

**Taylor's University**  
**School of Engineering**  
**Scheme of Work**

SOW/SoE/03/18

<b>Module</b>	Electrical and Electronic Engineering Group Project 1		<b>Module Code</b>	PRJ60903						
<b>Module Status</b>	Core		<b>Prerequisite</b>	PRJ60403 Engineering Design and Innovation						
<b>Semester/year</b>	Semester 5 / Year 3		<b>Date Prepared</b>	19 March 2018						
<b>Lecturer</b>	Phang Swee King Ph.D. B.Eng (Hons 1)		<b>Credit Hours</b>	Three (3)						
<b>Period</b>	Fourteen (14) weeks		<b>Date(s) of Revision</b>	N/A						
<b>Module Synopsis</b>	The students will work in teams to solve an engineering challenge, analyse an engineering failure or build an engineering product. Students evaluation for this subject is in two parts: group and individual. The individual component is assessed through student portfolios, final report and presentation, while the group effort is based on project proposal.									
<b>Contact hours</b>	Lecture: 2 hours Discussion: 4 hours/week									
<b>Evaluation</b>	100% Continuous Assessment									
<b>Learning Outcomes</b>	<p>On completion of this module, students will be able to:</p> <p>LO1: Demonstrate effectiveness in communicating technical activities in oral and written form (PO9)</p> <p>LO2: Apply project management tools and techniques in effective project initiation and planning (PO12)</p> <p>LO3: Conceive and design effective solutions for complex engineering challenges (PO3)</p> <p>LO4: Apply appropriate techniques, modern engineering and IT tools to an engineering design project (PO5)</p> <p>LO5: Demonstrate effectiveness as a team member and/or team leader (PO10)</p> <p>LO6: Demonstrate the knowledge of sustainable development in designing solutions for complex engineering challenges (PO7)</p> <p>LO7: Identify activities to cope with technological needs of the future (PO11)</p> <p>LO8: Apply knowledge of scientific and engineering practices to provide viable solutions for complex Electrical Engineering challenges (PO1)</p>									
<b>Assessment Methods</b>	Distribution	(%)	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8
	Logbook	10	✓						✓	
	Interim Report	20		✓	✓					
	Final Report	30			✓	✓		✓		✓
	Presentation	15	✓					✓		✓
	Peer Assessment	5					✓			
	Artefact Assessment	20			✓			✓		
Total	100									
<b>Learning References</b>	Reference Books: "Think Like an Engineer", Mushtak Al-Atabi									
<b>Additional References</b>	List of references to be assigned by the supervisor based on the project title.									

### Program Outcomes (Electrical and Electronic Engineering)

PO1	Apply the knowledge of mathematics, science, engineering practices, innovation techniques, entrepreneurship and human factors to provide value-adding solutions to complex Electrical and Electronic Engineering challenges.
PO2	Identify, formulate, analyse and document complex engineering challenges to arrive at viable solutions and substantiated conclusions.
PO3	Conceive, Design, Implement and Operate solutions for complex engineering challenges that meet specified requirements with appropriate consideration for public health and safety, cultural, societal, environmental and economical considerations.
PO4	Conduct research and investigation into complex challenges using methods which include experiment design, analysis of data and synthesis of information to provide valid conclusions.
PO5	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an awareness of the accompanying assumptions and limitations.
PO6	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal, economical and cultural issues and the consequent responsibilities relevant to professional engineering practice.
PO7	Explain the global impact of professional engineering solutions in societal, economical and environmental contexts and demonstrate knowledge of and need for sustainable development.
PO8	Apply professional and ethical responsibilities of engineering practice.
PO9	Effectively communicate complex engineering activities, both orally and in a written form, in both technical & non-technical contexts.
PO10	Function effectively as an individual and in multidisciplinary settings with the capacity to be a leader.
PO11	Recognise the importance of lifelong learning and engaging in continuous professional development activities in accordance with technological change.
PO12	Effectively manage projects in multidisciplinary environments and apply project management tools and techniques to one's own work, as a member and leader in a team to satisfy stakeholders requirements.

Chapter	Topic	Week	Topic Outcomes (TO)	PO	LO	Delivery Methods
1	Introduction to Group Project (Autonomous Drone Surveillance System)	Week 1	Students would be briefed on the module and the project	-	-	Lecture
2	Introduction to Drones	Week 2	Identify challenges Team formation with team leader	PO9 PO11	LO1 LO7	Discussion, Independent study
		Week 3	Students will also be exposed to using Project Management principles.	PO12	LO2	Discussion, Independent study
3	Working Principle of Drones	Week 4 Week 5 Week 6	Students will be exposed to key areas to assist their thinking process in conceiving ideas and evaluating them.	PO3	LO3	Discussion, Independent study
4	Interim Report Preparation and Submission	Week 7	Submission of Interim Report with the details of challenges identified, ideas evaluation, proposed solutions and project timeline	PO10	LO5	Discussion, Independent study
5	Introduction to Autonomous Drones Design	Week 8 Week 9 Week 10	Design effective solutions for the identified engineering challenges.	PO3 PO7	LO3 LO6	Discussion, Independent study
		Week 9	*TES briefing (15 mins)	-	-	
		Week 10	*Fill up TES student evaluation (15 mins). Students are required to bring their own devices to complete the evaluation.	-	-	
6	Software Simulation of Drone Movement and Stability	Week 11 Week 12*	Students will be exposed to using Engineering tools such as MATLAB to simulate movement and stability of the designed drone  * e-learning week 12	PO5	LO4	Discussion, Independent study
7	Design Evaluation	Week 13	The feasibility of the designed drone to solve the identified challenges will be evaluated with Engineering tools	PO1	LO8	Discussion, Independent study
8	Prototyping	Week 14	Prototype of drones based on student design will be assembled	PO5	LO4	Discussion, Independent study



Prepared By:

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Remarks:

1. The Scheme of Work is to be distributed to the students in the first week of the semester.
2. Any changes to the Scheme of Work shall be communicated (in writing) to the Program Director and the approved revised version must be communicated to the students.
3. Module coordinators may set a more stringent similarity percentage (minimum 20%) for their respective modules pertaining to student's submissions. However, it must be communicated in writing to the respective Programme Director (PD) and the approved revised version must be communicated to the students.