I. **Course Description in 2016/17 Catalog:** Production/operations management of manufacturing and service operations. Topics include analysis and decision techniques in the location, design, and layout of facilities and processes; work design and work measurement; line balancing; forecasting and scheduling; material requirements planning and quality assurance. Inventory control, linear programming, project management and queuing models and simulations are also examined.

**Course Description in 2017/18 Catalog:** Operations and Supply Chain Management is the study of the processes, principles, and procedures required for the manufacturing of goods as well as the provision of goods and services. This includes total quality management concepts such as statistical process control; forecasting methods to determine sales and production needs; inventory management techniques such as economic order quantity, material requirements planning, and just-in-time; supply chain management; logistics; business processes; and project management.

II. **Prerequisites:** Completion of all Pre-Business requirements.

III. **Course Learning Outcomes:** This survey course acquaints students with the concepts models, and tools necessary to manage in an environment of global competition. By the end of the course the student should be able to:

A. Understand the differences and similarities between manufacturing and service organizations, and the application of job shop and flow shop models
B. Describe the planning process from forecasting and aggregate planning through the detailed scheduling of material, capacity, and workforce
C. Understand and apply mathematical inventory models and requirements planning models to dependent and independent inventory items
D. Interpret and analyze network model results, such as assembly charts, project management charts, and line-balancing precedence diagrams
E. Understand total quality management and the application of statistical sampling and statistical control charts to productive systems

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F. Assess the appropriateness of an operational strategy with respect to ongoing operations and planning for change
G. Analyze business situations using the IPAC model*

IV. **Course Materials:** The materials should include both a text and analysis software. The specific text and computer packages are determined by the instructor.

V. **Teaching Methodology:** Lecture, class discussion, and assigned homework. Instruction should include use of analytical tools in making operation decisions. Specific methods used will be determined by the instructor.

VI. **Evaluation Tools:** In addition to homework and exams, at least one evaluation tool should address the students’ ability to use the computer in analysis of or planning for an organization’s operations. The specific evaluation tools will be determined by the instructor.

VII. **Course Content:**

A) **Course Topics:**
1. Theory of systems, operations strategy and operations management’s relationship to other functional areas in an organization
2. Decision theory and the decisions made by operations managers
3. Product and service design
4. The design of productive systems including:
   a. process selection and capacity planning
   b. location of facilities
   c. layout of facilities
   d. job design and work measurement, and
   e. project management
5. The operation and control of productive systems including:
   a. demand forecasting and management
   b. aggregate planning
   c. detail planning of materials, capacity, and workforce
   d. statistical quality control, and total quality management
   e. supplier and consumer relations

B) **Interdisciplinary Content:**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Class Hours</th>
<th>Required Graded Work Other Than Exams?</th>
</tr>
</thead>
<tbody>
<tr>
<td>International/Global</td>
<td>0.25</td>
<td>Optional</td>
</tr>
<tr>
<td>Ethical Issues</td>
<td>0.167</td>
<td>Optional</td>
</tr>
<tr>
<td>Political Issues</td>
<td>0.167</td>
<td>Optional</td>
</tr>
<tr>
<td>Social Issues</td>
<td>0.167</td>
<td>Optional</td>
</tr>
</tbody>
</table>

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### Legal/Regulatory Issues
- 0.167
- Optional

### Environmental Issues
- 0.25
- Optional

### Technology Issues
- 4
- Yes

### Demographics & Diversity
- 0.167
- Optional

#### C) Interdisciplinary Skills:

<table>
<thead>
<tr>
<th>Required Graded Work</th>
<th>Other Than Exams?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Communication</td>
<td>Optional</td>
</tr>
<tr>
<td>Written Communication</td>
<td>Yes</td>
</tr>
<tr>
<td>Critical Thinking and IPAC</td>
<td>Yes</td>
</tr>
<tr>
<td>Working in Teams</td>
<td>Optional</td>
</tr>
</tbody>
</table>

* The purpose of the IPAC model is to provide a framework that will allow students to use critical thinking skills to engage in situational evaluation and analysis so they can make effective and efficient decisions to address environmental contingencies they may encounter at work, and for that matter, in life in general. The model is laid out as follows:

- **Issue identified** (Describe clearly the key issue or problem)
- **Principles applied** (Discuss relevant principles, theories, facts, or frameworks)
- **Alternatives considered** (Present alternative options for solving the issue or problem)
- **Conclusion supported** (State and justify your conclusion for solving the issue or problem)