13. Courses of Study and Scheme of Assessment
ME LEAN MANUFACTURING

(2015 REGULATIONS)
(Minimum No. of credits to be earned: 72*)

Course Code	Course Title	Hours/Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
I SEMESTER									
15ML01	Statistics, Quality Control and Reliability Engineering	2	2	-	3	50	50	100	FC
15ML02	Manufacturing Engineering and Industrial Management	3	-	-	3	50	50	100	FC
15ML03	Design of Lean Production System	3	-	-	3	50	50	100	PC
15ML04	Lean Tools and Management Systems	3	-	-	3	50	50	100	PC
15ML05	Information Technology in Manufacturing Applications	3	-	-	3	50	50	100	PC
15ML51	Lean Manufacturing Laboratory	-	-	4	2	100	-	100	PC
15ML61	Industry Visit & Technical Seminar	-	-	4	2	100	-	100	EEC
Total 24 Hrs		**14**	**2**	**8**	**19**	**450**	**250**	**700**	
II SEMESTER									
15ML06	Cost Management and Lean Accounting	3	-	-	3	50	50	100	PC
15ML07	Lean Supply Chain and Logistics Management	3	-	-	3	50	50	100	PC
15ML08	Lean Six Sigma in Manufacturing and Service	3	-	-	3	50	50	100	PC
15ML09	Enterprise Resource Planning	3	2	-	4	50	50	100	PC
15ML10	Global Integrated Manufacturing	3	-	-	3	50	50	100	PC
15ML_	Elective - 1	3	-	-	3	50	50	100	PE
15ML52	Manufacturing Simulation Laboratory	-	-	2	1	100	-	100	PC
Total 22 Hrs		**18**	**2**	**2**	**20**	**400**	**300**	**700**	
III SEMESTER									
15ML_	Elective - 2	3	-	-	3	50	50	100	PE
15ML_	Elective - 3	3	-	-	3	50	50	100	PE
15ML_	Elective - 4	3	-	-	3	50	50	100	PE
15ML_	Elective - 5	3	-	-	3	50	50	100	PE
15ML_	Elective - 6	3	-	-	3	50	50	100	PE
15ML53	Manufacturing Systems Design Laboratory	-	-	2	1	100	-	100	PC
15ML71	Project Work I	-	-	6	3	100	-	100	EEC
Total 23 Hrs		**15**	**-**	**8**	**19**	**450**	**250**	**700**	
IV SEMESTER									
15ML72	Project Work II	-	-	28	14	50	50	100	EEC
ELECTIVE THEORY COURSES(Six to be opted)									
15ML21	Quality Engineering and Ergonomics	3	-	-	3	50	50	100	PE
15ML22	Modeling and Analysis of Advanced Manufacturing Systems	3	-	-	3	50	50	100	PE
15ML23	Design for Manufacture and Assembly	3	-	2	4	50	50	100	PE
15ML24	Creativity and Innovation Management	3	-	-	3	50	50	100	PE
15ML25	Industrial Scheduling	3	-	-	3	50	50	100	PE
15ML26	Project Management	3	-	-	3	50	50	100	PE
15ML27	Optimization Techniques	3	-	-	3	50	50	100	PE
15ML28	Human Resource Management	3	-	-	3	50	50	100	PE
15ML29	Leadership and Personality Development	3	-	-	3	50	50	100	PE
15ML30	Flexible Manufacturing Systems	3	-	-	3	50	50	100	PE
15ML31	Job and Workplace Design	3	-	-	3	50	50	100	PE
15ML32	Inventory and Warehouse Management	3	-	-	3	50	50	100	PE

***** Indicated is the minimum number of credits to be earned by a student.

CAT – Category; FC – Foundation Course; PC – Professional Core; PE – Professional Elective

EEC – Employability Enhancement Course

ONE CREDIT COURSES

15MK01	Process Engineering and Costing
15MK02	Strategic and Human Resources Management
15MK03	Measurement of Vibration and Sound
15MK04	Challenges in Implementing Lean Manufacturing
15MK05	Computational Fluid Flow and Heat Transfer Analysis of Mechanical Systems
15MK06	Thermal Analysis of Mechanical Systems using Finite Element Method
15MK07	Creative and Innovative Methods for Design and Development
15MK08	Concepts of Product Design
15MK09	Cooling of Electronic Equipment
15MK11	Characterization of Turbo Machinery Using CFD
15MK12	Characterization of Heat Exchangers Using CFD

SCIENCE ELECTIVES

15ID01	Micro Electro Mechanical Systems (MEMS)
15ID02	Sensors for Engineering Applications
15ID03	Laser Processing of Materials
15ID04	Plasma Technology
15ID05	Nanosensor and its Applications
15ID06	Nano Magnetism and Spintronics
15ID07	Corrosion Science and Engineering
15ID08	Instrumental Methods of Chemical Analysis
15ID09	Polymer Science and Technology
15ID10	Nanomaterials and Nanotechnology
15ID11	Thin Film Technology

HUMANITIES AND LANGUAGES ONE CREDIT COURSES

15OK01	Research Writing in Engineering Sciences
15OK02	Indian Ethos and Human Values
15OK03	Personality Development
15OK04	Financial Accounting and Cost Accounting