Individual Assignment Cover Sheet

Never Stand Still | Faculty of Engineering | School of Mechanical and Manufacturing Engineering

Please read the following instructions:

- Please print clearly and complete all sections.
- Before submitting this assignment, students are strongly recommended to review the course outline, assessment requirements, UNSW's Plagarism and Academic Integrity website and Administrative Matters on the School's website.
- Please retain a copy of this assignment for your records.

Course code: MMAN2130 **Course name:** Design & MFG

Family name: Nguyen **Given name(s):** Dan Huy

Student number: z5206032 **Course Convenor name:** David Lyons

Assignment: Week 6 - Individual

Assignment due date: 22/10/19 **Date submitted:** 22/10/19

Student Declaration

In preparing this assessment task I have followed the Student Code Policy. I certify that I have read and understand the University requirements in respect of student academic misconduct outlined in the Student Code Policy and the Student Misconduct Procedure. I declare that this assessment item is my own work, except where acknowledged, and has not been submitted for academic credit previously in whole or in part.

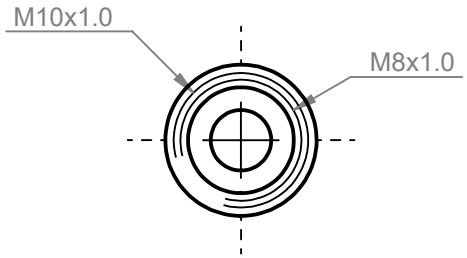
I acknowledge that the assessor of this item may, for assessment purposes:

- Provide a copy to another staff member of the University
- Communicate a copy of this assessment item to a plagiarism checking service (such as Turnitin) which may then retain a copy of the assessment item on its database for the purpose of future plagiarism checking.

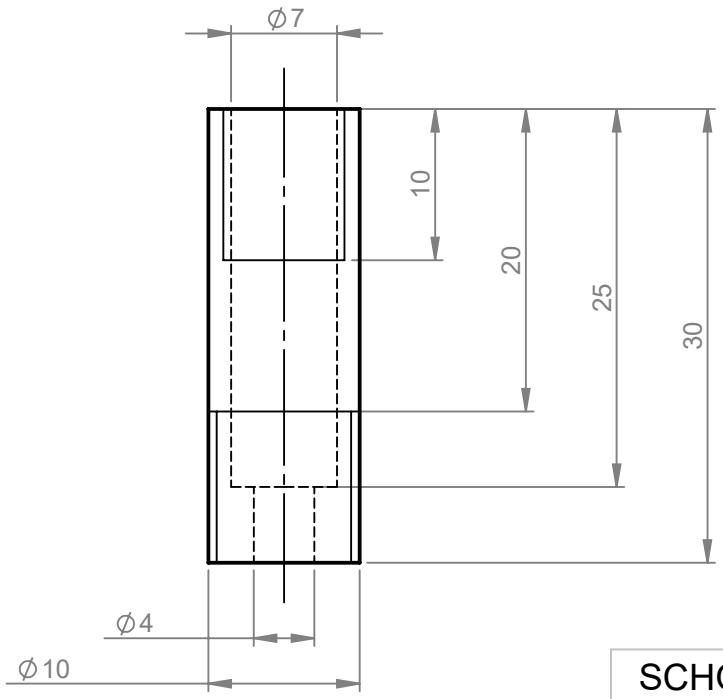
I have retained a copy of this, my assignment, which I can provide if necessary. By signing this declaration I am agreeing to the statements and conditions above.

Student signature: _____ **Date:** 22/10/19

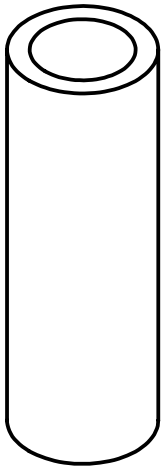
For school use only	***MARK:***	***RECEIVED ON:***
MARKER:		



TOP VIEW



FRONT VIEW



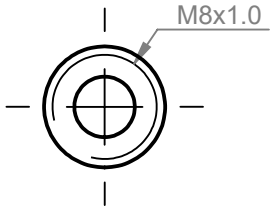
ISOMETRIC VIEW

AS1100

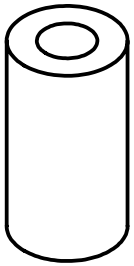
SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING - UNSW

DIMENSION IN MILLIMETRES	SURFACE FINISH UNLESS NOTED OTHERWISE 1.6	DRAWN BY DAN (Z5206032)	TITLE VALVE BTM
DO NOT SCALE		CHECKED BY ALEXANDER (Z5204704)	DRAWING NUMBER 5
	TOLERANCE UNLESS NOTED OTHERWISE ±0.1	APPROVED BY JOEL (Z5215383)	FIRST RELEASE DATE 15/10/2019

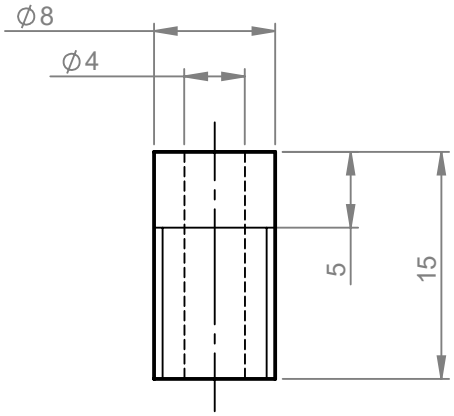
QTY	MATL	SCALE	REV	DATE	
2	ALUMINIUM	2:1	1	15/10/2019	A4



TOP VIEW



ISOMETRIC VIEW



FRONT VIEW

AS1100

SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING - UNSW								
DIMENSION IN MILLIMETRES	SURFACE FINISH UNLESS NOTED OTHERWISE 1.6	DRAWN BY DAN (Z5206032)			TITLE VALVE TOP			
DO NOT SCALE		CHECKED BY ALEXANDER (Z5204704)			DRAWING NUMBER 6			
		APPROVED BY JOEL (Z5215383)			FIRST RELEASE DATE 15/10/2019			
	TOLERANCE UNLESS NOTED OTHERWISE ±0.1	QTY 2	MATL ALUMINIUM	SCALE 2:1	REV 1	DATE 15/10/19		A4

PART NAME: VALVE BTM			**PART NO:** 05			**DRAWING NO:** 05	
REVISION NO: 1			**DATE:** 19/10/2019			**PLANNER:** DAN NGUYEN (Z5206032)	
MATL: ALUMINIUM			**STOCK SIZE:** 10x50MM ROD			**QTY:** 2	
Op #	**Process Description**	**Machine**	**Tooling**	**Speed (rpm)**	**Feed (mm/rev)**	**Time (min)**	**Risk Assessment**
501	INSPECT the part	Vernier Calliper 150mm Metal Rule	-	-	-	1	
502	FACE top surface for SURFACE FINISH of 1.6	Centre Lathe	High Speed Steel Single Point Right Hand Cutting Tool [3]	4500 – 9000 [1]	-	5	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
503	INSPECT surface dimensions	Vernier Calliper 150mm Metal Rule	-	-	-	1	
504	CENTREDRILL centre of top surface	Centre Lathe	Centre Drill	9000 [1]	-	5	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
505	DRILL 4mm through hole in centre of top surface	Centre Lathe	4mm Drill	9000 [1]	0.1	10	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin.

							Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
506	INSPECT hole position and depth	Vernier Calliper 150mm Metal Rule	-	-	-	1	
507	BORE 7mm hole with 25mm depth in centre of top surface	Centre Lathe	High Speed Steel Single Point Right Hand Cutting Tool [3]	6000 [1]	0.1	20	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
508	INSPECT hole position and depth	Vernier Calliper 150mm Metal Rule	-	-	-	1	
509	SAW rod at 31mm from top surface	Hacksaw	-	-	-	5	Hacksaw is sharp and may cause cut injuries. Hacksaw and workpiece may get hot and cause burn injuries. Wear safety glasses and steel capped boots. Do not wear loose clothing.
510	FACE bottom surface to 30mm from top surface for SURFACE FINISH of 1.6	Centre Lathe	High Speed Steel Single Point Right Hand Cutting Tool [3]	4500 – 9000 [1]	0.1	10	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
511	INSPECT surface dimensions	Vernier Calliper 150mm Metal Rule	-	-	-	1	

512	THREAD M10x1.0 on external surface for depth of 10mm from bottom surface	Die Holder	M10 x 1.0 Die [2]	-	-	10	Die and die holder may pinch skin.
513	THREAD M8x1.0 in 7mm hole from top surface for depth of 10mm	Tap Handle	M8 x 1.0 Tap [2]	-	-	10	Tap and tap handle may pinch skin.
514	DEBURR edges	Files	-	-	-	5	Burr may have sharp edges and cause splinters.
515	INSPECT the part	Vernier Calliper 150mm Metal Rule	-	-	-	1	
					Total	86	

PART NAME: VALVE TOP			**PART NO:** 06			**DRAWING NO:** 06	
REVISION NO: 1			**DATE:** 19/10/2019			**PLANNER:** DAN NGUYEN (Z5206032)	
MATL: ALUMINIUM			**STOCK SIZE:** 10x25MM ROD			**QTY:** 2	
Op #	**Process Description**	**Machine**	**Tooling**	**Speed (rpm)**	**Feed (mm/rev)**	**Time (min)**	**Risk Assessment**
601	INSPECT the part	Vernier Calliper 150mm Metal Rule	-	-	-	1	
602	FACE top surface for SURFACE FINISH of 1.6	Centre Lathe	High Speed Steel Single Point Right Hand Cutting Tool [3]	4500 – 9000 [1]	-	5	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
603	TURN curved surface of rod for 8mm external diameter for depth of 15mm from top surface for SURFACE FINISH of 1.6	Centre Lathe	High Speed Steel Single Point Right Hand Cutting Tool [3]	4500 – 5625 [1]	0.1	20	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
604	INSPECT surface dimensions	Vernier Calliper 150mm Metal Rule	-	-	-	1	
605	CENTREDRILL centre of top surface	Centre Lathe	Centre Drill	9000 [1]	-	5	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin.

							Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
606	DRILL 4mm through hole in centre of top surface	Centre Lathe	4mm Drill	8000 [1]	0.1	10	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
607	INSPECT hole position and depth	Vernier Calliper 150mm Metal Rule	-	-	-	1	
608	SAW rod at 16mm from top surface	Hacksaw	-	-	-	5	Hacksaw is sharp and may cause cut injuries. Hacksaw and workpiece may get hot and cause burn injuries. Wear safety glasses and steel capped boots. Do not wear loose clothing.
609	FACE bottom surface to 15mm from top surface for SURFACE FINISH of 1.6	Centre Lathe	High Speed Steel Single Point Right Hand Cutting Tool [3]	5625 – 9000 [1]	0.1	10	Rotating chuck may cause lacerations and crush injuries. Cutting tool and workpiece may cause burn injuries. Swarf may be sharp and puncture skin. Keep clear of rotating chuck. Only inspect workpiece when chuck has completely stopped. Wear safety glasses and steel capped boots. Do not wear loose clothing. Use coolant on cutting tool and workpiece. Clean swarf using a brush.
610	INSPECT surface dimensions	Vernier Calliper 150mm Metal Rule	-	-	-	1	
611	THREAD M8x1.0 on external surface for	Die Holder	M8 x 1.0 Die [2]	-	-	10	Die and die holder may pinch skin.

	depth of 10mm from bottom surface						
612	DEBURR edges	File	-	-	-	5	Burr may have sharp edges and cause splinters.
613	INSPECT the part	Vernier Calliper 150mm Metal Rule	-	-	-	1	
					Total	75	

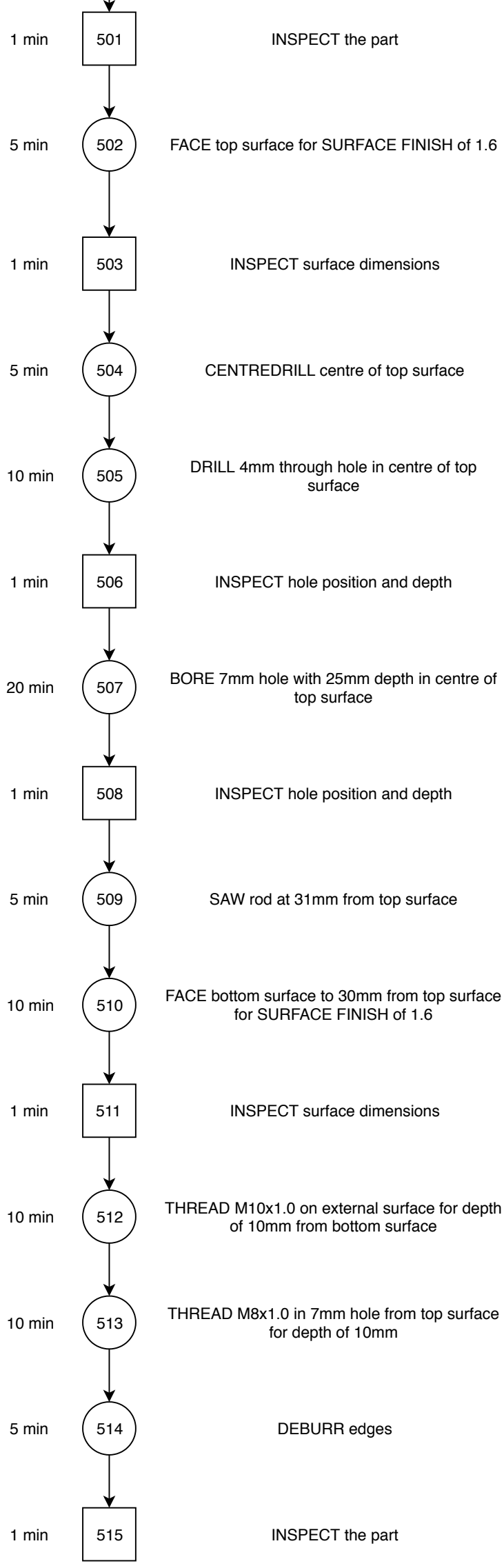
References:

[1] TAFE NSW Engineering Skills Centre. Student Background Notes for Basic Machining Operations. Available at: Ultimo TAFE NSW. [Accessed 19/10/2019]

[2] TAFE NSW Engineering Skills Centre (2010). Student Background Notes for the Use of Hand and Power Tools. Available at: Ultimo TAFE NSW. [Accessed 19/10/2019]

[3] Soni, V. (2017). Introduction and Nomenclature of Single Point Cutting Tool and Tool Signature. Available at: http://www.mechanicalclasses.com/2017/01/single-point-cutting-tool.html [Accessed 19/10/2019]

PART: VALVE BTM
PART NO: 05
MATL: ALUMINIUM
DIM: 10x50MM ROD
QTY: 2



PART: VALVE TOP
PART NO: 06
MATL: ALUMINIUM
DIM: 10x25MM ROD
QTY: 2