Honours in Physics-Mathematics (130 credits)

Honours in Physics-Mathematics (111 credits) Program abolished

(130 credits)		Program abolished	
Requirements 2003-2005		New course codes 2006	
Compulsory first-year credits Suggested course stream for full-time students	-33	Compulsory first-year credits Suggested course stream for full-time students	30
Fall:		Fall:	
MAT1320 Calculus I PHY1101 Fundamentals of Physics I PHY1201 Physics Laboratory	3 3	MAT1320 Calculus I PHY1121 Fundamentals of Physics I	3 3
Four credits from: ITT1220 Introduction to Computer Science I CSH303- Introduction to Computing Concepts GNG1101- Fundamentals of Engineering Computation	-4 -4 -4	Three credits from: ITI1120 Introduction to Computer Science I CSI1308 Introduction to Computing Concepts GNG1106 Fundamentals of Engineering Computation	3 3 3
Winter:		Winter:	
MAT1322 Calculus II PHY1102 Fundamentals of Physics II	3	MAT1322 Calculus II PHY1122 Fundamentals of Physics II	3
Fall or Winter: MAT1341 Introduction to Linear Algebra	3	Fall or Winter: MAT1341 Introduction to Linear Algebra	3
Eleven credits (minimum) from the following list or from other courses approved by the Department:	11	Twelve credits (minimum) from the following list or from other courses approved by the Department:	12
Fall:		Fall:	
BIO1109 Principles of Biology BIO1120 Introduction to Organismal Biology CHM1310 Principles pf Chemistry CHM2116 Laboratory of Environmental Chemistry	3 4 4 2	BIO1109 Principles of Biology BIO1130 Introduction to Organismal Biology CHM1311 Principles of Chemistry	3 3 3
CHM2352 Descriptive Inorganic Chemistry GEO1115 Introduction to Earth Materials GNG1100 Engineering Mechanics GNG1102 Fundamentals of Computer Hardware	3 3 -4 -2	CHM2353 Descriptive Inorganic Chemistry GEO1115 Introduction to Earth Materials GNG1105 Engineering Mechanics	3 3 3
Winter:		Winter:	
BIO1110 Introduction to Cell Biology CHG1120 Chemical Engineering Fundamentals CHM1320 Organic Chemistry I CHM2311 Introduction to Structure and Bonding ITH221 Introduction to Computer Science II GEO1111 Introduction to Earth Systems	-4 -4 -4 3 -4 3	BIO1140 Introduction to Cell Biology CHG1125 Chemical Engineering Fundamentals CHM1321 Organic Chemistry I CHM2311 Introduction to Structure and Bonding ITI1121 Introduction to Computer Science II GEO1111 Introduction to Earth Systems	3 3 3 3 3
Compulsory second-year credits	39	Compulsory second-year credits	27
Fall:		Fall:	
MAT2122 Calculus III MAT2141 Honours Linear Algebra I or	3	MAT2141 Linear Algebra I	3
MAT2341 Linear Algebra	3		

MAT2377 Probability and Statistics for Engineers 3 2 3 3 3 3 3 3 3 3				
MAT237 Probability and Statistics for Engineers (winter) MAT2324 Ordinary Differential Equations and Laplace Transformation or Mataphage MAT2331 Ordinary Differential Equations and Numerical Methods Methods Methods Metho	MAT2371 Introduction to probability	3	MAT2371 Introduction to probability	3
MAT2342 Ordinary Differential Equations and Laplace Transformation or Winter:	MAT2377 Probability and Statistics for Engineers	3	MAT2377 Probability and Statistics for Engineers	3
MAT2234 Ordinary Differential Equations and Numerical 3 Mat2384 Ordinary Differential Equations and Numerical 3 Mat2384 Ordinary Differential Equations and Numerical 3 Mat2340 Applied Optics 3 PHY2330 Mechanics 3 PHY2330 Mechanics 3 PHY2333 Mechanics 3 PHY2332 Electricity and Magnetism 3 PHY2335 Modern Physics 3 PHY2361 Modern Physics 3 Ordinary Differential Equations and Numerical 3 PHY2332 Electricity and Magnetism 3 PHY2332 Electricity and Magnetism 3 PHY2332 Electricity and Magnetism 3 PHY2335 Modern Physics 3 PHY3350 Interductory Outline of Engineering 3 Ordinary Differential Equations and Numerical 3 PHY2330 Mechanics 3 PHY2332 Electricity and Magnetism 3 PHY2323 Electricity and Magnetism 3 PHY3350 Interductory Outline of Engineering 3 Ordinary Differential Equations and Numerical 3 PHY3350 Mechanics 3 PHY3350 Magnetism 3 PHY3350 PHY3350 Magnetism 3 PHY3350 Physics and Applied Physics Laboratory 3 PHY3350 Physics and Applied Physics 3 PHY3350 Physics	MAT2324 Ordinary Differential Equationa and Laplace	3	MAT2324 Ordinary Differential Equationa and Laplace	3
MAT2334 Ordinary Differential Equations and Numerical Methods Methods PHY2304 Practical Physics				
### PHY2904 Practical Physics 3 ### PHY2305 Mechanics 3 ### PHY2311 Waves and Optics 3 ### PHY2311 Waves and Optics 3 ### PHY2333 Mechanics 3 ### PHY2333 Mechanics 3 ### PHY2333 Mechanics 3 ### PHY2332 Electricity and Magnetism 3 ### PHY2323 Electricity and Magnetism 3 ### PHY23261 Modern Physics 3 ### PH	MAT2331 Ordinary Differential Equations and Numerical	3	MAT2384 Ordinary Differential Equations and Numerical	3
PHY2310 Applied Opties				2
Winter: Wint				
Winter : Winter : MAT21125 Mathematical analysis I 3 MAT2113 Group Theory and Applications 3 PHY2323 Electricity and Magnetism 3 PHY23237 Mechanics II 3 PHY23237 Modem Physics 3 3 credits outside the Faculties of Science or Engineering 3 3 credits outside the Faculties of Science or Engineering 3 3 credits outside the Faculties of Science or Engineering 3 3 credits outside the Faculties of Science or Engineering 3 4 compulsory third and fourth-year credits 4+ Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall: Fall:				
MAT2143 Group Theory and Applications 3 MAT2143 Algebraic Structures 3 3 MAT2143 Algebra	Winter:		Winter:	
PHY2323 Electricity and Magnetism PHY2323 Electricity and Magnetism PHY2327 Mechanies II PHY2327 Modern Physics 3 credits outside the Faculties of Science or Engineering 3 credits outside the Faculties of Engineering 3 credits outside the Faculties of Science or Engineering 3 credits outside the Faculties of Engineering 3 pHY3350 Thermodynamics 4 pHY3370 Introductory Quantum Mechanics 4 pHY3390 Physics and Applied Physics Laboratory II 4 pHY4362 Subatomic Physics II 4 pHY4362 Subatomic Physics II 5 pHY4362 Subatomic Physics II 5 pHY4364 Computational Physics II 6 physics of Continuous Media 7 pHY4365 Physics of Continuous Media 7 pHY4365 Physics	MAT2125 Mathematical analysis I	_3		
PHY2323 Electricity and Magnetism PHY2323 Electricity and Magnetism PHY2327 Mechanies II PHY2327 Modern Physics 3 credits outside the Faculties of Science or Engineering 3 credits outside the Faculties of Engineering 3 credits outside the Faculties of Science or Engineering 3 credits outside the Faculties of Engineering 3 pHY3350 Thermodynamics 4 pHY3370 Introductory Quantum Mechanics 4 pHY3390 Physics and Applied Physics Laboratory II 4 pHY4362 Subatomic Physics II 4 pHY4362 Subatomic Physics II 5 pHY4362 Subatomic Physics II 5 pHY4364 Computational Physics II 6 physics of Continuous Media 7 pHY4365 Physics of Continuous Media 7 pHY4365 Physics	MAT21/13 Group Theory and Applications	3	MAT21/43 Algobroic Structures	3
PHY3321 Modern Physics 3 3 credits outside the Faculties of Science or Engineering 3 3 credits outside the Faculties outside the Faculties of Science or Engineering 3 3 credits outside the Faculties of Engineering 3 5 credits outside the Faculties of Science or Engineeria Specifical 4 5 PHY3930 Introductory Quantum Mechanics 3 5 PHY3930 Introductory Quantum Mechanics 3 5 PHY330 Electromagnetics Theory 9 physics Laboratory I 9 physics Statistical Thermodynamics 3 5 PHY330 Physics and Applied Physics Laboratory I 9 PHY330 Physics and Applied Physics Laboratory I 9 PHY330 Physics and Applied Physics La				
PHY2361 Modern Physics 3 oredits outside the Faculties of Science or Engineering 5 or PHY3351 high and provided and physics of Dept.			11112323 Electricity and Magnetism	3
3 credits outside the Faculties of Science or Engineering 3 3 credits outside the Faculties of Science or Engineering Compulsory third and fourth-year credits 27 Fall: PHY3341 Theoretical Physics 3 PHY3350 Thermodynamics 3 PHY3350 Thermodynamics 3 PHY3370 Introductory Quantum Mechanics 3 PHY3370 Introductory Quantum Mechanics 3 PHY3390 Physics and Applied Physics Laboratory I PHY3902 Physics and Applied Physics Laboratory I PHY3902 Physics and Applied Physics Laboratory I PHY3905 Physics and Applied Physics Laboratory II PHY3905 Physics and Applied Physics Laboratory II PHY3905 Physics and Applied Physics Laboratory II PHY3905 Physics Application to Solid State Physics 3 PHY3370 Quantum Mechanics 3 PHY3905 Physics Applied Physics Laboratory II PHY3905 Physics Project 4 PHY3906 Physics Project 4 PHY3906 Physics Project 4 PHY4906 Physics Project 5 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics Aphy4327 Applications of Integrated Circuits in Physics Aphysics I PHY4306 Advanced Optics and Introduction to Photonics Aphy4327 Applications of Integrated Circuits in Physics Aphy4330 Advanced Optics and Introduction to Photonics Aphy4340 Computational Physics I PHY4310 Advanced Optics and Introduction to Photonics Aphy4340 Computational Physics I PHY4310 Computational Physics I PHY4310 Computational Physics I PHY4310 Applied Nuclear Phy			PHY2361 Modern Physics	3
Fall: Fall: Fall:				
PHY3341 Theoretical Physics 3 PHY3350 Thermodynamics 3 PHY3370 Introductory Quantum Mechanics 3 PHY3370 Introductory Quantum Mechanics 3 PHY33901 Physics and Applied Physics Laboratory I 4 PHY3902 Physics and Applied Physics Laboratory I 3 PHY3320 Electromagnetics Theory 3 PHY3320 Electromagnetics Theory 3 PHY3320 Electromagnetics Theory 3 PHY3325 Statistical Thermodynamics 3 PHY3320 Electromagnetics Theory 4 PHY3320 Electromagnetics Theory 3 PHY3320 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4382 Introduction to Solid State Physics 1 PHY4382 Introduction to Solid State Physics 3 PHY4382 Introduction to Solid State Physics 9 PHY4305 Physics Project 3 PHY4306 Physics Project 3 PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4331 Advanced Optics and Introduction to Photonics 3 PHY4332 Advanced Optics and Introduction to Photonics 3 PHY4333 Physics of Continuous Media 3 PHY4340 Computational Physics I 3 PHY43410 Computational Physics I 3 PHY43436 General Relativity 3 PHY4346 General Relativity 3 PHY43476 Applied Nuclear Physics I 3 PHY43487 Physics of Materials 3 PHY4388 Solid Stat	Compulsory third and fourth-year credits	31	Compulsory third and fourth-year credits	27
PHY3350 Thermodynamics 3 PHY3370 Introductory Quantum Mechanics 3 PHY3904 Physics and Applied Physics Laboratory I 4 PHY3903 Contemporary Issues in Physics Winter: PHY3320 Electromagnetics Theory 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4382 Introduction to Solid State Physics 1 PHY4382 Introduction to Solid State Physics 3 PHY4382 Introduction to Solid State Physics 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4335 Physics of Continuous Media 3 PHY4335 Physics of Continuous Media 3 PHY4335 Physics of Continuous Media 3 PHY4346 General Relativity 3 PHY4346 General Relativity 3 PHY4368 Subatomic Physics I 3 PHY4368 Subatomic Physics I 3 PHY4385 Solid State Physics 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 9 PHY4388 Solid State Physics 3 PHY4388 Solid State Physics 3 PHY4388 Solid State Physics 1 3 PHY4387 Physics of Materials 9 PHY4388 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4388 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4388 PHY4390 Selected Topics in Physics 3 PHY4389 Selected Topics in Physics 3 PHY4389 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3	Fall:		Fall:	
PHY3350 Thermodynamics 3 PHY3370 Introductory Quantum Mechanics 3 PHY3904 Physics and Applied Physics Laboratory I 4 PHY3903 Contemporary Issues in Physics Winter: PHY3320 Electromagnetics Theory 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4382 Introduction to Solid State Physics 1 PHY4382 Introduction to Solid State Physics 3 PHY4382 Introduction to Solid State Physics 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4335 Physics of Continuous Media 3 PHY4335 Physics of Continuous Media 3 PHY4335 Physics of Continuous Media 3 PHY4346 General Relativity 3 PHY4346 General Relativity 3 PHY4368 Subatomic Physics I 3 PHY4368 Subatomic Physics I 3 PHY4385 Solid State Physics 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 9 PHY4388 Solid State Physics 3 PHY4388 Solid State Physics 3 PHY4388 Solid State Physics 1 3 PHY4387 Physics of Materials 9 PHY4388 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4388 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4388 PHY4390 Selected Topics in Physics 3 PHY4389 Selected Topics in Physics 3 PHY4389 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3	PHY3341 Theoretical Physics	3	PHY3341 Theoretical Physics	3
PHY3370 Introductory Quantum Mechanics 3 PHY3901 Physics and Applied Physics Laboratory I 4 PHY3902 Physics and Applied Physics Laboratory I 5 PHY3320 Electromagnetics Theory 3 PHY3325 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY4370 Quantum Mechanics 3 PHY4362 Subatomic Physics I 3 PHY4362 Subatomic Physics I 3 PHY4362 Subatomic Physics I 3 PHY4382 Introduction to Solid State Physics 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4335 Physics of Continuous Media 3 PHY4340 Computational Physics I 4 PHY4344 Computational Physics I 4 PHY4344 Computational Physics I 4 PHY4344 Computational Physics I 4 PHY4346 Subatomic Physics I 3 PHY43476 Applications of Integrated Circuits in Physics 3 PHY4348 Computational Physics I 4 PHY4140 Computational Physics I 3 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics 3 PHY4376 Applications of Integrated Circuits II 3 PHY4348 Subatomic Physics II 3 PHY4363 Subatomic Physics II 3 PHY4364 Subatomic Physics II 3 PHY4365 Solid State Physics 3 PHY4375 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4389 Selected Topics in Physics 3 PHY4389 Selected Topics in Physics 3 PHY4389 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3				
PHY3901 Physics and Applied Physics Laboratory I4 PHY3902 Physics and Applied Physics Laboratory IWinter:Winter:PHY3320 Electromagnetics Theory3 PHY3355 Statistical Thermodynamics3 PHY3355 Statistical Thermodynamics3 PHY3355 Statistical Thermodynamics3 PHY3905 Physics and Applied Physics Laboratory II4 PHY3904 Physics and Applied Physics Laboratory II3 PHY4370 Quantum Mechanics3 PHY4370 Quantum Mechanics3 PHY4370 Quantum Mechanics3 PHY4362 Subatomic Physics I3 PHY4382 Introduction to Solid State Physics3 PHY4362 Subatomic Physics Project3 PHY4362 Subatomic Physics Project4 PHY4905 Physics Project4 PHY4906 Physics Project3 PHY4382 Introduction to Solid State Physics9 PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics3 PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics9 PHY4340 Computational Physics I4 PHY4310 Advanced Optics and Introduction to Photonics PHY4335 Physics of Continuous Media3 PHY4335 Physics of Continuous Media3 PHY4335 Physics of Continuous Media9 PHY4344 Computational Physics II4 PHY4140 Computational Physics II3 PHY4346 General Relativity3 PHY4346 General Relativity3 PHY4368 Subatomic Physics II9 PHY4368 Subatomic Physics II3 PHY4368 Subatomic Physics II3 PHY4368 Subatomic Physics II3 PHY4387 Physics of Materials9 PHY4387 Objected Topics in Physics3 PHY4387 Physics of Materials3 PHY4388 Physics of Materials				
Winter: PHY3320 Electromagnetics Theory 3 PHY3325 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3300 Physics and Applied Physics Laboratory II 4 PHY3904 Physics and Applied Physics Laboratory II 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4362 Subatomic Physics I 3 PHY4362 Subatomic Physics I 3 PHY4362 Subatomic Physics I 3 PHY4382 Introduction to Solid State Physics 3 PHY4382 Introduction to Solid State Physics 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 PHY4906 Physics Project 5 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 8 PHY4327 Applications of Integrated Circuits in Physics 9 PHY4330 Advanced Dynamics 9 PHY4330 Advanced Optics and Introduction to Photonics 9 PHY4330 Advanced Optics and Introduction to Photonics 9 PHY4330 Advanced Optics and Introduction to Photonics 9 PHY4330 Advanced Dynamics 9 PHY4330 Physics of Continuous Media 9 PHY4340 Computational Physics I 9 PHY4340 Computational Physics I 9 PHY43410 Computational Physics I 9 PHY43410 Computational Physics I 9 PHY43411 Computational Physics I 9 PHY43410 Computational Physics I 9 PHY43411		-4		3
PHY3320 Electromagnetics Theory 3 PHY3320 Electromagnetics Theory 3 PHY3325 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3355 Statistical Thermodynamics 3 PHY3905 Physics and Applied Physics Laboratory II 4 PHY3904 Physics and Applied Physics Laboratory II 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4362 Subatomic Physics I 3 PHY4362 Subatomic Physics I 3 PHY4362 Subatomic Physics I 4 PHY3905 Physics Project 4 PHY4906 Physics Project 4 PHY4906 Physics Project 3 PHY4310 Advanced Optics and Introduction to Photonics 5 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4330 Advanced Dynamics 3 PHY43430 Advanced Dynamics 3 PHY43430 Advanced Dynamics 3 PHY43430 Advanced Dynamics 3 PHY43430 Computational Physics I 4 PHY4140 Computational Physics I 5 PHY43444 Computational Physics II 5 PHY4346 General Relativity 3 PHY4348 Subatomic Physics II 3 PHY4348 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4389 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3		2	, ,,	
PHY3355 Statistical Thermodynamics 3 PHY3995 Physics and Applied Physics Laboratory II 4 PHY3904 Physics and Applied Physics Laboratory II 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4362 Subatomic Physics I 3 PHY4382 Introduction to Solid State Physics 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 PHY4310 Advanced Optics and Introduction to Photonics 4 PHY4310 Advanced Optics and Introduction to Photonics 5 PHY4327 Applications of Integrated Circuits in Physics 6 PHY4330 Advanced Dynamics 7 PHY4330 Advanced Dynamics 8 PHY4330 Advanced Dynamics 8 PHY4330 Physics of Continuous Media 9 PHY4340 Computational Physics I 4 PHY4140 Computational Physics I 5 PHY4341 Computational Physics I 7 PHY4341 Computational Physics I 7 PHY4346 General Relativity 8 PHY4361 Applied Nuclear Physics 9 PHY4368 Subatomic Physics II 9 PHY4369 Selected Topics in Physics	Winter:		Winter:	
PHY3355 Statistical Thermodynamics 3 PHY3995 Physics and Applied Physics Laboratory II 4 PHY3904 Physics and Applied Physics Laboratory II 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4370 Quantum Mechanics 3 PHY4362 Subatomic Physics I 3 PHY4382 Introduction to Solid State Physics 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 PHY4310 Advanced Optics and Introduction to Photonics 4 PHY4310 Advanced Optics and Introduction to Photonics 5 PHY4327 Applications of Integrated Circuits in Physics 6 PHY4330 Advanced Dynamics 7 PHY4330 Advanced Dynamics 8 PHY4330 Advanced Dynamics 8 PHY4330 Physics of Continuous Media 9 PHY4340 Computational Physics I 4 PHY4140 Computational Physics I 5 PHY4341 Computational Physics I 7 PHY4341 Computational Physics I 7 PHY4346 General Relativity 8 PHY4361 Applied Nuclear Physics 9 PHY4368 Subatomic Physics II 9 PHY4369 Selected Topics in Physics	PHY3320 Electromagnetics Theory	3	PHY3320 Electromagnetics Theory	3
PHY3905Physics and Applied Physics Laboratory II4PHY3904Physics and Applied Physics Laboratory II3PHY4370Quantum Mechanics3PHY4370Quantum Mechanics3Three credits from:3Three credits from:3PHY4362Subatomic Physics I3PHY4362Subatomic Physics I3PHY4905Physics Project4PHY4906Physics Project3Six other credits in PHY from the above list or from the following list or from approved 5000-level courses:6Six other credits in PHY from the above list or from the following list or from approved 5000-level courses:6PHY4310Advanced Optics and Introduction to Photonics3PHY4310Advanced Optics and Introduction to Photonics3PHY4330Advanced Optics and Introduction to Photonics3PHY4327Applications of Integrated Circuits in Physics3PHY4335Physics of Continuous Media3PHY4330Advanced Dynamics3PHY43440Computational Physics I4PHY4140Computational Physics I3PHY4346General Relativity3PHY4346General Relativity3PHY4368Subatomic Physics II3PHY4368Subatomic Physics II3PHY4385Solid State Physics3PHY4387Physics of Materials3PHY4390Selected Topics in Physics3PHY4390Selected Topics in Physics3			PHY3355 Statistical Thermodynamics	
Three credits from: PHY4362 Subatomic Physics I PHY4382 Introduction to Solid State Physics PHY4905 Physics Project Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics PHY4335 Physics of Continuous Media PHY4340 Computational Physics I PHY4341 Computational Physics I PHY4341 Computational Physics II PHY4344 Computational Physics II PHY436 General Relativity PHY436 Subatomic Physics PHY436 Subatomic Physics PHY437 Physics of Materials PHY4385 Physics of Materials PHY4387 Physics of Materials PHY4389 Selected Topics in Physics PHY4390 Selected Topics in Physics	PHY3905 Physics and Applied Physics Laboratory II	-4	PHY3904 Physics and Applied Physics Laboratory II	3
PHY4362 Subatomic Physics I PHY4382 Introduction to Solid State Physics Physics Project PHY4905 Physics Project PHY4906 Physics Project PHY4906 Physics Project PHY4906 Physics Project Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4335 Physics of Continuous Media PHY4340 Computational Physics I PHY4344 Computational Physics I PHY4346 General Relativity PHY4361 Applied Nuclear Physics PHY4368 Subatomic Physics II PHY4368 Subatomic Physics II PHY4385 Solid State Physics PHY4387 Physics of Materials PHY4387 Physics of Materials PHY4387 Physics of Materials PHY4389 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics	PHY4370 Quantum Mechanics	3	PHY4370 Quantum Mechanics	3
PHY4382 Introduction to Solid State Physics Physics Project 3 PHY4905 Physics Project 4 PHY4906 Physics Project 3 PHY4906 Physics Project 5 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: 5 PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics 6 PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics 7 PHY4335 Physics of Continuous Media PHY4335 Physics of Continuous Media PHY4340 Computational Physics I 8 PHY4341 Computational Physics II 9 PHY4341 Computational Physics II 9 PHY4346 General Relativity 9 PHY4361 Applied Nuclear Physics 9 PHY4368 Subatomic Physics II 9 PHY4368 Subatomic Physics II 9 PHY4385 Solid State Physics 9 PHY4387 Physics of Materials 9 PHY4390 Selected Topics in Physics 9 PHY4390 Selected Topics in Physics 9 PHY4390 Selected Topics in Physics		3		
PHY4905 Physics Project 4 PHY4906 Physics Project 5 Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics PHY4335 Physics of Continuous Media PHY4340 Computational Physics I PHY4341 Computational Physics II PHY4341 Computational Physics II PHY43436 General Relativity PHY4361 Applied Nuclear Physics PHY4368 Subatomic Physics II PHY4368 Subatomic Physics II PHY4368 Subatomic Physics II PHY4385 Solid State Physics PHY4387 Physics of Materials PHY4387 Physics in Physics PHY4390 Selected Topics in Physics Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4335 Physics of Continuous Media PHY4335 Physics of Continuous Media PHY43436 Physics II PHY4346 General Relativity PHY4361 Applied Nuclear Physics PHY4368 Subatomic Physics II PHY4368 Subatomic Physics II PHY4385 Solid State Physics PHY4387 Physics of Materials PHY4387 Physics of Materials PHY43890 Selected Topics in Physics 3				
Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4335 Physics of Continuous Media PHY4340 Computational Physics I PHY4341 Computational Physics I PHY4344 Computational Physics II PHY4346 General Relativity PHY4366 Subatomic Physics II PHY4368 Subatomic Physics II PHY4385 Solid State Physics of Materials PHY4387 Physics of Materials PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: Six other credits in PHY from the above list or from the following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4335 Physics of Continuous Media 3 PHY4335 Physics of Continuous Media 3 PHY44340 Computational Physics I 3 PHY4141 Computational Physics II 3 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY43890 Selected Topics in Physics 3		3		
following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4330 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4335 Physics of Continuous Media 3 PHY4340 Computational Physics I 4 PHY4341 Computational Physics II 4 PHY4341 Computational Physics II 4 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics 3 PHY4368 Subatomic Physics II 3 PHY4385 Solid State Physics 0 PHY4385 Solid State Physics 0 PHY4387 Physics of Materials 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics Total Courses: following list or from approved 5000-level courses: following list or from approved 5000-level courses: following list or from approved 5000-level courses: PHY4310 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4330 Advanced Dynamics 9 PHY4330 Advanced Dynamics 9 PHY4330 Advanced Dynamics 9 PHY4330 Advanced Optics and Introduction to Photonics 3 PHY4330 Advanced Optics and Introduction to Photonics 3 PHY4327 Applications of Integrated Circuits in Physics 9 PHY4330 Advanced Optics and Introduction to Photonics 3 PHY4330 Advanced Optics and Introduction to Physics 3 PHY4330 Advanced Optics and Introduction to Physics 3 PHY4330 Advanced Optics and Introduction Physics 3 PHY4340 Computational Physics II 3 PHY4340 Computational Physics II 3	PHY4905 Physics Project	4	PHY4906 Physics Project	3
PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4328 Advanced Dynamics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4331 Advanced Dynamics PHY4330 Advanced Dynamics PHY4331 Advanced Dynamics PHY4332 Physics of Continuous Media PHY4335 Physics of Continuous Media PHY4340 Computational Physics I PHY4341 Computational Physics II PHY4341 Computational Physics II PHY4342 General Relativity PHY4343 Physics of Materials PHY4385 Solid State Physics PHY4385 Solid State Physics PHY4387 Physics of Materials PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4390 Selected Topics in Physics PHY4310 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4330 Advanced Dynamics PHY4330 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Optics and Introduction to Photonics PHY4327 Applications of Integrated Circuits in Physics PHY4330 Advanced Optics in Physics PHY4330 Advanced Optics and Introduction to Photonics PHY4330 Advanced Optics in Physics PHY4330 Advanced Optics PHY4330 Advanced Optics PHY43		6		6
PHY4327 Applications of Integrated Circuits in Physics 3 PHY4328 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4335 Physics of Continuous Media 3 PHY4340 Computational Physics I 4 PHY4341 Computational Physics II 4 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics II 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4390 Selected Topics in Physics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4330 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4335 Physics of Continuous Media 3 PHY44340 Computational Physics II 3 PHY4141 Computational Physics II 3 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4389 Selected Topics in Physics 3	Tonowing list of from approved 5000-level courses:		tonowing list of from approved 5000-level courses:	
PHY4327 Applications of Integrated Circuits in Physics 3 PHY4328 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4335 Physics of Continuous Media 3 PHY4340 Computational Physics I 4 PHY4341 Computational Physics II 4 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics II 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4390 Selected Topics in Physics 3 PHY4327 Applications of Integrated Circuits in Physics 3 PHY4330 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4335 Physics of Continuous Media 3 PHY44340 Computational Physics II 3 PHY4141 Computational Physics II 3 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4389 Selected Topics in Physics 3	PHY4310 Advanced Optics and Introduction to Photonics	3	PHY4310 Advanced Optics and Introduction to Photonics	3
PHY4330 Advanced Dynamics 3 PHY4330 Advanced Dynamics 3 PHY4335 Physics of Continuous Media 3 PHY4340 Computational Physics I 4 PHY4341 Computational Physics II 4 PHY4346 General Relativity 3 PHY4361 Applied Nuclear Physics II 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4390 Selected Topics in Physics 3				
PHY4335 Physics of Continuous Media 3 PHY4340 Computational Physics I 4 PHY4340 Computational Physics II 5 PHY4341 Computational Physics II 6 PHY4346 General Relativity 7 PHY4346 General Relativity 8 PHY4361 Applied Nuclear Physics 9 PHY4368 Subatomic Physics II 9 PHY4368 Subato				
PHY4340Computational Physics I-4PHY4140Computational Physics I3PHY4341Computational Physics II-4PHY4141Computational Physics II3PHY4346General Relativity3PHY4346General Relativity3PHY4361Applied Nuclear Physics3PHY4361Applied Nuclear Physics3PHY4368Subatomic Physics II3PHY4368Subatomic Physics II3PHY4385Solid State Physics3PHY4385Solid State Physics3PHY4387Physics of Materials3PHY4387Physics of Materials3PHY4390Selected Topics in Physics3PHY4390Selected Topics in Physics3				
PHY4341Computational Physics II4PHY4141Computational Physics II3PHY4346General Relativity3PHY4346General Relativity3PHY4361Applied Nuclear Physics3PHY4361Applied Nuclear Physics3PHY4368Subatomic Physics II3PHY4368Subatomic Physics II3PHY4385Solid State Physics3PHY4385Solid State Physics3PHY4387Physics of Materials3PHY4387Physics of Materials3PHY4390Selected Topics in Physics3PHY4390Selected Topics in Physics3				
PHY4346 General Relativity3PHY4346 General Relativity3PHY4361 Applied Nuclear Physics3PHY4361 Applied Nuclear Physics3PHY4368 Subatomic Physics II3PHY4368 Subatomic Physics II3PHY4385 Solid State Physics3PHY4385 Solid State Physics3PHY4387 Physics of Materials3PHY4387 Physics of Materials3PHY4390 Selected Topics in Physics3PHY4390 Selected Topics in Physics3				
PHY4361 Applied Nuclear Physics 3 PHY4368 Subatomic Physics II 3 PHY4368 Subatomic Physics II 3 PHY4385 Solid State Physics 3 PHY4387 Physics of Materials 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3				
PHY4368Subatomic Physics II3PHY4368Subatomic Physics II3PHY4385Solid State Physics3PHY4385Solid State Physics3PHY4387Physics of Materials3PHY4387Physics of Materials3PHY4390Selected Topics in Physics3PHY4390Selected Topics in Physics3				
PHY4385 Solid State Physics3PHY4385 Solid State Physics3PHY4387 Physics of Materials3PHY4387 Physics of Materials3PHY4390 Selected Topics in Physics3PHY4390 Selected Topics in Physics3				
PHY4387 Physics of Materials 3 PHY4387 Physics of Materials 3 PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3				
PHY4390 Selected Topics in Physics 3 PHY4390 Selected Topics in Physics 3				
PHY4595 Astrophysics 5 PHY4595 Astrophysics 3	PHY4395 Astrophysics	3	PHY4395 Astrophysics	3
Nine credits in mathematics at the 3000 or 4000-level 9 Nine credits in mathematics at the 3000 or 4000-level 9	Nine credits in mathematics at the 3000 or 4000-level			
6 credits outside the Faculties of Science or Engineering 6 credits outside the Faculties of Science or Engineering 6		_6		6

* The following courses are recommended as being particularly useful:

MAT3121, MAT3125, MAT3130, MAT3155, MAT3341, MAT3380, MAT4130, MAT4183, MAT4195, MAT4381, MAT4385, MAT4386, MAT4387, MAT4388, PHY4905.

Other courses at the 4000 or 5000-level may be offered at the discretion of the Department of Physics.

* The following courses are recommended as being particularly useful:

MAT3121, MAT3130, MAT3155, MAT3341, MAT3380, MAT4130, MAT4183, MAT4195, MAT4381, MAT4385, MAT4386, MAT4387, MAT4388.

Other courses at the 4000 or 5000-level may be offered at the discretion of the Department of Physics.