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Bioengineering or Biomedical / Biomedical Instrumentation Engineering involves developing new devices and procedures that solve medical and biological problems. These instruments may range from large imaging systems such as conventional x-ray, computerized tomography and magnetic resonance imaging, to small implantable devices, such as pacemakers, cochlear implants, drug infusion pumps and some of the Prominent biomedical applications include the development of various diagnostic and therapeutic medical devices ranging from common imaging equipment such as MRIs and EEGs, regenerative tissue growth, pharmaceutical drugs. New developments in biomaterials- based sensors that mimic natural bio-systems may be covered as well. Module 1: (13 Hours) Fundamentals concepts- Signals and noise in measurement- Characteristics of the measurement system- Determination of absolute quantity- Units of measurement quantities. Internal continuous assessment marks are awarded based on the relevance of the topic, presentation skill, quality of the report and participation. Internal Continuous Assessment (Maximum Marks 100) Presentation +Discussion: 60 Relevance + Literature: 10 Report: 20 Participation: 10 Total marks: 100. 14. Image reconstruction with incomplete and noisy data. Application Areas of CT: Introduction to X-ray tomography. Medical imaging is the technique and process of creating visual representations of the interior of a body for clinical analysis and medical intervention, as well as visual representation of the function of some organs or tissues (physiology). Medical imaging seeks to reveal internal structures hidden by the skin and bones, as well as to diagnose and treat disease. Medical imaging also establishes a database of normal anatomy and physiology to make it possible to identify abnormalities. Although