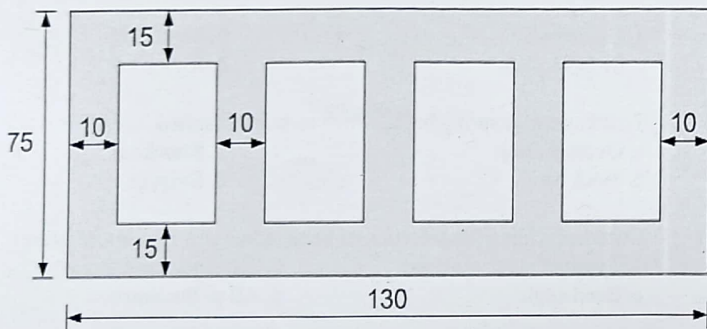


**BACHELOR OF VOCATION**  
**Production-Tool and Die Manufacturing**  
**Subject: Advanced Press tool and Dies**  
**Subject Code: ME-603**  
**Semester: Third**  
**December 2021**  
**Theory (External): 70 Marks**  
**Time: 03 Hours**

- 315
4. A circular blank of 40 mm diameter is to be cut from 3 mm thick 0.1% C steel sheet. Calculate the cutting force if the shear strength of the material is 320 MPa.
  5. Discuss the working of various common parts of blanking and piercing dies.
  6. What is strip layout? Calculate the material utilization factor and percentage utilization for the sheet given in below figure.



7. Discuss the design aspect of blanking and piercing dies.
8. What is bending stress and bend allowance curve? Discuss the spring back effect in bending.

==END OF PAPER==

**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number									

**SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
(10x2=20 Marks)

- A. In case of inverted dies, generally the punch is attached to
- Upper half of the press tool
  - Lower half of the press tool
  - Both half of the press tool
  - None of the above
- B. The compound dies can execute
- Only one operation and that too at one work station
  - Two or more operations at different stations in one stroke
  - Two or more operations at one station in one stroke
  - wo operations at two different work stations in the same stroke
- C. In case of the blanking operation
- Clearance is provided on die
  - Clearance can be to any part i.e. either punch or die
  - Half of the clearance is provided on punch and remaining half on the die
  - Clearance is provided on punch
- D. Calculate the clearance required to cut a blank of 40 mm diameter from a 2 mm thick sheet of steel. The clearance constant is 0.003 and the shear strength of the material is 300 MPa.
- 0.10
  - 4.15
  - 0.29
  - 1385
- E. Which of the following is/are the type(s) of the die set
- Center post
  - Back post
  - Diagonal post
  - All of the above

- F. Which of the following helps to release the stock from the punch during the return stroke 2
- Dowel pin
  - Pilot
  - Stripper
  - Punch plate
- G. Punch diameter in a blanking operation is (if  $D_b$  = blank diameter,  $D_h$  = hole diameter,  $c$  = clearance)
- $D_b - 2c$
  - $D_b + 2c$
  - $D_h + 2c$
  - $D_h - 2c$
- H. In blanking operation, the strip has to be advanced a correct distance, the part used is called
- Guide pillar
  - Stock Stop
  - Stripper plate
  - Knock out
- I. To compensate spring back, which technique is used
- Overbending
  - Knockout
  - Stock Stop
  - Stripper
- H. Criteria deciding the selection of bend radius and allowances is(are)
- Types of stock material
  - Thickness of material
  - Bend angle
  - All of the above

**SECTION –B (ESSAY TYPE QUESTIONS)**  
(5x10=50 Marks)

- Explain the mechanical, hydraulic and pneumatic presses in detail.
- Discuss the construction and working of inverted and compound dies.
- Explain the shearing theory with its stages in detail.