



# Engineering and Technology Management

## COURSE SYLLABUS

---

**Course Number:** E M 530

**Course Name:** Applications in Constraints Management

**Instructor:** Dr. Russ Johnson

**email:** russ.johnson@wsu.edu

**Semester Credits:** 3

**Prerequisites:** None

---

### Course Description and Objectives:

Every system can be characterized as a chain of interlocking activities or a network of interdependent events. The operation or productivity of such a linkage is limited by its weakest link. The Theory of Constraints provides powerful tools for analyzing such complex networks based, not on the individual links, but on the linkages (the overall system). This course examines physical process flows and the specific proven solutions developed by TOC along with their application to a broad variety of management problems. This course is excellent preparation for the TOCICO Supply Chain Logistics Certification Exam and Project Management Certification Exam.

### Course Topics:

- The TOC Five Focusing Steps
- Drum-Buffer-Rope (the TOC solution for low variability production processes)
- Simplified Drum-Buffer-Rope (the TOC solution for production processes for large product mix)
- Critical Chain Project Management (the TOC solution for scheduling high variability tasks in single and multi-project environments)
- TOC Replenishment (the TOC solution for distribution and Supply Chain Management)
- TOC Finance and Measures

### Grading:

10%	Throughput Accounting Exercise
5%	Project TOC Financial Analysis
5%	Dice Game Simulation Report
5%	Job Shop Game Report
10%	Production Simulator Report
10%	DBR Research Article Critique
10%	Project Problems Report
10%	Critical Chain Single Project Exercise/Game
10%	Single Project Critical Chain Reschedule Report
15%	Multi-Project Critical Chain Schedule Activity
10%	Replenishment Analysis