PhD Q790
Advanced Operations Management I
Fall 2020 Course Outline
Operations Management Area
DeGroote School of Business

COURSE OBJECTIVES

- To develop a conceptual framework for analyzing operations management problems focusing upon inventory management and production planning.
- To become familiar with the mathematical modelling and optimization tools useful in developing and executing tactical and short term plans in inventory and production management.
- To obtain hands on experience in using the materials management (MM) and production planning (PP) modules in the ERP system SAP ECC 6.04.

INSTRUCTOR AND CONTACT INFORMATION

Dr. Prakash Abad
Instructor
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COURSE DESCRIPTION

This course includes readings, lectures, and use of SAP client ECC 6.04 to illustrate some of the theories/concepts discussed in the course.

LEARNING OUTCOMES

Upon completion of this course, students will be able to complete the following key tasks:

- Learn techniques of exponential smoothing and replenishment strategies to optimize inventory. Learn procedures for intermediate and short-term production planning.
- Apply basic mathematical modeling approaches to inventory management and production planning problems.
- Attain familiarity with the materials management (MM) and production planning (PP) modules in SAP client ECC 6.04.

REQUIRED COURSE MATERIALS AND READINGS

Inventory and Production Management in Supply Chains, Fourth Edition, CRC Press, 2016. The eBook version of the textbook is available online at McMaster library: http://ebookcentral.proquest.com/lib/MCMU/detail.action?docID=4771754

Focus will be on the sections corresponding to material discussed in class.

EVALUATION

Components and Weights

Assignments: 5 to 6 in total	Work individually	14%
Midterm		28%
Final		30%
SAP assignments (2)	Work individually	8%
SAP drills (5)		10%
Presentation of journal paper		10%
Total		100%

NOTE: Examinations are on line and/or take-home. A formula sheet and tables will be provided before the examinations. The use of a McMaster standard calculator is allowed during examinations in this course. See McMaster calculator policy at the following URL: http://www.mcmaster.ca/policy/Students-AcademicStudies/examinationindex.html

Presentation: Each student will present a review of a paper related to a course topic to the class. The student should present the paper's purpose, model formulation and methodology, derivations, results, and contribution to the literature. The presentation should take about 30 minutes, including questions and answers.

Grade Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.

Grade	Points	Equivalent Percentages	Pass/Fail
A+	12	90-100	P+
A	11	85-89	P
A-	10	80-84	
B+	9	77-79	
B	8	73-76	
B-	7	70-72	
F	0	69 and under	F

ACADEMIC DISHONESTY

It is the student's responsibility to understand what constitutes academic dishonesty. Please refer to the University Senate Academic Integrity Policy at the following URL:

http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf

This policy describes the responsibilities, procedures, and guidelines for students and faculty should a case of academic dishonesty arise. Academic dishonesty is defined as to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Please refer to the policy for a list of examples. The policy also provides faculty with procedures to follow in cases of academic dishonesty as well as general guidelines for penalties. For further information related to the policy, please refer to the Office of Academic Integrity at: http://www.mcmaster.ca/academicintegrity

MISSED ACADEMIC WORK

Please discuss any extenuating situation with your instructor at the earliest possible opportunity.

POTENTIAL MODIFICATIONS TO THE COURSE

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

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http://www.copyright.mcmaster.ca/Access Copyright Agreement

STUDENT ACCESSIBILITY SERVICES

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

http://sas.mcmaster.ca

COURSE SCHEDULE

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Fall 2020 Course Schedule

Date	Topic	Study	Event
09/11	Introduction Forecasting	SPT-Chs. 1-3	
09/18	Forecasting	SPT-Ch. 3	
09/25	Traditional replenishment systems for managing individual item inventories	SPT-Ch. 4 : Order quantities when demand is approximately level	--SAP demonstration on forecasting --Exponential smoothing in R
10/02		SPT-Ch. 5: Lot sizing for individual items with time-varying demand.	*Hand in part 1 of SAP Assignment 1*
10/09	Safety stock in perpetual and periodic review systems.	SPT-Ch. 6 : Individual items with probabilistic demand	
10/16	Forecast based replenishment, Style Goods (Newsboy type problems)	SPT-Ch. 9: Style goods and perishable items	SAP demonstration on replenishment planning
10/23	Coordinated replenishment, Distribution requirement planning	SPT-Ch. 10: Coordinated replenishment at a single stocking point , Handouts	*Hand in part 2 of SAP Assignment 1*
10/30	**Mid-term**		
11/06	An overall framework for production planning and scheduling, Mixed LP models of aggregate planning	Handouts, SPT-Chs. 13-14	SAP drill on sales and operations planning and demand management
11/13	Material requirement planning	Handouts, SPT Ch.-15	SAP drill on MPS/MRP
11/20	Capacity planning, routing and critical ratio scheduling, finite loading	Handouts, SPT Chs.- 15-16	SAP drill on MRP/capacity planning/scheduling
11/27	Repetitive production: Just in Time Systems, Economic lot scheduling problem	Handouts, SPT Ch.-16 SPT-Ch. 10	SAP demonstration/drill on Kanban system *Hand in SAP Assignment 2*
12/04	Paper review presentation and Final Exam (to be scheduled)		