

## Introduction to Transmission Electron Microscopy for Material and Life Science

This course gives an introduction to Transmission Electron Microscopy (TEM). It covers electron microscopy principles and theory, as well as different fields of application, operation modes and image interpretation.

It is **aimed** at beginners and intermediate users of electron microscopes in material and life sciences. The course has a limited number of 8 participants to allow **small groups** during practical sessions.

After this course, the participants should be able to align the microscopes, identify the most common aberrations and understand the principles of image generation in transmission electron microscopy.

For the practical sessions, all the participants will use the JEOL TEM 1400 (120kV) and the JEOL 2011 (200kV) with EDX. For the computer practical session on Friday, the participants can use their own laptops or use one of our PCs.

The language of the course will be Catalan, Spanish or English, depending on the level of knowledge of the participants.

**Date:** October 14<sup>th</sup> – 18<sup>th</sup> 2019.

**Fees:** 175€ (internal), 240€ (mixta 1a), 320€ (mixta 1b), 440€ (mixta 2) and 900€ (external).

### Program

	Monday 14	Tuesday 15	Wednesday 16	Thursday 17	Friday 18			
9:00 - 10:30	<b>Theory</b>							
	Introduction to Electron Microscopy. Fundamentals of TEM.	Analytical techniques: EDS, EFTEM and EELS.	Crystallography and electron diffraction. Sample preparation for material science.	Sample preparation for life science. CryoTEM.	Image processing.			
10:30-11:00	<b>Coffee break</b>							
11:00-13:00	<b>Practical sessions</b>							
	Group A: TEM 120kV	Group B: TEM 200kV	Group A: TEM 200kV	Group B: TEM 120kV	Group A: TEM 120kV	Group B: TEM 200kV	Group A: TEM 200kV	Group B: TEM 120kV