University of Plymouth

Faculty of Arts, Humanities and Business

School of Art, Design and Architecture

Programme Specification

MA/MSc Integrated Design Innovation

Definitive Document Approved: 19.7.18

Implementation Date:	September 2019
Revised:	November 2019 (minor changes)
	July 2020 (incorporation of January intake)

1.	**Final award title**	MA Integrated Design Innovation MSc Integrated Design Innovation
	Level 7 Intermediate award title(s)	PGCert (60 credits) PGDipl (120 credits)
	UCAS code	N/A
	JACS code	W2 Design Studies
2.	**Awarding Institution**	University of Plymouth
	Teaching institution(s)	University of Plymouth

3. Accrediting body(ies)

N/A

4. Distinctive Features of the Programme and the Student Experience

Students entering the MA/MSc Integrated Design Innovation will benefit from:

- A multidisciplinary programme of study that responds to changing UK and global industries under pressure to deliver high-quality, digitally driven solutions.

- A teaching and learning ethos comprising a STEAM approach (Science, Technology, Engineering, Arts & Design, Mathematics) enabling a re-definition of the way designers and architects work with engineers in the envisioning, designing, manufacturing and construction of our future built environment, specialist and everyday products and digital experiences.

- A student experience based on project-based learning in the Design Lab, supported by additional Modules aiming at developing the practical competences, knowledge, relevant theories, and entrepreneurial skills required to deliver a project. Supporting Modules comprise a differentiated delivery for MA and MSc awards.

- Teaching by academic teams, technical staff and guest industry partners from a range of digital sectors, with local and international experience in related research and engagement with industrial innovation.

- State of the art facilities in the areas of digital fabrication and immersive media, comprising 2D fabrication (e.g. laser cutting), additive manufacturing (e.g. 3D printing), subtractive manufacturing (e.g. CNC milling) and robotically-supported fabrication resources.

- Opportunity to pursue PhD studies as well as cross-collaboration with related PGT programmes within research-informed intellectual territories of, among others, Smart Urban Futures, Digital Media Design, and/or High Performance Buildings.

- Employability opportunities arising from the increased demand for digitally literate and highly skilled professionals able to work across diverse, fluid and complex industrial and commercial environments in fields such as product/industrial design, architecture and built environment, mechanical and marine engineering, among others.

5. Relevant QAA Subject Benchmark Group(s)

QAA subject benchmarks do not exist for this specific subject at master's degree level. However, the mapping of programme learning outcomes is highly based on the following Subject Benchmarks:

- For MA route: Descriptor for a higher education qualification at level 7 on the FHEQ and SCQF level 11 on the FQHEIS: master's degree.
- For MSc route: QAA Subject Benchmark Statement for master's degree in Engineering (updated 2015).

6. Programme Structure

MA Integrated Design Innovation

Programme structure FULL TIME

Programme Structure for September intake

Semester 1 (September-January)
DFAB711 Design Lab I (30 credits)
DFAB721 Advanced design thinking & making skills (30 credits)

Semester 2 (January-May)
DFAB752 Design Lab II (30 credits)
DFAB762 Futures Entrepreneurship (30 credits)

Semester 3 (May-September)
DFAB723 Research Project (60 credits)

Programme Structure for January intake

Semester 1 (January-May)
DFAB711 Design Lab I (30 credits)
DFAB762 Futures Entrepreneurship (30 credits)

Semester 2 (May-September)
DFAB752 Design Lab II (30 credits)
DFAB721 Advanced design thinking & making skills (30 credits)

Semester 3 (September-January)
DFAB723 Research Project (60 credits)

MSc Integrated Design Innovation

Programme structure FULL TIME

Programme Structure for September intake

Semester 1 (September-January)
DFAB711 Design Lab I (30 credits)
DFAB731 Advanced engineering design and materials (30 credits)

Semester 2 (January-May)
DFAB752 Design Lab II (30 credits)
DFAB762 Futures Entrepreneurship (30 credits)

Semester 3 (May-September)
DFAB723 Research Project (60 credits)

Programme Structure for January intake

Semester 1 (January-May)
DFAB711 Design Lab I (30 credits)
DFAB762 Futures Entrepreneurship (30 credits)

Semester 2 (May-September)
DFAB752 Design Lab II (30 credits)
DFAB731 Advanced engineering design and materials (30 credits)

Semester 3 (September-January)
DFAB723 Research Project (60 credits)

MA Integrated Design Innovation

Programme structure PART TIME

September intake only

Year 1 - Semester 1 (September-January)
DFAB721 Advanced design thinking & making skills (30 credits)

Year 1 - Semester 2 (January-May)
DFAB762 Futures Entrepreneurship (30 credits)

Year 2 - Semester 1 (September-January)
DFAB711 Design Lab I (30 credits)

Year 2 - Semester 2 (January-May)
DFAB752 Design Lab II (30 credits)

Year 2 - Semester 3 (May-September)
DFAB723 Research Project (60 credits)

MSc Integrated Design Innovation

Programme structure PART TIME

September intake only

Year 1 - Semester 1 (September-January)
DFAB731 Advanced engineering design and materials (30 credits)

Year 1 - Semester 2 (January-May)
DFAB762 Futures Entrepreneurship (30 credits)

Year 2 - Semester 1 (September-January)
DFAB711 Design Lab I (30 credits)

Year 2 - Semester 2 (January-May)
DFAB752 Design Lab II (30 credits)

Year 2 - Semester 3 (May-September)
DFAB723 Research Project (60 credits)

7. Programme Aims

The aims of the MA/MSc Integrated Design Innovation programme are:

1. To provide a transformative educational experience that develops students' understanding, professional profiles and approach to advanced digital fabrication and manufacturing.
2. To develop students' creative and technologically-informed thought and judgement in generating solutions, products and experiences of the highest calibre applicable to design and production contexts of practice such as design engineering, product/industrial design, architecture and built environment, mechanical and marine engineering, among others.
3. To offer a cross-disciplinary talent pipeline in coordination with associated PGT programmes as well as with a battery of newly developed UG programmes.
4. To graduate highly skilled professionals able to operate within digitally informed, technological, multidisciplinary, commercial and collaborative environments.
5. To develop students' awareness of the nature and relevance of multidisciplinary approaches to design practice by embodying an educational partnership across diverse areas of technological research and innovation across the University and the region.
6. To deliver an industry-driven educational framework which develops skills and operational knowledge relevant for contemporary, flexible, creative and technological industries.
7. To enable students to acquire strategies for self-improvement and continued learning/research to embed confidence, life skills and transferable skills for their future role as leading professionals.
8. To develop students' critical research skills relevant to acquire advanced knowledge, develop strategies for learning and understand methods of inquiry.
9. To develop an understanding of professional, commercial and entrepreneurial skills as well as responsibilities of design, economic, technological, legislative and industrial contexts.

8. Programme Intended Learning Outcomes

8.1. For MA award:

Knowledge and understanding (subject-specific)

1. Develop and demonstrate a comprehensive understanding of relevant scientific and technological principles applicable to the development of a project proposition.

2. Develop and demonstrate a comprehensive understanding of relevant scientific and technological principles applicable to the development of a project resolution.
3. Demonstrate an understanding of the opportunities offered by digital design, modelling, fabrication and assembly technologies, and their application in the context of a project detailed resolution.
4. Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies.

Cognitive/intellectual skills (generic)

5. Ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods.
6. Articulate a line of inquiry by sourcing, selecting, judging and critically addressing relevant case studies in the areas of digital modelling, fabrication and creative innovation.
7. Demonstrate an ability to deliver design innovation at a fundamental level, which incorporates the exploration of new technologies, industries, product categories and contexts.

Key transferable skills

8. Monitor and adjust a personal programme of work on an on-going basis
9. Demonstrate an understanding of the processes required to innovate in the development of responses to industrial, sustainability, social and environmental challenges.
10. Exhibit and communicate a design/technical proposition through the use of digital and visual media to an audience of peers.

Practical skills (subject-specific)

11. Articulate a line of inquiry by sourcing, selecting, judging and critically addressing relevant case studies in the areas of digital modelling, fabrication and creative innovation.
12. Generate and articulate a design/technical study based on a series of tests, prototypes and iterations of a design/technical proposition to a given brief.
13. Generate and articulate a design/technical and feasibility study based on a series of tests, prototypes and iterations of a design/technical resolution to a given brief.
14. Ability to explore, select, develop and apply advanced skills on emergent technologies applicable to digital media and fabrication, manufacturing and assembly required to respond creatively to a project brief.

15. Develop innovative combinations of skills, methods, technologies and design processes in the context of a project detailed resolution.
16. Demonstrate an understanding of the opportunities offered by digital design, modelling, fabrication and assembly technologies, and their application in the context of a project proposition.

Employment-related skills

17. Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints
18. Develop a business plan based on an innovative idea, entrepreneurial initiative and using creative tools and thinking.
19. Work in a team to devise innovative concepts for new products that meet a diversity of customer needs, whilst reducing manufacturing impacts upon the environment.
20. Investigate and evaluate alternative digital manufacturing technologies for cost effective fabrication and sustainability of the materials used.
21. Critically evaluate the capability and repeatability of digital modelling and digital fabrication technologies to comply with modern quality standards.

8.2. For MSc award:

Knowledge and understanding (subject-specific)

1. Develop and demonstrate a comprehensive understanding of relevant scientific and technological principles applicable to the development of a project proposition.
2. Develop and demonstrate a comprehensive understanding of relevant scientific and technological principles applicable to the development of a project resolution.
3. Demonstrate an understanding of the opportunities offered by digital design, modelling, fabrication and assembly technologies, and their application in the context of a project detailed resolution.
4. Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies.
5. Demonstrate a thorough knowledge and deep understanding of the properties of a broad range of engineering materials and the principles of their failure.

Cognitive/intellectual skills (generic)

6. Ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or

incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods.

7. Critically evaluate scholarship, knowledge and understanding of advanced engineering design practice in the context of current commercial, societal, technological, and environmental challenges.
8. Articulate a line of inquiry by sourcing, selecting, judging and critically addressing relevant case studies in the areas of digital modelling, fabrication and creative innovation.
9. Demonstrate an ability to deliver design innovation at a fundamental level, which incorporates the exploration of new technologies, industries, product categories and contexts.

Key transferable skills

10. Monitor and adjust a personal programme of work on an on-going basis
11. Demonstrate an understanding of the processes required to innovate in the development of responses to industrial, sustainability, social and environmental challenges.
12. Exhibit and communicate a design/technical proposition through the use of digital and visual media to an audience of peers.

Practical skills (subject-specific)

13. Develop a substantial and coherent research proposal with appropriate methods of research and enquiry, data collection and analysis in readiness for ethical approval.
14. Generate and articulate a design/technical study based on a series of tests, prototypes and iterations of a design/technical proposition to a given brief.
15. Generate and articulate a design/technical and feasibility study based on a series of tests, prototypes and iterations of a design/technical resolution to a given brief.
16. Ability to explore, select, develop and apply advanced skills on emergent technologies applicable to digital media and fabrication, manufacturing and assembly required to respond creatively to a project brief.
17. Develop innovative combinations of skills, methods, technologies and design processes in the context of a project detailed resolution.
18. Demonstrate proficiency in the use of computer aided design tools to construct robust digital representations of technical artefacts that accurately communicate design intent.

Employment-related skills

19. Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints

20. Develop a business plan based on an innovative idea, entrepreneurial initiative and using creative tools and thinking.
21. Work in a team to devise innovative concepts for new products that meet a diversity of customer needs, whilst reducing manufacturing impacts upon the environment.
22. Investigate and evaluate alternative digital manufacturing technologies for cost effective fabrication and sustainability of the materials used.
23. Critically evaluate the capability and repeatability of digital modelling and digital fabrication technologies to comply with modern quality standards.

9. Admissions Criteria, including APCL, APEL and DAS arrangements

Entry Requirements for MA/MSc Integrated Design Innovation
Normally a 2:1 degree from a UK University or equivalent and evidence of a sustained engagement with fields such as mechanical engineering, architectural technology, architecture, materials and manufacturing, industrial and product design, software development and programming, electronics and robotics. We will consider students below 2:1 if they can demonstrate a strong academic portfolio or a record of professional experience. Applicants with extensive industry experience, or with previous awards in cognate fields of study, can claim credits following the University of Plymouth Accreditation of Prior Learning Policy. Applications for programme credit (advanced point of entry) should normally be made as part of the admissions process prior to registration on a programme and are assessed on a case-by-case basis. IELTS score of 6.5 or equivalent required for overseas students. Applicants will be required to submit an outline of their experience in a 500-word statement. The University also has substantial experience in supporting mature students and welcomes applicants in this category. Applicants with APL will be considered on an individual basis according to the University Regulations Framework. Students interested in transferring postgraduate credits will be considered on merit and current University regulations regarding transfer of credits from other institutions will apply.

10. Progression criteria for Final and Intermediate Awards

- Students undertaking the MA/MSc Integrated Design Innovation must achieve a pass (50%) in all modules. There is no compensation for failed modules.

- Where a student has achieved an aggregate of 70%, they will be awarded MA/MSc Integrated Design Innovation with Distinction.
- Where a student has achieved an aggregate of 60%, they will be awarded MA/MSc Integrated Design Innovation with Merit.
- Where a student has passed 120 credits of the programme they will be awarded a Postgraduate Diploma.
- Where a student has passed 60 credits of the programme they will be awarded Postgraduate Certificate.

11. Non Standard Regulations

N/A

12. Transitional Arrangements

N/A

Appendices

Appendix I: Programme Mapping (PGT) – MA award

Appendix II: Programme Mapping (PGT) – MSc award

MODULE CODE	CREDITS	CORE - C / ELECTIVE - E	MA Integrated Design Innovation Award Learning Outcomes contributed to (for more information see Section 8)																					COMPENSATION Y/N	Assessment element(s) and weightings (KIS definition C1: Coursework)
			Knowledge and Understanding				Cognitive/intellectual Skills			Key Transferable Skills			Practical Skills						Employment-related Skills						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
DFAB711	30	C	■									■		■		■								N	C1 100%
DFAB721	30	C											■	■				■						N	C1 100%
DFAB752	30	C		■	■			■							■	■	■				■	■	■	N	C1 100%
DFAB762	30	C							■		■									■				N	C1 100%
DFAB723	30	C				■	■			■									■					N	C1 100%

MODULE CODE	CREDITS	CORE - C / ELECTIVE - E	MSc Integrated Design Innovation Award Learning Outcomes contributed to (for more information see Section 8)																							COMPENSATION Y/N	Assessment element(s) and weightings (KIS definition C1: Coursework)
			Knowledge and Understanding					Cognitive/intellectual Skills				Key Transferable Skills			Practical Skills						Employment-related Skills						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
DFAB711	30	C	■											■		■		■								N	C1 100%
DFAB731	30	C					■		■						■					■						N	C1 100%
DFAB752	30	C		■	■					■							■	■	■	■			■	■	■	N	C1 100%
DFAB762	30	C									■		■									■				N	C1 100%
DFAB723	30	C				■		■				■									■					N	C1 100%