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1. Introduction

The dynamic penetration of blockchain technology across the major sectors of the EU economy has created the need for up-skilling ICT professionals so that they are able to understand and work on blockchain applications. BLISS is an Erasmus+ project that aims to address this challenge by delivering a modular curriculum and Open Educational Resources (OERs) on blockchain technology, to increase the relevance of VET provision for ICT professionals to match their competences with the latest ICT developments and promote their employability.

The second intellectual outcome of the BLISS project contributes with a deliverable consisting of two parts: *O2-T1: Grouping of Learning Outcomes into Learning Units*, and *O2-T2: VET Integration Guidelines*. The main goal of this document is to present a grouping of learning outcomes into learning units. This document presents the first part of the deliverable where the structure of the BLISS curriculum is comprised to modular learning units. The VET providers can use these learning units for training ICT professionals (including VET students) in blockchain applications. This deliverable is the core for the achievement of the BLISS objectives as it stands as a prerequisite to develop the BLISS educational resources.

The rest of the document is structured as follows: in Section 2 the grouping of learning outcomes into learning units is presented. This includes (*i*) description of the method for designing learning units, (*iii*) overview of the grouping criteria that help meeting the BLISS project targets and (*iii*) presentation of the BLISS learning units. In Section 3 the learning units. Firstly the need for the learning unit specification and the overview of the EQF levels are presented. Then the duration of the course and learning units is discussed. The section also includes the allocation of the credits, definition of the assessment method and description of the recommended background for learners.

2. Grouping of Learning Outcomes into Learning Units

This section discusses a method to design learning units and overviews the criteria used to group learning outcomes to the learning units. In the end the section includes presentation of the learning units.

2.1. Method for Designing Learning Units

The BLISS project uses the learning outcome approach to design the curriculum and to connect the developed VET programme with the European reference tools (EQF, ECVET, ECTS). As the course delivery is different in various countries, this method potentially contributes to the alignment of the common content related to the blockchain technology education and required skills of the course learners. As shown in Figure 1, the method for designing learning units consists of 3 steps: (1) group learning outcomes; (2) test learning units; and (3) update learning units.

The input to the first step is (*i*) the evidence based learning outcomes (see Table 1) defined in the deliverable O1 [1] and (*ii*) the grouping criteria, discussed on Section 2.2. This step involves the elaboration of the defined learning outcomes into 4 learning units as illustrated in Table 2. The step also includes development of specifications for each learning units including practical and pedagogical orientations, such as mapping to the level of the European Qualification Framework, duration of each unit and the overall course, teaching and learning methods and activities, and evaluation criteria. The partnership has also defined the credits assigned to each learning units that can be evaluated and accumulated towards the qualification or transferred to other learning programmes and qualifications.

The input for the second step is the developed learning units, which are used to prepare the BLISS open educational resources (in O3) and to develop the open online course infrastructures (in O4). After the multiplier events, the feedback is received which is used to update the learning outcomes in the third step[1]. The third step results in the final specification of the learning outcomes.

[1] The third step will be executed in M29-30 of the BLISS project

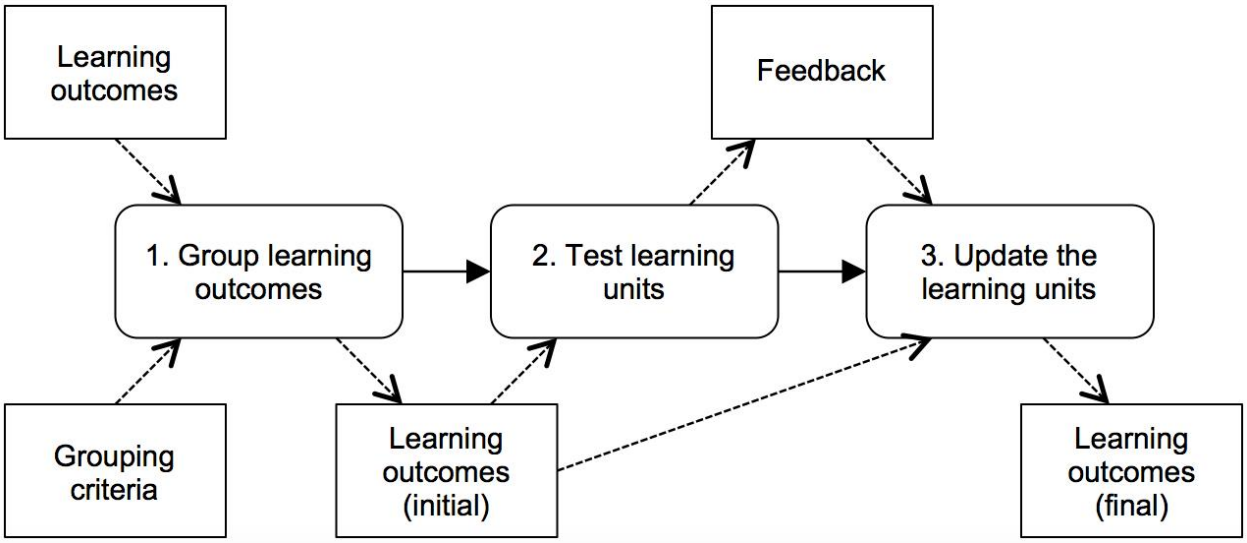

Figure 1: *Method for Designing Learning Units*

2.2. Grouping Criteria

To group the learning outcomes into the learning units the BLISS consortium has identified the learning outcomes that relate to each other, following (*i*) relevance to the same set of occupational tasks, (*ii*) relevance to the specific stages in the process of performing a service, and (*iii*) relevance to the same area of skills. Hence each learning unit correspond to the set on knowledge and skills which thematically capture different blockchain technologies:

- Blockchain essential for the ICT professionals;
- Understanding the blockchain platforms and applications;
- Practical application of the blockchain technology in different domains (finance, accounting), delivery of the blockchain-based solutions to businesses and public administration, and communication of the merits of blockchain technology to customers and within own company.
- Proof of concept, proof of value solutions, and preparation of the capstone blockchain project.

Outcome of the grouping of the learning outcomes into the learning units is illustrated in Table 2. In Section 2.3 a brief introduction of the BLISS learning units is provided.

Table 1. O1: Evidence-based learning outcomes

K1	Give an account of the advantages and disadvantages of the features of a specific blockchain application, namely in terms of security, decentralization and consensus attainment
K2	Autonomously explain the operation of a smart contract in a given blockchain scenario
K3	Evaluate the feasibility of implementing the specified decentralized blockchain application within a suitable blockchain platforms
K4	Provide expertise to report on a detailed plan of tests of the specified decentralized blockchain application
K5	Interpret the legal, regulatory and consumer challenges to wider blockchain adoption and conformance
K6	Monitor the intervention of blockchain technology in business models
K7	Analyse blockchain SWOT (Strengths, Weaknesses, Opportunities, Threats) for specific industry scenarios
K8	Intelligibly present Blockchain industry business models
K9	Communicate business opportunities behind the limits of the blockchain
K10	Critically evaluate the technical options for blockchain solution suitable to varied practical scenarios
K11	Report on the feasibility of selected blockchain solution to the specific scenarios
K12	Account for optimization of application development, maintenance and performance by employing design patterns and by reusing proved solutions
K13	Autonomously report on de advancement of the application development

Table 2. Grouping learning outcomes into learning units

		Learning outcomes												
Learning units		**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**K7**	**K8**	**K9**	**K10**	**K11**	**K12**	**K13**	**Entry requirements**
U1	**Blockchain essentials for ICT professionals**	+	+												VET students of computer science, business and economics study field ICT engineers and project managers being employed
U2	**Blockchain platform**			+	+										
U3	**Communicating the business merits, challenges and implications of blockchain technology**					+	+	+	+	+					
U4	**Practical design and development of blockchain application**										+	+	+	+	

2.3. Presentation of BLISS Learning Units

As illustrated in Table 2, the grouping of learning outcomes resulted in four learning units:

U1: *Blockchain essentials for ICT professionals.* This learning unit defines the essential blockchain characteristics. Addresses the fundamental features of blockchain technology.

U2: *Blockchain platform*. This learning unit selects appropriate technical options for blockchain design and implementation. Specifies, refines, updates and makes available a formal approach to design solutions, necessary to develop and operate a blockchain application.

U3: *Communicating the business merits, challenges and implications of blockchain technology*. This introduces how the characteristics of blockchain technology can disrupt and/or innovate existing business models and business processes. Examines existing blockchain-based use cases in industries such as finance, public services, provenance, supply chains etc.

U4: *Practical design and development of blockchain application*. This learning unit introduces process- and state-based modelling languages suitable for requirement analysis and design of blockchain applications. Identify a use case, selection of suitable platform, design a solution that delivers value, and develop a proof of concept in accordance with defined specifications.

Specifications of learning units are further discussed in Section 3.

3. Learning Unit Specifications

This section discusses the need for the learning unit specification and maps the proposed learning units to the levels of the European Qualification Framework. It also discusses the duration of the learning units and the course and aligns it to the European Credit Transfer and Accumulation System. In the end it overviews the potential assessment method and proposes potential background for the course learners.

3.1. The Need for Learning Unit Specifications

The learning unit specification gives a concise and coherent summary of the learning unit. It illustrates the main record in order to help VET providers to design the course/curriculum and to inform the learners. The description of curriculum or course which is provided to the learners when they are enrolled to the learning unit should include a specification of the European Qualification Framework level, duration of the overall course and separate learning unit, credit allocation, assessment method, recommended learners background, etc.

3.2. Levels of the European Qualification Framework

European Qualification Framework (EQF) presents eight levels along which learning outcomes can be characterises. These levels are defined by "a set of descriptors indicating the learning outcomes relevant to qualifications at that level in any system of qualifications" [2]. Table 3 presents these levels in terms of knowledge and skills. In the context of the European Qualification Framework, on one hand, *knowledge* could be either theoretical and/or factual. On the other hand, *skills* are described as cognitive (i.e., logical, intuitive and creative thinking) and practical (i.e., skills in performing manual tasks, use methods, tools, material, and instruments). Table 4 presents a mapping of the presented learning units to the levels of the EQF framework.

3.3. Duration of Course and Learning Units

The proposed duration of the course is 156 hours as illustrated in Table 5. Out of these, 20 hours are allocated to *U1: Blockchain essentials for ICT professionals*; 24 hours – to *U2: Blockchain platform*; 50 hours – to *U3: Communicating the business merits, challenges and implications of blockchain technology*. The remaining 62 hours are dedicated to *U4: Practical design and development of blockchain application*.

The course will consist of theoretical lectures, practical work and individual assignment parts. The theoretical lectures and practical work parts will take 32 hours each. The remaining 96 hours are allocated to the individual assignments (including the reading material, preparing/solving tutorials, preparing for the course tests).

Table 3: Levels of European Qualification Framework (adapted from [2])

Level	**Knowledge**	**Skills**
Level 1	Basic general knowledge	Basic skills required to carry out simple tasks
Level 2	Basic factual knowledge of a field of work or study	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools
Level 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields
Level 8	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice

Table 4: Mapping of the learning units to EQF levels

Learning unit	EQF level	Rationale
U1	4	Factual and theoretical knowledge given on the blockchain technology.
U2	4-5	Factual and theoretical knowledge given on the blockchain platform foundations. But the unit also includes comprehensive, specialised, factual and theoretical knowledge given on specific blockchain platforms (e.g., Ethereum, Hyperledger and Corda).
U3	5-6	Comprehensive, specialised, factual and theoretical knowledge given on blockchain as innovator of businesses and processes, blockchain maturity and practices and exiting applications. But the unit also includes advanced knowledge of policy and regulations and blockchain as business model disruption.
U4	5-6	Comprehensive and specialised knowledge given on the blockchain capstone project. But the unit also includes advanced knowledge of activities for requirements engineering and design of the Blockchain Applications.

Table 5: Duration of the learning units and the course

Learning unit	Theoretical lectures (hours)	Practical work (hours)	Individual assignments (hours)	Total (hours)
U1	4	4	12	**20**
U2	6	6	12	**24**
U3	10	10	30	**50**
U4	12	12	38	**62**
TOTAL:	**32**	**32**	**96**	**156**

3.4. Credits Allocation

European Credit Transfer and Accumulation System (ECTS) defines standard means to allocate credits with respect to the defined learning outcomes and their associated workflow [3]. The European countries have various numbers of hours per ECTS point. Table 6 presents the amount of credits allocated for the 156-hour course in the BLISS consortium countries.

Table 6: ECTS allocation for the 156 hours course in different BLISS consortium countries

Country	Hours per one ECTS	U1 (*ECTS*)	U2 (*ECTS*)	U3 (*ECTS*)	U4 (*ECTS*)	Amount of ECTS per 156 hours
Belgium	**25-30**	0.80-0.67	0.96-0.80	2.00-1.67	2.48-2.07	6.24-5.21
Bulgaria	**25-30**	0.80-0.67	0.96-0.80	2.00-1.67	2.48-2.07	6.24-5.21
Estonia	**26**	0.77	0.92	1.92	2.39	6.00
France	**29**	0.69	0.83	1.72	2.14	5.38
Greece	**30**	0.67	0.80	1.67	2.07	5.21
Italy	**25**	0.80	0.96	2.00	2.48	6.24

The European Credit system for Vocational Education and Training (ECVET) supports mobility of learners and the flexibility to acquire qualification. On one hand ECVET points provide information about units and qualifications in the numerical values. On another hand credit is given for the assessment of the learning outcomes of the learner. Based on above discussion, the allocation of the ECVET credits [4] is suggested as illustrated in Table 7.

Table 7: ECVET credit allocation for the 156 hours BLISS course[2]

U1 (*ECVET credits*)	U2 (*ECVET credits*)	U3 (*ECVET credits*)	U4 (*ECVET credits*)	**Total**
0.5	1	1.5	2	5

3.5. Assessment Method

Assessment method consists of *tests*, which will help to assess learner's knowledge, abilities, and skills. Tests might include Quizzes, multiple-choice tests, essay-type tests, and performance tests. Table 8 lists the suggested assessment tests per learning unit. *Quizzes* could be performed as brief assessments of the smaller amount of material (e.g., after the each learning unit or its topic). *Multiple-choice tests* are tests where learners would need to choose the correct answers among the multiple answer candidates. *Essay-type test* are tests where the learners would need to write a response to the given open questions (e.g., in order to assess learner's ability to deal with some complex learning objectives). *Performance tests*

[2] What is the link between ECVET and ECTS? They both are based on EQF. How hours are accumulated in ECVET? **This section will be changed once the clarity and agreement in the consortium is achieved**.

are tests where learners would be required to perform some tasks or activities, e.g., develop blockchain application (or some component) in the capstone project.

Table 8: Suggested (marked as X) assessment methods

Learning unit	Quiz	Multiple-choice	Essay-type	Performance test
U1	X	X		
U2	X	X	X	
U3	X	X	X	
U4	X		X	X

3.6. Recommended Learner's Background

Target groups of learners include (*i*) *ICT professionals* employed in companies building and offering blockchain technology, who have some experience in blockchain technology and wish to improve themselves by taking suggested course; (*ii*) *I-VET students* aspiring to get employed as blockchain application developers; (*iii*) *project managers* who need to understand the need for different blockchain applications and implications of blockchain technology in the key sectors of economy.

4. BLISS Course

The BLISS course, consisting of four learning units, is listed in this section. Tables 9-12 consequently aggregate the specification of all learning units.

Table 9 presents learning unit U1: *Blockchain essentials for ICT professionals*. It includes two learning outcomes – K1 (Introduction, Cryptographic components, and Blockchain structure), and K2 (Smart contract theory and Smart contract application).

Table 9: Specification of U1

<table>
<tr><td>Learning unit title</td><td colspan="2">U1: Blockchain essentials for ICT professionals</td></tr>
<tr><td>EQF level of qualification</td><td colspan="2">e-CF 2; EQF 4</td></tr>
<tr><td>e-CF Competence</td><td colspan="2">B1. Application Development (to verify)</td></tr>
<tr><td>Duration</td><td>Theory</td><td>4</td></tr>
<tr><td></td><td>Practice</td><td>4</td></tr>
<tr><td></td><td>Individual work</td><td>12</td></tr>
<tr><td></td><td>TOTAL</td><td>20</td></tr>
<tr><td colspan="3">Abstract</td></tr>
<tr><td colspan="3">Defines the essential blockchain characteristics. Addresses the fundamental features of blockchain technology.</td></tr>
<tr><td colspan="3">Learning outcomes</td></tr>
<tr><td colspan="3">K1
Give an account of the advantages and disadvantages of the features of a specific blockchain application, namely in terms of security, decentralization and consensus attainment</td></tr>
<tr><td>Knowledge</td><td colspan="2">Skills</td></tr>
<tr><td>Introduction
• Blockchain terminologies
• Distinction between databases and blockchain ledgers
Cryptographic component
• Cryptography, hash functions and digital signatures
Consensus components
• Principles and paradigms of distributed systems
• Blockchain consensus algorithms
Blockchain structures
• Blockchain structure
• Types of blockchain</td><td colspan="2">• Identify blockchain characteristics in a given setting
• Analyse existing blockchain applications according to a given context
• Critically evaluate cryptography features to a blockchain application
• Identify crucial security attributes in a blockchain
• Differentiate decentralized autonomous systems, such as distributed ledgers suitable to a given blockchain application</td></tr>
<tr><td colspan="3">K2
Autonomously explain the operation of a smart contract in a given blockchain</td></tr>
</table>

scenario	
Knowledge	**Skills**
Smart contract theory • Smart Contract Theory and architecture • Architectures and decentralized autonomous systems *Smart contract application* • Existing blockchain applications, related structures and architectures	• Select consensus algorithms suitable for specific blockchain applications • Formalise and assess smart contracts adequate to given blockchain contexts
Learning outcome assessment criteria	**K1**: Ability to explain basic blockchain concepts, such as cryptographic components, consensus components, and major blockchain structures. **K2**: Ability to explain basic principles and applications of the smart contracts.
Learning method	Theoretical lectures, practical work and individual assignment
Assessment methods	Tests

Table 10 presents learning unit U2: *Blockchain platform*. It includes two learning outcomes – K3 (Platform foundations) and K4 (Ethereum platform, Hyperledger platform, and Corda platform).

Table 10: Specification of U2

Learning unit title	**U2: Blockchain platform**	
EQF level of qualification	e-CF 2; **EQF 4-5**	
e-CF Competence	A6. Application Design B1. Dev?	
Duration	Theory	6
	Practice	6
	Individual work	12
	TOTAL	**24**
Abstract		
Selects appropriate technical options for blockchain design and implementation. Specifies, refines, updates and makes available a formal approach to design solutions, necessary to develop and operate a blockchain application.		
Learning outcomes		
K3 Evaluate the feasibility of implementing the specified decentralized blockchain application within a suitable blockchain platforms		

Knowledge	Skills
Platform foundations • Characteristics of blockchain platforms (permissioned, public, etc.) • Blockchains programming paradigm • Architectural aspects, accessibility, and visibility	• Identify the differentiating characteristics of the various blockchain platforms • Analyse and characterise different blockchain protocols according to given criteria • Select and formalise requirements of a blockchain protocol for specific scenarios
K4 Provide expertise to report on a detailed plan of tests of the specified decentralized blockchain application	
Knowledge	**Skills**
Ethereum platform • Ethereum blockchain setup • Smart Contract cycle • Use Case implementation *Hyperledger platform* • Hyperledger blockchain setup • Smart Contract cycle • Use Case implementation *Corda platform* • Corda blockchain setup • Smart Contract cycle • Use Case implementation	• Plan and design the specifications of a decentralized blockchain application for a given scenario
Learning outcome assessment criteria	**K3**: Ability to select among the blockchain platform, select and formalise requirements for the specific scenario. **K4**: Ability to design a specification according to the given scenario.
Learning method	Theoretical lectures, practical work and individual assignment
Assessment methods	Tests

Table 11 presents learning unit U3: *Communicating the merits, challenges and implications of blockchain technology*. It includes five learning outcomes – K5 (*Policy and regulation*), K6 (*Blockchain as innovator of businesses and processes*), K7 (Blockchain maturity and strategies), K8 (Blockchain and business model disruption), and K9 (Existing applications).

Table 11: Specification of U3

Learning unit title	**U3: Communicating the business merits, challenges and implications of blockchain technology**	
EQF level of qualification	e-CF 3; **EQF 5-6**	
e-CF Competence	E.7 Business Change Management	
Duration	Theory	10
	Practice	10
	Individual work	30
	TOTAL	**50**
Abstract		
Introduces how the characteristics of blockchain technology can disrupt and/or innovate existing business models and business processes. Examines existing blockchain-based use cases in industries such as finance, public services, provenance, supply chains etc.		
Learning outcomes		
K5 Interpret the legal, regulatory and consumer challenges to wider blockchain adoption and conformance		
Knowledge	**Skills**	
Policy and regulation • Blockchain and Public Policy, Central Banks & governmental regulations • Implications of blockchains for governments, policy makers, law professionals, regulators and society	• Recognise potential regulatory and legal frameworks for blockchain operation, including consumer protection, and taxation	
K6 Monitor the intervention of blockchain technology in business models		
Knowledge	**Skills**	
Blockchain as innovator of businesses and processes • Blockchain business models • Blockchain emerging trends susceptible to create value for the business • Innovative blockchain solutions and entrepreneurship • Blockchain transforming business and professionalism	• Provide detailed examples of the blockchain transforming power in specific contexts	
K7 Analyse blockchain SWOT (Strengths, Weaknesses, Opportunities, Threats) for specific industry scenarios		
Knowledge	**Skills**	

Blockchain maturity and strategies • Blockchain adoption metrics, challenges and opportunities • Blockchain business strategies	• Project strengths and weaknesses of the Blockchain technology in a given scenario
K8 Intelligibly present Blockchain industry business models	
Knowledge	**Skills**
Blockchain as business model disruption • Implications of blockchains for corporates, such as disruption by open markets, winner-takes-all, multi-sided market platforms, the role of trust in blockchain markets • How blockchain technology is disrupting existing business models and creating new ones	• Describe blockchain business processes and business logics
K9 Communicate business opportunities behind the limits of the blockchain	
Existing applications • Main disruptive features of different practical blockchain application scenarios, such as in finance, accounting, business operations, public administration and government services	• Outline latest trends in the blockchain technology, and the directions of growth across impacted industries
Learning outcome assessment criteria	**K5**: Ability to apply regulatory and legal frameworks for the blockchain operations. **K6**: Ability to recommend blockchain technology for business and operation innovation. **K7**: Ability to perform SWOT analysis of the blockchain application. **K8**: Ability to design blockchain business processes and business logics. **K9**: Ability to blockchain features for the growth of the (impacted) industry.
Learning method	Theoretical lectures, practical work and individual assignment
Assessment methods	Tests

Table 12 presents learning unit U4: *Practical design and development of blockchain application*. It includes four learning outcomes – K10 (*Requirements engineering for blockchain applications* and *Analysis and design*), K11 (Matching use case with platforms), K12 (*Capstone project*), and K13 (*Capstone project*).

Table 12: Specification of U4

Learning unit title	**U4: Practical design and development of blockchain application**	
EQF level of qualification	e-CF 2; **EQF 5-6**	
e-CF Competence	A6. Application Design B1. Application Development (to verify)	
Duration	Theory	12
	Practice	12
	Individual work	38
	TOTAL	**62**

Abstract

Introduces process- and state-based modelling languages suitable for requirement analysis and design of blockchain applications. Identify a use case, selection of suitable platform, design a solution that delivers value, and develop a proof of concept in accordance with defined specifications.

Learning outcomes

K10

Critically evaluate the technical options for blockchain solution suitable to varied practical scenarios

Knowledge	**Skills**
Requirement Engineering for Blockchain Applications • Requirements modelling and need analysis techniques regarding the specific blockchain application scenarios • Modelling languages *Analysis and Design (process based approach, state based approach)* • Process based approach • State based approach	• Examine the key characteristics, potential benefits and challenges of blockchain in different types of scenarios, such as the banking and finance sector (i.e. global payments, trade finance), business operations (for instance supply chain management, traceability and internet of things for industry, logistics, insurance, digital claims management, healthcare, real state, energy), public administration and government services, like e-voting, record management, identity management, taxes, regulation compliance, authors'

	copyright management
K11 Report on the feasibility of selected blockchain solution to the specific scenarios	
Knowledge	**Skills**
Matching Use Case with Platform • Appropriate technical options for blockchain solution design adequate to specific practical scenarios	• Collect, formalise and validate functional and non-functional requirements of given scenarios
K12 Account for optimization of application development, maintenance and performance by employing design patterns and by reusing proved solutions	
Knowledge	**Skills**
Capstone Project • Existing blockchain-based POC (Proof Of Concept) • Metrics, track-recording and monitoring related to application development, debug and testing	• Explain and communicate the design/development of use case/POC, at their different phases, to potential users and stakeholders • Perform tests and evaluate test results against POC specifications
K13 Autonomously report on the advancement of the application development	
Knowledge	**Skills**
Capstone Project • Appropriate blockchain software programs/modules and their inner workings	• Develop and apply appropriate software architectures
Learning outcomes assessment criteria	**K10**: Ability to engineer requirements and design the blockchain applications. **K11**: Ability to collect and formalise functional and non-functional requirements and to select the blockchain platform. **K12**: Ability design and test existing blockchain based PoC. **K13**: Ability to develop and apply appropriate blockchain architecture.
Learning method	Theoretical lectures, practical work and individual assignment
Assessment methods	Tests

References

[1] UCBL. BLISS: Definition of BLISS learning outcomes based on training needs analysis, Output type: Intellectual output, May 2018

[2] European Commission. Descriptors defining levels in the European Qualifications Framework (EQF). URL: *https://ec.europa.eu/ploteus/content/descriptors-page* (last checked: 31.08.2018)

[3] European Commission. European Credit Transfer and Accumulation System (ECTS). URL: *https://ec.europa.eu/education/resources/european-credit-transfer-accumulation-system_en* (last checked: 31.08.2018)

[4] ECVET: European Credit system for Vocational Educational & Training, URL: *http://www.ecvet-secretariat.eu/en/what-is-ecvet* (last checked: 31.08.2018)