GMIT
INSTITIÚID TEICNEOLAÍOCHTA NA GAILLIMHE-MAIGH EO
GALWAY-MAYO INSTITUTE OF TECHNOLOGY

Report of External Peer Review Group for the Programmatic Review of:

Named Award:	Master of Science
Programme Title(s):	MSc in Environmental Systems
Exit Award(s):	Postgraduate Diploma exit award on completion of 60 taught module credits
Award Type:	Masters and Postgraduate Diploma
Award Class:	Masters and Postgraduate Diploma
NFQ Level:	Level 9
ECTS / ACCS Credits:	60 and 90 credits
Location:	Galway
Minor Award(s):	N/A

Panel Members

Name	Position	Organisation
Dr Joe Harrington	Chairperson	CIT
Dr Austin Coffey	IOT Member	WIT
Dr Patrick J. Purcell	University Member	UCD
Jan Gottsche	Graduate of the MSc in Environmental Systems	GMIT

Programme Board Team

Dr. Denis O'Mahoney	Dr. Aurora Dimache	
Gerard Mc Michael	Laurentiu Dimache	
Mary Rogers		
Dr. Mark Kelly		
Niamh Ward		
Dr. Cillian Roden		
Lisa Dooley		

1 Introduction

The following report to Academic Council is a validation panel report from an expert panel of assessors on the M.Sc. in Environmental Systems.

The report is divided into the following sections:

- Background to Proposed Programme

- General Findings of the Validation Panel
- Programme-Level Findings
- Module-Level Findings

2   Background to Proposed Programme

The Programme Self Evaluation Report (SER) provides detailed information on the proposed programme. The current programme was validated in 2009/2010 and consisted of a 60 credit MSc in Environmental Systems with a 40 credit embedded Postgraduate Diploma Award. The MSc programme consists of a series of taught modules and a research dissertation. The programme has been delivered since its launch in a modular and semesterised system to an average of approximately 15 students per year with a range of academic and professional backgrounds. It is the only Taught Masters Programme currently delivered in the School of Engineering and thus is currently limited in its potential to share modules with other peer programmes. The contribution to the delivery of the programme is from appropriate staff across the School of Engineering in addition to external guest lecturer input.

3   General Findings of the External Peer Review Group

The External Peer Review Group recommends that the proposed programme be approved for a further five years with no conditions and a number of recommendations which should be implemented if possible. The panel recommends the change of the programme title from "MSc in Environmental Systems" to the more appropriate "MSc in Environmental Resource Management". It is recommended as a 90 credit Masters Programme with a 60 credit Postgraduate Diploma.

The External Peer Review Group very strongly recommends a review of the year long programme structure proposed by the Programme Board Team. The Peer Review Group consider that a modularised semesterised framework involving discipline streams or themes provides flexibility for the learner in addition to facilitating the development of CPD pathways and Special Purpose Awards. The Peer Review Group are cognisant of the challenges faced by the Programme Board Team in developing an attractive Programme in the context of requirements for programme efficiency and viability but strongly believe that a modularised and semesterised programme provides the programme with maximum flexibility and potential for long term development and feasibility.

The External Peer Review Group recommends that assessment methodologies be reviewed across the modules proposed to ensure that a general level of consistency is achieved in terms of the learner workload and academic challenge for each module.

The External Peer Review Group strongly recommends the provision of a dedicated resource room for the programme.

The External Peer Review Group recommends that greater use is made of the available laboratory facilities. The School of Engineering should be proud of its high quality facilities and the relevant facilities should be more visible and accessible to the learners on the programme.

The Programme Board Team were commended on an excellent report and their positive interaction with the External Peer review Group during the visit. Stakeholder feedback on the Programme was very positive.

Having considered the documentation provided and with the interaction with the programme development team during the Panel Visit, the External Peer Review Group recommends the following:

MSc. Environmental Systems
Place an x in the correct box.

Accredited for the next five academic years or until the next programmatic review, whichever occurs sooner	
Accredited subject to conditions and/or recommendations	x
Re-designed and re-submitted to the same External Peer Review Group after additional developmental work	
Not Accredited	

Note:
Approval is conditional on the submission of a revised programme document that takes account of the conditions and recommendations outlined below and a response document describing the actions of the Department to address the recommendations made by the External Peer Review Group (EPRG). In this report, the term Condition is used to indicate an action or amendment which in the view of the EPRG must be undertaken prior to the commencement of the programme. Conditions are mandatory if the programme is to be approved. The term Recommendation indicates an item to which the Programme Board should give serious consideration for implementation at an early stage and which should be the subject of on-going monitoring.

4 Programme-Level Findings

This section of the report addresses the following programme level considerations:

- Evidence of reflection by the programme board to include, where relevant evidence of collaboration and engagement with other programmes from a similar discipline area within GMIT
- Demand
- Award
- Entry requirements
- Access, transfer and progression
- Retention
- Standards and Outcomes
- Programme structure
- Learning and Teaching Strategies
- Assessment Strategy
- Resource requirements
- Research Activity
- Quality Assurance
- Internationalisation

- Professional Practice (Work Experience / Internship etc)

4.1 Reflection, including internal and external engagement

Consideration for the panel:	Is there evidence of reflection in the SER of how the programme performed since the last programmatic review.
Overall Finding:	Yes

Commendation(s):
- The programme board team were very engaged.
- The high quality SER report clearly shows a level of reflection with significant internal and external engagement. Results of the engagement with students, graduates and industry are well documented with a detailed SWOT analysis presented. The proposed programme presented for validation has been informed by the extensive stakeholder feedback and subsequent analysis.
- It is clear that the programme board are strongly committed to the on-going development of the programme.

Condition(s):
- None.

Recommendation(s):
- The panel strongly recommend that the programme board review the proposed year long structure, with reversion to a modular semesterised framework involving discipline streams recommended. This provides a number of long term advantages including greater flexibility for the programme including potential further programme development (see below).
- The Panel considers that the development of CPD/SPA pathways and approaches should be investigated. This is most feasible in a semesterised system and would facilitate enhanced links with local, regional and national industry.
- Assessment methodologies should be reviewed in the context of ensuring general consistency across the individual modules offered.
- The strengthening of links with industry is strongly encouraged

4.2 Demand

Consideration for the panel:	Is there a need for the programme and has evidence been provided to support it?
Overall Finding:	Yes

Commendation(s):
- The demand for the programme from a range of disciplines and from both full-time and part-time students illustrates the relevance and attractiveness of the programme. The employment record of the graduates from the programme highlights its value to industry.

Condition(s):
- None.

Recommendation(s):
- None.

4.3 Award

Consideration for the	Is the level and type of the award appropriate?

panel:	
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

Note: The Expert Group recommend approval for the title change to MSc in Environmental Resource Management, a 90 credit programme with an embedded 60 credit Postgraduate Diploma Award.

4.4 Entry Requirements

Consideration for the panel:	Are the entry requirements for the proposed programme clear and appropriate? Is there a relationship with this programme and further education?
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

Note: The entry requirements are clearly outlined in the Self Evaluation Report.
As this is a Level 9 Taught Masters Programme there is no explicit link to the Further Education Sector.

4.5 Access, Transfer and Progression

Consideration for the panel:	Does the proposed programme incorporate the procedures for access, transfer and progression that have been established by the HEA and as contained in the Institute's Quality assurance Framework (QAF) COP No.4?
Overall Finding:	Yes

Commendation(s):
- A number of graduates of the programme have progressed to PhD study, both in GMIT and elsewhere in the Higher Education Sector in Ireland.

Condition(s):
- None.

Recommendation(s):
- None.

Note: The Self Evaluation Report clearly outlines Access, Transfer and Progression for the programme. The access review includes an analysis of gender balance with a welcome increase recently in the proportion of female student registrations. The analysis of transfer into the programme highlights the relatively high level of transfer from the Building & Civil Engineering undergraduate disciplines but also the wide range of Higher Education Institutions where students undertook their undergraduate studies. The review of progression within the award is commented under Section 4.6 on Retention. It is noteworthy that four graduates of the programme are now undertaking PhD study; two in GMIT.

4.6 Retention

Consideration for the panel:	Does the proposed programme comply with the Institute norms for retention, both in first year and subsequent years? Are both elements of the First Year Experience {(i) Learning to Learn (now Learning and Skills Innovation) and (ii) PASS} embedded in this programme? Evidence of other retention initiatives?
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

Note: As the Programme is a Level 9 Taught Masters Programme the retention challenge is different to that of an undergraduate programme. Overall 65 of the 71 students who enrolled in the programme up to and including 2012/2013 have graduated from the programme. The Expert Peer Review Group consider this to be a very satisfactory outcome in the context of the programme offered and the profile of students, some of whom have undertaken study whilst in employment.

4.7 Standards and Outcomes

Consideration for the panel:	Does the proposed programme meet the required award standards for programmes at the proposed NFQ level (i.e. conform to QQI Award Standards)? For parent award? For exit award (if applicable)? For Minor Award (if applicable)? For Special Purpose Award (if applicable)?
Overall Finding:	Yes

The awards standards requirements for programmes on the NFQ Framework can be found at http://www.hetac.ie/publications_pol01.htm

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

4.8 Programme Structure

Consideration for the panel:	Is the programme structure logical and well designed and can the stated programme intended learning outcomes in terms of employment skills and career opportunities be met by this programme?
Overall Finding:	Yes

Commendation(s):
- None
Condition(s):
- None.
Recommendation(s):
That the programme structure be redesigned in a modular and semesterised framework to provide flexibility for the learner.

Note: Such a modular and semesterised approach may provide the flexibility to develop Special Purpose Awards, which may have the potential to attract targeted funding, for example from the National Springboard Programme.

Note: The Expert Peer Review Group noted the Programme Team's challenge in selecting appropriate modules for the programme that are currently delivered across the Institute. The Peer Review Group would encourage the Programme Team to review current relevant Level 8 module offerings in the Institute and identify a number that would be suitable for the programme. Such an approach has been successfully undertaken in other Higher Education Institutions in Ireland providing greater module choice while maintaining programme viability.

4.9 Learning and Teaching Strategies

Consideration for the panel:	Have appropriate learning and teaching strategies been provided for the proposed programme that support Student Centred Learning (SCL)? Evidence of consideration of flexible delivery methods including eLearning?
Overall Finding:	Yes

Commendation(s):
- None
Condition(s):
- None.
Recommendation(s):
- None.

Note: The Programme has the potential to be delivered in an online or a blended learning mode. Such delivery approaches have the potential to contribute to the sustainability of the programme targeting a potential new cohort of learners outside the traditional student

catchment of GMIT. The Expert Review Group are cognisant of the challenges faced by the Programme Team in such a development where significant institutional support would be required in terms of staff training and provision of appropriate high quality facilities and infrastructure.

4.10 Assessment Strategies

Consideration for the panel:	Have appropriate programme assessment strategies been provided for the proposed programme (as outlined in the QQI/HETAC Assessment and Guidelines, 2009)?
Overall Finding:	Yes

Assessment strategies are required in line with HETAC's Assessment and Standards and should be considered by the programme EPRG. See (HETAC (2009) Assessment and Standards, Section 4.6.1, page 33). Accordingly the assessment strategy should address the following (See (HETAC (2009) Assessment and Standards, Section 2.2.5, page 13) :

- Description and Rationale for the choice of assessment tasks, criteria and procedures. This should address fairness and consistency, specifically their validity, reliability and authenticity;
- Describe any special regulations;
- Regulate, build upon and integrate the module assessment strategies;
- Provide contingent strategy for cases where learners claim exemption from modules, including recognition of prior learning;
- Ensure the programme's continuous assessment workload is appropriately balanced;
- Relate to the learning and teaching strategy;
- Demonstrate how grading criteria will be developed to relate to the Institutional grading system.

Commendation(s):
- None
Condition(s):
- None.
Recommendation(s):
- Review assessment methodologies; to ensure consistency of workload and the general academic level/challenge across the suite of modules offered by the Programme including in the context of the module credit weighting.

Note: The Programme Board should consider providing an assessment schedule at the beginning of each Semester to facilitate students and ensure that assessments are distributed across the semester in an appropriate manner.

4.11 Resource Requirements

Consideration for the panel:	Does the Institute possess the resources and facilities necessary to deliver the proposed programme?
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- The External Peer Review Group strongly recommends the provision of a resource room or at a very minimum a general post graduate / masters room with appropriate ancillary facilities. Whilst recognising the challenge faced by the Institute in terms of provision of space it is highly desirable that such a facility be provided to support the learners registered on the programme. Such a facility would provide a focus for the programme, encourage interaction between learners on the programme and support the academic staff teaching on the programme.
- That greater access to and awareness of the Laboratory Facilities be provided to the learners including potentially a visit to the relevant laboratories as part of the initial programme induction phase and subsequently with greater integration of laboratory access/practice as appropriate for the relevant individual modules.

4.12 Research Activity

Consideration for the panel:	Evidence that Learning & Teaching is informed by research? Number of staff engaged in institutional/pedagogical research?
Overall Finding:	Yes

Commendation(s):
- Current research activity commendable across the School of Engineering.
- Staff engagement with research activity
- Current research activities specifically informing the MSc Programme
- Integration of research dissertations on the MSc programme with industry or individual companies
- Student research work on the programme including some presentations at National Conferences

Condition(s):
- None.

Recommendation(s):
- None.

Note: The dissertation (to date titled the Minor Thesis which actually understates its importance to the programme) is a key feature of the programme providing the learner with the opportunity to undertake independent Level 9 research. This interaction with industry on these research projects is invaluable with significant on-going potential for mutual benefit for industry and the learner.

The Programme Team should consider how to potentially strengthen the research skills of the students prior to their undertaking the full research dissertation. Approaches may include introduction to statistical methods, for example, from the Mathematics area.

The Programme Team should consider the potential benefits to incoming students of providing some minor degree of overlap between students completing the programme and those commencing study, for example attendance of incoming students at student

presentations on the completed dissertations would be particularly beneficial, if such an approach is operationally possible.

There is significant potential to further develop the research dissertation projects both with current research underway across the School of Engineering in GMIT and also with external industry. Furthermore there may be potential in this space, in the context of potentially greater interaction with Engineering in NUIG (where there are currently only informal links), where GMIT has current strengths in an equal and mutually beneficial relationship.

4.13 Quality Assurance

Consideration for the panel:	Does the proposed programme demonstrate how the Institute's quality assurance procedures (QAF) have been applied and that satisfactory procedures exist for the on-going monitoring and periodic review of programmes?
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

4.14 Internationalisation

Consideration for the panel:	Does the proposed programme demonstrate how the syllabi represent an international dimension? Is there evidence of approaches to induct international students?
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

Note: This Taught Masters Programme with the general environmental theme certainly has potential over time to attract a cohort of international students (both EU and non-EU).

The Institute should consider nominating the Programme for the PAC Entry system; such an approach would provide welcome publicity and exposure for the programme.

4.15 Professional Practice (Work Experience / Internships etc)

Consideration for the panel:	Does the proposed programme incorporate professional practice as per the Institute's policy on professional practice (PP)? If not, is there evidence that PP is under consideration by the

	programme board?
Overall Finding:	Yes

Commendation(s):
- The Programme has facilitated learners in employment to complete their Masters studies enhancing their skills and competences in the context of Professional Practice.

Condition(s):
- None.

Recommendation(s):
- None.

Note: There is potential for baskets of modules from the programme to form Special Purpose Awards contributing to the development of professional practice in the region.

5.0 Module-Level Findings: General

The External Peer Review Group (as outlined above) recommends that the programme team review the proposal in the context of delivering a programme in a modular and semesterised framework. The Group is very cognisant of the challenge of providing a range of elective modules in the context of programme viability and understands the difficulties that the programme team encountered in originally offering a high number of elective modules (and the challenges faced by students in trying to tailor the programme to their specific needs and interests). The Group did however discuss in detail with the Programme Team the individual modules proposed. It is clear that significant review and reflection has been undertaken by the Programme Team in proposing the new modules in the context of the experience built up on delivering the programme and in responding to the stakeholder feedback.

Whilst recognising the recommendation regarding a modular and semesterised framework the following are some notes regarding individual modules (in the context of facilitating the programme team in module and programme redesign):
- Environment & Society (a wide ranging module including welcome community engagement)
- Environmental Mgt & Assessment (very detailed descriptor including a business aspect; perhaps it could be more coherent and integrated whilst recognising its broad scope)
- Minor Thesis (where the word 'minor' should be removed as it understates its importance to the programme)
- Engineering Hydrology & Water Resource Management (the approach to the uniformity of assessment was raised)
- Waste Management
- Construction RE and LCA
- Energy Systems and Management (level of integration)

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):

- None.

5.1 Module Assessment Strategies

Consideration for the panel:	Have appropriate module assessment strategies been included in each Module Descriptor?
Overall Finding:	Yes

Commendation(s):
- None

Condition(s):
- None.

Recommendation(s):
- None.

Note: Module assessment strategies are appropriate and include terminal examination, continuous assessment, group projects and in-class activity. It would be important to ensure that there is consistency across modules in terms of the overall balance and level of assessment.

6.0 Student Findings

Three students, two full-time and one part-time, meet with the External Panel. The overall feedback on the programme was very positive. Aspects highlighted included the motivated and supportive programme team, the range of modules available, the flexibility inherent to the Programme, the continuous assessment approach, the opportunity to develop new skills and competences, the strong employment prospects from the programme and the significantly increased awareness of the environmental industry which students gained through the programme. The feedback in relation to the minor thesis/dissertation was also positive highlighting its self-guided and self-motivated nature and the support provided by lecturing staff.

There were mixed views on the proposed year-long module, some felt semester 1 was 'rushed' and therefore would welcome the year-long module, others felt that the modular and semesterised system provided greater flexibility in the case that a student's progress through the programme was interrupted for any reason..

Overall the students thought the course was excellent with good job prospects.

Commendation(s):
- Committed Programme Team providing on-going support to the student cohort

Condition(s):
- None.

Recommendation(s):
- None.

7.0 Stakeholder Engagement

Engagement thorough process of stakeholder engagement is evident from the Self-Evaluation Report. The panel recommends however that further links are developed and nurtured with local and regional industry where appropriate, and also that of civic and community engagement is developed and enhanced; an aspect that the programme team has identified as a priority.. Furthermore, links with NUIG may potentially be strengthened over time in the context of a mutually beneficial and equal relationship.

Commendation(s):
- None
Condition(s):
- None.
Recommendation(s):
- None.

8.0 Future Plans

Programme accreditation was discussed. This is a matter that the Programme Team will consider over time in the context of the generally broad nature of the Programme. Professional Body recognition of the programme would provide external validation for the programme and would facilitate and support the Institute in marketing the programme including in an international context where the programme has potential to attract students. The Programme Team also plan to develop more links with industry and engage more widely with the community.

Consideration for the panel:	Evidence that the programme board considered and identified opportunities and signalled proposals for related new programme and award development.
Overall Finding:	Yes

Commendation(s):
- None
Condition(s):
- None.
Recommendation(s):
- None.

Validation Panel Report Approved By:

Signed:

Joe Harrington

Date: 23/4/'15