

Undergraduate Concentration and Certificate in Health Systems Engineering

The Industrial Engineering Department provides engineering students with two options for expanding their abilities to apply industrial engineering principles and tools to improve healthcare systems. The Health Systems Engineering program has been designed to let students better understand the dynamics, structure and functions of Healthcare Organizations.

The two options available are:

- **Concentration in Health Systems Engineering (HSE) for undergraduate students in the Industrial Engineering Department.** To earn the concentration recognition, students must complete their core industrial engineering courses and satisfy the following requirements:
 - Complete 6 credits of the required Health Systems Engineering courses- listed below as IE 1106 and IE 1108.
 - Complete at least 3 additional approved credits from electives in the healthcare field. These can be from IE, CBA or the Health Related Professions (see list of pre-approved courses under the certificate requirements below).
 - Complete their Senior Design Project Course (IE-1090) in a healthcare related organization.

HSE Required Courses	
IE 1106	Operations Improvement in Healthcare
IE 1108	Health Systems Engineering & Quantitative Analytics

- **Certificate in Health Systems Engineering for undergraduate students in the Industrial Engineering Department.** Will extend the course requirements of the **Concentration Program** presented above to the following:
 - Expand from 9 to at least 15 credits (including IE 1106 and 1108 which are required) in areas relevant to the Health Systems Engineering field. See list of pre-approved courses below. With approval of the undergraduate coordinator, additional HSE elective courses can be from areas relevant to the student's objectives such as Health Related Professions or Information Sciences.
 - Complete their Senior Design Project Course in a healthcare related organization.
 - Acquire approved work experience with a healthcare organization through internships or the Co-op program. Three of the additional 6 credits can be earned by completing the co-op program within a healthcare organization.

Approved Elective Courses for HSE Concentration or Certificate	
IE 1014	Database Design
IE 1102	Lean Six Sigma I
IE 1103	Lean Six Sigma II
IE 1122	Fundamentals of Systems Engineering
IE 1123	Project Management for Engineers
IE 1185	Stochastic Modeling and Data Analytics in Healthcare OM
Relevant Courses from Health Related Professions or Information Sciences	

Engineering students from other departments have the option of minoring in IE and taking the HSE core courses as their IE electives. This makes them eligible to earn either the Certificate or Concentration recognition by satisfying the requirements listed above.