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| <b>Specialization</b>    | <b>Radiologic Technology</b>                |
| <b>Course Number</b>     | <b>020810141</b>                            |
| <b>Course Title</b>      | <b>Radiological Cross Sectional Anatomy</b> |
| <b>Credit Hours</b>      | <b>(3)</b>                                  |
| <b>Theoretical Hours</b> | <b>(1)</b>                                  |
| <b>Practical Hours</b>   | <b>(6)</b>                                  |

**Brief Course Description:**

- This course provides the students with a complete idea and information about the radiological appearance of anatomical parts of the body as seen in cross sectional and multi-planner imaging via CT and MRI when examining the brain, thorax, abdomen, pelvis and spine

**Course Objectives:**

Upon the completion of the course, the student will be able to:

1. Know the structure and cross sectional as well a multi-planner appearance of the central nervous systems.
2. Know the structure and anatomy of the main anatomical parts of the chest, abdomen and pelvis as well as their radiological appearance and location.
3. Apply practical skills related to theoretical material on CT and MRI images.

| Unit number | Unit name            | Unit content   | Time needed |
|-------------|----------------------|--|-------------|
| 1           | <b>Head And Neck</b> | <ul style="list-style-type: none"> <li>• Introduction: cerebra spinal fluid.</li> <li>• Skull and facial bones.</li> <li>• Bones of the skull base.</li> <li>• Cranial fossae and their boundaries.</li> <li>• Foramina of the skull base.</li> <li>• Orbit: boundaries &amp; contents.</li> <li>• Paranasal sinuses.</li> <li>• The mandible &amp; teeth.</li> <li>• The ear: External, middle &amp; internal ear.</li> <li>• Parts of the pharynx: <ul style="list-style-type: none"> <li>○ Nasopharynx</li> <li>○ oropharynx</li> <li>○ Laryngopharynx.</li> </ul> </li> <li>• Cross section anatomy of the larynx.</li> <li>• Thyroid &amp; Parathyroid gland.</li> <li>• Salivary glands.</li> <li>• The major vessels in the neck: <ul style="list-style-type: none"> <li>○ Common carotid artery</li> <li>○ Internal carotid</li> <li>○ External carotid artery</li> </ul> </li> <li>• Dural Veins sinuses.</li> <li>• Veins of the neck.</li> <li>• Meningeal Layers.</li> </ul> |             |
| 2           | <b>Spinal Column</b> | <ul style="list-style-type: none"> <li>• Vertebralcolumn. <ul style="list-style-type: none"> <li>○ A typicalvertebra.</li> <li>○ Cervicalvertebra.</li> <li>○ Thoracicvertebra.</li> <li>○ LumbarVertebra.</li> <li>○ Sacrum.</li> <li>○ Coccyx.</li> </ul> </li> <li>• Cross sectional appearance of the vertebra &amp; inter vertebraldisc.</li> <li>• Ligaments of the vertebralcolumn.</li> <li>• Blood supply to vertebralcolumn.</li> <li>• Meninges of thespine.</li> </ul>   |             |
| 3           | <b>Thorax</b>        | <ul style="list-style-type: none"> <li>• Thoracic cage: ribs, sternum.</li> <li>• Diaphragm: sternum, openings, blood supply.</li> <li>• Lungs &amp; Pleura and bronchialsegments.</li> </ul>  |             |

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|----------|----------------------|---|--|
|          |                      | <ul style="list-style-type: none"> <li>• Mediastinal division.</li> <li>• Heart: Chambers &amp; blood supply and cross sectional anatomy.</li> <li>• Cross sectional anatomy of level T3, T4, T5, T6, T8, and T10.</li> </ul>   |  |
| <b>4</b> | <b>Abdomen</b>       | <ul style="list-style-type: none"> <li>• Anterior abdominal wall T10, T11.</li> <li>• Cross sectional anatomy at T12, L1, L2.</li> <li>• Major intra-abdominal organs : <ul style="list-style-type: none"> <li>○ Gross artery of the liver, pancreas, spleen.</li> <li>○ Stomach &amp; duodenum,.</li> <li>○ Kidneys &amp; adrenal glands.</li> <li>○ Small &amp; large bowel.</li> </ul> </li> </ul> |  |
| <b>5</b> | <b>Pelvis</b>        | <ul style="list-style-type: none"> <li>• Bony pelvis and pelvic floor.</li> <li>• Major organ of the pelvis in male &amp; female.</li> <li>• Cross section anatomy through different organs like bladder, male perineum, rectum.</li> <li>• Peritoneal spaces with pelvis &amp; abdomen.</li> </ul>   |  |
| <b>6</b> | <b>Clinical Part</b> | <ul style="list-style-type: none"> <li>• The ability to know the parts of the anatomy of the body by looking at CT scans and MRI images.</li> <li>• The ability to determine the section belongs to any organ in the body.</li> </ul>   |  |

**Teaching Methodology:**

1. Lectures.
2. Discussion, Seminars & Quizzes.
3. Home works.
4. Demonstration and practical training.
5. Training field competencies assessment.

**Text Books & References:**

1. Anatomy for Diagnostic Imaging S.P. Ryan, M.M.J Mc Nicholas 2002.
2. Radiographic Anatomy and Positioning Dec 2, 1997 by Andrea Gauthier Cornuelle and Diane H. Gronefeld.
3. Radiographic Anatomy (National Medicine Series) Jun 21, 1990 by Frank Slaby and Eugene R. Jacobs Fundamentals of Sectional Anatomy: An Imaging Approach Jan 1, 2014 by Denise L. Lazo
4. Sectional Anatomy for Imaging Professionals, 3e May 10, 2012 by Lorrie L. Kelley MS RT(R) and Connie Petersen MS RT(R).
5. Cross-Sectional Human Anatomy Feb 15, 2000 by David Dean PhD and Thomas E. Herbener MD.