GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 4th Semester
Branch: Production Technology
Subject Name: Agile and Lean Manufacturing
Subject Code: 1140302

With effective from academic year 2018-19

Type of course: Engineering Science

Prerequisite: Zeal to learn the subject

Rationale: Knowledge regarding different manufacturing techniques used to produce variety of metal products used in automobile and other machines and equipment. It also develops understanding that can be used to suggest and manipulate vital process parameters related to different manufacturing processes so that the high quality component may be produced at low cost and in minimum time, this is important if we want to compete in today's global market.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	50	0	0	0	50

Sr. No.	Topic	No. of Hours
01	**Introduction-** Introduction to Just in time production, Toyota production system, Introduction to lean manufacturing (LM), history of LM, advantages of LM over mass production.	04
02	**Waste Identification-** Types of wastes, lean manufacturing principles; Value, value stream, flow, pull and perfection	06
03	**Value stream mapping-** Introduction to value stream mapping, types of value stream mapping, value added activities, necessary non value added activities, non-value added activities	06
04	**Lean manufacturing tools-** Introduction to 5S, Kanban, kaizen, work standardization, Statistical process control, automation and other lean tools	08
05	**Agile manufacturing-** Introduction to agile manufacturing, advantages of agile manufacturing, differences with lean manufacturing.	06

Distribution of marks weightage for cognitive level:

Distribution of %Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	**20**	**20**	**-**	**-**	**-**

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Lean and agile manufacturing by S. R. Devadasan
2. Lean and Agile Supply Chains by R.V. Ramakrishnan

Course Outcome:

Sr. No.	CO statement	Marks % weightage
CO 1	To learn basic concepts Agile and Lean Manufacturing	15
CO 2	To understand Waste Identification techniques	20
CO 3	To study various moulding processes.	20
CO 4	To study various Lean manufacturing tools	25
CO 5	To understand concept of agile manufacturing	20

List of Open Source Software/learning website:
https://nptel.ac.in,