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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
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| 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
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| 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
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| **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
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| **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) |