Course Descriptions None 2026-2027

Course Title	Imaging Engineering
Course Code	CEN2005
ECTS Credits	5,0
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
2	26-10-2026	11-12-2026					

Level	no level
Coordinator	Sebastiaan van Nuffel For more information:s.vannuffel@maastrichtuniversity.nl
Language of instruction	English
Goals	
Description	A picture is worth a thousand words, but there are things the human eye cannot detect. Using single-lens microscopes of his own design and make, Dutch scientist Antonie van Leeuwenhoek (1632 – 1723) was the first to discover observe micro-organisms in water and can now be considered the Father of Microbiology. Since then, many more imaging technologies have been developed that allowed for numerous discoveries and these technologies are now commonly used in science, medicine, and industry. Imaging can be (and is) used to answer important questions: Is a paint coating applied homogeneously? Are impurities causing a semiconductor to fail? How and where does a pharmaceutical compound interact with a cell? Where are tumors located within the human body? The possibilities are endless and future engineers would therefore do well to have an understanding of imaging science and technology. Given this is a highly disciplinary field involving mathematics, physics and electronics, chemistry and biology, and computer science, the Imaging Engineering elective builds on much of the knowledge and skills obtained during Y1 and 2. During the course, students will learn about various imaging techniques such as Optical Microscopy, Electron Microscopy, Mass Spectrometry Imaging, Computed Tomography and Magnetic Resonance Imaging. After an introduction to the fundamentals of imaging science and technology, a different imaging technique will be covered by a different expert each week. At the end of the course, students will understand the underlying principles of each imaging technique as well as how these technologies are used to answer important questions in both academia and industry.
Literature	Articles will be provided before and during the course by the experts on their specific imaging topics
Prerequisites	
Keywords	
Transitional Regulations	
Teaching methods	Lecture
Assessment methods	Written Exam
Evaluation in previous academic year	For the complete evaluation of this course please click http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM
This course belongs to the following programme / specialisation	