Course Title	**Medical Imaging**				
Course Code	MD410				
Course Type	Compulsory				
Level	1st Cycle (MD)				
Year / Semester	4th Year / 7th Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	6 hrs / 16 weeks	Laboratories / week	0 hrs/ 16 weeks
Course Purpose and Objectives	The objective of the course is to familiarize students with the fundamentals of diagnostic image interpretation and clinical indications for imaging examinations and special procedures				
Learning Outcomes	Upon successful completion of this course students should have gained the: • Ability to apply principles of radiation biology and radiation physics for the selection of the most suitable imaging methods for various clinical situations and to integrate the ALARA principle into the clinical routine • Ability to identify and describe the acquisition method and the use or not of contrast medium used for a presented imaging study (e. g. p. a. radiography of the thorax, lung CT, etc.), to identify basic MRI sequences and to detect insufficient image quality in radiographic examinations, fluoroscopic examinations, CT, MRI, and ultrasound • Ability to reliably define and name the relevant normal anatomical structures in X-ray examinations, CT, MRI, and ultrasound examinations • Ability to identify and describe the main pathological radiological signs in radiographic, CT, MRI and US examinations • Ability to apply basic differential diagnosis in imaging				
Prerequisites	None	Co-requisites	None		
Course Content	• Fundamentals of the interaction of radiation and the human organism. • Understanding of the physical principles of X-ray imaging, CT imaging and post-processing, MRI imaging and ultrasound imaging formation • Understanding of Hounsfield units and their scaling • Knowledge of normal attenuation values in Hounsfield units for important tissue and selected, various pathologies (e. g. bleeding, calcifications)				

	• Knowledge of normal cross-sectional anatomy in CT • Understanding of the value of magnetic resonance imaging (MRI) for various organ systems and indications • Knowledge of the tissue properties that affect MRI • Basic knowledge of the most important MRI sequences • Knowledge of the absolute and relative contraindications for MRI Understanding of the safety requirements in MRI in relation to patients and employees • Interpretation of the diagnostic images with X-ray, CT, MRI and ultrasound, including limitations • Basic differential diagnosis on X-ray and CT imaging
Teaching Methodology	Face-to-face, Lectures, Practical exercises, Quizzes, Case Presentations
Bibliography	Grainger & Allison's Diagnostic Radiology Essentials, published: ISBN- 13: 978-0702034480 ISBN-10: 0702034487 Pocket Atlas of Sectional Anatomy, by T.B. Moeller and E. Reif, Publication, Print ISBN:9783131255044 Cross-Sectional Human Anatomy by David Dean PhD, Thomas E. Herbener MD, ISBN/ISSN: 9780683303858, Chapman & Nakielny's Aids to Radiological Differential Diagnosis, by Stephen Davies, ISBN-10: 9780702051760
Assessment	Examinations: 70% Assignment/Lab 20% Class Participation: 10%
Language	English