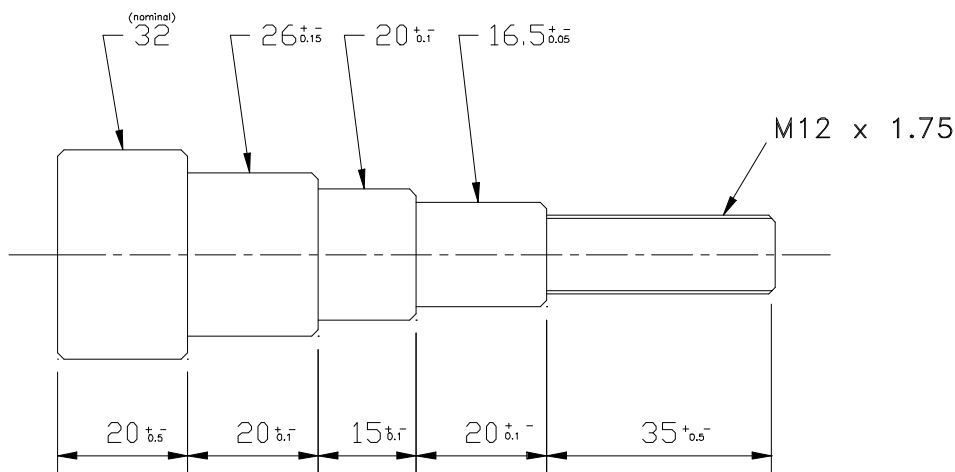


BEAUESERT STATE HIGH SCHOOL

ENGINEERING WORK BOOK

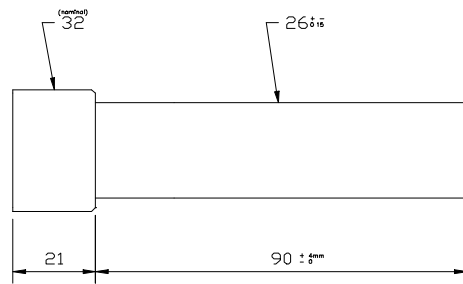
Turning Exercise 2

Time allowed – 2 weeks

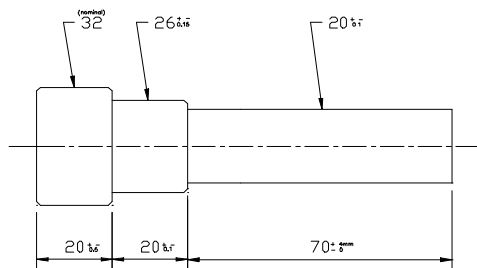


Procedure for making Turning Exercise 2

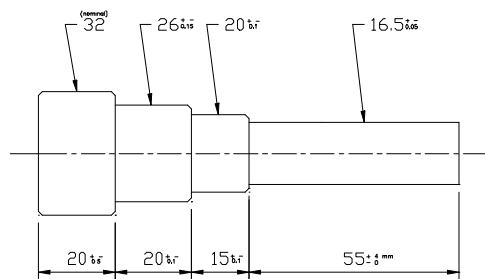
1. Cut material to length, with allowance for facing (115 approx.)
2. Face one end in the centre lathe.
3. Centre drill one end for the live centre.
4. Hold in the 3 jaw chuck by around 5-8 mm with the other end held by the live centre.
5. Turn the 26 mm diameter x 90 mm long (minimum length), leave at least 21 mm unturned of the starting diameter (approx 32 mm). Measure the outside diameter with the micrometer, size to finish at 26 mm + or - 0.15 (see diagram below)



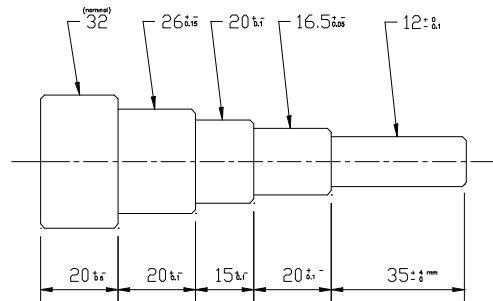
6. Turn the 20 mm diameter x at least 70 mm long - ensure that the diameter is left at 20 mm + or - 0.1 x 15 long. (see the diagram below).



7. Turn the 16.5 mm diameter x at least 55 mm long - ensure that the diameter is left at 16.5 mm + or - 0.05 x 20 mm long. (see the diagram below).



8. Turn the 12 mm diameter x at least 35 mm long - ensure that the diameter is left at $12 \text{ mm} + 0.0$ and $- 0.1 \times 35 \text{ mm}$ long. (see the diagram below).



9. Face off the remaining material, so that the 12 diameter is left at 35 long (+ or - 0.5 mm).
10. Use the lathe (hand turn) and stock and die to start the M12 x 1.75 thread square. Thread up the shoulder of the 16.5 mm diameter.

Competencies covered

Unit 1.1F.1 Undertake interactive workplace communication.

Element – 1.1F.1 Communicate information about tasks, processes, events, or skills.

Criteria		Met
1.1F 1.1	An appropriate choice of communication techniques are used.	
1.1F 1.2	Multiple operations involving several topics are communicated.	
1.1F 1.3	Listening is done without continuous interruptions of the speaker.	
1.1F 1.4	Questions are asked to gain extra information	
1.1F 1.5	Correct sources of information are identified	
1.1F 1.6	Information is selected and sequenced appropriately	
1.1F 1.7	Verbal reporting and written reporting done where required	
1.1F 1.8	Communication is demonstrated in unfamiliar situations	

Element - 1.1F.2 Take part in group discussion to achieve appropriate work outcomes.

1.1F 2.1	Responses sought and provided from others in the group	
1.1F 2.2	Constructive contributions are made towards the production processes involved.	
1.1F 2.3	Goals and aims are communicated.	

Element - 1.1F 3 Represent the views of the group to others.

1.1F	3.1	Views and opinions of others are understood and reflected accurately.	
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Unit 1.2F Apply principles of occupational health and safety (OH&S) in work.**Element – 1.2F.1 Follow safe work practices**

1.2F	1.1	Work is carried out safely to school standards and legislative requirements.	
1.2F	1.2	Housekeeping is undertaken to school standards.	
1.2F	1.3	Responsibilities and duties of students are understood and demonstrated.	
1.2F	1.4	Personal protective equipment is worn and stored to school standards.	
1.2F	1.5	All equipment and safety devices are used to legislative requirements and school standards.	
1.2F	1.6	Safety signs are identified and followed as per instruction.	
1.2F	1.7	All manual handling is carried out to legal requirements and school standards.	
1.2F	1.8	Emergency equipment identified and used as appropriate.	

Element – 1.2F.2 Report workplace hazards

1.2F	2.1	Workplace hazards identified and reported to teacher.	
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Element – 1.2F.3 Follow emergency procedures

1.2F	3.1	Identifies the means of contacting appropriate personnel in the event of an accident	
1.2F	3.2	Emergency and evacuation procedure understood and carried out.	
1.2F	3.3	School evacuation procedures followed	

Unit 1.3F Apply quality procedures**Element - 1.3F.1 Take responsibility for own quality**

1.3F	1.1	Concept of supplying product or service to meet customer needs or requirements understood and applied.	
1.3F	1.2	Accepts the “right first time” concept as a personal responsibility	

Element – 1.3F.2 Apply standard procedures of workplace quality to own job

1.3F	2.1	Quality system procedures followed.	
1.3F	2.2	Conformance to specifications ensured.	

Unit 1.4F Plan to undertake a routine task

Element – 1.4F.1 Identify task requirements

1.4F	1.1	Instructions for procedures are obtained, understood and if necessary, clarified.	
1.4F	1.2	Relevant specifications for task outcomes are obtained, understood, and if necessary, clarified.	
1.4F	1.3	Task outcomes are identified	
1.4F	1.4	Task requirements, such as completion time and quality measures are identified.	

Element – 1.4F.2 Plan steps required to complete task

1.4F	2.1	Based on specifications and instructions provided, the individual steps or activities required to undertake the task are understood, and if necessary, clarified.	
1.4F	2.2	Sequence of activities required to be completed are identified in plan.	
1.4F	2.3	Planned steps and outcome are checked to ensure conformity with instructions and relevant specifications.	

Element – 1.4F.3 Review plan

1.4F	3.1	Outcomes are identified and compared with (planned) objectives, task instructions, specifications, and task requirements.	
1.4F	3.2	If necessary, plan is revised, to better meet objectives and task requirements.	

Unit 2.5C11 Measure with graduated devices**Element – 2.5C11.1 Use graduated devices to check dimensions or variables**

2.5C11	1.1	Selects appropriate device or equipment to achieve required outcome.	
2.5C11	1.2	The correct and appropriate measurement technique used.	
2.5C11	1.3	Measures accurately to the finest graduation of the instrument.	

Element – 2.5C11.2 Maintain graduated devices

2.5C11	2.1	Routine care and storage of devices undertaken to manufacturers specification or standard operating procedure.	
2.5C11	2.2	Checks and maintains routine adjustments to devices e.g. zeroing.	

Unit 7.32A Use workshop machines for basic operations**Element – 7.32A.1 Determine job requirements**

7.32A	1.1	Job requirements interpreted.	
7.32A	1.2	Appropriate machine selected to meet requirements.	

Element – 7.32A.2 Set up machine

7.32A	2.1	Tools are selected where appropriate.	
7.32A	2.2	Cutting tools are sharpened as required.	
7.32A	2.3	Tools are correctly installed using standard operating procedures.	
7.32A	2.4	Appropriate guards are set and adjusted as required.	

Element – 7.32A.3 Operate machine

7.32A	3.1	Material to be machined is positioned and secured.	
7.32A	3.2	Machine is operated appropriately to suit job and material requirements.	

Element – 7.32A.4 Check finished component

7.32A	4.1	Machined component checked against requirements and predetermined finish.	
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Machinery and equipment used

Cold cutting saw, centre lathe, pedestal grinder, HSS tool bit and straight or right hand tool holder, centre drill, live centre, stock and die.

Record keeping

All criteria which have been successfully met by each student, must be recorded on the students **Engineering Competencies Student Booklet** as soon as possible, but no less often than at the end of each semester.