STUDENT COURSE PLANNING

FOR 2008

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www.ph.unimelb.edu.au/student/planning/courseplanningdocument.pdf

Physics Academic Program Committee 2007
Revised (McCallum) October 2007

SCHOOL OF PHYSICS
STUDENT COURSE PLANNING FOR 2008

1. Introduction

Course Requirements

To gain a BSc degree, a student must obtain credit for a minimum (and maximum) of 300 points, which must include at least 237.5 science points, with 75-125 points at 100 level and completion of 50 points of a prescribed science major at the 300 level. Up to 62.5 non-science points may count toward the BSc single degree course. Students should consult the University of Melbourne Handbook for more details. The corresponding information for Combined Course students is given in the relevant section.

Re-enrolment

Re-enrolment for 2008 is being done by students themselves via the Internet. Further details are contained in a letter sent to students by the Faculty of Science. Students enter own course online via the web (go to the page http://sis.unimelb.edu.au/) up to November 24, 2007. Students should note that November 24, 2007 is the closing date for Round 1 of quota selection.

Information from Science Faculty: http://www.science.unimelb.edu.au/current/planning.html
Handbook: http://www.unimelb.edu.au/HB/
Timetable: http://sis.unimelb.edu.au/cgi-bin/subject-change.pl

Students need to establish an ITS e-mail account prior to entering their course for the coming year.

Points and Majors Check

Students who expect to complete in the next twelve months are advised to do a “Points and Majors” check to ensure that their course plans will actually satisfy the requirements for the Major and Degree. You can find the link for this at http://www.science.unimelb.edu.au/current/planning.html .

Maximum workloads

Please note the Faculty of Science rules governing overloads. Although strong students are encouraged to enrol in a wide range of subjects, they should not do so many subjects that their overall performance is affected.

2. Further information

Please take note of the following sources of information and contacts:

- The University Handbook: http://www.unimelb.edu.au/HB
- Higher Year Course Advisor (Physics)**:**

  Dr. Andrew Melatos, a.melatos@physics.unimelb.edu.au
- Chair of Academic Programs (Physics):

  Dr. Jeff McCallum, j.mccallum@physics.unimelb.edu.au
- Physics Course Planning Co-ordinator (Physics):

  A/Prof Chris Chantler, c.chantler@physics.unimelb.edu.au

3. Guidelines for Entry to Advanced Physics Subjects

Core physics lecture units are given at both the **advanced and standard level** at both 200 and 300 level. Both streams can lead to a major in Physics and to Physics Honours. The pace of advanced courses is faster, the material is covered in more depth and assumes a stronger mathematical background. The grade a student receives in a course should not depend on whether it is taken at the standard or advanced level. To ensure that students undertake the appropriate level subject, the School of Physics has developed the following guidelines for entrance to advanced level physics subjects at 200 and 300 level. If a student wishes to enrol in a 220 or 320 series subject and is close to meeting, but doesn't quite satisfy, these criteria he or she should consult the year organiser.

Entrance to 2xx Series Subjects

Average Physics 121/141 or 122/142 mark	≥ 70
Average mark in Mathematics [121/140/141, 122/142/211, 113/123/143]	≥ 70

Entrance to 3xx Series Subjects

Average second year Physics Theory mark (excluding 251)	≥ 70
Average second year Mathematics mark [231/233, 232/234, 221/222/252?]	≥ 70

4. Physics Major and Entry into Honours

Honours (4th year) entry

Various majors involving physics are outlined below. Note, however, that completion of a physics major does *not necessarily* permit a student to enrol in Physics Honours (4th year). In order to enrol in Honours (which is required to pursue a higher degree in physics and is desirable for those wishing to pursue a career in industrial physics) students are required to complete:

- 640-321/341 Quantum Mechanics
- 640-322/342 Statistical Physics (previously known as 322/342 Thermal Physics)
- 640-323/343 Electrodynamics
- 640-353 Atomic, Molecular and Solid State Physics
- 640-299 Laboratory work

- *Plus either*

1. 25 points of 300-level physics laboratory work **OR**
2. 12.5 points of 300-level physics laboratory work *AND* 25 points of mathematics chosen from 620-311, 620-312, 620-321, 620-322, 620-331, 620-332, [03]620-341, 620-342 **OR**
3. 50 points of maths chosen from 620-311, 620-312, 620-321, 620-322, 620-331, 620-332, [03]620-341, 620-342 [which in turn requires completion of additional 2nd year maths pre-requisites]

Students wishing to retain the option of enrolling in Physics Honours in future years should ensure that they complete the required 300-level subjects and their pre-requisites.

Physics Major: Physics Specialisation

Note: the completion of a major is defined by the completion of 50 points of select 300 level subjects. Information about 100 and 200 level subjects is for advice only.

100-level subjects

- 640-121/141 and 640-122/142 Physics A and B
- 620-121/141 and 620-122/142/211 Mathematics A and B
- 620-113/123/143 Applied Mathematics

200-level subjects

- 640-223/243 Quantum Mechanics & Thermal Physics
- 640-225/245 Electromagnetism & Relativity
- 640-299 Laboratory Work
- At least one of 640-237 Astro & Optics II, 640-234 Further Class & Quantum Mech *or* 640-251 Inst. for Scientists

300-level subjects

- 640-321/341 Quantum Mechanics
- 640-364 Computational Physics *or* 12.5 points of 300-level Physics laboratory work
- 25 points or more of other 300-level Physics subjects.

The Physics Major: Physics Specialisation is accredited by the Australian Institute of Physics.

Physics Major: Mathematical Physics Specialisation

The Physics Major: Mathematical Physics Specialisation requires additional second and third year subjects to proceed to honours entry in physics.

100-level subjects

- 640-121/141 and 640-122/142 Physics A and B
- 620-121/141 and 620-122/142/211 Mathematics A and B
- 620-113/123/143 Applied Mathematics

200-level subjects

- 640-223/243 Quantum Mechanics & Thermal Physics
- 640-225/245 Electromagnetism & Relativity
- 620-231/233 Vector Analysis
- 620-232/234 Mathematical Methods

300-level subjects

- 640-321/341 Quantum Mechanics
- 640-322/342 Statistical Physics (previously known as 322/342 Thermal Physics)
- 620-331 Applied Partial Differential Equations
- 640-332 Integral Transforms & Asymptotics or [03]620-341 Dynamical Systems & Chaos or 620-342 Industrial and Applied Maths or 620-353 Discrete Mathematics

5. 200-level physics subjects

Sem	Code	Subject	Pts	Pre- and co-requisites	Pre-requisite for
1	640-223	Quantum Mechanics and Thermal Physics (Advanced)	12.5	Physics 121/141+122/142 Maths 121/141/140 + 122/142/211* + 113/123/143 +231*	321/341 Quantum Mechanics 322/342 Statistical Physics 354 Subatomic Physics
1	640-243	Quantum Mechanics and Thermal Physics	12.5	Physics 121/141+122/142 Maths 121/141/140 + 113/123/143*+ 122/142/211*	321/341 Quantum Mechanics 322/342 Statistical Physics 354 Subatomic Physics
1	640-237	Astrophysics and Optics II	12.5	Physics 121/141+122/142 Maths 121/141/140	
1	640-251	Instrumentation for Scientists	12.5	Physics 121/141/151/161 +122/142/152/162 Maths 121/141/151/140	
2	640-225	Electromagnetism and Relativity (Advanced)	12.5	Physics 121/141+122/142 Maths 231 + 113/123/143	323/343 Electrodynamics 351 Astrophysics and Optics III
2	640-245	Electromagnetism and Relativity	12.5	Physics 121/141+122/142 Maths 231*+ 113/123/143	323/343 Electrodynamics 351 Astrophysics and Optics III
2	640-234	Further classical and quantum mechanics	12.5	Physics 223/243 Maths 231*	
2	640-299	Laboratory work	12.5	Physics 121/141+122/142	393,394 Laboratory work

Notes

1. Subjects marked * are pre-requisites or co-requisites; others are pre-requisites.
2. In addition to meeting formal prerequisite requirements, students should note the following:

- A knowledge of the material covered in 640-251 Instrumentation for Scientists and/or the optics covered in the 237 lecture subject will be advantageous when undertaking the Laboratory unit 640-299.
- It will be assumed that students are taking Maths 232 concurrently with 225/245 Electromagnetism.
- Students intending to take Honours Physics (4th Year) must take the Laboratory subject 640-299 or equivalent.
- Note that students who completed 100-level maths units prior to 1999, should ensure that they have completed the equivalent mathematics units.

Core units

The core units are:

- 640-223/243 Quantum Mechanics and Thermal Physics (Semester 1)
- 640-225/245 Electromagnetism and Special Relativity (Semester 2)
- 299 Laboratory Work (Semester 1)

Course plans

Suggested course plans for 200 level BSc students are given on the following page.

Mathematics

Careful attention must also be paid to the sequence of Mathematics subjects required in second year; this will depend on what Mathematics subjects a student completes in first year, as indicated in the table. Mathematics 231 and 232 are prerequisite for many 300 level Physics subjects and Mathematics 231 is a pre- or co-requisite for the 200 level Physics subjects: 223 and 225/245. Students wishing to pursue a major in 300 level Physics must, by the end of second year, have passed the following Mathematics subjects: 121 or 141 or 140, 122 or 142 or 211, 113 or 123 or 143, 231 and 232. Students undertaking engineering mathematics subjects should consult the section on Combined Courses at the end of this document.

6. Suggested course plans for 200-level BSc students proceeding to a Physics Major

Semester	Code	Subject Name	Already completed: Maths 121/141+123/143	Already completed: Maths 121/141+122/142+123/143
1	**640-223/243***	**Quantum Mechanics and Thermal Physics**	**12.5**	**12.5**
1	640-237	Astrophysics and Optics II	**12.5**	**12.5**
1	640-251	Instrumentation for Scientists		**12.5**
1	620-122/142	Mathematics B	**12.5**	
1	620-231/233	Vector Analysis	**12.5**	**12.5**
2	**640-225/245***	**Electromagnetism and Relativity**	**12.5**	**12.5**
2	640-234	Further classical and quantum mechanics	**12.5**	**12.5**
2	**640-299***	**Laboratory**	**12.5**	**12.5**
2	620-232/234	Mathematical methods	**12.5**	**12.5**
		Total points for year	**100**	**100**

***These are core subjects and must be completed to continue to a physics major**
#Students intending to proceed to a major in maths and stats will need to substitute maths units for physics electives.

7. 300-level physics subjects

Sem.	Code	Subject	Pts	Pre- or co-requisites
1	640-321/341	Quantum Mechanics	12.5	Physics 223/243 Maths 231+232
1	640-322/342	Statistical Physics	12.5	Physics 223/243
1	640-351	Astrophysics and Optics	12.5	Physics 225/245* Maths 231+232 *For 2007, students who completed 640-237 but not 640-225 or 640-245 will also be permitted to enrol.
1	640-393 Or 640-394	Laboratory work A Laboratory work B	12.5 12.5	Physics 299 393 Laboratory work A
1	640-311	Physics Seminar	0	
2	640-323/343	Electrodynamics	12.5	Physics 225/245 Maths 231+232
2	640-353	Atomic, Molecular and Solid State Physics	12.5	Physics 321/341
2	640-354	Subatomic Physics	12.5	Physics 223/243
2	640-364	Computational physics	12.5	Physics 321/341 Maths 231/233 and 232/234
2	640-381	Principles and Applications of Sensors	12.5	Physics 141/142 or 121/122
2	640-393 Or 640-394	Laboratory work A Laboratory work B	12.5 12.5	Physics 299 393 Laboratory work A
2	640-394	Laboratory work	12.5	Physics 299
2	640-312	Physics Seminar	0	

Seminar: Students enrolled in ≥50 pts of 300 Physics are strongly encouraged to enrol in 311 and 312 Physics Undergraduate Seminar. Others may enrol.

Laboratory work: The standard combination of laboratory work is 393 in Semester 1 followed by 394 in Semester 2. However, the semesters may be reversed as long as B follows A.

Physics IV (Honours Year)

- Prerequisites for entry to 4th year are given earlier.
- To enter 4th year, students normally require at least an average of 65% in their best 87.5 points of 300-level Science units. Combined course students have their Faculty score based on a weighted average mark. This score counts 1/3 and the honours year mark 2/3 of the score for award of postgraduate research scholarships. Students, therefore, should not undertake a workload that will cause 300-level results to suffer.
- The choice of 3rd year subjects in no way influences or prejudices a student's admission to a particular research group.

Mathematics Combinations

- Some students may be interested in a major in both Physics and Mathematics. They should see the description of a Physics major above and consult the School of Mathematics and Statistics about requirements for a Mathematics major. Note that this combination also does not necessarily permit entry to Physics Honours. Students should note that no more than 12.5 points in common can count towards both majors.
- Students who satisfy the requirements to both Physics and Mathematics Honours may also be admitted to a combined Mathematics and Physics Honours course.

8. Suggested course plans for 300-level BSc students proceeding to a Physics Major

Semester	Code	Subject Name	Honours entry Physics	Honours entry Phys/Maths	Physics major (example)
1	**640-321/341***	**Quantum Mechanics**	**12.5**	**12.5**	**12.5**
1	**640-322/342***	**Statistical Physics**	**12.5**	**12.5**	
1	640-351	Astrophysics and Optics III	**12.5**		**12.5**
1	**640-393/4***	**Laboratory Work A/B**	**12.5**		
1		Approved mathematics units		**25**	
1		Other subjects			**25**
2	**640-323/343***	**Electrodynamics**	**12.5**	**12.5**	
2	**640-353***	**Atomic, molecular & solid state physics**	**12.5**	**12.5**	**12.5**
2	640-354	Subatomic physics	**12.5**		
2	640-364	Computational physics			**12.5**
2	**620-393/4***	**Laboratory Work A/B**	**12.5**		
2		Approved mathematics units		**25**	
2		Other subjects			**25**
1&2	640-311&312	Physics Undergrad Seminar			
		Total points for year	**100**	**100**	**100**

* These are core units. Note that various combinations of the non-core units can be taken.

9. Combined Degree Courses

The BSc component of the **BE/BSc** combined degree courses require completion of at least 237.5 science points, with 75-125 points at 100 level and completion of 50 points of a prescribed science major at the 300 level. Students should consult the University of Melbourne Handbook for more details.

Students in **LLB/BSc** must acquire credits of 200 science points including at least 50-125 points of 100 level subjects, and 50 points of a prescribed science major at the 300 level. Students in **BA/BSc** must acquire credits of 225 points of the arts component including at least 50 points of 100 level subjects, 75 points of 200-level subjects and 100 points at the 300 level.

The attention of students is drawn to the requirements for a Physics major for all courses commencing 1999 or later, and to the requirements for admission to Physics Honours, listed above.

In combined courses, so many different choices of subjects are possible that it can become very difficult to avoid timetable clashes. For BSc/BE(Electrical stream), there are few if any timetable problems, thanks to co-operation between Science and Engineering departments in Year 2 and Year 3 subjects; Years 4 and 5 present no problems because they are either pure Science or pure Engineering. The timetabling situation for other combined courses, however, still raises problems, and is under review, the aim being to avoid serious clashes at least between named subjects in the following suggested courses.

Combined Science/Engineering students should note that the School of Physics & the Faculty of Engineering prefer that they take the BSc Mathematics units, in particular 620-231 and 232. Students, however, may take the appropriate Engineering Maths units and still satisfy the pre-requisites for 200- and 300-level Physics. The subjects 431-201 Engineering Analysis A and 431-202 Engineering Analysis B satisfy the mathematical pre- and co-requisites for all 640-200 and 300-level subjects.

Students who take Engineering Maths should note that these subjects *do not* contribute toward Science points and they may need to take additional Science subjects in order to acquire enough Science points to graduate.

Suggested course plans are given overleaf for students enrolled in the following courses:

- BE/BSc (Electrical, Computer and Software streams, Civil, Mechanical, Manufacturing, Env.)
- LLB/BSc
- BA/BSc

These course plans are guides only: students should consult with advisors from the relevant departments for more detailed information.

Students enrolled in BA/BSc and BCom/BSc normally have sufficient flexibility in their course to follow the BSc 2xx and 3xx plans and to determine their own plan in consultation with an advisor.

Students enrolled in BBiomedSci should see a BBiomedSci advisor or stream coordinator for one of the eight possible streams: typical streams can include Physics 151/152 or 121/122; Maths 151/152 or A and B; Applied Maths or Stats; and selected second year physics courses.

Students doing other courses [e.g. BForSc/BSc, BSc/BIS, BGeomE/BSc, and other streams (Civil, Chemical) of Engineering BE/BSc] and wishing to major in Physics should consult the Physics Higher Year Course Planning Co-ordinator, details at end of document.

Transition Arrangements for Roll-out of New Generation Degrees

In the revised course plans below, new generation Physics subjects are in ***bold italic***. The subject codes for these are denoted 640-2XX for 200-level and 640-3XX for 300-level. Some 200-level new generation Physics subjects will have to split (on an interim basis only) into two 6.25 half-semester units for some students. This sometimes entails overloading by 6.25 points in one semester, balanced by a 6.25 underloading in another semester.

Students need to choose from the course plans based on the year they commenced their degree. These course plans have been designed with the planned phase-out of existing subjects taken into consideration. Students who vary from these defined plans will need to seek specific course planning advice.

The timetable for phase out of existing subjects will be available on the Science Faculty course planning website: http://www.science.unimelb.edu.au/current/planning.html.

10. BE(Chemical)/BSc(Physics): Commenced pre-2007

First year	
Semester 1	**Points**
411-101 Introduction to Chemical Engineering[1]	12.5
610-141 Chemistry	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
411-102 Chemical Process Analysis	12.5
610-142 Chemistry	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
640-223/243 Quantum Mechanics & Thermal Physics	12.5
610-221 Organic & Bio-organic Chemistry	12.5
620-142 Mathematics B	12.5
620-231 Vector Analysis	12.5
Semester 2	
620-232 Mathematical Methods	12.5
610-211 Light, Matter & Chemical Change B	12.5
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
Third year	
Semester 1	**Points**
411-201 Introduction to Transport Processes	12.5
640-393 Laboratory Work	12.5
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
411-343 Chemical Engineering Management	12.5
Semester 2	
411-203 Fluid Mechanics	12.5
411-204 Chemical Engineering Thermodynamics	12.5
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid-State Physics	12.5
640-312 Physics Seminar	0
Fourth year	
Semester 1	**Points**
411-331 Heat and Mass Transport Processes 1	12.5
411-303 Reactor Engineering	12.5
411-393 Bioprocess Engineering	12.5
640-394 Laboratory Work	12.5
640-311 Physics Seminar	0
Semester 2	
411-336 Process Dynamics and Control	12.5
411-337 Practical and Computer Laboratory	12.5
411-391 Bionanoengineering	12.5
411-339 Process Engineering 2	12.5
Fifth year	
Semester 1	**Points**
411-441 Heat and Mass Transport Processes 2	12.5
411-442 Process Equipment Design	12.5
411-432 Particle Mechanics	12.5
411-445 Process Engineering 3	12.5
Semester 2	
411-446 Research Project	18.75
411-447 Design Project	18.75
411-448 Biochemical/Environmental Engineering 2 or 411-449 Minerals Engineering	12.5

10. BE(Chemical)/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
411-101 Introduction to Chemical Engineering[1]	12.5
610-141 Chemistry	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
411-102 Chemical Process Analysis	12.5
610-142 Chemistry	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
640-223/243 Quantum Mechanics & Thermal Physics	12.5
610-221 Organic & Bio-organic Chemistry	12.5
620-142 Mathematics B	12.5
620-231 Vector Analysis	12.5
Semester 2	
620-232 Mathematical Methods	12.5
610-211 Light, Matter & Chemical Change B	12.5
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
Third year	
Semester 1	**Points**
411-201 Introduction to Transport Processes	12.5
640-393 Laboratory Work	12.5
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
411-343 Chemical Engineering Management	12.5
Semester 2	
411-203 Fluid Mechanics	12.5
411-204 Chemical Engineering Thermodynamics	12.5
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid-State Physics	12.5
640-312 Physics Seminar	0
Fourth year	
Semester 1	**Points**
411-331 Heat and Mass Transport Processes 1	12.5
411-303 Reactor Engineering	12.5
411-393 Bioprocess Engineering	12.5
640-395 Laboratory Work	***12.5***
Semester 2	
411-336 Process Dynamics and Control	12.5
411-337 Practical and Computer Laboratory	12.5
411-391 Bionanoengineering	12.5
411-339 Process Engineering 2	12.5
Fifth year	
Semester 1	**Points**
411-441 Heat and Mass Transport Processes 2	12.5
411-442 Process Equipment Design	12.5
411-432 Particle Mechanics and Processing	12.5
411-445 Process Engineering 3	12.5
Semester 2	
411-446 Research Project	18.75
411-447 Design Project	18.75
411-448 Biochemical/Environmental Engineering 2 or 411-449 Materials and Recycling	12.5

11. BE (Civil)/BSc(Physics): Commenced pre-2006

First year	
Semester 1	**Points**
421-103 Engineering Statics	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Science subject as required	12.5
Semester 2	
421-101 Civil Engineering Introduction	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
421-106 Engineering Communication and Computation	12.5
620-231 Vector Analysis	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
640-237 Astrophysics and Optics II	12.5
Semester 2	
421-102 Dynamics and Measurement Systems	12.5
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
620-232 Mathematical Methods	12.5
Third year	
Semester 1	**Points**
421-208 Mechanics of Solids	12.5
421-255 Management for Engineers 1	12.5
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
640-311 Physics Seminar	0
Semester 2	
421-207 Introduction to Design	12.5
421-209 Geomechanics 1	12.5
640-323/343 Electrodynamics	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Fourth year	
Semester 1	**Points**
421-305 Engineering Hydraulics 1	12.5
421-306 Geotechnical Engineering	12.5
421-307 Structural Engineering 1	12.5
421-355 Management for Engineers 2	12.5
Semester 2	
421-316 Engineering Hydraulics & Hydrology	12.5
421-317 Structural Engineering 2	12.5
421-318 Construction Engineering	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
Fifth year	
Semester 1	**Points**
421-401 Techniques of Research and Investigation	6.25
421-405 Management for Engineers 3	12.5
421-410 Structural Steel Theory & Design	6.25
421-447 Transport Engineering	12.5
640-393 Laboratory Work	12.5
Semester 2	
421-411 Concrete Theory & Design	6.25
421-420 Hydraulic Engineering Design	6.25
Civil engineering elective(s)	12.5
Science subjects as required	25

11. BE (Civil)/BSc(Physics): Commenced 2006

First year	
Semester 1	**Points**
421-103 Engineering Statics	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Science subject as required	12.5
Semester 2	
421-101 Civil Engineering Introduction	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
421-106 Engineering Communication and Computation	12.5
620-231 Vector Analysis	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
640-237 Astrophysics and Optics II	12.5
Semester 2	
421-102 Dynamics and Measurement Systems	12.5
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
620-232 Mathematical Methods	12.5
Third year	
Semester 1	**Points**
421-208 Mechanics of Solids	12.5
421-255 Management for Engineers 1	12.5
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
640-311 Physics Seminar	0
Semester 2	
421-207 Introduction to Design	12.5
421-209 Geomechanics 1	12.5
640-323/343 Electrodynamics	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Fourth year	
Semester 1	**Points**
421-305 Engineering Hydraulics 1	12.5
421-306 Geotechnical Engineering	12.5
421-307 Structural Engineering 1	12.5
421-355 Management for Engineers 2	12.5
Semester 2	
421-316 Engineering Hydraulics & Hydrology	12.5
421-317 Structural Engineering 2	12.5
421-318 Construction Engineering	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
Fifth year	
Semester 1	**Points**
421-401 Techniques of Research and Investigation	6.25
421-405 Management for Engineers 3	12.5
421-410 Structural Steel Theory & Design	6.25
421-447 Transport Engineering	12.5
640-395 Laboratory Work	***12.5***
Semester 2	
421-411 Concrete Theory & Design	6.25
421-420 Hydraulic Engineering Design	6.25
Civil engineering elective(s)	12.5
Science subjects as required	25

11. BE (Civil)/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
421-103 Engineering Statics	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Science subject as required	12.5
Semester 2	
421-101 Civil Engineering Introduction	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
421-106 Engineering Communication and Computation	12.5
620-231 Vector Analysis	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
640-237 Astrophysics and Optics II	12.5
Semester 2	
421-102 Dynamics and Measurement Systems	12.5
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
620-232 Mathematical Methods	12.5
Third year	
Semester 1	**Points**
421-208 Mechanics of Solids	12.5
421-255 Management for Engineers 1	12.5
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
640-311 Physics Seminar	0
Semester 2	
421-207 Introduction to Design	12.5
421-209 Geomechanics 1	12.5
640-323/343 Electrodynamics	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Fourth year	
Semester 1	**Points**
421-305 Engineering Hydraulics 1	12.5
421-306 Geotechnical Engineering	12.5
421-307 Structural Engineering 1	12.5
421-355 Management for Engineers 2	12.5
Semester 2	
421-316 Engineering Hydraulics & Hydrology	12.5
421-317 Structural Engineering 2	12.5
421-318 Construction Engineering	12.5
640-382 Condensed Matter Physics	***12.5***
Fifth year	
Semester 1	**Points**
421-401 Techniques of Research and Investigation	6.25
421-405 Management for Engineers 3	12.5
421-410 Structural Steel Theory & Design	6.25
421-447 Transport Engineering	12.5
640-395 Laboratory Work	***12.5***
Semester 2	
421-411 Concrete Theory & Design	6.25
421-420 Hydraulic Engineering Design	6.25
Civil engineering elective(s)	12.5
Science subjects as required	25

12. BE(Computer Engineering)/BSc(Physics): Commenced pre-2007

First year	
Semester 1	**Points**
431-110 Making Connections	0
431-102 Digital Systems 1: Fundamentals	12.5
433-151/171 Introduction to Programming	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
431-110 Making Connections	0
431-103 Electrical Circuits	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
431-204 Digital Systems 2: System Design	12.5
431-210 Electrical Circuits 2	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-231 Vector Analysis	12.5
Semester 2	
431-222 Electronic Circuit Design 1	12.5
431-221 Fundamentals of Signals & Systems	12.5
433-152/172 Algorithmic Problem Solving	12.5
620-232 Mathematical Methods	12.5
Third year	
Semester 1	**Points**
431-325 Stochastic Signals and Systems or 620-201 Probability	12.5
433-253 Algorithms & Data Structures	12.5
431-330 Design Laboratory	12.5
433-252 Software Engineering Principles & Tools	12.5
Semester 2	
431-328 Digital Systems 3: Circuits & Systems	12.5
433-254 Software Design	12.5
433-313 Computer Design	12.5
640-225/245 Electromagnetism and Relativity	12.5
Fourth year	
Semester 1	**Points**
640-341/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
640-393 Laboratory Work	12.5
640-311 Physics Seminar	0
Science elective	12.5
Semester 2	
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Science elective	12.5
Fifth year	
Year Long	**Points**
431-400 Project Work or 431-464 Project Work	25
Semester 1	**Points**
433-332 Operating Systems	12.5
Non-technical electives	25
Semester 2	
431-467 Digital Systems 4: High Speed Systems	12.5
433-353 Networks & Communications	12.5
Elective	12.5

12. BE(Computer Engineering)/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
431-110 Making Connections	0
431-102 Digital Systems 1: Fundamentals	12.5
433-151/171 Introduction to Programming	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
431-110 Making Connections	0
431-103 Electrical Circuits	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
431-204 Digital Systems 2: System Design	12.5
431-210 Electrical Circuits 2	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-231 Vector Analysis	12.5
Semester 2	
431-222 Electronic Circuit Design 1	12.5
431-221 Fundamentals of Signals & Systems	12.5
433-172 Algorithmic Problem Solving	12.5
620-232 Mathematical Methods	12.5
Third year	
Semester 1	**Points**
431-325 Stochastic Signals and Systems or 620-201 Probability	12.5
433-253 Algorithms & Data Structures	12.5
431-330 Design Laboratory	12.5
433-252 Software Engineering Principles & Tools	12.5
640-2XX Quantum Mechanics and Relativity (Relativity half only)	***6.25***
Semester 2	
431-328 Digital Systems 3: Circuits & Systems	12.5
433-254 Software Design	12.5
433-313 Computer Design	12.5
640-2XX Electromagnetism and Optics (EM half only)	***6.25***
Fourth year	
Semester 1	**Points**
640-331 Quantum Mechanics	***12.5***
640-371 Electrodynamics	***12.5***
640-395 Laboratory Work	***12.5***
Science elective	12.5
Semester 2	
640-372 Statistical Physics	***12.5***
640-382 Condensed Matter Physics	***12.5***
640-395 Laboratory Work	***12.5***
Science elective	12.5
Fifth year	
Year Long	**Points**
431-400 Project Work or 431-464 Project Work	25
Semester 1	**Points**
433-332 Operating Systems or Equivalent (to be arranged by Engineering)	12.5
Non-technical electives	25
Semester 2	
431-467 Digital Systems 4: High Speed Systems	12.5
433-353 Networks & Communications	12.5
Elective	12.5

13. BE(Electrical Engineering)/BSc(Physics): Commenced pre-2007

First year	
Semester 1	**Points**
431-110 Making Connections	0
431-102 Digital Systems 1: Fundamentals	12.5
433-151/171 Introduction to Programming	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
431-110 Making Connections	0
431-103 Electrical Circuits	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
431-204 Digital Systems 2: System Design	12.5
431-210 Electrical Circuits 2	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-231 Vector Analysis	12.5
Semester 2	
431-222 Electronic Circuit Design 1	12.5
431-221 Fundamentals of Signals & Systems	12.5
620-232 Mathematical Methods	12.5
433-152/172 Algorithmic Problem Solving	12.5
Third year	
Semester 1	**Points**
431-330 Design Laboratory	12.5
431-3xx Electrical engineering elective	12.5
431-325 Stochastic Signals and Systems or 620-201 Probability	12.5
Science elective	12.5
Semester 2	
431-327 Communication Systems	12.5
431-3xx Electrical engineering electives (can include 640-381 Principles and Applications of Sensors)	25
640-225/245 Electromagnetism and Relativity	12.5
Fourth year	
Semester 1	**Points**
640-341/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
640-393 Laboratory Work	12.5
640-311 Physics Seminar	0
Science elective	12.5
Semester 2	
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Science elective	12.5
Fifth year	
Year Long	**Points**
431-400 Project Work	25
Semester 1	**Points**
431-4xx Electrical engineering electives	25
Non-technical elective	12.5
Semester 2	
431-4xx Electrical engineering electives	25
Non-technical elective	12.5

13. BE(Electrical Engineering)/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
431-110 Making Connections	0
431-102 Digital Systems 1: Fundamentals	12.5
433-151/171 Introduction to Programming	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
431-110 Making Connections	0
431-103 Electrical Circuits	12.5
620-123/143 Applied Mathematics	12.5
620-122/142 Mathematics B	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
431-204 Digital Systems 2: System Design	12.5
431-210 Electrical Circuits 2	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-231 Vector Analysis	12.5
Semester 2	
431-222 Electronic Circuit Design 1	12.5
431-221 Fundamentals of Signals & Systems	12.5
620-232 Mathematical Methods	12.5
433-152/172 Algorithmic Problem Solving	12.5
Third year	
Semester 1	**Points**
431-330 Design Laboratory	12.5
431-3xx Electrical engineering elective	12.5
431-325 Stochastic Signals and Systems or 620-201 Probability	12.5
640-2XX Quantum Mechanics and Relativity (Relativity half only)	***6.25***
Science elective	12.5
Semester 2	
431-327 Communication Systems	12.5
431-3xx Electrical engineering electives (can include 640-381 Principles and Applications of Sensors)	25
640-2XX Electromagnetism and Optics (EM half only)	***6.25***
Fourth year	
Semester 1	**Points**
640-331 Quantum Mechanics	***12.5***
640-371 Electrodynamics	***12.5***
640-395 Laboratory Work	***12.5***
Science elective	12.5
Semester 2	
640-372 Statistical Physics	***12.5***
640-382 Condensed Matter Physics	***12.5***
640-395 Laboratory Work	***12.5***
Science elective	12.5
Fifth year	
Year Long	**Points**
431-400 Project Work	25
Semester 1	**Points**
431-4xx Electrical engineering electives	25
Non-technical elective	12.5
Semester 2	
431-4xx Electrical engineering electives	25
Non-technical elective	12.5

14. BE(Software Engineering)/BSc(Physics): Commenced pre-2007

First year	
Semester 1	**Points**
431-102 Digital Systems 1: Fundamentals	12.5
433-151/171 Introduction to Programming	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
431-103 Electrical Circuits	12.5
433-152/172 Algorithmic Problem Solving	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
620-142 Mathematics B	12.5
431-204 Digital Systems 2: System Design	12.5
433-252 Software Engineering Principles & Tools	12.5
433-253 Algorithms and Data Structures	12.5
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
433-254 Software Design	12.5
433-255 Logic and Computation	12.5
Third year	
Year Long	**Points**
433-340 Software Engineering Project	25
Semester 1	**Points**
433-341 Software Engineering Process & Practice	12.5
433-343 Professional Issues in Computing	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
Semester 2	
433-342 Software Engineering Methods	12.5
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
Fourth year	
	Points
CSSE 300-level elective	12.5
Elective	12.5
Semester 1	**Points**
640-341/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
640-393 Laboratory Work	12.5
640-311 Physics Seminar	0
Semester 2	
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Fifth year	
Year Long	**Points**
433-440 Advanced Software Engineering Project	25
Semester 1	**Points**
433-443 Software Project Management	12.5
CSSE 300-level or 400-level electives	25
Semester 2	
CSSE 300-level or 400-level electives	25
Elective	12.5

14. BE(Software Engineering)/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
431-102 Digital Systems 1: Fundamentals	12.5
433-151/171 Introduction to Programming	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
431-103 Electrical Circuits	12.5
433-152/172 Algorithmic Problem Solving	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
620-142 Mathematics B	12.5
431-204 Digital Systems 2: System Design	12.5
433-252 Software Engineering Principles & Tools	12.5
433-253 Algorithms and Data Structures	12.5
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
433-254 Software Design	12.5
433-255 Logic and Computation	12.5
Third year	
Year Long	**Points**
433-340 Software Engineering Project	25
Semester 1	**Points**
433-341 Software Engineering Process & Practice	12.5
433-343 Professional Issues in Computing	12.5
640-211 Quantum Mechanics & Relativity	***12.5***
Semester 2	
433-342 Software Engineering Methods	12.5
640-272 Electromagnetism and Optics	***12.5***
CSSE 300-level elective	12.5
Fourth year	
Semester 1	**Points**
640-231 Thermal & Classical Physics	***12.5***
640-331 Quantum Mechanics	***12.5***
640-371 Electrodynamics	***12.5***
640-395 Laboratory Work	***12.5***
Semester 2	
640-372 Statistical Physics	***12.5***
640-382 Condensed Matter Physics	***12.5***
640-395 Laboratory Work	***12.5***
Fifth year	
Year Long	**Points**
433-440 Advanced Software Engineering Project	25
Semester 1	**Points**
433-443 Software Project Management or Equivalent (to be arranged by Engineering)	12.5
CSSE 300-level or 400-level electives	12.5
Elective	12.5
Semester 2	
CSSE 300-level or 400-level electives	25
Elective	12.5

15. BE(Mech./Manuf./Env.)/BSc(Physics): Commenced pre-2006

First year	
Semester 1	**Points**
433-151/171 Introduction to Programming	12.5
436-105 Engineering Communications	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
436-121 Introduction to Mechanical Engineering	12.5
620-122/142 Mathematics B	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
436-202 Mechanics 1	12.5
436-285 Engineering Design and Materials 1	12.5
620-231 Vector Analysis	12.5
640-251 Instrumentation for Scientists	12.5
Semester 2	
436-286 Engineering Design and Materials 2	12.5
620-232 Mathematical Methods	12.5
620-160 Experimental Design & Data Analysis	12.5
640-225/245 Electromagnetism and Relativity	12.5
Third year	
Semester 1	**Points**
436-202 Mechanics 2	12.5
436-384 Design and Processes 1	12.5
620-331 Applied Partial Differential Equations	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
Semester 2	**Points**
436-201 Thermofluids 1	12.5
436-204 Systems Modelling	12.5
640-323/342 Electrodynamics	12.5
640-299 Laboratory Work	12.5
Fourth year	
Semester 1*	**Points**
436-351 Thermofluids 2	12.5
436-382 Control Systems 1	12.5
436-284 Organisational Engineering	12.5
640-321/341 Quantum Mechanics	12.5
640-311 Physics Seminar	0
Semester 2	
Mechanical	
436-352 Thermofluids 3	12.5
436-354 Mechanics 3	12.5
436-311 Design and Processes 2	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Fifth year (Mechanical, Manufacturing, Environmental)	
Semester 1	
Engineering subjects as required	50
Semester 2	
640-353 Atomic, Molecular and Solid-State Physics	12.5
Science subject as required	12.5
Engineering subjects as required	25

* Students intending to do Honours in Physics should also complete 640-322/242 Statistical Physics.

15. BE(Mech./Manuf./Env.)/BSc(Physics): Commenced 2006

First year	
Semester 1	**Points**
433-151/171 Introduction to Programming	12.5
436-105 Engineering Communications	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
436-121 Introduction to Mechanical Engineering	12.5
620-122/142 Mathematics B	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
436-202 Mechanics 1	12.5
436-285 Engineering Design and Materials 1	12.5
620-231 Vector Analysis	12.5
640-251 Instrumentation for Scientists	12.5
Semester 2	
436-286 Engineering Design and Materials 2	12.5
620-232 Mathematical Methods	12.5
620-160 Experimental Design & Data Analysis	12.5
640-225/245 Electromagnetism and Relativity	12.5
Third year	
Semester 1	**Points**
436-202 Mechanics 2	12.5
436-384 Design and Processes 1	12.5
620-331 Applied Partial Differential Equations	12.5
640-223/243 Quantum Mechanics & Thermal Physics	12.5
Semester 2	**Points**
436-201 Thermofluids 1	12.5
436-204 Systems Modelling	12.5
640-323/342 Electrodynamics	12.5
640-299 Laboratory Work	12.5
Fourth year	
Semester 1*	**Points**
436-351 Thermofluids 2	12.5
436-382 Control Systems 1	12.5
436-284 Organisational Engineering	12.5
640-321/341 Quantum Mechanics	12.5
640-311 Physics Seminar	0
Semester 2	
436-352 Thermofluids 3	12.5
436-354 Mechanics 3	12.5
436-311 Design and Processes 2	12.5
640-394 Laboratory Work	12.5
640-312 Physics Seminar	0
Fifth year (Mechanical, Manufacturing, Environmental)	
Semester 1	
Engineering subjects as required	50
Semester 2	
640-382 Condensed Matter Physics	***12.5***
Science subject as required	12.5
Engineering subjects as required	25

* Students intending to do Honours in Physics should also complete 640-322/242 Statistical Physics.

15. BE(Mech./Manuf./Env.)/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
433-151/171 Introduction to Programming	12.5
436-105 Engineering Communications	12.5
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Semester 2	
436-121 Introduction to Mechanical Engineering	12.5
620-122/142 Mathematics B	12.5
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Second year	
Semester 1	**Points**
436-202 Mechanics 1	12.5
436-285 Engineering Design and Materials 1	12.5
620-231 Vector Analysis	12.5
640-251 Instrumentation for Scientists	12.5
Semester 2	
436-286 Engineering Design and Materials 2	12.5
620-232 Mathematical Methods	12.5
620-160 Experimental Design & Data Analysis	12.5
436-201 Thermofluids 1	12.5
Third year	
Semester 1	**Points**
436-353 Mechanics 2	12.5
436-384 Design and Processes 1	12.5
620-331 Applied Partial Differential Equations	12.5
640-211 Quantum Mechanics & Relativity	***12.5***
Semester 2	**Points**
436-204 Systems Modelling	12.5
640-272 Electromagnetism and Optics	***12.5***
Science Electives	***25***
Fourth year	
Semester 1	**Points**
436-351 Thermofluids 2	12.5
436-382 Control Systems 1	12.5
436-284 Organisational Engineering	12.5
640-331 Quantum Mechanics	***12.5***
Semester 2	
436-352 Thermofluids 3	12.5
436-354 Mechanics 3	12.5
436-311 Design and Processes 2	12.5
640-395 Laboratory Work	***12.5***
Fifth year (Mechanical, Manufacturing, Environmental)	
Year Long	**Points**
436-492 Major Project and Professional Practice	25
Semester 1	**Points**
436-431 Mechanics 4	12.5
436-432 Thermofluids 4	12.5
436-470 Control Systems 2	12.5
Semester 2	**Points**
640-372 Statistical Physics	***12.5***
640-382 Condensed Matter Physics	***12.5***
Engineering subjects as required	12.5

16. BA/BSc(Physics): Commenced pre-2006

First year	
Semester 1	**Points**
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Arts subjects	25
Semester 2	
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Arts subjects	25
Second year	
Semester 1	**Points**
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-142 Mathematics B	12.5
Arts subjects	25
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
Arts subjects	25
Third year	
Semester 1	**Points**
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
Science elective	12.5
Arts subject	12.5
Semester 2	
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
Arts subjects	25
Fourth year	
Semester 1	**Points**
640-393 Laboratory Work	12.5
640-237 Astrophysics & Optics II	12.5
640-311 Physics Seminar	0
Arts subjects	25
Semester 2	
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
640-312 Physics Seminar	0
Physics/science elective	12.5
Arts subject	12.5
Fifth year	
Semester 1	**Points**
640-351 Astrophysics & Optics III	12.5
Physics/science elective	12.5
Arts subjects	25
Semester 2	
640-393 Laboratory Work	12.5
640-Computational Physics	12.5
Arts subject	25

Total Arts points = 225
Total Science points = 275

Students must complete ***at least 225 points*** towards the arts component of these degrees, comprising:

- 50 points of first-year arts (usually four subjects)
- 75 points of second-year arts (usually six subjects)
- 100 points of third-year arts (usually eight subjects)

16. BA/BSc(Physics): Commenced 2006

First year	
Semester 1	**Points**
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Arts subjects	25
Semester 2	
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Arts subjects	25
Second year	
Semester 1	**Points**
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-142 Mathematics B	12.5
Arts subjects	25
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
Arts subjects	25
Third year	
Semester 1	**Points**
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
Science elective	12.5
Arts subject	12.5
Semester 2	
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
Arts subjects	25
Fourth year	
Semester 1	**Points**
640-393 Laboratory Work	12.5
640-237 Astrophysics & Optics II	12.5
640-311 Physics Seminar	0
Arts subjects	25
Semester 2	
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
640-312 Physics Seminar	0
Physics/science elective	12.5
Arts subject	12.5
Fifth year	
Semester 1	**Points**
640-361 Astrophysics	***12.5***
Physics/science elective	12.5
Arts subjects	25
Semester 2	
640-395 Laboratory Work	***12.5***
640-396 Computational Physics	***12.5***
Arts subject	25

Total Arts points = 225
Total Science points = 275

Students must complete ***at least 225 points*** towards the arts component of these degrees, comprising:

- 50 points of first-year arts (usually four subjects)
- 75 points of second-year arts (usually six subjects)
- 100 points of third-year arts (usually eight subjects)

16. BA/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Arts subjects	25
Semester 2	
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Arts subjects	25
Second year	
Semester 1	**Points**
620-142 Mathematics B	12.5
Arts subjects	37.5
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
Arts subjects	25
Third year	
Semester 1	**Points**
640-211 Quantum Mechanics & Relativity	***12.5***
640-231 Thermal & Classical Physics	***12.5***
Science elective	12.5
Arts subject	12.5
Semester 2	
640-272 Electromagnetism and Optics	***12.5***
Science Elective	12.5
Arts subjects	25
Fourth year	
Semester 1	**Points**
640-395 Laboratory Work	***12.5***
640-331 Quantum Mechanics	***12.5***
640-371 Electrodynamics	***12.5***
Arts subject	12.5
Semester 2	
640-372 Statistical Physics	***12.5***
640-382 Condensed Matter Physics	***12.5***
Physics/science elective	12.5
Arts subject	12.5
Fifth year	
Semester 1	**Points**
640-361 Astrophysics	***12.5***
Physics/science elective	12.5
Arts subjects	25
Semester 2	
640-395 Laboratory Work	***12.5***
640-396 Computational Physics	***12.5***
Arts subjects	25

Total Arts points = 225
Total Science points = 275

Students must complete ***at least 225 points*** towards the arts component of these degrees, comprising:

- 50 points of first-year arts (usually four subjects)
- 75 points of second-year arts (usually six subjects)
- 100 points of third-year arts (usually eight subjects)

17. Bachelor of Laws/BSc(Physics): Commenced pre-2007

First year	
Semester 1	**Points**
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Law subjects	25
Semester 2	
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Law subjects	25
Second year	
Semester 1	**Points**
640-223/243 Quantum Mechanics & Thermal Physics	12.5
620-142 Mathematics B	12.5
Law subjects	25
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
Law subjects	25
Third year	
Semester 1	**Points**
640-321/341 Quantum Mechanics	12.5
640-322/342 Statistical Physics	12.5
Law subjects	25
Semester 2	
640-225/245 Electromagnetism and Relativity	12.5
640-299 Laboratory Work	12.5
Law subjects	25
Fourth year	
Semester 1	**Points**
640-393 Laboratory Work	12.5
640-237 Astrophysics & Optics II	12.5
640-311 Physics Seminar	0
Law subjects	25
Semester 2	
640-323/343 Electrodynamics	12.5
640-353 Atomic, Molecular and Solid State Physics	12.5
640-312 Physics Seminar	0
Law subjects	25
Fifth year	
Semester 1	**Points**
Law subjects	50
Semester 2	
Law subjects	50

A minimum of 200 science points is required, which must include:

- between 50 and 125 points at the 100-level;
- completion of 50 points of a prescribed science major at the 300-level. For detailed information on science majors, refer to the Faculty of Science section Majors.

Note that:

- There are no specific requirements at the 200-level.
- Science points are awarded for the completion of science subjects listed in the Faculty of Science section of this Handbook. The majority of subjects listed in this section earn science credit, although there are exceptions. Some subjects offered by the Department of Information Systems, Department of Mathematics and Statistics, and School of Earth Science do not earn science credit. If a subject does not earn science credit it is labelled as non-science in the subject description. Any subject that does not appear in the science section of this Handbook is a non-science subject.

17. Bachelor of Laws/BSc(Physics): Commenced 2007

First year	
Semester 1	**Points**
620-121/141 Mathematics A	12.5
640-121/141 Physics A	12.5
Law subjects	25
Semester 2	
620-123/143 Applied Mathematics	12.5
640-122/142 Physics B	12.5
Law subjects	25
Second year	
Semester 1	**Points**
Science elective	12.5
620-142 Mathematics B	12.5
Law subjects	25
Semester 2	
620-231 Vector Analysis	12.5
620-232 Mathematical Methods	12.5
Law subjects	25
Third year	
Semester 1	**Points**
640-211 Quantum Mechanics & Relativity	***12.5***
640-231 Thermal & Classical Physics	***12.5***
Law subjects	25
Semester 2	
640-272 Electromagnetism and Optics	***12.5***
Science elective	12.5
Law subjects	25
Fourth year	
Semester 1	**Points**
640-331 Quantum Mechanics	***12.5***
640-371 Electrodynamics	***12.5***
Law subjects	25
Semester 2	
640-372 Statistical Physics	***12.5***
640-395 Laboratory Work or Computational Physics	***12.5***
Law subjects	25
Fifth year	
Semester 1	**Points**
Law subjects	50
Semester 2	
Law subjects	50

A minimum of 200 science points is required, which must include:

- between 50 and 125 points at the 100-level;
- completion of 50 points of a prescribed science major at the 300-level. For detailed information on science majors, refer to the Faculty of Science section Majors.

Note that:

- There are no specific requirements at the 200-level.
- Science points are awarded for the completion of science subjects listed in the Faculty of Science section of this Handbook. The majority of subjects listed in this section earn science credit, although there are exceptions. Some subjects offered by the Department of Information Systems, Department of Mathematics and Statistics, and School of Earth Science do not earn science credit. If a subject does not earn science credit it is labelled as non-science in the subject description. Any subject that does not appear in the science section of this Handbook is a non-science subject.

SCHOOL OF PHYSICS COURSE

COURSE PLAN FOR 2008

SEMESTER 1

200-level Physics subjects			Points
☐	640-223	Quantum Mech. & Thermal Phys. (Adv.)	
☐	640-243	Quantum Mech. & Thermal Phys.	
☐	640-237	Astrophysics and Optics II	
☐	640-251	Instrumentation for Scientists	
300-level Physics subjects			
☐	640-341	Quantum Mechanics	
☐	640-322	Statistical Physics (Adv.)	
☐	640-342	Statistical Physics	
☐	640-351	Astrophysics and Optics III	
☐	640-393	Laboratory Work A	
☐	640-394	Laboratory Work B	
☐	640-311	Seminar *(Sem 1 – 0 points)*	
100- and 200-level Maths subjects			
☐	620-122	Mathematics B (Adv) *(Also Sem2)*	
☐	620-142	Mathematics B *(Also Sem2)*	
☐	620-143	Applied Maths *(Also Sum & Sem2)*	
☐	620-231	Vector Analysis *(Also Sem2)*	
☐	620-233	Vector Analysis (Adv)	
Other subjects			
☐			
☐			
☐			

Total Semester 1 Science points	
Total Semester 1 non-Science points	
Total points for Semester 1	

SEMESTER 2

200-level Physics subjects			Points
☐	640-225	Electromagnetism and Relativity (Adv.)	
☐	640-245	Electromagnetism and Relativity	
☐	640-234	Further Classical and Quantum Mech.	
☐	640-299	Laboratory	
300-level Physics subjects			
☐	640-323	Electrodynamics (Adv.)	
☐	640-343	Electrodynamics	
☐	640-353	Atomic, Molecular and Solid State Physics	
☐	640-354	Subatomic Physics	
☐	640-381	Principles and Applications of Sensors	
☐	640-364	Computational Physics	
☐	640-393	Laboratory Work A	
☐	640-394	Laboratory Work B	
☐	640-312	Seminar *(Sem 2 – 0 points)*	
200-level Maths subjects			
☐	620-231	Vector Analysis	
☐	620-232	Mathematical Methods	
☐	620-234	Mathematical Methods (Adv)	
Other subjects			
☐			
☐			
☐			

Total Semester 2 Science points	
Total Semester 2 non-Science points	
Total points for Semester 2	

Total Science points for Year	
Total non-Science points for Year	
Total points for Year	