HOCHSCHULE ESSLINGEN

Module 692 Smart Living

1	Module number	Study program	Semester	Offered in	Duration	Module type	Workload (h)	ECTS points
	692	WNB	6	☒WS ☒ SS	1 semester	Compulsory	150	5

2	Courses	Teaching and learning form	Contact time (SWS)	Contact time (h)	Self-study (h)	Language
	a) Smart Living	Lecture	2	30	90	English
	b) Smart Living Lab	Lab	2	30		

3 **Learning outcomes and competences**

After successfully completing the module, students can...

Knowledge and understanding

- … understand living as a fundamental need with its different aspects.
- … understand the basic approach of smart home applications including sensors and actuators.
- … explain the broader meaning of Smart Living in comparison to Smart Home.
- … describe sustainability considerations in the area of smart living.
- … recognize and explain different living concepts.
- ...understand the basic approach to making everyday life easier for people with physical disabilities

Use, application and generation of knowledge

Use and transfer

- ... develop digital solutions to make everyday life easier for people with physical limitations.
- … program smart solutions.
- … create cost/benefit analyzes for smart living approaches taking sustainability into account.
- … analyze and classify potential for transition engineering.
- ... take different perspectives and points of view towards an issue, these against each other weigh up and make an assessment.
- ... familiarize yourself with new ideas and subject areas based on your basic knowledge

Scientific innovation

- implement modern digitalization applications in the areas of AI and big data

Communication and cooperation

- …actively communicate within an organization and obtain information.
- … Present Smart Living content and discuss it professionally.
- … justify the developed solution theoretically and methodically.
- … communicate and cooperate in the group in order to find adequate solutions for the task at hand.
- ... form cross-group networks to identify common strengths and use synergies.

Scientific self-conception/professionalism

- ... based on the analyzes and assessments made, decision-making recommendations also come from a social and social perspective
- derive from an ethical perspective.
- … interpret the findings of smart living and draw valid conclusions.
- ... use the knowledge, skills and competencies learned to evaluate Ambient Assisted Living and
- interpret it according to other aspects.
- … reflect and assess your own abilities (compared to a group).

4 **Content**

a) Course:

- Sustainability considerations in the area of smart living
- Analysis of living environment, living areas, living situations: living at home, temporary living (hotel,
- Hospital), living in facilities (senior citizens' home, nursing facility)
- Ambient Assisted Living: passive support (e.g. voice control of lights), active support (e.g. monitoring of parameters (e.g. vital signs, burglary, safety-critical devices) through sensors
- Overview of technologies / furnishings (sensors, actuators, necessary company know-how for Industrialization)
- Costs/Benefits of Smart Living (e.g. cost-benefit assessment, generation of a model, risk analysis, verification of the model with examples)
- Transition Engineering applied to Smart Living (company analysis, product/service selection, gap analysis planning).

	• • Applications of AI and Big Data b) Lab: • Analysis and implementation of smart systems for ambient assisted living. • Programming projects on AI and big data
5	**Participation requirements** obligatory: none recommended: 612 Informatics 1 • 660 Sustainability 1 • 618 Informatics 2 • 681 Digitalization • 614 Electrical Engineering • 689 Sociotechnics and Technology Acceptance
6	**Forms of examination and requirements for awarding credit points** a) and b) written exam 90 minutes [graded] b) attestation [ungraded]
7	**Further use of the module**

8	**Module manager and full-time lecturer** Prof. Dr.-Ing. Ulrich Nepustil
9	**Literature** • Lecture Notes
10	**Last updated** 05.12.2024