

**UNIT 1**

**Chapter 1 : Introduction to Industrial Engineering and Productivity 1-1 to 1-31**

**Syllabus :** Definition and Role of Industrial Engineering, Types of production systems and organization structure, Functions of management.

**Measurement of productivity :** Factors affecting the productivity, Productivity Models and Index (Numerical), Productivity improvement techniques.

**Note :** Productivity improvement techniques viz. 5S, Kaizen, TPS, KANBAN, JIT, etc. shall be discussed at the end of this Unit

1.1	Introduction to Industrial Engineering .....	1-1
✓	<b>Syllabus Topic :</b> Definition of Industrial Engineering.....	1-2
1.1.1	Definition of Industrial Engineering .....	1-2
✓	<b>Syllabus Topic :</b> Role of Industrial Engineering .....	1-2
1.2	Role/Objectives of Industrial Engineering.....	1-2
✓	<b>Syllabus Topic :</b> Types of production systems. ....	1-3
1.2.1	Types of production systems .....	1-3
✓	<b>Syllabus Topic :</b> Functions of Management.....	1-8
1.2.2	Functions of Management .....	1-8
✓	<b>Syllabus Topic :</b> Organization structure.....	1-12
1.2.3	Organization structure.....	1-12
1.3	Requirements of Organizational structure .....	1-12
1.4	Introduction to Organizational Structure .....	1-14
1.4.1	Types of Organizational Structure .....	1-14
1.5	Productivity .....	1-22
✓	<b>Syllabus Topic :</b> Measurement of Productivity.....	1-22
1.6	Measurement of Productivity .....	1-22
✓	<b>Syllabus Topic :</b> Factors Affecting Productivity.....	1-23
1.6.1	Factors Affecting Productivity .....	1-23
✓	<b>Syllabus Topic :</b> Productivity Models and Index (Numerical) .....	1-24
1.7	Productivity Measuring Models.....	1-24

✓	<b>Syllabus Topic :</b> Productivity Improvement Techniques.....	1-26
1.8	Productivity Improvement Techniques .....	1-26
1.9	University Questions and Answers .....	1-30
•	<b>Chapter Ends.....</b>	<b>1-31</b>

**UNIT 2**

**Chapter 2 : Method Study 2-1 to 2-30**

**Syllabus :**

**Work Study :** Definition, objective and scope of work-study, Human factors in work-study.

**Method Study :** Definition, objective and scope of method study, work content, activity recording and exam aids.

**Charts to record movements :** Operation process charts, flow process charts, travel chart, two-handed chart and multiple activity charts. Principles of motion economy, classification of movements, SIMO chart, and micro motion study. Definition and installation of the improved method, brief concept about synthetic motion studies. Introduction to Value Engineering and Value Analysis.

✓	<b>Syllabus Topic :</b> Work Study .....	2-1
2.1	Introduction to Work Study .....	2-1
✓	<b>Syllabus Topic :</b> Definition of Work Study .....	2-1
2.1.1	Definition of Work Study.....	2-1
✓	<b>Syllabus Topic :</b> Objectives of Work-Study .....	2-2
2.1.2	Objectives of Work-Study.....	2-2
✓	<b>Syllabus Topic :</b> Scope of Work Study .....	2-2
2.1.3	Scope of Work Study.....	2-2
✓	<b>Syllabus Topic :</b> Human Factors in Work-Study .....	2-4
2.1.4	Human Factors in Work-Study .....	2-4
2.1.4.1	Definition of Human Factors/Ergonomics.....	2-4
2.1.4.2	Scope of Human Factors/Ergonomics in Relation to Work-Study .....	2-5
2.1.4.3	Ergonomic Design Considerations in Relation to Work.....	2-6
✓	<b>Syllabus Topic :</b> Method Study .....	2-7
2.2	Method Study .....	2-7

✓ **Syllabus Topic** : Definition of Method Study ..... 2-7

2.2.1 Definition of Method Study..... 2-7

✓ **Syllabus Topic** : Objectives of Method Study ..... 2-7

2.2.2 Objectives of Method Study ..... 2-7

✓ **Syllabus Topic** : Scope of Method Study ..... 2-8

2.2.3 Scope of Method Study..... 2-8

2.2.4 Procedure of Method Study ..... 2-8

2.2.4.1 Select the Job to be Analyzed ..... 2-9

2.2.4.2 Recording the Facts using  
Recording Techniques ..... 2-9

2.2.4.3 Examine (Critically Examine and Questioning  
Technique) ..... 2-21

✓ **Syllabus Topic** : Define ..... 2-21

2.2.4.4 Define (Process Improvements) ..... 2-21

2.2.4.5 Install ..... 2-22

2.2.4.6 Maintain ..... 2-22

✓ **Syllabus Topic** : Principles of Motion Economy ..... 2-22

2.2.5 Motion Economy ..... 2-22

✓ **Syllabus Topic** : Brief concept about Synthetic  
Motion studies ..... 2-22

2.2.6 Introduction to concept about synthetic  
motion studies ..... 2-22

2.3 Value Engineering..... 2-23

2.3.1 Introduction to Value ..... 2-23

✓ **Syllabus Topic** : Introduction to Value Analysis ..... 2-24

2.3.2 Introduction to Value Analysis (VA) ..... 2-24

✓ **Syllabus Topic** : Introduction to Value  
Engineering ..... 2-24

2.3.3 Introduction to Value Engineering (VE) ..... 2-24

2.3.4 Significance of Value Analysis and Value  
Engineering ..... 25

2.3.5 Distinction between Value Analysis and Value  
Engineering ..... 2-26

2.3.6 Steps in Value Engineering and Value Analysis ..... 2-27

2.3.6.1 Steps in Value Engineering (Value Engineering  
Procedures)..... 2-27

2.3.6.2 Steps in Value Analysis  
(Value Analysis Procedures) ..... 2-28

2.4 University Questions and Answers ..... 2-30

• **Chapter Ends** ..... 2-30

**UNIT 3**

**Chapter 3 : Work Measurements 3-1 to 3-38**

**Syllabus :**

**Work Measurements** : Definition, objectives and uses, Work measurement techniques.

**Work Sampling** : Need, confidence levels, sample size determinations, random observation, conducting study with the simple problems.

**Time Study** : Definition, time study equipment, selection of job, steps in time study. Breaking jobs into elements, recording information, Rating and standard rating, standard performance, scales of rating, factors affecting rate of working, allowances and standard time determination.

**Introduction to PMTS and MTM** : (Numerical), Introduction to MOST

✓ **Syllabus Topic** : Work Measurements ..... 3-1

3.1 Introduction to Work Measurements (**Dec. 16**) ..... 3-1

✓ **Syllabus Topic** : Definition of Work  
Measurements..... 3-1

3.1.1 Definition of Work Measurement..... 3-1

✓ **Syllabus Topic** : Objectives of Work Measurements 3-2

3.1.2 Objectives of Work Measurement ..... 3-2

3.2 Procedure of Work Measurement ..... 3-2

✓ **Syllabus Topic** : Uses of Work Measurement ..... 3-3

3.3 Uses of Work Measurement..... 3-3

3.3.1 Difference between Work Measurement  
and Method Study ..... 3-3

✓ **Syllabus Topic** : Techniques of Work  
Measurement ..... 3-4

3.4 Techniques of Work Measurement..... 3-4

✓ **Syllabus Topic** : Time Study ..... 3-4

3.4.1 Time Study..... 3-4

✓ **Syllabus Topic** : Selection of job, steps in time study, Breaking jobs into elements, recording information, Rating and standard rating, standard performance, factors affecting rate of working..... 3-4

3.4.1.1 The Time Study Procedure..... 3-4

3.4.1.2 Limitations of Time Study..... 3-9

✓ **Syllabus Topic** : Time Study Equipment ..... 3-9

3.4.1.3 Time Study Equipment..... 3-9

✓ **Syllabus Topic** : Introduction to MOST ..... 3-24

3.4.2 Maynard Operation Sequence Technique (MOST) ..... 3-24

✓ **Syllabus Topic** : Introduction to PMTS and MTM : (Numerical) ..... 3-25

3.4.3 Predetermined Motion Time System (PMTS) ..... 3-25

3.4.4 Concept about Synthetic Motion Studies..... 3-26

✓ **Syllabus Topic** : Work Sampling ..... 3-27

3.4.5 Work Sampling/Sampling Activity ..... 3-27

3.4.5.1 Work Sampling Procedure ..... 3-28

3.4.5.2 Comparison of Work Sampling with PMTS..... 3-29

3.5 University Questions and Answers ..... 3-38

• **Chapter Ends** ..... **3-38**

**UNIT 4**

**Chapter 4 : Production Planning and Control**  
4-1 to 4-67

**Syllabus :**

**Introduction** : Types of production systems, Need and functions of PPC, Aggregate production planning.

**Capacity Planning, ERP** : Modules, Master Production Schedule, MRP and MRP-II.

**Forecasting Techniques** : Causal and time series models, moving average, exponential smoothing, trend and seasonality (Numerical), Demand Control strategies (MTO, MTA, MTS).

**Introduction to Supply Chain Management** : Basic terminologies

4.1 Introduction ..... 4-1

✓ **Syllabus Topic** : Types of production systems..... 4-1

4.1.1 Types of Production Systems ..... 4-1

4.2 Introduction to Production Planning and Control ..... 4-5

✓ **Syllabus Topic** : Need of Production Planning and Control..... 4-5

4.2.1 Need of Production Planning and Control..... 4-5

4.2.2 Meaning and Definition of Production Planning and Control..... 4-6

✓ **Syllabus Topic** : Functions of Production Planning and Control..... 4-7

4.2.3 Functions of Production Planning and Control..... 4-7

✓ **Syllabus Topic** : Capacity Planning..... 4-9

4.3 Introduction to Capacity Planning ..... 4-9

4.3.1 Measures of Capacity..... 4-10

4.3.2 Capacity Planning Process ..... 4-11

4.3.3 Role of Capacity Planning in Production Planning and Control..... 4-12

4.3.4 Life Cycle Analysis for Capacity Planning..... 4-12

4.3.5 Examples of Capacity Analysis and Planning..... 4-13

4.3.5.1 Analysis and Planning of Machine Capacity ..... 4-13

4.3.5.2 Capacity Planning for Labor ..... 4-14

✓ **Syllabus Topic** : Aggregate Production Planning ..... 4-15

4.4 Aggregate Production Planning ..... 4-15

4.4.1 Concept of Aggregation ..... 4-16

4.4.2 Procedure for Aggregate Production Planning..... 4-16

4.4.3 Disaggregation of Aggregate Plans ..... 4-17

✓ **Syllabus Topic** : MRP ..... 4-25

4.5 Introduction to Material Requirement Planning (MRP)..... 4-25

4.5.1 MRP (MRP-I) Objectives..... 4-25

4.5.2 MRP Terminology..... 4-26

4.5.3 MRP System Components ..... 4-26

4.5.3.1 Inputs to MRP..... 4-26

4.5.3.2 MRP Logic..... 4-28

4.5.3.3	MRP Outputs .....	4-30	4.7.6	Exponential Smoothing Method .....	4-47
4.5.3.4	Updation of MRP System in Dynamic Environment.....	4-30	✓	<b>Syllabus Topic</b> : Trend and Seasonality.....	4-51
4.5.3.4(A)	Pegging.....	4-30	4.7.7	Trend and Seasonality .....	4-51
4.5.3.4(B)	Cycle Counting.....	4-31	4.7.7.1	Procedural Steps for Trend and Seasonal Components Method.....	4-52
4.5.3.4(C)	Updating.....	4-31	4.7.8	Selecting of Forecasting Method.....	4-52
4.5.3.4(D)	Lot Sizing .....	4-32	✓	<b>Syllabus Topic</b> : Demand Control Strategies (MTO, MTA, MTS).....	4-52
4.5.3.5	Advantages of MRP.....	4-32	4.8	Overview of Demand CONTROL Strategies (MTO/BTO, MTS, MTA and MTE Processes .....	4-52
✓	<b>Syllabus Topic</b> : MRP-II .....	4-33	4.8.1	Make to Order (MTO) Environment.....	4-54
4.5.4	Manufacturing Resource Planning (MRP-II).....	4-33	4.8.2	Make to Stock (MTS) Environment .....	4-54
4.5.4.1	MRP-II Software - Evaluation and Selection.....	4-34	4.8.3	The Assemble-to-Order (ATO) Environment.....	4-56
4.5.5	Difference Between MRP-I and MRP-II .....	4-34	✓	<b>Syllabus Topic</b> : Introduction to Supply Chain Management .....	4-56
✓	<b>Syllabus Topic</b> : ERP .....	4-34	4.9	Introduction to Supply Chain Management.....	4-56
4.6	Enterprise Resource Planning (ERP) .....	4-34	4.9.1	Logistics and Supply Chain Management.....	4-57
✓	<b>Syllabus Topic</b> : ERP- Modules .....	4-36	4.9.2	Supply Chain and Distribution.....	4-58
4.6.1	ERP Modules (in-general) .....	4-36	4.9.3	Supply Chain Network (SCN).....	4-58
4.6.2	ERP Implementation Issues .....	4-37	4.9.4	Supply Chain Strategies.....	4-61
4.6.3	Strategies for ERP Implementations.....	4-38	4.9.4.1	Push and Pull Production Systems .....	4-62
4.6.4	Advantages of ERP Implementation .....	4-38	4.9.4.2	Understanding the adoption of Supply Chains Strategies .....	4-63
✓	<b>Syllabus Topic</b> : Forecasting Techniques.....	4-38	4.10	University Questions and Answers .....	4-66
4.7	Introduction to Forecasting and Forecasting Techniques .....	4-38	•	<b>Chapter Ends</b> .....	4-67
4.7.1	Needs of Sales Forecasting.....	4-39			
4.7.2	Objectives of the Production Forecasting .....	4-39			
4.7.3	Requirements of Good Forecasting.....	4-40			
4.7.4	Steps in Forecasting .....	4-41			
4.7.5	Forecasting Methods).....	4-41			
✓	<b>Syllabus Topic</b> : Casual Models .....	4-42			
4.7.5.1	Opinion and Judgment based / Casual Methods....	4-42			
✓	<b>Syllabus Topic</b> : Time-Series Models .....	4-42			
4.7.5.2	Analytical Method (Time-Series Method/Models)...	4-42			
✓	<b>Syllabus Topic</b> : Moving Average .....	4-43			
4.7.5.3	Quantitative Methods).....	4-43			
✓	<b>Syllabus Topic</b> : Exponential Smoothing .....	4-47			

UNIT 5

---

**Chapter 5 : Facility Design** **5-1 to 5-48**


---

**Syllabus :**

**Plant Location** : Need and factors influencing plant location,

**Plant Layout** : Objectives, principles, types of plant layouts, Introduction to Assembly Line Balancing and Layout parameters to evaluate.

**Material Handling** : Objectives, relation with plant layout, principles. Types and purpose of different material handling equipment, Selection of material handling equipment.

<b>Inventory control and Management</b> : Types of inventories, Need of inventories, terminology, costs, <b>Inventory Models</b> : Basic production models, (with and without shortage and discount), ABC, VED Analysis		5.3.4.2	Kilbridge and Wester's Method (KWM) .....	5-16
✓	<b>Syllabus Topic</b> : Plant Location .....	5.3.4.3	Ranked Positional Weights Method (RPW) .....	5-17
5.1	Facility Design.....	5.3.5	Other Ways to Improve the Line Balance .....	5-19
5.1.1	Introduction to Plant Location Planning .....	✓	<b>Syllabus Topic</b> : Layout Parameters to Evaluate. ....	5-19
✓	<b>Syllabus Topic</b> : Need for Plant Location.....	5.4	Layout Parameters to Evaluate.....	5-19
5.1.2	Need for Plant Location Planning .....	✓	<b>Syllabus Topic</b> : Objectives of Material Handling .....	5-23
5.1.3	Phases of Plant Location .....	5.5	Material Handling .....	5-23
✓	<b>Syllabus Topic</b> : Factors influencing plant location.....	5.5.1	Definition and Objectives of Material Handling .....	5-23
5.1.4	Factors Affecting the Plant Location Planning.....	✓	<b>Syllabus Topic</b> : Relation with Plant Layout.....	5-23
5.2	Plant Layout.....	5.5.2	Material Handling Function and Its Relation with Plant Layout.....	5-23
5.2.1	Need / Importance of Plant layout .....	✓	<b>Syllabus Topic</b> : Principles of Material Handling....	5-25
✓	<b>Syllabus Topic</b> : Objectives of Plant layout.....	5.5.3	Principles of Material Handling.....	5-25
5.2.2	Objectives of Plant layout .....	✓	<b>Syllabus Topic</b> : Types and purpose of Different Material Handling Equipment.....	5-26
✓	<b>Syllabus Topic</b> : Principles of Plant layout.....	5.5.4	Types and purpose of Different Material Handling Equipment .....	5-26
5.2.3	Principles of (Good) Plant layout .....	5.5.5	Some of Material Handling Equipments.....	5-26
✓	<b>Syllabus Topic</b> : Types of Plant Layout.. .....	✓	<b>Syllabus Topic</b> : Selection of Material Handling Equipment .....	5-31
5.2.4	Types of Plant Layout.....	5.5.6	Selection of Material Handling Equipment .....	5-31
5.2.4.1	Process Layout .....	5.5.6.1	Parameters Influencing the Selection of Material Handling Equipment.....	5-31
5.2.4.2	Product Layout.....	5.5.6.2	Material Handling Equipment Selection Procedure.....	5-32
5.2.4.3	Combination Layout.....	✓	<b>Syllabus Topic</b> : Inventory Control .....	5-32
5.2.4.4	Fixed Position Layout.....	5.6	Introduction to Inventory Control .....	5-32
5.2.4.5	Group Technology Approach for Plant Layout.....	✓	<b>Syllabus Topic</b> : Types of Inventories .....	5-33
5.2.4.6	Types of Flow Pattern used in Plant.....	5.6.1	Types of Inventories .....	5-33
✓	<b>Syllabus Topic</b> : Introduction to Assembly Line Balancing .....	5.6.2	Concept of Inventory Control .....	5-33
5.3	Introduction to Assembly Line Balancing.....	✓	<b>Syllabus Topic</b> : Need of inventories.....	5-34
5.3.1	The Assembly Process .....	5.6.3	Purpose of Inventory Control .....	5-34
5.3.2	Assembly Systems.....	✓	<b>Syllabus Topic</b> : Inventory Costs.....	5-34
5.3.3	Terminology for Line Balancing .....			
5.3.4	Methods of Line Balancing - (Manual) .....			
5.3.4.1	Largest - Candidate Rule (LCR) .....			

5.6.4 Inventory Costs ..... 5-34

✓ **Syllabus Topic** : Terminologies..... 5-35

5.6.5 Related Terminologies ..... 5-35

✓ **Syllabus Topic** : Inventory Models: Basic production models, (with and without shortage and discount) ..... 5-35

5.7 Inventory Control Models ..... 5-35

5.7.1 Deterministic Inventory Control Models ..... 5-36

✓ **Syllabus Topic** : ABC, VED Analysis. .... 5-44

5.8 Selective Control of Inventory (ABC and VED Analysis) ..... 5-44

5.8.1 ABC Analysis ..... 5-44

5.8.2 VED Analysis ..... 5-46

5.8.3 FSN Analysis ..... 5-46

5.9 University Questions and Answers ..... 5-47

• **Chapter Ends** ..... 5-47

**UNIT 6**

**Chapter 6 : Engineering Economy, Human Resource and Industrial Safety 6-1 to 6-64**

**Syllabus :**

**Introduction to Costing** : Elements of Cost, Break-Even Analysis (Numerical).

Introduction to Debit and Credit Note, Financial Statements (Profit and loss account and Balance Sheet), Techniques for Evaluation of capital investments.

**Human Resource Development** : Functions : Manpower Planning, Recruitment, Selection, Training. Concept of KRA (Key Result Areas), Performance Appraisal (Self, Superior, Peer, 360°).

**Industrial Safety** : Safety Organization, Safety Program

✓ **Syllabus Topic** : Introduction to Costing ..... 6-1

6.1 Introduction to Costing ..... 6-1

6.1.1 Scope of Cost Accounting ..... 6-1

6.1.2 Objectives of Cost Accounting ..... 6-2

6.1.3 Importance of Cost Accounting..... 6-3

✓ **Syllabus Topic** : Elements of Cost..... 6-4

6.1.4 Elements of Cost ..... 6-4

✓ **Syllabus Topic** : Break-Even Analysis (Numerical) ..... 6-6

6.2 Breakeven Analysis ..... 6-6

6.2.1 Breakeven Chart ..... 6-7

6.2.2 Breakeven Point ..... 6-7

6.2.3 Margin of Safety ..... 6-7

6.2.4 Methods of Lowering B.E.P. .... 6-7

6.2.5 Uses of Breakeven Analysis ..... 6-8

6.2.6 Cost Volume Profit Analysis ..... 6-9

6.2.7 Concept of Contribution and Profit Volume Ratio ..... 6-9

6.2.8 Profit Planning for New Design ..... 6-10

✓ **Syllabus Topic** : Introduction to Debit and Credit Note ..... 6-18

6.3 Introduction to Debit and Credit Note ..... 6-18

6.3.1 A Credit Note ..... 6-18

6.3.2 A Debit Note ..... 6-18

✓ **Syllabus Topic** : Financial Statements (Profit and loss account and Balance Sheet) ..... 6-19

6.4 Financial Statements (Profit and Loss Account and Balance Sheet) ..... 6-19

6.4.1 Profit and Loss Account (P & L Account) ..... 6-20

6.4.1.1 Preparation of Profit and Loss Account (P & L A/c) ..... 6-20

6.4.2 Balance Sheet ..... 6-23

6.4.2.1 Preparation of Balance Sheet ..... 6-23

✓ **Syllabus Topic** : Techniques for Evaluation of capital investments ..... 6-27

6.5 Techniques for Evaluation of Capital Investments ... 6-27

6.5.1 Accounting Rate of Return Method ..... 6-28

6.5.1.1 Merits of Accounting Rate of Return Method ..... 6-30

6.5.1.2 Limitations of Return Method ..... 6-30

6.5.2 Payback Method ..... 6-31

6.5.3 Discounted Cash Flow Methods ..... 6-33

<p>6.5.3.1 Discounted Cash Flow Method 1 : The Internal Rate of Return (IRR) Method in Capital Budgeting Decisions .....6-33</p> <p>6.5.3.2 Discounted Cash Flow Method 2 : The Use of Net Present Value (NPV) Method in Capital Budgeting Decisions .....6-36</p> <p>6.5.4 Discounted Payback Period Method - Time Value of Money Included.....6-38</p> <p>✓ <b>Syllabus Topic</b> : Human Resource Development : Functions : Manpower Planning, Recruitment, Selection, Training .....6-39</p> <p>6.6 Functions of a Human Resource Department .....6-39</p> <p>✓ <b>Syllabus Topic</b> : Concept of KRA (Key Result Areas) .....6-42</p> <p>6.6.1 Key Result Areas .....6-42</p> <p>✓ <b>Syllabus Topic</b> : Performance Appraisal (Self, Superior, Peer, 360°) .....6-44</p> <p>6.6.2 Performance Appraisal .....6-44</p> <p>6.6.2.1 Potential Benefits of Conducting Formal Performance Appraisals.....6-44</p> <p>6.6.2.2 Types of Performance Appraisal .....6-45</p> <p>✓ <b>Syllabus Topic</b> : Industrial Safety : Safety Organization, Safety Program .....6-47</p> <p>6.7 Industrial Safety .....6-47</p> <p>6.7.1 Introduction to Industrial Safety.....6-48</p> <p>✓ <b>Syllabus Topic</b> : Safety Organization .....6-49</p>	<p>6.7.2 Safety Organization .....6-49</p> <p>6.7.2.1 Traditional Safety Organization / Management .....6-49</p> <p>6.7.2.2 Safety Organization in Indian Industries.....6-50</p> <p>6.7.2.3 Features of Safety Organization.....6-51</p> <p>✓ <b>Syllabus Topic</b> : Safety Program .....6-52</p> <p>6.7.3 Industrial Safety Programme .....6-52</p> <p>6.7.3.1 Importance/need/Significance of Industrial Safety and related Programme .....6-52</p> <p>6.7.3.2 Basic Aspects in Safety Programme.....6-52</p> <p>6.7.3.3 General Procedure of Safety Programme .....6-53</p> <p>6.7.4 General Safety Rules.....6-54</p> <p>6.7.4.1 Examples of Statutory Safety and Health Provisions .....6-54</p> <p>6.7.4.2 Aim of General Safety Rules.....6-56</p> <p>6.7.4.3 Examples of General Safety Rules .....6-56</p> <p>6.7.5 Hazards and its Prevention .....6-58</p> <p>6.7.5.1 Categories of Hazards .....6-59</p> <p>6.7.5.2 Contributing Factors for Hazards at Workplace.....6-60</p> <p>6.7.5.3 Analyzing and Controlling Hazards .....6-61</p> <p>6.8 University Questions and Answers.....64</p> <p>• <b>Chapter Ends</b> .....6-64</p> <p>➤ <b>Appendix-A : Solved University Question Paper of May 2019</b>.....A-1 to A-3</p>
--	--