


**Government of Karnataka**  
**Department of Technical Education**  
**Board of Technical Examinations, Bangalore**

	<b>Course Title: BASIC WORK SHOP PRACTICE-II</b>		
	Scheme (L:T:P) : <b>0:2:4</b>	Total Contact Hours: <b>78</b>	Course Code: <b>15ME36P</b>
	Type of Course: <b>Tutorial and practice</b>	Credit : <b>03</b>	Core/ Elective: <b>Core(practice)</b>
CIE- 25 Marks		SEE- 50 Marks	

**Prerequisites:** Theoretical concepts Work shop technology

**Course Objectives:**

1. To understand basic Metal shaping processes
2. To understand various Metal shaping operations and Procedure protocols.

*On successful completion of the course, the students will be able to attain CO:*

Course Outcome		CL	Linked practices	Linked PO	Teaching Hrs
CO1	Acquire metal shaping process skill by Forging for a given job	U/A	ALL forging shop exercises	1,2,3,4,5,6 8,9,10	26
CO2	Prepare various sheet metals joint for required applications /Utility items	U/A	ALL sheet metal exercises	1,2,3,4,8,9, 10	26
CO3	Demonstrate and prepare various Foundry operations for required applications	U/A	ALL foundry exercises	1,2,3,4,5,6, 8,9,10	26
				<b>Total sessions</b>	<b>78</b>

**COURSE-PO ATTAINMENT MATRIX**

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
<b>BASIC WORK SHOP PRACTICE-II</b>	<b>03</b>	<b>03</b>	<b>03</b>	<b>03</b>	<b>02</b>	<b>02</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>03</b>
<p><i>Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.</i>  Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.  If <math>\geq 40\%</math> of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3  If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2  If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1  If <math>&lt; 5\%</math> of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.</p>										

## COURSE CONTENT

Unit No	Unit Name	Hour
1	FORGING PRACTICE	26
2	SHEET METAL PRACTICE	26
3	FOUNDRY SHOP	26
	Total	78

### UNITI: FORGING PRACTICE 26Hrs

Demonstration and detailed explanation of tools and equipment used-Description and specification of anvils, swage blocks, hammers, tongs, fullers, swages -Forging operations in smithy shop-Bending operation, upsetting operation,-Safety measures to be observed in the smithy shop

#### Hands on Experience

- Job 1. To forge from Round to Square
- Job 2. To forge from Round to Hexagon
- Job 3: To forge a L-hook or L-nail.
- Job 4: To prepare a job involving upsetting process
- Job 5: To forge a chisel

### UNITII: SHEET METAL PRACTICE 26Hrs

Introduction and demonstration of hand tools used in sheet metal shop.- different types of hammers, hard and soft mallet, sheet and wire gauge,- demonstration of various raw materials used in sheet metal shop e.g. M.S. sheet, galvanized-iron plain sheet, galvanized corrugated sheet, aluminum sheets etc.

#### Hands on Experience

- Job I: Practice on making single riveted lap joint/double riveted lap Joint.
- Job II: Practice on making single cover plate chain type, seam joint and Preparation of any one utility articles like Tray , Cylinder, container and Funnel.

### UNITIII: FOUNDRY SHOP 26Hrs

Study of Foundry Tools and Equipment-Sand Mixing, Study of cope and drag-Practice in a single box-Cutting Practice by double box

#### Hands on Experience

- Preparation of moulds-
- Job I:Hexagon, Square and Circular Mould
- Job II: Combination of Hexagon with Square or Circular Mould
- Job III: Flange coupling – Pulley/ Gear pulley by using patterns



### SUGGESTED LIST OF STUDENT ACTIVITIES

**Note: the following activities or similar activities for assessing CIE (IA) for 10 marks (Any one)**

1. Each student should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned Instructor and Foreman with an intimation to HOD
2. Each student should conduct different activity and no repetition should occur

1	Take the students for local body building works observe the sheet metal practices followed in body building works .Submit hand written report of 500 words
2	Ask the students to observe the forging operations carried out in local vicinity and submit hand written report of 500 words
3	Take the students for industrial visit for a nearby foundry; observe the safety practices followed and foundry operational activities. Submit and written report of 500 words

### Course Delivery:

The course will be delivered through Demonstration and Shop practices

### Course Assessment and Evaluation Scheme:

	What	To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes	
Direct Assessment meth	CIE	IA	Students	Activities	10	Report	1,2,3
				Record- Average marks of all graded exercises to be computed.	15	Graded exercises	1,2,3
	SEE	End Exam		End of the course	50	Answer scripts at BTE	1,2,3,
Indirect Assessment	Student Feedback on course	Students	Middle of the course		Feedback forms	1,2 Delivery of course	
	End of Course Survey		End of the course		Questionnaires	1,2,3, Effectiveness of Delivery of instructions & Assessment Methods	

Note: 1. The activity related exercises shall be evaluated as per the Rubrics developed by the concerned department related to the course.

2. The course related graded exercises to be evaluated as per performance mentioned in SEE scheme of evaluation.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	Bloom's Category	% Weightage
1	Understanding	40
2	Applying the knowledge acquired from	45
3	Analysis	10
4	Evaluation& Creating new knowledge	05

**Note to IA verifier: The following documents to be verified by CIE verifier at the end of semester**

1. Student suggested activities report for 10 marks
2. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

### Scheme of Valuation for End Examination

**Note: Any one model from forging or sheet metal or foundry**

Serial no	Description	Marks
1	Listing of tools & operations required for performing	05
2	Marking of job	05
3	Operation performed	10
4	Dimensional accuracy of job	10
5	Finishing of job	10
6	Viva	10
	TOTAL	50

### EQUIPMENT LIST:

#### FOR FORGING PRACTICE

SL.NO	NAME OF THE EQUIPMENT	NO. OF STUDENTS/BATCH	NO.OF EQUIPMENT REQUIRED
01	Open hearth furnace	20	04
02	Flat tongs	20	20
03	Round tongs	20	20
04	Anvil	20	05
05	Sledge hammer	20	20
06	Flatener	20	20
07	Swage block	20	05

#### FOR SHEET METAL PRACTICE

SL.NO	NAME OF THE EQUIPMENT	NO. OF STUDENTS/BATCH	NO.OF EQUIPMENT REQUIRED
01	Steel Rule	20	20
02	Try square	20	20

03	Scriber	20	20
04	Shearing machine	20	04
05	Snip	20	20
06	Mallet	20	20
07	Bench vice	20	10
08	Stacks	20	04

**FOR FOUNDRY PRACTICE**

SL.NO	NAME OF THE EQUIPMENT	NO. OF STUDENTS/BATCH	NO.OF EQUIPMENT REQUIRED
01	Moulding boxes	20	20
02	Rammer	20	20
03	Flateners	20	20
04	Steel rule	20	20
05	Try square	20	20
06	Trowel	20	20
07	Strike off bar	20	20
08	Showel	20	05

**MODEL QUESTIONS FOR FINAL EXAM**

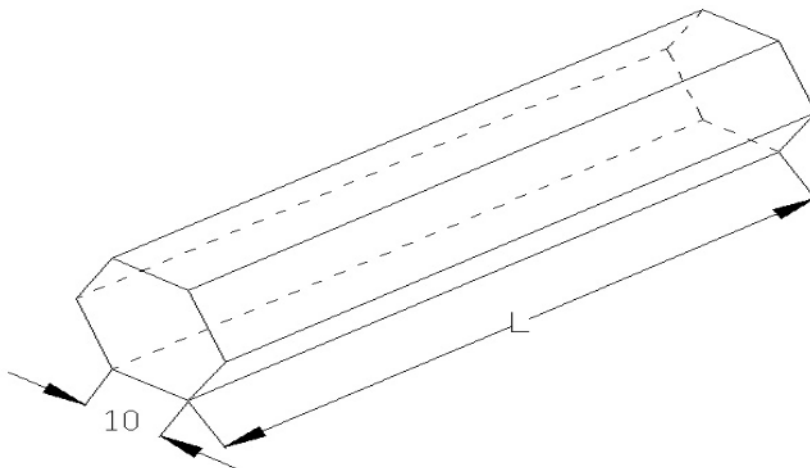
COURSE TITLE: **BASIC WORK SHOP PRACTICE-II**

TIME: 3 HOURS

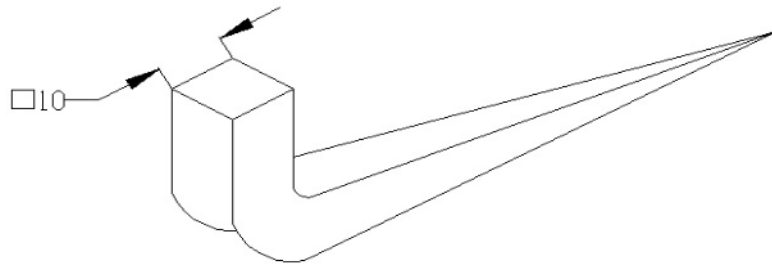
MARKS:50

**FOR FORGING PRACTICE**

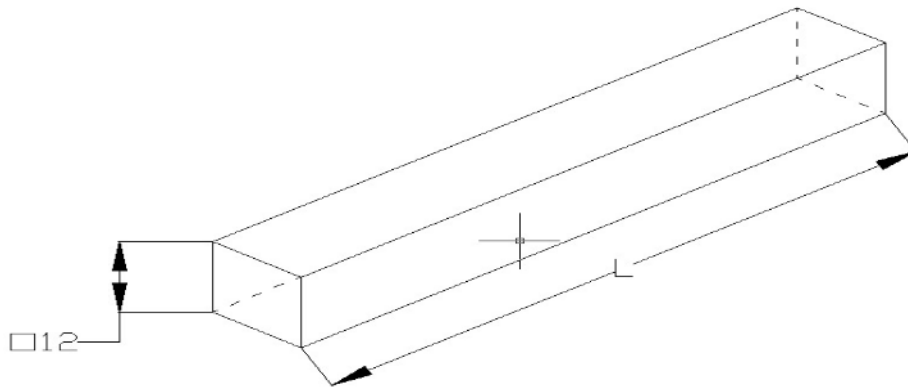
1.Prepare the model as per the given sketch



2.Prepare the model as per the given sketch

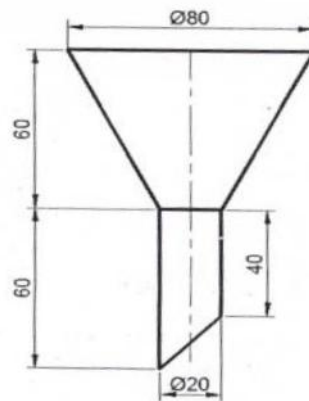


1. Prepare the model as per the given sketch

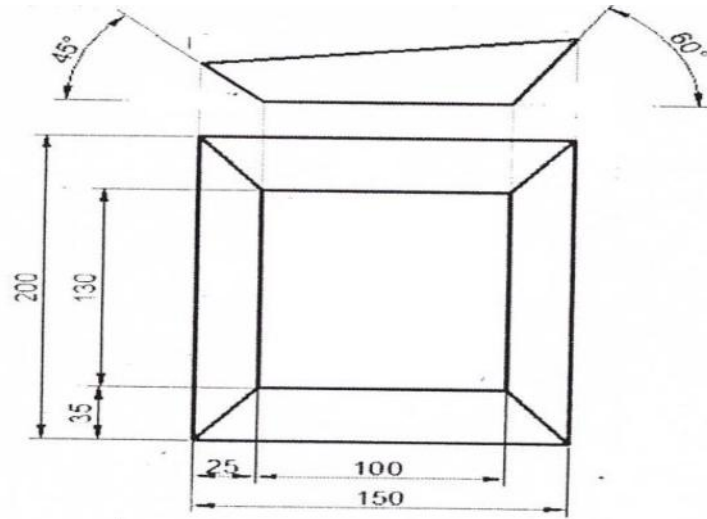


**FOR SHEET METAL PRACTICE**

1. Prepare the model as per the given sketch

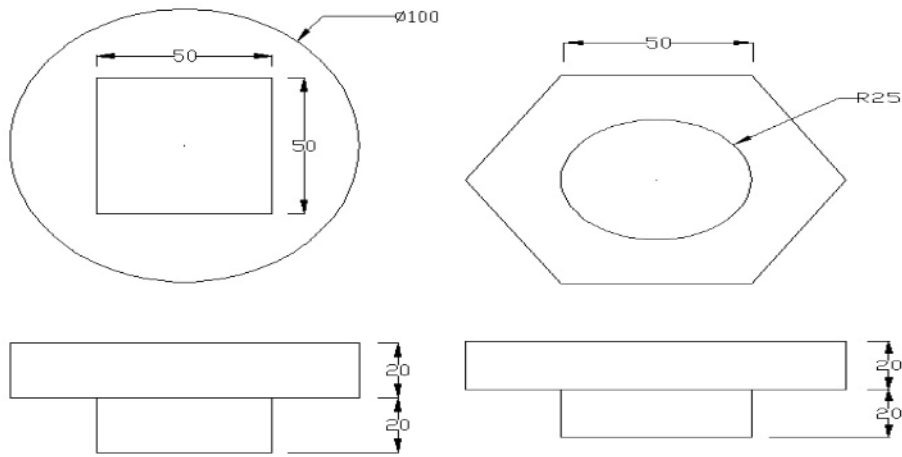


1. Prepare the model as per the given sketch



**FOR FOUNDRYPRACTICE**

1. Prepare the model as per the given sketch
2. Prepare the model as per the given sketch



3..Prepare the model as per the given sketch

