

THE GLASGOW SCHOOL OF ART	Programme Proposal
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This Programme Proposal should be approved by the Executive Group and submitted to Academic Services.

Submitted by: (Programme Proposer)	Prof Tim Sharpe
Date	14/10/2015

Confirmed by: (Head of School)	Professor Christopher Platt
Date	14/10/2015

1. Programme Title	M.Sc. in Environmental Architecture					
1.1 Award	M.Sc. in Environmental Architecture					
1.2 Exit Awards	<p>Credit based exit points which will be taken based on the 3 Stages in the academic calendar will be as follows:</p> <ul style="list-style-type: none"> • PG Certificate in Environmental Architecture – (Stage 1: 60 credits) • PG Diploma in Environmental Architecture – (Stage 2: 120 credits) • M.Sc. Environmental Architecture (Stage3: 180 credits) 					
1.3 Length of Programme	12 Months for full programme					
1.4 Programme Level (please tick)	Undergraduate	<input type="checkbox"/>	Postgraduate Taught	<input checked="" type="checkbox"/>	Postgraduate Research	<input type="checkbox"/>
1.5 Mode of Delivery (please tick)	Full time	<input checked="" type="checkbox"/>	Part time	<input type="checkbox"/>	Distance Learning	<input type="checkbox"/>

2. Entry Qualifications	
2.1 Highers	Click here to enter text.
2.2 A Levels	Click here to enter text.
2.3 Other	Honours (1 st or 2.1) Bachelor Degree in Architecture, Building Services Engineering, Building Physics or related discipline or equivalent professional practice.
2.4 IELTS Score Required on Entry	6.5 IELTS with all elements at 5.5 or above
3. Proposed Start Date	01/09/2016

4. School	Mackintosh School of Architecture
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5. Department	Architectural Technology, Mackintosh Environmental Architecture Research Unit (MEARU)
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6. Subject Area of the Programme (e.g. Interior Design)	Architecture
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7. Source of Funding (e.g. SFC)	Self-funding.
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7.1 Indicative Tuition Fees(Home/Overseas)

Home (per year)	£ 5,760	Overseas	£ 13,534
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8. Outline academic rationale and purpose of the programme: *Please explain the academic reasons for developing this programme.*

The proposed MSc will be delivered within MEARU and the Mackintosh School of Architecture, and builds on substantial research expertise, and compliments existing related PGT pathways. The programme will focus on the relationships and design challenges for producing sustainable low energy, low carbon and healthy environments with a particular emphasis on the innovative design and delivery of effective building performance to address contemporary challenges in these areas. Most existing programmes in the UK and elsewhere are principally focussed on theoretical design and modelling and tend toward an engineering approach. The MSc in Environmental Architecture is distinctive from other Masters programmes that tend to focus on single issues (i.e. energy) in that it investigates challenges and contradictions in this field and potential unintended consequences. The proposed MSc requires a consideration of the balance between energy drivers, healthy environments and high quality architecture. The content will be developed from staff expertise and new knowledge developed from recent research and consultancy within MEARU and collaborating industry and academic organisations.

MEARU has established an international reputation for high quality research into the field of Environmental Architecture. This portfolio includes funded research from research councils, charities, national and local government agencies, and consultancy for housing associations, architects, developers and manufacturers. The research is concerned with the design, implementation and performance of low energy and environmentally responsible buildings and cities. A particular focus is on health impacts of design – funded work includes health effects of domestic laundry (EPSRC), sunshine and well-being in housing (AHRC), ventilation, and health (Scottish Government Building Standards). The unit is internationally recognised, has received over £2m research funding over the past 6 years, including 3 KTPs, currently has over 182 outputs on the GSA research repository Radar and is represented on a range of industry and academic bodies. The work has achieved impact including best practice, media profile and regulatory change.

The aim of this proposal is to capitalise on this expertise through a new postgraduate programme that would enable students to develop knowledge and skills that would expand and deepen their understanding of how buildings work holistically and how this knowledge can be extended and used to inform design and performance. The context for the program is the increasing requirements for low energy and sustainable buildings and the rapid changes in legislation technology and systems. This programme will provide students with skills and insights to undertake evidence-based design of buildings that can meet both societal and occupants' needs. Key parameters include; comfort, health and energy in relation to buildings, environments and design

The programme will prepare students for practice in built environment disciplines as designers, consultants or clients; or for further research. It will be structured to educate those who aspire to specialised practice as architects or researchers. It is also intended for students from built environment disciplines who wish to gain insight into the processes and knowledge that informs and shapes how buildings are designed to meet contemporary targets for energy, healthy environments and usability.

The program will enhance the GSA, MSA and MEARU portfolio in several ways:

1. It contributes research activity and knowledge generation in thematic areas including Sustainability and Health.
2. It increases capacity, profile and activity in MEARU through engagement of students with existing projects; and generates new research ideas through student projects and interests.
3. It provides a route towards further study, including to M.Res and Ph.D.
4. It provides a unique masters that considers energy and environmental design in a holistic way, which examines challenges for energy in the context of design, usable and healthy environments to develop and promote evidence based design.
5. It undertakes this in the context of an architecture school with a studio-based culture that provides insights into the context and practice of 21st century architecture.
6. It can contribute to societal needs for a sustainable built environment.

The proposed programme is distinctive from the current Master of Architectural Studies that contains two related pathways, Energy & Environment (E&E) and Zero Energy Mass Custom Homes (ZEMCH). Firstly within the existing MArch the related pathways, while providing specialist input, are set within the context of the wider field of architectural studies. The proposed MSc allows greater directed input and for students to investigate the topic in greater depth. The Programme title and award will be more attractive to prospective students beyond the specific discipline of architecture. These may include applicants with backgrounds in engineering, technology and building physics, but also those with specific related interests, for example housing professionals with the prerequisite undergraduate degree qualifications. Applicants with backgrounds in environmental psychology, ecologists; or scientists (in energy, climate change, public health, microbiology, chemistry etc.) in areas related to the design of healthy buildings may be considered.

Part of the overarching aim is also to provide a route to students who wish to pursue Ph.D. study. Successful completion of the course would provide the prerequisite degree level, whilst also introducing students to core research skills; in addition it may also identify a research focus for further study. This may include opportunities to participate in on-going MEARU research projects, with the potential to offer funded studentships through funded research projects. It also provides a route for mid-career practitioners wishing to develop a

specialisation or a change of emphasis towards academia and/or research in their careers.

The pedagogical approaches of the programme are based on practice and experience developed within MEARU and form engagement with other academic institutions, and with Industry.

The core content will be structured to provide students with an intellectually intense experience in the contemporary issues of theory integrated with the practice of design of sustainably and healthy environments. Project-based learning and case study models will enable students to develop real world learning skills and experience. An intellectually intense environment will be facilitated across Stages 1 and 2; and an Independent Masters Research Project leading to a dissertation will be delivered in Stage 3. This will be the vehicle through which candidates will be supported to become masters of their selected subjects of interest. Selected subjects could address environmental design and health issues and problems in Glasgow, UK and other cultures and other countries. These could vary in scale, context and content; could be at the building or urban cluster or wider urban scales; and will concentrate on the latest issues.

Core teaching will be supplemented by input from guest lecturers, providing insights into key industry issues and the external context. It is predicated on the overlap between architecture, building technology and users.

Stage 1 – 60 credits

Research Context

Series of lectures and seminars assessed by a written paper

Skills and tools

Series of lectures, seminars and workshops, assessed through project work

Core Research Skills (PGT elective)

Series of lectures and seminars assessed through a written paper

Stage 2 – 60 credits

Building Comfort and Health

Series of workshops, assessed through course papers

Technical Research Paper

Research design development as precursor to Stage 3 dissertation, group tutorials, assessed through summary research design paper

PGT Elective

Stages 3 – 60 credits

Dissertation

Dissertation, supported through tutorials, assessed through written thesis or design project and report

Both stages 1 and 2 of the programme will be structured to facilitate exit points;-with a postgraduate certificate or diploma after successful completion of specific content.

<p>9. Is there substantive overlap in terms of subject provision at this level in GSA? You may wish to comment in more detail below if there is inter-disciplinary overlap.</p> <p style="text-align: center;"> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </p>	
<p>If yes, please provide details of the other programmes below:</p>	
Programme	<p>Master of Architectural Studies:</p> <p>Energy & Environment (E&E) and Zero Energy Mass Customised Housing (ZEMCH) Pathways</p>
School	Mackintosh School of Architecture
Programme Leader	Jo Crotch
Please confirm this overlap has been discussed with the relevant School	Yes <input checked="" type="checkbox"/>
Further comment?	The content of the proposed programme is significantly different to that of the existing pathways and it is expected that the MSc will provide a complementary but distinct offering
Please confirm this overlap has been discussed with Student Recruitment	Yes <input checked="" type="checkbox"/>
Further comment?	Discussion with the MSA and with Recruitment has resulted in the retention of the existing pathways within the Master of Architectural Studies Programme, and the subsequent development of distinctive content within the proposed programme

<p>10. Minimum and maximum student numbers required to ensure that the provision is academically viable and appropriately resourced:</p>			
Home/EU Students			
Minimum	4	Maximum	12
Overseas Students			
Minimum	8	Maximum	12
<p>The figures provide a starting cohort of 12 allowing a strong studio cohort to be established from the outset, while supporting engagement with research and industry based consultancy through MEARU. This will also provide basic financial viability.</p> <p>It is important that the scale of cohort is academically viable and can provide visibility within the MSA and against the existing MArch provision.</p> <p>The programme intends to increase the size of cohort over the next three academic sessions.</p>			

11. Please confirm the following:	
a. A financial rationale has been approved by the Director of Finance and Resources. Any capital bids envisaged in the next four years for undergraduate programmes and three years for postgraduate programmes have been included in the financial rationale.	<input checked="" type="checkbox"/>
b. Attached is a copy of the financial rationale.	<input checked="" type="checkbox"/>

<p>12. Analysis of the potential market for the programme in the UK and internationally, carried out in consultation with Marketing & Communications, and leading to formulation of marketing strategy: <i>Please provide an overview of the current and future market conditions.</i></p>
<p>There are few competitors to the proposed programme in Scotland (except at Dundee) and small specialist institutions (such as GSA) worldwide. There is potential competition from institutions in the UK: MArch and MSc programmes in the general subject area at the Universities of Bath (Environmental design – which does not offer the theoretical/health aspects); Cardiff: Theory and Practice of Sustainable Design (MSc), Sheffield, Nottingham, UCL, Oxford Brookes, Reading, East London, Leicester, the Architectural Association, UCD. Internationally, the Universities of California, Berkeley, MIT, Urbana Champaign etc. A full list of related programmes across the UK has been compiled.</p> <p>An independent market research analysis has been commissioned by the Head of Recruitment and is on-going.</p> <p>Most of the existing programmes here and elsewhere focus on the design and science aspects of ventilation, thermal control, lighting, and acoustics. Few of these programmes focus on the theory aspects and the growing areas of health and in-use performance.</p> <p>The potential catchment will include</p> <ol style="list-style-type: none"> 1. Students from the Diploma Programme at the Mackintosh School of Architecture 2. Graduates of undergraduate programmes in building science/physics, architecture, mechanical/services engineers etc.; globally 3. Mature and post experience professionals (degree holders - architects, engineers etc.) looking to gain new skills and specialisations. 4. Degree holders serving as property services managers and technical staff in housing associations and private developers

13. Anticipated demand on staffing, resources and services (including English language support and welfare): *Please list the expected FTE required for teaching and tutorials, all accommodation and workshop requirements. Also, state any monetary costs that would not be routine.*

The staff in MEARU will play a significant role in development of content for the course. Marketing and publicising, launch, management and delivery of the programme will require dedicated staff time. Summary:

- 0.3 FTE programme leader
- 0.6 FTE MEARU lecturers (dependent on cohort)
- 0.2 FTE technical support
- 0.2 FTE administrative support

In addition a number of visiting lecturers will be invited to contribute input over each session.

To begin with, staffing for the programme will be run, delivered and assessed by existing members of staff from within MEARU and visiting lecturers. Additional input will be through contacted external staff to deliver named components. Resources are also required to support high profile guest lecturers and reviewers.

There will be a need to provide some investment to allow the development of the detailed materials and course content.

There will be a need to recruit researchers to fill existing MEARU staff time; and to contribute to the course design and delivery. As the programme develops, staffing, resources and services requirements will require reviewing and adjusting accordingly. Among the visiting lecturers will include scholars from other institutions with strengths in theoretical aspects and industry professionals with strengths in innovative practices that are up-to-date with industry developments.

Dedicated Studio space equipped with desktop computers will be provided for the students. The general costs of setting up and running the programme will be based on the costs already experienced by other recently set up masters programmes across GSA. Specific costs will include studio accommodation, access to specialised facilities, equipment and tools that MEARU may not have at the moment; and IT facilities, including computers, software licences etc. MSA already has licences for IES and TAS software packages, which will need renewal as necessary.

It is expected that the costs would be covered via the fees of students. Some elements of the programme will be shared with the existing postgraduate programmes within MSA and across the GSA.

14. If a collaboration with other institutions is proposed, please provide the following:

Partner Institution:	
Nature of Collaboration (please tick)	
Joint programme – single awarding institution – University of Glasgow	<input type="checkbox"/>
Joint programme – single awarding institution – other than UoG	<input type="checkbox"/>

Joint Programme – GSA delivery to UoG programme	<input type="checkbox"/>
Joint Programme – UoG delivery to GSA programme	<input type="checkbox"/>
Delivery of GSA programmes overseas	<input type="checkbox"/>
Articulation to a GSA programme	<input type="checkbox"/>
If a Joint Programme, please state the administering institution:	

15. Please confirm the following:	
a. A market analysis has been undertaken in consultation with the Head of Student Recruitment and has been discussed with the Director of Marketing, Communications and Strategic Planning and is set out in this Programme Proposal. A marketing strategy has also been agreed as part of this discussion.	<input checked="" type="checkbox"/>
b. The proposal and any resource implications have been discussed with the Head of Technical Services. <i>The proposal includes budget for related technical support, including support for technical and monitoring equipment maintenance, calibration and installation. IEEE certification would be a desirable qualification. Remit and JD discussed with HoTS. Mechanisms to flag up access requirements.</i>	<input checked="" type="checkbox"/>
c. The proposal has been discussed with the Head of Learning Resources and the attached 'Implications for Library/Learning Resources Provision' form has been completed.	<input checked="" type="checkbox"/>
d. The proposal has been discussed with the Estates Manager and the attached 'Implications for Estates Provision' form has been completed.	<input checked="" type="checkbox"/>
e. The proposal has been discussed with the Director of IT and the attached 'Implications for IT Provision' form has been completed.	<input checked="" type="checkbox"/>
f. Please confirm that the proposal has been discussed in detail with the Head of Learning and Teaching. <i>Including discussion of: credit levels, teaching methods, parity of experience. Unique position of MEARU (added in the document) IELTS level – currently 6.5 – should be higher. Possible PT mode – to be determined at a later date Program design pointers – Aims, ILOs, 'Mastersness', assessment.</i>	<input checked="" type="checkbox"/>
g. If the proposal relates to postgraduate provision, please confirm that the proposal has been discussed in detail with the Head of Research and the Head of the Graduate School. <i>Responses to comments received on the proposal:</i> <ul style="list-style-type: none"> • PT mode? The desire would be to develop a PT mode as this is likely to be of interest to practitioners, and will be explored during the programme development • Of interest to wider UG degrees? Will market the course to existing UG. • Relevance to GSA strategic research themes • Industry links? Detail added on Industry links – programme may benefit from 	<input checked="" type="checkbox"/>

<p><i>Construction Scotland Innovation Centre funded PG studentships</i></p> <ul style="list-style-type: none"> • Possible 1+2 PhD model? <i>Not able to apply M.Res 1+2 model as M.Res is research degree, but will actively explore</i> 	
<p>h. If the proposal relates to joint provision with the University of Glasgow, please confirm that the proposal has been discussed in detail with staff at an appropriate level in the relevant College.</p>	<input type="checkbox"/>

IMPLICATIONS FOR LIBRARY/LEARNING RESOURCES PROVISION *(to be completed by GSA Library)*

DATE of this document	25 September 2015
PROPOSED COURSE	M.Sc. in Environmental Architecture

<p>a. Position Statement</p> <p><i>To be covered in this section:</i></p> <ul style="list-style-type: none"> • <i>Review of current position of Library/Learning Resources in meeting the requirement of the proposed course</i> • <i>Outline of areas for development/expansion</i> • <i>Further relevant comments e.g. availability or cost of materials or preferred mode of delivery</i> <p>The proposed Masters will have some overlap with the current suite of MSA programmes, which are well supported by Learning Resources. Where additional library content needs to be purchased, this will be in e-book or e-journal form wherever possible, in order to maximise ease of access for students. Cost of this has been reflected in the financial rationale.</p> <p>As GSA Postgraduates, students on the Masters will also have access to Glasgow University's (GU) library collections, including its extensive e-journal resources. Through the SCONUL Access scheme, students will also be able to join other HE libraries in Glasgow and beyond if they wish to borrow additional material.</p>
<p>b. Current Collection Strengths</p> <p>Most of the subject areas of the proposed Masters are already well-supported by the current Library collection, and discussions with teaching staff have confirmed that, with a small number of exceptions, we hold sufficient copies of core texts. Almost all the key academic journals in the field are available to students electronically via GU, or in print and electronically via Glasgow School of Art. The PLEA (Passive and Low Energy Architecture) series of conferences are freely available online.</p>
<p>c. Current Collection Weaknesses</p> <p>There may be some additional specific texts which are required to support the proposed</p>

MSc, in which case it is important that these are identified by teaching staff and communicated to Learning resources for purchase. The one key academic journal, which is not currently fully available via GSA or GU, is Architectural Science Review, and both institutions only have access to its content from 1958-1996. The Library would need to take out a current subscription to this journal in order to provide students with institutional access to this key resource.

d. Indicative Costs for Addressing Collection Weaknesses

£500 pa (£2500 over 5 years)

IMPLICATIONS FOR ESTATES PROVISION *(to be completed in liaison with Estates Management)*

DATE of this document	25 September 2015
PROPOSED PROGRAMME	M.Sc. in Environmental Architecture

a. What spatial area will be required for the new programme? (Please see item 10)

Student numbers - minimum 12, maximum 24. Students will require a desk space with computer and network provision based on existing PG provision (min 12 x 4m² 48m² max 96m²).

In addition space is required for tutorials, seminars, lectures, reviews and examination. It may possible for elements of this to be provided through the existing learning and teaching environment within MSA.

There is existing storage space for equipment with MEARU, but additional storage space will be required for a larger cohort.

b. Where will the new programme be physically located?

There is currently no capacity within the Bourdon building to house additional PGT students, and the introduction of new programmes will require additional studio space to be sourced.

Depending on numbers, MSc students could be located in post-graduate studio (room 1.20) which could accommodate up to 20 students.

This will provide proximity to the current MEARU base and is important for the formation of a strong cohort and engagement in MEARU activity.

In this scenario MArch and MArch by conversion students would have to be relocated elsewhere.

Alternatively MSc student could be located elsewhere on Campus.

c. How will the location of the new programme impact on or be impacted on by current co-located programmes?

As location of new students will be within the school of architecture and adjacent to the MEARU, it is envisaged that this will facilitate sharing of resources and knowledge exchange between these related disciplines.

Successful recruitment will have impacts on existing PG provision, which will require additional space, either through modifications in the Bourdon, or additional space.

d. What are the potential physical challenges with the space for the new programme?
(Please see Estates for a room data check sheet to assist)

Space for PG provision in the Bourdon is very limited and successful expansion of the PG provision will require additional space. This may require identification and provision of additional PG space, through amendments/extension to the Bourdon to additional space.

e. What are the financial implications of refitting the current space to make it fit for purpose for the new programme? (Please see item 11.a)

Immediate requirements may be met through the sourcing odd additional space either to as a base for this cohort or to relocate other PGT students. More desks and chairs will be required, more IT (outlets and computers)- need to allow approximately 3 months for the purchase of these items and planning of electrical outlets.

IMPLICATIONS FOR IT PROVISION *(to be completed in liaison with Director of IT)*

DATE of this document	25 September 2015
PROPOSED PROGRAMME	M.Sc. in Environmental Architecture

a. What is the impact on IT to support this Programme Proposal?

Additional students require access to desktop PC's, simulation software, storage and use of existing large scale (A1) printers. New student spaces need networked and may also require additional switch and power supplies. Access to student wifi plus general IT support also required.

b. What additional / replacement IT hardware is required?

PCs for each student (minimum 12). One dedicated PC per 6 students for high end computation. Additional students require access to desktop PC's, simulation software, storage and use of existing large scale (A1) printers. New student spaces need networked and may also require additional switch and power supplies. Access to student wifi plus general IT support also required.

c. Is there additional / replacement software licenses required?

Requirement for access to specialist software, currently IES and TAS. Cloud storage of large data sets and shared data with MEARU research projects.

Existing site licences for AutoCAD/Revit ArchiCAD.

Extend site licence for IES £50 per additional seat (12 = £600, 24 £1200)

TAS annual licence £120/student

Assessment of any new software licences required plus on-going support and maintenance costs.

d. Are there any operating systems required in addition to those currently supported?

n/a

e. What are the financial implications from an IT perspective to deliver this programme?

Software additions /renewals, cost of new computers, assessment of network switch capacity and associated cabling