



Aalto University  
School of Electrical  
Engineering

# Wellcome to course Intelligent buildings

# Learning outcomes

After completing the course you get an overview about the principles of intelligent building and value of intelligency, different building automation systems, smart building electricity and energy systems and lighting control.

You also have an experience about the planning the intelligent maintenance service in technical and user-centered level.

# Content

- **Intelligence in different building types (home, office etc.)**
- **Value of intelligence**
- **Intelligence and maintenance**
- **New trends**

**Course will include the lectures of the companies.**

# Contact

## Responsible teachers

PoP Heikki Ihasalo, [heikki.ihasalo@aalto.fi](mailto:heikki.ihasalo@aalto.fi)

PoP Jaakko Ketomäki, [jaakko.ketomaki@aalto.fi](mailto:jaakko.ketomaki@aalto.fi)

## Group work

Håkan Mitts, [hakan.mitts@aalto.fi](mailto:hakan.mitts@aalto.fi)

# Program

### Week 44

#### Lecture

Mon 26.10.	12.15	Introduction	Jaakko Ketomäki / Heikki Ihasalo
	12.45	Business of intelligent buildings	Harald Schnur, Siemens Oyj
		Break	
	14.00	Digitalization and maintenance	Antti Säynäjoki, ACRE
	14.45	Introduction to group work	Håkan Mitts/Jaakko Ketomäki

#### Group work

Finding basic knowledge about the topic "digitalization and maintenance"

### Week 45

#### Lecture

Mon 2.11.	12.15	Maintenance and digitalization	Anne Salonen, L&T
	12.35	Maintenance and digitalization	Jari Tiirikainen, ISS
	12.55	Maintenance and digitalization	Mari Ahlgren, Palmia
		Break	
	13.40	Group work workshop	Håkan Mitts, Aalto

#### Group work

Wed 4.11.  
Email preliminary questions to companies  
Interviews of L&T, ISS and Palmia

**Week 46****Lecture**

Mon 9.11.	12.15	(Time for group work)	
	13.00	Intelligent building buildings in practice	nn. Schneider electric Oy
	13.45	Virtual tour to Scheider- Electric Innovation hub	
		Break	
	14.45	Intelligent departments, Case: Redi	Arto Huuskonen, SRV Oy

**Group work**

		Interviews of L&T, ISS and Palmia	
Fri 13.11.	13.00	Clinics I of group work	

**Learning diary**

Sun 15.11.		DL of learning diaries of lectures 1, 2 and 3	
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**Week 47****Lecture**

Mon 16.11.	12.15	(Time for group work)	
	13.00	Intelligent hospitals	Jouko Kuisma, Salivirta Oy
	13.45	Indoor positioning	Tuoma Iloa, Steerbath Oy
		Break	
	14.45	Smart office apps and	Laura Remes, Aalto
	15.45	Smart Rediness Indicator	

**Group work**

Meetings with ACRE

**Learning diary**

Sun 22.11.		DL of peer review of learning diaries of lectures 1, 2 and 3	
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**Week 48****Lecture**

Mon 23.11.	12.15	People flow	Kaija Bridger, Kone Oyj nn. Kone Oyj
	13.00	Smart buildings Break	
	14.00	Intelligent lighting	Henri Juslen, Helvar Oy nn, Helvar Oy
	14.30		

**Group work**

Fri 27.11.	13.00	Clinics II of group work
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**Week 49****Lecture**

Mon 30.11.	12.15	(Time for group work)	
	13.00	Smart building start-ups	Ken Dooley
	13.45	Seniors ans intelligent buildings Break	Ira Verna, Aalto
	15.00	Sustainability and intelligent buildings	Jaakko Ketomäki, Aalto

**Group work**

Fri 4.12.		DL for presentation slides
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**Learning diary**

Sun 6.12.		DL of learning diaries of lectures 4, 5 and 6
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## Week 50

### Lecture

Mon 7.12. 12.15- Presentations of group works

### Learning diary

Sun 13.12. DL of peer review of learning diaries of lectures 4, 5 and 6

# Online sessions

**Remote with Zoom/Teams**

**You will get the link beforehand to MyCourses**

**Group discussion in breakoutrooms**

# Accomplishing Evaluation



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# Lectures, learning diary, group work

**Course includes three "parts"**

**Teams/Zoom session, 7 pcs** of which 6 are compulsory

12.15...15.45 (16.00) at Mondays

(Group work presentation at 7.12. – participation can be arranged)

*Inform ([jaakko.ketomaki@aalto.fi](mailto:jaakko.ketomaki@aalto.fi)), if you can't be present at the online session!*

**Learning diary of each lecture**

Lectures 1, 2 and 3 DL at 15.11., peer evaluation DL at 22.11.

Lectures 4, 5 and 6 DL at 6.12., peer evaluation DL at 13.12.

**Group work "Intelligent maintenance service"**

Håkan Mitts from Aalto ventures program

# Grading / Evaluation

- **1–5 based on learning diary (60%) and group work (40%).**
- **Peer review process of learning diary**
  - Each student will read and review 3-4 other learning diaries during weeks 48 (first part) and 50 (second part)
  - MyCourses will be used
- **Peer review process of group work**
  - Members of each group will evaluate other member of the group
  - Peer review will be taken into account in total grade of work for each student

# Learning diary



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# Learning diary

## **Reflect, summarize, analyse and comment on a lectures**

You should write a page (450...700) words about each lecture (also possible missed lecture included)

## **Find more information about the topic (litterature, internet).**

Goal learn some more with help of the knowledge got in lectures (applications, other solutions etc.)

Include also references, at least **two** per lecture from **scientific journals**\* and reflect them to the topic of the lecture

Own text one page (another 450...700) words

**Total length** of diary of one lecture is thus around 900...1400 words.

1,5...2,5 pages

\*you can find them from google scholar, databases of the library etc. Not only first hit from Google.

# Evaluation of learning diaries

- 4-5** - Deep learning on the topics and the "big picture"; **personal touch** and applications, various perspectives.
  - **Good quality references** and **analysis** against the lectures, excellent examples of other technologies
- 3-4** - Wider learning and reflection; relations between topics, and **personal context**, applications.
  - Enough and good quality references, analysis is connected to the topic, good examples of the other technologies
- 2-3** - Some learning of the topics; personal perspective and reflection.
  - Enough references and analysis is connected to the topic
- 1-2** - Little or no reflection; descriptive "report"; misunderstood central concepts.
  - No good and very few references and sketchy connection to the topic
- 0** - Grave misunderstanding of the whole topic; no effort put in the work.
  - **No enough references (at least two)** and very poor analysis a connection to the topic



# Learning diary

- A learning diary is a **tool for reflection**. It is a reflective writing assignment that is written as a follow-up of a course activity. It helps you to assess what you have learned on a course.
- The aim of a learning diary is to **summarise, analyse** and **comment** on a course and lectures – no just repeating what the lecturer or company visitors or representatives have said
- Reflect on the contents of the lecture both during and after class in relation to your own views of the issues at hand. Consider, too, how the lecturer/company visitor got his/her message across.
- It is usually necessary to have a strict routine for filling in a diary in order to keep up regular entries, as many details and recollections fade **within the first 24 hours**.
- The sensible thing to do is write a brief summary of the thoughts raised by the lecture **soon after the class**. It may prove hard to go back to the lecture notes months after the lecture.

# Learning diary

The following questions may help you write your learning diary:

1) What did I learn? What was new to me? Was there something that changed my views and why? Focus on and analyse the themes important to you.

2) What did I not understand and why? What went against my own ideas? Why? What was less comprehensible? Why? Did I disagree with something that the lecturer said? Focus on and analyse the questions that left you puzzled.

3) What the course taught is likely to have some relevance for you and your studies. Can you identify what this relevance was? How are you able to apply the relevant knowledge to your studies? How does it support your development as a student? Do you have career plans where you may put the knowledge acquired in the course to use? Make note of and reflect on thoughts that you have that seem especially important.

# Learning diary

- Find **at least two scientific articles** of the topics of the lecture and write if the findings in it support or not what you have heard in the lecture.
- Find the ways to apply the technologies, practices or other topic you have learnt in lectures
- Find some other similar technologies or similar/competitive ways to do same things
- Find the examples, where same technologies or ideas are applied
- You can choose one or several topics of the lecture
- Check also the pages 2, 3, 4... on Google search - **not only** the first match

# Return of learning diaries

- **To MyCourses**
- **Name the files**
  - Last name\_First name\_learning\_diary\_one\_2020;
  - Last name\_First name\_learning\_diary\_two\_2020
- **DLs**
  - Lectures 1, 2 and 3 DL at **15.11.\***, peer evaluation DL at 25.11.
  - Lectures 4, 5 and 6 DL at **6.12.\***, peer evaluation DL at 15.11.

\*tight DL because of peer review process

# Peer reviews of learning diaries

- **Using MyCourses**
- **Review in 3 person groups**
- **Give grade to the diary**
- **Give also open feedback**
  - Positive things about the learning diary (list at least three positive things about the learning diary)
  - List the things that should/could be improved (list one to three suggestions for improvement)
  - Open feedback (write free feedback) about the learning diary
  - Estimation of quality of references

# Use of time

# Time use during the course

- **5 credits – 135 hours of work**
- **Lectures: 30 hours**
- **Group work: 50 hour, over one week per student**
- **Learning diary: 50 hour, 8 hours, one day per one lecture!**
  - Time to learn
  - Think, what you will write
  - Make a compact text
  - You need to have good references, not only first hits from GoogleScholar
- **Peer review of study diaries: 5 hour**



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