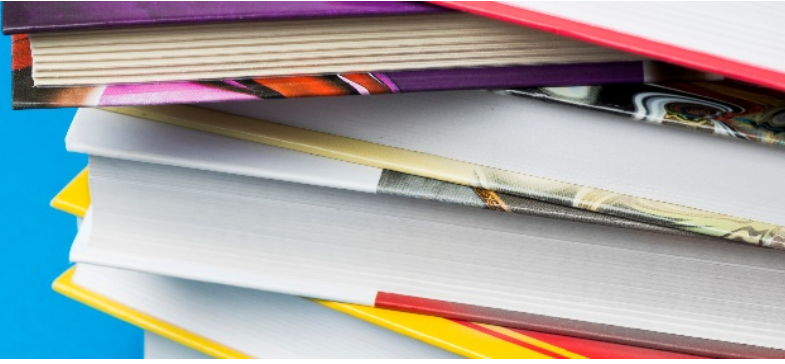
TEL AVIV UNIVERSITY אוניברסיטת תל אביב

Full Syllabus



Course Title

Analytical Transmission Electron Microscopy for Characterization of Materials

Lecturer

Prof. Amit Kohn

Semester

2

Course requirements

Introductory TEM course, 0581-4231. Otherwise, participation in the course must be approved by the lecturer based on a comparable introductory electron microscopy course.
Mandatory to submit exercises.
Topic of the summary project is chosen with the lecturer.

Final grade components

Exercises and summary project.

Course schedule

Class no. / Date	Subject and Requirements (assignments, reading materials, tasks, etc.)
1	• Scanning TEM: Configuration, Reciprocity theory Z-contrast, High angle annular dark field: Contrast mechanisms, Contrast transfer function (comparison to TEM), Aberration correction
2	-“-
3	-“-
4	• Spectroscopy: Physical background, lateral and energy resolution, data analysis methods for determining the composition and characterizing chemical bonding / electronic structure. Electron Energy loss spectroscopy; Energy filtered TEM Energy Dispersive X-ray Spectroscopy
5	-“-
6	-“-
7	-“-
8	• Mid resolution phase microscopy for mapping electrostatic and magnetic fields. Electron holography Differential Phase Contrast STEM
9	-“-

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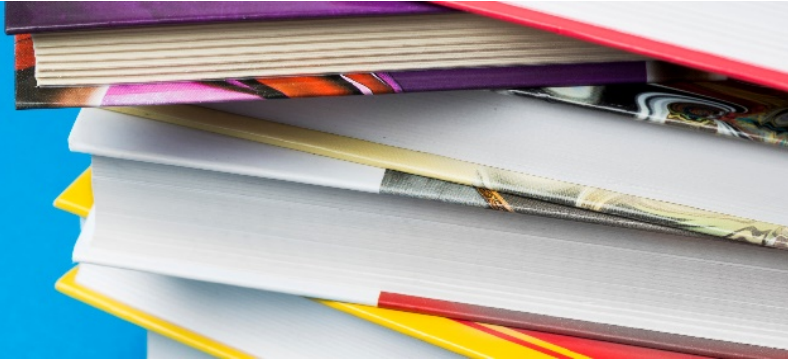

Required course reading

Williams and Carter, 'Transmission Electron Microscopy',
selected chapters, 2nd Edition, Springer

- Rik Brydson, 'Electron Energy Loss Spectroscopy', Taylor & Francis

- Rik Brydson, 'Aberration-Corrected Analytical Transmission Electron Microscopy' ,Wiley
- Reading materials, uploaded to Moodle

Optional course reading

Comments