

WP2. Designing Innovative STEAM curriculum

MS9.Improved syllabus with STEAM skills elements – concept design 1st part

Discipline: Innovational Management

This syllabus is improved in accordance to:

QUALIFICATION STANDARD, NQF level 6

Professional training field: 0413 BUSINESS ADMINISTRATION

Study program: 0413.1 BUSINES ADMINISTRATION

BACHELOR'S DEGREE IN ECONOMICS

Developed by: P5.USM, Moldova State University



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1. Information about the programme

Higher education institution	MOLDOVA STATE UNIVERSITY
Faculty	Economic Sciences
Study cycle	Bachelor level
Study programme	Business & Administration

2. Information about the discipline

Discipline	Innovationa	Innovational Management				
Professor		JALENCU 1	JALENCU Marian			
Teaching Assista	BULIMAGA	BULIMAGA Tatiana				
Study year		III	III			
Academic year 2023- 2024		Semester	1	Type Evaluation	Exam	
Number of ECT	5					

3. Specific objectives of discipline

The overall objective of the course	 The accumulation of knowledge in the issue of the initiation and development of innovative businesses, through notions, concepts, typologies and structures specific to the process and system / ecosystem of innovation and technological transfer.
Specific objectives	 To know the methods, techniques and basic procedures for collecting, processing and presenting the data and information necessary for the elaboration and development of innovative plans. To critically evaluate processes in the field of innovative management, specific projects for the development of innovative businesses and technological transfer. To design and propose concrete ways of solving problems, situations, concrete cases in the field of company management, as well as innovative business development, through innovative methods.



4. Learning outcomes, in accordance to NQF level 6

☐ Step I. Identifying the correlation between discipline – competency area – competency category – learning outcomes

Discipline	Competency area	Competency category	Learning outcome
	1. OPPORTUNITY EVALUATION AND START-UPS	PC 1. Identifying business opportunities	LO6. Identify and test business ideas in terms of the trends and identified needs
		PC 2. Transforming business opportunities into successful enterprises	LO7. Develop and implement business ideas, devising the business model, considering the available resources, the business environment, the established objectives.
Innovational Management,	2. RESOURCES AND OPERATIONS	GC 3. Data collection, processing and analysis for decision-making in changing and complex environmental conditions	LO2. Use various economic and managerial methods and tools, including digital tools, for formulating conclusions and explaining decisions.
year III, semester 1	3. OPERATIONS AND PERFORMANCE MANAGEMENT	PC8. Performing management functions	LO12. Plan and manage the business/projects and tasks through teamworking and collaborating with business partners
	4. BUSINESS TRANSFORMATION AND DEVELOPMENT	PC 10. Implementation of organization changes	LO14. Support the enterprise/organization in organizational change, identifying the appropriate strategies for transformation and sustainable
		PC 11. Restructuring and sustainable business transformation	business development.

Step II. Defining new learning outcomes and related knowledge and skills

Competency category	Learning outcome	Descriptors (from D3)	Knowledge (from D4)	Skills (from D4)
PC 1. Identifying business opportunities	LO6. Identify and test business ideas in terms of the trends and identified needs	 Identifies and exploits the possibilities to create value by analysing the economic, social and cultural situation. Tests business ideas taking into account the trends regarding resources, technologies and the needs of potential customers. 	K2. Types of entrepreneurships (social, creative, digital, innovative, green, etc.) K5. Creativity and innovation tools	S1. Identify business ideas, taking into account market needs, available technologies and resources. S4. Select the optimal business ideas
PC 2. Transforming business opportunities into successful enterprises	LO7. Develop and implement business ideas, devising the business model, considering the available resources, the business environment, the established	Develop ideas (economic, social and cultural) or conclusions that result in creating and implementing Identifies available resources for the business. Elaborates the business model, in conformity with the available resources, the	K2. The necessary resources to launch and develop the business K3. The competitive advantage	S1. Develop (economic, social and cultural) ideas or conclusions that facilitate the creation and implementation of innovations or changes. S2. Identify the



Competency category	Learning outcome	Descriptors (from D3)	Knowledge (from D4)	Skills (from D4)
	objectives.	business environment, the established objectives. • Designs the organization and operation model of the enterprise taking into account its agility needs.		necessary resources for the business S5. Develop and present the business model/business plan.
GC 3. Data collection, processing and analysis for decision-making in changing and complex environmental conditions	LO2. Use various economic and managerial methods and tools, including digital tools, for formulating conclusions and explaining decisions.	Determines the needs for economic, social, legal, etc. information/data. Uses various methods and tools, including digital, for collecting, structuring, analysing, interpreting and using the necessary information for the work activity Makes rational judgments from available information and analysis.	K1. Information systems K4. Economic quantitative methods	S2. Apply methods and tools for data collection, analysis and interpretation. S3. Propose appropriate solutions according to the organization's activity type.
PC8. Performing management functions	LO12. Plan and manage the business/projects and tasks through teamworking and collaborating with business partners	Plans and manages the business, operational activities, projects and tasks. Defines priorities, develops and implements business plans/action plans. Develops and implements management systems based on sustainable economy principles.	K2. The activity environment of the organization K5. Managerial methods and techniques	S3. Use different managerial methods and techniques in the carried-out activity. S4. Implement managerial functions within the organization. S11. Implement amendments or changes to the business model based on current performance and identified specific management, technological and social trends.
PC10. Implementation of organization change	LO14. Support the organization in organizational change, identifying the appropriate	Identifies and suggests alternatives or new approaches to improve organizational development processes, practices and policies. Analyses the effectiveness of changes and developments, withdraws conclusions and makes follow- up sketches.	K5. The internal and external environmental factors that affect an	S2. Determine the right strategies for sustainable business development S5. Unbiased assess
PC11. Restructuring and sustainable business transformation	identifying the appropriate strategies for transformation and sustainable business development	Unbiasedly assesses business advantages and weaknesses in a specific environment. Proposes business transformation and development strategies Applies recovering / restructuring techniques to the underperforming business.	organization K6. Principles of sustainable business development	the strengths, weaknesses, opportunities and business risks in a particular business environment



5. New learning outcomes for STEAM skills gaps (MS4)

$\hfill \square$ Step I. Identifying relevant learning outcomes for STEAM fields, innovation and sustainable development competences

- The learning outcomes for **STEAM knowledge** – cumulative frequency

STEAM knowledge considered useful and very useful	Students	Employers
Valuing sustainability – K1, K2	79.50%	95.80%
Supporting fairness – K3, K4	80.00%	91.65%
Promoting nature – K5, K6	83.50%	100.00%
System thinking – K7, K8	77.00%	93.75%
Critical thinking – K9, K10	82.50%	83.35%
Problem framing – K11, K12	81.00%	93.75%
Adaptability – K13, K14	81.00%	93.70%
Exploratory thinking – K15, K16	81.00%	95.80%
Political agency – K17, K18	79.00%	97.90%
Collective action – K19, K20	81.50%	97.90%
Individual initiative – K21, K22	79.00%	97.90%

- The learning outcomes for **STEAM skills** – cumulative frequency

STEAM skills considered useful and very useful	Students	Employers
Valuing sustainability – S1, S2	82.50%	91.65%
Supporting fairness – S3, S4	87.50%	97.90%
Promoting nature – S5, S6	83.00%	97.90%
System thinking – S7, S8	83.50%	91.70%
Critical thinking – S9, S10	80.00%	85.45%
Problem framing – S11, S12	84.00%	91.70%
Adaptability – S13, S14	83.00%	91.65%
Exploratory thinking – S15, S16	75.00%	100.00%
Political agency – S17, S18	77.00%	97.90%
Collective action – S19, S20	81.50%	97.90%
Individual initiative – S21, S22	81.00%	97.90%

\square Step II. Mapping the learning outcomes by NQF with STEAM fields, innovation and sustainable development competences

Competency	Learning	Knowledge (from	STEAM	Skills	STEAM
category	outcome	D4)	knowledge	(from D4)	skills
PC 1.	LO6.	K2. Types of entrepreneurships (social, creative, digital, innovative, green, etc.) K5. Creativity and innovation tools	Critical thinking – K9 , K10 Exploratory thinking – K15 , K16	S1. Identify business ideas, taking into account market needs, available technologies and resources. S4. Select the optimal business ideas	System thinking - S7, S8 Exploratory thinking -S15, S16



Competency	Learning	Knowledge (from	STEAM	Skills	STEAM
category	outcome	D4)	knowledge	(from D4)	skills
PC 2.	LO7	K2. The necessary resources to launch and develop the business K3. The competitive advantage	Valuing sustainability – K1, K2 System thinking – K7, K8	S1. Develop (economic, social and cultural) ideas or conclusions that facilitate the creation and implementation of innovations or changes. S2. Identify the necessary resources for the business S5. Develop and present the business model/business plan.	Valuing sustainability – S1, S2 Exploratory thinking –S15, S16
GC.3	LO2.	K1. Information systems K4. Economic quantitative methods	Valuing sustainability - K1, K2 Supporting fairness - K3, K4	S2. Apply methods and tools for data collection, analysis and interpretation. S3. Propose appropriate solutions according to the organization's activity type.	Valuing sustainability – S1, S2
PC8.	LO12.	K2. The activity environment of the organization K5. Managerial methods and techniques	Adaptability – K13 , K14 Collective action– K19 , K20	S3. Use different managerial methods and techniques in the carried-out activity. S4. Implement managerial functions within the organization. S11. Implement amendments or changes to the business model based on current performance and identified specific management, technological and social trends.	Exploratory thinking –S15, S16 System thinking – S7, S8
PC10.	LO14.	K5. The internal and external environmental factors that affect an organization	System thinking – K7, K8 Critical thinking – K9,	S2. Determine the right strategies for sustainable business development	Adaptability – S13, S14 Exploratory thinking – S15, S16
PC11.		organization K6. Principles of sustainable business development	K10 Individual initiative – K21, K22	S5. Unbiased assess the strengths, weaknesses, opportunities and business risks in a particular business environment	Individual initiative – S21, S22

6. Educational components of the discipline

6.a) Theoretical lessons

Theoretical course lessons	Number of hours	Teaching methods*
L1. Defining human creativity	2	University lecture. Multimedia presentations. Collaborative work through e-platform
L2. Conceptualization of the notion of innovation	2	Lecture. Debates. Problematization. Communication via e-platform (MOODLE).
L3. Possible sources of innovation	2	University lecture. Interactive teaching, case studies. Group activities. Collaborative work through e-platform
L4. Communication skills, critical / logical thinking and orientation towards creativity / innovation	2	Univ. lecture. Discussions. Promblem-based learning. E-platform communication (MOODLE).
L5. Innovation management: carrying out the innovation process at the company	2	Univ. lecture. Discussions. Promblem-based learning. E-platform communication (MOODLE).



L6. Achieving competitive advantage: the main goal of innovation management	2	Univ. lecture. Discussions. Promblem-based learning. Eplatform communication (MOODLE).
L7. Achieving the company's competitiveness through the development of innovative products, business digitalization, product quality and business sustainability	4	Lecture. Debates. Problematization. Communication via e-platform (MOODLE). Case studies.
L8. Organizational structures of innovative management	2	Lecture. Debates. Problematization. Communication via e-platform (MOODLE).
L9. Management problems of small innovative companies	2	Lecture. Case studies. PPT/multimedia presentations. Collaborative work through MOODLE
L10. Venture businesses and how to manage them	2	University lecture. Interactive teaching, case studies. Group activities. Collaborative work through e-platform
L11. Innovative product development by the company based on innovative business ideas and new technologies (IT / artificial intelligence, solving environmental and social problems).	4	Lecture. Debates. Problematization. Communication via e-platform (MOODLE). Case studies.
L12. The intrapreneurial system of the organization / company	2	Univ. lecture. Discussions. Promblem-based learning. E-platform communication (MOODLE).
L13. Organization and management of technology transfer activities	2	Univ. lecture. Discussions. Promblem-based learining. E-platform communication (MOODLE).

Teaching methods* - please clearly nominate the type of methods for communication with students:

- Synchronous communication through peer review and mentoring activities, for in-class hours
- **Asynchronous communication** through project e-platform group collaboration, forums for questioning and problem solving, for on-line hours

Minimum 3 (three) newly added <u>theoretical</u> <u>subjects</u>	Related Lesson	Targeted STEAM knowledge
1. Communication skills, critical / logical thinking and orientation towards creativity / innovation	L4	K20. To know the importance of empowering individuals and organizations to work collaboratively
2. Achieving the company's competitiveness through the development of innovative products, business digitalization, product quality and business sustainability	L7	K16. To know about sustainability, including origins and further developments, main stakeholders, implications for society and the planet, environmental protection, restoration and regeneration
3. Innovative product development by the company based on innovative business ideas and new technologies (IT / artificial intelligence, solving environmental and social problems).	L11	K15. To know that sustainability problems must be tackled by combining different disciplines, knowledge cultures and divergent views to initiate systematic change

6.b) Practical lessons/applications

Applications theme & type (Seminar/laboratory/project content - S/L/P)	Application activity*	Number of hours	Teaching methods**	Type of application***
A1. Defining human creativity	Classroom presentations for home-works	2	Classroom presentations for home-work	Case study
A2. Conceptualization of the notion of innovation	Supplementary activities	2	Quiz (online)	Simulation exercises
A3. Possible sources of innovation	Test	4	Test (online)	Simulation exercises
A4. Communication skills, critical / logical thinking and orientation towards creativity / innovation	Quiz	6	Supplementary activity	Worksheets



A5. Innovation management: carrying out the innovation process at the company	Exercise	2	Exercise	Worksheets
A6. Achieving competitive advantage: the main goal of innovation management	Exercise	2	Exercise	Simulation exercises
A7. Achieving the company's competitiveness through the development of innovative products, business digitalization, product quality and business sustainability	Supplementary activities	6	Supplementary activity	Simulation exercises
A8. Organizational structures of innovative management	Classroom presentations for home-works	2	Classroom presentations for home-work	Case studies
A9. Management problems of small innovative companies	Test	2	Test (online)	Worksheets
A10. Venture businesses and how to manage them	Quiz	4	Quiz (online)	Worksheets
A11. Innovative product development by the company based on innovative business ideas and new technologies (IT / artificial intelligence, solving environmental and social problems).	Supplementary activities	6	Supplementary activity	Forums for discussions
A12. The intrapreneurial system of the organization / company	Classroom presentations for home-works	3	Classroom presentations for home-work	Home-work assignments
A13. Organization and management of technology transfer activities	Supplementary activities	4	Supplementary activity	Forums for discussions

Application activity* - select one or more of the following; exercises; quizzes; test and/or classroom presentations for home-works; supplementary activities

Teaching methods** - idem as above

Type of application*** - please clearly nominate the type of applications you will use with students: worksheets/success stories/simulation exercises/case studies/forums for discussions/quizzes/project-based activity/home-work assignments

Minimum 3 (three) newly added applications subjects	Related Lesson	Activity	Targeted STEAM knowledge
1. Communication skills, critical / logical thinking and orientation towards creativity / innovation	A4	Home-work	S20. To be able to work collectively in sustainability change processes
2. Achieving the company's competitiveness through the development of innovative products, business digitalization, product quality and business sustainability	A7	Supplementary activity	S16. To be able to apply circular economy concepts, such as valuing quality over quantity and reusing and repair
3. Innovative product development by the company based on innovative business ideas and new technologies (IT / artificial intelligence, solving environmental and social problems).	A11	Home-work	S15. To be able to synthesize sustainability-related information and data from different disciplines



7. Distribution of hours of discipline

	Lecture	Seminar/ Laboratory	Project	Total hours
Number of hours per week	2	3	5	10
Number of hours per semester	30	45	75	150

I. Total number of hours for face-to-face activities/in-class hours	75
II. Total number of hours for on-line activities/out-of-class hours	75

I. Educational approaches to class meeting/ face-to-face activities	Hours
Mentoring, coaching, lecturing	25
Debates and students workshops	20
Simulation, case studies, role-playing	20
Work in teams and self-directed learning	10

II. Educational approaches to on-line activities/ out-of-class hours	Hours
Advisory services for students	25
Collaborative work	20
Peer review	20
Concept mapping	10

8. General and professional competences of the discipline

Discipline	Competency area	Competency category	Learning outcome
	1. OPPORTUNITY	PC 1. Identifying business opportunities	LO6. Identify and test business ideas in terms of the trends and identified needs
	EVALUATION AND START-UPS	PC 2. Transforming business opportunities into successful enterprises	LO7. Develop and implement business ideas, devising the business model, considering the available resources, the business environment, the established objectives.
Innovational Management, year III, semester I	2. RESOURCES AND OPERATIONS	GC 3. Data collection, processing and analysis for decision-making in changing and complex environmental conditions	LO2. Use various economic and managerial methods and tools, including digital tools, for formulating conclusions and explaining decisions.
semester 1	3. OPERATIONS AND PERFORMANCE MANAGEMENT	PC8. Performing management functions	LO12. Plan and manage the business/projects and tasks through teamworking and collaborating with business partners
	4. BUSINESS TRANSFORMATION AND DEVELOPMENT	PC 10. Implementation of organization changes	LO14. Support the enterprise / organization in organizational change, identifying the appropriate strategies for transformation and sustainable business development.



	PC 11. Restructuring and sustainable business transformation	
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9. Transversal competences of the discipline

Discipline	Competency area	Type of competence	Descriptors – max 2 (two)
	1. OPORTUNITY EVALUATION AND START-UPS	Creativity and problem solving	 Uses creative techniques to identify various issues and matters. Solves problems and makes decisions applying critical thinking skills (analysis, synthesis and evaluation) both independently and in a team.
	2. RESOURCES AND OPERATIONS	Autonomy and responsibility	 Performs professional tasks and research activities independently, responsibly and efficiently. Takes on responsibility and risks for actions and decisions made in difficult situations, prioritizing business interest, the expectations of society and the well-being of employees.
Innovational Management, year III,	Innovational Management,	Collaboration and teamwork	- Establishes and supports effective and reliable working relationships with colleagues within the team Performs teamwork roles and activities.
semester 2	3. OPERATIONS AND PERFORMANCE MANAGEMENT	Agility	 Supports changes through attitude, initiatives, new activity methods and technologies. Demonstrates resistance and adaptation in critical, uncertain, complex and changeable situations.
		Effective communication	- Communicates effectively and appropriately with the representatives of other cultures and generations.
		Digital communication	Effectively manages/processes databases and digital information. Communicates and collaborates effectively in digital environments.
	4. BUSINESS TRANSFORMATION AND DEVELOPMENT	Autonomy and responsibility	 Possesses self-control techniques and self criticism. Takes on responsibility and assumes risks for the actions and decisions made in intricate situations, prioritizing business interest, the society's expectations and employees' well-being.
		Partnership development	 Participates in negotiations with interested parties and strives to reach the most advantageous agreements for the company. Maintains and develops a positive, long-term relationship between organizations and third parties.

10. Recommended bibliography

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11. Course evaluation

Types of activity	Evaluation criteria	Evaluation type	% of the final grade
Course / Seminar	 Level of knowledge of appropriate management tools for different situations Knowledge integration skills Information search and systematisation skills Ability to argue own position Creativity, innovativeness, flexibility of thought 	Formative	50
Project	exhaustive, laconic completion of the model; consistency of the description of the idea; arguments made for testing the model	Formative	10
Final examination	 Level of knowledge of appropriate management tools for different situations Knowledge integration skills Information search and systematisation skills Ability to argue own position Creativity, innovativeness, flexibility of thought 	Summative	40

- Achievement of the minimum pass mark for the course unit (semester mark)
- Achievement of the minimum pass mark in the course examination
- The development of individual study products

Date	Course titular	Practical activity
25.08.2023	Jalencu Marian	(seminar/laboratory/project) titular Jalencu Marian
		Bulimaga Tatiana