The Geological Society	The Geological Society of London REGULATIONS	Number : R/FP/8 Issue : 5 Date : 27/11/13 Page : 1 of 16
	ACCREDITATION OF DEGREES	Approval Authority COUNCIL

1 OBJECTIVE

To ensure that degrees and equivalent qualifications that meet the academic requirements for election of Fellows and for validation of Fellows as Chartered Geologists are recognised by Council.

2 SCOPE

This Regulation covers the action of the Accreditation Committee, a committee of the Professional Committee.

3 REQUIREMENTS FOR ACCREDITATION

Departments applying for Accreditation will be required to demonstrate that their programmes introduce students to the major aspects of their degree subject and specifically that appropriate skill levels are attained in specified topics.

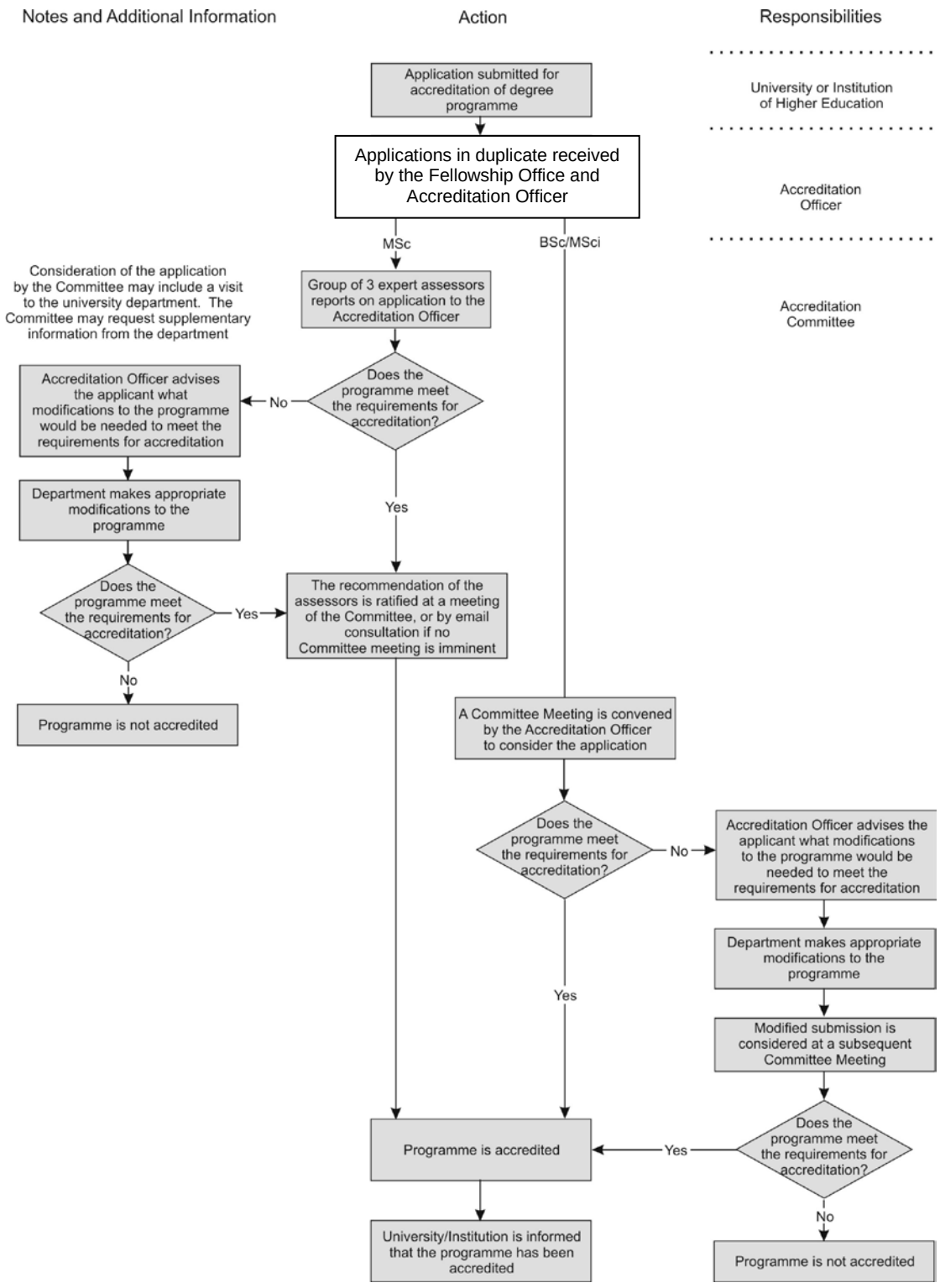
The requirements for Accreditation of first degrees are presented in Annex A to this Regulation. The requirements for Accreditation of taught Masters degrees are presented in Annex B to this Regulations.

The Accreditation of a programme is valid for:

- 6 years if the programme content does not change significantly; or
- For such time (less than 6 years) as the programme content does not change significantly.

After the period of six years or whenever the programme content is significantly changed, the university or institution must submit a new application for Accreditation of the programme

4 PROCEDURE


Notes and Additional Information
Action
Responsibilities
Application submitted for accreditation of degree programme
University or Institution of Higher Education
Applications in duplicate received by the Fellowship Office and Accreditation Officer
Accreditation Officer
MSc
BSc/MSci
Consideration of the application by the Committee may include a visit to the university department. The Committee may request supplementary information from the department
Group of 3 expert assessors reports on application to the Accreditation Officer
Accreditation Committee
Does the programme meet the requirements for accreditation?
No
Accreditation Officer advises the applicant what modifications to the programme would be needed to meet the requirements for accreditation
Department makes appropriate modifications to the programme
Yes
Does the programme meet the requirements for accreditation?
Yes
The recommendation of the assessors is ratified at a meeting of the Committee, or by email consultation if no Committee meeting is imminent
No
Programme is not accredited
A Committee Meeting is convened by the Accreditation Officer to consider the application
Does the programme meet the requirements for accreditation?
No
Accreditation Officer advises the applicant what modifications to the programme would be needed to meet the requirements for accreditation
Department makes appropriate modifications to the programme
Yes
Modified submission is considered at a subsequent Committee Meeting
Does the programme meet the requirements for accreditation?
Yes
Programme is accredited
No
Programme is not accredited
University/Institution is informed that the programme has been accredited

5 RECORDS

The Accreditation Officer is responsible for maintaining the following records:

a. list of programmes that have been accredited and the date of Accreditation. This list will be published on the Society's web site and in the Annual Report;
b. the edited versions of submissions received from the universities and/or institutions, including correspondence, records of visits and supplementary information that is submitted in support of the applications;

The Administrative Secretary to the Accreditation Committee is responsible for maintaining the following records:

a. the original submissions received from the universities and/or institutions;
b. minutes of the meetings of the Accreditation Committee.

The Head of Finance is responsible for maintaining the following records:

a. invoicing and receipt of annual maintenance fees.

SUPPLEMENTARY INFORMATION

REQUIREMENTS FOR ACCREDITATION OF FIRST DEGREES

A.1 Essential skills and techniques

Departments applying for Accreditation will be required to demonstrate that their programmes introduce students to the major aspects of their degree subject and specifically that appropriate skill levels are attained in certain highlighted topics. They must also demonstrate that teaching in these subjects is carried out by appropriately qualified staff with relevant postgraduate research and/or professional experience as appropriate, and a record of continuing professional development. This applies particularly to fieldwork where we consider the teaching of mapping skills to be of very high importance.

1. All degree schemes must expose students to methods and ideas across a spectrum of the earth sciences, although the details will vary with degree title. In particular, it must be shown that the curricula for all accredited programmes have the following themes embedded:

   (a) The importance of time and scale in geology, including the 4D investigation of sedimentary sequences, igneous and metamorphic processes and tectonics.

   (b) The contributions of cognate sciences to geological understanding through geochemistry and geophysics.

   (c) An understanding of surface processes including those affecting landscape development in the Quaternary.

   (d) An awareness of the essential contributions of geoscience to the economic, environmental and cultural needs of Society, including a basic understanding of the major ore and petroleum forming processes..

2. In addition, the following essential skills must be addressed in each programme. Table 1 indicates the amount of work required as a minimum in each of these. While it is acceptable for programmes to teach one of these skills at the minimum level, each programme must exceed minimum levels in other skills to compensate. The minimum levels are intended to be the expectation for a programme whose efforts are concentrated on other skill topics and so a low performance across the board will not be accredited.

   (a) Practical experience of a range of rocks, structures, landforms etc. in the field, including experience in instrumental and sampling techniques in the field. Field-based project work is included in this category, although it is recognised that there will be individual cases where independent project work cannot be carried out in the field. It is expected that graduates in Geological Sciences (or similarly titled) degree schemes will be trained in geological mapping and will practice it independently as part of their project work, but it is recognised that in some other degree schemes more emphasis should be placed on instrumental methods, sampling techniques, etc. and that in these the projects will include laboratory training.

   (b) The ability to describe and identify geological materials and their properties at a range of scales and reach informed conclusions about

their possible identity and origins. This includes the investigation of sediments, rocks, minerals and fossils, although the balance between specific topics may vary. Lecture and practical classes should be supported by field exercises.

(c) Facility with visualising geological data in three dimensions, including the construction of cross sections, extraction of 3D orientations from observations on a 2D surface and manipulation of data via stereonets.

(d) Some exposure to the handling of large data sets using GIS techniques and the use of remote sensing techniques.

(e) Mathematical and statistical skills necessary to understand the quantitative and theoretical aspects of the subject and to handle data sets. Departments should document the provision made, although it is recognised that this may be by special courses and/or by material embedded in specific modules, and that requirements may vary according to A-level qualifications (see Appendix 2). In addition, it is expected that students will have acquired competence in the Graduate Key Skills as set out in Section 3 of the QAA Benchmark Statement for Earth Sciences, Environmental Sciences and Environmental Studies (2007).

While these two lists represent essential requirements, it is expected that accredited degrees will give students the opportunity to acquire skills relevant to all the major employment sectors for graduates, including hydrocarbons, engineering, environment, hydrogeology, economic minerals and aggregates, except where the degree programme is clearly intended to educate students along a more specialised pathway. Submissions should demonstrate that this is indeed the case.

Where compliance with these requirements is not adequately demonstrated by the spreadsheets, a brief narrative explanation should be given.

A.2 Essential mathematical, statistical and computing techniques for geoscience programmes

Field	Core topics
General approach	Understanding and stating the problem, converting words to equations, approximation, dimensional analysis, order of magnitude calculations
Numbers and functions	Percentages, square roots, powers, logs (base 10 and natural) and exponentials
Dimensions and units	Understand importance of the dimension of a value (e.g. area must be length^2, some numbers dimensionless). Evaluating dimensions from an equation. SI units and prefixes (milli, micro etc.).
Geometry	Areas (triangle, rectangle, circle), volumes (cuboid, prism, sphere), estimating volumes of irregular bodies.
Trigonometry and simple vectors	Pythagoras. Radians ⇔ degrees, sine, cosine, tangent in right angle triangles. Applications to mapping and map work, including grid references, latitude, longitude; dip, strike and measurement of sections.
Algebra	Fundamentals of algebra. Manipulation of equations involving the above functions.
Statistics	Geological data sources and sampling protocols. Empirical frequency distributions – histogram. Measures of location – mean, median, mode. Measures of spread – standard deviation, standard error, range. Percentiles. Box plot. Gaussian (Normal) distribution. Lognormal distribution. Discrete distributions – count data. Bar charts. Percentaged data. Cartesian coordinates. Bivariate scatter (*xy*) plot. Ternary diagram. Geographically distributed data. Mapping. Point-value data. Contouring methods. Circular directional data – rose diagram. Spherical directional data – equal-area stereographic projection. Mean vector. Bivariate correlation. Fitting linear equations.
Computing and data management, including spreadsheets (Excel or equivalent)	Use of computing programmes for general IT applications such as proficiency with Word, PowerPoint and Excel. Familiarity with and understanding of applications software (i.e. 3D mapping programmes, visualisation and interpretation software, GIS, etc.). For spreadsheets: calculating cell contents, using a range of functions, copying cells to manipulate large data sets, plotting, formatting sheets and plots. Employers expect graduates to be comfortable using the common software applications so they can be easily trained to use more advanced and industry-specific applications.
Rudiments of calculus	Students should be able to read differential equations and understand the relationships between variables in the context of rates of change of geological processes; also to understand the principles of integration.

All students should be expected to make use of the core topics in a range of modules on a routine basis throughout their degree. It is also expected that more advanced numerical methods may be introduced as appropriate in specific modules, but it is recognised that the diversity of modules on offer makes it inappropriate to define specific content.

In their submissions departments must demonstrate, in a separate appendix, how and where numerical methods are taught and applied throughout the course of their degree schemes.

Table 1. Minimum time devoted to essential skills (BSc and MSci programmes)

Programme group	Geology	Environmental Geology/ Geochemistry	Applied Geology/ Engineering Geology	Geophysics (Geological)	Geophysics (Maths/Physics)	Geoscience programmes with ca.60%-80% geoscience	Geoscience programmes with ca 50%-60% geoscience
Total Field Days (Year M suppl) [1]	60 (+4)	37 (+4)	37 (+4)	32 (+4)	30	35 (+2)	35 (+2)
Independent Project (credits) [2]	30	30	30	30	30	30	30 [3]
Independent Project (field days) [4]	24	7	7	7	7	7	7
Independent Mapping (field days)	18	7 [5]	7 [5]	7 [5]	0	7 [5]	7 [5]
Materials: Rocks, Minerals (total credits) [6, 7]	30	25	30	25	15	20	15
Materials: Rocks, Minerals (practical hours)	55	45	55	45	25	40	30
Fossils (total credits)	10	5	5	0	0	5	5
Fossils (practical hours)	20	10	10	0	0	10	10
Structural Geology/ maps (practical hrs) [7]	30	20	30	30	30	20	15
GIS / Remote Sensing (credits)	5	5	5	5	5	5	5
Total taught Earth Sciences Year 2 (credits/yr) [8]	60	60	60	60	60	60	40

Programme group	Geology	Environmental Geology/ Geochemistry	Applied Geology/ Engineering Geology	Geophysics (Geological)	Geophysics (Maths/Physics)	Geoscience programmes with ca.60%-80% geoscience	Geoscience programmes with ca 50%-60% geoscience
Total taught Earth Sciences Years 3 and M (credits/yr) [8]	110	110	110	110	110	80	60

[1] Integrated masters degrees are expected to include additional field days specific to that degree, which should be taken in either Year M or the preceding year. Total Field Days include the independent project field days.

[2] In this table "credits" refer to standard HEFCE and SCQF credits such that each level of full time study comprises 120 credits.

[3] At least 20 credits should be geoscience based.

[4] For some degree schemes independent fieldwork is expected, but field project work is more appropriate in areas such as Environmental Geochemistry or Geophysics and involves fewer days. This category includes group fieldwork for the purpose of collecting data/materials for use in Independent Projects.

[5] Independent mapping is interpreted broadly to include the mapping of superficial deposits and other exercises that involve the preparation of maps/plans, sections and profiles. The critical requirement is that the exercise should require the student to think in 3D/4D. The requirement for independent mapping may form the whole or part of the Independent Project (where the length of this either meets or exceeds the minimum requirement for independent mapping), or may be completed as a separate exercise. In the case of Geophysics (Geological), the Panel will accept alternative field or practical work if this can be shown to satisfy training in the ability to visualise geological data in 3D.

[6] Rocks – Petrography and petrology of Igneous, Sedimentary and Metamorphic rocks, plus Mineralogy and Crystallography (including minerals of major groups of rocks and sediments).

[7] At least 30% of the minimum figure must be at Year 2 or higher.

[8] Minimum figures. Some flexibility in these figures between Year 2 and Years 3 and M will be accepted. Can include cognate programmes in related sciences for some degree schemes. For programmes in Scotland, read Years 3 and 4 for Years 2 and 3.

REQUIREMENTS FOR ACCREDITATION OF TAUGHT MASTERS DEGREES

Programmes must have graduated 2 cohorts of students before an application can be considered. It is expected that the Course Director and at least 1 other member of the staff teaching the programme will have appropriate professional qualifications (CGeol, CSci, etc.).

B.1 Application Form

The School or Department must submit the information requested in the form appended below. The form should be completed in not less than 10 point Times New Roman or Arial typescript. A separate application is required for each programme to be considered for accreditation. The completed application form and required annexes should be a maximum of 16 sides. Copies of External Examiners' reports are not included in this limit. In addition, appendices may be added for any additional information relevant to the application.

SECTION 1 – CONTACT DETAILS

1. University	
2 School/Department	
3. Title of Programme (Award, e.g. MSc, MA etc). (FT and/or PT).	
4. Web address for programme (if any)	
5. Programme organiser:	Name: Position: Tel: Fax: Email: Date of Application:
6. Full postal address:	

SECTION 2 – THE PROGRAMME

7. Outline the objectives and learning outcomes of the programme as a grounding for a Masters qualification and as satisfying the QAA qualification framework (and by inference, the European Qualifications Framework) for Masters level.

8. Explain how the programme is designed to provide the following types of training. Also, please indicate approximate percentage of time spent by each student per year on each element:

a) Research methods (and related issues e.g. health & safety, ethics)
b) Communication and interpersonal skills (including writing, presentational and publication skills, team working etc)
c) Instruction in advanced techniques (instrumental or other)
d) Specialist disciplinary knowledge
e) Quantitative skills training
f) Training in field skills (where appropriate to programme)
g) Vocational awareness and research career opportunities (including industrial collaboration, placement etc)

9. What are the maximum, minimum and optimum number of students for which the programme can be operated? (F/T and PT modes).

Maximum		Minimum		Optimum	

10. On a separate sheet, please provide a summary of the main topics and modules to be studied in tabular form. For each module indicate the code, method and hours of teaching (proportion of lectures, practical classes etc), mode of delivery (FT/PT/Distance Learning), the mode of assessment and % contribution to the final assessment, whether compulsory or optional and the names of associated teaching staff (internal and external). You should specify whether the modules are shared with another programme. In addition, provide brief details of the infrastructure support that will be provided for this programme, e.g. laboratory facilities, technical support and availability of IT resources.

11. Please give details of the External Examiners for the programme and include copies of their reports, and Departmental/School responses, for the last 3 years (2 years if only 2 cohorts of graduates). Scanned copies of this material **must** be included in the electronic submission.

12. Please give details of employers or other external involvement in the programme, including the type and level of involvement, e.g. funding, visiting lecturers, placements etc.

13. Is the programme currently supported financially by any outside organisations? (If yes, please give brief details of present commitment)

14. If any inter-institutional (consortium) arrangements are involved, indicate how these are organised and managed.

15. Why do you consider your school/department is particularly suited to run this programme? Include any comments you wish to make concerning experience of operating induction processes and taught modules, with details of equipment, staff, facilities, field stations, industrial links, inter-departmental or consortium arrangements, research quality etc.

16. On a separate sheet, please list examples of projects/dissertations undertaken by students on the programme (maximum 1 page A4).

17. Please give details with approximate costs, of study visits, or periods of field study integral to the programme. Please also include the duration and approximate costs associated with the individual project/dissertation component of the programme.

Activity	Duration	Approximate Costs	Details

SECTION 3 - STUDENTS

18. What formal qualifications are required for admission to the programme and particularly, what scientific subjects must be studied and to what level?

19. Please complete the tables below to indicate the demand for, and take-up of, places on the programme (add in bracket numbers of part-time students).

	current year -2	**current year -1**	**current year**
Total number of places available			
Total number of applicants			
Number of British applicants with 2(i) degree or above			
Number of EU applicants with equivalent of 2(i) degree or above			
Number of Overseas (non EU) applicants			
Total number of places taken up (i.e. number of students on programme)			
Number of British students on programme.			
Number of British students on programme with 2(i)			

degree or above			
Number of EU students on programme.			
Number of Overseas (non EU) students on programme			
Number of students entering the programme without a first degree in Earth Sciences (i.e. converting to geosciences)			
Number of students completing programme			

20. Please indicate in the table below the categories of first careers entered into by full-time students who have completed the programme over the last two years.

For full-time students only	**UK**	**Overseas**
Higher education - academic (usually teaching and research)		
Higher Education Research (mainly research)		
Higher Education -other		
Further Training (excluding teacher training)		
School (including further education) teaching or teacher training		
Private sector; industry or commerce - Geoscience		
Private Sector; industry or commerce – non-Geoscience		
Government - Geoscience		
Government – non-Geoscience		
Public Sector (not central Government) - Geoscience		
Public Sector (not central Government) – non-Geoscience		
Self Employed and Other Employment in Geoscience		
Not Employed in Geoscience		
Not Known / Reported		

For those in employment or training above, give numbers for:

Employed/training in Britain		
Employed/training overseas		

21. On a separate sheet (no more than 1 side of A4) please provide a self-evaluation document focusing on the professional development aspects of the programme.

22. Please add as an appendix the names, qualifications, affiliations and specialist field of all staff (internal and external) involved in the teaching of the programme.

B.2 Expert assessment

Each application will be assessed by a group of 3 specialists chosen for their expertise in the discipline of the particular MSc programme submitted for accreditation. The group will report to the Committee via the Accreditation Officer using the template below.

Application for the accreditation of a taught Masters degree
Summary report form for assessors

A. Panel of assessors

Name	*Qualifications*	*Institution/status*	*Expertise*

B. Details of programme

University	
School/Dept	
Title of Programme/s	
Programme Director	

C. Students

	Topic	*Satisfactory*	*Requires changes*
1.	Numbers on programme (cf. staffing and facilities)		
	Comments		
2.	Quality of intake		
	Comments		
3.	Involvement of outside students on programme (whole or part)		
	Comments		
4.	Completion rate		
	Comments		
5.	Career outcomes		
	Comments		

D. Facilities and staff

	Topic	*Satisfactory*	*Requires changes*
1.	Accommodation		
	Comments		
2.	Appropriate specialist equipment		
	Comments		
3.	IT, visual aids, etc.		
	Comments		
4.	Staff; number and expertise		
	Comments		
5.	Support staff, technical support		
	Comments		
6.	External contacts		
	Comments		
7.	Overall management of programme		
	Comments		

E. Teaching and learning

	Topic	*Satisfactory*	*Requires changes*
1.	Specialist disciplinary knowledge		
	Comments		
2.	Instruction in advanced techniques		
	Comments		
3.	Quantitative skills training		
	Comments		
4.	Training in field skills		
	Comments		
5.	Research methods		
	Comments		
6.	Projects/Dissertations		
	Comments		
7.	Communication and interpersonal skills		
	Comments		
8.	Professional awareness and career opportunities		
	Comments		
9.	Overall appropriateness of teaching methods		
	Comments		
10.	Industry input		
	Comments		

F. Assessment

	Topic	*Satisfactory*	*Requires changes*
1.	Methods of assessment		
	Comments		
2.	Quality of assessment procedures		
	Comments		
3.	External Examiners reports		
	Comments		

G. Overall status of programme

	Topic	*Satisfactory*	*Requires changes*
1.	Overall fitness of infrastructure		
	Comments		
2.	Overall fitness of instruction		
	Comments		
3.	Overall fitness of assessment		
	Comments		
4.	Training appropriate for a professional career in the geosciences		
	Comments		
5.	Programme satisfies the QAA qualification framework (and by inference, the European Qualifications Framework) for Masters level		
	Comments		

Proposed outcome of application

Accredit ☐ Accredit after modification ☐ Do not accredit ☐