Partially complies with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements
Student achievements and individual work with them			X

4. Providing teaching resources

4.1 The infrastructure and technical equipement of the institution ensures the achievement of programme learning outcomes
Descriptive summary and analysis of compliance with standard requirements   o The on-site visit of all the relevant to the programme's facilities has shown that the institution has the necessary infrastructure in terms of equipment, lab space, library facilities and student areas to support the needs of the programme. However, it is unclear how the maintenance of equipment is achieved without a clear budget line for this purpose. Furthermore, the library electronic system is mostly in the national language and does not support English. Classification and retrieval of library resources uses a card-based system which even if it is functional, it is cumbersome and time consuming.
Evidences/indicators o On-site visit to the institution's facilities.
Recommendations: Create procedures that will allow the infrastructure and technical equipment that are required to support the programme to remain up to date.   Fully automate the library procedures for classification and retrieval.   Populate the library with more material in Big Data.   The library's website should be open and not just in GTU's internal network.

Suggestions for programme development:
Best Practices (if applicable):   o N/A
In case of accredited programme, significant accomplishments and/or progress   N/A
Evaluation   ☐ Partially complies with requirements

4.2 Programme staff has necessary competences required for the achievement of intended learning outcomes of the component they teach, which is proved by-in case of academic staff- scientific papers written during the past 10 years (in arts field- creative projects) proving staff's competence in the relevant field; in case of invited staff -may be certified by practical experience

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Descriptive summary and analysis of compliance with standard requirements

o The examination of the academic staff's CVs as well as the interviews with them, have shown that overall there is some competency in dealing effectively with the needs of the programme, especially in the peripheral (non Big Data related) topics to be covered. However, sufficient competency in the main areas of the programme was not established in a satisfactory way. Many of the academic staff is pursuing academic activities in areas not related to Information Technology. There was only one person that was knowledgeable in the area of Big Data but he stated that he is currently not a member of the staff and will be hired if the programme is approved. Furthermore, he stated that half the proposed programme should have to be changed, indicating that he was not involved in the preparation of the programme curriculum. The courses to be offered are presented in a way that each course description has an "author", who is not necessarily the (only) person to teach the course. Consequently, the experts panel was unable to deduce the qualifications of the people that would teach each course. It was further not possible to assess the effective workload of each academic staff, as the institution was itself unable to provide clear information on this topic. Examining the CVs, it was clear that the staff does not pursue research or publish in the area of Big Data. Furthermore, from the discussion the experts panel has with the academic staff, it was evident that some of them were not sufficiently comfortable communicating in English.

Evidences/indicators ○ Interviews with staff and
examination of their CVs

Recommendations:

It is important that clear information is given as to who actually teaches each course and what qualifications this person has to teach the course in question. The academic staff should be strengthened with people that perform research in mainstream Computer Science and more to the point in Big Data topics.

Suggestions for programme development:

Best Practices (if applicable):

○ N/A

In case of accredited programme, significant accomplishments and/or progress

○ N/A

Evaluation

☐ Does not complies with requirements

4.3 Programme implementation is ensured by the administrative and support staff of an appropriate competence

Descriptive summary and analysis of compliance with standard requirements

○ The institution has a sufficient number of administrative and support staff for the needs of the programme. However, very few of this staff speak English.

Evidences/indicators ○ On-site visit and interviews with staff
and personnel.

Recommendations:

There is lack of human resources with academic level of knowledge of foreign languages (notably English). The Faculty should put more effort in encouraging and motivating academic and administrative staff to improve their level of English.

Suggestions for programme development:

Best Practices (if applicable):   o N/A
In case of accredited programme, significant accomplishments and/or progress   N/A
Evaluation ☐ Partially complies with requirements

4.4 Teaching materials are based on the core achievements in the field and ensure the achievement of intended learning outcomes

Descriptive summary and analysis of compliance with standard requirements
 	
  o The syllabus and description of courses indicate that the programme is overall based on contemporary textbooks. However, more of these textbooks should be international based on the English language. Furthermore, the library does not have a sufficient number of books in the subject. There is need for the programme to take into
 	
    consideration any relevant recommendations by IEEE and ACM. The library would benefit from access to the Digital Libraries of IEEE and ACM.

Evidences/indicators o Description of courses, on-site visit to central facilities, interview with staff.
Recommendations: Populate the library with more books in Big Data and Computer Science. Textbook literature should be available more often in English language with contemporary titles.
Suggestions for programme development:
Best Practices (if applicable):   o N/A

In case of accredited programme, significant accomplishments and/or progress
N/A
Evaluation
☐ Partially complies with requirements

4.5 Programme is financially sustainable
Descriptive summary and analysis of compliance with standard requirements
○ The expert panel has requested a financial viability analysis of the programme. This was submitted after the on-site visit. From this budget analysis it is evident that the programme is financially viable with an intake of 50 students.
Evidences/indicators ○ The financial analysis submitted after the on-site visit.
Recommendations:
Suggestions for programme development: Every effort should be made to attract a high percentage of foreign students, as this will provide a more robust financial model.
Best Practices (if applicable): ○ N/A
In case of accredited programme, significant accomplishments and/or progress N/A
Evaluation ☐ Complies with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements

Providing teaching resources			X

5. Teaching quality enhancement opportunities

5.1 There is a publicly available quality assurance system which is based on the "Plan-DoCheck-Act" cycle
Descriptive summary and analysis of compliance with standard requirements o There is a quality assurance administrative unit within the organisation that is responsible for the quality of the offered programmes. They have developed a set of methods and procedures that they follow in order to assess and improve the quality of teaching. The students are expected to participate in this process but how they influence the process is not apparent. Some academic staff stated that there has been a period of some years since students were involved in the assessment of a programme's quality. There are some discrepancies between the document submitted to the expert team. It was reviewed some Observation reports from previous academic year but there is no Digital Quality assurance system which will describe all elements that are an integral part of the planning, organization and monitoring processes. o There is a monitoring mechanisms but not clear procedures to evaluate the effectiveness of academic program, also there are no clear procedures for evaluating quality of services, which makes the process of planning and data analyses difficult.
Evidences/indicators o The self-study, the interviews with staff and students, relevant material provided by the institution.
Recommendations: Create clear procedures to evaluate the effectiveness of academic program, and quality of services. Improve Quality Assurance system through PDCA cycle.
Suggestions for programme development: It should be more apparent to students how their feedback is taken into consideration.
Best Practices (if applicable): o N/A
In case of accredited programme, significant accomplishments and/or progress o N/A

Evaluation
☐ Partially complies with requirements

5.2 Internal and external quality assurance results are utilized to improve the achievement of programme learning outcomes
Descriptive summary and analysis of compliance with standard requirements ○ Internal evaluation is done through established procedures. External evaluation should involve alumni but it does not appear to be the case. However, the employability of past graduates is taken into consideration. Generated reports on quality of teaching should be available (in edited form without personal data) to the staff for improvement of their teaching methods. ○ Faculty needs to foster a Quality culture by working on both quality assurance and quality management. Quality assurance focuses on academic matters and services which support students while Quality management focuses on effective development and monitoring of policies and procedures. Also a quality policy and quality goal needs to be publicised and publicity available.
Evidences/indicators ○ Self-study report, interviews with staff, documentation provided by the institution.
Recommendations: Create special commision of qualty assurance with internal and external evaluators.
Suggestions for programme development: More active involvement of alumni and industry.
Best Practices (if applicable): ○ N/A
In case of accredited programme, significant accomplishments and/or progress N/A
Evaluation ☐ `Partially complies with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements
Teaching quality enhancement opportunities		X	

Enclosed Documentation (If Applicable) HEI's Name:

Higher Education Programme Name:

Number of Pages of the Report:

Programme's Compliance with the Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements
1. Programme objectives are clearly defined and achievable; they are consistent with the mission of the HEI and take into consideration labour market demands		✓	
2. Teaching methodology and organization, adequate evaluation of programme mastering		✓	
3. Student achievements and individual work with them			✓
4. Providing teaching resources			✓
5. Teaching quality enhancement opportunities		✓	
Final Evaluation			✓

Expert Panel Chair's Signature:

HEI's Name:

Higher Education Programme Name:

Number of Pages of the Report:

Programme's Compliance with the Standard

Standard	Complies with Requirements	Partially Complies with Requirements	Does not Comply with Requirements
1. Programme objectives are clearly defined and achievable; they are consistent with the mission of the HEI and take into consideration labour market demands			
2. Teaching methodology and organization, adequate evaluation of programme mastering			
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4. Providing teaching resources			
5. Teaching quality enhancement opportunities			
Final Evaluation			

Expert Panel Member's Signature:

George Angelos Papadopoulos

Irma Makharadze

Azir Aliu