



Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General	Information
Other at	mormation

Course name	Computed Tomographic Techniques
Course number	AMSR3289
Faculty	
Department	
Course type	Major Needs
Course level	3
Credit hours (theoretical)	2
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 To develop a solid understanding of the principles and fundamentals of computed tomography.
- 2 To familiarize students with the equipment, protocols, and procedures used in CT imaging.
- 3 To develop proficiency in patient positioning and scan protocols for different anatomical regions.
- 4 To enhance skills in image acquisition and post-processing techniques to optimize image quality.
- 5 To recognize indications, contraindications, and potential complications associated with CT procedures.
- 6 To emphasize radiation safety measures and ensure students are proficient in applying dose reduction techniques.

Intended Learning Outcomes

Knowledge and Understanding	*	Various CT scanning techniques and protocols for different anatomical regions.
	*	Patient preparation and positioning for CT examinations.
	*	Image acquisition, reconstruction, and post-processing techniques.
Intellectual Skills	*	Analyzing and interpreting CT images accurately.
	*	Evaluating and modifying scan parameters for optimal image quality.
	*	Critically assessing the appropriateness of different CT techniques for specific clinical scenarios.
Professional Skills	*	Effective communication with patients, colleagues, and other healthcare professionals.
	*	Practicing patient-centered care and demonstrating empathy towards patients.
	*	Adapting to technological advancements and changes in CT imaging practices.
General Skill	*	Critical thinking and analytical skills in the context of CT imaging.
	*	Presentation and documentation skills for communicating CT findings effectively.

Course Contents

- 1 Various CT scanning techniques and protocols for different anatomical regions.
- 2 Patient preparation and positioning for CT examinations.
- 3 Image acquisition, reconstruction, and post-processing techniques.
- 4 _ Radiographic anatomy and common pathologies as seen on CT images.
- 5 Principles of Contrast Medium Delivery in Multidetector Computed Tomography (MDCT)
- 6 Hepatobiliary and Liver Imaging by MDCT
- 7 _ Applications of Hepatobiliary MDCT
- 8 Fundamentals of Body CT abdomen
- 9 _ Fundamentals of Body CT abdomen angio
- 10 Pulmonary Angiography MDCT for Pulmonary Embolism
- 11 Dual Energy Computed Tomography
- 12 CT Colonography
- 13 Chest CT Techniques
- 14 _ CT Enterography
- 15 Cardiac MDCT
- 16 Fundamentals of Body CT angio

Teaching and Learning Methods

- 1 Lectures: In-depth presentations by the instructor on computed tomgraphy principles and applications.
- 2 Case Studies: Analysis and interpretation of computed tomgraphy in clinical scenarios.
- 3 Group Discussions: Interactive discussions on research papers and emerging trends in computed tomgraphy.
- 4 Independent Study: Assigned readings and research to deepen understanding of computed tomgraphy.

Teaching and Learning Methods for the Disabled Students

- 1 Providing accessible course materials in alternative formats (e.g., electronic).
- 2 Ensuring physical accessibility to classrooms and practical sessions.
- 3 Offering assistive technologies or tools for students with disabilities.
- 4 Providing accessible course materials and resources in appropriate formats.
- 5 Offering assistive technologies or adaptive equipment to facilitate participation.
- 6 Providing additional support, such as note-takers or sign language interpreters, as needed.
- 7 Ensuring physical accessibility to the learning environment and facilities.
- 8 Encouraging open communication to address individual needs and requirements.

Students Assessment

Assessment Method	TIME	MARKS
First Quiz and Assignment	Week 3	10
Second Quiz and Assignment	Week 6	10
Midterm Exam	Week 8	30
Third Quiz and Assignment	Week 10	10
Final Exam	Week 15	40

Books and References

Essential books	Meyer, R. (2021). Computed tomography: Principles, techniques and clinical applications. American Medical Publishers.
	Seeram, E. (2022). Computed tomography - E-book: Physical principles, patient care, clinical applications, and quality control. Elsevier Health Sciences.
Recommended books	Webb, W. R., Brant, W. E., & Major, N. M. (2014). Fundamentals of body CT E-book. Elsevier Health Sciences.