Aalto University
School of Electrical
Engineering

E4230
Microwave EO Instrumetation
2021

(5 cr)
Jaan Praks

Welcome to the course

Learning goals

After the course, student is familiar with microwave **remote sensing** instruments, such as **radiometer**, **scatterometer** and **synthetic aperture radar**, she/he understands **functioning principles of the instruments** and their basic structure**.** The student understands the relation between **measured signature** and **target properties**.

The student is familiar with the microwave remote sensing **basic theory** and can apply it to the observations of **Earth surface** and atmosphere. The student can work with microwave RS data and derive some properties on the targets.

Course information

Teacher in charge

- Jaan Praks (TUAS 2153)
  - *jaan.praks@aalto.fi*

Lecturers and assistants

Looking for assistants!

Course web page @ mycourses

https://mycourses.aalto.fi/course/view.php?id=32077

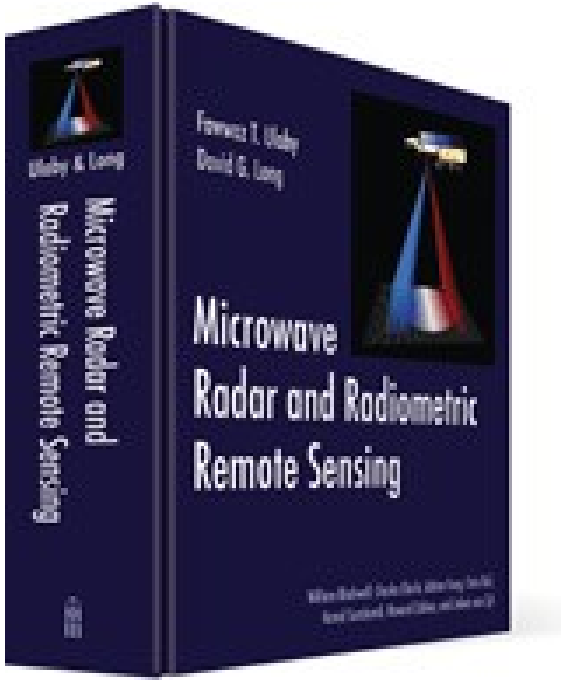
Textbooks and material

Lecture Slides

Microwave Radar and Radiometric Remote Sensing
(electronically available for the course by Aalto)
Fawwaz Ulaby and David Long
Copyright: 2015
Pages: 1116
ISBN: 978-1-63081-050-4

Also
W.G. Rees: Physical Principles of Remote Sensing, 2nd Edition, Cambridge University Press, 343 pp., 2005

F.T. Ulaby, R.K. Moore, A.K. Fung: Microwave Remote Sensing, Vols. I-III



http://mrs.eecs.umich.edu/

Workload 5 cr
(135 h ~ 1 month of full time work)

Lectures, Mondays 14-16, online
Workshops, Thursdays 10-12, online

Course uses Teams (and MyCourses).

Teams: Chatting, lecture chat, file repository, lecture videos (automatically), calendar events, workshop files, collaboration files.

MyCourses: Assignments return, grading, lecture videos (can be late).

Assessment

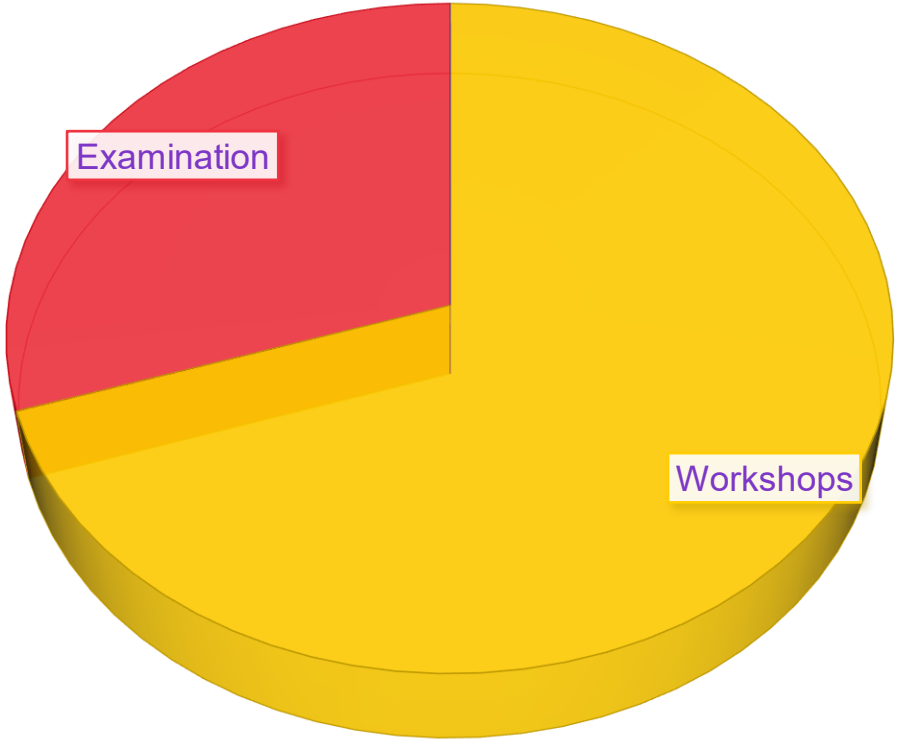
Online Examination 30% (compulsory)

Workshops 70%

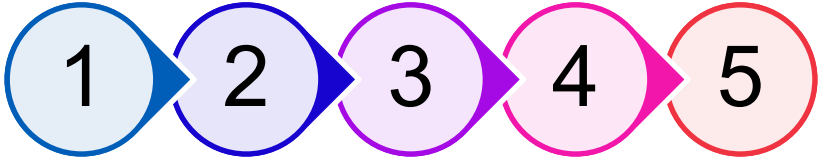
Including

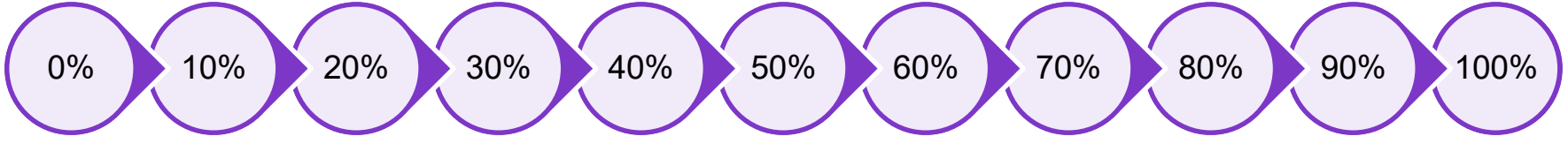
- *Interferometry project*
- *SDR Radar project*
- *Image processing with SNAP*

- *Report style will give points!*



Grading





Available positions

- **Project Worker @ Aalto**
  - AIS detection with small satellites
    - *Supervisor Jaan Praks*

- **Master thesis @ Aalto**
  - Forest wind damage detection system verification