



Academic Software Factory Curriculum

IDENTIFICATION					
ID	Name	Period	Curriculum modality	Prerequisites	Workload (hours)
SFAI	Software Factory for AI-based system development	6º	Presential	Software Engineering, Artificial Intelligence	120

OBJECTIVE/SUMMARY
This course aims to equip students with the skills needed to develop artificial intelligence (AI)-based systems, including (1) identifying the characteristics of AI-based systems according to subfields, (2) defining minimum viable product (MVP) functionalities for AI-based systems, (3) specifying requirements based on the characteristics of AI-based systems, (4) managing AI-based systems, (5) modeling and developing AI-based systems, and (6) conducting tests.

THEME	LEARNING OUTCOMES
(1) Artificial Intelligence: types of AI-based systems, subfields, and their characteristics	RA1.1. Recall the different types of AI-based systems RA1.2. Interpret the different types of problems RA1.3. Differentiate the characteristics of each type of system.
(2) MVP: types of MVP, market and user discovery, functionalities.	RA2.1. Recall the different types of MVPs for product development RA2.2. Understand the current state and desired state of the product to be developed. RA2.3. Identify the type of MVP considering the problem and the characteristics of AI-based systems. RA2.4. Identifying proto-personas, what they do, and what they expect RA2.5. Identify candidate functionalities for the MVP based on the activities of the proto-personas and characteristics of AI-based systems.



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	RA2.6. Desenvolver documentação das funcionalidades utilizando ferramenta(s) CASE.
(3) Requirements: Specification using user stories according to the characteristics of AI-based systems and techniques/models.	RA3.1: Structure candidate functionalities into user stories according to the characteristics of AI-based systems. RA3.2. Structure candidate functionalities into user stories considering techniques/algorithms to support the development of AI-based systems. RA3.3. Develop user story documentation using CASE tool(s).
(4) Management: backlog, prioritization, and deliverables	RA4.1: Estimate potential risks related to the development of AI-based systems RA4.2. Perform practical activities and decision-making in a software project team. RA4.3. Create the product backlog RA4.4. Prioritize the items in the backlog and define the deliverables RA4.5. Manage the development process using CASE tool(s)
(5) Modeling and Development: modeling and development considering the characteristics of AI-based systems	RA5.1. Model the system considering aspects related to data, infrastructure, and techniques/algorithms RA5.2. Use tools to assist in modeling the AI-based system RA5.3. Develop the AI-based system RA5.4. Use tools for project versioning
(6) Testing and Validation: test plan, testing practices	RA6.1. Design and structure tests considering the characteristics of AI systems RA6.2. Validate the developed techniques/algorithms RA6.3. Conduct unit tests RA6.4. Conduct non-functional requirements testing RA6.5. Use tools to assist in conducting and recording the tests performed