

**Module Outline: Modelling and Simulation Comp 3352 2020-21 S2**

1. Things I need to know to achieve a successful module outcome
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3. What will I be able to do when I have attended and actively participated in this module?
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8. How can I help myself to achieve a successful outcome?
9. What is my responsibility in Comp3352
10. How do I get help if I have a disability or a particular learning need?
11. What is my assessment / are my assessment(s)?
12. My Module Timetable

**1. Things I need to know to achieve a successful module outcome:**

Date/time	Room:
<b>Face-to-face or Online Workshops</b>	
Tuesdays 11:45 – 12:45	CH1007
Fridays 15:15 – 17:15	CH1007
<b>Pre-recorded Mini-lectures</b>	
Available week before associated workshop	online
<b>Online Q&amp;A support session</b>	
Thurs 15:15 – 16:15	online

<b>2. Who are my teaching team?</b>	Dr. Colin Price, <a href="mailto:c.price@worc.ac.uk">c.price@worc.ac.uk</a> , Room CHLG020, Phone 542024	MA in Natural Sciences majoring in Experimental Physics (Cambridge), PhD Electronic Engineering (University of Leuven – Belgium), Fellow of the Higher Education Academy, National Teaching Fellow. Over 70 research publications in areas of Theoretical Physics, Literacy, Computer Science and Computer Science Education.
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<p><b>3. What will I be able to do when I have attended and actively participated in this module?</b></p>	<p>Attendance is essential to your successful module outcome and your degree classification. Active participation in all sessions whether online or face-to-face will help you to:</p> <ol style="list-style-type: none"> <li>1. Evaluate the various approaches to modelling real-world scenarios</li> <li>2. Design a model for a given scenario and implement this model in a computer programming language</li> <li>3. Conduct planned simulations using the programmed model to verify and validate the model</li> <li>4. Evaluate the results of simulations conducted according to a planned research investigation</li> </ol>
<p><b>4. How does my module fit into my course?</b></p>	<p>Each module and each level of your course progressively builds towards higher order skills and capabilities that you need to achieve the best results in your life. If you do not understand how this module fits into your overall course please discuss this with your module tutor/course leader.</p> <p>This module will draw on your prior programming experience and introduce the principles of modelling dynamic systems. While this will be done using physics and robotics models, the principles are useful to modelling most systems such as business, climate, pandemics, movement of cars and pedestrians.</p>
<p><b>5. How does my module engage with the real-world environment?</b></p>	<p>This module is concerned with modelling and simulating aspects of the real-world environment, and therefore should enhance your understanding of how the real-world functions</p>

<p><b>6. How will my module help me enhance my academic skills and employment skills?</b></p>	<p>As businesses now frequently ask for details of your module attendance in your reference, we recommend that you attend all lectures and workshops whether they are online or face-to-face.</p> <p>By attending and participating in lectures and workshops you will get to work in groups, collaborate, share ideas, negotiate and influence others. These are all key employment skills that your future employers will expect from you.</p> <ul style="list-style-type: none"> <li>• <b>Application of relevant knowledge.</b> You will sharpen your mathematical and computer coding skills You will develop abstract thinking helping you to “step out of a problem” to understand it</li> <li>• <b>Research and problem solving.</b> You will learn how to plan and conduct a simulation study to address a problem you have identified, propose and test a hypothesis about a particular scenario.</li> <li>• <b>Critical Analysis.</b> In conducting simulations you will be exploring “what – if” scenarios and you will understand the implications of choices you make. In analysing simulation data you will be able to look for patterns and form conclusions from the interpretation of your data.</li> <li>• <b>Numeracy.</b> You will learn how to use spread sheets to analyse data of moderate complexity. Through a study of mathematical models of natural systems, students will enhance their mathematical skills such as algebra and analysis.</li> </ul> <p>The UW <a href="#">Careers &amp; Employability Service</a> is your online portal that contains tools to support students and graduates plan and manage their careers and develop employability skills. This includes ‘myCareer’, our new online platform for students to search for placements, internships and graduate roles, book onto careers fairs, workshops and events, access eGuidance, and complete the Worcester Award.</p> <p>Your WBS <a href="#">Employability Enhancement Hub</a> is your online self-assessment portal that contains tools that allows you to map your employment skills and personal qualities against what employers want from graduates. By using it you will discover what you have learned from your academic study, work experience and extra-curricular activities and be shown how to demonstrate them in your CV.</p>
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<p><b>7. What do I need to know before I attend and participate in my lectures?</b></p>	<p>Learning will be centred around set tasks where you will carry out a number of activities, following input from the Tutor. These will be structured to allow face-to-face or online work. There will be no Powerpoint presentations; you will be provided with pre-recorder mini-lectures to introduce the topic. There will be online Q&amp;A sessions to support your progress.</p> <p>During the first few sessions you will learn the “tools” of modelling and simulation. Then you will choose a “mini-project” from a list of suggestions, and apply your knowledge and skills to your project.</p> <p>This module achieved 100% satisfaction last year. Students enjoyed the varied range of topics covered, and the large amount of “hands-on” activities. They liked the “real-world” applications of the activities. They also liked the module organization and the support provided by the Tutor.</p>
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<p><b>8. How can I help myself to achieve a successful outcome?</b></p>	<p>You need to do a lot of reading to obtain your degree. This means you must get used to conducting independent study and using the library resources such as journal articles, books, data bases, etc. to source credible information. These are available from the Library website: (<a href="https://library.worc.ac.uk">https://library.worc.ac.uk</a>).</p> <p>To ensure you can achieve a successful outcome of this module, you must prepare for each lecture through independent study. Your preparation for each lecture is shown in the Module Programme in this document; the sources identified for each week’s preparation are provided in the module’s Talis Aspire Resource List which is available via a link in your module’s Blackboard site or via: <a href="https://worc.rl.talis.com/index.html">https://worc.rl.talis.com/index.html</a>.</p> <p>To obtain your best module outcome you must attend and fully participate in all sessions. If you cannot attend any of your online or face-to-face sessions for any reason you must notify the module leader as soon as possible before the session. Continued non-attendance / disengagement may lead to you being removed from the course.</p> <p>If you need help with your academic skills such as academic writing, referencing, critical analysis, independent study, time management, etc. please contact Firstpoint in the Peirson Study and Guidance Centre on St John's Campus, call them on 01905 542551, or email <a href="mailto:firstpoint@worc.ac.uk">firstpoint@worc.ac.uk</a>. Further information is available on the Firstpoint website: <a href="https://www.worcester.ac.uk/life/help-and-support/services-for-students/firstpoint.aspx">https://www.worcester.ac.uk/life/help-and-support/services-for-students/firstpoint.aspx</a> and the Library website: <a href="https://library.worc.ac.uk">https://library.worc.ac.uk</a>.</p> <p><b>The Academic Liaison Librarian for the Business School</b> is available by email: <a href="mailto:askalibrarian@worc.ac.uk">askalibrarian@worc.ac.uk</a>.</p> <p><b>If there is anything which is unclear, or you do not understand, please ask a member of the module team.</b></p>
<p><b>9. What is my responsibility in Comp 3352</b></p>	<p>It has been proven that your lecture attendance is strongly linked to your module success. As we want you to do well, we recommend you attend all of your online or face-to-face lectures and workshops, undertake all of your lecture preparation, participate with in-class activities and ask for help if you need it.</p> <p>If you cannot attend for any reason you must notify the module leader as soon as possible before the session. If the module leader knows you are unable to attend, they will be able to help you catch back what you have missed. Your non-attendance / disengagement in the lectures may lead to you being removed from the module.</p> <p><b>If there is anything which is unclear, or you do not understand, please ask a member of the module team.</b></p>
<p><b>10. How do I get help if I have a disability or a particular learning need?</b></p>	<p>The University of Worcester is committed to ensuring diversity and equality within our learning, teaching and assessment practice. If you have a registered disability or particular learning need and you wish this to be taken into account, please speak to your Personal Academic Tutor or let the module leader know. You will find additional useful information on the Disability and Dyslexia webpages at <a href="https://www2.worc.ac.uk/disabilityanddyslexia/">https://www2.worc.ac.uk/disabilityanddyslexia/</a></p>

<b>11. What is my assessment / are my assessment(s)?</b>	There are 2 items of assessment. Report 1 (25%) covers the grounding principles of modelling and simulation. Report 2 (75%) covers you mini-project investigation work/
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<b>Assignment 001</b>	Report 1
<b>Word Limit or equivalent (e.g. time)</b>	There is no word limit for this report. This will be based on your work in the first 6 sessions. You should devote enough time to fulfil the requirements of the assignment brief.
<b>Weighting</b>	25%
<b>Learning Outcomes Assessed</b>	ILO 1,3
<b>Submission date</b>	Friday 12 <sup>th</sup> March 2021
<b>Feedback date</b>	All assignment feedback will be issued on the 20 <sup>th</sup> working day following the submission deadline. Feedback will be released on: Tuesday 20 <sup>th</sup> April 2021
<b>Module Leader</b>	Colin Price
<b>Verified by</b>	Pete Moody

<b>Assignment 002</b>	Report 2
<b>Word Limit or equivalent (e.g. time)</b>	There is no word limit for this report. It should capture all your mini-project work including investigations. In previous years, the average number of pages submitted was ?? (StD = )
<b>Weighting</b>	75%
<b>Learning Outcomes Assessed</b>	ILO 2,4
<b>Submission date</b>	Monday 10 <sup>th</sup> May 2021
<b>Feedback date</b>	All assignment feedback will be issued on the 20 <sup>th</sup> working day following the submission deadline. Feedback will be released on: Tuesday 8 <sup>th</sup> June 2021
<b>Module Leader</b>	Colin Price
<b>Verified by</b>	Pete Moody

**12. My Module Timetable**

W/C date	week number	Pre-class activity	Topic	How does this link to my Assessment?
18 Jan	13	View mini-lecture	Basic system dynamics: 1D Apocalypse Rise	ILO1
25 Jan	14	View mini-lecture	2D dynamics and Validation: Badminton	ILO3
1 Feb	15	View mini-lecture	Monster Truck Oscillator (Verification)	ILO3
8 Feb	16	View mini-lecture Webots Tutorials	Robot Vision	ILO1
15 Feb	17	View mini-lecture	Robot Navigation: Maze follower	ILO1
22 Feb	18	View mini-lecture	Snakes, fish and salamanders	ILO1
1 Mar	Progression Week			
8 Mar	19	∅	Mini-project choice	ILO2,4
15 Mar	20	∅	Mini-project	ILO2,4
22 Mar	21	∅	Mini-project	ILO2,4
29 Mar	<b>Easter Break</b>			
5 Apr	<b>Easter Break</b>			
12 Apr	22	∅	Mini-project	ILO2,4
19 Apr	23	∅	Mini-project	ILO2,4
26 Apr	24	∅	Mini-project	ILO2,4
	* Assessment Week 3 May - 14 May * Bank Holiday Monday 3 May			
	<b>Assessment Week</b>			

**Reassessment Week: 5 July 2021 – 16 July 2021**