Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Technology and Science

Choice Based Credit System (CBCS) Scheme in light of NEP-2020

Generic Elective for UG

(2021 Batch)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
GUME203	GE	Quality Control	60	20	20	0	0	3	0	0	**3**

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

This course provides a fundamental understanding of (A) Quality Control and its concepts (B) Total Quality Management (C) Statistical Quality Control and acceptance sampling (D) Reliability, Availability and Maintainability.

Course Outcomes (COs):

After completion of this course the students will be able to describe the followings:

1. Students will be able to understand & describe quality and its basic concepts.
2. Students will be able to solve TQM, JIT 5S etc.
3. Students will be able to solve control charts problems.
4. Students will be able to understand the use of reliability analysis, FMECA etc.

Syllabus

Unit-I **(8 Hrs)**

Quality Concepts: Overview of quality, definition of quality, quality milestones – demings philosophy, Indian quality management, quality past and present, jurans tribology, cost of quality, value of quality.

Unit-II **(9 Hrs)**

Total Quality Management: Introduction to TQM, definitions of TQM, salient features of TQM, TQM awareness, education and training, Key elements of TQM, TQM tools, 5S, role of kaizen in TQM, poka yoke, quality circle, JIT philosophy, Kanban production control system, TPM, concurrent engineering, international organization for standardization.

Unit-III **(10 Hrs)**

Statistical Quality Control: Definition of quality control, quality control loop, quality control tools, statistics as a basis of quality control, variation as a basis for statistical quality control, statistical tools, Chebyshev's theorem, all quality control charts with applications, process capability.

Acceptance Sampling: applications, OC curve

Chairperson **Chairperson** **Controller of** **Joint Registrar**

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Unit-IV **(9 Hrs)**

Taguchi's Quality Engineering: Taguchi's definition of quality, steps in designing performance in product/process, noise factor: a cause of variation, classification parameters through signal – to – noise representation, orthogonal array.

Six Sigma: History of six sigma, definitions, theory of six sigma, technical aspects of six sigma, applications of six sigma, DEMAIC analysis, DMADV analysis, criticism of six sigma.

Unit-V **(9 Hrs)**

Reliability, Availability and Maintainability (RAM): Definitions of RAM, reliability – measures of failure, reliability program, fault tree analysis, failure criticality index, part and system reliability, FMECA analysis, availability, maintainability.

Quality Culture a Global Paradigm: Introduction, how to set quality culture.

Reference Books:

1. "Quality control" by VA Kulkarni and AK Bewoor, Wiley publication, 2016.
2. "Total Quality Management" by R. Kesavan, C. Elanchezhian and B.V. Ramnath, Wiley Publications, 2019.
3. "Statistical Quality Control" by M. Mahajan, 2003.
4. "Introduction to Statistical Quality Control" by Montegomery Douglas C., John Wiley publication, 1996.
5. "Quality Planning and Analysis" by Juran Joseph M and FM Gryma Jr., Tata McGraw Hill, 1980.
6. "Process Quality Control" by Ott ER, Tata McGraw Hill, 2003.