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 (B-SECTION)	**PRODUCTION PLANNING AND CONTROL (R15A0340)**

UNIT-1

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Definition	PPC-Mahajan	2
2	Objectives of production planning and control	PPC-Mahajan	3
3	Functions of production planning and control	PPC-Mahajan	7
4	Elements of production control	PPC-Mahajan	8
5	Types of production	PPC-Mahajan	4
6	Organization of production planning and control department	PPC-Mahajan	12
7	Internal organization of department	PPC-Mahajan	13

ASSIGNMENT QUESTIONS:

- Various types of production and description in Production Planning and control
- Different functions of production Planning and Production Control
- Objectives of Production Planning and Control and brief description.

ADDITIONAL RESOURSES:

- NPTL VIDEO LINKS: https://www.youtube.com/watch?v=FCE4TdFP69c
- STUDY MATERIAL: Digital Notes available at mrcet.ac.in website
- PPTs: PPTs available at mrcet.ac.in website

UNIT-2

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Importance of forecasting	PPC-Mahajan	17
2	Types of forecasting their uses	PPC-Mahajan	18
3	General principles of forecasting	PPC-Mahajan	22
4	Forecasting techniques	PPC-Mahajan	23
5	Qualitative method	PPC-Mahajan	24-26
6	Quantitive methods	PPC-Mahajan	27-30

ASSIGNMENT QUESTIONS:

- Importance of Sales Forecasting
- Problems on Moving Average Method and Exponential soothing method
- Problems on Least Square Method

- Describe the following sales forecast methods

1. Jury operation method
2. Sales force composite method.

ADDITIONAL RESOURSES:

- NPTL VIDEO LINKS: https://www.youtube.com/watch?v=UHrJI1ul1G0 https://www.youtube.com/watch?v=G34eJL5XYuE

- STUDY MATERIAL: Digital Notes available at mrcet.ac.in website

- PPTs: PPTs available at mrcet.ac.in website

UNIT-3

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Functions of inventories	PPC-Mahajan	79
2	Relevant inventory costs	PPC-Mahajan	82
3	ABC analysis	PPC-Mahajan	88
4	VED analysis	PPC-Mahajan	87
5	EOQ model	PPC-Mahajan	81
6	Inventory control systems	PPC-Mahajan	89
7	p-systems and Q- systems	PPC-Mahajan	90
8	Introduction to MRP ,ERP,LOB	PPC-Mahajan	91
9	JIT inventory and Japanese concepts	PPC-Mahajan	96

ASSIGNMENT QUESTIONS:

1. Define inventory? Describe the cost associated with inventories?
2. a)Explain about classification of inventories?

   b)Explain the functions of Inventories?
3. Explain the procedure involved in carrying ABC analysis .
4. ABC manufacturing company needs ball bearings of worth Rs. 28,800 per year. The cost of placing an order is Rs. 48 and inventory carrying cost as a percentage of average inventory investment is 12%. Determine : (i) Value of each assignment (ii) Number of orders per year.
5. A manufacturing concern requires 2000 units of a material per year. The ordering costs are Rs.10 per order, while carrying costs are Rs.0.16 per year per unit of average inventory. The purchase price is Rs. 1 per unit. Find the Economic order quantity ,and the total inventory costs. If a discount of Rs. 5 percent is available for orders of 1,000 units. Also , If he purchases a single lot of 2,000 units, he has to pay Rs. 0.93 per unit. What purchase quantity would you recommend ?
6. An assembly line consists of work elements whose elements times are as follows:

Work element	Element time(sec)	Work element	Element time (sec)
A	30	F	40
B	20	G	30
C	25	H	25
D	15	I	50
E	30	J	40

The desired output capacity is 600 numbers per shift. Calculate the following:

i) Maximum allowable cycle time to meet the desired capacity.

ii) Theoretical (minimum) number of workstations.

iii) Line efficiency, balance delay.

ADDITIONAL RESOURSES:

- NPTL VIDEO LINKS: https://www.youtube.com/watch?v=2n9NLZTIlz8
- STUDY MATERIAL: Digital Notes available at mrcet.ac.in website
- PPTs: PPTs available at mrcet.ac.in website

UNIT-4

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Routing procedure	PPC-Mahajan	143
2	Route sheets	PPC-Mahajan	146
3	Bill of materials	PPC-Mahajan	148
4	Factors affecting routing procedure	PPC-Mahajan	144
5	Difference between loading, scheduling policies	PPC-Mahajan	151
6	Techniques ,standard scheduling methods	PPC-Mahajan	155

ASSIGNMENT QUESTIONS:

1. (a)Define Routing & explain the factors affecting routing procedure.

   (b)Explain Routing procedure?

2. Explain the Route sheet with neat drawing and explain with an example?

3. (a)What is the information required on the Bill of material form?

   (b)Explain expediting and follow up?

4. (a)Name types of scheduling? Explain?

   (b)Distinguish between loading and scheduling

5. a. Write short notes on Job shop.

   b. Write short notes on Flow shop

ADDITIONAL RESOURSES:

- NPTL VIDEO LINKS: https://www.youtube.com/watch?v=4FdEz5aqwII

- STUDY MATERIAL: Digital Notes available at mrcet.ac.in website
- PPTs: PPTs available at mrcet.ac.in website

UNIT-5

S.N.	Topic as per the syllabus	Textbook & Author	Pages
1	Aggregate planning	PPC-Mahajan	179
2	Chase planning	PPC-Mahajan	180
3	Expediting ,control aspects	PPC-Mahajan	185
4	Dispatching	PPC-Mahajan	186
5	Applications of computer in ppc	PPC-Mahajan	189

ASSIGNMENT QUESTIONS:

1.Explain the dispatching procedure?

2.Write the short notes on expiditing ,control phase?

3.write the applications of PPC in computer?

ADDITIONAL RESOURSES:

- NPTL VIDEO LINKS: https://www.youtube.com/watch?v=LCDn5rL8LFM

- STUDY MATERIAL: Digital Notes available at mrcet.ac.in website

- PPTs: PPTs available at mrcet.ac.in website

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COURSE COVERAGE SUMMARY A.Y:2019-20

IV YEAR B. TECH II SEMESTER (B-SECTION)	AUTOMATION IN MANUFACTURING(R15A0344)

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 FLOW LINE
- 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