

MPG Level 2 Firmware Development		
Class Number	Topic	Week Number
0.1	Classroom Announcements <i>- Invite students to attend the info session 2-3 days prior to the info session</i>	Week 0
0.2	Info Session - What is MPG? <i>- Presentation on what MPG is, the schedule for the semester and how MPG benefits participants</i>	Week 0
1	Software Installation <i>- Go through downloading and installing IAR and the MPG software pack</i> <i>- Remind students to connect with Engenuics on Facebook to receive MPG updates</i> <i>- Set up a workspace and discuss the debugging tools and software layout</i> **Reminder to bring money for hardware orders next week**	Week 1
2	Section 1 - Hardware <i>- Introduce the SAM3U2 Corex-M3 microcontroller</i> <i>- Start working through the level 2 board schematics</i> **Provide hard copies of schematics (recommended) or ensure everyone has an electronic copy** **Hardware order deadline - submit order and money to Engenuics**	Week 2
3	Section 2 - Firmware Design Overview <i>- Review the MPG operating system from Level 1</i> <i>- Begin reviewing the APIs from Level 1</i>	Week 3
4	Hardware arrives! <i>- Find the components from the schematics on the board</i> <i>- Finish reviewing the APIs from Level 1</i>	Week 4
5	Section 2 - Firmware Design Overview <i>- Go over the new drivers for MPG Level 2: Cap-touch and Graphical LCD</i>	Week 5
6	Section 3 - ANT Radio System <i>- Introduce the ANT chip and radio system</i>	Week 6
7	Section 3 - ANT Radio System <i>- Finish working through exercises with ANT</i>	Week 7
8	Section 4 - Pong <i>- Go over the game design</i>	Week 8
9	Section 4 - Pong <i>- Create the pong game screen</i> <i>- Work on single player mode</i>	Week 9

10	Section 4 - Pong <i>- Finish single player mode</i> <i>- Complete the pong radio test</i> **Confirm Winter MPG dates and times** **Submit classroom requests to the department**	Week 10
Winter Holidays: consider offering a day long catch up session. **Ensure all MPG deliverables are submitted by January 1**		

MPG Remote Level 2 Proposed Schedule - Winter Semester

Class Number	Soldering Stream	Non-Soldering Stream	Week Number
11	Ch 8 - A, B, Embedded C <i>- Introduce high level concepts and conventions in C</i>	Ch 7 - Assembly in Action - Hello World! <i>- Discuss how a processor works(start up, initializations, timing)</i> <i>- Introduce coding basics</i> <i>- focus on how logic (code) translates to physical action (hardware)</i>	Week 11
12	Ch 8 - A, B, Embedded C (Lab Day) <i>- Give an overview of the exercises in section 8.5 and allow time for students to work through them</i>	Ch 7 - Assembly in Action - Hello World! <i>- Complete Ch 7 exercises</i>	Week 12
13	Ch 8 - A, B, Embedded C <i>- Ensure exercises are complete and well understood</i>	Ch 8 - A, B, Embedded C <i>- Introduce high level concepts and conventions in C</i> <i>- Allow time to work on the exercises in section 8.5</i>	Week 3
14	Ch 9 - Don't mind the interruptions <i>- Go over interrupts in depth!</i> <i>- Reading break homework: Students should complete up to the end of section 9.3</i>	Ch 8 - A, B, Embedded C <i>- Ensure exercises are complete and well understood</i> <i>**Students should devote 4-5 hours over Reading Break to look at Ch 9 and complete up to the end of 9.3**</i>	Week 14
15	Reading Week <i>- Consider offering a half-day catch-up session</i>		Week 15
16	Ch 9 - Don't mind the interruptions <i>- Introduce the button functionality and complete the chapter exercise</i>		Week 16
17	Ch 10 - PWM <i>- Introduce pulse-width modulation concepts and cover the LED driver</i>		Week 17
18	Ch 10 - PWM <i>- Explain the audio driver</i> <i>- Competition/Exercise</i>		Week 18
19	Competition work/ Catch-up		Week 19
20	Intra-school competition		Week 20

21	Ch 11 - 16 Preview <i>- Provide a brief overview of the rest of the material</i> <i>**Inter-school competition posts due and judging begining**</i> <i>**Student bursary submissions due**</i>	Week 21
22	Introduce MPG Level 2 <i>- Provide a demo of the Blade board, focusing on the GPS and accelerometer</i> <i>- Announce inter-school competition and student bursary winners</i>	Week 22
Celebrate! <i>**Ensure all deliverables are submitted to Engenuics by May 1**</i> <i>The MPG Leader bursary announcement will be made by May 15</i>		