

<b>Module Code</b>	TG-3308		
<b>Module Title</b>	System Simulation and Decision Support		
<b>Degree/Diploma</b>	Bachelor of Engineering		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	4	<b>Total student Workload</b>	8 hours/week
		<b>Contact hours</b>	4 hours/week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
The aim of the module is to expose students to simulation tools applicable for systems engineering. The analysis, interpretation and evaluation of the results of the model simulation will be conducted using software-based platforms.			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	10%	- recognise main elements that need to be considered in different dynamic systems	
Middle order :	10%	- derive equation of motions and its various forms that are able to describe the dynamic behaviour of the system	
Higher order:	80%	- conduct computer simulations to analyse the different properties of the system - design different components of the system (open-loop and closed loop) to satisfy different objectives - justify the use of certain models and decisions in written communication	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>– Develop mathematical models to represent different dynamic systems and express the models into various forms appropriate for different simulation tools</li> <li>– Perform computer simulations as an alternative to analytical solutions and provide visualisation of the simulation results in order to analyse the system</li> <li>– Based on the models and simulations, develop arguments to satisfy different open-loop system designs in order to satisfy different objectives</li> <li>– Design closed-loop feedback mechanism to improve system performance and present information and arguments to justify design choice</li> </ul>			
<b>Assessment</b>	Formative assessment	Monthly online quizzes shall be used to test and to give feedback for their learning	
	Summative assessment	Coursework: 100% - 2 individual assignments (10% each) - 4 group reports (15% each) - 1 final group design project report (20%)	