

Appendix 1

PROGRAMME SPECIFICATION DOCUMENT

1. Qualification MSc	2. Programme Title Advanced Materials	3. UCAS Code	4. Programme Type Post Graduate Taught FT/PT
<p data-bbox="183 504 986 539">5. Main Purposes and Distinctive Features of the Programme</p> <ol data-bbox="379 571 1465 1305" style="list-style-type: none"><li data-bbox="379 571 1465 674">1. To produce a new generation of commercially aware, and technologically advanced scientists and technologists to lead future developments in fields of advanced materials<li data-bbox="379 712 1465 815">2. For graduates to be able to relate the physical and chemical structure of materials to their macroscopic properties governed by manufacturing and processing techniques.<li data-bbox="379 853 1465 920">3. To enable graduates to provide insight into material's requirements for current scientific and commercial applications<li data-bbox="379 958 1465 1061">4. For graduates to be able to use their in-depth understanding of material's properties and behaviour in order to envisage and devise novel applications, particularly for high technology materials.<li data-bbox="379 1099 1465 1167">5. To develop diagnostic and novel approaches to technological problems and shortcomings through interdisciplinary utilisation of materials.<li data-bbox="379 1205 1465 1305">6. Appreciate technological, environmental, economical and cultural factors that may influence material choice, manufacturing design, processing conditions and mode of application. <p data-bbox="183 1373 400 1408"><u>Special Features:</u></p> <p data-bbox="183 1408 1445 1554">MSc Advanced Materials is a short course programme of study tied in by an extended integrated learning package associated to each short course. Successful completion of each short course and its follow up learning package leads to 30 credits towards the final award of M.Sc. i.e. 180 credits. An industrial or institute based project once completed to the satisfaction of project directors/examiners will account for 60 credits</p> <p data-bbox="183 1693 1278 1753">6. What a graduate should know and be able to do on completion of the programme To gain the qualification the learner will have demonstrated:-</p> <ol data-bbox="236 1783 1126 1973" style="list-style-type: none"><li data-bbox="236 1783 724 1809">1) subject knowledge and understanding<li data-bbox="236 1821 975 1848">2) discipline related practical, cognitive and professional skills<li data-bbox="236 1859 1126 1886">3) other general skills and capabilities (e.g. Key/transferable skills/common)<li data-bbox="236 1897 983 1924">4) critical awareness of key issues within their subject area and<li data-bbox="236 1935 549 1962">5) a self-critical approach <p data-bbox="183 2013 1219 2040">as specified in the learning objectives/outcomes for approved modules in the programme.</p>			

<p><u>Knowledge and understanding in the context of the subject(s)</u></p> <ul style="list-style-type: none"> • Relate the applications of advanced materials to their physical and chemical structure. • Predict the properties and behaviour of materials and products from knowledge of composition. • Relate the processing of materials to their underlying properties. • Understand the specific and general approaches adopted in physical and numerical modelling. <p><u>Cognitive skills in the context of the subject(s)</u></p> <ul style="list-style-type: none"> • Application of relevant materials • Identification of correct design methodologies. • Ability to synthesise a variety of concepts and solutions. • Apply Creativity and Constraint • Appraisal of technical solutions 	<p><u>Subject-specific practical/professional skills</u></p> <ul style="list-style-type: none"> • Carry out and interpret appropriate measurements for research or characterisation. • Understand the influence of structure and composition in the design of new materials. • Perform cost-benefit analyses on choices of potential raw and manufactured materials <p><u>Other skills (e.g. key/transferable) developed in subject or other contexts</u></p> <ul style="list-style-type: none"> • Problem Solving • Presentation techniques. • Communication skills. • Use of a range of predictive and analytical techniques. • Applying Technology • Managing and developing self • Use of numerical methods to determine or estimate unknown quantities
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7. Qualities, Skills & Capabilities Profile

<u>A</u> Cognitive	B Practical	C Personal & Social	<u>D</u> <u>Other</u>
Analytical and statistical methods	Report writing	Self motivation	Environmental awareness
Application of specialised materials/methods	Presentation techniques	Team working	Economic factors
Critical analysis of both existing and self-generated concepts.	practical Skills	Project management	Awareness of advances/trends in Technology
Design and assembly of novel/specialised products	Research skills	Communication skills	Cross discipline cultures
Synthesis and application of design knowledge	Application of modelling workshop processes	Time management	
Creativity	Application of analytical modelling processes & analysis	Self learning/study skills	

**8. Duration and Structure of Programme/Modes of Study/Credit Volume of Study Units
(1 Year full-time; minimum of 2 years part-time).**

Masters Degree = 180 credits;

Intermediate Awards of Post Graduate Certificate and Post Graduate Diploma of Higher Education available at 60 and 120 credits respectively.

Module Name	Number	Core/ Option	Pre- Requisite †Recommended	Credit Value	Level
Research Project in Advanced Materials	AMA5000	core	AMA4012	60	M
Geosynthetic Materials	AMA4000	option	AMA4010†	30	M
Technical Textiles	AMA4001	option	AMA4010†	30	M
Medical Textiles	AMA4002	option	AMA4010†	30	M
Properties, processing and characteristics of smart materials	AMA4003	option		30	M
Modelling methods and design of advanced materials	AMA4004	option	AMA4003†	30	M
Fundamentals of Fire Behaviour	AMA4005	option	AMA4003†	30	M
Materials' Burning Behaviour	AMA4006	option	AMA4005†	30	M
Materials and Fire Retardants	AMA4007	option	AMA4005†	30	M
Smart Materials	AMA4009	option		30	M
Fibre Fundamentals	AMA4010	option		30	M
Research Methods in Advanced Materials	AMA4012	core		30	M
Advanced Materials Processing	AMA4013	option		30	M
Microsystems Design	AMA4014	option		30	M
Functional Materials for Microsystems	AMA4015	option		30	M
Strategic Management & Marketing	AMA4016	option		20	M
Supply Chain Strategy	AMA4017	option		20	M
Managing Business Performance and IT	AMA4018	option		20	M

9. Learning, Teaching and Assessment Strategy

Learning and Teaching Methods

Practical skills are acquired by workshop sessions, demonstrations and activity-based assignments. Active learning is promoted via lectures, directed study, laboratory sessions, modelling sessions and a strong project theme.

Assessment Methods

Assessment tasks are linked to the objectives of each module and are normally completed by the end of each module.

Types of assessment include: successful completion of three part integrated learning package, feedback amendments, assignments, projects, case study, viva/interviews and presentations.

Assessment Classification System

Successful completion of each integrated learning package leads to 30 credits. Subsequent accumulation of credits leads to following:

30 credit- Advanced Professional Development
60 credit-Post graduate Certificate
120 credit-Post graduate Diploma
180 credit- MSc.

10. Other Information (*including compliance with relevant Institute policies*)

Date programme first offered

October 2004

Admissions Criteria

Standard Requirements

- For short course element no formal qualifications are required.
- Admission to M.Sc. is dependant on successful completion of the integrated learning packages and outcome of one to one interviews
- Registration on the full-time course will be subject to the university's normal entry requirement for Masters Programmes. In addition, overseas students need to satisfy Institute's English language requirements.

Non Standard Entry

Experience and Interview. Other cases dealt with by admissions tutor on an individual basis

Indicators of Quality and Standards

- Validation by panel with external subject specialist
- External Examiner moderates assignments and examinations and a selection of Dissertations.
- CMRI/IMRI Research Assessment Exercise rating in 2001 was 4a and in 2008 was 4.
- Benchmarking against QAA Materials Master's requirements.

Minimum Period of Registration for Part-time MSc

The minimum period of registration for the part-time MSc course is 24 months or 2 years.