Imperial College London

Quality Assurance and Enhancement Committee
Wednesday 28th April 2021

Programmes Committee Report for the meeting held Tuesday 30th March 2021

Submitted by: Men-Yeut Wong, Secretary, Programmes Committee
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The Quality Assurance and Enhancement Committee is invited to consider recommendations from the meeting of the Programmes Committee from 30th March 2021 for approval:

1.	New Programme Proposal

1.1 MSc Digital Chemistry (Online)

The Programmes Committee considered the new fully online programme above from the Department of Chemistry as part of Curriculum Review to take effect from October 2021.

The Committee welcomed the programme leads Professor Sophia Yaliraki and Professor Alan Spivey, who had been invited to present the new programme proposal to the Committee.

The proposed Masters programme will equip students to navigate and contribute to this future of chemistry and train the next generation of scientists that are in great need and currently in short supply, as has been also highlighted by the recent white paper of the Royal Society of Chemistry on "Digital Futures". In response to this demand the College recently created a new institute DigiFab through the Provost's Academic Strategy. One of the agreed aims for the new Institute is to pioneer new training programmes in this space.

The Programmes Committee agreed that a well-designed, timely and relevant programme had been presented to the Committee.

The Committee have agreed upon the following recommendations:

- Consider whether the Postgraduate Certificate can be made available as an entry award rather than just an exit award, this could be an attractive professional development opportunity for chemists in full-time employment to upskill in a shorter time frame;
- The Committee discussed and agreed that credits should be allocated to the zero-weighted 'Key Concepts in Chemistry' noting that 70 study hours of student effort is expected, discussions were held around re-categorising the 'Key Concepts in Chemistry' and 'Programming in Python' as elective modules with students having the ability choose depending on their background of previous study. The Committee agreed that this would be a good solution with the option of allowing for additional credits;
- To make clear in the programme specification whether there are any additional costs with students having to purchase a specific laptop for the programme or if a laptop will be provided by the department;
- The programme team should liaise with programme teams around College who have already established online programmes such as the Online MBA to discuss best practice in pastoral and remote student support. It was suggested that the Principal Teaching Fellow within the Business School would be a useful contact (Dr. Benita Cox);
- Progression and Classification: 'Award of a Postgraduate Degree (MSc) and no more than 15 credits as a Compensated Pass'. There is no opportunity to award the student a compensated pass if the programme structure is all core, consider re-categorising some of the modules to 'Compulsory';
- The Committee discussed that a skill set commonly lacking in data scientists is the ability to prepare/clean data before analysis. Knowing how to present data visually for non-technical stakeholders is a valuable professional skill. The programme team could incorporate these in the 'Data Analytics in Chemistry' module;

- Consider inviting industry speakers, demonstrating real-world application of data science and Artificial Intelligence in chemistry could enhance students' learning experience;
- Research Project
  - As the high-level research project accounts for 45% of the degree are there any workshops/masterclass in research skills that can support students to ensure they have the skills to carry out their project?;
  - Since students have the option to complete the research project either online or on campus, the programme team should ensure that the students are engaged as one cohort and not seen as two separate groups. Consider incorporating learning/cohort building activities in term three to bring students together;
  - Assuming students who choose to complete their project on campus will also present their research project at an "online" Symposium, the students will need to be informed in advance as presenting online compared with presenting face to face would be two very different experiences;
- Online platform/ hosting: Whichever platform the programme team has chosen to host the programme, it is important that the platform is accessible for all students in different countries (particularly those restricting internet access to certain software or VPN);
- As students will need to analyse data for the project work, some of which may not be from Open Source, the programme team need to ensure that data is stored in a central secured server for students to access. Consider if it will be necessary to set up an agreement with companies providing the data set.

The programme team were advised that the recommendations above be considered and that the response to the recommendations be submitted to the Quality Assurance and Enhancement team. Chair's Action would then be taken to approve the resubmitted documentation and the programme specification would then be published on-line.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2. Curriculum Review

Faculty of Engineering

2.1 MSc Advanced Aeronautical Engineering

The Programmes Committee considered the redesigned programme above from the Department of Aeronautics as part of Curriculum Review to take effect from October 2021.

It was agreed that the programme team had presented an exemplary curriculum review proposal. The programme team had carried out extensive consultation both inside and outside of College, including students, staff and professional bodies with a well justified rationale for changes. The programme team have identified key issues and revised the programme to strengthen their offering to the students. Of note is the diversification of teaching methods used and the explicit consideration to increase the gender diversity and inclusivity in general in the department.

The Programmes Committee agreed upon the following recommendations:

- It was agreed that the programme learning outcomes are well-written, clear and set at as appropriate for level 7 study, further review of the points below should be considered:
  - Learning Outcome 7- "Recognise the commercial…" Consider reviewing this LO so that students know what "recognise" means in practice;

- o Learning Outcomes 9 & 10- How will both of these learning outcomes be assessed – effective team work and work strategies? It was recommended that peer assessment would be an ideal way of assessing these outcomes – doing this well requires the students to be trained appropriately.
- o PG Certificate Learning Outcome 5- Consider making this LO a little more explicit i.e. what does "consider trade-offs" mean in practice?;

The Programmes Committee will be referring the request for Programme Specific Regulations to the Regulations and Policy Review Committee for consideration.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2.2 **MSc Advanced Computational Methods for Aeronautics, Flow Management and Fluid-Structure Interaction**

The Programmes Committee considered the redesigned programme above from the Department of Aeronautics as part of Curriculum Review to take effect from October 2021.

It was agreed that the programme team had presented an exemplary curriculum review proposal. The programme team had carried out extensive consultation both inside and outside of College, including students, staff and professional bodies with a well justified rationale for changes. The programme team have identified key issues and revised the programme to strengthen their offering to the students. Of note is the diversification of teaching methods used and the explicit consideration to increase the gender diversity and inclusivity in general in the department.

The Programmes Committee will be referring the request for Programme Specific Regulations to the Regulations and Policy Review Committee for consideration.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021.

2.3 **MSc Composites: The Science, Technology and Engineering Application of Advanced Composites**

The Programmes Committee considered the redesigned programme above from the Department of Aeronautics as part of Curriculum Review to take effect from October 2021.

It was agreed that the programme team had presented an exemplary curriculum review proposal. The programme team had carried out extensive consultation both inside and outside of College, including students, staff and professional bodies with a well justified rationale for changes. The programme team have identified key issues and revised the programme to strengthen their offering to the students. Of note is the diversification of teaching methods used and the explicit consideration to increase the gender diversity and inclusivity in general in the department.

The Programmes Committee agreed upon the following recommendations:

- It was agreed that the programme learning outcomes are well-written, clear and set at as appropriate for level 7 study, further review of the points below should be considered:
  - o Learning Outcome 3- "Recognise the commercial…" Consider reviewing this LO so that students know what "recognise" means in practice;
  - o Learning Outcomes 9 & 10- How will both of these learning outcomes be assessed – effective team work and work strategies? It was recommended that peer assessment would be an ideal way of assessing these outcomes – doing this well requires the students to be trained appropriately.

The Programmes Committee will be referring the request for Programme Specific Regulations to the Regulations and Policy Review Committee for consideration.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2.4 **MSc Environmental Engineering**
MSc Hydrology and Water Resources Management

The Programmes Committee considered the redesigned programmes above from the Department of Civil and Environmental Engineering as part of Curriculum Review to take effect from October 2021.

The Programmes Committee would like to thank the programme team for presenting a well thought through, detailed proposal with a convincing alignment with the Learning and Teaching Strategy. The Committee noted the exemplary structure of the programme learning outcomes with a good variety of teaching methods and summative and formative assessments throughout the programmes.

Module Specification feedback:

- **Containment Engineering** - Group design project and presentation has been allocated a low weighting given the students effort this is likely to involve. Could this weighting be increased? Clarify whether the group complete a written report as well as the oral presentation;
- **Environmental Analysis** – 'Learning outcomes on completion of module', not 'course'.
- **Environmental Modelling and Data Analysis** - will feedback be given on the individual programming project?;
- **Hydrogeology and Groundwater** - learning outcome one, suggest bringing 'Examine how' to the beginning i.e. "Examine how fluid properties of rocks and aquifers can be represented.." as I imagine this is what is being assessed. Need to indicate the length of the Individual Report in the Assessment tab;
- **Rainfall-Runoff Modelling and Flood Hydrology** - learning outcome one, suggest bringing Build forward i.e. "Build hydrological and flood inundation models..."
- **Sustainable Water Management** - Learning outcomes suggest this is re-worded to make it more level 7, Design and evaluate best practice using knowledge of the importance of irrigation practice on food production and its impact on water resources. Detail in the Assessment strategy box and the Assessment tab currently does not match. Please explain 'Coursework based on a practical application of taught theory' in the Assessment strategy.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

2.5 **MSc Soil Mechanics 1YFT**
MSc Soil Mechanics & Engineering Seismology 1YFT
MSc Soil Mechanics & Environmental Geotechnics 1YFT
MSc Soil Mechanics & Engineering Geology 1YFT
MSc Soil Mechanics 2YPT
MSc Soil Mechanics & Engineering Seismology 2YPT
MSc Soil Mechanics & Environmental Geotechnics 2YPT
MSc Soil Mechanics & Engineering Geology 2YPT

The Programmes Committee considered the redesigned programmes above from the Department of Civil and Environmental Engineering as part of Curriculum Review to take effect from October 2021.

The Programmes Committee would like to thank the programme team for presenting a well thought through, detailed proposal with a convincing alignment with the Learning and Teaching Strategy for the well-established programmes.

Module Specification feedback:

- **Seepage and Consolidation**: Part of the assessment is participation in class-based activities. What are the criteria for this and how will this be made clear to students? Whilst there can be a useful rationale for this type of assessment, it can be open to bias and subjectivity.
- **Rock Engineering**
    - ILO 1 states that students will 'develop an understanding...' - how will students demonstrate this understanding? Could this be better reflected in the learning outcome?
    - ILO 4 - is there a clause missing from the end of this learning outcome? 'Apply the fundamentals of rock engineering design...'
- **Geotechnical Fieldwork**: Could support for students who might find fieldwork challenging (e.g. financial, caring responsibilities etc) be signposted?

Assessment in general:

The programme now includes a greater variety of assessment which is to be commended. Whilst variety is to be encouraged, modules of the same size and of similar structure appear to have different amounts of assessment. The Programmes Committee would like to seek a rationale for the differing amounts of assessments.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

2.6 **MSc Advanced Materials Sciences and Engineering**
MSc Advanced Materials Sciences and Engineering: Specializing in Nuclear Engineering

The Programmes Committee considered the redesigned programmes above from the Department of Materials as part of Curriculum Review to take effect from October 2021.

The Programmes Committee noted that the programme team had highlighted that the programme content did not require too much change but acknowledged that the student experience required further improvement. It was evident in the proposal that extensive consultation had taken place with the student body in order to make changes, the Committee agreed that this had resulted in an exemplary Curriculum Review proposal form and programme specification.

The Programmes Committee agreed upon the following recommendation:

- The programme team review the modules specifications for consistency, in particular the reading lists where some modules specifications have an empty reading list and others seemed rather wide-ranging. It was not clear whether students were expected to read all the materials listed or whether they were recommended reading lists.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

Faculty of Natural Sciences

2.7   **Department of Chemistry – Undergraduate modules**
Advanced Chemistry Topics 1
Advanced Chemistry Topics 1 for Medicinal Chemistry
Advanced Chemistry Topics 1 for Molecular Physics
Advanced Chemistry Topics 2
Advanced Chemistry Topics 2 for Medicinal Chemistry
Advanced Chemistry Topics 2 for Molecular Physics
Practical Chemistry 3 for BSc Chemistry
Practical Chemistry 3 for Medicinal Chemistry
Practical Chemistry 3 for Molecular Physics
Practical Chemistry 3 for MSci Chemistry
Maths and Physics 2
Control and Selectivity in Molecular Synthesis

The Programmes Committee considered the redesigned modules above from the Department of Chemistry as part of Curriculum Review to take effect from October 2021.

The programmes Committees agreed that the adjustments made to the learning outcomes had been well reviewed and aligned to the correct FHEQ level.

The Programmes Committee held further discussions around the zero-credit weighted modules and raised the following points:

- **MSci Chemistry Research Proposal and Literature Review:** Concerns were raised by both the Committee and the Deputy President (Education)-Student Union, that the extra amount of student effort would not be recognised. It was suggested that the Department consider embedding the Literature Review into existing weighted modules at the end of Year 3 or at the beginning of Year 4 so that students would be awarded credit for their effort; or to consider making the module pass/fail;
- **i-Engage 2**: The Committee noted that additional learning outcomes had been included to the updated module specification with no changes made to the assessment or the learning and teaching. The Programmes Committee noted that the zero-credit weighted module had already been approved during the Curriculum Review process but were not prepared to approve further addition of learning outcomes if student effort would not be recognised.

It was noted that the College's Regulations and Policy Review Committee would be reviewing the use of zero-credit weighted modules by programmes across College and this would need to be considered by the Department in future.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2.8   **Department of Mathematics – Undergraduate modules**

New   Algebra III (Level 6 & 7)
New   Algebraic Curves (Level 6 & 7)
New   Classical Dynamics (Level 6 & 7)
New   Commutative Algebra
New   Complex Manifolds
New   Computational Stochastic Processes
New   Fourier Analysis and the theory of Distributions (Level 6 & 7)
New   Geometry of Curves and Surfaces (Level 6 & 7)

New   Graph Theory (Level 6 & 7)
New   Lie Algebras
New   Manifolds
New   Mathematical Biology (Level 6 & 7)
New   Mathematical Finance: An introduction to option pricing (Level 6 & 7)
New   Methods for Data Science (Level 6 & 7)
New   Modular Forms
New   Riemannian Geometry
New   Scientific Computation (Level 6 & 7)
New   Theory of Partial Differential Equations (Level 6 & 7)

Revised   Advanced Dynamical Systems
Revised   Advanced Topics in Partial Differential Equations (Level 6 & 7)
Revised   Algebra IV
Revised   Algebraic Combinatorics (Level 6 & 7)
Revised   Algebraic Number Theory (Level 6 & 7)
Revised   Algebraic Topology (Level 6 & 7)
Revised   Analytic Methods in Partial Differential Equations
Revised   Applied Complex Analysis (Level 6 & 7)
Revised   Applied Probability (Level 6 & 7)
Revised   Asymptotic Methods (Level 6 & 7)
Revised   Bifurcation Theory (Level 6 & 7)
Revised   Computational Partial Differential Equations (Level 6 & 7)
Revised   Computational Linear Algebra (Level 6 & 7)
Revised   Consumer credit risk modelling
Revised   Differential Topology
Revised   Dynamical Systems (Level 6 & 7)
Revised   Dynamics of Learning and Iterated Games (Level 6 & 7)
Revised   Dynamics, Symmetry and Integrability (Level 6 & 7)
Revised   Elliptic Curves
Revised   Finite Elements: numerical analysis and implementation
Revised   Fluid Dynamics I (Level 6 & 7)
Revised   Fluid Dynamics II (Level 6 & 7)
Revised   Function Spaces and Applications (Level 6 & 7)
Revised   Geometric Complex Analysis (Level 6 & 7)
Revised   Geometric Mechanics (Level 6 & 7)
Revised   High Performance Computing
Revised   Hydrodynamic Stability
Revised   Infinite Groups
Revised   Introduction to Geophysical Fluid Dynamics (Level 6 & 7)
Revised   Introduction to Stochastic Differential Equations
Revised   Mathematical Finance: An introduction to option pricing (Level 6 & 7)
Revised   Mathematical Logic (Level 6 & 7)
Revised   Modular Representation Theory
Revised   Number Theory (Level 6 & 7)
Revised   Numerical Solution of Ordinary Differential Equations (Level 6 & 7)

Revised   Probability Theory (Level 6 & 7)

Revised   Quantum Mechanics I (Level 6 & 7)

Revised   Quantum Mechanics II (Level 6 & 7)

Revised   Random Dynamical Systems and Ergodic Theory

Revised   Special Relativity and Electromagnetism (Level 6 & 7)

Revised   Statistical Modelling II (Level 6 & 7)

Revised   Statistical Theory (Level 6 & 7)

Revised   Stochastic Simulation (Level 6 & 7)

Revised   Survival Models (Level 6 & 7)

Revised   Tensor Calculus and General Relativity (Level 6 & 7)

Revised   The Mathematics of Business and Economics

Revised   Theory of Complex Systems (Level 6 & 7)

Revised   Time Series Analysis (Level 6 & 7)

Revised   Vortex Dynamics

Revised   Year Abroad (Mathematics)

Revised   Finite Elements: Numerical Analysis and Implementation

The Programmes Committee considered a proposal from the Department of Mathematics which included new module specifications for year three and year four modules and the new revised module specifications for modules previously approved in June 2019 as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed upon the Following recommendations:

- A review of learning outcomes with 'On successful completion of this module you will be able to:…- appreciate', it was unclear how students would demonstrate how they would be able to 'appreciate' and how 'appreciate' would be measured in the module assessment;
- To confirm whether the module content for the L6 and L7 versions of the same modules should have identical module content (Mathematical Biology; Methods for Data Science; and Scientific Computation);
- To confirm whether the learning outcomes for the L6 and L7 versions of the same modules should have identical module content (Mathematical Biology; Methods for Data Science; and Scientific Computation) or if an updated version of the module specification should be submitted;
- It was noted that the Curriculum Review Reference Panel had commented around the level of examination with many modules weighting the examination at 90% and the coursework at 10%. The Department suggested that this could be reviewed but a change would be unlikely. The Programmes Committee would like to seek assurance that the programme team reviews this on an annual basis to ensure that this is the most appropriate assessment strategy.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2.9   **MSc Applied Mathematics**

The Programmes Committee considered the redesigned programmes above from the Department of Mathematics as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed that the Department's Curriculum Review proposal had been clearly set out for their well-established and successful programmes. It was agreed that student consultation and feedback had been integrated in the changes made providing a better student

experience for the future cohorts. The Committee thought that the Student Research Fair had been a novel idea and would be keen to find out how well this works so that best practice could be shared across departments.

The Programmes Committee agreed upon the Following recommendations:
- That the Department monitor the impact on student workload as proposed;
- With the exceptional crossover taking of modules from other programmes, it was agreed that a list of specific elective modules should be published via the department's webpages, it was unclear how 'exceptional cases' would be agreed by the department. The programme team should include in the programme structure footnote that if a student selects an elective from another programme the elective must be of 7.5 ECTS to ensure that the student completes the programme with the full 90 ECTS;
- The Committee would like to seek assurance on how the programme level learning outcomes are met when by the student when 30 ECTS of the programme is core, how would the module level learning outcomes map to the programme learning outcomes?;

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2.10   **MSc Pure Mathematics**

The Programmes Committee considered the redesigned programmes above from the Department of Mathematics as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed that the Department's Curriculum Review proposal had been clearly set out for their well-established and successful programme. It was agreed that student consultation and feedback had been integrated in the changes made providing a better student experience for the future cohorts. The Committee thought that the Student Research Fair had been a novel idea and would be keen to find out how well this works so that best practice could be shared across departments.

The Programmes Committee agreed upon the Following recommendations:

- That the Department monitor the impact on student workload as proposed;
- With the exceptional crossover taking of modules from other programmes, it was agreed that a list of specific elective modules should be published via the department's webpages, it was unclear how 'exceptional cases' would be agreed by the department. The programme team should include in the programme structure footnote that if a student selects an elective from another programme the elective must be of 7.5 ECTS to ensure that the student completes the programme with the full 90 ECTS;
- The Committee would like to seek assurance on how the programme level learning outcomes are met by the student when 30 ECTS of the programme is core, how would the module level learning outcomes map to the programme learning outcomes?

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

2.11   **MSc in Statistics**
        MSc in Statistics (Biostatistics)
        MSc in Statistics (Data Science)
        MSc in Statistics (Theory and Methods)
        MSc in Statistics (Statistical Finance)
        MSc in Statistics (Applied Statistics)

Global MSc in Statistics
Global MSc in Statistics (Biostatistics)
Global MSc in Statistics (Data Science)
Global MSc in Statistics (Theory and Methods)
Global MSc in Statistics (Statistical Finance)
Global MSc in Statistics (Applied Statistics)

The Programmes Committee considered the redesigned programmes above from the Department of Mathematics as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed that the Department's Curriculum Review proposal had been clearly set out and well described for their established and successful programme and streams. It was agreed that stakeholder consultation and external input throughout the review had been integrated in the changes made providing a better student experience for future cohorts. The MSc in Statistics Curriculum Review approach differs slightly from the Pure and Applied Mathematics review but the rationale for this is clearly articulated noting the broad character of Statistics which is justified.

The Programmes Committee agreed upon the following recommendation:

- Ensure that the selection of elective modules within each programme stream in the programme specification is easily understandable by students with a clear list of electives for each stream.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendation noted above.

Centre for Higher Education Research and Scholarship

2.12 **MEd in University Learning and Teaching**

The Programmes Committee considered the redesigned programmes above from the Centre for Higher Education Research and Scholarship as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed that the Curriculum Review process of the above programme had been well thought through and exemplary; clearly articulating how the redesign aligns with the College' Learning and Teaching Strategy. It was agreed that the programme learning outcomes and the assessment strategy had been well presented for each award. The Curriculum Review of the programme had been timely, integrating lessons learnt from the response to Covid-19. The Committee agreed that it was good to see the programme utilise a variety of educational methods to develop students as practitioners, creating a supportive community of practice; and noted that redesign took into consideration that students are busy Imperial staff, offering flexible use of blended resources and emphasis on developing time management skills.

The Programmes Committee agreed upon the following recommendations:

- The Committee were unsure if Imperial College students were consulted on the Curriculum Review process as a whole, it would be interesting to include consultation from students to get a better understanding on some of the learning and teaching methods used by the programme and the effectiveness of these methods.
- Under the Programme Overview section, it was suggested that the inclusion of how this programme would support busy staff to develop time management skills and use of flexible blended resources etc. could be beneficial, this could encourage more Imperial staff to apply.

- Under the Programme Award section the PG Certificate; PG Diploma; and MSc should be staged as 30:60:90 ECTS rather than 30:30:30 ECTS;
- It was queried whether the Talking Initiative had been introduced as part of the programme redesign, it was suggested that the initiative could be extended to an international level, i.e. a conference type of event, to spread good educational practice globally across universities, which could be easily carried out remotely.
- With the new 'Digital Learning' module it was suggested that content on Ethical issues in digital learning could be included, i.e. highlight ethical issues faced by instructors and students, related to matters of equity and diversity, surveillance and consent, identity and confidentiality.
- It was suggested that as an increasing number of academics are in involved in CPD type of activities, it would be good to incorporate some content relating to teaching professional students/mature learners.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above.

Centre for Languages Culture and Communication

2.13   **MSc Science Communication**
        MSc Science Media Production

The Programmes Committee considered the redesigned programmes above from the Centre for Languages Culture and Communication as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed upon the following recommendation:

- The Curriculum Review proposal form refers to the 'Digital Media Campaign' as an 'option', is a new elective which should be included in the programme structure?
- The Committee suggested that the use of 2,000 word essays for each module could be reviewed as it was not clear whether more practical and varying methods of summative assessments used by the programme team had not been included in the assessment tabs of the module specifications;
- The Committee noted that the modules on the programmes are taught by a variety of different modules leaders which had resulted in a varying style of language across modules and queried if this required further review;
- The reading lists for each module seemed rather wide-ranging, it was not clear whether students were expected to read all the materials listed or whether they were recommended reading lists.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations noted above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

Imperial College Business School

2.14   **MSc Economics and Strategy for Business**

The Programmes Committee considered the redesigned programmes above from the Business School as part of Curriculum Review to take effect from October 2021.

The Programmes Committee agreed that the Business School's Curriculum Review proposal had been clearly set out and well described to enhance uniqueness of the programme as well as its value to students. It was agreed that comprehensive stakeholder consultation external input throughout the review had been integrated in the changes.

The Programmes Committee agreed upon the following recommendations:

- The Committee noted that there were a significant number of zero-credit weighted modules, with six out of nine being pre-sessional. The Committee would like to seek assurance around how the student effort would be accounted for within the programme; it was noted that the College's Regulations and Policy Review Committee would be reviewing the use of zero-credit weighted modules by programmes across College and this may need to be considered by the programme team in future.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendation noted above.

3.	**Modifications to Existing Programmes**

Faculty of Engineering

3.1 **Department of Aeronautics – Undergraduate**
Engineering Practice 1 (AERO40004)
Engineering Practice 2 – Project Development (AERO50010)
Engineering Practice 2 – Technical (AERO50004)
Aerospace Vehicle Design (AERO60002)

The Programmes Committee considered a proposal from the Department of Aeronautics to make changes to the learning outcomes for all the above modules to better reflect the inclusion of sustainability and changes to the assessment strategy for module 'Engineering Practice 2 – Technical' to reflect changes in the balance of teaching of manufacturing methods between the Engineering Practice 1 and Engineering practice 2 modules with effect from October 2021.

Engineering Practice 1 (AERO40004)
Change the Learning Outcomes to:
On successfully completing this module, you should be able to:
- Read and prepare engineering drawings, adhering to International and British Standards, as documents that communicate ideas and information and use Computer Aided Design software to prepare complex parts and assembly models, and to prepare detailed drawings of the models for manufacture;
- Describe the function and application of common mechanical parts;
- List a wide range of manufacturing systems employed in the production of metal and composite products and demonstrate a basic knowledge of the key variables in manufacturing processes and the considerations made by manufacturing engineers in the sustainable production of engineered products;
- Interpret professional Codes of Ethics and identify potential sources of ethical conflict and be aware of the drivers and constraints, including operational, legal and environmental, in the design process;
- Apply disciplinary knowledge towards the solution of an engineering problem, and appreciate the limitations of theoretical calculations in practice;
- Report findings, in a clear and concise manner, through written reports and oral presentations;
- Keep a consistent record of work and ideas using a Log Book.
- Appreciate the challenges and develop methods for working and communicating effectively within a small, diverse group of students.

Engineering Practice 2 – Project Development (AERO50010)
Change the Learning Outcomes to:
On successfully completing this module, you should be able to:
- Identify the drivers for success of an engineering project;
- Consider stakeholder priorities and the need for sustainable development;
- Plan, schedule and cost a simple engineering project;
- Identify and accommodate risk and change during the life of a project;
- Prepare a project proposal and deliver a short project pitch.

Engineering Practice 2 – Technical (AERO50004)
Change the Learning Outcomes to:
On successfully completing this module, you should be able to:
- Develop an experimental activity risk assessment, identifying possible risks and proposing appropriate control measures.
- Integrate disciplinary knowledge towards the solution of a multidisciplinary, multi-objective engineering optimisation problem.
- Deal with uncertainty in design, making reasonable assumptions to fill in the gaps in a brief.
- Produce clear and concise design proposals, aimed at both a technical and non-technical audience.
- Keep a consistent record of their work and ideas using a Log Book.

- Appreciate the challenges and develop methods for working and communicating effectively within a small, diverse group of students.

Aerospace Vehicle Design (AERO60002)

Change the Learning Outcomes to:
On successfully completing this module, you should be able to:

- Appreciate the importance of the design process for the overall future success of a new aircraft project;
- Demonstrate an understanding of the key operational, legal, sustainability and environmental drivers and constraints in the evolution of a new aircraft configuration, starting from an initial set of operational requirements;
- Synthesize and apply their broad aeronautical knowledge to practical aircraft design problems through use of appropriate methodologies, tools and terminology;
- Better recognise the order of magnitude of various design parameters;
- Appreciate the relative importance of design choices, as determined by a problem's inherent level of uncertainty, as you progress thought the stages of a design project;
- Tackle complex, multidisciplinary design problems where there is significant uncertainty;
- Collaborate and communicate as a member of a small, multidisciplinary design team.

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee for approval noting to the following comments:

- The important consideration for the department is the extent to which the module content needs to be updated to integrate sustainability appropriately, and how that will be assessed e.g. in 'Engineering Practice 1' would the department expect to use the same criteria to assess LO3 "the sustainable production of engineered products" compared to the production without the "sustainable" qualifier.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021.

3.2 **Department of Bioengineering – Undergraduate**
MEng Biomedical Engineering (BH9C)
BEng Biomedical Engineering (BH81)
MEng Biomedical Engineering with a year abroad (BHV1)
MEng Biomedical Engineering with a year in Industry (BHV2)

The Programmes Committee considered a proposal from the Department of Bioengineering to make changes to the learning outcomes for modules 'Programming 2' and 'Mechanics and Electronics 1' and to also withdraw the elective 'Electromagnetics' from the named programmes above effective from October 2021.

Programming 2
To change the learning outcomes to reflect change in main language from C++ to Python.

From:
- At the end of this module students will be able to:
- Using C++, write, debug, compile, and run programs
- Understand dynamic data structures and memory management in C++
- Know how to create and use algorithms for ordering data structures
- Understand concepts of data objects and the C++ class, function overloading, polymorphism
- Discuss the professional criteria of biomedical software development"

To:
- At the end of this module students will be able to:
- Write, debug, compile, and run programs using Python
- Use data structures appropriately
- Know how to create and use algorithms

- Explain and apply concepts of object-oriented programming

Mechanics and Electronics 1
To change the learning outcomes for the mechanics part of this module.

From:
- Describe Newton's laws and express them in vector form to solve both simple static and dynamic mechanics problems.
- Use the moment of inertia to calculate angular momentum and rotational kinetic energy and deduce equations for rotational dynamics by analogy to linear dynamics.

To:
- Solve basic rigid body mechanics problems using equilibrium analyses of forces and moments, virtual work, translational and rotational equations of motion, and conservation of mechanical energy and momentum.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.3 **Department of Bioengineering**
BSc Medical Sciences with Biomedical Engineering
MSc Engineering for Biomedicine

The Programmes Committee considered a proposal from the Department of Bioengineering to make changes to the learning outcomes for the module 'Fundamentals of Biomedical Engineering' for the named programmes above with effect from October 2021.

The learning outcomes will be changed from:
Students who have completed the module should be able to:
- Describe the fundamental relationships between the DC and AC properties of components and a wide variety of circuits within which they are connected
- Explain and apply Newton's First, Second, and Third Laws.
- Identify the physical principles required to solve mechanics problems.
- Describe the fundamentals of electromagnetism.
- Describe the key elements of a digital computer and explain how digital logic relates to them.
- Predict the performance of an electrical circuit.
- Describe equations of motion, conservation of energy and momentum.
- Analyse the functions of some simple digital systems.
- Complete a modest range of digital design problems.
- Appreciate the representation of mathematical relationships.
- Know how to select the most appropriate mathematical technique for problem solving.
- Undertake circuit design at an elementary level.
- Solve equations of motion using mathematical tools.
- Write simple C programmes for microcontrollers.
- Translate mathematics concepts into computational solutions.
- To create Matlab scripts.
- Break a physical system down to equations.
- Demonstrate an ability to direct own independent learning

To:
On completion of this module you will be able to:
- Define the terms used to describe engineering properties of materials and be able to use these terms to describe physically and numerically the response of engineering materials to applied loads.
- Identify and apply the appropriate physical principles required to solve a range of mechanics and electronics problems.
- Use mathematical equations, including first and second order differential equations to model physical systems and solve mechanics and electronics problems.

- Apply the principles and concepts of fluid mechanics, including conservation of mass and the Bernoulli equation, to solve simple fluid-flow problems.
- Write programming code for a range of purposes including controlling microprocesses and solving mathematical equations computationally
- Analyse and predict the performance and functions of simple digital systems and electrical circuits.
- Design solutions for a modest range of digital and electronic problems.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021.

3.4   **Department of Bioengineering – Undergraduate**
MEng Molecular Bioengineering (H160)
BEng Molecular Bioengineering (H161)
MEng Molecular Bioengineering with a year abroad
MEng Molecular with a year in Industry

The Programmes Committee considered a proposal from the Department of Bioengineering to make changes to the learning outcomes for modules 'Mathematics and Engineering 1' and 'Programming 2' for the named programmes above with effect from October 2021.

Mathematics and Engineering 1
The learning outcomes will be changed from:
- Use calculus techniques to solve complex mathematical equations including 1st and 2nd order differential equations.
- Identify and describe the properties of functions, including hyperbolic functions and sketch curves of given functions.
- Apply vector and matrix algebra to solve problems in multiple dimensions.
- Apply all forms of complex numbers to solve equations and represent solutions on an Argand diagram.
- Express functions in terms of mathematical series and use these expressions to solve posed problems.
- Explain why Fourier transforms are used and apply Fourier transforms to described functions.
- Describe commonly employed electronic circuits and how they work and undertake circuit design at an elementary level.
- Be able to describe Newton's laws and express them in vector form to solve both simple static and dynamic mechanics problems.

To:
- Use calculus techniques and mathematical equations, including first and second order differential equations to model physical systems and solve well-posed, constrained mechanics and electronics problems
- Identify and describe the properties of functions, including hyperbolic functions and sketch curves of given functions.
- Apply vector and matrix algebra to solve problems in multiple dimensions.
- Apply all forms of complex numbers to solve equations and represent solutions on an Argand diagram.
- Express functions in terms of mathematical series and/or Fourier transforms and use these expressions to solve posed problems.
- Apply the appropriate physical principles required to solve a small range of well-posed, constrained mechanics and electronics problems.
- Analyse and predict the performance and functions of simple digital systems and electrical circuits.
- Recall the terms used to describe engineering properties of materials and be able to use these terms.

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee for approval noting to the following comments:

- Consider if interrupting students will be able to perform at the same level if using Panopto, rather than live sessions - this should be considered by the module lead and if appropriate, whether any other support could be included.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.5 **Department of Chemical Engineering – Undergraduate**
MEng Chemical Engineering (H801)
MEng Chemical Engineering with a Year Abroad (H802)
MEng Chemical with Nuclear Engineering (H890)

The Programmes Committee considered a proposal from the Department of Chemical Engineering to make changes to the learning outcomes, study hours and assessment weightings to the core module 'Chemical Engineering Practice 3' for the named programmes above with effect from October 2021.

Chemical Engineering Practice 3

The requested change involves removing the following Techno-Economic Project (TEP) learning outcome; all other learning outcomes remain the same.
- Demonstrate and apply key economic and engineering concepts to selected chemical engineering systems in order to optimise energy, economic and environmental performance.

To reduce the timetabled hours from 130 contact hours to 100 contact hours. Independent study hours will increase proportionately from 120 hours to 150 hours; this will allow students to better allocate their time on the remaining elements.

The removal of the TEP content will also slightly change the assessment weightings:
From: CW (70% Project Reports); Practical (20% Presentations); Practical (10% Lab Book/Engineering Drawings)
To: CW (40% Discovery Lab Project Reports); CW (30% Mech Design Project Reports); Practical (20% Discovery lab Presentations); Practical (10% Lab Book)

It was agreed that the proposal had been clearly articulated with a sound rational. Appropriate consultation had been carried out with staff and students, with approval from the external examiners. It was agreed that the proposal presented a positive change, noting that additionally a module of comparable TEP content will be offered as an elective via the i-Explore route.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.6 **Department of Computing – Undergraduate**
BEng Mathematics and Computer Science (GG14)
MEng Mathematics and Computer Science (GG41)

The Programmes Committee considered a proposal from the Department of Computing to make changes to the programme structure to the above programmes to allow a more flexibility for second year and third year students with effect from October 2021.

Mathematics and Computer Science students take 30 ECTS (half the year) of maths in year 2. Currently this is 5 ECTS of statistics, 15 ECTS from the year 2 Maths core (with quite limited choice) and 10 ECTS chosen as either two Maths electives or one elective plus a summer term group project. This arrangement means that a lot of combinations of maths modules would not be possible and Mathematics and Computer Science students cannot take the Linear Algebra module.

The Department proposes that Mathematics and Computer Science students taking both halves of a core Maths module in the same year will be enrolled on to the 10 ECTS full year version of the module.

In addition, the students should continue to be allowed to take up to 10 ECTS of year 2 modules in year 3 (subject to satisfying pre-requisites).

The Committee agreed that the proposal was extremely clear, explained with a sound and well-articulated rationale. The consultation with staff and students had been exemplary.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.7 **Dyson School of Design Engineering - Undergraduate**
MEng Design Engineering
Introduction to Design Engineering (DESE40002)
Production and Materials to change to Materials and Manufacturing (DESE40003)
Human-centred Design Engineering (DESE40004)
Solid Mechanics 2 (DESE50006)
Sustainable Design Engineering (DESE50007)
Electronics 2 (DESE50002)
Finite Element Analysis (DESE50003)
Gizmo (Physical Computing) (DESE50004)
Industrial Design Engineering (DESE50005)
Working in Organisations (DESE50009)
Optimisation (DESE60004)
Design Engineering Futures (DESE60001)
Robotics (DESE60005)
Enterprise Roll Out (DESE70003)
Masters Project (DESE70002)

The Programmes Committee considered a proposal from the Dyson School of Design Engineering to make changes to modules within the above programme including changes to the assessment structure, assessment strategy and changes to module titles, with effect from October 2021.

Introduction to Design Engineering
Simplified assessment structure to reduce workload whilst efficiently assessing all learning outcomes.

Production and Materials
Change of module name to 'Materials and Manufacturing'.
.
Human-centred Design Engineering
Change of assessment structure – reweighed group and individual work – reduced group work weight from 80% to 65%.
New learning outcome on planning and managing team-work and team meetings:
- Team work (Introduces A3):
    - Conduct effective contributions to team based design engineering activities
    - Plan and manage team work and team meetings effectively

Solid Mechanics 2
Updated assessment strategy and feedback.
Removed MATLAB coursework due to coverage in other modules.

Sustainable Design Engineering
Assessment components have been updated and the weights revised:
S1.1: Product Analysis: tech slides 35%
S1.2: Product Category Analysis: tech & presentation slides 10%
S2: Brainstorm: poster 5%

S3: Developed Concept: poster 5%
S4.1: Final Concept: tech slides 35%
S4.2: Final Concept: video 10%

Minor changes to the 'Brief description of module', 'Learning and teaching approach'.

Electronics 2
Renamed assessments to be more descriptive:
DRAW week Lab Oral 20%
Final week Lab Oral 20%
Written Exam 60%

Finite Element Analysis
Reweighted assessments. Updated assessment strategy to make group project individual.
Solidworks models 10%
Technical Report 80%
Multiple choice questions 10%

Gizmo (Physical Computing)
Update of assessment structure. All assessments now individual.
Tutorial Exercises 6%
Project: Portfolio and video 24%
Project: Final presentation, demonstration & inspection 20%
Technical report 50%

Industrial Design Engineering
Project delivery steps are updated. More interactive tutorials are to be held. Number of deliverables are balanced accordingly.

Working in Organisations
Revised descriptor ahead of first run. Removed assessment of CV component.
Portfolio (individual): An online portfolio design and structure populated with project work & profile to-date 80%
Reflective organisational audit (group): A report on investigation of a number of organisations 20%

Optimisation
Remove Interim Review Presentation. Cumulative report is increased in weight to 50% to fill.
Modifications to reflect the first time this module will run under curriculum reviewed programme.

Design Engineering Futures
Assessments: Online records renamed to Management and documentation log and are now split per term (interim and final). Interim review is now a report and carries 25%. Final portfolio now carries more weight at 40%. Presentation and exhibition are now reduced to final presentation and weight reduced.
Modifications to reflect the first time this module will run under curriculum reviewed programme.

Robotics
Assessment structure: Term 2 coursework redesigned into three separate smaller and more manageable group projects.
Individual online test: Robot kinematics in 3D 2.5%
Individual online test: Robot dynamics and control 2.5%
Individual online test: Robot motion planning 2.5%
Individual online test: Robot kinematics in 3D 2.5%
Theoretic paper-based exam 40%
Group coursework: Robot Modelling 16.5%
Group coursework: Robot Motion Planning 16.5%
Group coursework: Robot Interaction 17.0%

Updated L&T Approach, Assessment Strategy, and Feedback.

Enterprise Roll Out
Assessment strategy and components updated.
Innovation pitch event 35%
Website and pre-launch video and report 65%

Masters Project
Updated assessment weightings and structure.
Planning report 0%
Interim Background 10%
Interim Report 20%
Final report 30%
Project records: Project logs maintained throughout the year 10%
Viva: Presentation, Q&A and video 30%

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.8   **Department of Earth Science and Engineering**
BSc Geology (F600)
MSci Geology (F640)
BSc Geophysics (F662)
MSci Geophysics (F66D)

The Programmes Committee considered a proposal from the Department of Earth Science and Engineering to change the designation from core to elective for year 3 modules 'Continental Tectonics' and 'Seismic Techniques' for the above programmes with effect from February 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from February 2021

3.9   **Department of Materials - Undergraduate**
MEng Materials Science and Engineering (JFM2)
MEng Biomaterials and Tissue Engineering (BJ95)
MEng Materials and Nuclear Engineering (J5H8)
BEng Materials Science and Engineering (JF52)
BEng Materials with Management (J5N2)

The Programmes Committee considered a proposal from the Department of Materials to replace the core level 6 module in 'Business for Materials Science and Engineering' with the Business School module BUSI96008 – Managerial Economics with effect from October 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.10   **Department of Bioengineering – Postgraduate**
MRes Medical Device Design and entrepreneurship (H673U)

The Programmes Committee considered a proposal from the Department of Bioengineering to make changes to the weighting of two core modules within the taught element – 'Medical Device Entrepreneurship' and 'Computational and Statistical Methods for Research'; to also update the module descriptor for module 'Topics in Biomedical Engineering and Business' for the above programme with effect from October 2021.

The two modules, 'Medical Device Entrepreneurship' and 'Computational and Statistical Methods for Research' are worth 7.5 ECTS and 5 ECTS respectively but are weighted as 50% each as part of the taught element of this course. It is proposed to adjust the weighting to 60% and 40% reflecting the larger workload of the Medical Device Entrepreneurship module.

The module 'Topics in Biomedical Engineering and Business' allows students to audit four electives at Level 7 from across our undergraduate and MSc programmes after agreeing their choice is appropriate with their supervisor. The choice of electives used to include Business school modules, but these modules outside of the department will no longer be available to MRes students.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021.

3.11   **Department of Computing – Postgraduate**
        MSc Artificial Intelligence (G5T1)

The Programmes Committee considered a proposal from the Department of Computing to make changes to the module 'Python Programming' (COMP70053/COMP97123) to allow greater focus for students to develop practical problem-solving skills in Python with affect from October 2021.

After the module, students will be able to:
- construct algorithms to solve computational problems and tasks using computers (LO1);
- implement procedural and object-oriented programming solutions in Python (LO2);
- create, select, and apply appropriate techniques and relevant library software in Python to solve a given problem (LO3);
- apply suitable software engineering practices to effectively structure, design, develop, and evaluate programs (LO4).

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendations:
- To introduce the learning outcomes as 'You will be able to' which is preferable to 'students will be able to'.
- To complete the 'pass mark' and 'must pass?' fields of the assessment tab.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

3.12   **Department of Computing - Postgraduate**
        MSc Advanced Computing (G5U0)
        MSc in Computing (Artificial Intelligence and Machine Learning) G5U10
        MSc in Computing (Software Engineering) G5U16
        MSc in Computing (Security and Reliability) G5U21
        MSc in Computing (Visual Computing and Robotics) G5U13

The Programmes Committee considered a proposal from the Department of Computing to withdraw the elective module 'Simulation and Modelling' to the above programmes with effect from October 2021.

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the Department confirming the arrangements for students who may need to retake the module.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.13   **Department of Earth Sciences and Engineering - Postgraduate**
        MSc Applied Computational Science and Engineering
        MSc Environmental Data Science and Machine Learning

Modern Programming Methods (EART97037)
Modelling Dynamical Processes (EART97038)
Numerical Methods (EART97039)
Applying Computational Science (EART97040)
Advanced Programming (EART97041)
Patterns for parallel programming (EART97042)
Inversion and optimisation (EART97043)
Machine learning (EART97044)
Applied Computational Science and Engineering Project (EART97045)

The Programmes Committee considered a proposal from the Department of Earth Sciences and Engineering to make changes to modules on the above programmes with effect from October 2021.

The following changes applicable to both programmes:

Changes to the module titles:
- Modelling Dynamical Processes (EART97038) to 'Computational Mathematics'
- Numerical Methods (EART97039) to 'Modelling and Numerical Methods'
- Applying Computational Science (EART97040) to 'Applying Computational/Data Science'
- Applied Computational Science and Engineering Project (EART97045) to 'Applied Computational/Data Science Project'

Changes to the assessment weightings:
- Computational Mathematics (EART97038) from 100% written exam to 100% Coursework
- Inversion and optimisation (EART97043) from 50% written exam and 50% Coursework to 100% Coursework
- Machine learning (EART97044) from 50% written exam and 50% Coursework to 100% Coursework
- Applied Computational/Data Science Project (EART97045) from 90% Coursework and 10% Practical to 80% Coursework and 20% Practical

Change in ECTS:
- Modern Programming Methods (EART97037) from 5 to 7.5 ECTS
- Environmental Data from 7.5 to 10 ECTS

Updated learning outcomes:

- Modern Programming Methods (EART97037)
  - New LO6- Explain the use of cloud computing technologies for computational and data science

- Computational Mathematics (EART97038)
  From:
  - Describe the mathematics underpinning continuum mechanics.
  - Derive the fundamental governing equations of continuum mechanics.
  - Relate the continuum descriptions of deformation and stress to the fundamental governing equations of continuum mechanics.
  - Consider the application of appropriate governing equations of continuum mechanics.

  To:
  - Describe some of the fundamental mathematics underpinning computational science, data science and machine learning
  - Describe some of the fundamental mathematics and concepts underpinning the representation of physical systems using mathematical and computational based modelling approaches
  - Derive scientific computing algorithms from mathematical first principles and implement using Python based programming

- Modelling and Numerical Methods (EART97039)
  New Learning Outcomes:
  - LO1-Derive the fundamental governing equations of continuum mechanics.
  - LO2-Relate the continuum descriptions of deformation and stress to the fundamental governing equations of continuum mechanics.
  - LO3-Consider the application/solution of appropriate governing equations of continuum mechanics.

- Applying Computational/Data Science (EART97040)
  - New LO2-Collaboratively solve problems using software.
  - New LO3-Summarise work using collaborative presentations.
  - Remove existing LO2- Collaboratively write technical reports.
  - Remove existing LO3- Summarise technical reports through collaborative presentations.

- Inversion and optimisation (EART97043)
  - Updated LO4- Describe, implement and use: least-squares solutions, minimum-norm solutions, generalised inverse solutions, singular value decomposition, gradient descent methods, conjugate gradients, second-order methods, model regularisation, constraints and penalties, and the adjoint method to calculate gradients.
  - New LO5- Find local and global solutions to non-linear problems.
  - New LO6- Describe the application of data assimilation to combine models with data.

- Machine learning (EART97044)
  - Updated LO1- Describe and critique the main categories of Machine Learning methods: Supervised Learning (Regression/Classification), Unsupervised Learning and Reinforcement Learning (Dimensionality Reduction).

- Environmental Data
  Updated Learning Outcomes:
  - LO1- Understand common data format and database structures specific to representative fields of environmental science.
  - LO2- Demonstrate technical competency in handling common data types routinely encountered in the environmental sciences and identify relevant open-source data repositories.
  - LO3- Identify and design suitable data analysis strategies that consider data types, data distribution constraints, strength, benefits and limitations of statistical and modelling tools and environmental dynamics.
  - LO4- Understand the limitation of available data and data analysis products. Understand sources of errors and demonstrate ability to comprehensively characterize uncertainties and interpret results in the context of these uncertainties, including measurement errors, environmental uncertainties as well as errors stemming from the analytical procedure itself (e.g. calibration of analysis using synthetic data/models).

- Big Data Analytics
  Updated Learning Outcomes:
  - LO2- Evaluate, select and apply standard software frameworks to perform big data analytics on local and cloud resources.
  - LO3- Adapt modern data visualisation technologies, including virtual reality, for environmental science applications.

MSc Environmental Data Science and Machine Learning
Remove the following modules:
- Research Computing Primer
- Cloud Computing

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendations:
- To introduce the learning outcomes as 'You will be able to' which is preferable to 'students will be able to';

- EART97038 Computational Mathematics - to ensure that the learning outcomes are set at an appropriate level, in particular, learning outcomes 1 and 2 with 'Describe some of the fundamental....';
- EART 97040 Applying Computational/Data Science – to ensure that the learning outcomes are set at an appropriate level. The module content is reflected to a Level 7 standard, eg 'requires a synthesis of...', 'understanding of best practice' (evaluation). It was suggested that using 'create', 'synthesis', 'evaluate', 'justify' etc in the learning outcomes might better reflect the work that students will do;
- Environmental Data- 'Understand' appears in learning outcomes 1 and 4. How might students demonstrate this understanding. Consider separating learning outcomes 4 for greater clarity.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

Faculty of Natural Sciences

3.14 **Department of Life Sciences – Undergraduate**
BSc Biochemistry (3 year) (C700)
BSc Biochemistry with Management (3 year) (C7N2)
BSc Biotechnology (3 year) (J700)
BSc Biochemistry with Management (4 year) (C7NG)
BSc Biochemistry with a Year in Industry/Research (4 year) (C701)
BSc Biochemistry with Research Abroad (4 year) (C702)
BSc Biochemistry with French for Science (4 year) (C7R1)
BSc Biochemistry with German for Science (4 year) (C7R2)
BSc Biochemistry with Spanish for Science (4 year) (C7R4)
BSc Biotechnology with Management (4 year) (J7N2)
BSc Biotechnology with Research Abroad (4 year) (J701)
BSc Biotechnology with a Year in Industry/Research (4 year) (J702)
BSc Biotechnology with French for Science (4 year) (J7R1)
BSc Biotechnology with German for Science (4 year) (J7R2)
BSc Biotechnology with Spanish for Science (4 year) (J7R4)
BSc Biological Sciences (3 year) (C100)
BSc Biological Sciences with Management (3 year) (C1N2)
BSc Ecology and Environmental Biology (3 year) (C180)
BSc Microbiology (3 year) (C500)
BSc Biological Sciences with Management (4 year) (C1NG)
BSc Biological Sciences with Research Abroad (4 year) (C102)
BSc Biological Sciences with a Year in Industry/Research (4 year) (C110)
BSc Biological Sciences with French for Science (4 year) (C1R1)
BSc Biological Sciences with German for Science (4 year) (C1R2)
BSc Biological Sciences with Spanish for Science (4 year) (C1R4)

The Programmes Committee considered a proposal from the Department of Life Sciences to request an exception to the College's Academic Regulations to allow 12.5 ECTS credited modules for its final year undergraduate degrees with effect from Summer 2021.

The Programmes Committee agreed to allow a further year of exception to the regulations but strongly recommend the Department review the 12.5 ECTS module size by 31st March 2022 where the standard base module size should be 5 or 7.5 ECTS credits, or aligning with the approved credit sizes as outlined in the Academic Regulations. The Committee would not support a permanent exception to the College's Academic Regulations and the Department is advised to seek the support of the Education Office to identify how the programme structure can be reviewed to accommodate the changes necessary.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with a one-year time limit, with effect from October 2021. The Programmes Committee would like to invite the Quality Assurance and Enhancement Committee to discuss the exception request further.

Faculty of Medicine

3.15   **School of Medicine – MBBS/BSc Medicine**
The Programmes Committee considered a proposal from the School of Medicine to create a new 50 ECTS module that brings together 5 different modules ('Patients, Communities and Healthcare 3', 'Phase 1 Medicine', 'Phase 1 Surgery', 'Medicine in the Community Apprenticeship (MICA)' and 'Synoptic Clinical Skills and Written Assessment'). for the above programme with effect from October 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.16   **School of Medicine – MBBS/BSc Medicine**
Bioregulatory Systems 1 (MEDI40002)
Bioregulatory Systems 2 (MEDI50001)

The Programmes Committee considered a proposal from the School of Medicine to make changes to a learning outcome for each of the modules listed above with effect from October 2021.

- Bioregulatory Systems 1 ILO5 from:
  o Employ intermediate research skills in a laboratory environment to collect, analyse manipulate and report data'
  To:
  o Employ intermediate research skills to collect, analyse and report data.

- Bioregulatory Systems 2 ILO5 from:
  o Employ intermediate research skills in a laboratory environment to collect, analyse manipulate and report data
  To:
  o Employ intermediate research skills to collect, analyse and report data.

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendation:
- The Committee would like to seek the School's assurances that 'Employ intermediate research skills in a laboratory environment' or a comparable learning outcome could still be achieved by the student elsewhere on the programme.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendation above.

3.17   **MRes Clinical Research (Human Nutrition stream)**

The Programmes Committee considered a proposal from the Department of Metabolism, Digestion and Reproduction to introduce a new online Human Nutrition stream for the above programme with effect from October 2021.

The department already has experience in offering this MRes online and the new Human Nutrition stream complements well with the other streams as well as widening participation. The Human

Nutrition module specification had been well presented with clear learning outcomes. It was good to see that current clinical assessment practice is applied in the assessment strategy.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

Imperial College Business School

3.18   **Executive Education – Short Course**
Mergers & Acquisitions (BUSI97437)
Private Equity (BUSI97436)

The Programmes Committee considered a proposal from the Business School to offer the two existing MBA electives named above as part of the Open Online Executive Education Programme with effect from October 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.19   MRes Business

The Programmes Committee considered a proposal from the Business School to consider a proposal for the withdrawal of four elective modules, to change the module titles and learning outcome changes for the following modules Research Design (BUSI97166) and Qualitative Research Methods (BUSI97167) with effect from September 2021.

To withdraw the following modules:
- Organisational Behaviour and Human Resource Management (BUSI97169)
- Innovation Management (BUSI97171)
- Strategic Management (BUSI97172)
- Entrepreneurship (BUSI97170)

Changes to the module titles:
- Research Design (BUSI97166) to 'Quantitative Methods 1'
- Qualitative Research Methods (BUSI97167) to 'Qualitative Methods 1'

Quantitative Methods 1
Learning outcome changes from;
On successful completion of the module, students should be able to:
- Understand the nature of different kinds of research questions typically asked in social science research, particularly in the area of management;
- Depending on the nature of the research question, pick an appropriate empirical design and research method to address the research question;
- Understand different empirical designs and research methods;
- Have a good understanding of the different ontological stances in social science research and their implications to the notions of 'finding'; 'knowledge'; and 'evidence'.
To:
By the end of the module, you will be able to:
- Design an experiment to collect primary data for your PhD thesis.
- Develop a survey to collect primary data for your PhD thesis.
- Select key empirical tools and methodologies to enable you to obtain robust and econometrically sound evidence to support your research hypotheses.

Qualitative Methods 1

Learning outcome changes from;

On successful completion of the module, students should be able to:

- Have a good understanding of the strengths and limitations of qualitative research methods
- Understand the kind of research questions that can be answered using qualitative methods, and also, understand the nature of insight that can be produced through qualitative methods (and the limitations thereof)
- Have a good command of qualitative research techniques, including interviewing, content analysis, grounded theory methods, inductive methods and process methods

To:

By the end of the module, you will be able to:

- Assess the methods of qualitative studies
- Develop research designs for qualitative research projects
- Code and analyse qualitative data
- Communicate findings from qualitative data analysis

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendations:

- Consider whether reference made to the PhD Thesis in the Quantitative Methods 1 module learning outcomes would still be applicable if the student chooses not to progress onto the School's Doctoral programme;
- Confirm if the modules Quantitative Methods 1 and Qualitative Methods 1 should have a weighting of 8 ECTS.
- The rationale for the changes made to the modules Research Design and Qualitative Research Methods, stated that 'The School would like to align the module titles and learning outcomes so the cohorts can be taught together to improve the learning experience' The Committee would like to seek further information on how the difference in ECTS would be addressed? Would students on the modules with a higher ECTS value be expected to take different assessments or if there would be an increase in the learning and teaching hours..

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

3.20 **MSc Business Analytics (on campus)**
Work Placement (BUSI97281)

The Programmes Committee considered a proposal from the Business School to change the grading method from numerical to pass/fail for the module 'Work Placement' to withdraw four elective modules with effect from September 2021.

To withdraw the following modules:

Managing Change and Innovation in Healthcare (BUSI97088)
Strategy Implementation (BUSI97252)
Digital Economics and Digital Strategy (BUSI97253)
Energy Economics and Strategy (BUSI97254)

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendation:

- The rationale for the withdrawal of four elective modules states that 3 of the 4 modules have been withdrawn from another programme already, however, it is not quite clear why the 4th (Managing Change and Innovation in Healthcare) had been withdrawn, the School are advised to provide a rationale.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the above recommendation.

3.21 MSc Business Analytics (online)
Work Based Project (BUSI97364)
Advanced Machine Learning (BUSI97368)

The Programmes Committee considered a proposal from the Business School to change the grading method from numerical to pass/fail for the module 'Work Based Project' and to change the learning outcomes for the module 'Advanced Machine Learning' with effect from September 2021.

Advanced Machine Learning
Learning outcome changes from;
On successful completion of the module, students should:
- Have an understanding of concept learning
- Have an understanding of natural language processing, and machine learning methods and technologies including an appreciation of what situations are best to apply such methods.
- Be able to solve practical problems, where appropriate, using different analytical techniques including:
  - decision trees
  - neural networks
- Be able to implement such methods using R & Python
- How to use visualisation tools, including line plot, histograms, scatter plot matrix, heatmap, distributions
- Have experience of applying such techniques to appropriate case studies

To:
At the end of the module, students should be able to:
- Formulate, optimise, and apply popular generative models and discriminative models, including support vector machine, kernelised method, logistic regression, ensemble method, etc;
- Explain the concepts and applications of bandits problem, online learning, reinforcement learning, and the algorithmic trade-off between exploration and exploitation
- Use the proper machine learning model to solve business analytics problems and elicit managerial insights by interpreting and visualising the interactions between the data and the used machine learning models
- Build machine learning models in a data-driven way that adapts to the underlying application context, objective, computational consideration, and dataset itself.

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendations:
- To confirm that the credit value field withing the 'Work Based Project' module specification should be corrected to 0 ECTS.
- Advanced Machine Learning- LO3- Consider rephrasing 'use the proper machine learning model'.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

3.22 MSc Climate Change Management and Finance
Work Placement (BUSI97305)
Clean Technology Investment (BUSI97298)

The Programmes Committee considered a proposal from the Business School to change the grading method from numerical to pass/fail for the module 'Work Placement', to change the learning outcomes for module 'Clean Technology Investment' and to also change the assessment structure for the above programme with effect from September 2021.

Clean Technology Investment (BUSI97298)
Learning outcome changes from;
On successful completion of the module, students should be able to:
- Understand the different ways that a firm can generate returns from their own innovations, and those produced by others;;
- Explain and understand clean tech and innovation investment pricing models
- Generate comparisons between different financing modes: Venture Capital, Private Equity, Crowd Funding and others.

To;
On successful completion of the module, students will be able to:
- Integrate climate risks (physical and transition) into strategic asset allocation, asset pricing and valuation;
- Articulate the business case for clean energy, climate resilient infrastructure and climate positive investments using the core tools of financial decision-making;
- Demonstrate familiarity with major approaches to debt and equity financing of climate-related projects.

Assessment changes:
BUSI97297 Mitigating Climate Change from: Written exam 70% and Coursework 30% to: Written exam 60% and Coursework 40%
BUSI97298 Clean Technology Investment from: Written exam 70% and Coursework 30% to: Coursework 100%

Revised programme structure for the Spring and Summer Modules

Assessment Structure		
Module Groups	ECTS	% Weighting
Spring Modules Corporate Finance (7%) Risk Management & Climate Change (7%) Mitigating Climate Change (7%) Sustainable Management & Strategy (7%) Energy Business & Strategy (3%) Climate Change & Governance (3%)	29	34%
Summer Modules Clean Tech Investment (7%) Innovation in Cleantech and Climate Change Solutions (3%) Climate Finance (7%) Consulting Project (7%) or Work Placement Report (0%) Climate Change, Management & Finance Report (7% or 14% if Work Placement is selected)	33.5	31%

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendations:
- Clean Technology Investment (BUSI97298)- LO3- Could this learning outcome be made more specific, i.e. How will students demonstrate their familiarity, by applying concepts?

- To apply the 'Work Placement' as a pass/fail module, consider changing the pass mark to 100%.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations above. The programme team were advised to consider the module specification feedback by the annual Minor Modifications Audit deadline (31st July 2021).

3.23 **MSc Climate Change Management and Finance**
The Programmes Committee considered a proposal from the Business School to make an in-session change to the assessment format from closed-book exam to open-book exam for the module 'Sustainable Management & Strategy' with effect from January 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.24 **MSc Finance (N301)**
MSc Finance & Accounting (N302)
MSc Financial Technology (N305)
MSc Investment & Wealth Management (N303)
MSc Risk Management & Financial Engineering (N34G)

The Programmes Committee considered a proposal from the Business School to withdraw the compulsory module 'International Experience Trip' and changes to the assessment structure to the above programmes with effect from September 2021

Assessment Structure
Minor update to the assessment structure on the Finance Suite programmes to reflect a change to the criterial for achievement of Distinction and Merit awards. The Programmes Committee will be referring the request for Programme Specific Regulations to the Regulations and Policy Review Committee for consideration.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal to withdraw the compulsory module 'International Experience Trip' with effect from October 2021.

3.25 **Full-Time MBA**
Contemporary Financial Accounting (BUSI97314)

The Programmes Committee considered a proposal from the Business School to make an in-session change to add the existing elective module 'Contemporary Financial Accounting' to the above programme effect from January 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.26 **MSc Innovation, Entrepreneurship & Management**
Technology & Innovation Management (BUSI97334)
Venture Capital & Growth Finance (BUSI97182)

The Programmes Committee considered a proposal from the Business School to make an in-session change to the assessment format from closed book exam to open book exam for above modules with effect from January 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

3.27 **MSc International Health Management**
Health Informatics (BUSI97083)
Healthcare Sector Project (BUSI97093)
Work Placement (BUSI97713)

The Programmes Committee considered a proposal from the Business School to withdraw the compulsory module 'Health Informatics'; a change to the overall study hours and the credit value of the module 'Healthcare Sector Project'; changes to the assessment rule, amendment to the study hours and credit allocation for module 'Work Placement'; and changes to the assessment structure to the above programme with effect from September 2021.

Programme structure changes
Change to Summer Term module group on the assessment structure to incorporate the above change and allow students to select elective modules.

Change from:
Summer Modules Group (3 x Compulsory modules, equally weighted PLUS 1 x Group A elective module
PLUS 1 x Group B elective module equally weighted).
To:
Summer Modules Group (2 x Compulsory modules, equally weighted PLUS 1 x Group A elective module
PLUS 1 x Group B elective module equally weighted, PLUS 1 x Group C elective module, equally weighted).

Change in ECTS:
BUSI97093 Healthcare Sector Project from 9.5 to 10 ECTS
BUSI97713 Work Placement from 9.5 to 10 ECTS

BUSI97713 Work Placement
Assessment type change from numerical to pass/ fail and zero weighted.

The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee subject to the following recommendations:
- Programme Specification-Programme structure, confirm whether the number of compulsory modules in the Summer term should be two modules rather than one;
- Assessment structure- The ECTS value states 35 for summer term and summer period; however on the indicative module list the ECTS do not appear to add up to 35 ECTS.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021 subject to the recommendations above.

3.28 **MSc Investment & Wealth Management and MSc Risk Management & Financial Engineering**
Topics in Corporate Finance (BUSI97334)

The Programmes Committee considered a proposal from the Business School to make an in-session change to the assessment format from closed-book exam to open-book exam for the module 'Topics in Corporate Finance' for the above programmes with effect from January 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

4.   I-Explore and Horizons

4.1   I-Explore STEMM

The Programmes Committee considered a proposal from the Centre for Higher Education Research and Scholarship to introduce a new I-Explore STEMM module 'A modern education: designing virtual reality and interactive visualisations for the classroom' with effect from October 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

4.2   Horizons Programme
Level 4 Korean
Music, Invention, and Society
Video Production for Mobile Devices
Literature and the Changing Environment: Terrains of Thought
The Meaning of Life
History of Consumer Society
Understanding and Researching Society: Democracy, Race and Class
Explaining and Understanding Human Behaviour
History of Intoxication
Contemporary themes in Global Politics: Populism, Identity and Inequalities
Collective Intelligence: Sociology and Politics of Knowledge

The Programmes Committee considered a proposal from the Centre for Languages, Culture and Communication to introduce a new language module and ten new modules for Humanities and Social Sciences with effect from October 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

5.   The following Suspensions and Withdrawals of existing programmes

5.1   MSc Environmental Engineering & Business Management
MSc Hydrology & Business Management
MSc Soil Mechanics & Business Management
MSc Transport & Business Management

The Programmes Committee considered a proposal from the Department of Civil and Environmental Engineering to continue the suspension of the above programmes for an additional year with effect from October 2021

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

5.2   MBBS Medicine (Direct Entry)

The Programmes Committee considered a proposal from the School of Medicine to suspend the above programme for one academic year and cease entry for the 2021-22 cohort.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021

5.3 **MBBS Graduate Medicine**

The Programmes Committee considered a proposal from the School of Medicine to withdraw the above programme with effect from October 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021.

6. Chair's Action

6.1 **Department of Computing- all undergraduate programmes**

A proposal from the Department of Computing to introduce Exit Awards for all pre-Curriculum Reviewed undergraduate programmes with effect from October 2020

- For students in Year 3 on BEng target awards (old curriculum): introduce DipHE and BEng ordinary degree exit awards
- For students in Year 4 on MEng target awards (old curriculum): to introduce a BEng (Hons) degree exit award

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2020.

6.2 **MEng Aeronautical Engineering**

A proposal from the Department of Aeronautics to introduce Exit Awards the pre-Curriculum Reviewed undergraduate programme with effect from October 2020.

- BEng (Hons) exit award – 180 ECTS
- BEng (Ordinary) exit award – 150 ECTS
- DipHE exit award – 120 ECTS

The Exit Award will not be accredited, this is in line with the approach introduced as part of the Undergraduate Curriculum Review process.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2020.

6.3 **MEng Chemical Engineering**

A proposal from the Department of Chemical Engineering to introduce Exit Awards for the pre-Curriculum Reviewed undergraduate programme above with effect from October 2020.

To achieve the BEng (Hons) Exit Award students will be required to accumulate 180 ECTS, with at least 45 ECTS at each of FHEQ levels 4, 5 and 6. This is equivalent to the students passing all but the final year of the MEng programme.

The Exit Award will not be accredited, this is in line with the approach introduced as part of the Undergraduate Curriculum Review process.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2020.

6.4   **MSc Applied Computational Science and Engineering**
        MSc Environmental Data Science and Machine Learning

A proposal from the Department of Earth Science and Engineering to introduce a PG Diploma Exit Award for the non-curriculum reviewed versions of these target award programmes. This specific award will operate for 2020/21 for the MSc Applied Computational Science and Engineering, and for 2021/22 for both programmes.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2020.

6.5   **Short Course- Creativity for Academic and Professional Purposes**

A proposal from the Dyson School of Design Engineering to introduce a bespoke and closed module to be offered as part of the College's Mandated Deferral Support Package. The package is offered to 130 offer holders within the Departments of Physics, Mechanical Engineering and Computing to whom the Departments were not able to offer a place in AY 20/21 due to the introduction of Centre Assessment Grades for 2020 A-Levels.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from April 2021.

6.6   **Faculty of Medicine Summer School- Revolutions in Biomedicine**

A proposal from the Faculty of Medicine to introduce the successful on-campus summer school 'Revolutions in Biomedicine' as an online summer school with effect from July 2021.

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from July 2021.

6.7   **Department of Earth Science and Engineering**

A proposal from the Department of Earth Science and Engineering to suspend the following programmes:

- MSc Petroleum Geoscience- for one-year, effective October 2021
- MSc Petroleum Engineering- for one-year, effective October 2022

The Programmes Committee recommends that the Quality Assurance and Enhancement Committee approve the proposal with effect from October 2021.

6.8   **MBBS/BSc Medicine**
        MEDI97003 Clinical Placement III

A proposal from the School of Medicine to make an In-year request, to introduce a two 3-week Pre-Foundation Assistantship (PFA) placements for Year 6 students in Term three, half the year group at a time, during the 7-week elective block (April to May 2021) focusing on preparing students for their foundation posts (preparedness for practice). These placements will be available to students who have been unable to secure electives. Students who have been able to secure electives will be able to continue their placements as planned. Students will not be able to participate in more than one PFA placement.

Students will have the following 3 options available to them:
• Elective placement for up to 7 weeks

• PFA placement for 3 weeks
• PFA placement for 3 weeks plus elective placement for up to 4 weeks

In 2021-22, to introduce a voluntary 6-week PFA placement from 2021-22 to prepare students for their foundation posts. This will be paired with the existing electives block that students undertake post-assessments. The programme length in Year 6 will be increased by extending the second elective block to 8 July 2022 to accommodate the PFA.

In 2022-23, the PFA will become an integral part of the MBBS curriculum and students will therefore be required to attend. The PFA will remain a 6-week course using the above arrangements. The programme length in Year 6 will be increased by extending the second elective block to 7 July 2023 to accommodate the PFA.

In 2023-24 onwards, the PFA will be extended to 8 weeks in length. Students will be required to attend the PFA.

The proposal has been approved via Chair's Action by both the Programmes Committee and the Quality Assurance & Enhancement Committee with effect from April 2021 with the recommendations noted below:

- To incorporate the changes above into the OfS CMA letters to communicate to all affected students (noting the requirements of the medical bodies) providing reassurance that we have listened to their concerns and balanced these against our need to ensure a high quality degree programme, ensuring they are in the best state to benefit from this as well as a need to safeguard patient safety but also to ensure they have the skillset to fulfil their potential;
- Applicants for the 2021-22 Academic Year must also be notified of all changes to their programme of study;
- Liaise with the Imperial Prospectus Team to notify the team of any changes necessary to the MBBS/BSc Medicine webpages.