



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc), 1st Semester
Branch: Production Technology
Subject Name: Machine Tool Technology
Subject Code: 1110301

**With effective
from academic
year 2018-19**

Teaching and Examination Scheme:

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

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Content:

Sr. No.	Topic	No. of Hours	% Weight age
01	CENTRE LATHE: Motions in machine tool. The centre lathe and its principle of working, Types of lathes, Lathe specification and size, Features of lathe bed, Head stock and tail stock, Feed mechanism and change-gears. Carriage, saddle, Cross slide, Compound rest, Tool post, Apron mechanism, Lathe accessories: Chucks, Face plate, Angle plate, Driving plate, Lathe doges, mandrels, Steady rest, Lathe attachments, Lathe operations: plane and step turning, Taper turning, Screw cutting, Drilling, Boring, reaming, Knurling, Parting off, Under cutting, Relieving, Types of lathe tools and their uses, Brief description of semi automatic lathes such as capstan and turret lathes, their advantages and disadvantages over centre lathe, types of job done on them. General and periodic maintenance of a centre lathe.	6	20
02	DRILLING & BORING MACHINES: Types of tools used in drilling and boring. Classification of drilling and boring machines, principle of working and constructional details of simple and radial drilling machine, General and periodic maintenance. Operations performed on drill and boaring machine.	6	20
03	MILLING MACHINES: Types of milling machines, constructional features of horizontal milling M/C. general maintenance of the machine, types of milling cutters, milling operations like plane milling, space milling, angular milling form milling, straddle milling, gang milling, Negative rake milling, cutting speed and speed for different tools in up and down milling. Simple, compound and differential indexing, milling of spur gears and racks.	6	20
04	BROACHING MACHINES: Types of work done on broaching machine. Simple types of broaches and their uses, Types of broaching machines. SHAPING, PLANING & SLOTTING MACHINES: Working principles of planer, shaper and Slotter, Differences and	6	20



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	similarities among them, quick return mechanism applied to the machines. types of work done on them, types of tools used, their geometry, General and periodic maintenance of a shaper.		
05	GRINDING MACHINES: Common abrasives, grinding wheel materials, Bonds, Grain and grit of abrasive, Grain structure and shapes of common wheels, various speeds and feeds, Use of coolants, Methods of grinding, Types of grinding machines, precision finishing operations like honing.	6	20

Reference Books

- Production Technology: Jain & Gupta
- Machine Tool Technology (Hindi): JK Kumar
- Workshop Technology Vol. II: Hazra & Choudhary