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Clinical Engineering Education at the University of Connecticut

The Clinical Engineering Master's Program at the University of Connecticut immerses the student in the practice of clinical engineering for two academic years. The program currently has 22 students split between first and second year students. Students complete ten graduate level engineering courses (or seven plus a thesis) which are focused on topics in clinical engineering and work for two academic years as a clinical engineer in a university teaching hospital, large community hospital or a VA medical center.

A significant portion of the educational process takes place in the classroom where students take six to nine credit hours per semester of graduate courses. Classes are taught on-line in web based distance learning format. The majority of learning however, takes place in the hospital's clinical engineering department as each student is assigned to work at one of the cooperating hospitals for the two year period. The student has a required work schedule and is treated as a department employee with accountability and assigned responsibilities. The student works as a staff clinical engineer under the guidance of the director of clinical engineering and other CE department staff at that hospital, becoming familiar with the healthcare environment and performing typical clinical engineering duties.

Typical duties given to these students include technology assessment research, product evaluations including human factors engineering analysis, project management of new technology installations, medical device networking and electronic medical record data integration, incident investigation using root cause analysis, risk management techniques such as failure modes and effects analysis, equipment planning for new construction, power quality analysis, wireless spectrum management and healthcare technology quality improvement.

"Internship meetings" are held twice per semester at one of the hospitals where all interns meet for 4-5 hours to listen to various presentations. Typically these presentations are given by the interns about their hospital work, the CE department director on current CE issues, a clinical or technical expert from the hospital about a technology issue in their department and the UConn CE Internship program director on issues related to non-academic subjects. These are followed by a tour of a technically interesting area of the hospital.

The program is based on the UConn campus in Storrs, CT, with students located in hospitals from Boston, MA to Los Angeles, CA. As a result the students complete their course work on-line. Students interning at New England hospitals also have the option of taking elective courses in person at the UConn campus in Storrs, CT or at one of the UConn regional campuses.

Between classes and internship responsibilities, the students work the equivalent number of hours to a full time job. The hospitals appreciate the work of these young engineers and want to participate in the educational process, so they pay UConn to place the student at their facility. The University in turn pays the student a graduate stipend and waives their tuition. The student graduates with a Master of Science degree in Biomedical Engineering, a minimum of 1500 hours of clinical engineering experience, two years of academic coursework focusing on clinical engineering, a familiarity with the healthcare environment and exposure to 90% of the challenges clinical engineering departments face on a regular basis.

The vast majority of the graduates take jobs in clinical engineering departments in hospitals, but some are employed by independent service organizations, equipment planning firms, or medical equipment manufactures in clinical technology management, technology support, quality or design roles. There have been 150 graduates of the program in the past 15 years. Many graduates receive job offers prior to graduation and companies actively reach out to the program to conduct interviews with that year's graduating class.