



## CATALOGUE of EDUCATIONAL PROGRAMS

<b>Name of the Educational Programme</b>	Computer Science (delivered in English)																		
<b>Programme Coordinator(s)</b>	Dr. Besik Dundua, Affiliated Professor (+995) 555 373216 Email: <a href="mailto:bdundua@ibsu.edu.ge">bdundua@ibsu.edu.ge</a>																		
<b>Education Cycle</b>	Doctorate (Third Cycle of Higher Education)																		
<b>Language of Education</b>	English																		
<b>Type of the Programme</b>	Academic																		
<b>Credit Value of the Programme</b>	180 ECTS																		
<b>Awarded Qualification</b>	Doctor of Engineering in Informatics / ინჟინერიის დოქტორი ინფორმატიკაში																		
<b>Programme Admission Precondition</b>	<p>According to Georgian legislation, the candidate to enroll at this program should have a Master's degree or a corresponding degree in informatics or mathematics or closely related fields. According to the university regulations, the candidate should have at least the B2 level in English certified by an international certificate and the relevance is approved by the IBSU School of Languages or a Master's diploma received from English touch program during last five years. In addition, according to the university regulations, the candidate has to submit a dissertation (research) proposal. The assessment of the research proposal is done in two stages. On the first stage the commission evaluates the proposal, and on the second stage – conducts interview. The correspondence of the proposal to the program requirements is assessed by a Dissertation Field Board commission based on the following assessment criteria:</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Unacceptable</th> <th>Acceptable, with major changes</th> <th>Acceptable, with minor changes</th> <th>Acceptable</th> </tr> </thead> <tbody> <tr> <td><b>Problem formulation, novelty, significance of the research topic:</b> Stating the research problem clearly, providing motivation for undertaking the research</td> <td>1-4</td> <td>5-8</td> <td>9-12</td> <td>13-16</td> </tr> <tr> <td><b>Literature overview:</b></td> <td>1-4</td> <td>5-8</td> <td>9-12</td> <td>13-16</td> </tr> </tbody> </table>				Criteria	Unacceptable	Acceptable, with major changes	Acceptable, with minor changes	Acceptable	<b>Problem formulation, novelty, significance of the research topic:</b> Stating the research problem clearly, providing motivation for undertaking the research	1-4	5-8	9-12	13-16	<b>Literature overview:</b>	1-4	5-8	9-12	13-16
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International Black Sea University LLC

2, 13<sup>th</sup> km., David Agmashenebeli Alley, Tbilisi, 0131, Georgia; Phone: +995 32 2595006; E-mail: [contact@ibsu.edu.ge](mailto:contact@ibsu.edu.ge)



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	Demonstrating knowledge of prior work on the specific research topic				
	<b>Theoretical and practical value:</b> Demonstrating how the solution of the research problem can impact the field	1-4	5-8	9-12	13-16
	<b>Methodology:</b> Describing an adequate methodology to study and solve the research problem	1-4	5-8	9-12	13-16
	<b>Results:</b> Analyzing and interpreting research results/data effectively	1-4	5-8	9-12	13-16
	<b>Communication:</b> Quality of both Writing and Oral Communication.	1-5	6-10	11-15	16-20
	<b>Total:</b>				100
<b>Purpose of the Programme</b>	<p>The program in Computer Science prepares students for careers in industry, research or academia with potential focus in three main directions of computer science: software engineering, symbolic computation, and data analysis.</p> <p>The program is tailored to meet the specific needs of the individual student. Candidates are expected to make an original and significant contribution to knowledge in a specialized area.</p> <p>The program consists of passing a preliminary evaluation, an individualized program of study, performing satisfactorily on a qualifying examination and completing a research dissertation.</p> <p>To design and conduct scientific and engineering experiments, as well as to analyze and interpret data.</p> <p>To provide ability to identify, formulate, and solve computer engineering problems.</p> <p>To understand ethical and professional responsibility.</p> <p>To provide ability to communicate effectively through written reports and oral</p>				

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	<p>presentations.</p> <p>To provide ability to use modern engineering techniques for analysis and design.</p> <p>To provide ability to analyze and design complex devices and systems containing hardware and software components.</p> <p>To function effectively as a team member and/or leader in multidisciplinary and multicultural environments.</p> <p>To recognize the societal and global context of their work and to understand professional and ethical responsibilities.</p>
<p><b>Learning Outcome</b></p>	<p>After completing the program students will possess the following competences:</p> <p><b>Knowledge and understanding</b>  Program provides students with the knowledge based on recent achievements of the field/sub-field or interdisciplinary fields. This will extent students' knowledge and equip them with innovative methods. Additionally, understanding of knowledge with broader sense will be possible through re-comprehension of the current knowledge.</p> <p><b>Applying knowledge</b>  After completing the program in Computer Science, the graduates will be able to use computer technologies in order to contribute to research of diverse problems, plan, supervise and implement an innovative research independently; work out original research and analytical methods and approaches that are oriented on creation of the new knowledge and will be reflected in the international publications.</p> <p><b>Making judgements</b>  After completing Computer Science program graduates will be able to solve field related problems through the critical analysis of new, complex and opposing ideas and approaches that is necessary to work out/ develop new methodologies; make right and effective decisions for solving problems.</p> <p><b>Communication Skills</b>  Graduates will be able to present the new knowledge in reference with current knowledge in a well-grounded and clear way. Graduates will be able to participate in technical discussions with the scientific society in foreign language.</p> <p><b>Learning skills</b>  Based on the recent achievements the graduates of the Computer Science program will be ready for the development of new ideas and processes in the process of studying and research.</p> <p><b>Values</b>  Understanding of legal, ethical and cross-cultural responsibility in organization and</p>



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	<p>society. Involvement in the process of value formation and working toward implementation of these values.</p>
<p><b>Student Knowledge Evaluation System</b></p>	<p>The goal of evaluation is to determine student's education results qualitatively in relation to academic program goals and parameters.</p> <p>Student may be assessed orally and/or in a written way. A student's knowledge and skills are assessed through 100 points grading system. It consists of midterm and final evaluations, sum of which makes up 100 points.</p> <p>Grading system allows:</p> <p>a) Five types of positive grades</p> <ol style="list-style-type: none"> <li>1) (A) Excellent – 91 and over of maximum point;</li> <li>2) (B) Very good – 81-90 of maximum point;</li> <li>3) (C) Good – 71-80 of maximum point;</li> <li>4) (D) Satisfactory – 61-70 of maximum point;</li> <li>5) (E) Acceptable – 51-60 of maximum point.</li> </ol> <p>b) Two types of negative grades</p> <ol style="list-style-type: none"> <li>1) (FX) Fail – 41-50 of maximum point, meaning that a student requires some more work before passing and is given a chance to sit an additional examination after independent work;</li> <li>2) (F) Fail – 40 and less of maximum point, meaning that the work of a student is not acceptable and he/she has to study the subject anew.</li> </ol> <p>For the midterm and final evaluations minimal passing grade is set. The final evaluation minimal passing grade must not exceed 60% of final evaluation grade.</p> <p>Midterm and final evaluation grade distribution, their minimal competence levels and assessment criteria are described in the corresponding syllabus.</p> <p>A credit can be awarded only after the attainment of learning outcomes, envisaged by the course syllabus and following requirements:</p> <ol style="list-style-type: none"> <li>a) Obtaining minimal competence levels set for midterm and final evaluations;</li> <li>b) Obtaining minimum 51 points out of 100 points of final grade.</li> </ol> <p>A student is allowed to take an additional (make-up) exam in case he/she scored 41-50 points of final grade or minimum 51 points, but did not obtain minimal competence</p>



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level set for final evaluation.

Considering its specification, the format and the assessment criteria of mid-term and final evaluations can be determined in the specific module/course syllabus.

Evaluation of research component (Dissertation) is assessed by a jury during the defense. During the defense of the doctoral dissertation, the assessment takes place according to the following rubric:

	<b>criteria</b>	<b>maximum points</b>	<b>actually awarded points</b>
1	Significance	10	
2	Practical value of research	10	
3	Theoretical value of research	10	
4	Novelty	10	
5	Depth of the analysis of the topic and originality of conclusions	15	
6	Reliability of results (statistical treatment of experiment, logical argumentation)	5	
7	During the defense: presentation (logical argumentation, structure of the presentation, clear speech, presenting the basic ideas of the dissertation)	15	
8	During the defense adequately answering the questions, arguing one's viewpoint, using terminology appropriately	15	
9	During the presentation efficiently using the visual aids	10	
<b>Total</b>		100	

Assessment criteria # 1-6 is done according to dissertation and publications.



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	<p>The assessment of dissertation finally is done with the following wording:</p> <ul style="list-style-type: none"> <li>a) Excellent (summa cum laude) – 91points and over of maximum point – an excellent performance;</li> <li>b) Very good (magna cum laude) – 81-90 points of maximum point – a result exceeding given requirements in all aspects;</li> <li>c) Good (cum laude) – 71-80% of maximum point – a result exceeding given requirements;</li> <li>d) Average (bene) – 61-70 points of maximum point – a result satisfying given requirements in all aspects;</li> <li>e) Satisfactory (rite) – 51-60 points of maximum point – a result satisfying given requirements despite some mistakes;</li> <li>f) Unsatisfactory (insufficient) – 41-50 points of maximum point – a result not satisfying given requirements because of serious mistakes;</li> <li>g) Absolutely unsatisfactory (sub omni canone) – 40 points and less of maximum point – a result absolutely not satisfying given requirements.</li> </ul> <p>The student is awarded the academic degree of doctor in case of obtaining any of the above mentioned grades considered by items from a) to e); in case of getting the grade considered by item f) – the student has a right to present the rewritten doctoral thesis during the first year; and in case of getting the grade considered by item g) – the student has no right to present the same doctoral thesis.</p>
<p><b>Field of Employment</b></p>	<p>Program graduates will be able to work for research and academy institutions. They can participate in scientific projects, teach at university level and supervise students in the field of computer science. They will be also able to work for industry in the areas of software development, databases, networks, information security and data analysis.</p>