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| **Module code** | | TM-4305 | | | |
| **Module Title** | | Industrial Quality Control | | | |
| **Degree/Diploma** | | Bachelor of Engineering (Manufacturing Systems) | | | |
| **Type of Module** | | Major Option | | | |
| **Modular Credits** | | 2 | | **Total student Workload** | 4 hours/week |
| **Contact hours** | 2 hours/week |
| **Prerequisite** | | None | | | |
| **Anti-requisite** | | None | | | |
| **Aims**  To foster students’ minds with the fundamentals of Quality and its assurance mechanisms at industrial levels by infusing them with the concepts of accuracy, conformance and improvement. Students will develop a profound understanding of quality modelling tools, control charts, and acceptance sampling that will enable them to quantify quality levels, model process/system capability indices, apply quality standards, suggest improvements and bring processes under statistical control. | | | | | |
| **Learning Outcomes**  *On successful completion of this module, a student will be expected to be able to*: | | | | | |
| Lower order: | 30% | * comprehend variation in process and understand its quantification along with interpretation of lot-by-lot sampling plans and process control charts * understand process and measurement system’s capability and application of Define, Measure, Analyse, Improve and Control (DMAIC) cycle for improvement of process quality | | | |
| Middle order: | 30% | * apply statistical tools for determining process capability and quantifying process/system quality level * develop process control charts using variables and attributes and implement lot-by-lot acceptance sampling plans * Illustrate the concept of total quality management principle and application areas at industrial levels | | | |
| Higher order: | 40% | * create comprehensive quality improvement plans at factory levels using statistical tools and DMAIC cycle * reorganize production processes by implementing improvements and controlling process attributes/variables * advise continuous improvement strategy at corporate level by implementing total quality management principles and integrating various production related activities | | | |
| **Module Contents**   * Review of Relevant Statistics Concepts * Process Quality Modeling and Inferences * Control Charts for Variables * Control Charts for Attributes * Process and Measurement System Capability Analysis * Lot-by-Lot Acceptance Sampling for Attributes * Other Sampling Plans (Variables, Chain, and Continuous) * DMAIC Process * Total Quality Management (TQM) Principles | | | | | |
| **Assessment** | Formative assessment | | Monthly online MCQ tests will be used to test and to give feedback for their learning | | |
| Summative assessment | | Examination: 40% | | |
| Coursework: 60%  - 2 individual written assignments (10% each)  - 2 class tests (20% each) | | |