







Curricula (Stage 1,2)

Survey, Educational Curricula, Advisory Board

Objectives, Core Competencies

Topics, Contents, Schedule

Age, Skill Level, Prior Knowledge, Educational Curricula, Reference Textbooks



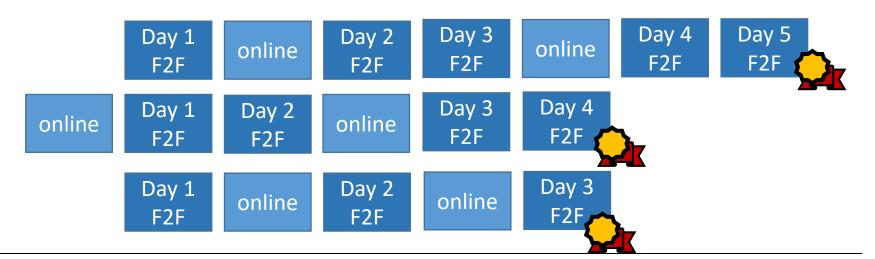




EDLRIS course structure

each module of AI and Robotics (Basic, Advanced):

- 30-40h (3-5 days) of face-to-face units at partner institutions
- 20h-50h online units (guided online session)









Characteristics

- providing learning curricula and teaching material to trainer:
 - ready-to-use teaching guides
 - scripts and tutorials, tools
 - exercises and solutions
 - presentation slides



- training and certification for trainers and trainees for free
- non-commercial use of material







Methods and Tools

principles of constructionism – activity based

- blended learning
- flipped classroom
- competency-based, student centered
- problem-/project-based learning
- discovery learning
- teamwork
- active plenum
- attentive micro lecture
- whole brain teaching



- computer science unplugged
- educational robotics
- simulators
- logic puzzles
- programming
- station work
- online exercises









EDLRIS Modules









• each module can be done independently of one another

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Modules - Focus



AI, Robotics Basic



No prior theoretical background is required.

Target group:

e.g. interested teachers, secondary school students

- build awareness
- introduce concepts easily accessible way
- motivate people and enabling them to live with, understand and use the technology properly



AI, Robotics Advanced



Background knowledge in CS and mathematics is required.

Target group:

e.g. teachers and secondary school students with background in the field

- cover more topics
- foster deeper understanding
- training on a high, elite level
- enabling people to understand technology and to implement applications

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Al Basic

Al introduction and definition

AI in daily life

identifying / recognizing AI systems

programming basics

ethical and social aspects



practical AI project

fundamental data structures in Al

basics of propositional logic

of computer vision,
machine learning

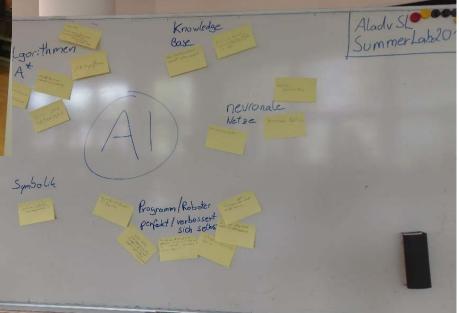
solving problems by search (DFS, BFS, Greedy)

















Al Advanced

Al definitions, applications and history of Al

working with common Al frameworks and tools

fundamental mathematical concepts in Al

properties of problem representations

ethical and social aspects



practical AI project

modeling and analyzing problems

principles of
knowledge based systems,
natural language
processing,
CSP,
machine learning

solving problems by fundamental AI concepts: search, declarative, data driven















Robotics Basic

Robotics history and terminology

use cases and robotics applications in our everyday life

robotics components (actuator, sensor, controller)

ethical and social aspects



modeling of robotics systems (flowchart)

building and programming mobile robots

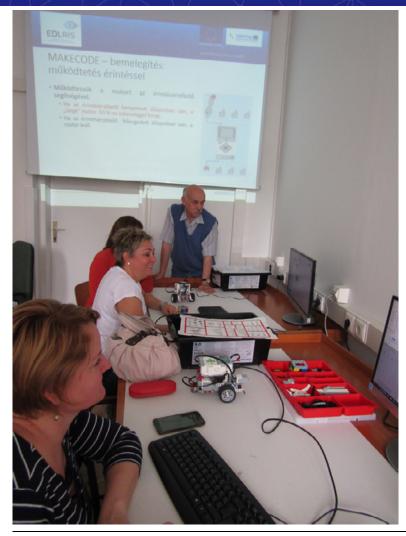
principles of robotics and intelligent systems (sense-plan-act)

practical robotics project

















Robotics Advanced

overview robotics systems

principles of robot manipulators and mobile robots

linear algebra, CS, physics

ethical and social aspects



practical robotics project

sensor fusion and state estimation (e.g. Kalman filter)

systematic engineering approach

geometrical and kinematical models of robot manipulators and mobile robots















Unified Learning Management System

http://onlinecampus-server.at/edlris/

- course and teaching material
- presentation slides
- guided online sessions
- didactical and pedagogical information for trainer
- certification system

