

## **Distance Education and Learning for Medical Imaging Informatics**

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Medical Imaging & Informatics has become a fast-growing market field in the medical private industry. It is driven mostly by health care institutions' desire to provide better quality service in decreasing turnaround time of diagnosis. In addition, Imaging and Informatics is moving from a purely Radiology product to an Enterprise-wide product. With these forces driving the market forward, there is an apparent lack of resources both in the private industry as well as in health care institutions to properly address each of their needs. Because the clinical environment is a high-demand, 24/7 operation, it presents a unique set of factors that other Information Technology (IT)-related fields may not encounter. In addition, the image data that is involved can be very large in size in comparison to conventional, mostly text-based IT-related data. Traditionally, private industries have hired personnel with an IT background to lead the medical imaging & informatics product roadmap development and implementation. However, most people in the IT field lack the experience or knowledge of the clinical environment where the products will be embedded. This is crucial for the success of both the health care institution and the vendor. As for a health care institution, most personnel hired to manage, support, and implement a medical imaging & informatics product (eg, Picture Archive Communication System, or PACS) have a clinical background with limited experience in large-scale IT system design and implementation which again, is crucial for success.

The Medical Imaging Informatics field bridges the gap between private industry and the health care institution. It leverages the knowledge and expertise of IT-related skills (eg, large-scale system design, system uptime, acceptance testing, disaster recovery, etc) with the experience of how these medical imaging and informatics applications are utilized within the clinical environment. Because there is a constant flow of research within this unique relationship with the clinical environment, medical imaging informatics also drives research and development of new products to remain on the leading edge of technology as well as determining the current market demands and trends. With these strengths, the Biomedical Engineering Master's Program in Medical Imaging and Imaging Informatics, Viterbi School of Engineering, University of Southern California draws course attendees from medical industry corporations already heavily involved in medical imaging and informatics products. Personnel from other IT-related corporations looking for a career change into the medical arena are potential attendees as well. Clinical staff in a health care institution who are interested in branching out of their own respective clinical environments into the new arena of designing, implementing, and managing medical imaging and informatics systems such as PACS would also be ideal course attendees.

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One of the challenges is the uniqueness of this particular field of Medical Imaging Informatics is the lack of courses offered across the country. Therefore, the two courses offered in Medical Imaging Informatics are also taught through the Distance Education Network for students who are offsite from the USC campus. The following presentation will discuss course content, tools, and challenges/pitfalls that accompany distance education and learning specifically in the area of Medical Imaging Informatics.

The following are learning objectives for the following presentation:

- 1) Learn about distance education network at USC
- 2) Learn about course content for Medical Imaging Informatics
- 3) Challenges in disseminating course content and student feedback
- 4) Learn what tools are helpful to facilitate distance learning for Medical Imaging Informatics
- 5) See a demonstration of what a DEN classroom looks like from the off-campus student perspective