# INDIAN INSTITUTE OF INFORMATION TECHNOLOGY
## DESIGN AND MANUFACTURING (IIITDM) KANCHEEPURAM

## INTRODUCTION OF NEW COURSE

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|---|---|---|---|---|---|---|---|
| Course Title | SIX SIGMA | Course No | MAN505 | | | | |
| Specialization | ALL | Structure (LTPC) | 3 | 0 | 0 | 3 | |
| To be offered for | UG / PG | Status | Core ☐ | | Elective ▬ | | |
| Faculty Proposing the course | N.A. | Type | New ▬ | | Modification ☐ | | |
| Date of DAC | N.A. | Members Present in DAC | | | | | |
| Pre-requisite | None | Submitted for approval | 40th Senate | | | | |
| Learning Objectives | • The course on Six Sigma will focus on detailed strategic and operational issues of process improvement and variation reduction called Six Sigma, a measure of quality that strives for near perfection. | | | | | | |
| Learning Outcomes | • The main emphasis of the course is on disciplined, data-driven approach for eliminating defects (driving towards six standard deviations between the mean and the nearest speci-cation limit) in any process-from manufacturing to transactional and from product to service. A Six Sigma defect is anything outside of customer specifications. To be tagged Six Sigma, a process must not produce more than 3.4 defects per million opportunities. | | | | | | |
| Contents of the course *(With approximate break-up of hours)* | Brief overview of the course, Quality concepts and definition, Six Sigma overview, history, principles and focus areas, Applications (4)<br>Quality management: Fundamentals of Total Quality Management (TQM), Cost of quality and Six Sigma, Voice of customer, Quality Function Deployment (QFD) (4)<br>Project identification, selection and definition, Project Charter and Monitoring, Process characteristics and analysis, Process Mapping, Data collection (5)<br>Measurement system analysis : Seven QC Tools, Basic statistics, Probability theory (4)<br>Hypothesis testing: Two population Test, Correlation and Regression analysis (3)<br>Statistical Process Control: Control Charts for variables, attributes, Implementation issues (4)<br>Process capability analysis: Measures and indices, Non-normal process capability analysis (3)<br>Failure Mode Effect Analysis (FMEA): Application, Multi-vari analysis (3)<br>ANOVA: Basics, Introduction to Design of Experiment, Replication, Repetition and Blocking (3)<br>Randomized block design: Basics, application, Factorial design (3)<br>Fractional factorial design: Illustrative example, Taguchi Method, Practical application (2)<br>Design for Six Sigma (DFSS): Key conceptsDFM, DFA, DMADOV, Team Management, Case study (4) | | | | | | |
| Reference | https://nptel.ac.in/noc/individual_course.php?id=noc19-mg17 | | | | | | |