



MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE COVERAGE SUMMARY A.Y:2019-20

IV YEAR B. TECH II SEMESTER (C-SECTION)

PRODUCTION PLANNING AND CONTROL
(R15A0340)

UNIT-1 INTRODUCTION

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Definition of production planning and control	PPC & M.Mahajan	9
2	Objectives of production planning and control	PPC & M.Mahajan	9
3	Functions of production planning and control	PPC & M.Mahajan	10-17
4	Elements of production control	Study materials	17
5	Types of production	PPC & M.Mahajan	2-7
6	Organization of production planning and control department	PPC & M.Mahajan	23-25
7	Internal organization of department	Study materials	25

ASSIGNMENT QUESTIONS:

- Differentiate between job order production and batch production systems?
- Describe the functions of production planning and control?
- Explain planning in manufacturing organization?
- What are the objectives of production planning?
- State the purpose of manufacturing organization in an industry?
- Briefly explain the prerequisites of PPC
- Explain the production lifecycle with the aid of a graph
- Explain the scope of production planning and control

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS:<https://youtu.be/5q341mozB-s>
- STUDY MATERIAL: Digital Notes is available at mrcet.ac.in website
- PPTs: PPTs are available at mrcet.ac.in website

UNIT-2 FORECASTING

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Importance of forecasting	PPC & M.Mahajan	51-52
2	Types of forecasting, their uses	PPC & M.Mahajan	50
3	General principles of forecasting	PPC & M.Mahajan	52-53
4	Forecasting techniques	PPC & M.Mahajan	55-67
5	Qualitative & Quantitative methods	Study materials	68-71

ASSIGNMENT QUESTIONS:

- State the objectives of long term and short term forecasting?
- What are the advantages of forecasting?
- Describe moving average method?
- Explain types of forecasting?
- Explain different types of production systems and differentiate between them
- Forecast the production for next two years when the production quantity for last ten years is as follows: 200, 225, 235, 240, 255, 260, 265, 275, 270, 271
- Describe 'Least Square Method' of sales forecasting with its advantages and limitations
- Describe the Survey of buyers intention method of sales forecasting with its advantages and limitations

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS: <https://youtu.be/sJzWKANPAHs>
- STUDY MATERIAL: Digital Notes is available at mrcet.ac.in website
- PPTs: PPTs are available at mrcet.ac.in website

UNIT-3 INVENTORY MANAGEMENT

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Functions of inventories	PPC & M.Mahajan	285-286
2	Relevant inventory costs	PPC & M.Mahajan	290-292
3	ABC analysis – VED analysis	PPC & M.Mahajan	348-352
4	EOQ model	PPC & M.Mahajan	292-348
5	Inventory control systems (P-Systems and Q-Systems)	PPC & M.Mahajan	334-348
6	Introduction to MRP	PPC & M.Mahajan	176-183
7	Introduction to ERP	PPC & M.Mahajan	412-417
8	LOB (Line of Balance)	PPC & M.Mahajan	216-219
9	JIT inventory	PPC & M.Mahajan	399-407
10	Japanese concepts	Study material	129-131

ASSIGNMENT QUESTIONS:

- What are the types of inventory?
- Explain direct inventories?
- Describe the cost associated with inventories?
- Explain carrying cost and ordering cost?
- Derive the formula for determining EOQ?
- Describe the various inputs to MRP system?
- Differentiate between MRP/MRP-II and ERP?
- What are the Japanese concepts used in JIT (Just in time)?
- Explain the VED analysis



- Write short notes on P-System and Q-system

ADDITIONAL RESOURCES:

- NPTL VIDEO LINKS: <https://youtu.be/2n9NLZTIlz8>
- STUDY MATERIAL: Digital Notes is available at mrcet.ac.in website
- PPTs: PPTs are available at mrcet.ac.in website

UNIT-4 ROUTING

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Definition Routing	PPC & M.Mahajan	205
2	Routing procedure	PPC & M.Mahajan	206-207
3	Route sheets	PPC & M.Mahajan	207-208
4	Bill of material	PPC & M.Mahajan	178-179
5	Factors affecting routing procedure	Study materials	168-171
6	Schedule –definition	PPC & M.Mahajan	209
7	Difference with loading Scheduling Policies	PPC & M.Mahajan	209
8	Techniques, Standard scheduling methods	PPC & M.Mahajan	214-230

ASSIGNMENT QUESTIONS:

- Explain Routing procedure?
- What is the information required on the Bill of material form?
- Explain expediting and follow up?
- Name types of scheduling? Explain?
- What are the objectives of aggregate production planning?
- What are the factors affecting routing procedure
- State the important factors that affecting routing procedure
- Distinguish between loading and scheduling
- List out various scheduling rules. Explain at least three of them

ADDITIONAL RESOURCES:

- NPTL VIDEO LINKS: https://youtu.be/TIVND_MPA1E
- STUDY MATERIAL: Digital Notes is available at mrcet.ac.in website
- PPTs: PPTs are available at mrcet.ac.in website



UNIT-5 LINE BALANCING

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Aggregate planning	PPC & Mahajan	173-176
2	Chase planning, Expediting, controlling aspects	Study materials	212-213
3	Dispatching – Activities of dispatcher	PPC & Mahajan	231-232
4	Dispatching procedure	PPC & Mahajan	234-235
5	follow-up – definition –	Study materials	216
6	Reason for existence of functions	Study materials	213
7	Types of follow-up, applications of computer in production planning and control	Study materials	220-221

ASSIGNMENT QUESTIONS:

- Explain the functions of dispatching?
- Explain dispatching procedure?
- Explain centralized dispatching?
- Explain the advantages of decentralized dispatching?
- Describe briefly the application of computer in PPC?
- Write short notes on Dispatching procedure
- Write short notes on Activities of dispatches
- List out various forms raised by dispatcher?
- Explain the applications of computer in Production Planning & Control
- Discuss about a) issue of move orders.
b) Issue of tool orders.

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS: <https://youtu.be/22F9KH87GVw>
- STUDY MATERIAL: Digital Notes is available at mrcet.ac.in website
- PPTs: PPTs are available at mrcet.ac.in website





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IV YEAR B. TECH II SEMESTER (C-SECTION)

AUTOMATION IN MANUFACTURING

UNIT-1

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	TYPES AND STRATEGIES OF AUTOMATION	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	29
2	PNEUMATIC AND HYDRAULIC COMPONENTS	DIGITAL NOTES	19
3	AUTOMATION IN MACHINE TOOLS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	91
4	MECHANICAL FEEDING	DIGITAL NOTES	80
5	MACHINE TOOL CONTROL TRANSFER	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	165

ASSIGNMENT QUESTIONS:

- WRITE THE TYPES OF AUTOMATION AND STRATEGIES OF AUTOMATION
- WHAT IS MECHANICAL FEEDING?
- WRITE ABOUT THE WORKING OF HYDRAULIC AND PNEUMATIC COMPONENTS AND ITS USES IN AUTOMATION.
- WRITE ABOUT MACHINE CONTROL UNIT

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS:

1. <https://nptel.ac.in/courses/112104288/>

- STUDY MATERIAL:

1. <https://www.slideshare.net/GopalSaini3/transfer-devices-and-feeders>
2. <https://www.hydraulicspneumatics.com/technologies/other-technologies/article/21884114/chapter-5-pneumatic-and-hydraulic-systems>
3. <http://home.iitk.ac.in/~nsinha/CNC.pdf>

- PPTS:

1. <https://www.slideshare.net/mohamadsahiedan/chapter-1-introduction-to-automation>

UNIT-2

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	WORK PART TRANSPORT	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	408
2	MECHANICAL BUFFER STORAGE	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	414
3	ANALYSIS OF AUTOMATED FLOW LINES TERMINOLOGY WITH PROBLEMS IN WITH AND WITHOUT BUFFERS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	470
4	PARTIAL AUTOMATION	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	458
5	IMPLEMENTATION OF AUTOMATED FLOW LINES	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	460

ASSIGNMENT QUESTIONS:

- WHAT IS MECHANICAL BUFFER IN AUTOMATED FLOW LINES AND EXPLAIN ITS IMPORTANCE
- WHAT IS BASIC TERMINOLOGY USED IN AN AUTOMATED FLOWLINE
- PROBLEMS ON AUTOMATED FLOW LINES WITH AND WITHOUT BUFFER STORAGE
- WHAT IS A TRANSFER LINE? EXPLAIN ANY TWO WORK PART TRANSFER METHODS.
- WRITE A SHORT NOTE ON PARTIAL AUTOMATION.

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS:

1. <https://nptel.ac.in/courses/112104288/>

- STUDY MATERIAL:

1. <https://www.slideshare.net/AbhilashBhatt1/analysis-of-automated-flow-lines>
2. http://www.nuigalway.ie/staff-sites/david_osullivan/documents/unit_13_automated_production_lines.pdf

- PPTS:

1. <https://www.slideshare.net/PRAVEENKUMARSHAHAPUR/transfer-lines>
2. <https://www.slideshare.net/AbhilashBhatt1/analysis-of-automated-flow-lines>



UNIT-3

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	ANALYSIS OF AUTOMATED ASSEMBLY SYSTEMS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	488
2	LINE BALANCING ALGORITHMS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	421
3	IMPROVING LINE BALANCING	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	489
4	LINE BALANCING METHODS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	490
5	FLEXIBLE ASSEMBLY LINES	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	496

ASSIGNMENT QUESTIONS:

- ANALYSIS OF AUTOMATED ASSEMBLY SYSTEMS PROBLEMS
- LINE BALANCING ALGORITHMS PROBLEMS
- TYPES OF LINE BALANCING METHODS
- EXPLAIN ABOUT FLEXIBLE ASSEMBLY LINES
- EXPLAIN ABOUT AUTOMATED ASSEMBLY SYSTEM WITH AN EXAMPLE

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS:

1. <https://nptel.ac.in/courses/112104288/>

- STUDY MATERIAL:

1. https://www.slideshare.net/lizard_mn/8-automated-assemblysystems
2. <http://www.me.nchu.edu.tw/lab/CIM/www/courses/Flexible%20Manufacturing%20Systems/Microsoft%20Word%20-%20Chapter8F-ASSEMBLY%20SYSTEMS%20AND%20LINE%20BALANCING.pdf>

- PPTS:

1. <https://www.slideshare.net/vibhaspk/automated-assembly-systems>
2. https://www.slideshare.net/lizard_mn/8-automated-assemblysystems
3. https://getmyuni.azureedge.net/assets/main/study-material/notes/mechanical_engineering_computer-integrated-manufacturing-systems_automated-assembly-systems_notes.pdf



UNIT-4

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	TYPES OF MATERIAL HANDLING SYSTEMS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	286
2	FUNCTIONS OF MATERIAL HANDLING SYSTEMS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	291
3	AUTOMATED GUIDED VEHICLES	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	333
4	ASRS SYSTEMS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	330
5	INTERFACE HANDLING AND STORAGE SYSTEMS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	353

ASSIGNMENT QUESTIONS:

- WHAT ARE THE MATERIAL HANDLING SYSTEMS AND EXPLAIN
- EXPLAIN THE AUTOMATED GUIDED VEHICLES AND ITS APPLICATION IN MANUFACTURING
- EXPLAIN ABOUT AUTOMATED STORAGE AND RETRIEVAL SYSTEMS
- EXPLAIN ABOUT AGVS AND ASRS SYSTEMS
- WHAT ARE TYPES OF MATERIAL HANDLING SYSTEMS AND HOW AGVS ARE USED IN MATERIAL HANDLING.

ADDITIONAL RESOURCES:

- NPTEL VIDEO LINKS:

1. <https://www.youtube.com/watch?v=IFFeTrJpzUA>

- STUDY MATERIAL:

1. https://nptel.ac.in/content/storage2/nptel_data3/html/mhrd/ict/text/112107143/lec36.pdf
2. <http://www.me.nchu.edu.tw/lab/CIM/www/courses/Flexible%20Manufacturing%20Systems/Microsoft%20Word%20-%20Chapter10F-Automated%20Material%20Handling%20and%20Storage%20Systems.pdf>

- PPTS:

1. <https://www.slideshare.net/RakeshRaki2/automated-material-handling-system>
2. <https://www.slideshare.net/souravbablu/automated-material-handling-69439411>
3. <http://www.me.nchu.edu.tw/lab/CIM/www/courses/Flexible%20Manufacturing%20Systems/Microsoft%20Word%20-%20Chapter10F-Automated%20Material%20Handling%20and%20Storage%20Systems.pdf>



UNIT-5

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	CONTROL THEORY, LOGIC CONTROLS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	137
2	SENSORS AND ACTUATORS	AUTOMATION AND PRODUCTION SYSTEMS BY MP GROOVER	142
3	DATA COMMUNICATION	DATA COMMUNICATION AND NETWORKING BY BEHROUZ A FOROUZAN	49
4	BUSINESS PROCESS RE ENGINEERING	BUSINESS PROCESS REENGINEERING BY MICHAEL HAMMER	15
5	ERP	ALXIS LEON, "ERP DEMYSTIFIED" TATA MCGRAW HILL, NEW DELHI 2000..	20

ASSIGNMENT QUESTIONS:

1. A). EXPLAIN THE SITUATIONS WHERE ADAPTIVE CONTROL CAN BE BENEFICIALLY APPLIED?
B). WHAT ARE THE LIMITATIONS OF ADAPTIVE CONTROL?
2. A). EXPLAIN HOW VARIOUS PARAMETERS SUCH AS CUTTING FORCE, TEMPERATURES ARE CONTROLLED USING ADOPTIVE CONTROL CONCEPTS.
B). EXPLAIN THE PROCESS OF ADAPTIVE CONTROL CONSTRAINT (ACC).
3. EXPLAIN ABOUT SENSORS AND ACTUATORS
4. DATA COMMUNICATION AND LAN MANUFACTURING
5. EXPLAIN BUSINESS PROCESS RE-ENGINEERING

ADDITIONAL RESOURCES:

● NPTEL VIDEO LINKS:

1. <https://nptel.ac.in/courses/108108147>

● STUDY MATERIAL:

1. <https://prezi.com/pnvyuczguwod/data-communication-lan-and-wan-in-manufacturing/>

● PPTs:

1. <https://www.slideshare.net/hossamhassanein1/instrumentation-and-process-control-fundamentals>
2. <https://www.slideshare.net/haki517/industrial-process-control>
3. <https://www.slideserve.com/sidney/chapter-5-industrial-control-systems>

