

**IK Gujral Punjab Technical University**  
**Bachelor of Technology (B. Tech. 1<sup>st</sup> Year)**

Course code	BTMP101-18				
Category	Engineering Science Courses				
Course title	Workshop/Manufacturing Practices (Theory & Lab.)				
Scheme and Credits	L	T	P	Credits	Semester-II
	1	0	4	3	
Pre-requisites (if any)	-				
	Common to all branches				

Workshop/Manufacturing Practices [ [L : 1; T:0; P : 0 (1 credit)]

Lectures & videos: (10 hours)

**Detailed contents**

1. Manufacturing Methods- casting, forming, machining, joining, advanced manufacturing methods (3 lectures)
2. CNC machining, Additive manufacturing (1 lecture)
3. Fitting operations & power tools (1 lecture)
4. Electrical & Electronics (1 lecture)
5. Carpentry (1 lecture)
6. Plastic moulding, glass cutting (1 lecture)
7. Metal casting (1 lecture)
8. Welding (arc welding & gas welding), brazing (1 lecture)

**Suggested Text/Reference Books:**

- (i) Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., “ Elements of Workshop Technology” , Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai.
- (ii) Kalpakjian S. And Steven S. Schmid, “ Manufacturing Engineering and Technology” , 4<sup>th</sup> edition, Pearson Education India Edition, 2002.
- (iii) Gowri P. Hariharan and A. Suresh Babu,” Manufacturing Technology – I” Pearson Education, 2008.
- (iv) Roy A. Lindberg, “ Processes and Materials of Manufacture”, 4<sup>th</sup> edition, Prentice Hall India, 1998.
- (v) Rao P.N., “ Manufacturing Technology” , Vol. I and Vol. II, Tata McGrawHill House, 2017.

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**Course Outcomes**

Upon completion of this course, the students will gain knowledge of the different manufacturing processes which are commonly employed in the industry, to fabricate components using different materials.

**(ii) Workshop Practice:(60 hours)[ L : 0; T:0 ; P : 4 (2 credits)]**

1. Machine shop (10 hours)
2. Fitting shop (8 hours)
3. Carpentry (6 hours)
4. Electrical & Electronics(8 hours)
5. Welding shop ( 8 hours (Arc welding 4 hrs + gas welding 4 hrs)
6. Casting (8 hours)
7. Smithy (6 hours)
8. Plastic moulding& Glass Cutting (6 hours)

Examinations could involve the actual fabrication of simple components, utilizing one or more of the techniques covered above.

**Laboratory Outcomes**

- Upon completion of this laboratory course, students will be able to fabricate components with their own hands.
- They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.
- By assembling different components, they will be able to produce small devices of their interest.