

# Healthcare Systems Engineering

The Masters of Engineering in Healthcare Systems Engineering (HSE) program produces graduates with strong fundamental skills in industrial and systems engineering and a strong background in healthcare delivery systems and processes. Graduates will be ideally positioned for skilled professional management roles aimed at improving quality, streamlining processes and improving efficiency in healthcare systems. This concentrated degree program is designed to prepare graduate students for engineering and management careers in firms engaged in delivering healthcare and health related products and services. The need for professionals in this area is strong and growing due to the aging of the population and a national crisis of rapidly increasing healthcare costs. Graduates will be well positioned for employment in the following types of organizations

- Healthcare delivery organizations such as hospitals and clinics
- Healthcare finance organizations such as insurance companies and HMOs
- Healthcare product suppliers such as pharmaceutical companies and manufacturers of Healthcare products
- Management and benefits consulting firms
- Policy organizations at various levels of government and trade associations

Students seeking to enroll to the program should have a bachelor's degree in engineering, mathematics, science, or business. Students should be quantitatively oriented and have completed a calculus based probability and statistics course at the level of ISE 328. A candidate lacking certain background may be required to take background courses.

The program consists of 30 credit hours of course work including a 3-credit HSE capstone project. Full-time in-residence students can complete the program in a fall-spring-summer semester sequence as shown in the table below.

## Recommended sequence of courses in the HSE M.Eng. program

Fall	CR	Spring	CR	Summer	CR
ISE 470		3 ISE 426	3	ISE 474	3
ISE 471		3 ISE 473	3	Technical Elective	3
ISE 410		3 ISE 472	3		
Technical Elective		3 ISE 404 or 339	3		
		<b>12</b>	<b>12</b>		<b>6</b>

**Total Credits: 30**

## Additional Elective Courses

### ISE 475 Healthcare Systems Project 1-3 Credits

Intensive study of an area of healthcare systems engineering with emphasis upon design and application. Written report is required.

ISE 328 and ISE 357 are designed to be remedial courses for students in the program. Although a grade earned in those course will appear in the student's transcript, they will not count toward the 30 credit program requirement. Elective courses come from various sectors of systems and engineering as well as accounting, business, and economics. The pool of elective courses is listed below.

- Accounting Information Systems
- Financial Accounting
- Cost Accounting
- Project Management
- Human Resource Management
- Strategic Supply Management
- Technology, Operations, and Competitive Strategy
- Managerial Economics
- Econometrics
- Health Economics

- Management of Information Systems
- Quality Control
- Data Communications Systems
- Systems Engineering Design
- Queuing Systems
- Advanced Database Analysis and Design
- Advanced Data Communications Systems
- Analysis and Design
- Discrete Event Dynamic Systems
- Financial Optimization
- Game Theory
- Healthcare Systems Project

The HSE Program Director must approve all course work including technical electives. No more than 9 credit hours may be taken from the College of Business.

Additional information about the program may be obtained by calling the HSE Program at (610) 758-5867 or from the HSE program website: <http://lehigh.edu/hse> (<http://lehigh.edu/hse/>)