Note: Incomplete sections will be updated when information becomes available

M A S S E Y U N I V E R S I T Y
COLLEGE OF SCIENCES
Paper Outline 2017

Paper Number and Title: 282758 Simulation, Modelling and Optimisation

Credits value: 15 **Semester:** 1702

Campus: Albany **Mode:** Internal

Calendar Prescription:
A practical course in modelling, simulation and optimisation of systems in industry.

Pre-requisites: 282.346, 282.360, 281.335
Co-requisites:
Restrictions: 143.458

E-Learning Category:

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Secondary Contact: Dr Khalid Arif

Learning Outcomes:
On completion of the paper the student should:
1. Analyse a system and create a model and/or simulation.
2. Analyse an optimisation task then find and apply an appropriate optimisation technique.
3. Work individually, or in groups, to achieve a solution.
4. Present the results of a simulation, modelling or optimisation task in an appropriate manner.
5. Tackle an open-ended task and return the best solution within a given timeframe.

Alignment of Assessment to Learning outcomes

Assessment Description		Learning Outcomes Assessed					Contribution to Paper Mark
Assessment		1	2	3	4	5	
Chemical Reactor	OA1	√	√	√			10%
Orienteering*	OA2	√	√	√		√	20%
Orbital Tower*	SA1	√		√	√	√	20%
ROS-based SLAM*	SA2	√		√	√	√	20%
Setup Model Robot*	MA1	√		√	√	√	10%
Robot Navigation*	MA2	√		√	√	√	20%

* The topics for these assessments may be changed at a later date.

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Assessments and Deadlines

Assessment	Due Date / Deadline		Late Penalty	Paper completion requirement
Chemical Reactor	Fridays, 5pm	Huub	Lose a test.	
Setup Model Robot*	5th August	Khalid	Lose 20% for every week late.	Compulsory
Orienteering*	15th September	Huub	Lose 20% for every week late.	Compulsory
Robot Navigation*	16th September	Khalid	Lose 20% for every week late.	Compulsory
Orbital Tower*	21st October	Huub	Lose 20% for every week late.	Compulsory
ROS-based SLAM*	21st October	Khalid	Lose 20% for every week late.	Compulsory

* The topics for these assessments may be changed at a later date.

The turnaround time for assignments will be no more than three weeks from the due date. It is important to note that the specified timeframe applies only to those assignments submitted by the due date, and does not necessarily apply to those submitted late.

Additional Requirements for Paper Completion
Active participation in all group project work is required.

Final examination dates: N/A

Timetable:
http://www.massey.ac.nz/massey/study/class-timetable/class-timetable_home.cfm

Student Time Budget:
A 15 credit paper equates to 12.5 hours per week, studying 4 papers full time equals 50 hours per week.

Textbook and Other Recommended Reading, Online Resources:
Some material will be provided for each assignment but students are expected to use their own initiative to find relevant material.

Conditions for Aegrotat Pass and Impaired Performance:
If you are prevented by illness, injury or serious crisis from attending an examination (or completing an element of assessment by the due date), or if you consider that your performance has been seriously impaired by such circumstances, you may apply for aegrotat or impaired performance consideration. You must apply on the form available

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from the Examinations Office, the Student Health Service or the Student Counselling Service.

(d) As this paper does not have a compulsory assessment element that occurs at a fixed time and place aegrotat applications will not be considered. Contact the Paper Coordinator if you are unable to complete assessment elements because of illness, injury or a serious crisis.

Plagiarism:
Massey University, College of Sciences, has taken a firm stance on plagiarism and any form of cheating. Plagiarism is the copying or paraphrasing of another person's work, whether published or unpublished, without clearly acknowledging it. It includes copying the work of other students. Plagiarism will be penalised; it is likely to lead to loss of marks for that item of assessment and may lead to an automatic failing grade for the paper and/or exclusion from re-enrolment at the University.

Grievance Procedures:
A student who claims that he/she has sustained academic disadvantage as a result of the actions of a University staff member should use the University Grievance Procedures. Students, whenever practicable, should in the first instance approach the University staff member concerned. If the grievance is unresolved with the staff member concerned, the student should then contact the College of Sciences office on his/her campus for further information on the procedures, or read the procedures in the University Calendar.

Appendix A

Learning Programme and Schedule:
The paper consists of assignments, in groups, tackling different types of simulation, modelling or optimisation problems. These will provide the students with an opportunity to use various modelling and simulation packages in the solution of common tasks. Tutorials will be used to introduce each assignment, discuss issues and possible solutions and provide relevant background information.

Student Time Budget:
It is estimated that for the average student the workload (in hours) for this paper is as follows:

Tutorials	22
Project	118
TOTAL	150 hours

Timetable:
Lectures: None.
Tutorials: Friday 2-3pm
Laboratories: None.