

First Semester TA Training Checklist

EML2322L TAs must be able to *explain, demonstrate, and troubleshoot* all level basic tasks detailed below prior to the TA's first lab of the week. TAs will also be required to observe all level *strong* tasks by the end of their first semester teaching. Tasks can only be signed off by senior lab TAs and highlighted tasks must first be demonstrated by trainee. Failure to meet these requirements may result in reevaluation of candidacy. Please ask any questions that arise and feel free to work ahead.

TA Name:			Semester:	<i>Checklist Rev: L</i>	
Week	Level	Category	Task / Document	Completed	Date
1	Basic	General Knowledge / Prep	Project Description, Schedule & Quiz		
1	Basic	General Knowledge / Prep	DRT - DR1 requirements and background research		
1	Basic	General Knowledge / Prep	Course & TA website organization		
1	Basic	General Knowledge / Prep	TA Notebooks		
1	Basic	General Knowledge / Prep	Grading and returning homeworks and quizzes		
1	Basic	General Knowledge / Prep	MAE Student Shop purpose, procedures , and tour		
1	Basic	General Knowledge / Prep	MAE Student Shop Use Guidelines (for students)		
2	Basic	Milling Machines	Milling Machine Safety Training Outline		
2	Basic	Engine Lathes	Lathe Safety Training Outline		
2	Basic	General Shop Knowledge	Locate/identify lab hardware (imperial fasteners, metric fasteners, set screws, etc.)		
2	Basic	General Knowledge / Prep	Backroom storage (wood, cardboard, PVC, etc.)		
2	Basic	Milling Machines	Changing between HI/LOW range		
2	Basic	Milling Machines	Use of conical and cylindrical edge finders and Edge Finder Graphic (when/how)		
2	Basic	Engine Lathes	Troubleshoot E-STOP switch, brake switch, and power off conditions		
2	Basic	Engine Lathes	Adjust carriage safety stop		
2	Basic	Engine Lathes	Start TA manufacturing of Lab Hub		
2	Basic	Milling Machines	Start TA manufacturing of Shaft Clamp Bracket		
2	Basic	General Knowledge / Prep	MAE Student Shop purpose, procedures , and tour		
2	Basic	General Knowledge / Prep	Electric motors, switchboxes, 80/20 demos		
3	Basic	General Knowledge / Prep	Assigned Part Manufacturing Outline		

3	Basic	Engine Lathes	Finish TA manufacturing of Lab Hub		
3	Basic	Milling Machines	Finish TA manufacturing of Shaft Clamp Bracket		
3	Basic	General Shop Knowledge	Proper filing and deburing techniques		
3	Basic	Milling Machines	Use of spindle, saddle, table friction locks		
3	Basic	Milling Machines	Understand how to fix drawbar / speed problems		
3	Basic	Milling Machines & Lathes	Use of keyless versus keyed chuck (when/why)		
3	Basic	Engine Lathes	Effectively explain cutting on RAD vs. DIA		
3	Basic	Engine Lathes	Load and remove tailstock tools (drill chucks, endmill holders, larger drills)		
3	Basic	Engine Lathes	Zero drill bits for blind holes (tip vs. taper)		
4	Basic	TM-2 CNC Milling Machine	Run TM-2 Threading Demo on Practice Part		
4	Basic	TM-2 CNC Milling Machine	Regular vs. split point drills, jobber vs. screw machine, rigid vs. hand tapping (manual & CNC), destructive vs. non-destructive zeroing		
4	Basic	General Shop Knowledge	Coarse versus fine threads (when/why)		
4	Basic	General Knowledge / Prep	Calculating 5 threads of engagement		
4	Basic	General Shop Knowledge	Location and basic use of endmills, drill bits, taps		
4	Basic	Milling Machines	Correct choice/installation/use of alt. vise jaws		
4	Basic	Milling Machines	Correct choice/installation/use of workstops		
4	Basic	Southbend Lathe	Wheel hub alignment tool		
5	Basic	Sheetmetal Equipment	Sheetmetal Demo and punch press		
5	Basic	Sheetmetal Equipment	Sheetmetal Design Guide		
5	Basic	Sheetmetal Equipment	Basic use of drill press and how to clamp diff. matls.		
5	Basic	Do-All Bandsaw	Basic Use of DoAll bandsaw		
5	Basic	Do-All Bandsaw	Cutting a radius/channel/notch		
5	Basic	Sheetmetal Equipment	Flattening improperly produced bends		
5	Basic	Sheetmetal Equipment	Rolling sheetmetal		
5	Basic	Sheetmetal Equipment	Deburring tools / techniques		
5	Basic	Sheetmetal Equipment	Rubber edge-guard		
5	Basic	Sheetmetal Equipment	Using jig plates to clamp sheetmetal in mill		
5	Basic	Sheetmetal Equipment	Using pneumatic tools and angle grinders		
6	Basic	General Knowledge / Prep	Remaining Equipment Training Outlines		
6	Basic	Roll-In/Marvel Bandsaw	Retracting blade when trailing edge passes part		

6	Basic	Roll-In/Marvel Bandsaw	Clamping angled stock		
6	Basic	Roll-In/Marvel Bandsaw	Clamping multiple parts in the vise		
6	Basic	Marvel Bandsaw	Proper use of Marvel vise		
6	Basic	Marvel Bandsaw	Adjusting vise and blade guide for larger parts		
6	Basic	Marvel Bandsaw	Removing swarf and topping off coolant		
6	Strong	Roll-In/Do-All Bandsaw	Changing bandsaw blades		
6	Basic	General Knowledge / Prep	Ajax Equipment Training		
6	Basic	General Knowledge / Prep	Roll-In Equipment Training		
7	Basic	Welding / Plasma Cutting	Welding & Plasma Cutting Training		
7	Basic	Welding / Plasma Cutting	Correctly setting up MIG welder for sheetmetal and 1/8" steel workpieces		
7	Basic	Welding / Plasma Cutting	Prepping 1/8" flat bars for welding demo / practice		
7	Basic	Welding / Plasma Cutting	Using plasma cutter freehand and with templates		
7	Basic	Milling Machines & Lathes	Reamers		
7	Basic	General Knowledge / Prep	Speeds and tips for machining steel and plastic		
8	Basic	Electrical Knowledge	Motor respect and testing w/groups		
8	Basic	Electrical Knowledge	Stripping and connecting wires		
8	Basic	Electrical Knowledge	Wiring and troubleshooting control boxes		
8	Basic	Electrical Knowledge	Routing and securing wires on a robot		
8	Basic	General Knowledge / Prep	Robot Testing Procedures		
8	Basic	Milling Machines	Drilling blind holes using z-axis and depth stop		
8	Basic	Milling Machines	Paint paddles for clamping non-parallel part surfaces		
8	Basic	Milling Machines	Ultra-thin parallels and Kant-Twist clamps		
8	Strong	Milling Machines	Using boring bars		
9	Basic	General Knowledge / Prep	Hand tapping station		
9	Strong	Engine Lathes	Using boring bars		
9	Strong	Engine Lathes	Using part-off tools		
9	Basic	Milling Machines	Drills, drills, and more drills		
9	Basic	Milling Machines	Annular cutters, hole saws, and unibits		
10	Basic	Milling Machines	Tramming vise parallel to X axis		
10	Basic	Milling Machines	How to select an appropriate endmill (quiz)		
10	Basic	Milling Machines	Oiling guideways, leadscrews, and spindles		
10	Basic	Engine Lathes	Oiling guideways and lead screws		

10	Strong	Engine Lathes	Live centers (purpose, styles, use)		
10	Strong	Engine Lathes	Use of compound slide to cut shallow tapers		
11	Strong	Milling Machines	How to select an appropriate tap and die		
11	Strong	Engine Lathes	Cutting external threads with a die		
11	Strong	Milling Machines, Engine Lathes	Rigid tapping		
11	Strong	Milling Machines	5C collet blocks		
11	Strong	Contact Metrology	Limitations of / errors associated with dial calipers		
11	Strong	Contact Metrology	When to use and how to read a micrometer		
12	Strong	Southbend Lathe	Different types of chucks and their uses		
12	Strong	Engine Lathes	Reversing chuck jaws for large workpieces		
12	Strong	Engine Lathes	Changing chucks		
12	Strong	Milling Machines	Create a Turner's Cube		
12	Strong	Engine Lathes	Create a Turner's Cube Base		
13	Strong	Milling Machines	Tramming head normal to X-Y plane		
13	Strong	Engine Lathes	Single point threading and thread measurement		
13	Strong	General Knowledge / Prep	Work on Course Design Project or TA Project		
14+	Strong	TM-2 CNC Milling Machine	Create lathe gage (CNC, CAM, setup, cutting)		

	candidates demonstrate activity during training session
	candidates demonstrate activity outside training session
	optional activity