Programme Information & PLOs

This document forms part of the Programme Design Document and is for use in the roll-out of the York Pedagogy to design and capture new programme statement of purpose (for applicants to the programme), programme learning outcomes, programme map and enhancement plan. Please provide information required on all three tabs of this document.

Title of the new programme – including any year abroad/ in industry variants

MSci & BSc Nanoscience

Level of qualification

Please select:	Level 7

Please indicate if the programme is offered with any year abroad / in industry variants	**Year in Industry** Please select Y/N	No
	Year Abroad Please select Y/N	No

Department(s):
Where more than one department is involved, indicate the lead department

Lead Department	Natural Sciences
Other contributing Departments:	Chemistry, Electronics, Physics, Mathematics

Programme leadership and programme team

Please name the programme leader and any key members of staff responsible for designing, maintaining and overseeing the programme.

Roddy Vann (Acting PL), Yongbing Xu (Elec Eng), Andy Parsons & Glenn Hurst (Chem), Laurence Wilson (Phys), Jason Levesley (Ch. BoS)

Particular information that the UTC working group should be aware of when considering the programme documentation (e.g. challenges faced, status of the implementation of the pedagogy, need to incorporate PSRB or employer expectations)

With few exceptions the modules which make up any of the Nat Sci programmes are drawn from the corresponding contributing single subject degree programmes. Local pedagogical practices and modes of assessment are honoured in Nat Sci unless there is evidence that such practices would not be pedagogically sound. Therefore, given the nature of the Nat Sci programmes parts of this document draw liberally from, or make reference to, the corresponding documentation from the contributing departments. This documentation should therefore be considered in parallel with the corresponding proforma for the single subject degree programmes of the contributing departments. The nano programme is different to most of our other interdisciplinary programmes in that it has more routes through to completion whereas the other programmes are more tightly constrained. We are currently looking into ways in which we might be able to bring the programme more into line with the other programmes. This will be some reduced optionality in the programme. But hopefully a cleaner, structure that will incorporate more electronics which is currently unbalanced in comparison to chemistry and physics.

Who has been involved in producing the programme map and enhancement plan? (please include confirmation of the extent to which colleagues from the programme team /BoS have been involved; whether student views have yet been incorporated, and also any external input, such as employer liaison board)

The people listed in 14 item have primarily being responsible for the programme map and enhancement plan. At all stages the BoS has had free access to and being invited to comment on the documentation. Student input has been fed into the YP process in a focus group, through the SSLC and via the BoS.

Purpose and learning outcomes of the programme

Statement of purpose for applicants to the programme

Please express succinctly the overall aims of the programme as an applicant facing statement for a prospectus or website. This should clarify to a prospective student why they should choose this programme, what it will provide to them and what benefits they will gain from completing it.

All Natural Science programmes at the University of York aim to produce leaders in science, technology and industry who will have the interdisciplinary knowledge and skills to succeed in complex research and business environments. You will learn how science is conducted in different disciplines, how to operate within different methodological communities, and how to apply techniques and ideas across multiple disciplines.

A nanoscience student must learn about the manipulation of atoms, molecules and nano-scale objects to be able create unique and functional systems. This requires expertise in physics, electronics and chemistry all of which you will study as you build towards a final year interdisciplinary project in nanoscience. The York nanoscience programme has been sculptured by experts from across the science faculty at York and is driven by current world leading research at the York JEOL Nanocentre. During the course of successfully completing your degree in nanoscience you will experience the cross-disciplinary theory and practices that form the core of nanoscience, distinguishing you as a truly interdisciplinary practitioner of science whose expertise naturally crosses subject boundaries.

As a student on the MSci programme you will achieve all the above, but your skills and knowledge will be developed further and to a deeper level as you undertake an extended final year research project that will move you towards the research frontier in Nanoscience, giving you the expertise, skills and experience necessary to pursue graduate level research both within and outside academia.

Programme Learning Outcomes

Please provide six to eight statements of what a graduate of the programme can be expected to do.
Taken together, these outcomes should capture the distinctive features of the programme. They should also be outcomes for which progressive achievement through the course of the programme can be articulated, and which will therefore be reflected in the design of the whole programme.

PLO	On successful completion of the programme, graduates will be able to:
1 BSc	Formulate, as well as tackle, open-ended problems in nanoscience and be able to call upon a variety of interdisciplinary techniques and methodologies relating any conclusions to current theories in the discipline. [Problem Solving]
1 MSci	Formulate, as well as tackle, open-ended problems in nanoscience applying their comprehensive understanding of interdisciplinary techniques, methodologies and theories at the forefront of nanoscience. [Problem Solving]
2 BSc	Develop student competencies in debating, defending and contextualising information from key literature sources taken from across the physical and lifes sciences [Subject knowledge/Communicate]
2 MSci	Develop student competencies in debating, defending and contextualising information from key literature sources taken from across the physical and lifes sciences [Subject knowledge/Communicate]
3 BSc	Discuss and communicate findings that emphasise the empirical nature of nanoscience and be able to apply their expertise to both the theoretical and practical aspects of the area based on rigorous critical assessment of any available evidence. [Subject knowledge/Communicate]
3 MSci	Discuss and communicate findings that emphasise the empirical nature of nanoscience and be able to apply their expertise to both the theoretical and practical aspects of the area based on rigorous critical assessment of any available evidence. [Subject knowledge/Communicate]
4 BSc	Plan, execute and report on the results of experiments, projects and investigations across the nanoscience discipline, including the use of appropriate data analytical methods. [Research project]
4 MSci	Plan, execute and report on the results of extended or complex experiments, projects and investigations across the nanoscience discipline,selecting and adapting appropriate data analytical methods. [Research project]
5 BSc	Present nanoscience principles to other scientists clearly and concisely in an appropriate written or oral format, demonstrating a breadth of knowledge from across disciplines of the fundamentals of nanoscience [Communicate]
5 MSci	Present complex nanoscience principles to the general public and professional scientists clearly and concisely in an appropriate written or oral format, demonstrating a breadth of knowledge from across disciplines of the fundamentals of nanoscience
6 BSc	Work effectively (including taking the lead within their own project), in a cross-disciplinary environment, drawing upon concepts from chemistry, physics and electronics. [Interdisciplinary]
6 MSci	Work effectively (including independently), in a cross-disciplinary environment, drawing upon concepts from chemistry, physics and electronics. [Interdisciplinary]
7 BSc	Use experimental design measurement and/or analysis methods to evaluate a nanoscience model or theory using objective criticism to appraise the accuracy, correctness and limitations of the approach [Experiment/Simulation]

7 MSci	Use sophisticated experimental design measurement and/or analysis methods to evaluate a nanoscience model or theory using objective criticism to appraise the accuracy, correctness and limitations of the approach [Experiment/Simulation]
8 BSc	
8 MSci	

Programme Learning Outcome for year in industry (where applicable)
For programmes which lead to the title 'with a Year in Industry' – typically involving an additional year – please provide either a) amended versions of some (at least one, but not necessarily all) of the standard PLOs listed above, showing how these are changed and enhanced by the additional year in industry b) an additional PLO, if and only if it is not possible to capture a key ability developed by the year in industry by alteration of the standard PLOs.

NA

Programme Learning Outcome for year abroad programmes (where applicable)
For programmes which lead to the title 'with a Year Abroad' – typically involving an additional year – please provide either a) amended versions of some (at least one, but not necessarily all) of the standard PLOs listed above, showing how these are changed and enhanced by the additional year abroad or b) an additional PLO, if and only if it is not possible to capture a key ability developed by the year abroad by alteration of the standard PLOs.

NA

Explanation of the choice of Programme Learning Outcomes
Please explain your rationale for choosing these PLOs in a statement that can be used for students (such as in a student handbook). Please include brief reference to:

i) Why the PLOs are considered ambitious or stretching?

Nanoscience is a modern theory encompassing chemistry, physics and electronics. These PLOs are chosen to give enable a student to have exposure to all three disciplines in the early part of their degree before travelling down a two subject pathway commensurate with their interests. As can be seen from the table above the PLOs introduce, develop and finally put into practice skills in problem solving, experimentation, knowledge, simulation, communication and research. This is a rich skill set for any student to have upon completion of a degree programme. A nanoscience student will achieve a high degree of expertise in their subject combined with the aforementioned transferrable skills. Having the ability to initially learn about the three main disciplines in nanotechnology before going onto a more focussed multidisciplinary approach will stretch even the most able of students as they seek to develop knowledge and practical know how in their respective speciality paths.

ii) The ways in which these outcomes are distinctive or particularly advantageous to the student:

Whilst nanoscience is covered in each of the three contributing departments this programme is purpose built to train nanoscientists who will able to work at the research frontier of nanoscience upon graduation. The interdisciplinary nature of the programme, spanning all three departments, will give the student a perspective not afforded single subject students who may have taken nonspecific streams.

iii) How the programme learning outcomes develop students' digital literacy and will make appropriate use of technology-enhanced learning (such as lecture recordings, online resources, simulations, online assessment, 'flipped classrooms' etc)?

Digital technologies are woven into the fabric of this programme and are developed and enhanced throughout the duration of the programme. The very nature of nanoscience requires expertise with technology. The programme is littered with chances for a student to develop a highly digitally literate skill set. For example in producing lab reports, carrying out simulations which will require computing programming skills and data analysis skill. Each of the contributing departments in the nano programme have fully embraced technology in their teaching and assessment and a successful student on the nano programme will have a well featured skill set for a CV.

iv) How the PLOs support and enhance the students' employability (for example, opportunities for students to apply their learning in a real world setting)?
The programme's employability objectives should be informed by the University's Employability Strategy:

http://www.york.ac.uk/about/departments/support-and-admin/careers/staff/

All the Nat. Sci. programmes have been designed with employability in mind. This is not only as a factor of the design of the programmes themselves, which have had engagement with the University's employability strategy as a given since the early design phases of the programme. But also as a factor of the embedded skills that the contributing departments have built into their modules. Modules which form the bulk of the teaching on this degree programme. Many of the skills listed in the PLOs are generic and will equip the student with a highly transferrable skill set.

vi) How will students who need additional support for academic and transferable skills be identified and supported by the Department?

Students who need support will generally self identify at admission or early in the Stage 1 and standard University protocols will then be followed. If this isn't the case and a student is identified as needing extra support later in the programme then the student will discuss the matter with their personal supervisor who will advise in accordance with University guidance. Students are assigned a supervisor in one of the contributing departments and have access to a subject facilitator in both contributing departments. The student can approach their supervisor for advice in accordance with University guidelines and seek more specialist advice on a particular discipline from the subject facilitator. Module level issues are handled with the department to which the module belongs and a student can avail themselves off all feedback and quality control mechanisms that the department offers.

vii) How is teaching informed and led by research in the department/ centre/ University?

As with all the Nat Sci interdisciplinary programmes, research is the core driver. All the interdisciplinary programmes were set up because of active research centre specialising in the disciplines that the students will study, in this case nanotechnologies. Nanoscience at York is spread across multiple departments all of which play a key role in this programme, with a focus on the industry-backed York-JEOL Nanocentre. The culmination of the student's study will be a final year interdisciplinary project in nanoscience that will be at the research frontier.

Stage-level progression

Please complete the table below, to summarise students' progressive development towards the achievement of PLOs, in terms of the characteristics that you expect students to demonstrate at the end of each year. This summary may be particularly helpful to students and the programme team where there is a high proportion of option modules.

Note: it is not expected that a position statement is written for each PLO, but this can be done if preferred (please add information in the 'individual statement' boxes). For a statement that applies across all PLOs in the stage fill in the 'Global statement' box.

Stage 0 (if your programme has a Foundation year, use the toggles to the left to show the hidden rows)

Stage 1

On progression from the first year (Stage 1), students will be able to:	*Appreciate the inter-discipilnary nature of Nanoscience through exposure to the different disciplines which make up the program and have developed the core learning stratergies needed to work across different departments, have a solid grounding in the foundations of Nanoscience, have the core experimental skills necessary to progress further in Nanooscience, begin building a skill set that will allow a student to solve problems using appropriate tools and know how to effectively communincate their findings.*						
PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Individual statements							

Stage 2

On progression from the second year (Stage 2), students will be able to:	*Developed further their understanding of Nanoscience, expanded upon their knowledge base, have enhanced experimental and communication skill sets allowing them to solve increasingly difficult and challenging problems in Nanoscience, have become more confident independent learners.*						
PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8

Individual statements							

Stage 3

(For Integrated Masters) On progression from the third year (Stage 3), students will be able to:	*At this stage a Nanoscience student will have the knowledge, skills and understanding to satisfy all the BSc PLOs and will be equipped to move forward into a more intensely research driven final year.*						
PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Individual statements							

Programme Structure

Module Structure and Summative Assessment Map
Please complete the summary table below which shows the module structure and the pattern of summative assessment through the programme.

'Option module' can be used in place of a specific named option. If the programme requires students to select option modules from specific lists these lists should be provided in the next section.

From the drop-down select 'S' to indicate the start of the module, 'A' to indicate the timing of each distinct summative assessment point (eg. essay submission/ exam), and 'E' to indicate the end of the module (if the end of the module coincides with the summative assessment select 'EA') . It is not expected that each summative task will be listed where an overall module might be assessed cumulatively (for example weekly problem sheets).

If summative assessment by exams will be scheduled in the summer Common Assessment period (weeks 5-7) a single 'A' can be used within the shaded cells as it is understood that you will not know in which week of the CAP the examination will take place.

Stage 0 (if you have modules for Stage 0, use the toggles to the left to show the hidden rows)

Stage 1

Credits	Module		Autumn Term										Spring Term										Summer Term									
	Code	Title	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
20	PHY00020C	Electromagnetism , Waves and Optics												S												E	A					
20	PHY00022C	Intro to Thermal & Quantum Physics	S																							E	A					
20	MAT00007C	Mathematics for Sciences I	S									E	A																			
20	CHE00010C	Chemistry for Natural Sciences 1: Introduction to Chemical Structure & Reactivity	S					A				E	A																			

20	CHE00012C	Chemistry for Natural Sciences 2: Introduction to Analysis & Chemical Change	S									A										A				A						
20	ELE00028C	Intro to Nanoscience & Nanotechnology											S													EA						
Stage 2																																
Credits	**Module**		**Autumn Term**										**Spring Term**										**Summer Term**									
	Code	**Title**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
20	ELE00033I	Nanofabrication & Nanoanalysis	S																							EA						
10	PHY00035I	Mathematics II for Natural Sciences	S										EA																			
10	PHY00036I	Quantum & Atomic Physics II	S										EA																			
20	CHE00023I	The Material World: Chemistry and Applications												S													EA					
20	CHE00014I	Chemistry for Nat Sci 3: Structure, Bonding and Reactivity	S							A		A	EA																			
20	PHY00031I	Thermodynamics & Solid State I	S																								EA					
20	PHY00002I	Electromagnetism & Optics												S												E	A	A	A			
Stage 3																																
Credits	**Module**		**Autumn Term**										**Spring Term**										**Summer Term**									
	Code	**Title**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
40	NAT00001H	Nat Sci Interdisciplinary Project (BSc only)	S																										EA			
10	PHY00033H	Quantum Mechanics II	S										EA																			
20	PHY00049H	Statistical Mechanics and Solid State II	S										A									E										
20	ELE000046H	Applications of electromagnetism	S									E	A																			
10	ELE00023H	Nanoelectronics												S												E	A					
10	ELE00025H	Photonics & Nanophotonics												S												E	A					
10	PHY00054H	Modern Optics												S												E	A					
10	PHY00059H	Nanoscience experimental mini-project												S												E						
20	PHY00043H	Nanoscale & Magnetism	S																							E	A					

20	PHY00047H	Atomic Physics, Lasers & Modern Optics	S																							E	A					
Stage 4																																
Credits	**Module**		**Autumn Term**										**Spring Term**										**Summer Term**									
	Code	**Title**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
80	NAT00001M	Nat Sci Extended Research Project																														
20	PHY00034M	Nanophysics, Nanomaterials and Nanocharacterisation		S									A									E					A					
20	PHY00030M	Advanced and Further Quantum Mechanics		S									A									E					A					
10	ELE00098M	Emerging Nanotechnologies	S								A	EA																				
10	ELE00100M	Information storage & spintronics	S									E				A																
10	ELE00022M	Strategic Management	S								A	EA																				
10	ELE00008M	Enterprise	S							A		EA																				

Optional module lists

If the programme requires students to select option modules from specific lists these lists should be provided below. If you need more space, use the toggles on the left to reveal ten further hidden rows.

Option List A	Option List B	Option List C	Option List D	Option List E	Option List F	Option List G	Option List H

Please note: you need to complete information on all three tabs of this sheet before submitting to the UTC Strategy Working Group.

You are required to submit this information for all undergraduate programme by the 31 July 2016.

Programme Map: Module Contribution to Programme Learning Outcomes

Please complete the summary table below which shows how individual modules contribute to the achievement of programme learning outcomes.

Core modules should be mapped individually. If the programme offers multiple options that contribute to exactly the same PLOs you can group these, providing a statement that articulates how all of these contribute to the achievement of the programme learning outcomes. All modules, both core and optional, should be accounted for in the map.

The table maps the contribution to programme learning outcomes made by each module, in terms of the advance in understanding/ expertise acquired or reinforced in the module, the work by which students achieve this advance and the assessments that test it. This enables the programme rationale to be understood:

· Reading the table vertically illustrates how the programme has been designed to deepen knowledge, concepts and skills progressively. It shows how the progressive achievement of PLOs is supported by formative work and evaluated by summative assessment. In turn this should help students to understand and articulate their development of transferable skills and to relate this to other resources, such as the Employability Tutorial and York Award;

· Reading the table horizontally explains how the experience of a student at a particular time includes a balance of activities appropriate to that stage, through the design of modules.

Note: it is not expected that every module contributes directly to all PLOs, but every module should advance some of them.

MSci & BSc Nanoscience

(Add additional rows as required)

Stage	Module		MSci Programme Learning Outcomes							
			PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
			Formulate, as well as tackle, open-ended problems in nanoscience applying their comprehensive understanding of interdisciplinary techniques, methodologies and theories at the forefront of nanoscience. [Problem Solving]	Apply complex scientific methods to describe and model physical phenomena emergent at the nanoscale. [Experiment/Simulation]	Discuss and communicate findings that emphasise the empirical nature of nanoscience and be able to apply their expertise to both the theoretical and practical aspects of the area based on rigorous critical assessment of any available evidence. [Subject knowledge/Communicate]	Plan, execute and report on the results of extended or complex experiments, projects and investigations across the nanoscience discipline,selecting and adapting appropriate data analytical methods. [Research project]	Present nanoscience principles to the general public and professional scientists in a clearly and concisely in an appropriate written or oral format, demonstrating a breadth of knowledge from across disciplines of the fundamentals of nanoscience	Work effectively (including taking the lead within their own project), in a cross-disciplinary environment, drawing upon concepts from chemistry, physics and electronics. [Interdisciplinary]	Use sophisticated experimental design measurement and/or analysis methods to evaluate a nanoscience model or theory using objective criticism to appraise the accuracy, correctness and limitations of the approach [Experiment/Simulation]	
			BSc Programme Learning Outcomes							
			PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
			Formulate, as well as tackle, open-ended problems in nanoscience and be able to call upon a variety of interdisciplinary techniques and methodologies relating any conclusions to current theories in the discipline. [Problem Solving]	Apply scientific methods to describe and model physical phenomena emergent at the nanoscale. [Experiment/Simulation]	Discuss and communicate findings that emphasise the empirical nature of nanoscience and be able to apply their expertise to both the theoretical and practical aspects of the area based on rigorous critical assessment of any available evidence. [Subject knowledge/Communicate]	Plan, execute and report on the results of experiments, projects and investigations across the nanoscience discipline, including the use of appropriate data analytical methods. [Research project]	Present complex nanoscience principles to other scientists clearly and concisely in an appropriate written or oral format, demonstrating a breadth of knowledge from across disciplines of the fundamentals of nanoscience [Communicate]	Work effectively (including independently), in a cross-disciplinary environment, drawing upon concepts from chemistry, physics and electronics. [Interdisciplinary]	Use experimental design measurement and/or analysis methods to evaluate a nanoscience model or theory using objective criticism to appraise the accuracy, correctness and limitations of the approach [Experiment/Simulation]	
Stage 1	Maths for Sciences I	Progress towards PLO	competently use the standard algebra of vectors, matrices and related objects and the standard methods of differential and integral calculus							
		By working on (and if applicable, assessed through)	Examination and assessed workshop							
Stage 1	Chemistry for Nat Sci I: Introduction to chemical structure and reactivity	Progress towards PLO	Developing an understanding of core chemical principles of analysis, thermodynamics, the behaviour of compounds and reactivity.	Development of core laboratory skills and understanding of key safety practices. Aspects of planning and experimental design and commnunication of results.	Development of core laboratory skills and understanding of key safety practices. Aspects of planning and experimental design and commnunication of results.			Development of core laboratory skills and understanding of key safety practices. Aspects of planning and experimental design and commnunication of results.		
		By working on (and if applicable, assessed through)	Examination and assessed workshop	Lab report	Lab report			Lab report		
Stage 1	Chemistry for Nat Sci II: Introduction to analysis and chemical change	Progress towards PLO	Developing an understanding of core chemical principles of atomic structure, thermodynamics, periodicity, acids & bases, separations science & mass spectrometry and reactivity.	Development of core laboratory skills and understanding of key safety practices. Aspects of planning and experimental design and commnunication of results.	Development of core laboratory skills and understanding of key safety practices. Aspects of planning and experimental design and commnunication of results.			Development of core laboratory skills and understanding of key safety practices. Aspects of planning and experimental design and commnunication of results.		
		By working on (and if applicable, assessed through)	Examination and assessed workshop	Lab report	Lab report			Lab report		
Stage 1	Intro to Nanoscience & Nanotechnology	Progress towards PLO	You will learn about physical phenomena emergent at the nanoscale, drawing upon concepts from chemistry, physics, biology and electronics. By the end of the module, you will understand the basic principles of solid-state theory and their application to electronic and nanoelectronic devices.	You will use simple mathematical models to describe physical phenomena emergent at the nanoscale, and use appropriate data analytical methods to critically analyse experimental data.	You will develop your written communication skills by constructing basic technical reports and identifying reliable sources of information, recognising issues of plagiarism and collusion. You will learn to present complex nanoscience principles in clear and precise manner.	You will plan and execute experiments or investigations across the nanoscience discipline and critically evaluate the results.				
		By working on (and if applicable, assessed through)	Lectures and reading material will develop your understanding of electronic devices from atomic models through to the solid-state. You will demonstrate your understanding through class examples and laboratory exercises, and in the final technical report (assessed).	Laboratory exercises will help you to develop a fluency in data analysis and to show an understanding of this in the final technical report (assessed).	A concise technical report (assessed) will test your written communication skills.	The laboratory exercises are designed to introduce a wide range of experimental methods across the nanosciences.				

Stage 1	Intro to Thermal & Quantum Physics	Progress towards PLO	Solve foundational numerical problems by application of relevant mathematical and physical principles							
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), small-group problem solving in problem classes, tailored small-group sessions (tutorials), formal examination.							
Stage 1	Electromagnetism, Waves & Optics	Progress towards PLO	Apply problem solving techniques and apply them to weekly problems in an independent way.							
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), small-group problem solving in problem classes, examples given in lectures, tailored small-group sessions (tutorials) formal examination.							
Stage 2	Nanofabrication & Nanoanalysis	Progress towards PLO	You will learn about the approaches used for the fabrication and analysis of nanostructured materials, with an emphasis on micro/nano electronic materials and devices. You will also learn about the basic principles of fabrication at the nanoscale, including conventional and nonconventional lithography, and about measurement techniques for analyzing the structural, physical and chemical properties of nanomaterials and nanoelectronic devices.	You will be able to explain clearly various nanofabrication and nano-measurement techniques, from the basic physics principles to instrument operations, and will have developed skills in critical analysis, problem solving and report writing.		You will be able to plan and execute a specific experiment related to microelectronics and nanotechnology.	You will be able to explain clearly various nanofabrication and nano-measurement techniques, from the basic physics principles to instrument operations, and will have developed skills in critical analysis, problem solving and report writing.			
		By working on (and if applicable, assessed through)	Lectures and additional reading material will develop an understanding of various nanofabrication and nano-measurement techniques. Class examples and laboratory exercises will help reinforce your learning, and you will show an understanding of this in the final technical report (assessed).	You are required to engage with a wide range of reading material that develops a further understanding of various nanofabrication and nano-measurement techniques, and you write a concise technical report (assessed) to consolidate your written communication.		You will synthesise your knowledge from lectures and experience from laboratories in an assessed design report.	You are required to engage with a wide range of reading material that develops a further understanding of various nanofabrication and nano-measurement techniques, and you write a concise technical report (assessed) to consolidate your written communication.			
Stage 2	Mathematics II for Natural Sciences	Progress towards PLO	Apply problem solving techniques and apply them to weekly problems in an independent way.							
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), small-group problem solving in problem classes, examples given in lectures, tailored small-group sessions (tutorials) formal examination.							
Stage 2	Quantum & Atomic Physics II	Progress towards PLO	Use a range of mathematical tools and physical principles to evaluate physics problems of increasing complexity, and be able to articulate the real-world implications of this. Demonstrate the use of quantum mechanics & atomic physics for solving problems in other areas of physics and beyond.							
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), small-group problem solving in problem classes, engaging with lecture material, formal examination.							
Stage 2	The Material World: Chemistry and Applications	Progress towards PLO	Develop an understanding of introductory topics in materials chemistry with a particular focus on liquid crystals and soft matter together with gaining an insight into how fundamental chemistry plays a viatal role in informing the assembly of nanomaterials.							
		By working on (and if applicable, assessed through)	Examination and assessed workshop							
Stage 2	Chemistry for Nat Sci 3: Structure, Bonding and Reactivity	Progress towards PLO	Developing an understanding of advanced chemical principles of retrosynthetic analysis, solutions and mixtures, symmetry and group theory, organic synthesis with enolate equivalents, metal-ligand and metal-metal bonding, coordination chemistry and quantum mechanics.	Develop intermediate skills required for synthetic inorganic and organic chemistry including handling air and water-sensitive materials and pyrophorics. Working safely in the laboratory	Develop intermediate skills required for synthetic inorganic and organic chemistry including handling air and water-sensitive materials and pyrophorics. Working safely in the laboratory			Develop intermediate skills required for synthetic inorganic and organic chemistry including handling air and water-sensitive materials and pyrophorics. Working safely in the laboratory		

		By working on (and if applicable, assessed through)	Examination	Experiments within the Advanced synthesis practical. Safety lecture course and assessment highlights good working practice. Core and advanced laboratory skills are formatively assessed during the Skills exercise then summatively assessed on a weekly basis principally through in-lab assessments during the first half of term.	Experiments within the Advanced synthesis practical. Safety lecture course and assessment highlights good working practice. Core and advanced laboratory skills are formatively assessed during the Skills exercise then summatively assessed on a weekly basis principally through in-lab assessments during the first half of term.			Experiments within the Advanced synthesis practical. Safety lecture course and assessment highlights good working practice. Core and advanced laboratory skills are formatively assessed during the Skills exercise then summatively assessed on a weekly basis principally through in-lab assessments during the first half of term.		
Stage 2	Thermodynamics & Solid State I	Progress towards PLO	Apply and adapt a range of basic tools, models, and physical principles to evaluate physics problems of increasing complexity					Appreciate and be aware of the wider applications of thermodynamics & solid state physics as topics which underpin much of modern physics.		
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), small-group problem solving in problem classes, engaging with lecture material, formal examination.					Engaging with teaching materials		
Stage 2	Electromagnetism & Optics	Progress towards PLO	Use a range of mathematical tools and physical principles to evaluate physics problems of increasing complexity. Understand the wide-ranging applicability of electromagnetism to solving problems from a variety of other fields of physics and beyond.							
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), small-group problem solving in problem classes, engaging with lecture material, formal examination.							
Stage 3	Natural Sciences Interdisciplinary Project	Progress towards PLO		Apply a combination of techniques and methodologies learnt through the rest of the programme to an open-ended problem	Plan, execute and report on the context, methodology and results of an interdisciplinary project investigating a topic of interest in the field of Nanoscience			taking ownership of a substantial project	design of a substantial project	
		By working on (and if applicable, assessed through)		By execution of the project -- assessed via notebook, report & viva	by working on the project and by being assessed via project plan, report, notebook and viva			by working on the project investigation and being assessed primarily on the project notebook	assessed by the project plan and notebook	
Stage 3	Quantum Physics II	Progress towards PLO	Adapt and apply the tools of quantum mechanics to build and test foundational models of atomic and nuclear systems. Interpret modern atomic and nuclear data in terms of sub-atomic phenomena.		Use a range of mathematical tools and physical principles to evaluate physics problems of increasing complexity, and be able to articulate the real-world implications of this. Demonstrate the use of quantum mechanics for solving problems in other areas of physics and beyond.			Take a collaborative approach to solving problems in quantum mechanics.		
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), independent supported problem solving in problem classes, engaging with lecture material, formal examination.		Regular independent assignments (PPQs), small-group problem solving in problem classes, engaging with lecture material, formal examination.			Engaging with the group-work aspect of problem classes.		
Stage 3	Statistical Mechanics & Solid State II	Progress towards PLO	Understand the underlying energy distribution of systems containing many particles. Understand the different models involved describing the electron-electron and electron-lattice interactions in solids.							
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), independent supported problem solving in problem classes, engaging with lecture material, formal examination.							
Stage 3	Nanoelectronics	Progress towards PLO	You will learn to describe the development of quantum mechanics in the context of nanoelectronics. You will learn about the theory behind nanoelectronics, nanodevices, spintronics and molecular electronics, and to differentiate between electron behaviour in mesoscopic and nanoscale systems.		You will learn to calculate the electron transport in a quantum well and nanoscale systems.		You will be able to construct technical reports and identify reliable sources of information, recognising issues of plagiarism and collusion.		You will learn to design appropriate nanoelectronic devices which demonstrate useful functionality.	
		By working on (and if applicable, assessed through)	Lectures and reading material will explain quantum mechanics. Class examples and workshops (assessed) of equation solving on fundamental concepts of nanoelectronics lead to a final exam.		Lectures and reading material will explain quantum mechanics. Class examples and workshops of equation solving on fundamental concepts of nanoelectronics (assessed, along with a final summative exam).		Workshop reports give you the opportinity to describe the fundamental theory and behaviour of nanoelectronic devices (assessed).		Engaging with lecture material and directed reading will provide the knowledge of the limitations and uses of nanoscale devices.	
Stage 3	Photonics & Nanophotonics	Progress towards PLO	You will learn to combine the principles and laws of optics, semiconductor physics and technology, and quantum mechanics in the context of photonics and nanophotonics.		You will learn to apply the apparatus of ordinary and partial differential equations, eigenvalue problems, Fourier analysis etc. to analysis of light propagation in photonic and nanophotonic devices, their modal structure, and ultimately their performance.		You will be able to explain the principle and performance of photonics and nanophotonics on both qualitative level (verbal explanations) and quantiative level (phenomenological and if required microscopic analysis) and show the logical progression from fundamental principles to peformance issues.			

		By working on (and if applicable, assessed through)	Lectures, workshop questions, and supporting material will explain the principles of optics, semiconductor physics and quantum mechanics. Assessed through closed-book exam.		Lectures, workshop questions, and supporting material will explain the principles of optics, semiconductor physics and quantum mechanics. Assessed through closed-book exam.		You will be expected to synthesis the knowledge and experience from lectures, workshop questions, and supporting material explaining the principles of photonics. Assessed by examination.			
Stage 3	Modern Optics	Progress towards PLO	Adapt and apply concepts and mathematics to independently solve unfamiliar problems in modern optics	Use demonstrations to show various optical phenomena, interpret the results					Understand how modern digital image capture, analysis, and manipulation can be used to make optical measurements which would otherwise be unfeasible.	
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), independent supported problem solving in problem classes and in closed examination.	Engaging with lecture content.					Engaging with teaching materials.	
Stage 3	Atomic Physics, Lasers & Modern Optics	Progress towards PLO	Adapt and apply concepts and mathematics to independently solve unfamiliar problems in atomic physics, laser physics, and modern optics	Use demonstrations to show various optical phenomena, interpret the results	Use a mathmatical approach to predict the diffraction pattern for a range of foundational optical systems.	Become aware of the applications of optics in a range of scientific and consumer applications and how thse applications depend upon atomic physics/laser physics/modern optics.	Understand how modern digital image capture, analysis, and manipulation can be used to make optical measurements which would otherwise be unfeasible.			
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), independent supported problem solving in problem classes and in closed examination.	Engaging with lecture content.	Engaging with teaching material.	Engaging with teaching materials.	Engaging with teaching materials.			
Stage 3	Applications of Electromagnetism	Progress towards PLO	You will learn about the propagation mechanisms of electromagnetic waves within materials, and how to classify materials according to the nature of a wave propagating through them. You will also learn about the principles of waveguiding, the importance of antennas in all types of radio communication systems, the problems of interference and fading, and channel models.	You will learn to determine the interactions of electromagnetic waves at boundaries between materials, and to describe and calculate the loss and dispersion limits of propagation distance in fibre optical links. You will also learn to to specify the performance of a radio system in terms of antenna characteristics, and to estimate the channel losses for guided, ground, sky and freespace waves, including the effects of diffraction and reflections, and know what applications use these propagation modes.		You will learn how to use an RF network analyser, and how to use Smith charts to analyse distributed circuits, as well as how to prototype and construct high-frequency circuits.	You will be able to explain and evaluate advanced technical concepts concisely and accurately.		You will know how to use the Smith Chart for transmission line calculations; will be able to design single stub and quarterwave matching networks; and to appreciate the main considerations in design of freespace and guided optical links.	
		By working on (and if applicable, assessed through)	Guided reading through lecture material and recommended texts will provide you with the knowledge you need. Laboratory tasks and workshop exercises will help you reinforce your knowledge. (Assessed by closed-book exam.)	Lectures will provide you with the information that you need, and workshop exercises will help reinforce it. Laboratory tasks using a bespoke software simulator to model and characterise a transmission line will put your knowledge into a practical context. (Assessed by closed-book exam.)		A series of laboratory exercises will lead you through the design, build and measuement of distributed circuit elements.	Laboratory tasks with peers allow you to discuss the issues with each other and with lab leader/lab instructors/technicians.		A series of laboratory exercises will lead you through the design, build and measuement of distributed circuit elements.	
Stage 3	Nanoscience experimental mini-project	Progress towards PLO			Investigate an area of experimental science in a systematic way using appropriate techniques. Search and review the scientific literature to understand current approaches the problems addressed in the labs.		Communicate complex experimental outcomes in a formal written report, and record accurately all experimental activity in an accepted form.	Collaborate effectlively with partners and, where applicable, interact with other students and staff in the course of extended, complex experiments.	Creatively select and apply as appropriate a wide range of appropriate advanced experimental and analytical tools, techniques, and methodologies to make specific experimental measurements, and make critical judgements on the effects of these techniques upon the quality and fidelity of the final result. This will feed directly into MSci project work.	
		By working on (and if applicable, assessed through)			Completing experimental activities in laboratory sessions.		Formal assessed report and assessed laboratory notebooks.	Working on complex experiments, often using research-grade equipment, consulting scientific literature when necessary.	Completing open-ended experimental activities, assessed through laboratory notebooks and formal written reports.	
Stage 3	Nanoscale & Magnetism	Progress towards PLO	Adapt and apply core and more advanced physics concepts to new and familiar situations. Compare the suitability of differing measurement techniques for different types of sample/measurement.		Understand the origin of contrast and resolution, and hence be able to design an appropriate scientific investigation on the relevant length scales and beyond.	Discriminate between and appropriately select techniques for both imaging and magnetic measurement.		Describe and evaluate concepts in magnetism and measurement techniques clearly, quantitatively, and succinctly for a scientific audience. Understand the uses of nanoscale analysis techinques throughout a range of fields of physics and beyond.		
		By working on (and if applicable, assessed through)	Regular independent assignments (PPQs), engaging with lecture material, formal examination, open-book magnetism assignment.		Interpreting images from different microscopy techniques and calculating the associated errors. Discussing different magnetic measurement techniques in lectures. Assessed in essay format.	Interpreting images from different microscopy techniques and calculating the associated errors. Discussing different magnetic measurement techniques in lectures. Assessed in essay format.		Open-book, independent assignments, writing for a scientific audience. Researching and writing solutions to an open-book summative assignment.		
Stage 4	Nat Sci Extended Research Project	Progress towards PLO			Plan, execute and report on the context, methodology and results of an extended interdisciplinary research project investigating a topic of current interest in the field of Nanoscience			taking ownership of a substantial independent research project	design of a substantial independent research project	
		By working on (and if applicable, assessed through)			by working on the project and by being assessed via project plan, report, notebook and viva			by working on the project investigation and being assessed primarily on the project notebook	assessed by the project plan and notebook	

Stage 4	Nanophysics, Nanomaterials and Nanocharacterisation	Progress towards PLO	Use advanced physics concepts to investigate complex physics problems.	Creatively use advanced physics concepts to evaluate given physical world questions Understand key physics phenomena underpinning the development of advanced experimental techniques used in Physics research. Appraise the suitability of different nanofabriacation and nanomanipulation techniques for the solution of a specific problem		Produce an in-depth investigation on a particular topic identifying or designing the best methodology with which to approach a given physics problem.	Summarise complex research ideas to a professional audience in written form. Acquire and summarise in-depth knowledge and understanding of key physics phenomena underpinning the development of advanced 'nano' techniques research. Appraise and advise on the suitability of different nanofabriacation and nanomanipulation techniques for the solution of a specific problem. Appreciate the benefits and drawbacks associated with consumer products based on nanomaterials.		Engage with the scientific literature to identify the most suitable methodology to solve a complex nanophysical problem.	
		By working on (and if applicable, assessed through)	Participating in problem classes.	Engaging with lecture and problem class material. Formal examination.		Completing formally examined written assignment.	Completing formally examined written assignment.		Completing an independent research-based assignment for formal assessment.	
Stage 4	Advanced and Further Quantum Mechanics	Progress towards PLO	Solve complex problems independently and during interactive problem classes.	Creatively adapt and apply core and advanced physics concepts to new situations.	Articulate the central importance and immense power of quantum mechanics. Understand and utilise the concepts of QM when discussing physical measurements and their reproducibility and accuracy.					
		By working on (and if applicable, assessed through)	Working in groups in problem classes.	Regular independent assignments, engaging with lecture material. Formal examination.	Engaging with teaching materials.					
Stage 4	Emerging Nanotechnologies	Progress towards PLO	You will be able to describe and model physical phenomena emergent at the nanoscale drawing upon concepts from chemistry, physics, biology and electronics. You will also be able to understand advanced principles and concepts of state-of-the-art nanoscale technologies across disciplines and applications, and to critically evaluate advanced scientific concepts and technologies from reading material selected from current journal articles.	You will be able to apply simple mathematical models to describe advanced physical phenomena and concepts emergent at the nanoscale. You will also be able to use appropriate data analytical methods to critically analyse experimental data, and to apply physical and theoretical models to predict the properties of nanoscale materials and the design of functional nanoscale technologies.			You will be able to present complex nanoscience principles in a clear and precise manner, demonstrating a breadth of knowledge from across disciplines of advanced nanoscience and technology.	You will develop your skills of analysis, problem solving and critical evaluation, working effectively in a cross-disciplinary environment.		
		By working on (and if applicable, assessed through)	Lectures and reading material selected from current journal articles provide information sources, whereas class examples and cohort seminars help you develop an understanding of this for the final project presentation (assessed).	Lectures and reading material on core theoretical models from chemistry, biology and physics applied to nanotechnology provide the source information.			The above communication skills will be assessed via a personal project presentation and final technical report.	Your report and presentation (both assessed) will demonstrate how you have integrated knowledge from lectures and reading material selected from current journal articles.		
Stage 4	Information storage and spintronics	Progress towards PLO	You will be able to measure the length scale of current storage technologies.		You will be able to describe the advancement of information storage techniques, and to understand the basic principles of semiconductor storage and memories. You'll also be able to explain the principle of magnetic recording, to identify the limitations and gaps in the current memory and storage techniques, and to describe the next-generation of memories and storage.		You will develop your ability to construct technical reports and identify reliable sources of information, recognising issues of plagiarism and collusion.			
		By working on (and if applicable, assessed through)	Lectures and reading material explaining quantum mechanics lead to class examples and laboratories (assessed).		Information is delivered by lectures and directed reading material explaining information storage techniques, supplemented by class examples and laboratory work on the fundamental concepts of information storage techniques (assessed).		You will write an individual report (assessed) to describe the fundamental principles and operation of information storage techniques .			
Stage 4	Enterprise	Progress towards PLO	You will be able to analyse the competitive environment including setting the pricing structure for a real new/novel technology or product; Analyse and justify the required resources; and Distinguish between different commercialisation options and make a specific recommendation.		You will learn to develop and write an organisational form and business plan for a new venture based on a real new technology or novel product.	You will learn how to prepare a full and professional business plan and present this in writing and verbally in public.		You will develop your teamworking skills by being able to plan and manage time for yourself and a group, expanding your capacity to adapt to new situations, and developing skills in group problem solving and decision making.		
		By working on (and if applicable, assessed through)	You will work in a group on the development of a business proposal (assessed) for the commercial explotation of a real new/novel technology or product.		You will be working in a group to develop a business proposal for the commercial explotation of a real new/novel technology or product.	Your ideas will be written up in a full and professional business plan (assessed), and the proposal presented to a Dragon's Den style panel of judges (assessed).		You will work in a team on the development of a full and professional business plan for a novel technology idea or product.		
Stage 4	Strategic Management	Progress towards PLO	You will be able to strategically analyse an organisation or business unit's position, compare strategic opportunities, and recommend a way forward.		You will be able to understand and explain the meaning of common strategic management terminology and strategic management issues.	You will enhance your ability to discuss and debate technical and commercial issues.		Your team working abilities and experience will be enhanced in a business context.		

		By working on (and if applicable, assessed through)	You will analyse the strategic position and direction of a case study organisation in class exercises.		Lectures and wider reading material introduce students to the terminology and issues of strategic management (assessed by group and personal reflective reports).	You will work in a simulated Company Board Room setting to experience board level activities. You will construct concise technical reports (assessed) that critically evaluate and synthesise new information based on research, and design, deliver and defend a persuasive technical presentation (assessed) based on selected reliable evidence.		By working in a Company Board Room simulated setting you will learn how to analyse the strategic position and direction of a case study organisation (assessed by group report and personal reflective report).		

Programme Map: Module Contribution to Programme Learning Outcomes

The information provided in this section should make clear why the students are doing the key activities of the programme, in terms of reaching the PLOs. You should use this section to provide commentary on the programme map and how current practice effectively propels student learning. Please indicate any changes that you plan to make to the programme linked to the pedagogic principles.

This section should capture reflections on the programmes and areas for development linked to the principles of the York pedagogy. Please provide an explanation of the programme and assessment design with reference to future enhancements aligned with the pedagogic principles.

Contact with staff

Please explain how the programme's design maximises the value of students' contact time with staff (which may be face-to-face, virtual, synchronous or asynchronous), including through the use of technology-enhanced learning. An example might be giving students resources for their independent study which then enables a class to be more interactive with a greater impact on learning.

You should include:

i. An explanation of how contact with staff in the future programme will be designed to propel student learning

The vast majority of the programme is made up of modules from the departments of Chemistry, Electronic Engineering, Physics & Mathematics. Therefore the relevant statements on staff contact time and how it propels learning have already been made in these department's respective submissions. The principles therein, hold just as true in the Nanoscience programme. Thus a Nanoscience student is naturally exposed to the different departments learning culture and practices.

ii. Changes to the existing programme that will be explored to affect this change; make references to the map to include module level change.

Due to early rollouts of the YP in electronics and physics many of the changes necessary are already in place. The chemistry changes are articulated fully in the corresponding chemistry submission. The programme has been changed from three streams to a single stream, which is much better for bringing the cohort together. It was not possible to deliver sufficient mathematics in stage 1 to avoid the requirement for including Physics' maths provision in y2t1; if this could be avoided, then this 10cr slot could be replaced by PHY00020I Physics labs for Nat Sci and then students could do Adv Exp Lab in yr 3 instead of the bespoke Nanoscience experimental mini-project module.

Students' independent study and formative work

Please outline key features of how independent study and formative work has been designed to support the progressive achievement of the programme learning outcomes. (For example, the use of online resources, which may also incorporate formative feedback; opportunities for further learning from work-based placements).

You should include:

i. An explanation of how students' independent study and formative work has been designed in the future programme to propel student learning?

Independent study and formative work depends on the various principles and practices of the department in which the specific module is taken. There is a range of different modes of assessment used in the Nanoscience programme and this is appropriate given the interdisciplinary nature of the subject. Reference is again made to the corresponding section of the individual single subject proforma for details of local enhancements that will necessarily flow into the learning experience of a Nanoscience student.

ii. Changes to the existing programme to affect this change; make reference to the programme map to indicate module level change

Changes made to the structure of the programme follow changes to the provision of the contributing departments. As Physics and Electronics rolled out their changes a year earlier than Chemistry most of the changes are already in place. The chemistry changes are mainly groupings of modules into modules with a larger credit rating. This will come into effect as they role out in Chemistry. As mentioned above, we are seeking to streamline the Nano course to give it a more focussed approach that will increase the electronics provision. This was mentioned as desirable in student feedback during a feedback forum. Some of the optionality and streaming possibilities will be removed from the programme. However this is in line with all our other programmes and will give all our interdisciplinary programmes a commonality in terms of structure and purpose.

Due to the nature of all our specialisation programmes and the fact that the learning and teaching in Stages 1 & 2 is spread across multiple departments, there may be bottle necks for the students in terms of assessment. Currently this is handled on a report to the BoS basis and then escalted outwards after a BoS meeting to the Departments. This is a challenge for Natural Sciences and and a definite enhancement to the programmes will be some way of monitoring and controlling these bottlenecks. Currently the YP doesn't help as its level of detail is module assessment and that we have more control over. Its the intra-module assessment. We will carry on investigating ways in which we can manage this issue effectively for our students.

One thing that we have not yet being able to do is use any NSS returns to identify issues or good practice as we have yet to have a graduating cohort. Once this data comes in then we will of course incorporate the outcomes into our annual review processes.

(c) Summative Assessment

Please outline how summative assessment within and across modules has been designed to support and evidence the progressive achievement of the programme learning outcomes. (For example, the use of different assessment methods at the 'introduction' stage compared to those used to evaluate deeper learning through the application of skills and knowledge later in the programme).

You should include:

i. An explanation of how formative and summative assessment has been designed in the future programme to propel student learning?

As in Item 10 and we again make reference to the corresponding enhancement plans for the contributing departments. It should be noted that in the initial design phase of all the Nat Sci programmes a great deal of work was done with UTC to ensure an appropriate and diverse set of assessment tools was built into our programmes.

The final year project is a major component of all our degrees and is a chance for our students to show not only their skills and ability in a specialisim, but also to work in their specialism on a project that is interdisciplinary. Indeed this is seen at the most natural place to assess any PLOs which emphasise interdisciplinarity. The full process of running projects is currently under review and any changes/improvements will be incorporated into the programmes.

We need to figure out how to faithfully capture the interdisciplinarity of the programme when a lot of it isn't assessed e.g.
(a) the intentional juxtaposition of modules from different departments that cover complementary/similar topics
(b) Natural Sciences hour
The latter is especially important as its a unique feature of the Nat Sci programmes.

ii. Changes to the existing programme to affect this change; make reference to the programme map to indicate module level change

Changes that are not already in place will be as and when they roll out in the contributing department. Any potential change in structure of the programme (as discussed above) will obviously include assessment modes appropriate for the modules introduced or changed by the restructuring and the departmental enhancement plan once again holds sway.

Support with implementing programme enhancements

Support services will be able to provide guidance on enhancing programmes for example changing assessment and feedback practice, developing students' digital literacy capabilities and technology enhanced learning, employability etc. Please indicate in the space below if you would like additional guidance to implement you enhancements and what support you would require. For more information on the types of support that is available across the University please see the website:

https://www.york.ac.uk/staff/teaching/support/

Infrastructure: we look forward to the creation of a fully-functional programme & module catalogue which will enable:

the efficient sharing of information between departments (& the ASO) e.g. module changes
the shared usage of information for a variety of purposes (e.g. programme specs, admissions materials, student handbooks, website, ...)
identification of issues like assessment bottlenecks & student workload

Nat Sci would like to give a particular note of thanks to David Gent, Cecillia Lowe, Katy Mann Benn & colleagues for their support when compiling this documentation and undergoing the process of making our programmes YP compliant. Their input has been invaluable.