SCIE H2201: Applied Physics 1

Module Title:	Applied Physics 1

Credits:	10

NFQ Level:	6

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	A mix of traditional lectures with tutorial support and programming practicals that will enable the student to fully understanding of the above modelling concepts and techniques.

Module Aim:	To provide the student with the mathematical skills and mechanics required for modelling in games programming.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	apply mathematics to model and solve problems in mechanics;
LO2	evaluate the derivative and integral of some basic functions;
LO3	appreciate the role of differential equations in mathematically modelling;
LO4	apply numerical techniques to solve differential equations.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

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Module Content & Assessment

Indicative Content
Mechanics equations of straight line motion, Newton's Laws of motion, friction, momentum, inelastic and elastic impacts, direct and indirect impacts, projectile motion.
Basic Calculus: functions, derivatives, anti-derivatives, applications.
Differential Equations: solving first order differential equations, modeling with differential equations.
Numerical Analysis: Newton's Method, Euler's method of solution of a differential equation, Improved Euler's method, Runge-Kutta method.

Assessment Breakdown	%
Continuous Assessment	25.00%
Practical	25.00%
End of Module Formal Examination	50.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Other	Continuous Assessment marks will also be awarded based on performance in 10 twenty to thirty minute open book tutorial worksheet assessments. These workshop assessments will take place every two to three weeks and students will be given detailed feedback on their performance with these worksheets. These assessments will assess all module learning outcomes.	1,2,3,4	25.00	n/a

No Project

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	No Description	1,2,3,4	25.00	Sem 1 End

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	There will also be a Final examination which will assess all learning outcomes of the module. Students must achieve a score of at least 30% of the maximum score in this Final examination to be eligible to attain the credits for this module.	1,2,3,4	50.00	End-of-Semester

ITCarlow reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	30 Weeks per Stage	2.00
Laboratory	30 Weeks per Stage	1.00
Estimated Learner Hours	30 Weeks per Stage	1.00
Tutorial	30 Weeks per Stage	1.00
	Total Hours	150.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCGD_B	Bachelor of Science (Honours) in Computer Games Development	2	Mandatory