



Aalto-yliopisto
Sähkötekniikan
korkeakoulu

Protopaja / Protocamp

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31.5.2021

Protopaja = Protocamp, ELEC-D0301, 10 cr

- ▶ Possibility to learn and study electronics, 3D-printing, laser cutting, PCB manufacturing, etc.
- ▶ Learn about project plans and project work
- ▶ Meeting with real companies
- ▶ Documentation on the Web to allow referencing in your CV
- ▶ Doing additional exercises and personal projects is possible and encouraged
- ▶ Let this be your best summer ever!

Assistants, Meetings and Wiki

Carl Pellja ELEC, Pulmu Pietikäinen ELEC, Aleksi Zubkovski ELEC

A group meeting with an assistant every week. Remote meeting is allowed.

Please contact the company (one person in a group) and have a meeting with the person involved.

<https://wiki.aalto.fi/display/protopaja2021/Protopaja+2021>

Please, open Wiki today. This will enable us to update your access rights.

Preliminary Schedule

See MyCourses or Wiki, possibly remote lectures via Zoom

- ▶ Mon 31.5. 10.15 – 12.30 Starting Lecture, **Groups**
- ▶ Tue 1.6. 10.15 – Visiting the **Workshop**, 2 groups at a time
- ▶ Wed 2.6. 10.15 – 12 **Project Design** (Salu Ylirisku)
- ▶ Thu 3.6. 10.15 – 12 Software Projects, Git/GitHub/GitLab
- ▶ Mon 7.6. 10.15 – 12 Electronics, Power Supply Considerations
- ▶ Tue 8.6. 10.15 – 12 Arduino and Microcontroller Programming
- ▶ Wed 9.6. 10.15 – 12 Sensors and Buses
- ▶ Thu 10.6. 10.15 – 12 PCB Design and KiCAD
- ▶ Mon 14.6. 10.15 – 12 Modelling, 3D Printing and Laser Cutting
- ▶ Tue 15.6. 10.15 – 12 PCB Manufacturing, Soldering
(Presentation in the Workshop)

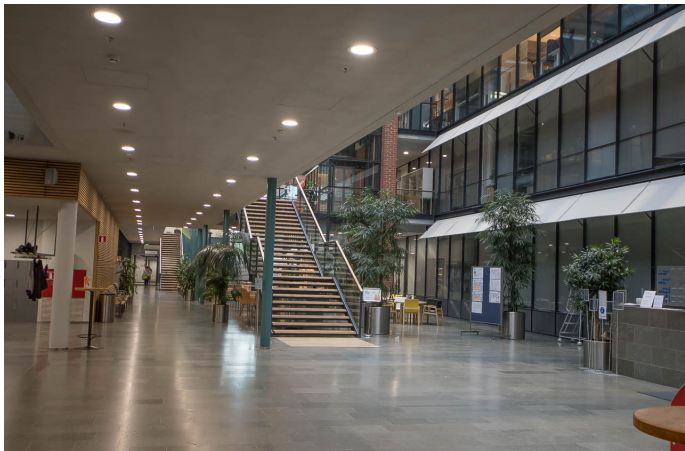
Important Dates

- ▶ Tue 1.6. 10.15 – Visiting the **Workshop**, 2 groups at a time
- ▶ Thu 17.6. **Project plan** deadline
- ▶ Fri 23.7. The final report, with **preliminary documentation**
- ▶ Fri 20.8. **The final gala**
- ▶ Tue 31.8. **The final report**, with full documentation and **web pages**. See protopaja.aalto.fi

Consider taking Sähköpaja (Electrical Engineering Workshop course) ELEC-A4010 (8 cr) or ELEC-A4910 (5 cr) in the autumn or next spring!

TUAS Main Lobby

- ▶ The Workshop is on the 1st floor near the elevator.
- ▶ Meeting rooms are available in the Learning Hub. Nope?



Workshop, TUAS 1558



Resources

- ▶ Electronics' components
- ▶ Soldering and PCB manufacturing
- ▶ 3D Printing and Laser cutting
- ▶ Mechanical tools, drilling and carving
- ▶ Win 10 and Linux Computers
- ▶ A small "kitchenette" can be used
- ▶ The workshop will be open at least during the office hours if an assistant is present.
- ▶ You may stay in the Workshop after business hours (with an ability to safely leave the building). Because of COVID rules we cannot guarantee that staying is allowed.
- ▶ Assistants are available in the Workshop at least from 9 to 15. They can give you more exact info about their schedule.

New Equipment

- ▶ **Lisa Pro** 3D Printer, Selective Laser Sintering (SLS)
- ▶ We encourage you to test the printer and learn how to use it
- ▶ User Experience is important to us - no matter, what you are printing
- ▶ **3devo**
- ▶ Make your own PLA filament, based on rejected and broken old 3D prints
- ▶ The systems are available for any testing purposes free of charge.

Ordering

- ▶ Negotiate with the assistants about what components you'll need
- ▶ Some of the preferred sources: Farnell, Mouser, TME, DigiKey, Exptech, Claes Ohlson, many others
- ▶ Ebay, Aliexpress, Banggood, etc. may need weeks to deliver
- ▶ Consider ordering a few spare parts, like cheap semiconductor devices, at once
- ▶ Mail your order including the links to pulmu.pietikainen@aalto.fi
- ▶ She will make the order through our system
- ▶ Do not buy anything for yourself!
- ▶ Estimate the total cost with VAT

Groups

Each group has 1000 euros to use for components. If more is needed it can be negotiated. The components in the workshop are mostly available free of charge. Let's assign you into the groups.

1. Ensto - "Method for automatized positioning of luminaires"
2. Futurice - "Contactless Experiences of the Future"
3. Granlund - "Device for building user measurement"
4. Helvar - "Helvar ActiveAhead Radio Mapper Van"
5. Savox 1 - "Earbud for measuring oxygen saturation"
6. Savox 2 - "Near-field radar to represent surface features"
7. Xiphera - "Demonstrator platform for hardware-based security utilizing FPGA technology"