

# Lesson Plan Template

**Note:** the candidate must engage in lesson planning and reviews for teaching sessions during the academic year. **For the assessment,** each candidate provides **four** completed lesson plans and reviews for a module(s) that they teach (two in semester 1 and a further two in semester 2). **You are required to upload outputs from your four lesson plans on the Moodle/VLE CRN 51389.**

TEACHING SESSION PLAN	
Module: Mechanical Dissection	Level / Stage (6,7,8) Level 7 Year: 1
Title of session/ topic: Stepper Motor	
Length of session: 1.5 hour	
Mark the type of session:	
Lecture <input type="checkbox"/>	Tutorial <input type="checkbox"/>
Lab <input checked="" type="checkbox"/>	Studio <input type="checkbox"/>
	Workshop <input type="checkbox"/>
<p><b>Module Outcome</b> (What module outcome(s) is the class/session aligned to):</p> <p>2. Disassemble and reassemble mechanical systems/artefacts in order to better understand their function.</p> <p>5. Work in a team and cooperative learning environment.</p> <p>7. Apply simple theory to analysis (Loads, torque, power, pressure etc.)</p> <p>6. Correctly use engineering terminology (Stress, strain, hardness, toughness)</p> <p>8. Self-study and research more effectively, and reason more effectively (Library, internet, textbooks)</p> <p><b>Class/Session Outcomes:</b> Upon completion of this session, you should be able to: (Share with students e.g. Write on board /slide/ project image at beginning of lecture for students)</p> <p>Define and understand what a stepper motor is its functionality.</p> <p>study the different components of the system and by doing so learn about materials, basic mechanical components used in small electoral systems. They will be able to answer questions in relation to the system studied.</p>	

### Select & Prioritise Your Content:

For the session, decide what material is used in class and what material the students should study independently and/or online. To do this, think about the material and its relative importance and prioritise and list in the appropriate quadrant.

	<b>In Class or in a Live Online Class (Support Learning)</b>	<b>Independent Learning (student completes on their own)</b>
<b>Priority (Need to know)</b>	1 Define and understand the functionality of a stepper motor Give examples on basic uses Disassemble and reassemble a stepper motor and a simple electrical circuit Demonstrate full stepping, half stepping, holding torque	2 Watch the H5P interactive video on Moodle Moodle quiz on the lab activity and video
<b>Supplementary Learning (Nice to know)</b>	3 Application of this notation	4 Application of this notation in other modules

Material in quadrants **1 and 3 typically become the focus during classes**. Quadrants 2 and 4 represent material students could study themselves and use the VLE/Moodle and online learning objects to support this learning.

Think about how you might incorporate *Technology Enhanced Learning Tools and Blended Online/Digital Learning Objects*, that will develop students learning and engagement with the module.

<b>Time/Lesson Stage</b>	<b>Teacher Activity</b>	<b>Student Activity</b>	<b>Resource Used</b>
<b>0-5 minutes/Stage 1</b>	<b>Welcome class, remind about previous lab/quiz</b>	<b>Watch/listen</b>	<b>Moodle</b>
<b>5-15minutes</b>	<b>Introduce stepper motor, Class demonstration + video</b>	<b>Watch/listen</b>	<b>Powerpoint</b>
<b>15- 25minutes</b>	<b>Dissect stepper</b>	<b>Activity: dissection</b>	<b>Lab screwdriver and tools, and screws</b>
<b>25 - 35</b>	<b>Reassemble</b>	<b>Activity: dissection</b>	<b>Lab screwdriver and tools, and screws</b>
<b>30 -40 mins</b>	<b>Measure resistance of wires</b>	<b>Activity/ Discussion Group</b>	<b>Stepper and Multimeter</b>
<b>40- 70 mins</b>	<b>Electrical circuit to move the stepper. Student to demo full stepping, half stepping and holding torque</b>	<b>Activity: build circuit</b>	<b>Power supply, wires, switches, stepper motor, multimeter, screwdriver.</b>
<b>70-90 mins</b>	<b>Clean Up, Discuss H5P video and Moodle quiz to be completed</b>	<b>Complete exercise</b>	<b>Moodle/Powerpoint</b>

## Teacher Reflection:

What worked well?

The in-class demos proved very important. The Youtube video at the start really focused the group. The interactive H5P link also gave a good basis on the theory of the stepper motor. The MCQ quizzes were answered to a high standard too. I like the idea of the flipped classroom approach and although this may not be a complete model of that approach I have taken elements which work for this subject. With Covid 19, we have limited time in the lab so having the student look at the theory before the lab not only keeps us safe but focusses the lab activities and the students are not blind coming into the lab work.

What did not work well?

The overall dissection didn't go particularly smoothly as some of the equipment is very old, which meant not everyone had their own stepper motor so there were some delays, however, in a post covid world this may not be an major issue in the future.

To what extent did you address different domains of learning?

Domain 1 The Self: I addressed my professional and personal values by generating a feeling of respect in the lab. My educational philosophy primarily concerns the idea of respect, respect for the facilitator, respect for the equipment and respect for the career, engineering.

Domain 2 Professional Identity, Values and Development in Teaching and Learning: As part of the T&L Certificate I am much more involved in critical reflection, recognising that that my identity has shifted this year from a more research and engineering focus to a more educational focus. I also feel that the flipped classroom technique – using the h5p video for students to complete some learning at home, really benefits the LOs of this module and increases engagement.

Domain 3 Professional Communication and Dialogue: I feel that I used excellent, clear and coherent communication skills during the class. I gave clear oral and visual examples of stepper motors and how they operate. The communication between myself and each student working on their circuits was critical to the flow of the class and I pride myself in the rapport I have with each student in the lab.

Domain 4 Professional Knowledge and Skills: This module needs to remain current in terms the LOs to keep up with current trends that may present to students on placement/projects/future careers.

Domain 5 Personal and Professional Digital Capacity: this module has changed a lot due to covid 19 restrictions. It is now 50% online and 50% onsite so it is important to recognise the potential of technology for learning impact. Using H5P and interactive videos has increased engagement with the first years and also understanding of the subject once onsite.

What would I do differently next time?

In an ideal world without covid 19, I would introduce more group work as opposed to individual work on the stepper motor circuit. I might also just demonstrate the dissection and dedicate the class to the overall circuit task as it is more beneficial to the LOs.