Biomedical Imaging Informatics (Credits: 3; L-T-P: 3-0-0)

Overview of imaging modalities and image representations [CT, MR, Ultrasonography imaging]; Foundations of imaging informatics and concepts of information theory, including definitions of entropy, complexity, and probability; Statistical concepts for image analysis - linear modeling, univariate and multivariate analysis, independent components analysis; Computer Aided Diagnosis (CAD); Diagnostic image processing; Networking medical data - DICOM, clouds, web, PACS; Teleradiology; Data models for representing medical data; Medical decision making using Graphical models, Bayesian belief networks, Regression analysis; Medical knowledge representation and Decision Support; Multiscale biomedical data fusion; Clinical data modeling and performance optimization; Case studies of biomedical applications.

Reference:

1. Biomedical Informatics Computer Applications in Health Care and Biomedicine by Shortliffe, Edward H., Cimino, James J. (Eds.), Springer Pub, 2014.
2. Medical Imaging Informatics by Bui, Alex A.T., Taira, Ricky K. (Eds.), Springer Pub., 2010.