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|--------------------------------|--|---|---|---|---|
| <b>MDSL 826</b>                | <b>Business &amp; Supply Chain Risk Management</b> | L | T | P | C |
| <b>Version 1.0</b>             |  | 3 | 0 | 0 | 3 |
| <b>Pre-requisites/Exposure</b> | Graduate in Engineering/Science discipline         |   |   |   |   |
| <b>Co-requisites</b>           |  |   |   |   |   |

### Course Objectives

- a) To understand risk management definition & principles in the context of commercial management.
- b) To understand Risk identification and assessment – techniques and tools & Development and justification of risk-driven management decisions.
- c) To understand supply chain risk management, vulnerability and develop risk response strategies
- d) Developing an understanding of basic principles of Risk management processes, procedures & Risk analysis techniques.
- e) To understand how implementation of supply chain risk management strategies can be effective by industry based real world case studies and scenarios illustrating macro and micro-level risks, and approaches to their management.

### Course Outcomes

On completion of this course, the students will be able to

- CO1. To understand the concept of risk, uncertainty & risk parameters in the context of commercial management.
- CO2. To develop a capacity to critically review the principles and applications of risk and vulnerability management in the context of commercial environments
- CO3. Analyze risk assessment and mitigation strategies in specific situations
- CO4. Describe supply chain risk management strategies to implement and monitor appropriate management techniques relevant to specific situations

### Catalog Description

Supply chain risk management (SCRM) is “the implementation of strategies to assessment with the objective of reducing vulnerability and ensuring continuity.” One way to view supply chain risk management is to think of it as the intersection of supply chain management and risk management. One thing we know about SCRM is that no standard definition exists. This is one indicator that SCRM is still an evolving discipline. Risk is embedded within so many business disciplines that it should come as no surprise that different groups perceive this concept differently. Risk events are not only episodic, temporary occurrences. Risk events can be continuous, particularly if they relate to operational performance problems. Any supply chain performance problem that is ongoing presents continuous risk to multiple parties in a supply chain.

### Course Content

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#### Unit I: Introduction to Risk Management

[9 Lecture Hours]

Concept of risk, definition of risk management, levels of risk management within organization, Relationship of risk to possible losses and gains, Concept of Risk and Uncertainty & the Sources, Concept of Risk in terms of Uncertainty, Probability Effect & Outcome, risk and uncertainty: basic concepts, Risk and uncertainty, origin of risk, Typical risk Parameter, Steps in Defining and

Measuring Risk, uncertainties, types of uncertainty

**Unit II: SOURCES OF RISK**

**[9 Lecture Hours]**

Sources of risk, typical Sources of Risk to Business for projects & products- Project Risk  
Global risk, Elemental Risk, Holistics Risk, Static Risk, Dynamic Risk, Inherent Risk, Contingent Risk, Customer Risk, Fiscal/Regulatory Risk, Purchasing Risk, Reputation/Damage Risk, Organizational Risk, Interpretation Risk, IT risk, OPEC Risk, Process Risk, Heuristic Risk, Decommissioning Risk, Institutional Risk

**Unit III: Supply Chain Risk Management**

**[10 Lecture Hours]**

Supply Chain Risk Management: Defining Enterprise Risk Management & Supply Chain Risk Management, reasons for focus on Supply Chain Risk Management, Some Important Risk Concepts: risk event, Risk Exposure and Vulnerability, Risk Resilience, Risk Appetite, Risk Analysis or Assessment, Risk Response Plan, Risk Compliance, Risk Governance, Generic Risk Management Approaches: Risk Mitigation, Risk Avoidance, Risk Prevention, Risk Acceptance, risk sharing, Pillars of Supply Chain Risk Management- Supply Risk, Process Risk, Demand Risk, Environmental Risk

**Unit IV: Supply Chain Risk Management Enablers**

**[8 Lecture Hours]**

Linking Supply Chain Risk Management and Supply Chain Strategy, Integrating Risk Management with Commodity Strategy Development, Strategic Risk, Hazard Risk- First-Party Commercial Property Insurance- Cargo Insurance, Cyber Insurance, Financial Risk, Operational Risk- supply & demand risk, Integration of ISO 31000:2009 and Supply Chain Risk Management, ISO 31000:2009 Enterprise and Supply Chain Risk Management

**Text Books**

1. Bret Wagner, Sime Curkovic & Thomas Scannell(2016) “Managing Supply Chain Risk” CRC Press, ISBN: 978-1-4987-0711-4
2. Gregory L. Schlegel & Robert J. Trent(2015) “Supply Chain Risk Management- An Emerging Discipline” CRC Press, ISBN: 978-1-4822-0599-2

**Reference Books**

1. ManMohan S. Sodhi & Christopher S. Tang,(2012) “Managing Supply Chain Risk, Springer ISBN 978-1-4614-3237-1
2. Robert B. Handfield & Kevin Mc Cormack(2008) “Supply chain risk management” Auerbach Publication ISBN : 978-0-8493-6642-0

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:**

| <b>Components</b>    | <b>Internal Assessment</b><br>(Class Participation/Project Assignment/Quiz) | <b>ESE</b> |
|----------------------|---|------------|
| <b>Weightage (%)</b> | 50<br>Quiz- 10<br>Assignment-10<br>Class participation- 10<br>Project- 20   | 50         |

## Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

| Mapping between COs and POs |   |                                 |
|-----------------------------|---|---------------------------------|
|                             | COURSE OUTCOMES ( COs )   | POs                             |
| <b>CO 1</b>                 | To understand the concept of risk, uncertainty & risk parameters in the context of commercial management.   | PO 1,2, 3,4,7,8,9,10, 11,13, 14 |
| <b>CO 2</b>                 | To develop a capacity to critically review the principles and applications of risk and vulnerability management in the context of commercial environments | PO 1,2, 3, 7,8,9,10, 11,14      |
| <b>CO 3</b>                 | Analyze risk assessment and mitigation strategies in specific situations  | PO 1,2, 3, 8,9,10, 11, 13,14    |
| <b>CO 4</b>                 | Describe supply chain risk management strategies to implement and monitor appropriate management techniques relevant to specific situations               | PO 4,5, 8,12,13, 14             |

## Program Outcome / Course Outcome mapping

| Course Outcomes | CO 1 | CO 2 | CO 3 | CO 4 |
|-----------------|------|------|------|------|
| <b>PO 1</b>     | 3    | 3    | 3    | 2    |
| <b>PO 2</b>     | 3    | 3    | 3    | 2    |
| <b>PO 3</b>     | 3    | 3    | 3    | 2    |
| <b>PO 4</b>     | 3    | 1    | 1    | 3    |
| <b>PO 5</b>     | 2    | 2    | 1    | 3    |
| <b>PO 6</b>     | 1    | 1    | 1    | 1    |
| <b>PO 7</b>     | 3    | 3    | 1    | 2    |
| <b>PO 8</b>     | 3    | 3    | 3    | 3    |
| <b>PSO 9</b>    | 3    | 3    | 3    | 1    |
| <b>PSO 10</b>   | 3    | 3    | 3    | 2    |
| <b>PSO 11</b>   | 3    | 3    | 3    | 2    |
| <b>PSO 12</b>   | 1    | 1    | 1    | 3    |
| <b>PSO 13</b>   | 3    | 1    | 3    | 3    |

|               |   |   |   |   |
|---------------|---|---|---|---|
| <b>PSO 14</b> | 3 | 3 | 3 | 3 |
|---------------|---|---|---|---|

| Course Code     | Course Title                                       | PO 1  | PO 2   | PO 3  | PO 4  | PO 5  | PO 6  | PO 7  | PO 8  | PSO 9   | PSO 10   | PSO 11  | PS12  | PSO 13  | PSO 14   |
|-----------------|--|---|--|---|---|---|---|---|---|---|--|---|---|---|--|
| <b>MDSL 826</b> | <b>Business &amp; Supply Chain Risk Management</b> | 3   | 3  | 3   | 2   | 2   | 1   | 3   | 3   | 2   | 2  | 3   | 2   | 3   | 3  |
|                 |  | Students will be able to develop and evaluate alternate managerial decisions and identify optimal solutions | Students will demonstrate effective application capabilities of their conceptual understanding to the real world business situations | Students will be able to exhibit effective decision making skills, employing analytical and critical thinking ability | Students will demonstrate effective oral and written communication skills in the professional context | Students will be able to work effectively in teams and demonstrate team building capabilities | Students will exhibit leadership and networking skills while handling business situations | Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the course of business | Students will demonstrate employability traits in line with the changing dynamics of the industry | Students will demonstrate strong conceptual knowledge in the functional area of management as well as LSCM domain | Students will demonstrate effective understanding of relevant functional areas of management and their application in LSCM | Students will demonstrate analytical skills in identification and resolution of business problems pertaining to LSCM & general management | Students will exhibit the ability to integrate functional areas of management with domain perspective for the purpose of planning, implementation & control of LSCM | Students will have global perspective towards business situations in the area of LSCM | Students will exhibit deployable skills pertinent to the LSCM sector |

- 1 – Weakly mapped
- 2 – Moderately mapped
- 3 – Strongly mapped



| 2.  | (a) What are the various types of uncertainty?<br>(b) What are the typical risk parameters?<br>(c) Define risk management & what are the levels in organization at which risk is included?<br>(d) Discuss the business continuity procedure?<br>(e) What are the inputs of BCMS for management review?  | <b>(5*4=20 marks)</b> | CO<br>1, 2,<br>3,4     |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
|---|---|-----------------------|------------------------|-----------------|---------------|-----------------|---------------|---------|--|--|--|--|--|--|--|--------|---------------|-------------------|------------------------|--|--|--|--|------|---------------------|
| <b>SECTION C(30 marks)</b><br><b>(Attempt any 3 question, each question carries 10 marks only)</b>        |   |                       |                        |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
| 3.  | (a) Discuss supply chain risk management strategies & what are the inputs needed to implement strategies?<br>(b) Define business impact analysis & its methodology?<br>(c) Discuss the risk management framework as per ISO-31000<br>(d) Discuss risk assessment as per ISO-31000?  | [10 x 3]              | CO –<br>1, 2,<br>3, 4  |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
| <b>SECTION D (30 marks)</b><br><b>Attempt the situation &amp; provide the solution for this situation</b> |   |                       |                        |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
| 4.  | <p>An incident that occurred during a third party assessment of a company XYZ is described. It contains a situation for which you need to evaluate the risk &amp; risk treatment plan. Examine the incident carefully then take one of the following actions.</p> <p><b>Incident</b></p> <p>The risk assessment of the company has identified electrical power failure as a serious risk. The facility manager recommends the company purchase a standby generator. The BCMS forum agrees this would be a good idea but does not intend to do so for reasons of cost. They say that the business continuity plan covers the eventuality by stating that business will continue by teleworking from home.</p> <p>(a) Risk Management(15 marks). Fill the template below for risks due to power failure</p> <table border="1" data-bbox="285 1325 1273 1440"> <thead> <tr> <th>Source of risk</th> <th>Category of risk</th> <th>Risk statement</th> <th>Risk owner</th> <th>Risk mitigation</th> <th>Residual risk</th> <th>Actions</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>(b) Business continuity strategy options for power outage (15 marks)</p> <table border="1" data-bbox="285 1543 1273 1656"> <thead> <tr> <th>People</th> <th>Site/building</th> <th>IT infrastructure</th> <th>Applications hosted at</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | Source of risk        | Category of risk       | Risk statement  | Risk owner    | Risk mitigation | Residual risk | Actions |  |  |  |  |  |  |  | People | Site/building | IT infrastructure | Applications hosted at |  |  |  |  | [30] | CO-<br>1,2,3,<br>4, |
| Source of risk  | Category of risk  | Risk statement        | Risk owner             | Risk mitigation | Residual risk | Actions         |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
|   |   |                       |                        |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
| People  | Site/building   | IT infrastructure     | Applications hosted at |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |
|   |   |                       |                        |                 |               |                 |               |         |  |  |  |  |  |  |  |        |               |                   |                        |  |  |  |  |      |                     |