Course Number	Course Name	L-T-P-Credits	Year of Introduction
MP201	MACHINE TOOL TECHNOLOGY	4-0-0-4	2016

Prerequisite : Nil

Course Objective

To develop basic knowledge of working of different machine tools and the operations associated with them

Syllabus

Basic working principle, configuration, specification and classification of machine tools like lathe, shaping, planning and slotting machine, drilling machine, milling machine and broaching. Abrasive machining process, study of different types of work holding and tool holding devices. Estimation of machining time

Expected Outcome

At the end of the course, the student will be able to:

i. Select a machine tool for a process
ii. Select alternatives for machining
iii. Decide upon the cost and economics of machining

References

1. Hajra Choudhary,Elements of workshop technology, Vol. II, Media Promoters & Publications
2. Chapman Workshop technology, Vol. II, III, ELBS
3. P.N. Rao,Manufacturing Technology-Volume II,Tata McGraw Hill
4. Lindberg, Processes and materials for manufacture, Prentice Hall.
5. ASME Tool Engineering Handbook
6. H.M.T, Production Technology, Tata McGraw Hill

Course Plan

Module	Contents	Hours	Sem. exam marks
I	Lathe - Different classifications - constructional features - driving mechanisms - tool and work holding devices - operations - speed, feed, depth of cut and machining time calculations – specifications - Capstan, turret and automatic lathes - constructional features - tool layout - tool and work holding devices – operations	12	15%
II	.Milling, Drilling and boring machines - Classification - constructional features - driving mechanisms - tool and work holding devices - types of tools - operations – specifications	8	15%
	First Internal Exam		

III	Shaper, planer, slotter and broaching machines - Different types and their field of application - constructional features - driving mechanisms - tools used - tool and work holding devices - operations – specifications	8	15%
IV	Abrasives and abrasive tools - types of abrasives and their properties - manufacture of grinding wheels - types of bond, grit, grade, structure - nomenclature of a grinding wheel - selection of a grinding wheel, dressing truing and balancing of grinding wheels - Grinding machines - classification of grinding machines - constructional features - tool and work holding devices - operations - cylindrical, surface, centre-less, thread, form, tool and cutter grinding – specifications -	10	15%
Second Internal Exam			
V	Gear generation methods - Gear shaping, gear hobbing, gear shaving, gear grinding, gear lapping - bevel gear generators	10	20%
VI	Surface finishing lapping, honing, super finishing -equipments - tolerance and finish, buffing - applications	8	20%
End Semester Exam			

Question Paper Pattern

Total marks: 100, Time: 3 hours
The question paper shall consist of three parts

Part A

4 questions uniformly covering modules I and II. Each question carries 10 marks
Students will have to answer any three questions out of 4 (3X10 marks =30 marks)

Part B

4 questions uniformly covering modules III and IV. Each question carries 10 marks
Students will have to answer any three questions out of 4 (3X10 marks =30 marks)

Part C

6 questions uniformly covering modules V and VI. Each question carries 10 marks
Students will have to answer any four questions out of 6 (4X10 marks =40 marks)

Note: In all parts, each question can have a maximum of four sub questions, if needed.