# NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

| COURSE OUTLINE | | | |
|---|---|---|---|
| **Course Title** | **Analysis and Control of Manufacturing Systems** | | |
| **Course Code** | PR655 | **No. of Credits** | 3 |
| **Department** | Production Engineering | **Faculty** | Dr.P.Asokan |
| **Pre-requisites Course Code** | -- | | |
| **Course Coordinator(s)** | -- | | |
| **Course Tutor(s) E-mail** | asokan@nitt.edu | **Telephone No.** | 04312503506 |
| **Course Type** | [√] Core course | [ ] Elective course | |

## COURSE OVERVIEW

Analysis and control of manufacturing systems explains the vital function of the management in converting the raw materials into value added goods and services in a controlled manner as per the policies of the organization.

It describes the way to manage various subsystems of the organization, executives at different level of organization need to take several management decisions.

It deals with various production control activities such as aggregate production planning, MPS, MRP, scheduling , line balancing, inventory control.

## COURSE OBJECTIVES

- To enable the students to understand the production and operations function and its subsystem.
- To study the manufacturing planning and control activities in the organization.
- To study the production control concepts, strategies, policies in organization.

## COURSE OUTCOMES (CO)

| Course Outcomes | Aligned Programme Outcomes (PO) |
|---|---|
| After undergoing the course,<br>1. The students will be able to understand importance of production management and its concepts<br>2. The various models of sub systems will be known to them.<br>3. Will be able to solve industrial problems involved in inventory, MRP and scheduling | PO1, PO2, PO3, PO5 & PO7 |

| COURSE TEACHING AND LEARNING ACTIVITIES | | | |
|---|---|---|---|
| **S. No.** | **Week** | **Topic** | **Mode of Delivery** |
| **1** | **1** | Basics of product management & Forecast models | **PPT** |
| **2** | **2** | Forecast errors and tracking signals | **PPT** |
| **3** | **3** | Inventory costs | **PPT** |
| **4** | **4** | Inventory- types of systems and policies | **PPT** |
| **5** | **5** | Analysis and static models in inventory | **PPT** |
| **6** | **6** | Aggregate production planning concepts | **PPT** |
| **7** | **Assessment - I** | | |
| **8** | **8** | Strategies and charting techniques in APP | **PPT** |
| **9** | **8** | **Assignment** | -- |
| **10** | **9** | Problems in value stream management | **PPT** |
| **11** | **10** | MRP concepts and problems | **PPT** |
| **12** | **11** | Lot sizing & techniques in MRP | **PPT** |
| **13** | **Assessment - II** | | |
| **14** | **13** | Scheduling concepts and types of scheduling | **PPT** |
| **15** | **14** | Methods and tools to solve scheduling problems | **PPT** |
| **16** | **Compensatory assessment** | | |
| **17** | **15** | Assembly line balancing problems | **PPT** |
| **18** | **16** | **Seminar Presentation** | **PPT** |
| **19** | **End Semester Exam** | | |

| COURSE ASSESSMENT METHODS | | | | |
|---|---|---|---|---|
| **S.No.** | **Mode of Assessment** | **Week/Date** | **Duration** | **% Weightage** |
| 1 | Assessment I | End of week 6 | 1 Hour | 20 |
| 2 | Assignment | End of week 8 | -- | 10 |
| 3 | Assessment II | End of week 11 | 1 Hour | 20 |
| 4 | Seminar | End of week 15 | 10 min. each | 10 |
| 5 | Compensatory assessment | End of week 14 | 1 Hour | 20 |
| 6 | End semester Exam | End of week 16 | 3 Hours | 40 |

**ESSENTIAL READINGS :**

1. Elsayed A. Elsayed and Thomas O. Boucher, "Analysis and Control of Production Systems",Prentice Hall, 1994.
2. Monks J.G., "Operations Management, John Wiley, 1992.
3. Buffa.E.S. and Sarin, R.K. ,"Modern production /Operations Management", John Wiley & Sons, 1994.
4. Panneerselvam.R. Production and Operations Management, PHI, 2005.

**COURSE EXIT SURVEY** (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

Course exit survey will be collected at the end of the semester to improve the teaching-learning process. Students can log in their MIS account to give the feedback. Students can also share feedback during class committee meetings.

**COURSE POLICY** (including plagiarism, academic honesty, attendance etc.)

- Students should attend the classes regularly. However , they should have minimum of 65 % attendance at the end of the semester.
- Students should refer subject related journal papers for in-depth knowledge about the subject.
- If any of the students is absent for continuous assessment due to genuine reason, those absentees are allowed to attend the Compensatory assessment.

**ADDITIONAL COURSE INFORMATION**

Queries may be emailed to the course coordinator directly at asokan@nitt.edu, and discussion outside the classroom is very much welcome and appreciated.

**FOR SENATE'S CONSIDERATION**

22/8/17

**Course Faculty** **CC-Chairperson** **HOD**