Minimum elements of occupational standard

1. BASIC CHARACTERISTICS

1.1 Name(s) of the occupation

Software Engineer

1.2 Code of the occupation

251X

1.3 Link to the international classification

251

1.4 Level of required qualification

6

2. DESCRIPTION OF THE OCCUPATION / KEY TASKS AND REQUIRED COMPETENCIES

2.1 Description of the occupation

A Software Engineer is an expert in the field of computer science, qualified to analyse, design, program, prototype, test and maintain software solutions.

2.2 Key tasks and required competencies

TASK GROUPS	KEY TASKS	COMPETENCIES (KNOWLEDGE, SKILLS AND COMPETENCIES)
System analysis	Receive user requests Model business processes Design specifications of system requirements	Apply basic principles and methods of computer sciences Apply mathematical and scientific inference Compare and contrast alternative problem-solving techniques Apply generally accepted principles to the system analysis Apply advanced mathematical and algorithmic concepts to the software analysis Take part in team work Communicate clearly and effectively, both orally and in writing Think critically and creatively, both individually and in teams Recognize the social and ethical responsibilities of professional work Keep up to date and apply new knowledge in the field of computer science
Software design	Design a system architecture Object-oriented system design Design a user interface Design a database	Design solutions to significant computational problems Design software solutions that meet the specified design and performance requirements Apply advanced mathematical and algorithmic concepts to the software analysis Take part in team work Communicate clearly and effectively, both verbally and in writing Think critically and creatively, both individually and in teams Recognize the social and ethical responsibilities of professional work Keep up to date and apply new knowledge in the field of computer science
Software design	Implement system components Design web	Apply basic principles and methods of computer sciences Correctly document and implement solutions to significant computational problems

TASK GROUPS	KEY TASKS	COMPETENCIES (KNOWLEDGE, SKILLS AND COMPETENCIES)
	applications Design mobile applications	Implement software solutions
		Apply algorithmic concepts
		Take part in team work
		Communicate clearly and effectively, both verbally and in writing
		Think critically and creatively, both individually and in teams
		Recognize the social and ethical responsibilities of professional work
		Keep up to date and apply new knowledge in the field of computer science
Software prototyping	Prototype specification design Prototype design Prototype implementation Solutions presentation	Apply basic principles and methods of computer sciences
		Compare and contrast alternative problem-solving techniques
		Apply generally accepted principles to the system analysis
		Design and implement prototypes that meet the specified design and performance requirements
		Take part in team work
		Communicate clearly and effectively, both verbally and in writing
		Think critically and creatively, both individually and in teams
		Recognize the social and ethical responsibilities of professional work
		Keep up to date and apply new knowledge in the field of computer science
Software testing	Development and execution of test plans and scripts	Apply basic principles and methods of computer sciences
		Take part in team work
		Communicate clearly and effectively, both verbally and in writing
		Think critically and creatively, both individually and in teams
		Recognize the social and ethical responsibilities of professional work
		Keep up to date and apply new knowledge in the field of computer science
Software maintenance	Software maintenance and support	Correctly document and implement solutions
		Take part in team work
		Communicate clearly and effectively, both verbally and in writing
		Recognize the social and ethical responsibilities of professional work

TASK GROUPS	KEY TASKS	COMPETENCIES (KNOWLEDGE, SKILLS AND COMPETENCIES)
		Keep up to date and apply new knowledge in the field of computer science

3. QUALITY ASSURANCE

3.1 Justification for the introduction of occupational standards

- *Labour market demands in Bosnia and Herzegovina, the region and elsewhere.*

- *The existence of a large number of different study programs in which these skills are taught*

3.2 Occupational standard developers and the production date

Competent institution.

3.3 The deadline by which an occupational standard can be used for qualification development

In line with the Baseline Qualifications Framework

3.4 Competent institution, link to the decision on entry into the registry, and the sector council expert opinion

In line with the law.

3.5 Date of entry into the registry

xx.xx.xxxx

3.6 Members of the Working Group

Academic community:

- Assoc. Prof. Samra Mujačić, University of Tuzla
- Assoc. Prof. Suad Kasapović, University of Tuzla
- Assoc. Prof. Samim Konjicija, University of Sarajevo
- Assist. Prof. Dražen Brđanin, University of Banja Luka
- Assist. Prof. Dragan Matić, University of Banja Luka
- Assist. Prof. Jasminka Hasić, International University of Sarajevo
- Assist. Prof. Zanin Vejzović, Džemal Bijedić University in Mostar
- Assist. Prof. Samir Lemeš, University of Zenica
- Assist. Prof. Nina Bijedić, Džemal Bijedić University in Mostar
- Sr. Teach. Assist. Amir Hajdar, University of Sarajevo

Employers in the ICT sector:

- Muhdin Mujačić, M.A., Procom Ltd., Tuzla
- Ferid Ajanović, B.Sc.E.E., AtlantBH Ltd., Sarajevo

4. ADDITIONAL INFORMATION

2.1 Specific legal regulations directly related to the occupation

The Law on…

2.2 Occupational health risks and working conditions

Health risks associated with prolonged sitting, frequent use of fine motor skills, and eye strain.

2.3 Specific requirements for employment

None