



Learning Lab

Digital Technologies

nexus-Jahrestagung - Kompetenzorientierung auf dem Prüfstand

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Learning Lab „Digital Technologies“



The learning lab ...

- helps students to understand in an enjoyable way new digital technologies and digital architectures
- provides lecturer with a pre-developed, but customizable building block for their courses with a duration between 1 and 2,5 full workshop days
- has several streams with different digital technologies
- has low investment costs and can be used in regular teaching rooms (mobile lab setup)



Core Building Blocks



Didactic Setting



Stream Concept



Assignment Repository



Community

Didactic Setting I - Situation



- 91 % nutzen Technik, ohne die Funktionsweisen, die unter der Nutzeroberfläche ablaufen, zu kennen



- 84,4% haben keine bis wenig Programmiererfahrungen



- 77,8% erachten es als wichtig oder sehr wichtig digitale Kompetenzen im Studium zu erwerben



Didactic Setting II - Idea



- Small students teams (3 students)
- Learning by doing with assignments sheets
- Haptic experience (no slides)
- Self-learning by student with retrospectives and lessons learned
- Lecturer as coach
- Specific teaching room setup
- Pre-set schedule
- Manifest



Didactic Setting III - Competences

SOZIALKOMPETENZ

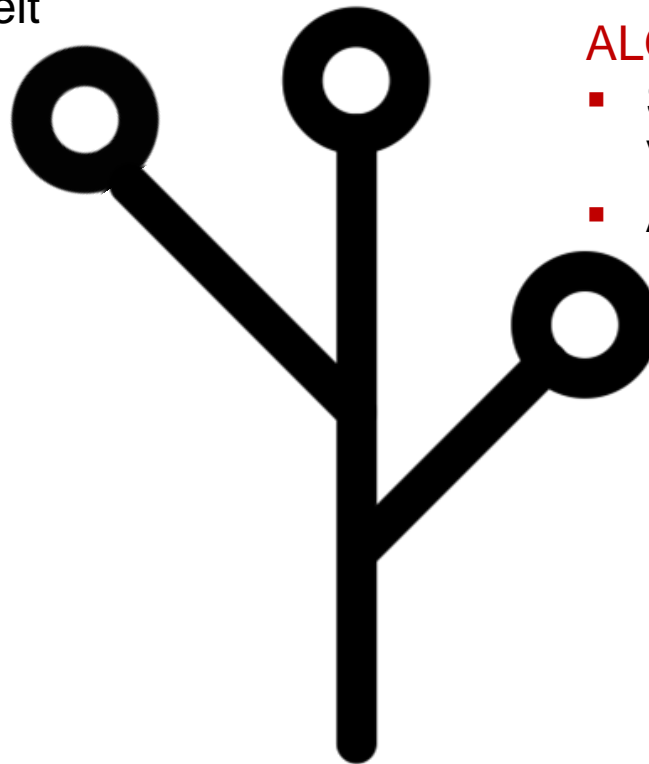
- Kommunikationsfähigkeit
- Hilfsbereitschaft
- Kooperationsfähigkeit
- Teamfähigkeit

ZUKUNFTSORIENTIERUNG




- Offenheit für Veränderungen
- Lernbereitschaft
- Experimentierfreude

ALGORITHMISCHES DENKEN

- Systematisch-methodisches Vorgehen
- Analytische Fähigkeiten



Stream Concept: Current Streams

Digital Technologies Essentials (DTE)	Learn to Code with COZMO (LC2)	360 VR Collab (360VR)
Understand digital architectures	Learn programming basics	Understand VR
		
Raspberry PI 3 SenseHat	COZMO Scratch and Python	Gear 360 camera VR Glasses
2,5 days 23 assignments	1 or 2 days ~10-20 assignments	1 days ~12 assignments
... IoT, database, cloud	... agile development	... intern. project



Stream “Digital Technologies Essentials (DTE)”



team up



hands on



communicate



connect



test out



(re)solve



ask coaches



reflect



create



Intro

Digitalization:

- Definition
- Impact
- technological Evolution



Day 1 (fullday)

RaspPi as standalone Computer
„Get it up & running“

RaspPi as connected Computer
„Connect it“

Reading
Assignment



Day 2 (fullday)

RaspPi as Server
„Let it run“

Database on RaspPi
„Data everywhere“

IoT & Big Data with RaspPi
„Bring it all together“

Reading
Assignment

Assignment Repository - Technology

Lecturer / Community

Student



Assignments in
Markdown



Printout of PDF file



Gitlab by LRZ
(Source Code Mgt.)



Slack
(Communication)

HM cloud: code
snippets



Community



- **Join and benefit**
 - Proven didactic concept
 - Prepared lab structure
 - Assignments collection per stream
 - Bill of material and lots of hints
 - Profit from “Learning Lab” platform with branding, publications, presentations, etc.
- **Contribute**
 - Enhance student coverage
 - New assignments in existing streams
 - New streams



Publications



<http://t1p.de/uosh>



Next Steps



- Develop accompanying research
- Encourage exchange with other universities
 - On concept & technologies
 - On experience
 - Common visits
- Enhance functional coverage and depth
 - Cooperation for a set of technologies resp. within a stream
- Engage in common projects



Questions & Contact Data

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Also at:

