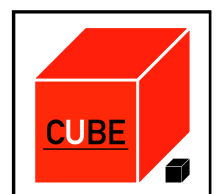


RC Car Stand

Thomas Charnock



Team name and logo ->



RC Car Stand Brief

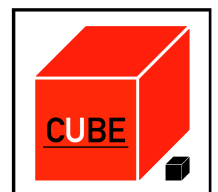
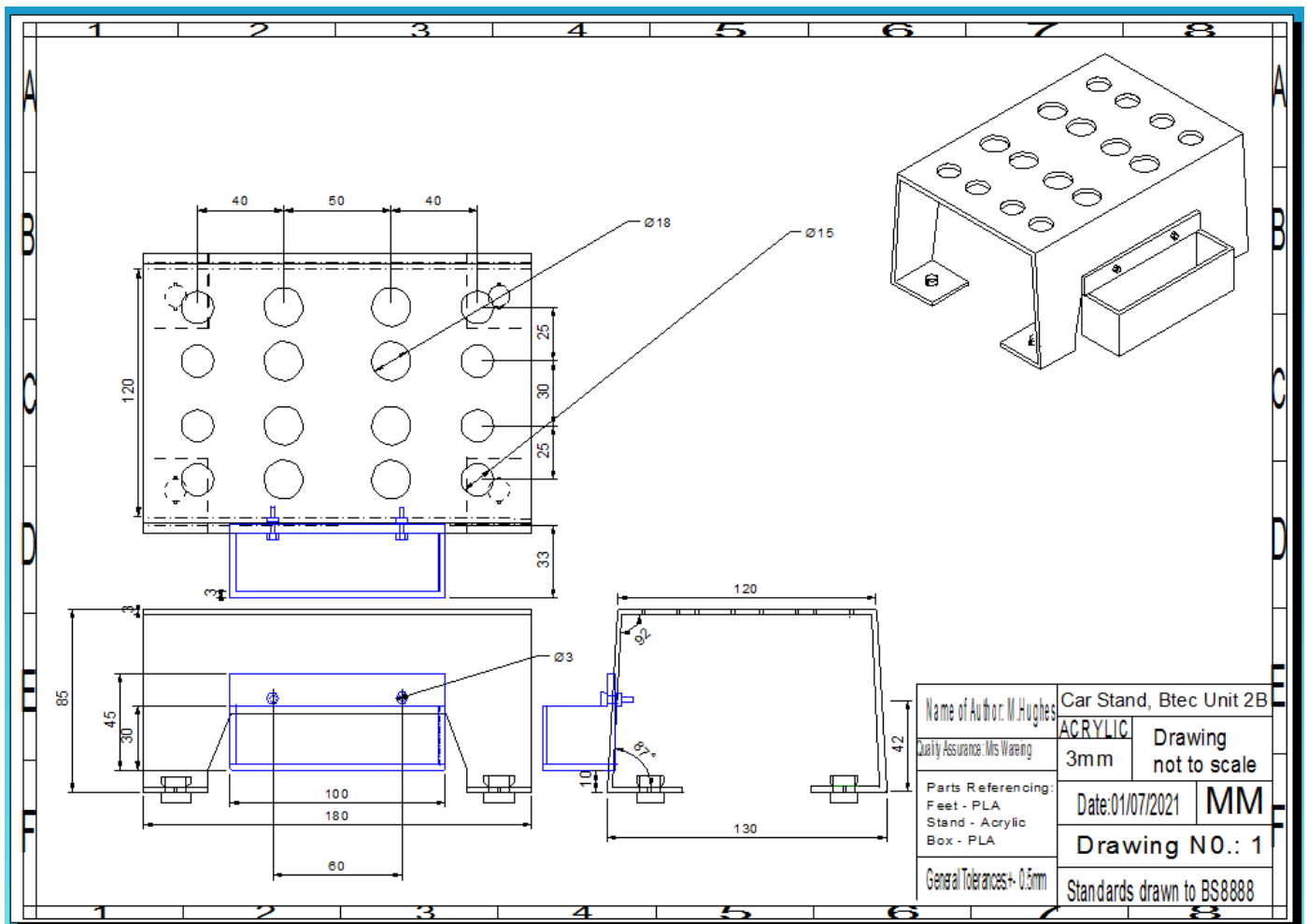
Unit 2 LA C

UNIT 2 – LA C – Brief

You are working as a final year apprentice in a medium-sized engineering company. Your manager is pleased with your work and has decided that you should be given some more responsibility. He wants you to become part of a small team that will [manufacture a batch of an engineered product – work stand] using a different approach to that normally employed by the company.

Your manager wants you to work with colleagues to organise the team and set targets. He is also expecting you and your colleagues to interpret technical documentation and to safely and effectively [manufacture a batch of a product – work stand] by setting up engineering processes correctly and reviewing progress against team targets. All members of the team will be expected to take on the role of team leader at certain points, and your manager will be observing how well you can manage your own contributions, as the company are considering using a similar approach for other [product – remote control vehicle work stand] and are mindful of possible training needs.

8 hours +1 hour for contingency + 1 hour for 3 meetings (8/9 lessons)



PARTS LIST

4 x stands

4 x tool boxes

16 x feet

STAGES:

Accurately measure and draw the 2 nets onto 2D design software – stand and tool box

Produce a card test model on the laser engraver – QC!

Modify?

Cut 3mm acrylic stands x 3 – QC?

Cut 3mm acrylic tool boxes x 3 – QC?

Finish needed – file and emery paper

Mark out and Drill holes in both parts that will enable the bolting of the 2 parts together - QC and QA

Create moulds/templates/formers for angles of legs on the stand and the corners of the tool box – QC and QA

Line bend test pieces – QC and QA

Modify moulds?

Line bend all 3 stands and tool boxes – QC

3D print 4 feet per stand

Bolt together the 2 parts of the stand - stand and tool box, to create the final stand

Attach feet

Test function and compare to drawings

PDS

The stand must:

Hold the Rock Crawler RC vehicle safely and allow access to all areas.

Hold tools and small components

Aesthetically pleasing

Materials:

Acrylic – 3mm

Zinc plated steel Nuts and bolts – M3 x 10mm

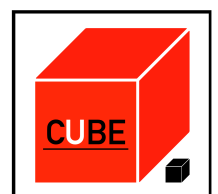
PLA 2.75 Filament

Measurements:

All dimensions in mm.

Tolerance +/- 0.5mm

Angle tolerance 1 degree



Critical points:

2D drawing of net is precise

Laser cut settings are correct

Holed drilled to the correct size and in the correct place

Line bending is precise and on the line of measurement and to the correct angle – use of a jig/former is essential.

3D printed foot works – time for prototyping and modifications

Assembly and finish:

All parts should be securely fixed together using nuts and bolts. Finishing via polishing is possible.

Quality indicators – testing the quality?

No sharp edges, all measurements are within tolerance and the stand functions well.

Safety:

Personal safety is key at all times – wearing of appropriate PPE is vital.

Training on machinery is crucial and maintenance of machinery is essential.

Full concentration at all times is essential.

Task Introduction

From this brief I have found that I must make 4 RC Car stand with my team using a laser cutter, 3D Printer and the appropriate software as well as a pillar drill and line bender which are operated by hand. I will create 3 parts for each of the 4 car stand: the main frame x1, feet x4 and tool box x1.

Everything must be correct to the tolerance of $\pm 0.5\text{mm}$ and 1° to be successful.

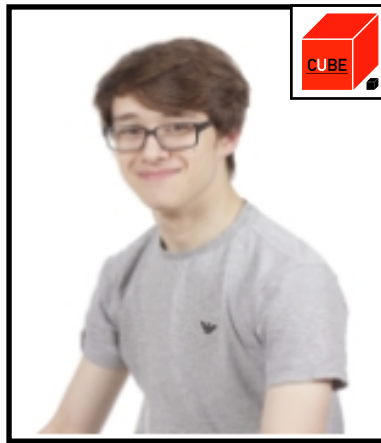
Profiles:



James Everett

Positives:
Always reach deadlines, good team, positive attitude, motivated

Negatives:
Laid back at times, happy for others to take the lead



Joe Biggs

Positives:
Creative thinker, hands on engineer, hard working, dependable worker.

Negatives:
Work management, not great at digital software, can be distracted.

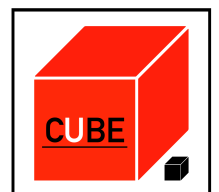


Thomas Charnock

Positives:
Leadership, Creative, CAD modelling, time planing, teaching others

Negatives:
Spelling, letting others take leadership.

Can use	James Everett	Joe Biggs	Thomas Charnock
Fusion 360	✓	✓	✓
2D Design	✓	✓	✓
3D Printer	✗	✗	✓
Laser cutter	✓	✗	✓
Line bending	✓	✓	✓
Pillar drill	✓	✓	✓
File	✓	✓	✓
Emery paper	✓	✓	✓



Individual Production Plan

Stages and time Expectations (8 hours practical):

Stages	1	2	3	4	5	6	7	8	
Measuring									JE
Modeling									TC
Test Print / Cut									TC
Edit and Print / Cut									TC
Drilling									JE
Line bending									TC
Assembly									JE
Final quality check									TC

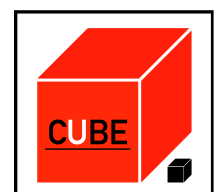
Person Best for each job

Detailed Stages

- 1) Measuring - the product will be measured creating an isometric and net drawing with measurement to then be peer reviewed to ensure.
- 2) Modelling - the CAD files will be created on 2D design and Fusion 360 creating the assets to be cut / printed.
- 3) Test Print / Cut - print in lower quality and cut on paper to check to dimensions are accurate and there are no issues with the machines before you use more expensive materials.
- 4) EditPrint / laser cutting - edit 3D printer and laser file if needed and start 3D printing and laser cutting in the final material and in the required quality.
- 5) Drilling - drill the feet holes (four per stand)
- 6) Line Bending - line bend on the line bender, set the angle and double check with designs.
- 7) Assembly - the products will be assembled adding two nuts and bolts to each stand to attach the box and the feet will also be added.
- 8) Final quality check / final changes, emery paper and buff if necessary.

Tools and equipment:

- Computer
- Pillar drill
- Line bender
- Pencil
- Paper
- Vernier calliper
- Allen key
- Emery paper
- 3D Printer
- Fusion 360
- Ultimaker-Cura 5.1.0
- Laser cutter
- 2D Design
- Lasercut 5.3



Instructions and stages	Person responsible and time allocated	Equipment and tools needed	Materials required	Health and safety requirements	QC and inspections to be taken	Potential problems?
Measuring - the product will be measured creating an isometric and net drawing with measurements to then be peer reviewed.	30 minutes	Pencil, paper and vernier caliper	paper	Beware of points on the equipment that could potentially injure somebody	All measurements need to be checked for accuracy and the measurements will be peer reviewed by everyone in the team	If the vernier caliper is inaccurate then the overall design and shape of our product will be wrong and therefore out of tolerance and create further problems down the line.
Modelling - the CAD files will be created on 2D design and Fusion 360 and sent through cura creating the assets to be cut / printed.	2 hours	2D design, Lasercut 5.3, Fusion 360, Ultimaker-Cura 5.1.0 and Computer	N/A	Liquids near electronics could electrocute somebody.	The model will be peer reviewed and checked against the measurement before test printing.	If the cad files are made inaccurately then the design wouldn't fit the tolerances making it unsuitable for the intended use.
Test Print / Cut - print in lower quality and cut on paper to check to dimensions are accurate and there are no issues with the machines before you use more expensive materials.	1 and a half hours	Laser cutter, 3D printer	Card, PLA	Ensure the laser cutter has the lid close so that no damage to the eyes.	Because the materials are bad quality, and it's the test print there's a foundation that keeps up the actual print which could prevent warping.	Warping due to environmental factors such as temperature to counter these affects you can alter the design to minimise the potential issues.
Edit & Print / laser cutting - the test print / cut will be checked against the measurement and the origins design.	2 hour	Laser cutter, 3D printer, 2D design, Lasercut 5.3, Fusion 360, Ultimaker-Cura 5.1.0 and Computer	Acrylic, PLA	The lid of the laser cutter must be closed to avoid	Check dimensions including the angles and lengths of drawings and compare them to the test to ensure that they are the size they need to be	The dimensions when it's finally completed could be completely different to that of past drawings which would mean the entire process would have to start again and parts would have to be remade.
Drilling - drill the feet holes (four per stand)	30 minutes	Pillar drill, apron, safety goggles	N/A	PPE equipment and second person to turn the drill off and on.	The drill has to go completely through the material so that the bolts can be sent through to secure the materials together.	Potentially if the dots that are drawn onto the material are not drawn in the correct spot then the entire material would be useless.
Line Bending - line bend on the line bender, set the angle and double check with designs	30 minutes	Plastic line bender	N / A	PPE equipment	A jig could be used to ensure that the angles are as close to tolerance as possible to about 93°	Over bending could cause problems such as an unstable product, not reaching tolerances or even to a point where the material will become fragile and break
Assembly - the products will be assembled	1 hour	Allen key	2 nuts, 2 bolts	Staying vigilant throughout the process in order to stay safe during the process.	The measurements will be checked against everything and the nuts and bolts will be check ensuring they are the right size	The assembly proves beads to be a careful procedure as problems such as heavy handling could break products and cause major delays in order to reproduce that component
Final quality check / final changes with emery paper	1 hour	Vernier caliper, emery paper	N/A	N/A	Everything will be checked with the original design to ensure that everything is in tolerance.	The stand could be assembled wrong or it doesn't fit our tolerances.



Tools Overview

Tools:

- 3D Printer
- Laser cutter
- Ultimaker-Cura 5.1
- Lasercut 5.3
- Fusion 360
- 2D Design
- Computer
- Pillar drill
- Line bender
- Pencil
- Paper
- Vernier calliper
- Allen key
- Emery paper
- SD Card

3D Printer

Powered: uses AC power and 1.75mm PLA

Use: to Print the box and the feet.

Other: needs a gcode file.



Laser cutter

Powered: AC

Use: to cut the acrylic into the car stand net.

Other: needs a stl file from a computer plugged directly into it.



Ultimaker-Cura 5.1.0

Powered: uses a computer

Use: I will use this to convert the stl files to gcode for the box and the feet.

Other: creates a gcode file.

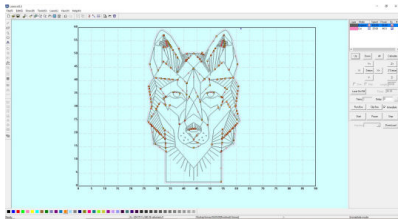


Lasercut 5.3

Powered: uses a computer

Use: to the dxf file of the feet .

Other: creates a ecp file that is set stra

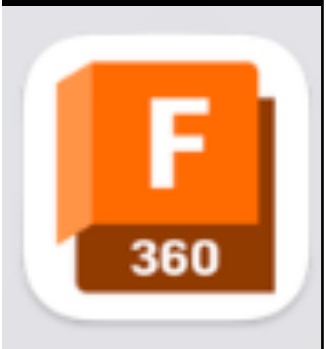


Fusion 360

Powered: uses a computer

Use: to model the box and the feet.

Other: creates a stl file.



2D design (Tech Soft)

Powered: uses a computer

Use: to model the car stand

Other: creates a dxf file

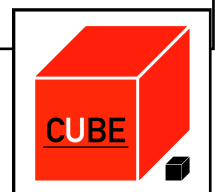


Computer

Powered: uses AC or DC power

Use: to model the stand, box and the feet.

Other: creates all files



Pillar drill

Powered: AC

Use: to drill the feet holes in the stand.

Other: safety equipment such as an apron and safety glasses are needed when operating.



Line bender

Powered: AC

Use: the line bender bends plastic by heating it up and the accompanying jig is used to set the angle of the bend.

Other: NA



Pencil

Powered: NA

Use: to draw designs, record measurements and mark

Other: NA

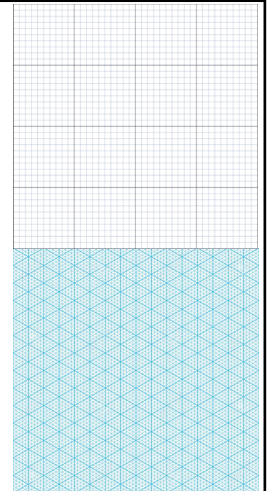


Paper

Powered: NA

Use: to create designs and record measurements

Other: I will use graph and isometric paper



Vernier calliper

Powered: batteries

Use: to measure the parts I create to ensure they are in tolerance.

Other: NA



Allen key

Powered: NA

Use: to assemble the car stand by bolting the box to the stand body.

Other: NA

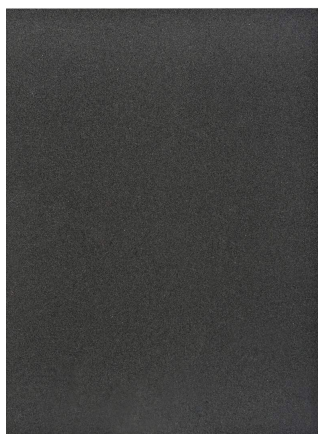


Emery paper

Powered: NA

Use: to file down sharp edges and other imperfections

Other: gloves may be required to avoid possible injury.

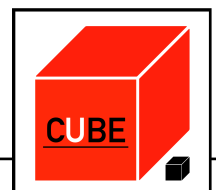


SD Card

Powered: when plugged into a computer it is automatically powered

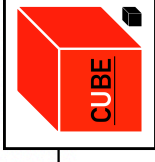
Use: to move files from the computer to 3D Printer

Other: the SD (Secure Digital) card may require an adapter.



Parts list:

Part	Quantity	Size LxWxT	Material	Features	Proprietary or Product specific	Notes
Car stand base	4		Acrylic		Product specific	Laser Cut
Box	4		PLA		Product specific	3D Printed
Feet	16		PLA		Product specific	3D Printed
Bolt	8		Steel		Proprietary	Off the shelf product Will be used to attach the box to the stand
Nut	8		Steel	Locks the bolt into place	Proprietary	Off the shelf product



Pillar drill Risk assessment:

School Formby high School, Design and Technology Dept

BTEC Level 2 Engineering

5 point risk assessment

Activity being assessed - Pillar Drill

Point 1 - the drill is sharp, the drill creates potentially sharp shards, when the drill is on it can drill through most objects and particles of what you are drilling could be flung everywhere by the drill.

Point 2 - who could be harmed and how

- The drill could cut you even when the machine isn't on.
- The shards from materials already drilled could cut you.
- The drill could drill through someone's hand if no one was paying attention.
- Particles could be flung in to the eyes on any one within 3 meters.

Point 2 - Risk rating (low chance of injury if PPE is worn however the injury's could leave cuts)

Low

Medium

High

Point 3 - Actions to be taken and additional control measures required

- Full PPE is to be worn - apron, goggles, gloves and no loose clothing that could be caught and hair tied up if it is lower than shoulder high.
- No one except the 1 or 2 operators of the machine should be within 3 meters.

Point 4 - Are all risks recorded and all relevant staff have been made fully aware of the contents of this risk assessment YES /NO

Date of risk assessment: __/6/2022

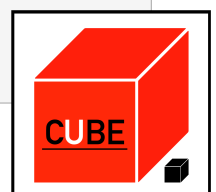
Name(s) of assessor(s)


Signature of HOD

Point 5 - Review of processes after activity.
Recommended alterations to guidance and procedures

Date of review of risk assessment:

Name(s) of assessor(s)



	MRAT 039	Pillar and bench drilling machines	Applicable to: most resistant materials including timber and plastics	See also: 033
	Process(es) covered:	The cutting of holes in sheet or block materials. Cutting oils or other lubricants may sometimes be required particularly when drilling mild steel.		

Control Measures

- Wear eye protection. Tie back long hair, remove or cover jewellery, and cover loose clothing by a secure apron or overall.
- It is impracticable to guard all the hazardous areas during this operation. Correct selection of the bit speed will reduce the risks from flying workpieces but machine vices or clamps should be used where required.
- Use guards around the chuck and bit to reduce the risk of hand or finger injury, but training and experience are essential. Adjust the drill chuck guard to cover the whole of the drill bit when the machine is in use.
- Guards preventing inadvertent contact with belt drives should require a tool to remove them or be interlocked with the power supply to prevent trapping when moving the drive belt. Interlocked guards on belt drives are recommended. Isolate the machine when changing the speed.
- Provide sufficient space around these machines to ensure that the user is not pushed into the machine by a passer-by, and the floor surface should not be slippery to avoid accidental slips while using the machine.
- To reduce the risk of back by having two persons handle heavy items.

Immediate Remedial Measures:

A particle could be in the eye	<p>Tell the casualty not to rub the eye, sit him/her down facing the light with the head leaning back. Stand behind the casualty to look for the particle in the eye. If it is over the iris or pupil, DO NOT ATTEMPT TO MOVE IT. Tell the casualty to hold a gauze pad over the eye and close the other one. Send for an ambulance to take the casualty to hospital.</p> <p>If the particle is visible over the white of the eye, the corner of a moistened handkerchief can be used to remove it. Call 111 and seek medical attention.</p>
Injury to the eye	<p>If there is any sign of injury to the eye, tell the casualty to hold a gauze pad over the eye and close the other one. Take the casualty to hospital as quickly as possible.</p>
Other injury	<p>Apply pressure on or as close to the cut as possible, using fingers or a pad of cloth. Leave any embedded large bodies and press round them. Lower the casualty to the floor and raise the wound as high as possible. Protect yourself from contamination by blood.</p>
Coolant is in the eyes	<p>Irrigate immediately with water for at least 10 minutes, holding eyelids apart. Call 111 and seek medical attention.</p>
Minor back pain	<p>Help the casualty to lie down, either on the ground or on a firm mattress, and instruct him/her to rest until the pain eases. Obtain medical attention if symptoms persist.</p>
Back injury resulting in loss of control of, or sensation in, limbs	<p>Keep the head, neck and spine aligned while supporting the casualty's head. Send for an ambulance.</p>

Laser Cutter Risk Assessment:

School Formby high School, Design and Technology Dept

BTEC Level 2 Engineering

5 point risk assessment

Activity being assessed - Laser Cutter

Point 1 - the laser beam is very bright, the laser can cut through most materials, the laser can burn and produce fumes.

Point 2 - who could be harmed and how

- The laser can damage the retina of anyone in line of sight
- Fire can be created harming the equipment and people in the room.
- Harmful fumes can be produced harming everyone in the area

Point 2 - Risk rating (low risk of injury however the injuries could be severe)

Low

Medium

High

Point 3 - Actions to be taken and additional control measures required

- Wear eye protection or in this case you must close the enclosure for the laser to work
- Use only correct material at the correct setting to ensure no fire or toxic fumes are produced
- You should also ensure the extractor fan is on and the tubing is safe and not going to a populated area as to not harm others.

Point 4 - Are all risks recorded and all relevant staff have been made fully aware of the contents of this risk assessment YES /NO

Date of risk assessment: __/6/2022

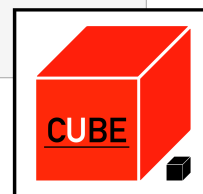
Name(s) of assessor(s)


Signature of HOD

Point 5 - Review of processes after activity.
Recommended alterations to guidance and procedures

Date of review of risk assessment:

Name(s) of assessor(s)



 MRAT 032	Laser Cutters	Applicable to: CO ₂ laser cutters	See also: 010 055
	Process(es) covered:	Use of a high-power laser to cut plastics, rubber, wood, card and textiles under computer control as an example of CAD / CAM.	

Control Measures

- **It is essential** that the interlock, fitted to prevent laser operation unless the system is enclosed, **must not be over-ridden**. (This is necessary to make the system into a Class 1 device, which may be used in schools.)
- Never leave laser cutter to run unattended, because of the risk of fire.
- At the end of each job, clean work and waste material from the work bed.
- Servicing should be restricted to authorised and trained personnel to control the high voltage risk as well as risks from the beam.
- Do not cut PVC and polyurethane foams, even with LEV in use
- Other materials require efficient dust and fume control. Suppliers may recommend special filters for certain tasks, eg, cutting rubber.
- Set the power setting and speed of cut correctly to minimise the risk of ignition of the workpiece. Where possible the space between cuts should be kept to at least the thickness of the material being cut.

Immediate Remedial Measures:

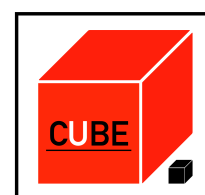
Burns	The beam may produce a deep cut in tissue with little bleeding because the wound is immediately cauterised. Call 111 to obtain medical advice.
Blinding	There is no immediate remedial measure.
Electric shock	Taking care for your own safety, break contact by switching off or pulling out the plug. If it is necessary to move the casualty without switching off the supply, use a broom handle or wooden window pole or wear rubber gloves. If the casualty is unconscious and not breathing, check that the airways are clear and begin artificial ventilation. Send for an ambulance. If a trained first aider does not arrive quickly and the pulse is absent, consider carrying out cardio-pulmonary resuscitation.
Vapour is inhaled	Remove casualty to fresh air and seek medical attention.
Dust is in the eye	Irrigate immediately with water for several minutes, telling the casualty to hold eyelids apart.

Storage	Laser cutters, unless controlled by a key switch, should be stored in secure locations to prevent unauthorised use.
----------------	---

Disposal	The fume and dust-control systems must be properly maintained, tested annually and the filters changed according to the manufacturer's instructions. Used filters should be sealed into strong plastic bags before placing them in the waste.
-----------------	---

Additive manufacturing (3D Printing) Risk Assessment:

School Formby high School, Design and Technology Dept		
BTEC Level 2 Engineering		
5 point risk assessment		
Activity being assessed - Additive manufacturing (3D Printing)		
Point 1 - the tip of the extruder will be up to 240°C, the heated bed will be up to 60°C and the extruder will be moving quickly.		
Point 2 - who could be harmed and how		
<ul style="list-style-type: none">• You could be burnt by the extruder head and the heated bed• You could cut or crush your hand if you put your hand near the moving extruder		
Point 2 - Risk rating (low chance or injury if you limit contact with the 3D printer)		
Low	Medium	High
Point 3 - Actions to be taken and additional control measures required		
<ul style="list-style-type: none">• Wear PPE (gloves and apron if necessary)• Don't touch the printer unless necessary		
Point 4 - Are all risks recorded and all relevant staff have been made fully aware of the contents of this risk assessment YES /NO		
Date of risk assessment: __/6/2022		
Name(s) of assessor(s)		
Signature of HOD		
Point 5 - Review of processes after activity. Recommended alterations to guidance and procedures		
Date of review of risk assessment:		
Name(s) of assessor(s)		



Room Risk Assessment

	MRAT 088	Additive manufacturing: 3D Printing	Applicable to: Extrusion deposition Binding granular materials Lamination Photopolymerisation	See also: 010 024 032 052 062
	Manufacturing products using some form of stereo lithography process. Heating or bonding materials to form shapes which can then be finished to provide a 3 dimensional representation of a CAD image. The use of various polymer-based materials and solvents in the process of 3D printing, these may be heated and extruded, bonded using laser or heat application, laminated by the introduction of a solvent or activated by the application of specific light frequencies. The resultant product then undergoes a variety of finishing processes which may include the application of solvents.			

Control Measures

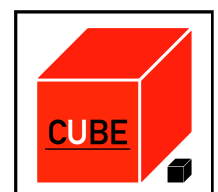
- Do not leave machines unattended and take care over the storage and use of flammable materials to avoid accidental ignition.
- Operators should not touch any of the heated parts until they have cooled sufficiently, the final product should be left to cool before removal from the machine.
- Provide appropriate instruction and training in safe use, which will normally be sufficient to control the risk of overheating the materials to a point where harmful fumes are generated. Also instruct observers how to take care when observing the process.
- 3D printers should be enclosed.
- Where machines are not fully enclosed, tie back long hair, remove or cover and secure loose clothing.
- At present there are no Work Exposure Limits (WELs) for 3D printing, ordinary ventilation may not be sufficient to control the increased emission of ultrafine particles and volatile organic chemicals, placing the machine in a suitable enclosure with filtered exhaust will minimise exposure. When the print is completed it may need to stay within the enclosure for some time to remove the fumes or particulates.
- Where a laser is used, an interlock, to prevent laser operation unless the system is enclosed, is essential and must not be over-ridden.
- The use of solvents, in either preparing materials or the finishing processes, is covered in 055.


Immediate Remedial Measures:

Powder is swallowed	Drink plenty of water and seek medical attention.
Vapour is inhaled	Remove casualty to fresh air and seek medical attention.
Dust in the eyes	Wash thoroughly for at least 10 minutes with water to prevent scratching of the eye. Seek medical attention if irritation persists.
Powder spills in the workshop	If possible, use an industrial vacuum cleaner fitted with a HEPA filter to get the powder into bags. If sweeping, dampen powder first. Rinse area with soapy water.
In case of fire	If the polymer or solvent is ignited, evacuation of the area should take place as thermal decomposition may create hazardous fumes. The fire service should be summoned.
Skin burns	As soon as possible, plunge the skin into cold water or hold it under a running cold tap. Keep the burn in cold water for 10 minutes. If extensive, seek first-aid treatment as for any other burn. DO NOT APPLY CREAMS OR OINTMENTS OF ANY TYPE
Solvent spills in the workshop	Ensure suitable personal protection during removal of the spill. Contain the spill with sand, earth or any suitable absorbent. Transfer to a container for disposal.

Plastic sheet bender Risk Assessment:

School Formby high School, Design and Technology Dept		
BTEC Level 2 Engineering		
5 point risk assessment		
Activity being assessed - Plastic sheet bender		
Point 1 - the heated wire gets up to 135°C and the protective cage is heavy		
Point 2 - who could be harmed and how		
• You could be burnt buy the wire		
Point 2 - Risk rating		
Low	Medium	High
Point 3 - Actions to be taken and additional control measures required		
• Wear gloves if required		
• Use with caution to avoid injury		
Point 4 - Are all risks recorded and all relevant staff have been made fully aware of the contents of this risk assessment YES /NO		
Date of risk assessment: __/6/2022		
Name(s) of assessor(s)		
Signature of HOD		
Point 5 - Review of processes after activity. Recommended alterations to guidance and procedures		
Date of review of risk assessment:		
Name(s) of assessor(s)		



	MRAT 061	Plastics sheet benders	Applicable to: hot-wire strip heaters; sheet heaters	See also: 055
Process(es) covered:		<p>Thermoplastic sheet is heated along a straight line so that it can be folded through a controlled angle.</p> <p>The heat may be supplied by a silica-insulated mains element, one or more bare wires or by ceramic-insulated elements.</p> <p>Line bending heaters with heated tensioned resistance wire have the wire supplied with a current through a separated extra-low voltage (SELV) source</p>		

Control Measures

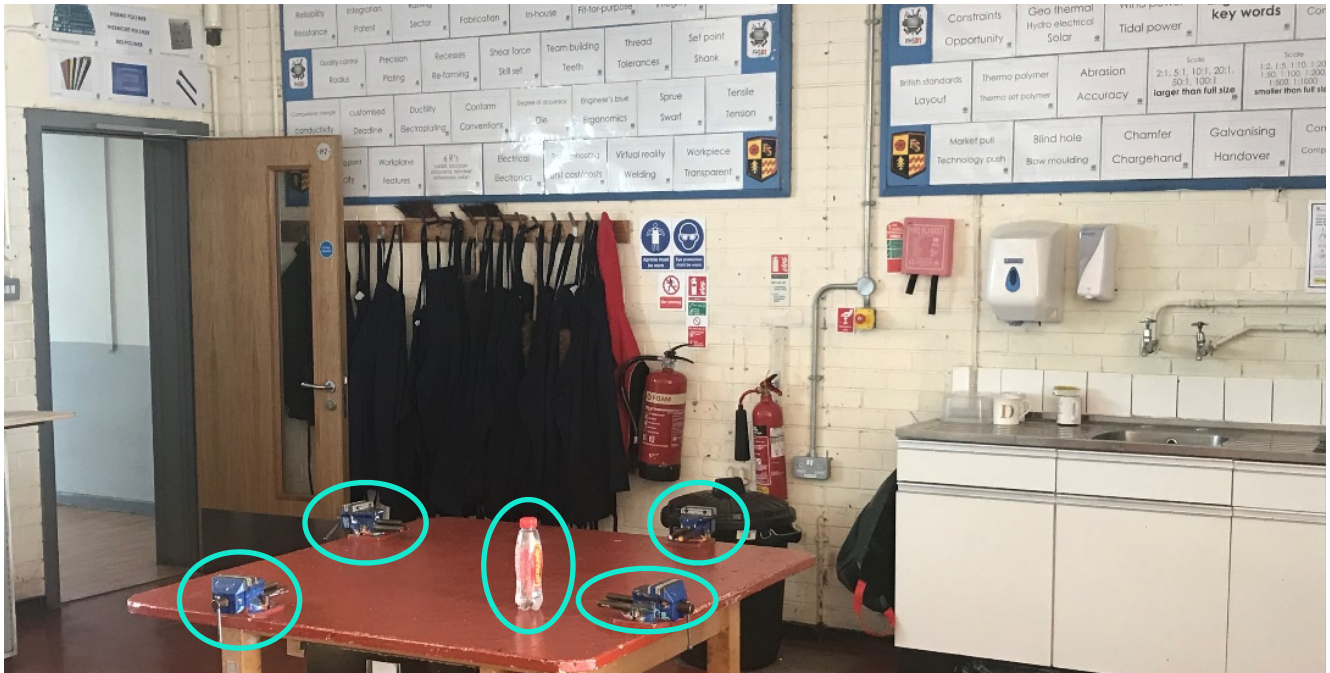
- Tie back long hair and loose clothing to avoid entering the heated area if the pupil leans over.
- Do not leave work unattended on the heater.
- Wear heat-proof gloves for handling hot plastic forms.
- Warn pupils not to touch the hot element.
- Ensure machinery is properly maintained, to control the risk of electric shock.

Immediate Remedial Measures:

Burns to the skin	Cool the affected area under a running cold tap for 10 minutes.
Serious burns to the skin	Send for an ambulance. Cool the affected area under a running cold tap for 10 minutes. Watch for difficulty in breathing or faintness. Gently remove jewellery or watches that might be difficult to remove later if the limb swells.
Vapour is inhaled	Remove casualty to the fresh air and call 111 and seek medical attention.

Storage	
----------------	--

Disposal	
-----------------	--



Risk: Rubbish on the table and vices extending over the tables could get in the way of work and the vices could be walked into possibly injuring someone.

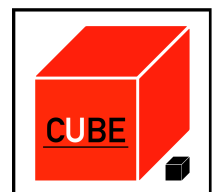
Avoid/reduce risk: clearing away rubbish on the table will remove potential hazards.

Adding reflective tape and putting the vice in closed position will increase visibility and reduce the profile of the vice reducing the chance of injury.



Risk: the drill guard is up and the blades of the saws are sharp side up which could be a potential hazard.

Avoid/reduce risk: put the drill guard down and cover the blades or store them in a draw.





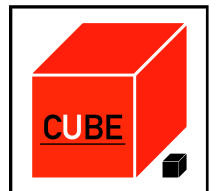
Risk: the drill guard is up and the blade of the ban saw isn't covered. The table has paper and pens on it which could all cause injury if they fall off or get in the way.

Avoid/reduce risk: put the drill guard down and place a saw cover. Clear away paper, pens and file on the table will remove potential hazards.



Risk: The table has paper, pens and file on it which could all cause injury if they fall off or get in the way.

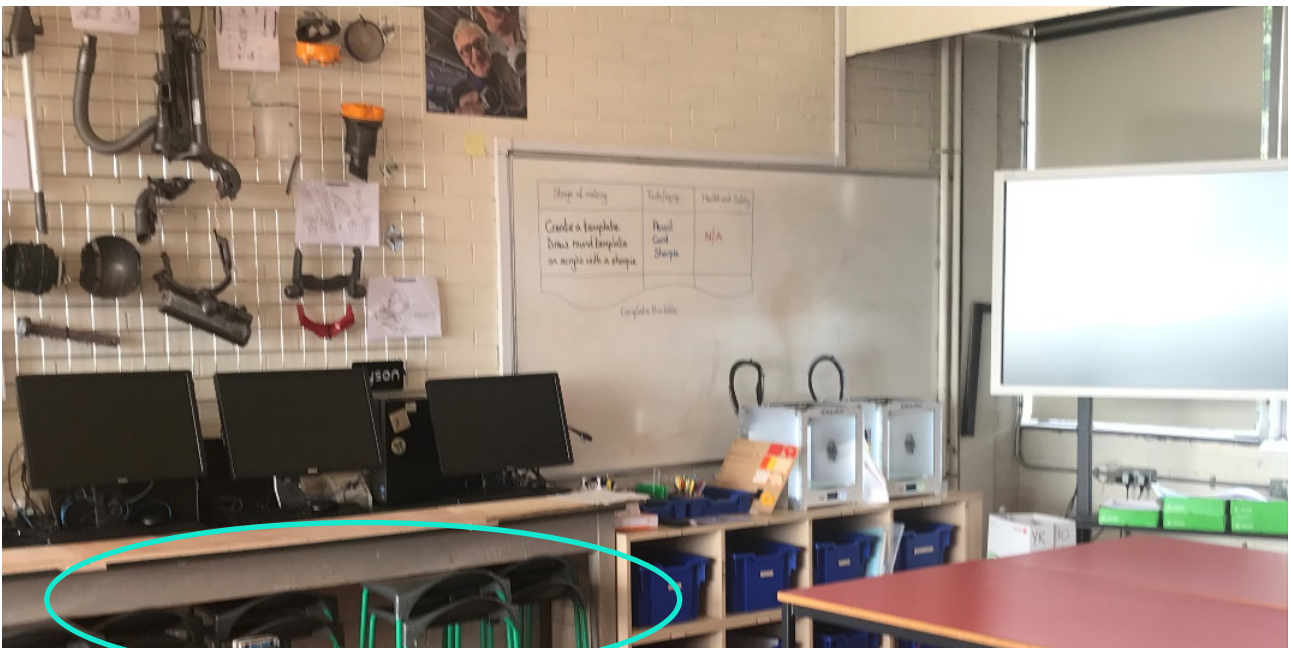
Avoid/reduce risk: clearing away paper, pens and file on the table will remove potential hazards.





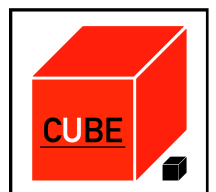
Risk: the vices extended over the table which could get in the way of work and the vices could be walked into possibly injuring someone.

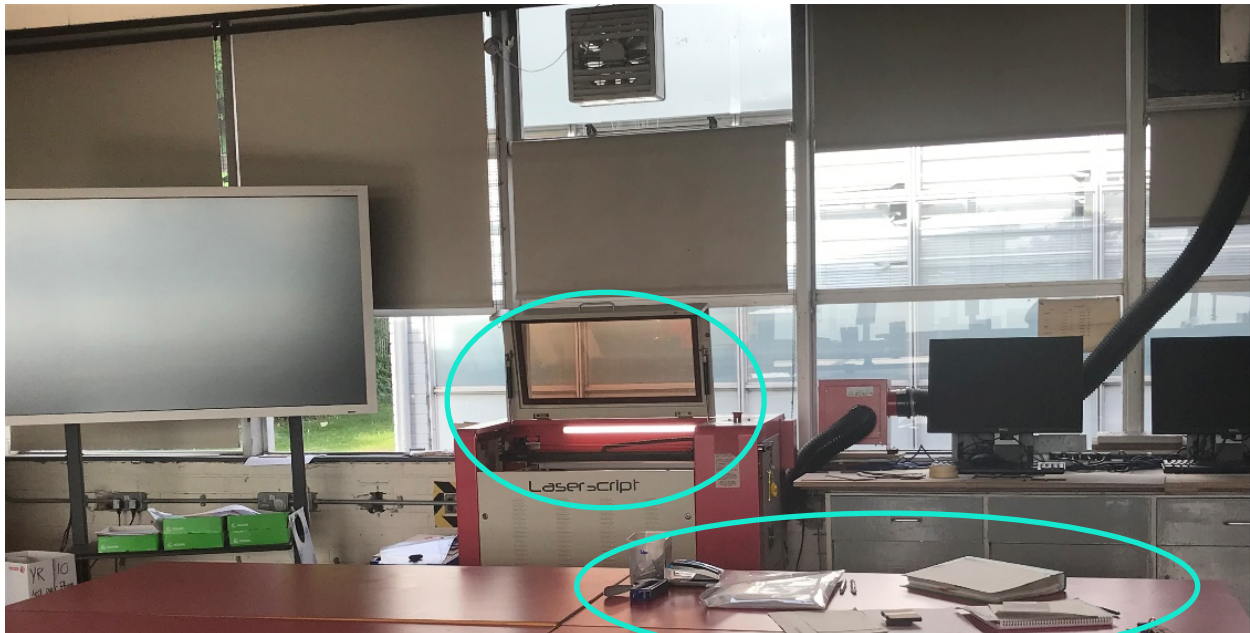
Avoid/reduce risk: put the vice in the closed position to reduce the profile of the vice reducing the chance of injury.



Risk: chairs could be tripped over

Avoid/reduce risk: move chairs fully under the table or stack them out of the way.





Risk: The table has paper, pens and files on it which could all cause injury if they fall off or get in the way. The Laser cutter lid is open which could

Avoid/reduce risk: clearing away paper, pens and files on the table will remove potential hazards.

