

## Module Specification

### Module Summary Information

<b>1</b>	<b>Module Title</b>	Vehicle Control Systems
<b>2</b>	<b>Module Credits</b>	20
<b>3</b>	<b>Module Level</b>	7
<b>4</b>	<b>Module Code</b>	ENG7153

<b>5</b>	<b>Module Overview</b>
<p>This module offers you an opportunity to model, control and design vehicles using modern simulation and control strategies within an appropriate software environment for ABS, active suspension, power steering and stability systems.</p>	

<b>6</b>	<b>Indicative Content</b>
<ul style="list-style-type: none"> <li>• ABS Modelling, Control Cycles and Sensors</li> <li>• Optimization of Mu-Slip Curves</li> <li>• Quarter Car Modelling and Control</li> <li>• Half Car Modelling and Control</li> <li>• Steering System Models</li> <li>• Vehicle Stability</li> <li>• Power/Actuation Requirements</li> </ul>	

<b>7</b>	<b>Module Learning Outcomes</b>
<b>On successful completion of the module, students will be able to:</b>	
<b>1</b>	Design robust optimum controllers for the purposes of ABS and traction control.
<b>2</b>	Synthesis alternative vehicle models for motion and stability control.
<b>3</b>	Apply a variety of techniques for the control of $\frac{1}{4}$ and $\frac{1}{2}$ car models.
<b>4</b>	Critically analyse and evaluate alternative (hybrid-electric) vehicle architectures.

<b>8</b>	<b>Module Assessment</b>		
<b>Learning Outcome</b>			
	<b>Coursework</b>	<b>Exam</b>	<b>In-Person</b>
<b>1 – 4</b>	<b>X</b>		

<b>9 Breakdown Learning and Teaching Activities</b>	
<b>Learning Activities</b>	<b>Hours</b>
<b>Scheduled Learning (SL)</b> includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	36
<b>Directed Learning (DL)</b> includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE, Symposia.	0
<b>Private Study (PS)</b> includes preparation for exams	164
<b>Total Study Hours:</b>	200