



An Chomhairle Mhúinteoireachta
The Teaching Council

Final Report of the Review Panel to the Teaching Council following a review of the reconceptualised programmes submitted for accreditation by NUI Maynooth

(a) Bachelor of Science Education followed by a one year Professional Diploma in Education

(b) Bachelor of Science in Mathematics Education followed by a one year Professional Diploma in Education.

December 2012

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1.0 Background

The Teaching Council is the statutory body charged with setting the standards for entry to the teaching profession and ensuring that these standards are upheld.

In accordance with Section 38 of the Teaching Council Act, 2001, the Council shall:

- (a) review and accredit the programmes of teacher education and training provided by institutions of higher education and training in the State,
- (b) review the standards of education and training appropriate to a person entering a programme of teacher education and training, and
- (c) review the standards of knowledge, skill and competence required for the practice of teaching,

and shall advise the Minister and, as it considers appropriate, the institutions concerned.

The Teaching Council's role in relation to the review and accreditation of programmes of initial teacher education (ITE) is distinct from the academic accreditation which programmes also undergo. Academic accreditation is based on the suitability of a programme for the award of a degree/diploma, whereas professional accreditation for any profession is a judgement as to whether a programme prepares one for entry into that profession.

The review and accreditation of programmes of ITE by the Teaching Council provides an opportunity for Higher Education Institutions (HEIs) to demonstrate that they offer quality programmes of teacher education. It is expected that the graduates of such programmes will achieve programme aims and learning outcomes which are aligned with the values, professional dispositions, and the standards of teaching, knowledge, skill and competence that are central to the practice of teaching.

In order to guide its review of programmes, the Teaching Council has published *Initial Teacher Education: Strategy for the Review and Accreditation of Programmes* (hereinafter referred to as the Council's review strategy). That document sets out the process by which programmes are reviewed. The criteria against which reviews take place are set out in a second document: *Initial Teacher Education: Criteria and Guidelines for Programme Providers* (hereinafter referred to as the Council's criteria). This document, which will apply to existing and new programmes (from 2012 in the case of concurrent programmes and 2014 in the case of consecutive programmes), relates to a range of areas, including programme design, areas of study, the duration of programmes, the numbers and qualifications of staff, facilities and resources. Significantly, the criteria:

- prescribe those areas of study which will be mandatory in programmes, including numeracy and literacy, behaviour management, parents in education, ICT and inclusive education
- set out for the first time the expected learning outcomes for graduates of all ITE programmes
- propose raising the minimum requirements for persons entering programmes of ITE at primary level and a literacy and numeracy admissions test for mature entrants
- require a 15:1 student-staff ratio

- call for the development of a new and innovative school placement model, involving active collaboration between HEIs and schools, and an enhanced role for the teaching profession in the provision of structured support for student teachers
- require that student teachers should spend at least 25% of the programme on school placement, and that such placements should be in a minimum of two schools
- require increased emphasis on research, portfolio work and other strategic priorities.

Providers of existing programmes have been asked to reconceptualise their programmes in line with the revised criteria and to submit them for accreditation. All providers have made a declaration to the Teaching Council that the criteria will be fulfilled and guidelines followed in respect of all of their programmes.

In parallel with the drafting of the Council’s review strategy and its criteria for ITE, the Council has also published its *Policy on the Continuum of Teacher Education*, which sets out its vision for teacher education at all stages of the continuum – ITE, Induction, and Continuing Professional Development.

2.0 The Review Process

This review report relates to the review of two NUI Maynooth (NUIM) programme combinations as follows:

- (a) A four year concurrent programme, the Bachelor of Science Education (B.Sc. Education) combined with a one-year Professional Diploma in Education (PDE)
- (b) A four year concurrent programme, the Bachelor of Science in Mathematics Education (B.Sc. Mathematics Education) combined with a one year PDE.

(Throughout this report, the above programme combinations will be referred to as “the programmes”.)

The review took place in September, October and November 2012. The process was formally initiated when the Review Panel (hereinafter referred to as “the panel”) was appointed by the Teaching Council’s Director, with Professor Áine Hyland as Chairperson.¹ To assist and support the work of the panel, Fionnbarra Ó Tuama was appointed as Rapporteur. The panel was also supported in its deliberations by an external subject expert and by the Director and staff of the Teaching Council.

Documentation relating to the application was submitted to the Teaching Council by NUIM in June 2012. The review panel met initially on 30 August 2012 to give preliminary consideration to the NUIM submission. At that meeting, a general briefing was provided by Tomás Ó Ruairc, Director, and Carmel Kearns, Education Officer of the Teaching Council. The Teaching Council’s terms of reference and general principles bearing on the review and accreditation of the reconceptualised programmes of ITE were outlined in detail. On foot of that briefing, the panel gave some preliminary consideration to the NUIM submission.

Following the initial meeting, individual members of the panel focused on specific aspects of the submission and circulated their comments and questions to other members of the panel. Following further consideration of the documentation and a collation of the initial views of the members of the

¹ Details of the panel membership are included at Appendix 1.

panel, the panel met with Dr Aidan Mulkeen and Ms Majella Dempsey of the Education Department, NUIM on 24 September 2012.

After the meeting of 24 September 2012, the panel further considered the documentation submitted by NUIM and took account of the clarifications provided by Dr Mulkeen and Ms Dempsey at the meeting as well as further clarifications provided in writing after the meeting. This report sets out the outcome of the panel's deliberations.

3.0 Context of the Review

NUIM has offered a four year B.Sc. Education since 2008, and there are currently four cohorts of students studying for this degree. The programme prepares student teachers to teach two of the four major science areas (Biology, Physics, Chemistry and Mathematics) as well as Junior Cycle Science.

NUIM also offers a four year B.Sc. Mathematics Education, which was accredited by the Teaching Council in 2010 and had its first intake of students in September 2012.

Following publication by the Teaching Council of revised accreditation criteria in 2011, the four year B.Sc. Education and the four year B.Sc. Mathematics Education have both been reconceptualised and re-structured, and submitted for accreditation. Students of the reconceptualised programmes will complete five years in NUIM, and will receive two awards.

In the case of the Science Education students, they will be awarded a B.Sc. Education after four years and the PDE after the fifth year. The Science components of the degree will be the same as those taken by NUIM B.Sc. students, which ensures that they are at exactly the same academic standard. It also means that students who change their minds after entering the B.Sc. Education programme can transfer to a Science degree programme (B.Sc.).

Structurally, the B.Sc. Mathematics Education programme is similar to the B.Sc. Education, except that students specialise in Mathematics and Mathematical Physics (i.e., Applied Mathematics) from second year onwards. The Education component is the same as in the B.Sc. Education with the exception of the subject methodology modules, where the B.Sc. Mathematics Education students will take Mathematics Education modules in place of the Science Education modules. Students of this programme will be awarded a B.Sc. Mathematics Education after four years and the PDE after the fifth year, upon which they will be qualified as teachers of Mathematics and Applied Mathematics.

While the programmes are coordinated by the Education Department in NUIM, they are and will continue to be provided jointly by the Departments of Biology, Chemistry, Mathematical Physics, and Mathematics and Statistics, which are in the Faculty of Science and Engineering, and the Education Department, which is in the Faculty of Social Sciences.

4.0 Documentation

The documentation submitted by NUIM adheres in general to the template provided by the Teaching Council in the Pro Forma and Guidelines which accompany the Council's review strategy.

Key areas of focus are:

- Conceptual Framework
- Programme Aims and Learning Outcomes
- Programme Design
- Main Features of the Programme
- Areas of Study
- School Placement
- Student Intake and Admissions Criteria
- Staffing
- Facilities
- Student Support and Guidance Systems
- Communication and Decision-Making Structures
- Financial Resources
- Teaching, Learning and Assessment Approaches
- Engagement of Student Teachers with Staff and with other Student Teachers
- Progression within the Programme
- Personal and Social Development
- Outcomes

In general, the documentation provided was clear and concise while at the same time containing the information required by the review panel. The initial proposal for the B.Sc. Mathematics Education contained a number of errors and at the request of the panel, a revised and corrected document was submitted following the meeting of 24 September 2012.

5.0 Overview of the Programme

5.1. *Award Level, Title and Duration of the Programme*

As outlined in 3.0 above, this report relates to the following programme combinations:

- (a) A four year (240 ECTS credit) undergraduate programme, the B.Sc. Education, combined with a one year (60 ECTS credits) PDE
- (b) A four year (240 ECTS credits) undergraduate programme, the B.Sc. Mathematics Education, combined with a one year (60 ECTS credits) PDE.

The undergraduate degrees will be awarded at Level 8 on the National Framework of Qualifications (NFQ). The PDE will be awarded at Level 9.

Only those who complete the B.Sc. Education or the B.Sc. Mathematics Education can progress into the one-year PDE. Ordinarily, the PDE is expected to be two years in duration (120 ECTS credits). However, graduates of the B.Sc. Education or the B.Sc. Mathematics Education will be granted an exemption from 60 ECTS credits (i.e., Education modules which they will have passed within the B.Sc. Education or B.Sc. Mathematics Education) and may therefore complete the PDE in one year.

Students will be required to complete both the B.Sc. Education and the PDE, or the B.Sc. Mathematics Education and the PDE, in order to be eligible for registration. Should they

subsequently decide to pursue a 90 ECTS credit M.Ed. programme, it is expected that they will be exempt from 30 ECTS credits of that programme.

At the meeting of 24 September 2012, the question of whether consideration had been given to awarding the two programme combinations at Master's level was raised. Dr Mulkeen stated that this matter had been discussed when the programme was being reconceptualised and that it was decided not to award a Master's degree but to award a PDE at Level 9. He pointed out that an important feature of the fifth year is that it allows students to obtain credits at Level 9 towards a Master's qualification. NUIM stops short of awarding a Master's qualification after five years of study but would like to reserve its position should other providers opt to do so.

It was also noted at the meeting that, currently, those who graduate from NUIM with a four year B.Sc. Education or B.Sc. Mathematics Education (*without a PDE*) may be registered as post-primary teachers. If the reconceptualised programmes are accredited by the Council, the question arises as to how the Council and prospective employers will be able to distinguish between students who graduated prior to 2018 with a traditional B.Sc. Education or B.Sc. Mathematics Education only, and those who will graduate from 2018 onwards with a reconceptualised B.Sc. Education/PDE combined qualification or a B.Sc. Mathematics Education/PDE combined qualification.

To minimise the risk of confusion, the panel recommends that NUIM should use a different title for the proposed new undergraduate degree awards. The panel appreciated that a willingness to make such a distinction was expressed by the NUIM representatives. The panel recommends that the title of the new degree awards be changed to a B.Sc. to avoid confusion with the pre-2018 qualifications, which are stand-alone degrees accredited by the Teaching Council.

5.2 Student Intake and Admissions Criteria

Currently, entry to NUIM's B.Sc. Education and its B.Sc. Mathematics Education is through a designated entry code in the CAO list of programmes. The minimum requirements for entry to the B.Sc. Education are two C3s at Higher Level and four D3s at Ordinary Level in the Leaving Certificate, with at least a D3 in ordinary level in Irish, English and Mathematics, and one other Science subject. For entry to the B.Sc. Mathematics Education a minimum of a C3 in Higher Level Mathematics is also required. Intake is restricted to 30 per annum for the B.Sc. Education and to 15 for the B.Sc. Mathematics Education. In practice, the entry standard is much higher than the minimum, with a cut-off point of 500 and 495 points respectively for the two programmes in 2012 (the top 10% of those who applied for a place in higher education). This is significantly higher than the average entry level for the B.Sc. in NUIM. As is the norm with undergraduate programmes in NUIM, there is preferential access for students from disadvantaged backgrounds and for those with disabilities. (The panel notes that according to statistics in the Equal Access Survey carried out by the HEA, 24% of the intake into NUIM in 2010/11 came from lower socio-economic backgrounds.) All entrants undergo Garda vetting during the first year, prior to any contact with schools.

5.3 Conceptual Framework, Programme Aims and Learning Outcomes

Three main principles guide the content of the programmes:

1. Preparation for a life of learning
2. Developing pedagogical capabilities
3. Reflective practice.

These principles are carried through into the design of the programme but the real guiding framework is provided by the programme learning outcomes. These seven learning outcomes encompass succinctly what the prospective teachers are expected to know, understand and do at the end of the programmes. The panel notes that while the Education modules include learning outcomes, this is not the case for all the Science or the Mathematics modules.

The panel recommends that every module descriptor (Education, Science and Mathematics modules) should include the intended learning outcomes for that module and that a matrix should be provided showing the link between the programme learning outcomes and the module learning outcomes.

5.4 Programme Design

The design of the programmes is in line with the Teaching Council framework for concurrent degrees.

In the case of the B.Sc. Education/PDE combined qualification, a student is required to take 180 ECTS credits of Science modules, comprised of 75 ECTS credits in each of two Science subjects and 15 ECTS credits in two other subjects. A total of 120 ECTS credits are allocated to the Education component and those credits are divided evenly between school-based experience and the other Education elements. Over the five years, therefore, the programme is 60% Science and 40% Education.

In the case of the B.Sc. Mathematics Education, students take 135 ECTS credits in Mathematics and Mathematical Physics and 15 credits in two other Science subjects.

In both programmes, the Education components are designed around the concept of a spiral curriculum, with students developing their skills and insights in a progressive manner. In the first year, students have regular tutorials in Education. In the second year, they undertake formal study of Education, along with a structured school placement. In subsequent years, the students take increasing responsibility during the school placement, and engage in more depth with key educational concepts.

The programme is structured to allow easy exit paths for students who realise that teaching is not best suited to them. After the first or second year, students can transfer to another science degree programme without penalty. After the fourth year, students can choose to exit with a B.Sc. Education degree or B.Sc. Mathematics Education degree, without progressing to the final year which leads to the award of the PDE and the teaching qualification.

5.5 Content of the programme

In the initial submission, there was a lack of clarity about the content of some of the Science modules in the B.Sc. Education. Following further discussion and clarification of a number of issues at the meeting on 24 September 2012, the panel is now satisfied that the Science components of the B.Sc. Education programme are in conformity with the Teaching Council criteria.

The panel welcomes the focus on pedagogical content knowledge throughout the programme and also notes that ICT is well integrated into various modules. The panel also welcomes the

commitment in the documentation to modelling active teaching and learning methods which student teachers are expected to practise in their own teaching.

The panel also welcomes the requirement that students collate a professional portfolio over the five years which will include personal reflections, teaching and learning materials and evidence of engagement with research in Science and Mathematics education. The emphasis in this portfolio on developing rich assessment tasks linked to assessment for and of learning is especially welcome.

As regards the Mathematics and Mathematical Physics (Applied Mathematics) components of the B.Sc. Mathematics Education programme, the proposal is substantially the same, in terms of subject content, as the proposal that the Teaching Council approved for NUIM in these subjects in 2010. However, the current panel is required to apply the draft criteria for Applied Mathematics published by the Teaching Council in November 2011.

The panel notes that the proposal provides for only 15 ECTS credits in Mechanics (Applied Mathematics), leaving a shortfall of 10 ECTS credits. The panel is aware, however, that in response to the consultation process on the draft subject criteria, the Council's current thinking is that the minimum ECTS credits requirements for Mechanics will be amended to 20 ECTS credits, thereby reducing the programme's shortfall to 5 ECTS credits. The panel has discussed this shortfall at length and notes the significant Mechanics content within EP101 (7.5 ECTS credits). Given the cross-curricular links and the demonstrable overlap that exists, the panel is satisfied that this content bridges the shortfall. The panel recommends that explicit reference be made to Applied Mathematics wherever Mathematics is referred to, e.g., within the conceptual framework, programme aims and design, etc. In all other respects the NUIM proposal satisfies the Council's draft subject criteria.

As regards the Education components of the programmes, the panel notes that the programmes are based generally on NUIM's existing well-designed PDE, which was reviewed by the Teaching Council in 2010. The panel notes that many of the recommendations made by the review panel for the PDE in 2010 have been implemented, although a certain amount of fragmentation of Education modules remains an issue. The panel is of the view that there remains scope to integrate further the disciplines within Education and to link the foundations of Education and other theoretical areas with professional practice. These issues were discussed with Dr Mulkeen at the meeting of 24 September 2012 and the panel was gratified to learn that the revision of the Education components as recommended in 2010 is ongoing.

5.6 Co-ordination and Integration

Based on the documentation provided, the panel had some initial concerns as to whether the Science/Mathematics and Education components of the programmes are sufficiently integrated. This matter was discussed at some length at the meeting of 24 September 2012. Dr Mulkeen explained that the co-ordination of programme delivery is undertaken at various levels as follows:

1. There is a close relationship between the academic staff of the Education Department and the relevant staff in the Faculty of Science and Engineering. A significant feature is cross-faculty membership of the Education and Science Board which reviews assessment and awards grades. Staff of the Education Department also attend the Science Faculty Examination Boards. An overview of the programme takes place on an annual basis involving the relevant Heads of Department. The Dean of Science and the Registrar also attend this

meeting. In addition, the Science teams (Physics, Chemistry and Biology) meet regularly as a group to ensure alignment and continuity.

2. There is an end-of-year forum attended by students and staff involved in the programme at which students make presentations and give feedback on aspects of the programme. This feedback is acted upon by the programme co-ordinators and has been commented on positively by the external examiner.
3. The professional portfolio compiled by each student over the five years of the programmes is designed as a tool to assist students in integrating their learning across the Science/Mathematics and Education components of the programmes.
4. Students on the programmes are also involved in the Mathematics Support Centre.

The panel is satisfied that Dr Mulkeen is conscious of the importance of ensuring ongoing co-ordination and integration (where appropriate) of the Education, Science and Mathematics components of the programmes. The panel is reassured that this matter will be kept under continuous review in the coming years.

5.7 *Linking Theory and Practice*

The review panel is satisfied that the Education modules are well informed by up-to-date research findings. It appears that full-time staff involved in these modules are actively engaged in research. This is not so evident in the case of part-time staff.

In any professional programme, the link between theory and practice should be made explicit at every opportunity. If teachers are to develop as reflective practitioners, they need to understand the theory which informs best practice in their profession. It is important that all aspects of ITE programmes are informed by up-to-date research and that this link between research and teaching and learning is explicit and understood by students.

5.8 *Suggested/Required Readings*

The review panel notes the variation between the suggested/required reading lists for the various modules. On the one hand, some modules include no reading lists, whereas reading lists for other modules are unrealistically long and lack guidance in relation to required reading and supplementary reading. The panel notes that reading lists are not generally included in the Science/Mathematics modules. The panel recommends that reading lists should be reviewed in a co-ordinated way, that recommended reading should be included in all module descriptors, and that reading lists should distinguish between required reading (a short, focused list) and supplementary reading.

5.9 *School Placement*

The panel is impressed by what it regards as a strong, partnership model of school placement that is being developed by NUIM between the university and the school. The panel also welcomes the stated expectations for school placement and the clear definition of the roles and responsibilities of all involved including the HEI placement tutor and the co-operating teacher. A positive feature of this programme is that students are placed in a school identified by NUIM and with an experienced teacher who works in collaboration with the university.

The panel welcomes the inclusion in the documentation of grade descriptors for School Placement but feels that there could be greater distinction from grade to grade. As currently drafted, they

slightly overemphasise performance over outcomes and they underemphasise inclusion.

During the various placements in three years of the programme, students receive a visit from a HEI placement tutor on a minimum of 10 separate occasions (3+3+4). (Where additional visits are desirable, provision can be made for up to three additional visits.) There is regular moderation and cross-supervision. Peer assessment is included in Year 5 of the programme.

5.10 Staffing, Facilities and Financial Resources

The names and academic qualifications of full-time academic staff in the Education Department were supplied to the panel, together with details of their teaching and research experience. About half the staff have a PhD and the others are at various stages of their research leading to a PhD. Most of the Education staff have had experience as post-primary teachers and are research-active in relevant areas of education.

Details of the academic backgrounds of staff involved in the Science/Mathematics component of the programmes were not provided in the submission so it is not possible for the panel to comment on either the academic backgrounds or the research undertaken by staff teaching the Science and Mathematics modules.

As regards the funding of the programme and the student-staff ratio, the data available in the submission was insufficient for the panel to come to a definitive conclusion about these matters. The panel is aware that in a large Education Department such as that in NUIM, it is difficult to separate the resources available for the B.Sc. Education and the B.Sc. Mathematics Education and the resources available for the PDE. As noted above, the panel recommends that when the reconceptualised PDE is being reviewed by the Teaching Council, the resourcing and staffing issues be examined more fully.

The panel is aware of the challenges being faced by Department Heads in dealing with the current economic constraints and the funding cutbacks experienced in higher education in recent years. The panel is gratified to note that some new staff have been appointed to the Education Department of NUIM to replace staff who have retired within the past few years. However, the panel is alert to the additional challenges that will have to be faced by Education Departments arising from the decision to extend the length of ITE programmes and recommends that the resourcing situation needs to be carefully monitored in the years ahead to ensure that adequate resources (staffing, funding and space) will continue to be available for the effective delivery of all ITE programmes.

6.0 Overall Findings

The panel notes that the programmes submitted by NUIM for accreditation, as outlined in 3.0 above, satisfy the Teaching Council's requirements and recommends to the Council that they be accredited. The panel proposes that such accreditation would have a lifespan of six years and would be subject to any policy developments with regard to the award level of teacher education programmes and any changes which may be made to the subject criteria in the intervening period. It further recommends that any subsequent review should take account of the views and experiences of graduates of the programmes and of employers of those graduates. It should also take account of relevant findings arising out of the review of NUIM's consecutive programme (PDE).

The commendations below relate to areas of particular strength which the panel has identified.

With regard to the recommendations below, the panel recommends that the Teaching Council should require NUIM to set out, in advance of the review of its extended PDE programme, its proposals for implementing the recommendations. It further recommends that the Council should prioritise those areas for particular attention when the programmes fall due for re-accreditation.

The following commendations are made:

1. The panel commends NUIM for its clear and concise submission which contains the information required for the review. It appreciates the willingness of the Head of Education to provide further clarification as required and the alacrity with which such clarification was provided.
2. The panel commends NUIM for its innovative and flexible reconceptualisation of the existing concurrent programmes, and welcomes the new five year programmes leading to a Level 8 award at the end of Year 4 and a Level 9 award (PDE) at the end of Year 5. The panel notes that the PDE will carry an exemption of 30 ECTS credits for students who subsequently decide to proceed to a 90 ECTS credit M.Ed. programme.
3. The panel commends the enthusiasm of the Head of the Education Department and the Course Leader who exhibit an impressive level of commitment to the development and delivery of high quality programmes.
4. The panel notes the high entry level for the programmes which attract students from the top 10% of Leaving Certificate achievers. It also notes that, in common with other programmes in NUIM, there is preferential access for students from disadvantaged backgrounds and for those with disabilities.
5. The panel notes that the programme is structured to allow easy exit paths for students who realise that teaching is not best suited to them. After the first or second year, students can transfer to another science degree programme without penalty. After the fourth year, students can choose to exit with a B.Sc. Education or B.Sc. Mathematics Education degree, without progressing to the final year which leads to the award of the PDE and the teaching qualification.
6. The panel is impressed by the overall coherence of the programmes and by the way in which the Education components are designed around the concept of a spiral curriculum, with students developing their skills and insights in a progressive manner.
7. The panel welcomes the focus on pedagogical content knowledge throughout the programme and also notes that ICT is well integrated into various modules. The panel also welcomes the commitment to modelling active teaching and learning methods which student teachers are expected to practise in their own teaching.
8. The panel welcomes the requirement that students collate a professional portfolio over the five years which will include personal reflections, teaching and learning materials and evidence of engagement with research in Science and Mathematics education. The emphasis in this portfolio on developing rich assessment tasks linked to assessment for,

and of, learning is especially welcome.

9. The panel was impressed by the various strategies in place to ensure co-ordination and integration of the Education, Science and Mathematics components of the programmes. These include regular cross-faculty meetings to ensure alignment and continuity, arrangements to review assessment and grades, as well as attendance by relevant staff at Faculty Examination Boards.
10. The panel is impressed by the commitment to the school placement element of the programme and to the strong partnership between the university and the school. The panel welcomes the guidelines which set out the roles and responsibilities of all parties involved in the placement. It also commends NUIM on the strong emphasis on school visits by HEI Placement Tutors.

The following recommendations are made:

1. The panel recommends that the title of the undergraduate degrees awarded after the fourth year of each of the programmes be changed to a B.Sc. This would avoid confusion with the existing B.Sc. Education and B.Sc. Mathematics Education awards which are currently Level 8 stand-alone degrees accredited by the Teaching Council.
2. The panel recommends that every module (Education, Science and Mathematics modules) should include the intended learning outcomes for that module and that a matrix should be provided showing the link between the programme learning outcomes and the module learning outcomes.
3. While noting the reference to literacy and numeracy in the NUIM submission, the panel recommends that students be made aware of, and become familiar with, the national strategy *Literacy and Numeracy for Learning and Life (2011)* as well as reports of national and international assessments of literacy and numeracy, especially those relating to post-primary students.
4. While the panel notes that the programmes satisfy the subject criteria set down by the Teaching Council for the Science and the Mathematics components, it recommends that explicit reference be made to Applied Mathematics wherever Mathematics is referred to, e.g., within the conceptual framework, programme aims and design, etc.
5. The panel is of the view that there remains scope to integrate further the disciplines within Education and to link the foundations of Education and other theoretical areas with professional practice.
6. The panel welcomes the inclusion in the documentation of grade descriptors for School Placement but feels that there could be greater distinction between grades. As currently drafted, the grade descriptors slightly overemphasise performance over outcomes and they underemphasise inclusion.
7. The panel recommends that reading lists should be reviewed in a co-ordinated way, and that every module should distinguish between required reading (a short list) and supplementary reading.
8. The panel is alert to the additional resources that will be required by the Education

Department arising from the decision to extend the length of concurrent and consecutive ITE programmes by 60 ECTS credits, and recommends that the resourcing situation needs to be carefully monitored in the years ahead to ensure that adequate resources (staffing, funding and space) will be available for the effective delivery of the programmes.

Appendix 1 – Review Panel Membership

Independent Review Panel Chair

Professor Áine Hyland is Emeritus Professor of Education and former Vice-President of University College Cork. She was a member of a review team organised by the Irish Universities Quality Board which carried out an institutional review of NUI Galway in 2010 and is a member of the European Universities Association Institutional Evaluation team. She has been involved in reviews of universities in Italy, Turkey, North Cyprus, Bosnia-Herzegovina, Slovakia, Portugal and Romania. She is author of *A Review of the Structure of Teacher Education Provision in Ireland*, a Background Paper published in June 2012, and *Transition from Second to Third Level*, published in September 2011.

Teacher Education Expert

Professor John Anderson is Managing Inspector for teacher education in the Education and Training Inspectorate in Northern Ireland and an Honorary Professor of Education at Queen's University, Belfast. He was formerly a lecturer in Education at the University of Ulster and an adjunct Associate Professor in the School of Education at Duquesne University, Pittsburgh, USA. He has also worked for British Educational and Communication Technology Agency (Becta) where he was responsible for the formulation of national UK teacher education in IT policies. He is a former Academic Secretary for the Committee on Early Professional Development for Teachers of the Northern Ireland Teacher Education Committee.

Teaching Council Member

Christy Maginn is a member of the Teaching Council and serves on the Disciplinary and Finance Committees and the Primary Applications Panel. He is a full-time teacher of Mathematics, Applied Mathematics and Physics. He has prior experience of the Teaching Council's review and accreditation function, having previously been appointed as a member of a review panel.

Inspector from the Department of Education and Skills

Carmel Donoghue is senior Post-Primary Science Inspector at the Department of Education and Skills. She has a variety of experience in research, curriculum, teaching and inspection. Her work involves a range of evaluation models of teaching and learning, as well as whole-school evaluations, including management and leadership.

Rapporteur

Fionnbarra Ó Tuama was, until recently, a member of the Inspectorate in the Department of Education and Skills. Initially he worked as a District Inspector and later at Divisional level. He contributed to policy formulation and implementation in a variety of settings throughout the education system during a period of over thirty years. Prior to that he taught at primary, secondary and third level.