Postgraduate Diploma in Renewable Energy and the Environment

Awarding Institution: The University of Reading
Teaching Institution: The University of Reading
Faculty of Science   Programme length: 8 months
For students entering in 2004   Date of specification: 2/2003
Programme Director: Dr Anne E Wheldon
Board of Studies: MSc/PGD in Renewable Energy and the Environment
Accreditation:

Summary of programme aims
To provide:
- understanding and experience of the technology and application of biomass, solar, wind and hydro energy systems
- experience in evaluating broader energy issues, in particular related to environmental impacts of energy use and carbon management.
- interaction with companies and other organisations involved in renewable energy in the UK.

Transferable skills
Report writing; seminar presentation; spreadsheet modelling; use of design software; internet skills; teamwork skills.

Programme content

Compulsory modules

		Credits	Level
CEMRB	Biomass energy systems	10	M
CEMRC	Carbon management	10	M
CEMRE	Energy and the environment	10	M
CEMRH	Hydro energy systems	10	M
CEMRM	Meteorology for renewable energy	10	M
CEMRS	Solar energy systems	10	M
CEMRV	Visits and visiting speakers	10*	M
CEMRW	Wind energy systems	10	M

Optional modules: candidates must take 40 further credits, which may include the modules below or other relevant modules.** Candidates who aim to transfer to the MSc programme must take Module CEMRPP.

		Credits	Level
CEMRAB	Advanced biomass energy systems	10	M
CEMRAS	Advanced solar energy systems	10	M
CEMRPP	Research project proposal	10	M

* credits in this module are "qualifying not classifying" for assessment. Credits in all other modules are "classifying".

**other relevant modules include Project management, Financial management, Sustainable construction (within the School of Construction Management and Engineering); Geographical information systems; Power electronics (in other Departments). Note that we cannot guarantee availability of these modules.

Part-time/Modular arrangements
The programme may be taken over 8 months full-time or 20 months part-time. Individual modules may be taken by outside participants.

Progression requirements
The content of the PGD is essentially the same as Part 1 of the MSc in Renewable Energy and the Environment. PGD candidates who meet all the requirements to pass Part 1 of the MSc at first attempt may transfer to MSc registration, and proceed to Part 2 of the MSc.

Summary of teaching and assessment
The classification system used by the University is:

Grade	Meaning	% mark
A	Distinction	70 and above
B	Merit	60-69
C	Pass	50-59
D	Below threshold standard	40-49
F	Fail	39 and below

In order to complete the PGD at Pass level, a candidate must achieve:
❑ an overall average mark of 50% or better; and
❑ a mark of 40% or better in each module. (Marks below 40% may be condoned, provided that the candidate has pursued the relevant modules with reasonable diligence and has attempted any examinations.)

In order to complete the PGD at Merit level, a candidate must achieve, in addition to the Pass criteria:
❑ an overall average mark of 60% or better; and
❑ a mark of 40% or better in each module. (Marks below 40% cannot be condoned.)

In order to complete the PGD at Distinction level, a candidate must achieve, in addition to the Pass criteria:
❑ an overall average mark of 70% or better; and
❑ a mark of 40% or better in each module. (Marks below 40% cannot be condoned.)

Admission requirements
Entrants to this programme are normally required to have obtained a degree at the equivalent of UK 3 honours or better in engineering or a numerate science. However, the subject area is interdisciplinary, and motivated applicants with other degree backgrounds are strongly encouraged to apply. They may be able to gain admission through successful completion of a 10- or 20-week qualifying course. We welcome applicants who have had prior experience in the field of renewable energy, also those who are interested in a career change.

Admissions Tutor: TBA

Support for students and their learning
University support for students and their learning falls into two categories. Learning support includes IT Services, which has several hundred computers and the University Library, which across its three sites holds over a million volumes, subscribes to around 4,000 current periodicals, has a range of electronic sources of information and houses the Student Access to Independent Learning (S@IL) computer-based teaching and learning facilities. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme Student guidance and welfare support is provided by Programme Directors, the Careers Advisory Service, the University's Special Needs Advisor, Study Advisors, Hall Wardens and the Students' Union.

Departmental support is provided through:

- personal tutor, course administrator and course director, all of whom are actively involved in the running of the course
- a detailed course handbook
- lectures in groups of typically 20 participants
- use of 4-5 person study groups for some coursework, which encourages peer group support.

Career prospects
The programme attracts participants from a wide range of backgrounds and nationalities, and they go into a variety of careers, mainly in renewable energy, also in energy efficiency. Participants are given exposure to relevant UK companies and organisations through the "Visits and visiting speakers" module.

Opportunities for study abroad or for placements
Participants are encouraged to use their optional modules for study abroad or a placement, although there is no formal provision for this within the programme.
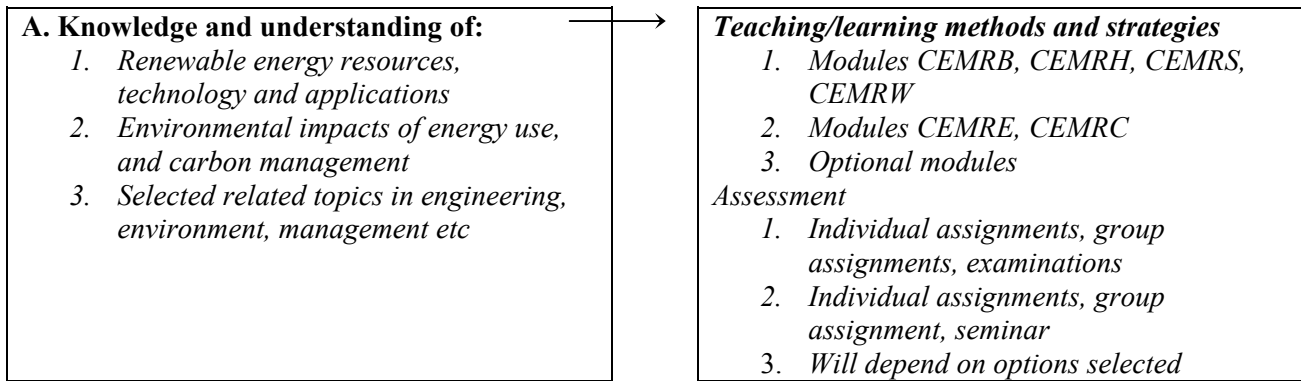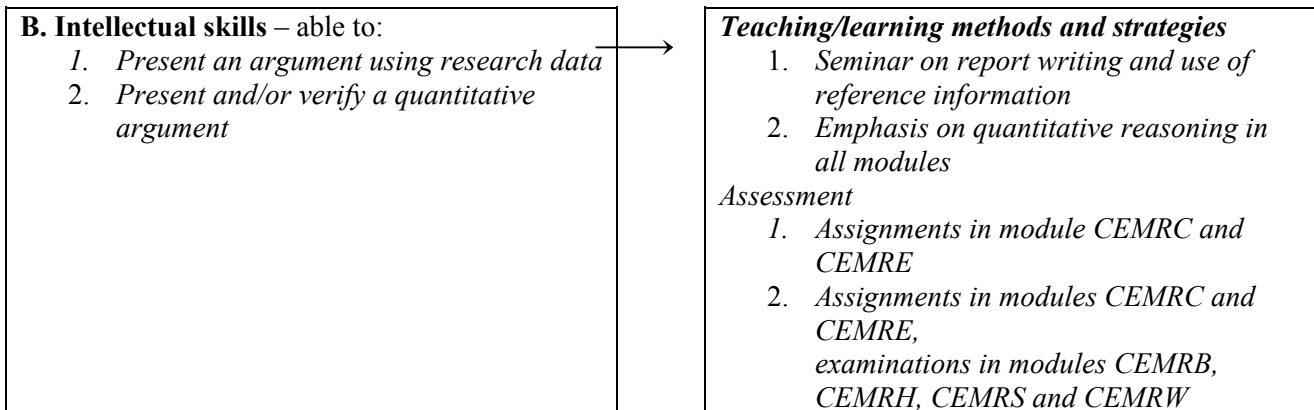
Educational aims of the programme
To provide:
- understanding and experience of the technology and application of biomass, solar, wind and hydro energy systems
- experience in evaluating broader energy issues, in particular related to environmental impacts of energy use and carbon management
- interaction with companies and other organisations involved in renewable energy in the UK

Programme Outcomes

Knowledge and Understanding

A. Knowledge and understanding of:	*Teaching/learning methods and strategies*
1. *Renewable energy resources, technology and applications*	1. *Modules CEMRB, CEMRH, CEMRS, CEMRW*
2. *Environmental impacts of energy use, and carbon management*	2. *Modules CEMRE, CEMRC*
3. *Selected related topics in engineering, environment, management etc*	3. *Optional modules*
	Assessment
	1. *Individual assignments, group assignments, examinations*
	2. *Individual assignments, group assignment, seminar*
	3. *Will depend on options selected*

Skills and other attributes

B. Intellectual skills – able to:	*Teaching/learning methods and strategies*
1. *Present an argument using research data*	1. *Seminar on report writing and use of reference information*
2. *Present and/or verify a quantitative argument*	2. *Emphasis on quantitative reasoning in all modules*
	Assessment
	1. *Assignments in module CEMRC and CEMRE*
	2. *Assignments in modules CEMRC and CEMRE, examinations in modules CEMRB, CEMRH, CEMRS and CEMRW*

C. Practical skills – able to:
1. *Undertake laboratory experiments*
2. *Use computers for research, analysis and presentation*
3. *Undertake practical work in the field*

Teaching/learning methods and strategies
1. *Laboratory experiments in modules CEMRB, CEMRH, CEMRW, CEMRAB, CEMRAS*
2. *Introduction to computer facilities, information on ITS courses*
3. *Field trip*

Assessment
1. *Reports on laboratory practicals*
2. *Use of spreadsheets, internet, software packages in assignments*
3. *Completion of fieldwork*

D. Transferable skills – able to:
1. *Write formal reports*
2. *Give seminars using presentation software*
3. *Design and use spreadsheets for modelling*
4. *Use commercial design software*
5. *Use internet as a professional information source*
6. *Work in small groups*

Teaching/learning methods and strategies
1. *Seminars on report writing and use of reference information*
2. *Seminar on oral presentation, information about ITS courses*
3. *Introduction to spreadsheets*
4. *Introduction to PVSyst and other design software*
5. *Discussion of internet searching, validity of internet information etc*
6. *Use of small groups for laboratory work and for some assignments*

Assessment
1. *Coursework reports*
2. *Seminars for CEMRC and CEMRE*
3. *Spreadsheet optimisation of solar water-heater*
4. *PV system design using PVSyst*
5. *CEMRE and other assignments*
6. *Group work reports*

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably expect to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in module and programme handbooks.