SYLLABUS

Strategic Business Process Automation

University year 2025-2026

1. Information regarding the programme

1.1. Higher education institution	**Babes-Bolyai University**
1.2. Faculty	**Faculty of Mathematics and Computer Science**
1.3. Department	**Department of Computer Science**
1.4. Field of study	**Computer Science**
1.5. Study cycle	**Master**
1.6. Study programme/Qualification	**Cyber Security (in English)**
1.7. Form of education	**Full time**

2. Information regarding the discipline

2.1. Name of the discipline	**Strategic Business Process Automation**			Discipline code	**MME8203**
2.2. Course coordinator	**Lecturer PhD Maria-Camelia Chisăliță-Crețu**				
2.3. Seminar coordinator	**Lecturer PhD Maria-Camelia Chisăliță-Crețu**				
2.4. Year of study	**1**	2.5. Semester	**1**	2.6. Type of evaluation	**E**	2.7. Discipline regime	**Optional**

3. Total estimated time (hours/semester of didactic activities)

3.1. Hours per week	**4**	of which: 3.2 course	**2**	3.3 seminar/laboratory/project	**2**
3.4. Total hours in the curriculum	**56**	of which: 3.5 course	**28**	3.6 seminar/laboratory/project	**28**

Time allotment for individual study (ID) and self-study activities (SA)	hours
Learning using manual, course support, bibliography, course notes (SA)	10
Additional documentation (in libraries, on electronic platforms, field documentation)	20
Preparation for seminars/labs, homework, papers, portfolios and essays	28
Tutorship	6
Evaluations	3
Other activities: *communication with the course lecturer*	2

3.7. Total individual study hours	**69**
3.8. Total hours per semester	**125**
3.9. Number of ECTS credits	**5**

4. Prerequisites (if necessary)

4.1. curriculum	• OOP, Programming Fundamentals, Advanced Programming Methods
4.2. competencies	• Good programming skills in at least one of the programming languages Java, C#, Python

5. Conditions (if necessary)

5.1. for the course	• Course hall with projector
5.2. for the seminar /lab activities	• Computers, use of a programming language, and UiPath tools and applications

6.1. Specific competencies acquired [1]

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[1] One can choose either competences or learning outcomes, or both. If only one option is chosen, the row related to the other option will be deleted, and the kept one will be numbered 6.

Professional/essential competencies	• Know and understand the main paradigms related to data protection: confidentiality, integrity and data availability. • Knowledge of all security aspects that can impact the processes and IT&C assets of an organization.
Transversal competencies	• Professional communication skills; concise and precise description, both oral and written, of professional results. • Ethic and fair behaviour, commitment to professional deontology. • Applying the norms of organized and efficient work, responsibility and reliability of the work performed both individually and within a team.

6.2. Learning outcomes

Knowledge	The student knows the best practices and is familiar with the errors that may occur in the risk management activity. The student knows about the worst types of vulnerabilities in the field, as well as about measures to prevent these vulnerabilities. The student knows the basic mechanisms that define the security of the system and the software environment in which an application runs, such as: access permissions, security policies, interaction with the external environment.
Skills	The student is able to develop secure software systems. The student is able to understand the classical static analysis techniques used to analyze and verify the security of programs. The student is able to establish the steps of security audit.
Responsibility and autonomy:	The student has the ability to develop and promote effective work strategies and practices, exemplary professional style and conduct, respecting the values and principles of professional ethics and deontology. The student has the ability to use efficient strategies, methods and techniques for lifelong education, in order to self educate and self develop his/her personal and professional skills. The student has the ability to translate academic knowledge into a professional, economic, social and ethical context.

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	• Enhance the students understanding on business process identification and its automation. • Provide the students with an environment in which they can explore the usage and usefulness of software development to increase efficiency in business processes. • Induce a realistic and industry driven view of software development for business process automation related concepts and their inherent benefits.
7.2 Specific objective of the discipline	• Give students the ability to explore various ways to automate business processes. • Improve the students' abilities to tackle on goal driven process automation. • Enhance the students understanding of process automation value in business. • Students will be able to use various tools, e.g., UiPath Studio, to provide a process automation solution. • Students will be able to design and develop a business process automation solution following specific requirements and real-world case studies available on RPA learning platforms.

8. Content

8.1 Course	Teaching methods	Remarks
1. Process Automation 1.1. Introduction to Automation 1.2. Automation Implementation Methodology Fundamentals	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
2. Automation Team Organization 2.1. Automation Project Roles 2.2. Automation Business Analysis Fundamentals	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
3. Process Analysis Fundamentals. UiPath Process Mining (Part 1)	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
4. Process Analysis Fundamentals. UiPath Process Mining (Part 2)	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
5. Process Analysis Advanced. UiPath Process Mining (3)	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
6. Process Analysis Fundamentals. UiPath Task Mining (Part 1)	• Interactive exposure • Explanation • Conversation • Didactical demonstration	
7. Process Analysis Fundamentals. UiPath Task Mining (Part 2)	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
8. Process Analysis Fundamentals. UiPath Task Capture (Part 1)	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
9. Process Analysis Fundamentals. UiPath Task Capture (Part 2)	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
10. AI-powered automation	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
11. Automation Operating Model	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
12. Automation Hub 12.1. UiPath Automation Hub Overview 12.2. The Lifecycle of an Automation Idea in UiPath Automation Hub	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
13. Automation Management. UiPath Assistant	• Interactive exposure • Explanation. Conversation • Didactical demonstration	
14. Automation Management. UiPath Action Center	• Interactive exposure • Explanation.	

| | Conversation |
| | • Didactical demonstration |

Bibliography

1. Institute for RPA (2015), An Introduction to RPA. A primer, http://irpaai.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf
2. Steve Kaelble (2018), RPA, https://www.icsanalytics.com/wp-content/uploads/2019/02/robotic_process_automation_for_dummies.pdf
3. KPMG (2018), RPA, https://home.kpmg/content/dam/kpmg/jp/pdf/jp-en-rpa-business-improvement.pdf
4. Tom Taulli (2020), The robotic Process Automation Handbook. A guide to implementing RPA systems, Apress, https://link.springer.com/book/10.1007/978-1-4842-5729-6
5. Guðrún Lilja Sigurðardóttir (2018), Robotic Process Automation - Dynamic Roadmap for Successful Implementation, master thesis.
6. UiPath, https://www.uipath.com/developers/video-tutorials
7. UiPath Studio Docs (2023) - https://docs.uipath.com/studio/docs/release-notes-2022-10-3
8. UiPath Academy - https://academy.uipath.com/

8.2 Seminar / laboratory	Teaching methods	Remarks
1. Laboratory 1 UiPath Business Automation Platform for Business Analysts Business Analyst project setup	Presentation, Conversation, Dialogue, Case studies	
2. Laboratory 2 UiPath Process Mining (1)	Presentation, Conversation, Dialogue, Case studies	
3. Laboratory 3 UiPath Process Mining (2)	Presentation, Conversation, Dialogue, Case studies	
4. Laboratory 4 UiPath Task Mining	Presentation, Conversation, Dialogue, Case studies	
5. Laboratory 5 UiPath Task Capture (1)	Presentation, Conversation, Dialogue, Case studies	
6. Laboratory 6 UiPath Task Capture (2)	Presentation, Conversation, Dialogue, Case studies	
7. Laboratory 7 Final Project Preparation	Evaluation	
Bibliography *Similar to the course bibliography*		

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- The course follows the IEEE and ACM Curriculla Recommendations for Computer Science studies.
- The course content exists in the studying programs of all major universities in Romania and abroad.
- The course content is considered relevant by software companies that are active in robotic process automation (RPA).

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Automation Business Analyst Project using UiPath tools. The grade is denoted by **P**.	Automation Project grading	60%
10.5 Seminar/laboratory	**Two out of three lab activities** will be graded. The arithmetic average of the grades is denoted by **L**.	Laboratory activity evaluation	40%

Remark:
- The automation project will be achieved in groups of 4-5 students.
- The laboratory assignments will be achieved in groups of 2-3 students.

10.6 Minimum standard of performance

- Students will know how to analyze, design, and develop an automation solution for repetitive business processes, considering identified repetitive flows or sequences of actions.
- Students will be able to properly use various applications of the UiPath platform.
- The final grade (M) is computed as follows: M = 40%L+60%P.
- At least M >= 5.00 is favourable to pass this course exam.

11. Labels ODD (Sustainable Development Goals)[2]

Not applicable.

Date:

15 April 2025

Signature of course coordinator

Lect. PhD. Maria-Camelia CHISĂLIȚĂ-CREȚU

Signature of seminar coordinator

Lect. PhD. Maria-Camelia CHISĂLIȚĂ-CREȚU

Date of approval:
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Signature of the head of department

Assoc. Prof. PhD. Adrian STERCA

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[2] Keep only the labels that, according to the *Procedure for applying ODD labels in the academic process*, suit the discipline and delete the others, including the general one for *Sustainable Development* – if not applicable. If no label describes the discipline, delete them all and write „*Not applicable.*".