

The **HSE** certificate is offered as an extra option along with the Master's program. The certificate is administered jointly by the Department of Industrial Engineering and the Department of Health Policy and Management within Pitt's Graduate School of Public Health. It provides rigorous, multi-disciplinary training for individuals interested in pursuing careers in healthcare systems process and management engineering. The HSE certificate option is open to all Master's students and students must apply and be accepted before they join the department. For IE graduate students, the MS degree in IE along with the HSE certificate requires a total of 37-38 credits distributed as follows:

1. Required Core (**9 credits**)
 - (a) IE 2001: OPERATIONS RESEARCH (3 cr.)
 - (b) IE 2005: PROBABILITY & STATISTICS FOR ENGINEERS (3 cr.)
 - (c) IE 2006: INTRODUCTION TO MANUFACTURING SYSTEMS (3 cr.)
2. IE Elective Core: two of the following (**6 credits**)
 - a) IE 2003: ENGINEERING MANAGEMENT (3 cr.)
 - b) IE 2007: STATISTICS AND DATA ANALYSIS (3 cr.)
 - c) IE 2088: SIMULATION (3 cr.)
 - d) IE 2100: SUPPLY CHAIN ANALYSIS (3 cr.)
 - e) IE 2303: WORK DESIGN (3 cr.)
3. Required IE Electives (9 **credits**)
 - a) IE 2102: LEAN/ SIX SIGMA (3 cr.)
 - b) IE 2106: OPERATIONS IMPROVEMENT IN HEALTHCARE (3 cr.)
 - c) IE 2108: HEALTH SYSTEMS ENGINEERING: QUANTITATIVE ANALYTICS (3 cr.)
4. HPM Courses (**10-11 credits**)
 - a) PUBHLT 2033: FOUNDATIONS OF PUBLIC HEALTH (1 cr.)
 - b) HPM 2105: INTRODUCTION TO THE US HEALTHCARE DELIVERY SYSTEM 1 (1 cr.)
 - c) HPM 2106: HEALTH SYSTEMS LEADERSHIP AND PROF. DEVELOPMENT (1 cr.)
 - d) HPM 2220: COST EFFECTIVENESS ANALYSIS IN HEALTH CARE (1 cr.)
 - e) HPM 2217: CLINICAL DECISIONS ANALYSIS (1 cr.)
 - f) HPM 2207: QUALITY ASSESSMENT AND PATIENT SAFETY (3 cr.)
 - g) HPM Elective (2-3 cr.); needs advisor approval
5. IE 2098: HEALTH SYSTEMS ENGINEERING CAPSTONE PROJECT (**3 credits**)
6. HPM 2050: HEALTH SYSTEMS ENGINEERING SEMINAR (**0 credits**)

NOTE: Students without an undergraduate degree in I.E. are required to select IE 2303 from the elective core.

Students interested in the HSE certificate are strongly encouraged to map out their study plans immediately after enrolling in the department.

Recommended Study Plan for MSIE students who choose the HSE Certificate option.

Fall Year 1		Spring Year 1		Fall Year 2		Spring Year 2	
Class	Cr.	Class	Cr.	Class	Cr.	Class	Cr.
IE 2005	3	IE 2001	3	HPM 2207	3	HPM Elective ²	2-3
IE 2006	3	IE 2102	3	HPM 2220	1	HPM 2106	1
IE 2106	3	IE Core Elective ¹	3	HPM 2217	1	IE 2098: Capstone Proj. ³	3
PUBHLT 2033	1	IE 2108	3	HPM 2105	1		
IE 2110	0			IE Core Elective ²	3		
TOTAL	10		12		9		6-7

¹Must be IE 2303 if student's undergraduate degree is not in Industrial Engineering

²These electives can be switched around, or the last term could be reduced to just 3 credits if these elective credits are taken earlier in the program (e.g., during the fall or summer)

³Cannot be taken until the last term