



## Course Specification

**Course Name:** [ Inventory Control and Production Management ]

**Course Code:** [ DS424 ]

### I. Basic Course Information

Major or minor element of program: [ Major ]

Department offering the course: [ Operations Research and Decision Support Department ]

Academic level: [ 400 Level ]

Semester in which course is offered: [ Second (spring) Semester ]

Course pre-requisite(s): [ Linear and Integer Programming [DS311]

And Decision Support Tools & Techniques [DS331] ]

Credit Hours: 3

Contact Hours Through:

| Lecture | Tutorial* | Practical* | Total |
|---------|-----------|------------|-------|
| 2.5     | 0.0       | 1.5        | 4.0   |

\* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: [ January 2015 ]

### II. Overall Aims of Course

[To present the concepts, principles and techniques for managing manufacturing and service operations. Quantitative methods for improving management of operations (production and inventory) will be covered. The course will include the four major decision making areas of manufacturing and service operations: process, quality, capacity, and inventory. ]

### III. Program ILOs covered by course

| Program Intended Learning Outcomes (By Code) |                     |                     |                |
|--|---------------------|---------------------|----------------|
| Knowledge & Understanding                    | Intellectual Skills | Professional Skills | General Skills |
| [K16,K17,K18,K21 ]                           | [I12,I13,I14 ]      | [P10,P12 ]          | [G5,G6 ]       |



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#### IV. Intended Learning Outcomes of Course (ILOs)

##### a. Knowledge and Understanding

- K.1 Explain the constituents of operations management and how they are related to other major business decision areas.
- K.2 Use tools of quality control to analyze variability in processes.
- K.3 Explain inventory Management concept and models.
- K.4 Explain the principles of MRP, JIT and Scheduling systems.
- K.5 Describe Supply Chain Management concepts ]

##### b. Intellectual/Cognitive Skills

- I.1 Explain the basic concepts of production management.
- I.2 Develop tools to analyze and manage efficiently the supply chain.
- I.3 Apply decision-making tools such as control charts, quality tools, forecasting models, and inventory models in both manufacturing and service applications. ]

##### c. Practical/Professional Skills

- P.1 Develop tools to improve business processes in order to increase competitiveness.
- P.2 Select the appropriate inventory model according to the operating rules. ]

##### d. General and Transferable Skills

- G.1 Interpret numerical results of the analyses.
- G.2 Communicate effectively the results of business applications analyses. ]

#### V. Course Matrix Contents

|     | Main Topics / Chapters                        | Duration (Weeks) | Course ILOs Covered by Topic (By ILO Code) |       |       |          |
|-----|---|------------------|--|-------|-------|----------|
|     |   |                  | K & U                                      | I.S.  | P.S.  | G.S.     |
| 1-  | Operations and Productivity ]                 | 1 ]              | [K1 ]                                      | [I1 ] | [ ]   | [ ]      |
| 2-  | Operations Strategy in a Global Environment ] | 1 ]              | [K1 ]                                      | [I1 ] | [ ]   | [ ]      |
| 3-  | Design of Goods and Services                  | 1 ]              | [ ]  | [ ]   | [P1 ] | [ ]      |
| 4-  | Managing Quality ]                            | 2 ]              | [K2 ]                                      | [ ]   | [ ]   | [ ]      |
| 5-  | Process Strategy ]                            | 1 ]              | [ ]  | [ ]   | [P1 ] | [G1,G2 ] |
| 6-  | Location Strategies ]                         | 1 ]              | [K4 ]                                      | [ ]   | [ ]   | [ ]      |
| 7-  | Layout Strategy ]                             | 1 ]              | [K5 ]                                      | [ ]   | [ ]   | [ ]      |
| 8-  | Supply Chain management ]                     | 2 ]              | [ ]  | [I2 ] | [ ]   | [ ]      |
| 9-  | Inventory Management ]                        | 2 ]              | [K3 ]                                      | [I3 ] | [P2 ] | [ ]      |
| 10- | Materials Requirements Planning ]             | 1 ]              | [K4 ]                                      | [ ]   | [P2 ] | [G1,G2 ] |
|     | <b>Net Teaching Weeks</b>                     | <b>13</b>        |  |       |       |          |



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VI. Course Weekly Detailed Topics / hours / ILOs

| Week No.                    | Sub-Topics                                  | Total Hours | Contact Hours     |                  |
|-----------------------------|---|-------------|-------------------|------------------|
|                             |   |             | Theoretical Hours | Practical Hours* |
| 1                           | Operations and Productivity                 | 2.5         | 2.5               |                  |
| 2                           | Operations Strategy in a Global Environment | 4           | 2.5               | 1.5              |
| 3                           | Design of Goods and Services                | 4           | 2.5               | 1.5              |
| 4                           | Managing Quality                            | 4           | 2.5               | 1.5              |
| 5                           | Managing Quality                            | 4           | 2.5               | 1.5              |
| 6                           | Process Strategy                            | 4           | 2.5               | 1.5              |
| 7                           | <b>Midterm Exam</b>                         |             |                   |                  |
| 8                           | Location Strategies                         | 4           | 2.5               | 1.5              |
| 9                           | Layout Strategy                             | 4           | 2.5               | 1.5              |
| 10                          | Inventory Management                        | 4           | 2.5               | 1.5              |
| 11                          | Inventory Management                        | 4           | 2.5               | 1.5              |
| 12                          | Inventory Management                        | 4           | 2.5               | 1.5              |
| 13                          | Inventory Management                        | 4           | 2.5               | 1.5              |
| 14                          | Materials Requirements Planning             | 4           | 2.5               | 1.5              |
| 15                          | <b>Final Exam</b>                           |             |                   |                  |
| <b>Total Teaching Hours</b> |   | <b>51</b>   | <b>33</b>         | <b>18</b>        |

\* No Practical/Tutorial during the first week of the semester

VII. Teaching and Learning Methods

| Teaching/Learning Method                 | Selected Method                     | Course ILOs Covered by Method (By ILO Code) |                     |                     |                |
|--|-------------------------------------|---|---------------------|---------------------|----------------|
|  |                                     | K & U                                       | Intellectual Skills | Professional Skills | General Skills |
| Lectures & Seminars                      | <input checked="" type="checkbox"/> | [All]                                       | [All]               | [All]               | [All]          |
| Tutorials                                | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Computer lab Sessions                    | <input checked="" type="checkbox"/> | [All]                                       | [All]               | [All]               | [All]          |
| Practical lab Work                       | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Reading Materials                        | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Web-site Searches                        | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Research & Reporting                     | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Problem Solving / Problem-based Learning | <input checked="" type="checkbox"/> | [All]                                       | [All]               | [All]               | [All]          |
| Projects                                 | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Independent Work                         | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Group Work                               | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Case Studies                             | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Presentations                            | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Simulation Analysis                      | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |
| Others (Specify):                        | <input type="checkbox"/>            | [ ]   | [ ]                 | [ ]                 | [ ]            |



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VIII. Assessment Methods, Schedule and Grade Distribution

| Assessment Method   | Selected Method                     | Course ILOs Covered by Method (By ILO Code) |                          |                          |                          | Assessment Weight / Percentage | Week No.                 |
|---------------------|-------------------------------------|---|--------------------------|--------------------------|--------------------------|--------------------------------|--------------------------|
|                     |                                     | K & U                                       | I.S.                     | P.S.                     | G.S.                     |                                |                          |
| Midterm Exam        | <input checked="" type="checkbox"/> | K1  | I1                       | P1                       | G1                       | 20%                            | 7                        |
| Final Exam          | <input checked="" type="checkbox"/> | All   | All                      | All                      | All                      | 60%                            | 15                       |
| Quizzes             | <input checked="" type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 10%                            | <input type="checkbox"/> |
| Course Work         | <input checked="" type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 10%                            | <input type="checkbox"/> |
| Report Writing      | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |
| Case Study Analysis | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |
| Oral Presentations  | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |
| Practical           | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |
| Group Project       | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |
| Individual Project  | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |
| Others (Specify):   | <input type="checkbox"/>            | <input type="checkbox"/>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> |

IX. List of References

|  |  |
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| <b>Essential Text Books</b>            | <ul style="list-style-type: none"> <li>Jay Heizer and Barry Render, Principles of Operations Management, 6th Edition, 2006, Prentice Hall, Upper Saddle River, New Jersey. ]</li> </ul>                      |
| <b>Course notes</b>                    | <ul style="list-style-type: none"> <li>Yes ]</li> </ul>  |
| <b>Recommended books</b>               | <ul style="list-style-type: none"> <li>S. Nahmias, Production and Operations Analysis, Irwin/McGraw-Hill, 1997</li> <li>P. Zipkin, Foundations of Inventory Management, Irwin/McGraw-Hill, 2000 ]</li> </ul> |
| <b>Periodicals, Web sites, etc ...</b> | <ul style="list-style-type: none"> <li>None ]</li> </ul>   |

X. Facilities required for teaching and learning

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|--|
| <p>List the facilities required</p> <ul style="list-style-type: none"> <li>Computer lab</li> <li>Software ]</li> </ul> |
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**Course coordinator:** Prof. Hisham M. E. Abdelsalam

**Head of Department:** [Prof. Mohamed Mostafa Saleh]

**Date:** [January 2015]