

# **BANGLADESH INSTITUTE OF MANAGEMENT**

4 Sobhanbag, Mirpur Road, Dhaka-1207



## **POST-GRADUATE DIPLOMA IN INDUSTRIAL MANAGEMENT**

**Session:2025-2026**

### **SYLLABUS**

### **Part I and II**

## Subjects and Credits

Part I			Part II		
No	Name of Subjects	Credits	No	Name of Subjects	Credits
1	Production and Operation Management	3	1	Quantitative Management	3
2	Human Resource Management and Organizational Behavior	3	2	Project Management	3
3	Supply Chain Management	3	3	Industrial Safety and Environment Management	3
4	Industrial Engineering and Lean Manufacturing	3	4	Cost and Management Accounting	3
5	Labor and Industrial Laws	3	5	Managerial Economics and Marketing	3
6	Viva Voce	1.5	6	Term Paper a) Term Paper Proposal Presentation b) Term Paper Presentation c) Term Paper Evaluation	3
			7	Viva-Voce	1.5

## Evaluation Criteria

Class Attendance: 10%
Class Test: 20%
Midterm Exam: 30%
Final Exam: 40%

## Grade Point

Numerical Grade	Letter Grade (LG)	Grade Point (GP)
80% or above	A+	4.00
75% to <80%	A	3.75
70% to <75%	A-	3.50
65% to <70%	B+	3.25
60% to <65%	B	3.00
55% to <60%	B-	2.75
50% to <55%	C+	2.50
45% to <50%	C	2.25
40% to <45%	D	2.00
<40%	F	0.00

## Attendance Marks

Attendance (%)	Marks
90% - 100%	10
80% – 89%	09
70% – 79%	08
60% – 69%	07
50% – 59%	06
30% – 49%	03
Below 30%	00

**Subject: Production and Operation Management****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>1-2</b>	<b>Foundations of Production &amp; Operations Management</b> <ul style="list-style-type: none"><li>• Definition, scope, and importance of POM</li><li>• Evolution of operations management</li></ul>
<b>3-4</b>	<ul style="list-style-type: none"><li>• Production vs operations</li><li>• Role of POM in organizational performance</li><li>• Operations as a transformation system</li></ul> <b>Operations as a System (IPO Model)</b> <ul style="list-style-type: none"><li>• Input–Process–Output framework</li><li>• Types of inputs: material, human, machine, capital, information</li></ul>
<b>5-6</b>	<ul style="list-style-type: none"><li>• Process transformation mechanisms</li><li>• Output types: goods and services</li><li>• Feedback loops and continuous improvement</li><li>• Industry-wise system examples</li></ul>
<b>7-8</b>	<b>Operations Strategy</b> <ul style="list-style-type: none"><li>• Relationship between business strategy and operations strategy</li><li>• Competitive priorities: cost, quality, delivery, flexibility, innovation</li><li>• Strategic role of operations in different industries</li><li>• Trade-offs in operations decisions</li></ul>
<b>9-10</b>	<b>Process Design &amp; Analysis</b> <ul style="list-style-type: none"><li>• Types of production and service processes</li><li>• Process selection based on volume and variety</li></ul>
<b>11-12</b>	<ul style="list-style-type: none"><li>• Product–Process Matrix</li><li>• Process flow analysis</li><li>• Bottlenecks and constraints</li><li>• Process alignment with industry characteristics</li></ul>
<b>13-14</b>	<b>Demand Forecasting &amp; Planning</b> <ul style="list-style-type: none"><li>• Role of forecasting in operations</li><li>• Types of forecasting methods</li><li>• Demand uncertainty and variability</li><li>• Industry-specific demand patterns</li><li>• Impact of forecasting accuracy on operations performance</li></ul>
<b>15-16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	

Session	Topics
17-18	<b>Capacity Planning &amp; Facility Decisions</b> <ul style="list-style-type: none"> <li>• Concepts of capacity and utilization</li> <li>• Short-term and long-term capacity planning</li> <li>• Capacity mismatch and operational risk</li> <li>• Facility location factors</li> <li>• Facility layout types and their operational implications</li> </ul>
19-20	<b>Production Planning &amp; Scheduling</b> <ul style="list-style-type: none"> <li>• Aggregate production planning</li> <li>• Master production scheduling concepts</li> <li>• Scheduling approaches for manufacturing and projects</li> </ul>
21-22	<ul style="list-style-type: none"> <li>• Line balancing and workflow management</li> <li>• Project scheduling concepts (CPM/PERT overview)</li> </ul>
23-24	<b>Inventory &amp; Supply Chain Management</b> <ul style="list-style-type: none"> <li>• Supply chain structure and coordination</li> <li>• Types and roles of inventory</li> <li>• Inventory control principles</li> <li>• Lead time, safety stock, and service level</li> <li>• Industry differences in supply chain management</li> </ul>
25-26	<b>Quality Management in Operations</b> <ul style="list-style-type: none"> <li>• Quality concepts and dimensions</li> <li>• Quality control vs quality assurance</li> <li>• Cost of quality</li> <li>• Industry quality systems and standards</li> <li>• Continuous improvement mindset</li> </ul>
27-28	<b>Lean Operations &amp; Process Improvement</b> <ul style="list-style-type: none"> <li>• Lean philosophy and principles</li> <li>• Waste identification in operations</li> <li>• Basic lean tools (5S, VSM, Kaizen)</li> <li>• Efficiency, productivity, and flow improvement</li> <li>• Cultural and behavioral aspects of operational excellence</li> </ul>
29-30	<b>Technology, Sustainability &amp; Modern Operations</b> <ul style="list-style-type: none"> <li>• Role of technology in operations management</li> <li>• ERP and information systems in operations</li> <li>• Automation and digital operations overview</li> </ul>
31-32	<ul style="list-style-type: none"> <li>• Sustainable and green operations</li> <li>• Operations challenges in developing economies</li> </ul>
33-34	<b>Integration, Risk &amp; Managerial Perspective</b> <ul style="list-style-type: none"> <li>• Integration of operations with finance, HR, and marketing</li> <li>• Operational risk and resilience</li> <li>• Decision-making under uncertainty</li> <li>• System thinking for managers</li> <li>• Role of operations managers in organizational success</li> </ul>
35-36	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

**Subject: Human Resource Management and Organizational Behavior****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>1-2</b>	<b>Introduction to the Course:</b> Evaluation Systems, expectation and objectives of the course <b>Human Resource Management:</b> The nature and scope of HRM, Functions and objectives of HRM <b>Understanding Organization Behavior:</b> Definition, Importance, Goals and Key Forces
<b>3-4</b>	<b>HR Planning:</b> Meaning and importance of HR Planning Factors affecting HR planning, HR planning process
<b>5-6</b>	<b>Recruitment and Selection:</b> Difference between recruitment and selection Sources of Recruitment Selection Process Employment tests and interview Barriers to effective selection
<b>7-8</b>	<b>Training &amp; Development:</b> Concept of training, development, & education Distinction between training and development
<b>9-10</b>	<b>Understanding Training Cycle:</b> TNA, Design, Delivery & Evaluation Principles of adult learning
<b>11-12</b>	<b>Performance Appraisal:</b> Basic concept of performance management and appraisal Measurement errors in performance appraisal
<b>13-14</b>	Different Methods of Performance Appraisal
<b>15-16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	

Session	Topics
17-18	<b>Communication</b> Understanding the Communication Process Types of Communication: Verbal and Nonverbal Communication Skills Active Listening Techniques Building Empathy and Understanding
19-20	<b>Employee Attitudes:</b> Nature and Effects Studying Job Satisfaction: The Performance-Satisfaction-Effort Loop
21-22	<b>Motivation:</b> Definition, Motivators, Importance, Motivational Drives Intrinsic vs. Extrinsic Motivation and motivators
23-24	<b>Theories of Motivation:</b> Expectancy Theory, Equity Theory, Reinforcement Theory
25-26	<b>Leadership:</b> Nature, Management and Leadership, Traits Leadership styles- Situational Leadership, Transformational Leadership
27-28	<b>Team Building:</b> Team vs. Group Life cycle of a team Team development stages Ingredients of an effective team
29-30	<b>Conflict in Organization:</b> Nature, Levels, Sources and Effects A Model of conflict Conflict resolution process
31-32	<b>Emotional Intelligence (EI) at Workplace:</b> Understanding Emotions Understanding EI, Pillars of EI
33-34	<b>Employee Counseling:</b> Nature, Importance, Process and Types Open Session for Industry Expert
35-36	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

## Subject: Supply Chain Management

Full Marks: 100

Credits: 03

Session:36

Session	Topics
1-2	<b>Introduction of Supply Chain Management</b> <ul style="list-style-type: none"><li>• Basic SCM concepts, flows (information, material, finance)</li><li>• Objectives and Importance of SCM in industrial management</li><li>• Supply Chain vs. Logistics: similarities and differences</li><li>• Stages and Decision phases of Supply Chain</li><li>• Evolution of supply chain thinking.</li></ul>
3-4	<b>Supply Chain Performance, Drivers and Metrics</b> <ul style="list-style-type: none"><li>• Competitive and Supply Chain Strategies</li><li>• Achieving strategic Fit</li><li>• Drivers of Supply Chain Performance: Facilities, inventory, transportation, information, sourcing and pricing</li><li>• Framework for Structuring Drivers</li><li>• Efficiency vs responsiveness</li></ul>
5-6	<b>Supply Chain Structures, Types and Trade-offs</b> <ul style="list-style-type: none"><li>• Push vs. pull supply chains</li><li>• Make-to-stock vs. make-to-order</li><li>• Centralized vs. decentralized supply chains</li><li>• Linear vs. network supply chains</li><li>• Global vs. domestic supply chains</li><li>• Cost vs. service level</li><li>• Inventory vs. responsiveness</li><li>• Quality vs. flexibility</li><li>• Risk vs. reliability</li><li>• Total cost of ownership (TCO) perspective</li></ul>
7-8	<b>Supply Chain Strategy &amp; Design</b> <ul style="list-style-type: none"><li>• Strategic fit and scope</li><li>• Competitive advantage through SCM</li><li>• Network design decisions (plant, warehouse location, etc.)</li></ul>
9-10	<b>Demand Planning and Forecasting</b> <ul style="list-style-type: none"><li>• Relationship between demand forecasting and supply planning</li><li>• Role of demand planning in inventory, production, procurement</li><li>• Linking demand planning with S&amp;OP (Sales and Operations Planning)</li></ul>

Session	Topics
	<ul style="list-style-type: none"> <li>• Importance of demand forecasting in SCM</li> <li>• Challenges in forecasting (demand variability, seasonality, market dynamics)</li> <li>• Qualitative and quantitative forecasting techniques/methods</li> <li>• Collaborative Planning, Forecasting &amp; Replenishment (CPFR)</li> <li>• Application in FMCG and RMG sectors</li> <li>• The role of IT in forecasting.</li> <li>• Risk management in forecasting</li> </ul>
11-12	<p><b>Procurement Management in SC</b></p> <ul style="list-style-type: none"> <li>• Procurement Cycle and Process Steps</li> <li>• Role of procurement in cost saving, quality, and sustainability</li> <li>• Procurement Strategy and</li> <li>• E-procurement and digital sourcing platforms</li> <li>• Sustainable and ethical sourcing practices</li> <li>• Role of Contract Management in SC: Case Study of National and International Different Types of Contracts.</li> </ul>
13-14	<p><b>Supplier Relationship Management</b></p> <ul style="list-style-type: none"> <li>• Meaning and scope of Supplier Relationship Management</li> <li>• Supplier relationship Spectrum. Supplier Optimization and switching.</li> <li>• Evolution: From transactional purchasing to strategic partnerships</li> <li>• Role of SRM in modern supply chain competitiveness</li> <li>• SRM in public vs private sector procurement</li> <li>• SRM relevance in Bangladesh (RMG, pharmaceuticals, construction, public procurement)</li> <li>• Supplier Segmentation and Supplier Portfolio Management</li> <li>• Managing different supplier categories differently (Case examples (local &amp; global)</li> <li>• Supplier Selection, Evaluation, vendor rating, and Performance Management</li> <li>• Supplier Development and Collaboration</li> <li>• Risk Management, Sustainability, and Digital SRM</li> <li>• Future trends in Supplier Relationship Management</li> </ul> <p><b>Inventory Management</b></p> <ul style="list-style-type: none"> <li>• EOQ, safety stock, ABC/XYZ analysis</li> <li>• JIT, VMI (Vendor Managed Inventory), and lean inventory</li> <li>• Inventory management challenges in Bangladesh</li> </ul>
15-16	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	

Session	Topics
17-18	<p><b>Logistics Management: Transportation and Distribution</b></p> <ul style="list-style-type: none"> <li>• Modes of transport in Bangladesh: Road, river, sea, rail and air</li> <li>• Cost vs. service trade-offs</li> <li>• Last mile delivery and cold chain logistics</li> <li>• Outsourcing Logistics (1PL - 5PL)</li> </ul>
19-20	<p><b>Warehouse and Material Handling</b></p> <ul style="list-style-type: none"> <li>• Modern warehousing concepts (automation, WMS)</li> <li>• Layout design, safety, and handling</li> <li>• Role of bonded warehouses in exports/imports</li> <li>• Storage systems</li> <li>• Cross-docking</li> </ul>
21-22	<p><b>Digital Transformation &amp; Technology in SCM</b></p> <ul style="list-style-type: none"> <li>• Digital Transformation in Supply Chain</li> <li>• ERP, SCM software, and TMS</li> <li>• Blockchain, IoT, and AI in SCM</li> <li>• AI, ML, all components of IR 4.0</li> <li>• Digital supply chain trends in Bangladesh</li> <li>• Cloud Computing and Digital Platforms</li> </ul>
23-24	<p><b>Supply Chain Resilience &amp; Risk Management</b></p> <ul style="list-style-type: none"> <li>• Types of supply chain risks (natural disaster, geopolitical, pandemic, etc.)</li> <li>• Supply Chain Risk Identification and Assessment</li> <li>• Building Supply Chain Resilience</li> <li>• Crisis Management and Business Continuity Planning</li> </ul>
25-26	<p><b>Sustainable &amp; Ethical Supply Chains</b></p> <ul style="list-style-type: none"> <li>• Environmental, Social, and Governance (ESG) factors</li> <li>• Circular supply chains and waste reduction</li> <li>• Sustainable SCM practices in garments, agriculture, and manufacturing</li> <li>• Green Supply Chain Management</li> <li>• Social and Ethical Responsibility</li> <li>• Circular Economy Principles in SCM</li> </ul>
27-28	<p><b>Supply Chain Resilience &amp; Risk Management</b></p> <ul style="list-style-type: none"> <li>• Types of supply chain risks (natural disaster, geopolitical, pandemic, etc.)</li> <li>• Business continuity planning (BCP)</li> <li>• Supply Chain Risk Identification and Assessment</li> <li>• Building Supply Chain Resilience</li> <li>• Crisis Management and Business Continuity Planning</li> </ul>

Session	Topics
29-30	<p><b>Sustainable &amp; Ethical Supply Chains</b></p> <ul style="list-style-type: none"> <li>• Environmental, Social, and Governance (ESG) factors</li> <li>• Circular supply chains and waste reduction</li> <li>• Sustainable SCM practices in garments, agriculture, and manufacturing</li> <li>• Green Supply Chain Management</li> <li>• Social and Ethical Responsibility</li> <li>• Circular Economy Principles in SCM</li> </ul>
31-32	<p><b>Performance Measurement and KPIs</b></p> <ul style="list-style-type: none"> <li>• SCOR model and supply chain metrics</li> <li>• Cost-to-serve, fill rate, inventory turnover, OTIF</li> <li>• Dashboards and performance management tools</li> </ul> <p><b>Supply Chain in Bangladesh Context</b></p> <ul style="list-style-type: none"> <li>• RMG, pharmaceutical, agro-supply chains</li> <li>• Policy challenges (port, customs, transport infrastructure)</li> <li>• Public-private partnership opportunities</li> <li>• Understanding and ICC Laws and Application of INCOTERS.</li> <li>• Operation of L/C and other tools for international business.</li> </ul>
33-34	<p><b>Global Supply Chain Challenges &amp; Geopolitics</b></p> <ul style="list-style-type: none"> <li>• Global Sourcing and Outsourcing: Benefits and challenges, managing international suppliers.</li> <li>• Trade Wars, Tariffs, and Geopolitical Risks: Impact on global supply chain networks and strategies.</li> <li>• Regional Integration and Trade Blocs: How these influence supply chain dynamics in the region.</li> <li>• Logistics and Infrastructure in Developing Countries: Specific challenges and opportunities in countries like Bangladesh</li> </ul> <p><b>Future Skills and Career in SCM</b></p> <ul style="list-style-type: none"> <li>• Job roles: Planner, buyer, logistics analyst, SC data analyst</li> <li>• Required tools and certifications (APICS, SAP, Excel, Power BI)</li> <li>• Soft skills: negotiation, analytics, cross-functional collaboration</li> </ul>
35-36	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

**Suggested Books/References**

- Chopra & Meindl: *Supply Chain Management*
- Sunil Chopra: *Designing and Managing the Supply Chain*
- Shoshana Cohen & Joseph Roussel: *Strategic Supply Chain Management*
- Lovely Professional University, India: *Materials Management*
- Kenneth Lyons, Brian Farington: *Purchasing and Supply Chain Management.*
- Harvard Business Review SCM articles
- Local publications on Bangladesh SCM case studies

**Subject: Industrial Engineering and Lean Manufacturing****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>1-2</b>	<b>Introduction to Industrial Engineering</b> <ul style="list-style-type: none"><li>• Definition, scope, and evolution</li><li>• IE's role in productivity, competitiveness, and 4IR</li></ul>
<b>3-4</b>	<b>Productivity and Performance Metrics</b> <ul style="list-style-type: none"><li>• Productivity models: partial, total, multifactor</li><li>• OEE, TEEP, benchmarking, lean KPIs</li></ul>
<b>5-6</b>	<b>Work Study and Ergonomics</b> <ul style="list-style-type: none"><li>• Method and time study</li></ul>
<b>7-8</b>	<ul style="list-style-type: none"><li>• Principles of motion economy</li><li>• Ergonomics and human-machine systems</li></ul>
<b>9-10</b>	<b>Lean Principles</b> <ul style="list-style-type: none"><li>• Five principles of lean</li><li>• Muda, Mura, Muri – waste, unevenness, overburden</li><li>• Lean vs. traditional systems</li></ul>
<b>11-12</b>	<b>Lean Tools and Techniques</b> <ul style="list-style-type: none"><li>• 5S, Kanban, Kaizen, SMED, JIT</li><li>• Poka-Yoke, Andon, Heijunka</li><li>• Gemba and Visual Management</li></ul>
<b>13-14</b>	<b>Waste Reduction, 6Rs and Sustainability</b> <ul style="list-style-type: none"><li>• 6R model: Recycle, Reuse, Reduce, Remanufacture, Recover, Redesign</li><li>• Circular economy &amp; eco-efficiency</li><li>• Life Cycle Thinking (LCT)</li></ul>
<b>15-16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	
<b>17-18</b>	<b>Eco-Attributes and Environmental Impact</b> <ul style="list-style-type: none"><li>• Environmental indicators:<ul style="list-style-type: none"><li>○ CO<sub>2</sub> footprint</li><li>○ SO<sub>x</sub>, NO<sub>x</sub> emissions</li><li>○ Water (H<sub>2</sub>O) usage</li></ul></li></ul>

Session	Topics
19-20	<ul style="list-style-type: none"> <li>• Green manufacturing audits</li> <li>• Compliance and environmental performance metrics</li> </ul>
21-22	<p><b>Value Stream Mapping (VSM)</b></p> <ul style="list-style-type: none"> <li>• Drawing current vs. future state maps</li> <li>• Identifying value-adding and non-value-adding activities</li> </ul>
23-24	<p><b>Lean Layouts and Flow Design</b></p> <ul style="list-style-type: none"> <li>• Cellular manufacturing</li> <li>• Line balancing, takt time, throughput</li> <li>• Pull vs. push systems</li> </ul>
25-26	<p><b>Innovation, Creativity &amp; 4IR Technologies</b></p> <ul style="list-style-type: none"> <li>• Design Thinking &amp; TRIZ</li> <li>• IoT, AI/ML, Robotics in Lean</li> </ul>
27-28	<ul style="list-style-type: none"> <li>• Digital Twins and Smart Manufacturing</li> </ul> <p><b>Maintenance Management Systems (New Addition)</b></p> <ul style="list-style-type: none"> <li>• Overview of Maintenance Types: <ul style="list-style-type: none"> <li>○ Corrective Maintenance (Run to Failure)</li> <li>○ Preventive Maintenance (Scheduled)</li> <li>○ Predictive Maintenance (Sensor/Data-based Forecasting)</li> </ul> </li> </ul>
29-30	<ul style="list-style-type: none"> <li>○ Predictive Maintenance (Sensor/Data-based Forecasting)</li> <li>○ Condition-Based Maintenance (CBM)</li> <li>○ Reliability-Centered Maintenance (RCM)</li> <li>○ Total Productive Maintenance (TPM)</li> </ul>
31-32	<ul style="list-style-type: none"> <li>• Maintenance KPIs: MTTR, MTBF, Availability</li> <li>• CMMS (Computerized Maintenance Management Systems)</li> <li>• Integration of maintenance in lean and smart factories</li> <li>• Case studies on maintenance effectiveness in industry</li> </ul>
33-34	<p><b>Lean Implementation &amp; Case Analysis</b></p> <ul style="list-style-type: none"> <li>• Lean transformation roadmap</li> <li>• Change management and employee engagement</li> <li>• Lean maturity models and assessments</li> <li>• Industry-specific case studies (Bangladesh &amp; international)</li> </ul>
35-36	<p><b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b></p>

**Subject: Labor and Industrial Laws****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>01-02</b>	<b>Introduction to Labor and Industrial Laws</b> <ul style="list-style-type: none"><li>• Overview of Bangladesh Labor Act, 2006</li><li>• Definition of Worker (Section-2(65))</li><li>• Definition of Industrial Establishment (Section-2(61))</li></ul>
<b>03-04</b>	<ul style="list-style-type: none"><li>• Classification of Workers and Period of Probation (Section 4)</li></ul>
<b>05-06</b>	<b>Employment &amp; Conditions of Service</b> <ul style="list-style-type: none"><li>• Stoppage of Work, (Section-12)</li><li>• Lay Off (Section-16-18)</li><li>• Closure of Establishment (Section-13)</li></ul>
<b>07-08</b>	<ul style="list-style-type: none"><li>• Retrenchment and Re-employment of Retrenched workers (Section 20-21)</li><li>• Discharge from Service (Section-22)</li></ul>
<b>09-10</b>	<ul style="list-style-type: none"><li>• Punishment for Conviction and Misconduct (Section-23)</li><li>• Procedure for Punishment (Section-24)</li><li>• Special Provisions relating to Fine (Section-25)</li></ul>
<b>11-12</b>	<ul style="list-style-type: none"><li>• Termination of Employment by the Employer (Section-26)</li><li>• Termination of Employment by the Employee (Section-27)</li><li>• Retirement of Worker (Section-28)</li><li>• Grievance Procedure (Section-33)</li></ul>
<b>13-14</b>	<ul style="list-style-type: none"><li>• <b>Maternity Benefit</b></li><li>• Right to maternity benefit and liability for its payment (Section-46)</li><li>• Amount of maternity benefit (Section-48)</li></ul> Payment of maternity benefit in case of death of a woman (Section-49)
<b>15-16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1</b>
<b>Mid-Term</b>	
<b>17-18</b>	<b>Welfare Measure</b> <ul style="list-style-type: none"><li>• Section-89-94, 99</li></ul>
<b>19-20</b>	<b>Working Hours and Leave</b> <ul style="list-style-type: none"><li>• Section-100-104, 108-109, 114-119</li></ul>
<b>21-22</b>	<b>Wages and Payment</b> <ul style="list-style-type: none"><li>• Section-120 – 123, 125-127</li></ul>
<b>23-24</b>	<b>Compensation for injury by Accident</b> <ul style="list-style-type: none"><li>• Amount of Compensation for Death, Permanent Disablement, and Partial Disablement.</li></ul>

<b>Session</b>	<b>Topics</b>
<b>25-26</b>	<b>Trade Union and CBA</b> <ul style="list-style-type: none"> <li>• Special Definition of Worker (Section-175)</li> <li>• Collective Bargaining Agent (CBA) (Section -202)</li> </ul>
<b>27 -28</b>	<b>Trade Union and CBA</b> <ul style="list-style-type: none"> <li>• Cancellation of registration of TU (Section-200)</li> <li>• Unfair Labor Practices by the Worker/Employer (Section -195-196)</li> </ul>
<b>29 -30</b>	<b>Participation Committee</b> <ul style="list-style-type: none"> <li>• Determination and Functions of Participation Committee (Section-205-206)</li> </ul>
<b>31 -32</b>	<b>Dispute Settlement</b> <ul style="list-style-type: none"> <li>• Negotiation, Conciliation, Arbitration, Adjudication (Section-209-210)</li> </ul>
<b>33 - 34</b>	Strike and Lockout (Section-211-212)
<b>35 -36</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 2</b>

**Reference books:**

Bangladesh Labor Laws-2006 & Labor Rules-2015 As Amended Up-to-date

**Subject: Viva Voce**

**Full Marks: 50**

**Credits: 1.5**

## PART II

**Subject: Quantitative Management**

**Full Marks: 100**

**Credits: 03**

**Session: 36**

Session	Detailed Outline
1-2	<b>Quantitative Thinking for Managers</b> <ul style="list-style-type: none"> <li>• Nature of managerial decisions</li> <li>• Deterministic vs probabilistic decisions</li> <li>• Quantitative vs qualitative judgment</li> <li>• Common decision failures in Bangladesh organizations</li> </ul>
3-4	<b>Spreadsheet Modeling using Microsoft Excel</b> <ul style="list-style-type: none"> <li>• Logical structure of a good spreadsheet model</li> <li>• Input–Process–Output (IPO) framework</li> <li>• Data validation and error prevention</li> <li>• Sensitivity analysis</li> <li>• Scenario analysis</li> </ul>
5-6	
7-8	<b>Probability Concepts for Business Decisions</b> <ul style="list-style-type: none"> <li>• Basic probability concepts</li> <li>• Discrete and continuous distributions (conceptual)</li> <li>• Expected value and risk</li> <li>• Variability and business uncertainty</li> </ul>
9-10	<b>Business Statistics &amp; Data Interpretation</b> <ul style="list-style-type: none"> <li>• Descriptive statistics</li> <li>• Mean, median, standard deviation</li> <li>• Data visualization for managers</li> <li>• Correlation vs causation</li> <li>• Interpreting management reports</li> </ul>
11-12	<b>Decision Analysis under Risk</b> <ul style="list-style-type: none"> <li>• Decision trees</li> <li>• Payoff tables</li> <li>• Expected Monetary Value (EMV)</li> <li>• Risk attitudes of managers</li> </ul>
13-14	<b>Linear Regression &amp; Business Relationships</b> <ul style="list-style-type: none"> <li>• Simple linear regression</li> <li>• Interpretation of coefficients</li> <li>• Model validity</li> <li>• Forecast reliability</li> </ul>
15-16	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	

Session	Detailed Outline
17-18	<b>Forecasting for Operations &amp; Planning</b> <ul style="list-style-type: none"> <li>• Time series concepts</li> <li>• Moving averages</li> <li>• Exponential smoothing</li> <li>• Forecast accuracy measures</li> </ul>
19-20	<b>Linear Programming &amp; Optimization</b> <ul style="list-style-type: none"> <li>• Optimization logic</li> <li>• Objective function</li> </ul>
21-22	<ul style="list-style-type: none"> <li>• Constraints</li> <li>• Feasible solutions</li> </ul>
23-24	<b>Project Scheduling – PERT &amp; CPM</b> <ul style="list-style-type: none"> <li>• Network diagrams</li> <li>• Critical path</li> </ul>
25-26	<ul style="list-style-type: none"> <li>• Project duration estimation</li> <li>• Time-cost trade-off concepts</li> </ul>
27-28	<b>Waiting Line (Queuing) Models</b> <ul style="list-style-type: none"> <li>• Basic queuing concepts</li> <li>• Arrival and service rates</li> </ul>
29-30	<b>Simulation for Managerial Decision Making</b> <ul style="list-style-type: none"> <li>• Simulation logic</li> </ul>
31-32	<ul style="list-style-type: none"> <li>• Randomness and variability</li> <li>• Scenario-based analysis</li> <li>• System performance measures</li> </ul>
33-34	<b>Industry-Based Case Study &amp; Simulation Project</b>
35-36	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

**Subject: Project Management****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>01-02</b>	Introduction and Objectives of the Modules Project Management Fundamentals: What is project and how it evolves
<b>03-04</b>	Project and Development Project; Steps for project development Problem Analysis & Problem Tree to Objective Tree
<b>05-06</b>	Logical Frame work in Project development: Parts and Grammar of Logical Framework Setting OVI, MOV and Assumptions
<b>07-08</b>	Horizontal and Vertical Logic assessment Definition of commonly used jargons and phrases
<b>09-10</b>	Common universal jargons & Jargons used with different names Confusing jargons and phrases
<b>11-12</b>	Types of Project Management Project Management and preliminary tasks for a manager
<b>13-14</b>	Basic concept and role of project Management Preliminary work with project proposal Logical flow of a project, target and milestones set Rationale establish from activity to goal
<b>15-16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	
<b>17-18</b>	Target setting at different levels Milestone set with timeframe
<b>19-20</b>	Steps for Monitoring and Evaluation of a project:Basics of Monitoring & Evaluation Indicators development and selection
<b>21-22</b>	Regular monitoring systems Overall Management of project: types and tools
<b>23-24</b>	Scope Management and stakeholder management Quality and Time Management
<b>25-26</b>	Different tools for effective management Data Collection, Analysis and Reporting
<b>27-28</b>	Data analysis and preservation
<b>29-30</b>	Periodic reporting and formats Effective report writing techniques
<b>31-32</b>	Types of report Techniques for different types of reports
<b>33-34</b>	Writing Case Study Preparation of Business Plan or Project Paper
<b>35-36</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

## Subject: Industrial Safety and Environment Management

Full Marks: 100

Credits: 03

Session: 36

Session	Topics
01-02	<b>Introduction to Industrial Safety, Health &amp; Environment (ISHE)</b> <ul style="list-style-type: none"><li>• Important Definitions and terminologies and management and leadership in ISHE</li><li>• Evolution of industrial safety, occupational health, and environmental management with linkage between safety, productivity, and sustainability</li><li>• Importance of ISHE for sustainable operations, productivity, and societal well-being</li><li>• Modern industrial challenges (Technological, work pattern and climate risk).</li></ul>
03-04	<b>Safety Management Systems (SMS)</b> <ul style="list-style-type: none"><li>• Introduction to the concept of occupational health and safety management systems (OHSMS) as a framework for continuous improvement</li><li>• Proactive vs reactive safety management</li><li>• Functions of Safety Management, Role of Safety Manager, Safety Planning, Safety Audit etc.</li><li>• Components of modern industrial SMS</li><li>• Safety Policy, PPE</li></ul>
05-06	<b>Emergency Preparedness &amp; Disaster Management</b> <ul style="list-style-type: none"><li>• Emergency Management Cell</li><li>• Identification and analysis of major hazards installation</li><li>• Formulation of the plan, Alarm &amp; communication, Resource requirement for emergency center, Appointment of personnel and definition of duties,</li><li>• Job responsibilities of Site Incident Controller and Site Main Controller.</li><li>• On-site and off-site emergency planning</li><li>• Natural disasters and industrial vulnerability</li><li>• Business continuity planning (BCP)</li><li>• Emergency planning, crisis management, and incident investigation.</li><li>• Safeguarding communities through industrial hygiene strategies for specific emergencies, such as sulfur dioxide (SO<sub>2</sub>) exposure from wellhead blow-off incidents</li></ul>

Session	Topics
07-08	<p><b>Emergency Preparedness</b></p> <ul style="list-style-type: none"> <li>• Emergency Management Cell</li> <li>• Identification and analysis of major hazards installation</li> <li>• Emergency planning, crisis management, and incident investigation.</li> <li>• Formulation of the plan, Alarm &amp; communication, Resource requirement for emergency center, Appointment of personnel and definition of duties,</li> <li>• Job responsibilities of Site Incident Controller and Site Main Controller.</li> <li>• On site and off site emergency planning</li> </ul>
9-10	<p><b>Disaster Management</b></p> <ul style="list-style-type: none"> <li>• Definition of disaster in industrial context natural vs. man-made (industrial) and industrial vulnerability</li> <li>• Disaster management cycle (Prevention–Preparedness–Response–Recovery)</li> <li>• Safeguarding communities through industrial hygiene strategies for specific emergencies, such as sulfur dioxide (SO<sub>2</sub>) exposure from wellhead blow-off incidents</li> <li>• Business continuity planning (BCP)</li> <li>• Chemical spills and toxic gas release</li> <li>• Boiler and pressure vessel failure</li> <li>• Structural collapse of industrial buildings</li> <li>• Electrical and mechanical disasters</li> <li>• Radiation and nuclear hazards</li> <li>• Disaster Prevention and Mitigation Measures</li> <li>• Disaster Response and Control</li> <li>• Role of Human Factors in Disaster Management</li> <li>• Environmental Impact of Industrial Disasters</li> <li>• Legal and Regulatory Framework</li> </ul>
11-12	<p><b>Industrial and Environmental Risks Management</b></p> <ul style="list-style-type: none"> <li>• Principles of hazard identification, including physical, chemical, biological, and ergonomic and psychosocial hazards</li> <li>• Techniques for hazard identification: Job Safety Analysis (JSA), Failure Modes and Effects Analysis (FMEA), Hazard and Operability (HAZOP) studies, and Fault Tree Analysis (FTA)</li> <li>• Qualitative vs. Quantitative Risk Assessment (QRA).</li> <li>• Risk assessment techniques (HIRA, JSA, Bow-Tie)</li> <li>• Risk matrix and prioritization</li> <li>• Hierarchy of controls</li> </ul>

Session	Topics
13-14	<p><b>Fire Safety &amp; Explosion Management</b></p> <ul style="list-style-type: none"> <li>• Fire chemistry, Fire triangle and industrial fire hazards</li> <li>• Passive vs. Active fire protection</li> <li>• ATEX/DSEAR (Explosive atmospheres)</li> <li>• Dust explosion hazards</li> <li>• Electrical and chemical fire risks</li> <li>• Fire detection and suppression systems</li> <li>• Emergency evacuation planning</li> <li>• Lessons from major industrial fires</li> </ul> <p><b>Machinery Safety &amp; Automation Risks</b></p> <ul style="list-style-type: none"> <li>• Identification, evaluation, and mitigation of risks throughout a machine's lifecycle, from design to decommissioning.</li> <li>• Recognizing mechanical hazards (e.g., entanglement, crush, nip, shear risks), electrical hazards, and those arising from human-machine interaction.</li> <li>• Qualitative and quantitative methods for risk assessment,</li> <li>• Failure Mode and Effect Analysis (FMEA) and</li> <li>• Failure Mode and Effect Criticality Analysis (FMECA)</li> <li>• Machine guarding and lockout-tagout (LOTO)</li> <li>• Safety in automated and robotic systems</li> <li>• Electrical safety fundamentals</li> <li>• Preventive maintenance <u>and safety</u></li> </ul>
15-16	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	
17-18	<p><b>Ergonomics &amp; Psychosocial Risk Management</b></p> <ul style="list-style-type: none"> <li>• Ergonomic risk factors</li> <li>• Principles of ergonomics, preventing musculoskeletal disorders, workstation design.</li> <li>• Manual material handling</li> <li>• Stress, fatigue, and mental health at work and workplace violence.</li> <li>• Modern workplace well-being practices</li> <li>• Impact of residential greenness on lung function underscores the broader environmental determinants of health relevant to occupational settings</li> <li>• Construction and Materials Handling (Working at heights; Scaffolding; Crane safety; Automation in material handling (AGVs).</li> </ul>

Session	Topics
19-20	<p><b>Chemical Safety &amp; Hazardous Materials Management</b></p> <ul style="list-style-type: none"> <li>• Toxicology fundamentals, exposure limits (e.g., Threshold Limit Values, Permissible Exposure Limits).</li> <li>• Chemical classification and labeling (GHS)</li> <li>• Material Safety Data Sheets (MSDS/SDS)</li> <li>• Storage, handling, and transportation</li> <li>• Spill prevention and response</li> <li>• Monitoring techniques for chemical agents.</li> <li>• Control strategies, including engineering controls (e.g., ventilation), administrative controls, and personal protective equipment (PPE).</li> <li>• Prediction models for hazardous properties of chemical mixtures like lower flammability limit (LFL), upper flammability limit (UFL), auto-ignition temperature (AIT), and flash point (FP) using machine learning.</li> </ul>
21-22	<p><b>Major Causes of Industrial Accidents and their Prevention</b></p> <ul style="list-style-type: none"> <li>• Causes of Major Accidents in the industries</li> <li>• Component failure, Deviation from normal operating, Human and organizational error, outside Accidents accidental interference, natural forces, Acts of mischief and sabotage.</li> <li>• Unsafe acts vs unsafe conditions</li> <li>• Incident reporting and investigation</li> <li>• Root Cause Analysis (RCA)</li> <li>• Unsafe working condition, Unsafe acts, Accident proneness,</li> <li>• Direct and indirect losses form accident, Measurement of accidents.</li> <li>• Frequency Rate, Severity Rate,</li> <li>• Function of Safety Manager/Officers,</li> <li>• Measures against occupational hazards, measures for protection against accidents to be taken by management.</li> </ul>
23-24	<p><b>Occupational Health &amp; Industrial Hygiene</b></p> <ul style="list-style-type: none"> <li>• List of Occupational diseases and work-related illnesses as per BLA, 2006.</li> <li>• Noise, vibration, dust, and chemical exposure</li> <li>• Health screening and surveillance programs</li> <li>• Medical surveillance, and prevention of occupational diseases.</li> <li>• Growing burden of occupational diseases, including those from toxic chemicals in industries like garments, iron, textile, leather, cement and paper and service organizations (hospital Banks).</li> <li>• Role of occupational health physicians and related legislation.</li> </ul>

Session	Topics
25-26	<p><b>Environmental Management for Industries</b></p> <ul style="list-style-type: none"> <li>• Impact of Industries in Environmental</li> <li>• Industrial pollution (air, water, soil, noise)</li> <li>• Cleaner production and eco-efficiency</li> <li>• Waste hierarchy and circular economy</li> <li>• Energy Management and Climate Change Mitigation</li> <li>• Energy efficiency in industrial operations</li> <li>• Renewable energy integration. Strategies for reducing greenhouse gas emissions.</li> <li>• ETP</li> </ul>
27-28	<p><b>Environmental Impact Assessment, Pollution Control and Compliance</b></p> <ul style="list-style-type: none"> <li>• Principles of Environmental Impact Assessment (EIA)</li> <li>• Monitoring and reporting requirements</li> <li>• Air and water pollution control technologies.</li> <li>• Waste management strategies (e.g., industrial waste incinerator occupational health and process risk assessment)</li> <li>• Remediation of persistent pollutants, such as enhancing RDX remediation through water-dispersible granules</li> <li>• Environmental Management Systems (EMS) and Certification (ISO 14001 standard)</li> <li>• Implementation and auditing of EMS.</li> <li>• Benefits of integrating EMS with OHSMS</li> <li>• Environmental Health and Safety Management System for Small and Medium Scale Industries (SMEs)</li> </ul>
29-30	<p><b>Waste Management &amp; Resource Efficiency</b></p> <ul style="list-style-type: none"> <li>• Solid, liquid, and hazardous waste management</li> <li>• Waste minimization techniques</li> <li>• Recycling and recovery</li> <li>• Industrial symbiosis concepts</li> </ul>
31-32	<p><b>Environment Sustainable Goals (ESG) &amp; Corporate Responsibility</b></p> <ul style="list-style-type: none"> <li>• ESG concepts and its relevancy with industries</li> <li>• Environmental sustainability metrics</li> <li>• Occupational safety as a social responsibility</li> <li>• Reporting frameworks (GRI, SDGs)</li> <li>• Sustainability, Triple Bottom Lines (3P Concept)</li> <li>• Sustainable Industrial Practices (concepts of industrial ecology, cleaner production, and circular economy).</li> </ul>

Session	Topics
	<ul style="list-style-type: none"> <li>• Life cycle assessment (LCA)</li> <li>• Adaptive reuse of buildings as a sustainable alternative to demolition and new construction, offering economic and energy benefits</li> <li>• Corporate Social Responsibility (CSR) and Stakeholder Engagement</li> <li>• Role of CSR in environmental and social performance. Engaging stakeholders (employees, communities, regulators) in HSE initiatives. Public perception and transparency in environmental reporting.</li> </ul>
33-34	<p><b>Digital Technologies for ISHE Management</b></p> <ul style="list-style-type: none"> <li>• Use of AI, IoT, and sensors in safety and risk analysis in ISHE</li> <li>• Safety analytics and dashboards</li> <li>• E-reporting and compliance systems</li> <li>• Predictive safety management</li> <li>• Virtual reality and interactive simulations for safety training</li> </ul> <p><b>Legal Frameworks and Ethical Considerations in ISHE</b></p> <ul style="list-style-type: none"> <li>• Overview of national and international legal requirements for ISHE</li> <li>• An Overview of key international and national ISHE regulations and standards (e.g., ISO 45001, ISO 14001, OHSAS 18001)</li> <li>• Employer and employee responsibilities</li> <li>• Ethical considerations in managing workplace risks and environmental impact</li> <li>• Role of academic institutions in training human resources in occupational health and safety</li> </ul>
35-36	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

Reference Books:

1. *Industrial Safety, Health, Environment and Security* — Basudev Panda
2. *Industrial Safety, Health and Environment Management Systems* — R.K. Jain & Sunil S. Rao (Khanna Publishers)
3. *Industrial Safety Management: 21<sup>st</sup> Century Perspectives of Asia* — Springer (Edited volume)
4. *Occupational and Environmental Safety and Health* — Springer
5. *Management of Occupational Safety, Health and Environment* — Md. Hafijur Rahman Khan
6. *Safety, Health and Environment Handbook* — K.T. Narayanan

**Subject: Cost and Management Accounting****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>1-2</b>	Introduction to Cost Accounting, Methods and Techniques.
<b>3-4</b>	Concept of Cost and Classification of Cost
<b>5-6</b>	Preparation of Cost Statement / Cost Sheet.
<b>7-8</b>	Material Costing Basic Concept
<b>9-10</b>	Material Cost Computation and Control with Problem & Solution
<b>11-12</b>	Material Cost Problem and Solution
<b>13-14</b>	Overhead Cost Computation and Control: Theory Part Overhead Cost Computation and Control: Problems With Solutions Standard Costing: Concepts and Problems with Solutions
<b>15-16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	
<b>17-18</b>	Management Accounting- Definition, Objectives. Concept of value maximization and role of management Accounting. The Work of Comparison of Financial & Managerial Accounting. Expanding role of Managerial Accounting. Management Accounting and the changing Business Environment
<b>19-20</b>	Cost Behavior Analysis & Use
<b>21-22</b>	Cost Volume Profit Analysis
<b>23-24</b>	Cost – Volume – Profit Analysis
<b>25-26</b>	Capital Budgeting Decision
<b>27-28</b>	Investment Decision: - Nature of Investment Decision. – Importance of investment decision. Methods of evaluating investment decisions
<b>29-30</b>	Capital Budgeting, Budget Report, and Variance Analysis
<b>31-32</b>	Case Budgeting-Excel-based solution
<b>33-34</b>	Capital Budgeting Decision: Investment Decision Making
<b>35-36</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 2/Industry Visit</b>

**Subject: Managerial Economics and Marketing****Full Marks: 100****Credits: 03****Session: 36**

<b>Session</b>	<b>Topics</b>
<b>01–02</b>	Introduction to Economic Decision Making Seven Examples of Managerial Decisions Six Steps To Decision Making
	Concept of market and major markets in a economy
<b>03–04</b>	Meaning of Managerial Economics – The Salient Features and Significance of Managerial Economics – Managerial Economics: Normative or Positive – Scope of Managerial Economics – Scientific Method of Economic Analysis in the Managerial Decision-making – Basic Assumptions in Economic Models and Analysis – Time Perspective
<b>05–06</b>	Demand Analysis and Business Forecasting
	Demand and supply analysis Market equilibrium
<b>07–08</b>	Concept and elasticity and use of labour demand elasticity
	Estimating and Forecasting Demand
<b>09–10</b>	Cost and Production Analysis: Firm level production analysis
	Production & Cost Analysis
<b>11–12</b>	Optimal Decisions Using Marginal Analysis
	Use of marginal revenue and marginal cost in determining workforce
<b>13–14</b>	Introduction to labour economics Personnel economics
<b>15–16</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 1/Industry Visit</b>
<b>Mid-Term</b>	
<b>17–18</b>	Labour Demand and supply analysis
	Labour Demand and supply analysis
<b>19–20</b>	Marketing Defined, Basic Concepts
	Concept of market
<b>21–22</b>	The Marketing Environments: The Company's Micro & Macro Environment
	5 p's of Marketing.

<b>Session</b>	<b>Topics</b>
<b>23–24</b>	Building the Right Relationships with the Right Customers. a) Market Segmentation b) Target Marketing c) Positioning for Competitive Advantage
<b>25–26</b>	Shaping the Market Offerings
	New Product Development & Product life Cycles
<b>27–28</b>	Developing Price Strategies and Program
<b>29–30</b>	Building Strong Brand
<b>31–32</b>	Delivering Value
<b>33–34</b>	Advertising, Sales promotion and Public Relations Marketing Communication
<b>35–36</b>	<b>Class Test/ Presentation/ Assignment/ Quiz- 2</b>

- Text                    Managerial Economics William F. Samuelson and Stephen G. Marks JOHN WILEY & SONS, INC.
- Text                    Economics, Samuelson P.A. and Nordhaus; 19<sup>th</sup> Edition, Mc Graw-Hill International Edition
- Reference            Labour Economics, 9<sup>th</sup> Edition, McConnell, C.R.; McGraw-Hill Education
- Text                    Marketing Management by Philip Kotler and Kevin Lane Keller

**Subject: Term Paper**

**Full Marks: 100**

**Credits: 03**

	<b>Approved Marks</b>
<b>Term Paper Proposal</b>	<b>25</b>
<b>Term Paper Presentation</b>	<b>25</b>
<b>Term Paper Evaluation</b>	<b>50</b>

**Subject: Viva Voce**

**Full Marks: 50**

**Credits: 1.5**