# GUJARAT TECHNOLOGICAL UNIVERSITY

## B. E. SEMESTER: VII

## PRODUCTION ENGINEERING

Subject Name: **Productivity Improvement Methods**
Subject Code: **172502**

| Teaching Scheme | | | | Evaluation Scheme | | | |
|---|---|---|---|---|---|---|---|
| Theory | Tutorial | Practical | Total | University Exam (E) | | Mid Sem Exam (Theory) (M) | Practical (Internal) |
| | | | | Theory | Practical | | |
| 3 | 0 | 2 | 5 | 70 | 30 | 30 | 20 |

| Sr. No | Course Content | Total Hrs. |
|---|---|---|
| 1. | **Productivity Management**<br><br>Definition, Concept and Importance of productivity, Difference between Production and Productivity, Tools of productivity, Reasons for low productivity, Factors that help increasing productivity, Productivity index, Kinds of productivity measurement, Causes of low productivity and techniques of their elimination, Factors affecting productivity, Technical methods to improve productivity, Main contributors to productivity improvement, Advantages from increased productivity. | 08 |
| 2. | **Method Study**<br><br>Definition, Concept , Objectives and Procedure of method study, Process chart symbols, recording techniques like Flow process charts, Operation, Flow and Two handed Process charts, Flow diagram, String diagram, Multiple Activity chart, Operation Analysis, Analysis of motion, Motion economy, Design of work place layout, Therbligs, SIMO chart. | 08 |
| 3. | **Work Measurement**<br><br>Definition, Concept and Objectives of work measurement, Stop watch procedure for collecting time study data, Time estimating techniques like analytical estimating, Predetermine Motion Time System-PMTS, Elemental Motion Time System, Basic Motion Time System, Method Time Measurement, Work factor. | 08 |
| 4. | **Ergonomics**<br><br>Introduction, Principles, Work system design, Man-machine system, Human behavior and equipment design, Tools, Techniques and applications, Effect of environment on performance of worker | 04 |

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| 5. | **Performance Rating, Wage Payment & Incentive Plans**<br>Introduction, Various incentive schemes, Performance Rating | 04 |
| 6. | **Business Process Re-engineering (BPR)**<br>Introduction, Development of Business Process Re-engine, BPR is not for everyone, Advantages of BPR, Steps involved in BPR, Application of BPR, Training for BPR, BPR & Total Quality Management (TQM), When to re-engineer, Ways to fail at BPR, Requirements of BPR, Human Resource Engineering, Fundamentals of BPR, Implementation methodology of BPR, Organizational re-engineering, Organizational re-engineering process, Re-engineering values, Approach to re-engineering, Re-engineering tools, What re-engineering is not, Kinds of changes that occurs in re-engineering, succeeding | 10 |
| 7. | **Plant Maintenance**<br>Definition and concept, Objectives and importance, Duties, Functions and Responsibilities of plant maintenance engineering department, Types of maintenance, Plant maintenance schedule, Standards for maintenance, Recent development in plant maintenance | 06 |

## Text Books:


1. Introduction to Work study, ILO, Oxford
2. Work Study, Khanna , Dhanpat Rai Publications
3. Total Quality Management , K.C.Arora, Katsons


## Reference Books:


1. Industrial Engineering and Management, Khana, Dhanpat Rai
2. Industrial Engineering and Management, Reddy, New Age
3. Industrial Engineering and Management , Verma, kataria