Learning Outcomes for the BSc in Software Engineering

National Qualification Framework for Iceland	BSc in Software Engineering at Reykjavik University	
Bachelor´s degree Cycle 1.2 180 – 240 ECTS A Bachelor´s degree provides access to further studies at cycles 2.1 and 2.2. Higher education institutions or individual faculties may require a minimum grade for admission to studies at cycles 2.1 and 2.2.	The BSc in Software Engineering at the RU is organised as a three - year programme (six semesters). To finish the programme, students need to complete 180 ECTS. On completing the Bachelor of Science in Software Engineering, students have achieved the learning outcomes shown below.	

KNOWLEDGE		
The National Qualification Framework states that degree holders possess knowledge of the relevant field or profession, such that holders:	The learning outcomes for the BSc in Software Engineering state that degree holders possess knowledge of:	
1. have acquired general understanding and insight into main theories and concepts	1	A number of recurring themes, and a set of general principles that have broad application to the field of computer science
2. are aware of the latest knowledge in the relevant field	1	The social, legal, ethical, and cultural issues inherent in the discipline of computing
3. can apply the basic elements of information technology	1, 2	That software systems are used in many different domains. This requires both computing skills and domain knowledge
	1, 2, 3	Software development fundamentals, including programming, data structures, algorithms and complexity
	1, 2, 3	Systems fundamentals, including architectures and organization, operating systems, networking and communication, parallel and distributed computation, and security
	1, 2, 3	Mathematics, including discrete structures, statistics, calculus and optimization
	1, 2, 3 1 ,2, 3	Software engineering principles, including a thorough understanding of software analysis and design, evaluation and testing and software quality and correctness Software engineering processes, including management of complex software development projects
	1, 2, 3	Application fundamentals, including information management and intelligent applications
	1, 2, 3	Multiple programming languages, paradigms, and technologies

SKILLS		
The National Qualification Framework states that degree holders can apply the methods and procedures of the field or profession, such that holders:	The learning outcomes for the BSc in Software Engineering state that degree holders can apply the methods and procedures as follows:	
1. can use the relevant equipment, technology and software	1, 4, 6	Know how to apply the knowledge they have gained to solve real problems
2. can apply critical analytic methods	3	Realize that there are multiple solutions to a given problem and these solutions will have a real impact on people's lives
3. can rationalise their decisions		
4. can evaluate critically the methods applied	3	Communicate their solutions to others, including why and how a solution solves the problem and what assumptions were made
5. recognise when further data is needed and have the ability to retrieve it, assess its reliability and apply it in an appropriate manner	2, 3, 4	Successfully apply the knowledge they have gained through project experience
	3, 7	Encompass an appreciation for the structure of computer systems and the processes involved in their construction and analysis
6. can use reliable data- and information-resources in the relevant scientific field	3, 4, 5, 7	Understand individual and collective responsibility and individual limitations as well as the limitations of technical tools
7. have acquired an open-minded and innovative way of thinking	7	Understand the range of opportunities and limitations of computing

COMPETENCES		
The National Qualification Framework states that degree holders can apply their knowledge and skills in a practical way in their profession and/or further studies, such that holders:	The learning outcomes for the BSc in Software Engineering state that degree holders can apply their knowledge and skills, as follows:	
	1	Understand the multiple levels of detail and abstraction
1. have developed the competences and independence needed for further studies within the field	1	Recognize the context in which a computer system may function, including its interactions with people and the physical world.
	1	Able to communicate with, and learn from, experts from different domains throughout their careers
2. can work in an independent and organised manner, set goals for their work, devise a work schedule and follow it	1, 2	Possess a solid foundation that allows and encourages them to maintain relevant skills as the field evolves
	1, 4	To be able to manage their own career development and advancement
3. can participate actively and lead work groups	2	Manage their own learning and development, including managing time, priorities, and progress
4. are capable of interpreting and presenting scientific issues and research findings	3	Have developed interpersonal communication skills as part of their project experience
	3	Work effectively both individually and as members of teams
	3, 4	Make effective presentations to a wide range of audiences about technical problems and their solutions
	4	Encompass an appreciation of the interplay between theory and practice

*The numbers in the column below refer to respective numbered knowledge, skills, and competencies as defined in the National Qualification Framework (shown in the column to the left).