Faculty of Medicine
Certificate Course in X-Ray Technician
W.e.f. 2020-21

Subject Code : 1FM0020101	**Subject Title :** Basic Fundamentals of X-Ray Technician-Theory
Pre-requisite Subject	

Teaching Scheme (Hours per week):

Subject Code	Subject Name	Hrs/Week				Theory UA		Total
		L	T	P	TOTAL	Max	Min	
1FM0020101	Basic Fundamentals of X-Ray Technician-Theory	2	-	-	2	50	20	50

Syllabus: (Topics) :

COMPUTER FUNDAMENTALS (MS-OFFICE)

UNIT - I
Windows Introduction – Operating System - Desk Top Icons – My Computer, Recycle Bin, Internet Explorer, Network Neighborhood, My documents. Working with Windows – How to create a Folder, Copying and cutting files, Renaming - Start Icon – Programs, Favorites, Documents, Settings, Find, Run, Shutdown - Application Icons. Basics of Ms Office

UNIT-II
Elementary Mechanics - Newton's Laws - Introduction: A Bit of History and Philosophy - Dynamics - Coordinates -Newton's Laws - Forces - The Forces of Nature - Force Rules - Force Balance - Static Equilibrium

UNIT-III
Introduction-Radiation physics terminology & units-Primary radiation fields-Theory of radiation transport-General consideration of radiation transport-The Bolzmann equation-The montecarlo method-magnetic deflection of charged particles

Reference Books :

1. Diagnostic Radiology, Recent and Advances and Applied Physics in Imaging - Arun Kumar Gupta, Veena Chowdhury, Niranjan Khandelwal
2. Diagnostic Radiology and Imaging - Kakarla Subbarao, Samir Banerjee, Sudharshan K Aggarwal, Satish K Bhargava
3. Fundamentals of Computers - Mohammad Amjad Manaullah Abid

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Subject Code : 1FM0020102	**Subject Title :** Anatomy & Physiology-Theory
Pre-requisite Subject	

Teaching Scheme (Hours per week):

Subject Code	Subject Name	Hrs/Week				Theory UA		Total
		L	T	P	TOTAL	Max	Min	
1FM0020102	Anatomy & Physiology-Theory	2	-	-	2	50	20	50

Syllabus: (Topics) :

UNIT-I
Abbreviation- Meaning of the anatomy and physiology- Level of structural organization of the body- Anatomic terminologies- Body planes and sections- body cavities.

UNIT-II
Cell: plasma membrane,cytoplasm,organelles-Cell inclusion-Cells out of control-
Tissue:epithelialtissue,glandularepithelium,connective tissue-Muscle tissue-Nervous tissue.

UNIT-III
The integumentary system-The skeleton system-The muscular system-The nervous system-The endocrine system

UNIT-IV
The cardiovascular system-The respiratory system-The digestive system-The urinary system

UNIT-V
Fluid and electrolyte balance-The reproductive system

Reference Books :

1. BD Chaurasia's Handbook of General Anatomy
2. Radiographic Positioning & Related Anatomy - MESCHAN
3. Human Anatomy and Physiology with Solved Question - Asha Yadav
4. Fundamentals of Human Physiology - Ramesh Marya

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Subject Code : 1FM0020103	**Subject Title :** Positioning In Radiography-Theory
Pre-requisite Subject	

Teaching Scheme (Hours per week):

Subject Code	Subject Name	Hrs/Week				Theory UA		Total
		L	T	P	TOTAL	Max	Min	
1FM0020103	Positioning In Radiography-Theory	2	-	-	2	50	20	50

Syllabus: (Topics):

UNIT-I
General anatomy-Structural organisation-Systematic antomy-Body system-Skeletal antomy-Osteology

UNIT-II

- Radiation Hazards
- Radiation Safety Measures

Reference Books :

1. CLARK'S Pocket Handbook for Radiographers - A. Stewart Whitley, Charles Sloane, Gail Jefferson, Ken Holmes, Carig Anderson
2. CLARK'S Positioning in Radiography- A. Stewart Whitley, Charles Sloane, Graham Hoadley, Adrian D Morre, Chrissie W Alsop
3. Radiographic Positioning & Related Anatomy - MESCHAN

Subject Code : 1FM0020104	**Subject Title :** Positioning In Radiography-Practical
Pre-requisite Subject	

Teaching Scheme (Hours per week):

Subject Code	Subject Name	Hrs/Week				Practical UA		Total
		L	T	P	TOTAL	Max	Min	
1FM0020104	Positioning In Radiography-Practical	-	-	12	12	50	20	50

Syllabus: (Topics):

- Positioning in Radiography
- Various Diagnostic Radiological Procedures.

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Subject Code : 1FM0020105	Subject Title : Computerised & Digital Radiography-Theory
Pre-requisite Subject	

Teaching Scheme (Hours per week):

Subject Code	Subject Name	Hrs/Week				Theory UA		Total
		L	T	P	TOTAL	Max	Min	
1FM0020105	Computerised & Digital Radiography-Theory	2	-	-	2	50	20	50

Syllabus: (Topics) :

- Dark Room Techniques
- C R (Computerized Radiography)
- D R (Digital Radiography)
- Basics of Ultrasound, CT Scan & MRI

Reference Books:

1. Manual of Darkroom Technique- World Health Organization
2. Donald School Textbook of Ultrasound in Obstetrics & Gynecology - Asim Kurjak, Frank A Chervenak
3. MRI Spine in Low Backache MADE EASY- G Balachandran
4. Pocket Atlas of Dental Radiology - Friedrich A. Pasler, Heiko Visser
5. Direct Diagnosis in Radiology, Breast Imaging - U.Fischer, F.Bau, S. Luftner Nagel
6. MCQs in Radiology for Residents & Technologists- Sumeet Bhargava, Satish K Bhargava
7. Essentials of Skeletal Radiology- Terry R. Yochum, Lindsay J. Rowe
6. CT and MRI of the Whole Body- John R. Haaga, Vikram S. Dogra, Michael Forsting, Robert C. Gilkeson, Hyun Kwon Ha, Murali Sundaram
9. Practical Pediatric Radiology- Hilton
10. Diagnostic Radiology, Chest and Cardiovascular Imaging- Manorama Berry, Sima Mukhopadhyay, Sudha Suri
11. Diagnostic Radiology, Hepatobiliary and Gastrointestinal Imaging- Manorama Berry, Veena Chaowdhury, Sudha Suri
12. Diagnostic Radiology, Urogenital Imaging-Manorama Berry, Sushma Vashisht, Veena Chaowdhury

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Subject Code : 1FM0020106	**Subject Title :** Computerised & Digital Radiography-Practical
Pre-requisite Subject	

Teaching Scheme (Hours per week):

Subject Code	**Subject Name**	**Hrs/Week**				**Practical UA**		**Total**
		L	**T**	**P**	**TOTAL**	**Max**	**Min**	
1FM0020106	Computerised & Digital Radiography- Practical	-	-	10	10	50	20	50

Syllabus: (Topics) :

- Basic of X-Ray, C.T. Scan & M.R.I (Merits & Demerits)
- Basic of Ultrasound - Merits & Demerits
- Understanding of PC PNDT Act.
- AERB - Rules, Regulations, Norms