



**The Hashemite University  
Faculty of Allied Health Sciences  
Department of Medical Imaging  
Course Syllabus**

<b>Course information</b>	
<b>Course Title</b>	Digital Imaging
<b>Course Code</b>	110508342
<b>Prerequisites</b>	110508211
<b>Credit Hours</b>	3
<b>Course Description</b>	
<p>This course forms an introduction into the principles of computed and digital radiography and their applications in the field of medical imaging. The advantages and disadvantages of digital over screen-film radiography will also be covered in this course. Furthermore, this course provides an insight and an understanding of different digital-based imaging modalities such as; digital fluoroscopy, digital mammography, computed tomography and magnetic resonance imaging and their clinical applications. In addition, this course covers the different digital image pre-processing and post-processing techniques used to improve the interpretation of different medical images.</p>	
<b>Course Objectives</b>	
By the end of this course, student is expected to:	
Be able to understand the physical principles of digital imaging acquisition, processing, display, storage and communication.	
Be able to understand the differences between screen-film and digital radiography.	
Be able to understand the basic principles of image processing techniques.	
Be able to understand the different types of digital-based imaging modalities	
<b>Recommended Textbook</b>	
<b>Title</b>	Digital Radiography: An introduction
<b>Author</b>	Euclid Seeram
<b>Publisher</b>	Delmar, Cengage Learning
<b>Year</b>	2011
<b>Edition</b>	First
<b>Book website</b>	<a href="http://www.cengagebrain.co.uk/shop/search/9781401889999">http://www.cengagebrain.co.uk/shop/search/9781401889999</a>
<b>Other References</b>	
<b>Title</b>	digital radiography and PACS
<b>Author</b>	Christi Carter, Beth Veale
<b>Publisher</b>	Mosby/Elsevier
<b>Year</b>	2010
<b>Edition</b>	First
<b>Course Contents</b>	
<ul style="list-style-type: none"> <li>❖ Introduction</li> <li>❖ Digital image processing concepts</li> <li>❖ Computed Radiography</li> <li>❖ Digital Radiography (Indirect and direct DR)</li> <li>❖ Digital Fluoroscopy</li> <li>❖ Digital Mammography</li> <li>❖ Computed Tomography</li> <li>❖ Magnetic Resonance Imaging</li> <li>❖ Image post-processing and analysis</li> </ul>	
<b>Assessment</b>	
<b>First Exam</b>	20%
<b>Second Exam</b>	20%
<b>In course assessment</b>	10%
<b>Final Exam</b>	50%

Digital radiography is the latest advancement in dental imaging and is slowly being adopted by the dental profession. Digital imaging incorporates computer technology in the capture, display, enhancement, and storage of direct radiographic images. Digital imaging offers some distinct advantages over film, but like any emerging technology, it presents new and different challenges for the practitioner to overcome. This article presents an overview of digital imaging including basic terminology and comparisons with film-based imaging. The principles of direct and indirect digital imaging modalities Digital Radiography. The concept of moving images digitally was introduced by Albert Jutras in Canada during his experimentation with teleradiology (moving images via telephone lines to and from remote locations) in the 1950s. Early PACSs were developed by the U.S. military in an effort to move images among Veterans Administration (VA) hospitals and to send battlefield images to established hospitals. Introduction to Digital Radiography(1). Uploaded by. dawadhali. Description: Digital Radiography(. Copyright: © All Rights Reserved. Loren Sachs Instructor What is Digital Radiography? → Historically, digital radiography referred to specialized modalities that produced digital images. → Examples would include: “ CT “ MRI “ Nuclear Medicine “ Ultrasound Digital Radiography Today → Since the early 1990s, Digital Radiography has grown to include Computed Radiography(CR) and “true”™ Digital Radiography(DR) or Direct Radiography. → Our lecture today will focus on CR and DR. Digital Terms → Pixel “. Presentation on theme: "Chapter 1 Introduction to Digital Radiography and PACS"“ Presentation transcript: 1 Chapter 1 Introduction to Digital Radiography and PACS Elsevier items and derived items © 2008 by Mosby, Inc., an affiliate of Elsevier Inc. 2 Objectives Define the term digital imaging. Explain latent image formation for conventional radiography. Describe the latent image formation process for computed radiography. 11 Digital Radiography Development Early process involved scanning radiographs into the computer and sending them from computer to computer. Images were then stored in PACS. Computed and digital radiography followed. Elsevier items and derived items © 2008 by Mosby, Inc., an affiliate of Elsevier Inc. The aim of this article is to explain the basic principles of digital radiography, and to discuss the intra- and extra-oral imaging systems currently available. There are two main types of digital sensors available. One is based on charge coupled device technology and the other consists of phosphor storage plates. The advantages and disadvantages of each are highlighted with particular attention to orthodontics.