

Operations Management: with Application to Healthcare Management

++ Bulletin Description:

Develops modeling, analytical and managerial skills of Engineering students. Enables students to master an array of fundamental Operations Management tools adapted to the management of manufacturing and service systems in banks, hospitals, factories, and government. Special emphasis is placed on healthcare systems. Through real-world business cases, students learn to identify, model and analyze operational improvements and innovations in a range of business contexts, especially healthcare contexts.

++ Prerequisites/Corequisites:

For senior undergraduate Engineering students: SIEO W3600 (Probability and statistics) and IEOR E3608 Intro to OR: Mathematical Programming

For Engineering graduate students (MS or PhD): Probability and Statistics at the level of SIEO W4150, and Deterministic Models at the level of IEOR E4004.

For Healthcare Management students: P8529: Analytic Methods for Health Services Management.

++ Description and Syllabus:

This course aims to develop modeling, analytical and managerial skills of Engineering students.

The course is targeted toward students planning careers in healthcare management, operations consulting, management consulting, or students pursuing positions as business analysts in operations, logistics, supply chains, and positions in general management.

This course is open to senior undergraduate and Master's students in Engineering.

Class sessions cover the following topics in Operations Management

- * Facility layout and facility location
- * Project management
- * Process design and improvement
- * Productivity and Lean systems
- * Quality control
- * Statistical process control
- * Scheduling
- * Managing demand and capacity
- * Service Design

There will be several in-class simulation games.

Applications to healthcare will be illustrated through selected case studies. Students will prepare and present for discussion Harvard School Business cases on a variety of topics relevant to the class.

++ Cases:

Example cases include

1. Paediatric Orthodaedic Clinic at the Children's Hospital of Western Ontario
2. Intermountain Health Care
3. Cincinnati Children's Hospital Medical Center
4. Virginia Mason Medical Center
5. University Health Services: Walk-In Clinic
6. Shouldice Hospital Ltd
7. Partners Health Care System, Inc. (A, B)

8. West Coast University Student Health Services--Primary Care
9. Pharmacy Service Improvement at CVS (A)
10. Dana-Farber Cancer Institute
11. Alliant Health System: A Vision of Total Quality
12. Patient Transfusion Services Lab of Central Blood Bank
13. Six Sigma at Academic Medical Hospital (A)
14. Cleveland Clinic
15. Koo Foundation Sun Yat-Sen Cancer Center: Breast Cancer Care in Taiwan
16. Dental Associates of Northern Virginia (A)
17. Supply Chain Partners: Virginia Mason and Owens & Minor (A, B)
18. Owens & Minor, Inc. (A, B)
19. 3M Health Care

++ Text books:

*** Required:**

- * Operations Management: Creating Value Along the Supply Chain, 7th Edition, Roberta S. Russell and Bernard W. Taylor (ISBN-13: 978-0470525906)

*** Recommended:**

- * Production and Operations Analysis, Steven Nahmias, 7th Edition.
- * Service management: operations, strategy, and information technology, James A. Fitzsimmons, Mona J. Fitzsimmons, 6th Edition, 2007 (ISBN-13: 978-0077228491)
- * Healthcare Operations Management, McLaughlin, Daniel B. and Hays Julie M, 2008. (ISBN-13: 978-1567932881)
- * Quantitative Methods in Health Care Management: Techniques and Applications, Yasar A. Ozcan, Jossey-Bass, 1st Edition, 2005 (ISBN-13: 978-0470434628)

++ Grading:

Attendance and class participation: 5%
Case analysis and presentation (2): 20%
Homeworks: 20%
Midterms (2): 30%
Final exam: 25%