

Lesson Study Meetings' Log Book

Mark Sciberras

Meeting No:	Date:	People involved:	Duration:	Meeting type:
1	27 th November 2018	Mr. Marco Sciberras	18 mins	Face-to-face
<p>The first meeting took place at Marco's school. I have explained to him the different phases of a lesson study and what it involves to be conducted. In addition to this, I have explained the importance of scheduling meetings to work together and reflect on what needs to be done. I did not want to make any pressure or force him to participate. Therefore, after having explained the whole process, my intention was to give Mr. Sciberras some time to think about it and then get back to me before committing himself. However, this was not necessary since he accepted my invitation immediately. In doing so the first step that we have decided upon was to review the engineering syllabus to find out any content that we think that it is either challenging, ambiguous or not so clear to deliver to students. In doing so, we will use that particular content to develop a lesson study on it. More so, our intention is that such lesson (if being successful) will be given to other engineering teachers to make use of it. This was set to be done individually before we meet up again. The first meeting was not so long, it only took about 18 mins. We have also scheduled the dates for the next 2 meetings.</p>				
Agenda for next meeting:	Go through engineering syllabus and identify any topic/s which can be used to develop a lesson study.			

Meeting No:	Date:	People involved:	Duration:	Meeting type:
2	28 th November 2018	Ms. Jo-Ann Azzopardi	15 mins	Face-to-face
<p>This was the first meeting with Ms. Azzopardi. Since she is following the same Master course and the same study unit as I am, there was no need to explain much about the lesson study process. Prior to asking Ms. Azzopardi to involve herself in an engineering lesson study, I have explained my situation to her i.e. that I had to team up with someone who teaches my subject from another school since there was no one else in our school who teaches that particular year and unit as I do. As I was aware of, Ms. Azzopardi has made it clear that her knowledge related to the subject content may be limited. However, she accepted my invitation since both of us are aware that developing a lesson study is a process where the individuals involved may contribute to different aspects of the lesson rather than only on the lesson content itself. I have concluded the meeting with Ms. Azzopardi by deciding to involve her mostly when the lesson structure has been developed with Mr. Sciberras as she would be able to contribute by giving us feedback on how we intend to deliver it.</p>				
Agenda for next meeting:	To discuss the teaching methods and another issue that may raise up during the development of the lesson.			

Meeting No:	Date:	People involved:	Duration:	Meeting type:
3	4 th December 2018	Mr. Marco Sciberras	35 mins	Face-to-face
<p>Since both of us teach only year 11 and are passionate about teaching electronics, there was a mutual consensus that the lesson study will be conducted on the electronics area which is unit 3 of the engineering syllabus. This unit should be taught to a year 11 class. Both of us have also agreed that the lesson will be delivered on a span of a double lesson. Since all engineering technology lessons are time-tabled as two consecutive lessons at the same day (double lesson), this is beneficial to us since no further planning needs to be done on this aspect. Both of us agreed that having a time span of a double lesson will give us the opportunity not to remain on a surface level about any particular content, but gives us the opportunity to go deeper on the topic. Additionally, we have discussed and decided to include hands-on activities. From our experience, we are aware that this requires a substantial amount of time especially when dealing with electronic circuits and components.</p> <p>During this meeting we have discussed possible dates of when the lesson will be delivered to the students. The dates that were identified were the 14th, 18th or 21st of January. We have discussed some content which we can use to develop the lesson, however, we decided to postpone this discussion for the next lesson and dedicate more time for this. Though this was intended to be decided during this meeting, we ended up discussing other issues such as time, students involved and when the lesson will be carried out. All these aspects are required to be known before choosing the contents.</p>				
Agenda for next meeting:	Reflect on today's discussion with regards to the content to be used for teaching and define what we intend to teach in relation to the identified content.			

Meeting No:	Date:	People involved:	Duration:	Meeting type:
4	11 th December 2018	Mr. Marco Sciberras	50 mins	Face-to-face
<p>We have started the meeting by focusing on what content to teach and why we intend to teach it. During this meeting we have discussed several topics including: operational amplifier, 555 timer and relays. During our discussion, unconsciously, we have always mentioned electronic components in a context i.e. by giving examples in relation to a particular circuit operation. This made us decide that irrelevant of the lesson that we are going to develop, making use of a context such as scenarios, can help students to understand better and get a clearer picture of what we intend to teach. More so, we have confirmed our decision to include hands-on activities which relate much to the vocational approach of learning that our subject should be demonstrating.</p> <p>Since the lesson was going to be held in January we have decided that ideally this would be a revision lesson which includes some of the topics that have been already covered and then add some new content to it. Both of us are aware that since we will be conducting the lesson with year 11 students (fifth</p>				

formers), for them, this would be the last year of secondary schooling and they will finish earlier than the previous years. Therefore, in January most of the topics will be covered.

We started to discuss relay switches, with the intention to develop a lesson on them. During our discussion we have agreed that introducing relays after teaching about switches would be much beneficial since there are some similarities. More so our perception is that whether consciously or unconsciously, teachers who teach electronics do not give much importance to various types of switches that one can adapt to a circuit. This conversation served to decide on the content to be taught and build a skeleton of our lesson which will involve learning about different types of switches and terminology related to them. A hands-on activity will be included as well. This will include implementing switches in a provided circuit which will relate to a given scenario. After taking this decision we ended up the meeting by setting targets for next lesson.

Agenda for next meeting:	Decide upon which switches to teach, terminology to teach, circuits that students will use to implement switches to them, to develop a clearer lesson structure
---------------------------------	---

Meeting No:	Date:	People involved:	Duration:	Meeting type:
5	19 th December 2018	Mr. Marco Sciberras	50 mins	Face-to-face

During this meeting, we discussed the different phases of the lesson. We have also shared resources with each other that we have found which can be adopted for our lesson. More so, we have discussed which switches we intend to teach. Both of us agreed to have a variety of switches, some of them that are operated with a human intervention i.e. by hands, while others which are operated by other interventions such as polarity of magnets and the positioning of the switch itself. The idea behind this was to change the students' general perception that a switch is a component which can only be turned on or off by our hands as we normally do to switch on light fittings in our houses. For the first phase of the lesson we decided to include 6 switches:

- Toggle switch
- Reed switch
- Tilt switch
- Slide switch
- Push switch
- DIP switch

We have also discussed other switches which we may include if needed when designing the circuits, these include:

- Rotary switches
- Micro switches
- Rocker switches

Instead of teaching this knowledge, I came up with the idea that students will inquire information about these switches by themselves. This will be done by giving physical switches and a multimeter to investigate. This idea made us discuss student's prior knowledge of tools, components and equipment. Not to diverge from this meeting agenda, we have decided to continue discussing this during the next meeting. Though Marco seemed a bit unsure about how students will be able to develop their own knowledge, he suggested that the same switches will then be used in the practical task. I agreed with his suggestion and

decided to implement it since this will also be supporting the syllabus structure which is built on Bloom's taxonomy where the knowledge gained will be applied practically at a latter stage.

Though not yet developed, we have already agreed that the next phase was a practical one. Instead of developing the circuitry and scenarios we have started to discuss what will follow afterwards i.e. the teaching by the teacher. The teaching should include the terminology related to switches, therefore, we created a list of terminology that we want the students to familiarise themselves with. This included:

- Pole
- Push to break (PTB)
- Momentary
- Throw
- Latching
- Normally open (NO)
- Push to make (PTM)
- Non latching
- Normally closed (NC)

After this task we ended the meeting and decided the agenda for the next one. In the next meeting we should develop scenarios and circuits that students will be using for the hands-on activity. We have agreed to do this ideally before we meet so that when we meet we will only discuss them and any required amendments. We also need to develop a list of tools and components needed during the next meeting.

Agenda for next meeting:	Develop scenarios to be discussed during the next meeting
---------------------------------	---

Meeting No:	Date:	People involved:	Duration:	Meeting type:
6	20 th December 2018	Ms. Jo-Ann Azzopardi	40 mins	Face-to-face

During this meeting, I have updated Ms. Azzopardi about the lesson study and the lesson phases. She suggested to tweak the first phase by providing another aid apart from the multimeters so that students have a variety of sources from which they can choose to develop knowledge and information about various switches. She suggests to make use of the school tablets by providing an electronic tablet to the students as well. With these tools, students will be able to use it to connect to the internet and search about the given switches. The multimeter will serve as an aid to prove what they have found online. This will also give the opportunity to students to choose a device that they mostly feel comfortable with.

This meeting helped me to reflect on how to implement the first phase whether individually or by group work. Both of us agreed that group work will be beneficial for the students because they can share, compare and contrast their findings. In doing so, this will help them not only to acquire new knowledge but also analyse it. This will be further discussed with Mr. Sciberras as well.

We concluded the meeting by discussing who to invite as an observer and reasoning why we have decided to choose these particular individuals. We have decided to invite:

- X1 The assistant head in charge of VET subject in our school
- X1 An engineering teacher (who do not teach year 11)
- X4 Head of departments of Computer, I.T, Physics and European studies
- X1 Maths teacher

X1 English teacher	
We also agreed to inform them via email. In addition to this, we agreed to start developing the observers' observation sheets in parallel with the development of the lesson phases.	
Agenda for next meeting:	To inform Ms. Azzopardi about the outcomes of the first phase To develop observation sheets To formulate email with all the required information to be sent to the teachers.

Meeting No:	Date:	People involved:	Duration:	Meeting type:
7	4 th January 2019	Mr. Marco Sciberras	45 mins	Online via Skype

Since the first meeting was made via skype, we have electronically sent to each other the circuits that we have developed and discussed them. At this stage, we also discussed and decided that students will be divided in four groups of around 3 to 4 students per groups.

Upon this decision we had to choose four circuits and then relate a scenario to each one of them. Each group had to try out all the four circuits but each group will present one particular circuit to the rest of the class. After deciding which circuits to use, we added two more switches to the first phase. Therefore, during the first task students had a total of eight switches to investigate. These were:

- reed switch
- tilt switch
- micro switch
- toggle switch
- DIP switch
- slide switch
- rocker switch
- push switch

During this meeting we also decided that students will be grouped at the beginning of the lesson and they remain within their group up to the end of the lesson. We also discussed students' prior knowledge, mainly on how to use the multimeter and on how familiar students are with the given electronic components which are used in the circuit. I have also discussed with Mr. Sciberras, Ms. Azzopardi's proposal to add tablets as an additional resources. Mr. Sciberras and I have agreed to supply each group with 1 tablet. We have also concluded that all components used in the circuits are included in the engineering syllabus and therefore, these should be taught by the teacher in prior lessons.

We decided that the lesson will be taught on Friday, 18th January. I have offered to develop scenarios in relation to the selected circuits and a PowerPoint presentation which will be used to teach the terminology related to circuits during the plenary 4th phase. Marco offered to compile a list of required components and send me some material to use in the presentation.

Agenda for next meeting:	To finalise lesson
---------------------------------	--------------------

Meeting No:	Date:	People involved:	Duration:	Meeting type:
8	9 th January 2019	Mr. Marco Sciberras	55 mins	Online via Skype
<p>The meeting was also made via skype. Prior to meeting online, I had sent the students' worksheet which will be used during the first phase and the second phase together with the PowerPoint presentation to Mr. Sciberras. While designing the worksheet, I felt the need to add an additional phase between the first and the second one. The new phase involves individual work to be carried out by the students where they have to decide on his/her own which switch or switches should be used for that particular task before discussing it with the rest of the group. This individual analytical process would also contribute as brainstorming when each member share his/ her ideas. More so, there may be the possibility of having different ideas and interpretations on which type of switch to use to operate a circuit in a particular scenario. I have discussed this with Mr. Sciberras and he agreed with it. After discussing and carrying out some minor amendments on the work that I have sent him, everything seemed to be set for the lesson. While reflecting on the practical task and allocating time for each task, Marco remarked that students will not be able to complete the four scenarios. Therefore, we have decided to change this task by assigning one particular scenario (i.e.: one circuit) to each group. If it happens that the group is ready prior to the allocated time, they may have the possibility to build another circuit related to another scenario. We have also decided that before proceeding to the plenary time will be allocated so that students will show off their work to the other groups and explain to them how they managed to build their assigned circuit and make it as described in the given scenario.</p>				
Agenda for next meeting:	To conduct a meeting with Ms. Azzopardi to discuss the logistics			
	To meet for the debriefing session			

Meeting No:	Date:	People involved:	Duration:	Meeting type:
9	14 th January 2019	Ms. Jo-Ann Azzopardi	40 mins	Face-to-face
<p>After updating Ms. Azzopardi with the progress that we have made on the last two phases. We:</p> <ul style="list-style-type: none"> • formulated an email to be set to observers • reserved the tablets for this activity and make sure that tablets are charged • got document holders to attach the observation sheets for the observers • photocopied all the required material • prepared all the required electronic components 				
Agenda for next meeting:	To meet for the debriefing session			

Meeting No:	Date:	People involved:	Duration:	Meeting type:
10	25 th January 2019	Ms. Jo-Ann Azzopardi Mr. Marco Sciberras	55 mins	Online via Skype Face to face
<p>The debriefing session was held face to face with Ms. Azzopardi while Mr. Sciberras was virtually present by being connected with us online via skype. We started the meeting by giving some comments of how I felt when conducting the lesson. This was followed by allowing Mr. Sciberras and Ms. Azzopardi to add their comments. The meeting progressed by analysing the general observation sheets and the students' observation sheets. Afterwards, we have analysed the students' worksheets and the feedback forms. From all the documentation analysis, it was evident that the students have reacted positively to the lesson. Students enjoyed mostly the practical work. We have also noticed that task was quite intensive, therefore, reducing the amount of work to be carried out and this would help in completing all the tasks. We have decided to reduce the amount of switches to be investigated in the first task and provide two scenarios instead of four.</p>				
Agenda for next meeting:	N/A			