

MECHATRONICS SYSTEMS: 2009 COURSE TIMETABLE				Notice: Details may change during the semester		July 21, 2009	
wk	date	sem. week	Lecture: Mondays 1 hour per week	Tutorial: Monday, Tuesday 1 hour every week	Deadlines	Workshops, suggested project work, and other comments 8 hours each week	
30	20-Jul	1	What is Mechatronics? An introduction to mechatronics engineering. Introduction to unit, assessment, project requirements. Introduction to functional block diagrams. Quiz.	Mechatronics systems - functional diagrams.	Come to the first laboratory project group session as allocated by OLCR. Attend the Mechatronics Lab safety session. Friday, July 24th: Submit Project Request Report	LabVIEW Workshop 1. Project Proposal.	
31	27-Jul	2	Discrete Control Devices.	Quiz feedback. System block diagrams: information flow. Automotive cruise control examples. Remote lab.		Study project requirements. LabVIEW Workshop 2	
32	3-Aug	3	Finite state machines lecture 1 (A/Prof. Lyndon While)	Finite state machine exercise (A/Prof. Lyndon While)	Thursday, August 6th: Fortnightly project report.	Study project requirements and sources of supply. LabVIEW Workshop 3	
33	10-Aug	4	Finite state machines lecture 2 (A/Prof. Lyndon While)	Finite state machines: field exercise (A/Prof. Lyndon While)		Prepare project scoping document LabVIEW Workshop 4 (final)	
34	17-Aug	5	Finite state machines lecture 3 (A/Prof. Lyndon While)	Sand weighing machine exercise introduction	Thursday, August 20th: 1) Project Scoping Document Friday, August 21st: 2) First finite state machine assignment.	Project Scoping Document	
35	24-Aug	6	Introduction to continuous controls: electric motors and electric drives, hydraulic actuators.	Hard disc drive design study; Sand machine FSM exercise - demonstration, questions and answers		Technical project work, finite state machine Telelabs assignment	
36	31-Aug	7	Introduction to continuous controls (continuation): hydraulic drives. Simulation of mechatronics systems Part 1: Simple nonlinear modelling and numerical solution of DEs with Euler method.	Sand machine FSM exercise - questions and answers. Hydraulic drives: simulation part 1.	Thursday, September 3rd: 1) Fortnightly project report. Friday, September 4th: 2) Second (Telelabs) finite state machine assignment.	Technical project work, finite state machine Telelabs assignment	
37	7-Sep		Mid Semester Teaching Break				
38	14-Sep	8	Thermal Systems. Multi-variable representation. Introduction to Individual Study Simulation Module	Simulation examples (continuation) part 2: thermal systems. For assignments and Individual Study Simulation Module: modelling an electric iron with thermal energy flows. Discussion about the mandatory reading (paper by Rosero et al 2007.)	Thursday, September 17th: Fortnightly project report.	Monday, September 14th: Complete mandatory reading: 1) Rosero, J. (A. et al. (2007) "Moving Towards a More Electric Aircraft" " (see link from the <a href="http://www.mech.uwa.edu.au/mechatronics/MS/index.html">http://www.mech.uwa.edu.au/mechatronics/MS/index.html</a> to the Online Class Materials). Technical project work. Simulation Exercise 1 (electric iron exercise) Part 1 (50 mins)	
39	21-Sep	9	Stability issues in Euler method. More accurate and robust simulation methods (Runge-Kutta method). Laws governing various systems - Prof. J. Trevelyan	Simulation part 3: more examples - Prof. J. Trevelyan		Unit coordinator absent (since September 16th afternoon).	
40	28-Sep	10	Mechatronics in practice. Automation of mining operations (delivered by Mr Victor Schweikart of Rio Tinto Iron Ore).	Experimental and simulation examples: mechanical + electrical systems: Load Cell - Lynn Kirkham	Thursday, October 1: 1) Fortnightly project report. Friday, October 2: 2) Complete Simulation Exercise 1.	Complete Simulation Exercise 1. Unit coordinator absent.	
41	5-Oct	11	Assessment tips. Friction modelling: example using electric motor. Introduction to continuous control with feedback.	Introduction to Simulation Exercise 2 (PID). Commence Simulation Exercise 2 (PID).	Thursday, October 8th: 1) Individual Simulation Study Report (voluntary).	Prepare demonstrations Complete Individual Study Simulation Module (matching an iron model to the experimental data) - BONUS. Unit coordinator returns (Monday, October 6th)	
42	12-Oct	12	Continuous control with feedback: proportional, integral and derivative control (PID).	Help with Simulation Exercise 2 (PID). More simulation examples.	Project demonstrations and assessment week (in laboratories at appointed times).	Project demonstrations and project report.	
43	19-Oct	13	Unit summary	Unit summary. More examples	Thursday, October 22nd: Deadline for final project reports. Friday, October 23rd: Deadline for Simulation Exercise 2	Complete final project report. Complete Simulation Exercise 2(PID) assignment.	
44	23-Oct		Second semester classes end				
45			Examinations				
46			Examinations				