Physics (PH) modules

PH1011 Physics 1A

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SCOTCAT Credits:	20		SCQF Level 7	Semester	1	
Academic year:	2018/9					
Planned	12.00	12.00 noon lectures, one afternoon from five each week, 2.00 pm - 3.00 pm tutorial and				
timetable:	3.00 p	m -5.30 pm	n lab			
This module covers the core subjects of mechanics, waves and optics, and also provides an overview of the physical properties of matter. It is suitable for those who have studied physics to the level of Higher Physic or equivalent. It includes lectures on Newton's laws, work and energy, simple harmonic motion, the different types of wave motion, geometrical and wave optics, and the nature and composition of nuclei, atom molecules and solids, and their interactions. Relevant laboratory work is an important part of the module						
Pre-requisite(s): Student must have higher or A-Level physics and mathematics (both at or better), or equivalent.				ysics and mathematics (both at	grade b	
Anti-requisite(s) You cannot take this module if you take AS1002						
Learning and teaching methods of delivery:		Weekly contact: Typically 4 lectures, 1 problem-solving workshop, 1 tutorial and 1 x 2.5-hour laboratory.				
		Scheduled	l learning: 85 hours	Guided independent study: 115 hours		
Assessment pattern:		As defined by QAA: Written Examinations = 75%, Practical Examinations = 0%, Coursework = 25%				
		As used by St Andrews: 2-hour Written Examination = 60%, Class Test = 15%, Laboratory Work = 25%				
Re-assessment pa	ttern:	2-hour Written Resit Examination = 60%, combined with existing Laboratory Work = 25%, existing Class Test = 15%			atory	
Module teaching s	staff:	TBC				
Additional information from Schools:Please see also the information in the School's Handbook for Level modules available via st- andrews.ac.uk/physics/staff_students/timetables.php. This to timetables for such modules.			chool's Handbook for First and S timetables.php. This link also giv	econd es access		

PH1012 Physics 1B

SCOTCAT Credits:	20	SCQF Level 7	Semester	2		
Academic year:	2018/9					
Planned timetable:	12.00 noon lectures; tutorial, 3.00 pm - 5.3	12.00 noon lectures; One afternoon from up to five per week, 2.00 pm - 3.00 pm tutorial, 3.00 pm - 5.30 pm lab				
This module covers an introduction to quantum mechanics, the mechanics of rotation and gravity and an introduction to lasers. The module is suitable for those who have studied physics to the level of Higher Physics or equivalent. It includes lectures on the origins of quantum theory, its application to atoms and other small-scale systems; the principles of lasers, and some aspects of optical communication. The module also includes a set of group-based activities associated with the use of physics ideas to solve an interesting problem. Relevant laboratory work is an important part of the module.						
Pre-requisite(s):	Before taking this mo	dule you must pass PH10	011			
Anti-requisite(s)	You cannot take this	module if you take AS100	02			
Learning and teaching methods	Weekly contact: Typically 4 lectures, 1 workshop, 1 tutorial and 1 x 2.5 hr laboratory. Group Discovery Project replaces some lectures for part of the semester.					
of delivery:	Scheduled learning:	32 hours	Guided independent study: 11	8 hours		
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%					
	As used by St Andrews: 2-hour Written Examination = 50%, Class Test = 10%, Laboratory work = 25%, Group Discovery Project = 15%					
Re-assessment pattern:	2-hour Written Resit Examination = 50%, combined with existing Laboratory work = 25%, and existing Group Discovery Project = 15%, existing class test 10%					
Module teaching staff:	ТВС					
Additional information from Schools:	Please see also the information in the School's Handbook for First and Second Level modules available via st-andrews.ac.uk/physics/staff_students/timetables.php. This link also gives access to timetables for such modules.					

501 Mathematics fo	or Physicists	1A					
SCOTCAT Credits:	20	SCQF Level 7	Semester	1			
Academic year:	2018/9	18/9					
Availability restrictions:	Available only the Physics an	ailable only to those on the Physics and Astronomy (Gateway) Programme and e Physics and Astronomy International Gateway Programme.					
Planned timetable:	To be arrange	be arranged.					
This module is designed to give physics students a secure base in elementary calculus and other mathematical tools to enable them to access the mathematics modules needed for progression into physics and astronomy degrees. Participants will learn to use this mathematics effectively and efficiently in the context of work in physics. Some of the work is a revision and practice of material that will normally have been seen in the Scottish Higher and some A-Level maths syllabuses. The content is similar to that in MT1001 and will allow students to progress to MT1002 in semestar 2							
Pre-requisite(s):	Students minternation	Students must have gained entry to physics and astronomy (gateway) or international gateway programmes.					
Anti-requisite(s)	You cannot	You cannot take this module if you take MT1001					
Co-requisite(s):	You must al	You must also take PH1011 and take PH1502					
Learning and teaching	Weekly contact: 5 lectures, 1 tutorial and 1 workshop.						
methods of delivery:	Scheduled l	earning: 72 hours	Guided independent study: 128 hours				
	As defined Written Exa	As defined by QAA: Written Examinations = 70%, Practical Examinations = 0%, Coursework = 30%					
Assessment pattern: As used by St Andrews: 2-hour Written Examination = 50%, Coursework (Class Tests, 20%, Other Coursework, 30%) = 50%							
Re-assessment pattern	n: 2-hour Writ	2-hour Written Examination = 100%					
Module teaching staff	: TBC	ТВС					
Additional information from Schools:	Please see a Level modu andrews.ac to timetable	Please see also the information in the School's Handbook for First and Second Level modules available via st- andrews.ac.uk/physics/staff_students/timetables.php. This link also gives access to timetables for such modules.					

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.502 Physics Skills 1A						
SCOTCAT Credits:	20	SCQF Level 7	Semester	1		
Academic year:	2018/9					
Availability restrictions:	Available Physics a	Available only to those on the Physics and Astronomy (Gateway) Programme and t Physics and Astronomy International Gateway Programme				
Planned timetable:	To be arr	anged.				
This module develo retrieval and analysis (Gateway).	ps acade s, and stud	mic and transferable skills in prob y skills. It is a core module of the leve	elem-solving, team-working, inf elone programme Physics and A	ormation stronomy		
Pre-requisite(s):	Stu int	Students must have gained entry to physics and astronomy (gateway) or international gateway programmes.				
Anti-requisite(s)	Yo	You cannot take this module if you take AS1101				
Co-requisite(s):	Yo	You must also take PH1011 and take PH1501				
Learning and teachi	ng Sup	Weekly contact : 2 lectures, 3 x 1.25-hour workshops, 1 x 3-hour lab, 1 x 2-hour supported study session.				
methous of derivery	. Scł	neduled learning: 108 hours	Guided independent study: 92	hours		
Assessment nation	As W	As defined by QAA: Written Examinations = 0%, Practical Examinations = 0%, Coursework = 100%				
Assessment pattern	. As Co	As used by St Andrews: Coursework = 100%				
Re-assessment patt	ern: 60 ⁰ ass	60% new assignments, 40% marks for the assignments that make up the first assessment specification of the module.				
Module teaching sta	aff: TB	ТВС				
Additional informat from Schools:	Ple ion Lev and acc	Please see also the information in the School's Handbook for First and Second Level modules available via st- andrews.ac.uk/physics/staff_students/timetables.php. This link also gives access to timetables for such modules.				

PH1503 Physics Skills 1B

SCOTCAT Credits:	20	SCQF Level 7	Semester	2		
Academic year:	2018/9	2018/9				
Availability restrictions:	Available on Physics and	Available only to those on the Physics and Astronomy (Gateway) Programme and the Physics and Astronomy International Gateway Programme				
Planned timetable:	To be arrang	ged.				
This module develop modelling of physical a core module for the	This module develops academic and transferable skills in problem solving in physics, in mathematical modelling of physical systems, in numerical/computational work applied to physics, and in study skills. It is a core module for the level one programme Physics and Astronomy (Gateway).					
Pre-requisite(s):	Students internation	must have gained entry to phys onal gateway programmes.	ics and astronomy (gateway) or			
Co-requisite(s):	You must	also take PH1012				
Learning and teaching	Weekly c supporte	Weekly contact: 2 lectures, 3 x 1.25-hour workshops, 1 x 3-hour lab, 1 x 2-hour supported study session				
methous of delivery.	Schedule	Scheduled learning: 118 hours Guided independent study: 82 hours				
Accossment pattern:	As define Written	As defined by QAA: Written Examinations = 0%, Practical Examinations = 0%, Coursework = 100%				
Assessment pattern.	As used b Coursew	As used by St Andrews: Coursework = 100%				
Re-assessment patter	n: 60% new	60% new assignments, 40% marks for the assignments that make up the first assessment specification of the module.				
Module teaching staf	i: TBC	TBC				
Additional information from Schools:	Please se n Level mo andrews. to timeta	Please see also the information in the School's Handbook for First and Second Level modules available via st- andrews.ac.uk/physics/staff_students/timetables.php. This link also gives access to timetables for such modules.				

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SCOTCAT Credits:	30	SCQF Level 8	Semester	1		
Academic year:	2018/9					
Planned	10.00 am le	10.00 am lectures; one problem solving workshop and lab chosen from Tue, Thu or Fri				
timetable:	(2.00 pm - 5	.30 pm); one tutorial to be arrange	ed.			
This module covers the subjects of mechanics, special relativity, oscillations, and thermal physics. It is suitable for those who have taken the specified first year modules in physics and mathematics, or have good Advanced Higher or A-level passes or equivalent in physics and mathematics. It includes lectures on the dynamics of particles and rigid bodies, Einstein's special theory of relativity, free, forced and damped harmonic motion, and lectures on thermal physics including elementary thermodynamics and the notion of entropy.						
Pre-requisite(s):	requisite(s): Students should also have passed PH1011, PH1012 and MT1002 or have passed in advanced higher physics and mathematics or A-Level physics and mathematics, both normally at grade a or equivalent.					
Anti-requisite(s)	nti-requisite(s) You cannot take this module if you take AS1002					
Learning and teach	ing labor	Weekly contact: 4 or 5 lectures, 1 workshop, 1 tutorial and 1 x 2.5-hour laboratory.				
methods of deliver	Scheo	luled learning: 97 hours	Guided independent study: 20	3 hours		
	As de Writt	As defined by QAA: Written Examinations = 70%, Practical Examinations = 0%, Coursework = 30%				
Assessment patter	n: As us 3-hou lectur	As used by St Andrews: 3-hour Written Examination = 60%, Class Test = 10%, Laboratory work = 25%, lectures and pre-lecture questions = 5%				
Re-assessment pat	tern: 3-hou 10%,	3-hour Written Resit Examination = 60%, combined with existing Class Test = 10%, Laboratory Work = 25%, and lecture and pre-lecture questions = 5%.				
Module teaching st	taff: TBC					
Additional informa from Schools:	tion Pleas andre	Please see also the information in the School's Handbook for First and Second Level modules available via st- andrews.ac.uk/physics/staff_students/timetables.php. This link also gives access to timetables for such modules.				

PH2012 Physics 2B

SCOTCAT Credits:	30	SCQF Level 8		Semester	2	
Academic year:	2018	2018/9				
Planned timetable:	10.00 am lectures; one problem solving workshop and lab chosen from Tue, Thu or Fri (2.00 pm - 5.30 pm); one tutorial to be arranged.					
This module covers the subjects of quantum physics, electricity and magnetism and classical waves. It is suitable for those who have taken the specified first year modules in physics and mathematics, or have good Advanced Higher or A-Level passes or equivalent in physics and mathematics. It includes lectures on the origin of Schroedinger's equation in quantum mechanics and its solution for simple one-dimensional potentials; an elementary introduction to the electromagnetic field comprising electrostatics, magnetostatics, electromagnetic induction and circuit theory; and lectures on waves, acoustics, polarisation of light and interference						
Pre-requisite(s):	Befor	re taking this module you must	pass	S PH2011		
Learning and teaching	Weekly contact: 4 or 5 lectures, 1 workshop, 1 tutorial and 1 x 2.5-hour laboratory.					
methous of delivery.	Scheduled learning: 105 hours Guided independent study: 195 hours					
	As defined by QAA: Written Examinations = 70%, Practical Examinations = 0%, Coursework = 30%					
Assessment pattern:	As used by St Andrews: 3-hour Written Examination = 60%, Class Test = 10%, Laboratory work = 25% , lecture and pre-lecture questions = 5%					
Re-assessment pattern:	3-hour Written Resit Examination = 60%, combined with existing Class Test = 10%, Laboratory Work = 25% and lecture and pre-lecture questions = 5%.					
Module teaching staff:	TBC					
Additional information from Schools:	Please see also the information in the School's Handbook for First and Second Level modules available via st- andrews.ac.uk/physics/staff_students/timetables.php. This link also gives access to timetables for such modules.					