

Sowing Seeds

HOW TO MAKE YOUR MODULES A BIT MORE SUSTAINABILITY ORIENTED



A help guide to writing and modifying modules to incorporate sustainability principles

Centre for Sustainable Futures
University of Plymouth

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Welcome

You might have heard something about sustainability and want to know more to see if it's relevant to your teaching. Or you might already be familiar with it but want ideas about how to begin to integrate it into your modules. Whatever your starting point, we hope this guideline document helps you 'sow seeds' to 'make your modules a bit more sustainability oriented' as well as sow seeds of sustainability with your students.

Why bother?

It is clear - even from the news every day - that our graduates will be faced by very different conditions than those of a generation ago, and will need the capabilities necessary to cope with conditions of uncertainty, complexity and rapid change, as well as to contribute positively to a more sustainable, safe and secure future. There is evidence meanwhile that more employers are seeking graduates who are 'sustainability literate' that is, are aware of sustainability issues and have competencies to address them in their professional work. There is also evidence that growing numbers of students are seeking both universities and employers who incorporate and reflect good sustainability practices. Sustainability, along with equality and diversity, is now part of the university's Skills Plus policy

(<http://www.plymouth.ac.uk/files/extranet/docs/TLD/Skills%20Plus%20Policy%20July%202007.pdf>), whilst the UoP Sustainability Policy (<http://csf.plymouth.ac.uk/?q=policy>) states that the university recognises:

...the importance of developing sustainability-literate graduates possessing the skills and dispositions necessary for engagement with the sustainability agenda as professionals, citizens and in their personal lives.

What does this document do?

The aim of this document is to provide *indicative* guidance about modifying an existing module or incorporating a new module (or part of a module) on sustainability into any university programme. It's a set of ideas - some of which you might find helpful and useful – not a prescription. Two important points - the document recognizes:

- that subjects or disciplines will have their own view of sustainability and will wish to take ownership of the module content
- that different schools and different programmes will be more or less advanced with regard to sustainability, from no coverage at all to extensive coverage - as appropriate to and practicable within the disciplinary area

Do you have to be an expert?

No. Anyone can make a start, and most programmes and modules can incorporate some element of sustainability.

Is 'something' better than 'nothing'?

Yes. Engagement can be at any level from minor to major change – depending on what's possible and appropriate in your circumstances. For example:

- 1 *What you can do today* – introduce a 10 or 20 minute 'podule' on some aspect of sustainability (see 'A word about pedagogy' on p9).
- 2 *What you can within a week or two* – make minor modifications to your teaching within your existing module(s)

3 *What you can do in a few months* – revise existing modules to take account of sustainability

4 *What you can do over a year or so* – redesign programmes for validation

What does *Sowing Seeds* include?

- some examples of module aims, outcomes, assignments and syllabus ideas which can be used selectively as appropriate, as they are, or rewritten, for your module descriptors. (Appendix 1)
- an example of how these could potentially be used across a range of programmes offered by the Faculty of Technology (Appendix 2)
- examples of existing university modules which have sustainability as a focus (Appendix 3)
- a list of modules from other universities which have sustainability as a focus (Appendix 4)

If changes are made to your modules, these changes may need to be reflected in a *revised programme specification*. However, this is not always the case as the programme aims and learning outcomes may already address sustainability agendas.

What characteristics would a module which refers to sustainability have?

- **Generic** aims and learning outcomes (see Appendix 1 for some examples);
- **Discipline specific** aims and learning outcomes which reflect current thinking about sustainability in the subject or the programme;
- Clear alignment with the **SEEC level descriptors** (development of knowledge/ understanding; cognitive/intellectual skills; key/transferable skills; practical skills) at the appropriate level (C:Certificate, I: Intermediate, H:Honours, M:Masters);
- An indicative syllabus which will have a strong subject/discipline focus;
- Assessment modes and criteria which align with the learning outcomes;

An existing module which is redesigned to incorporate an element of sustainability will adapt these principles as appropriate.

Where can I get further support?

See the sustainability pages and resources guide at the Skills Plus site at <http://intranet.plymouth.ac.uk/skillsp/intranet.htm>

Or contact:

Stephen Sterling, Schumacher Reader in Education for Sustainability, at the Centre for Sustainable Futures

tel 01752 238898

fax 01752 238891

E- mail contact: stephen.sterling@plymouth.ac.uk

or: Fumiyo Kagawa, CSF Research Team Coordinator, at the Centre for Sustainable Futures

E-mail contact: fumiyo.kagawa@plymouth.ac.uk

Website: <http://csf.plymouth.ac.uk>



Further support with designing programmes and modules more generally can be obtained through: EdaLT

E-mail contact EDaLT@plymouth.ac.uk

Website: <http://www.plymouth.ac.uk/pages/view.asp?page=8199>



Working with Schools and feedback

The Centre for Sustainable Futures is working with a number of Schools on embedding sustainability into the curriculum, and this document is seen as a key tool in this regard.

We hope to build up a number of case studies and be able to promote exchange of experience within and between Schools as interest and work proceeds.

We see this as a working document – your views, comments and suggestions are very much invited. We anticipate that revised versions of this document will be produced over time taking into account your feedback and experiences.

Is this document useful? Let us know.....

Sowing Seeds was developed by Stephen Sterling with Sue Burkill, Fumiyo Kagawa, and Priska Schoenborn (Appendix 2).

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APPENDIX 1 – Generic principles

This Appendix provides a fairly comprehensive range of ideas to indicate the kinds of principles and concepts that might be reflected in a sustainability oriented module - to a greater or lesser extent. You are invited to select from these ideas in writing and/or modifying modules to incorporate sustainability principles, as appropriate and practicable, or indeed, extend them in relation to your discipline area. Items have been labeled (C:Certificate, I: Intermediate, H:Honours, M:Masters) to indicate probable level.

Examples of module descriptors

This module explores the nature of economic, social and ecological sustainability in the context of current trends and probable and possible futures. It considers concepts, values and skills in relation to xxxxxxxx (<i>this subject</i>)
This module explores the implications of sustainability principles for xxxxxxxx (<i>this subject</i>) and the consequences for personal, organisational and social change
<i>Current descriptor....(add)</i> In addition this module reviews the significance of economic, social and ecological sustainability in the context of xxxxxxxx (<i>this subject</i>)

Examples of module aims

To promote knowledge and understanding of sustainability in the context of xxxxxxxx (<i>this subject</i>). (Level C)
To promote knowledge and understanding of sustainability and sustainable development and how they have emerged as key local, national and global agendas. (Level C)
To promote knowledge and understanding of sustainability in relation to many aspects of human activity in the context of an uncertain future. (Level C)
To help students to appreciate the issues surrounding key aspects of personal, organisational and social change that movement towards more sustainable modes of living may entail.(Level C/I)
To develop the students' ability to recognise and weigh critically the positive and negative consequences of personal and others' actions and decisions in relation to sustainability.(Level I/H)
To encourage critical reflection on sustainability issues in the context of xxxxxxxx (<i>this subject</i>). (Level I/H)
To encourage students to critically evaluate their own and others' values and attitudes and behaviours in relation to sustainability issues and determine what constitutes ethical responsibility in relation to such issues.(Level H/M)
To develop a critical appreciation of and ability to identify differences and common ground between different viewpoints and key terms in the sustainability debate. (Level H/M)
To develop holistic and creative thinking in relation to contemporary conditions of uncertainty and complexity (Level H/M)

Example of module learning outcomes

These are organized so that the most straight forward outcomes (level C/I) under each heading are listed first; more advanced outcomes (level H/M) are listed last.

Knowledge/understanding

Describe some of the sustainability issues affecting and likely to affect the South West region, its ecology, economy and communities
Demonstrate an understanding of humanity's current position with respect to global trends, threats and patterns in relation to such issues as globalisation, poverty and inequity, energy and resource use, loss of biodiversity, and climate change.
Examine the nature of, and debate around, sustainability indicators.
Explain the idea of environmental ethics and responsibility to future generations.
Demonstrate familiarity with and evaluate the likelihood of alternative future economic/social/ecological scenarios e.g. expansive 'business as usual', contraction/relocalisation, and dystopian possibilities.
Appraise the arguments for and against the prospects of an ecologically benign capitalist economy in the context of consumerism and ecological limits.
Critically assess their own position in relation to a range of ethical viewpoints in relation to sustainability issues, for example in relation to biofuels, biodiversity, genetically modified organisms, climate change.
Demonstrate a critical understanding of key positions, tensions and conflicts between different positions in the sustainable development debate.
Apply critical and analytic thinking to sustainable development issues, proposed pathways and solutions, with regard to examining hidden and explicit assumptions, vested interests and power relations.

Cognitive/intellectual skills

Demonstrate a clear understanding of the principles of sustainability including key terminology, concepts, values and related skills.
Recognise and understand that there are often social, economic and ecological consequences to a wide range of personal everyday actions and behaviours that can be positive, negative or both.
Analyse when and how many sustainability issues are characterised by close interrelationship between ecological, economic and social dimensions.
Appreciate interrelationships and connections between local and global levels, between present actions and future consequences, and between personal and social scales in relation to sustainability issues.
Critically assess different meanings associated with key terms such as 'sustainability', 'sustainable development', 'sustainable living', 'sustainable community', 'weak and strong sustainability' and sustainable futures and distinguish between different uses of such terms by

different interest groups.
Critical evaluate the potential of technology to contribute to and/or diminish the prospects of a more sustainable future.
Evaluate the claims of emerging movements, initiatives and policies which profess to progress sustainability e.g.ethical investment, environmental and social auditing, ecological footprinting, fair trade, green consumerism, sustainable energy, carbon offset and capture, carbon trading, poverty alleviation and social inclusion.
Explain and justify own action or behaviour, in relation to other (perhaps opposing) viewpoints principles or beliefs with respect to issues of environmental sustainability.
Appreciate the difference between thinking in reductionist/focused ways, and systemic/holistic ways and be able to judge which is most appropriate in relation to sustainability issues of different levels of complexity and scale, and judge how this influences appropriate research methodology.

Key/transferable skills

These outcomes will relate to the selected assessment method and the level of complexity should be designed to fit the level of the module. Examples given below are at level C/I

Demonstrate ability to collect, manage and interpret data
Develop confidence in collecting, collating and handling sustainability data such as indicators
Ability to communicate effectively in different ways to a range of audiences
Ability to design an effective poster, website or newsletter campaign
Ability to work collaboratively with others
Ability to work effectively in a group to research and present information
Able to handle sometimes ambiguous and conflicting viewpoints and evidence in presenting an overview and eliciting conclusions

Practical skills

Propose measures to take sustainability further at the University of Plymouth .
Apply the broad principles of sustainable design to different practice contexts
Analyse the barriers and potential for change in his/her own personal and work contexts towards more sustainable practices, behaviours and lifestyles.
Make critically informed and justify decisions that favour sustainable options and understand the economic, social and political factors which constrain or facilitate such decisions.

Indicative Syllabus content

Much of this section needs to be subject specific and programme teams will be able to decide on the best approaches to this; however, some ideas are given below:

A range of views on key sustainability concepts, values and skills
Technocentric - ecocentric spectrum of views on sustainable development
Legislation relating to sustainability
Recent development of sustainability discourse (from single-issue environmentalism to mainstreaming of sustainable development debate in 21 st century)
Possible futures in the context of global warming, global inequity, energy outlook and related issues at local and global levels.
Spatial, temporal, and thematic interdependence of issues; complexity and uncertainty
Reductionist and holistic approaches to understanding and problem-solving
Thinking skills – systemic, critical and creative thinking as a response to complexity, interdependence, and uncertainty
Sustainability auditing and ecological footprinting using indicators at personal, organisational and community levels
Environmental and ecological ethics and inter- and intra-generational equity
Sustainable design and examples of reorientation of human activities towards sustainability
Sustainability scenarios and issues in the South-West

Assessment mode

Some possible assignments are listed below; they may be used to supplement existing module assignments or could stand alone.

Sustainable design and/or ‘problem-solving’: students will be expected to use sustainability principles to rethink and redesign some aspect(s) of their personal, student or professional lives, or as a member of a community - recognising a range of different constraints and opportunities, towards more sustainable actions or behaviours. Write a paper describing and critically evaluating the experience and its potential.

Communication and awareness raising: groups of students are asked to research and design a communication initiative which raises awareness of sustainability issues on campus or in the local community. This might be through a website design, a poster campaign, a newsletter etc.

Strategy development: students are asked to develop a strategic framework for promoting change towards greater sustainability - for a particular group, institution, organisation, or network, based on a thorough assessment of the existing situation and constraints and opportunities, including a critical rationale, aims, implementation plan, evaluation methods, and indicators of change.

Research on issues: students research a specific sustainability issue relating to everyday behaviour at local, national or global scale – or linking these scales - with regard to its origins, its nature, differing views on prospects, directions and possible solutions.

Discourse: research and write a realistic and fair dialogical conversation reflecting opposing views around a sustainability issue, such as: a technocratic and deep green advocate; or a pro-economic growth and no-growth stance ('limits to growth'); an advocate of globalisation and a supporter of localism; a GMO supporter and an organic grower. Conclude with your own critically reflective view.

A word about pedagogy

Sustainability and sustainable development (as reflected above) concern ideas, understanding, values and skills which are highly relevant to today's society, economy and our environment, and our individual and collective futures. We live in conditions of unsustainability, complexity, interdependence, and uncertainty. And so 'teaching sustainability' is a challenge: there are no clear boundaries, holistic and interdisciplinary approaches are implied, ethical dimensions often arise, and the ground is shifting by the day - as is evidenced by the news whether its about energy, health, social justice, migration, environmental stresses, climate change, globalisation etc.

This means that, within the limits of course requirements, learning methods and approaches need to be more open-ended, participative, and interactive than is often the case in academic teaching. Here are some ideas to indicate the sorts of approaches that are often associated with learning and teaching in relation to sustainability:

- critical thinking
- systemic thinking
- interdisciplinarity and transdisciplinarity
- experiential learning and real life issues
- reconnecting to sense of place
- empowerment of the learner
- teacher as mentor and facilitator
- multiple teaching styles
- developing dialogue
- space for emergence
- learning for action
- reflection on learning (reflexivity)
- action research
- campus as curriculum
- transformative learning
- collaborative learning and co-inquiry

If this looks unfamiliar and daunting, you might want to try looking at one or two of the interactive teaching tools that CSF has developed. Go to <http://csf.plymouth.ac.uk/?q=node/579> Try using one of these as a 'sustainability podule', dropping it into your normal teaching practice and see how it goes.

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APPENDIX 2

Sustainability in Computing Programmes and Modules

This is a hypothetical example of how some programmes in Computing might use the advice in Appendix 1 and adapt it for use in existing modules.

Ideally, a Sustainability 'thread' focusing on Information Technology should be woven through all stages of a programme. Colleagues in Computing have created three PDP modules, one for each taught stage. Currently, the term 'Sustainability' only features once on one of the DMRs but students may already be made aware of sustainability issues when ethical and social responsibilities are addressed. Increasing students' exposure to Sustainability via these modules can, therefore, be achieved with several small, but significant, changes.

For undergraduate programmes in Computing this could be realised as follows:

Stage 1: Students should become familiar with basic knowledge and terminology relating to Sustainability. This could be implemented via the existing PDP module, 'The Computing Professional' (10 credit module). This module addresses social, moral and ethical issues and would need little modification. A reflective piece of work where students are expected to use sustainability principles to rethink and redesign some aspects of their personal lives (this relates to the first possible assignment listed above under 'Assessment mode') seems ideally suited as evidence for this part of the module.

Stage 2: The revised DMR (see over the page) demonstrates how Sustainability can be integrated into an existing module. This 2nd year module previously focused on Legislation and Ethics (without specifically addressing Sustainability) and therefore presented an ideal basis to develop further. The second assignment suggested under 'Assessment mode' seems well suited to this stage of learner. Groups of students would research and design a communication initiative which raises awareness of IT related sustainability issues on campus or in the local community. Alternatively, current assignments can be modified to accommodate the changes in learning outcomes. To demonstrate, the current assignments for this module are:

- a reflective portfolio where students need to audit themselves and the industry and consider their place within the IT sector and
- a group report considering ethical and legislative aspects of the software they are developing as evidence for another 2nd year module.

Both of these could easily include/increase elements of Sustainability.

Placement year (stage 3): Students who undertake a work placement should, in some form, be required to reflect critically on IT related sustainability issues in the context of the employing organisation. A component of 'Strategy development' as outlined in the guidance under 'Assessment mode', once again, seems ideal. This could be incorporated into the end-of-placement report, students currently produce.

Stage 3/4: There are two possible ways Sustainability could be made more prominent:

- The final year of undergraduate study in Computing involves a 40 credit project. Aspects of sustainability could be included in the assessment criteria for this module.
- The current PDP module 'Professional Practice and Social Responsibility' which already lists 'Sustainability issues in the IT industry' under 'Indicative Syllabus Content' could be adapted to focus on this more heavily.

On this module record proposed changes to the existing module are in italics.

UNIVERSITY OF PLYMOUTH MODULE RECORD		
MODULE CODE: ISAD2XX	CREDITS: 10	LEVEL: 2
MODULE TITLE: IT Legislation, Ethics and <i>Sustainability</i>		
PRE-REQUISITE(S): None		
CO-REQUISITE(S): None		
COMPENSATABLE WITHIN THIS PROGRAMME: No		
SHORT MODULE DESCRIPTOR (Maximum 4 lines, 12 pt Ariel) This module considers the wider issues facing the IT professional and develops an awareness of issues of legislation, ethics, <i>sustainability</i> and professionalism that affect the industry		
ELEMENTS OF ASSESSMENT: <u>COURSEWORK</u> 100%		
Give Subject Assessment Panel Group (usually Subject Panel Group code) to which module should be linked: SoCCE/ISAD		
Minimum pass mark for professional body accreditation n/a		
MODULE AIMS: <ul style="list-style-type: none"> • To develop a strong appreciation of the IT profession, consideration of careers and the maturing of the industry. • To highlight the legislative, social and ethical issues facing contemporary IT industry and their potential implications • <i>To develop students' engagement with sustainability issues and their ability to recognise and address possible consequences of personal and others' behaviour, actions and decisions in the area of IT</i> • To discuss the role of academia within the industry and develop an appreciation of technology transfer 		
ASSESSED LEARNING OUTCOMES: At the end of a module the learner will be expected to be able to: <ol style="list-style-type: none"> 1. <i>Demonstrate an understanding of the legislative aspects and of the role of professional bodies that affect a professional within the IT industry</i> 2. <i>Describe the current position and debate around sustainability and relate this to IT in global and local contexts</i> 3. Discuss issues of social and ethical nature, <i>including sustainability</i>, within IT and relate these issues to a legislative framework 4. Demonstrate an appreciation of the value and nature of research within the industry and the need for evaluative approaches to technology transfer 5. <i>Evaluate the potential of technology to contribute to a more sustainable future and propose appropriate measures</i> Cognitive: C1 (LO1- LO5), C3 (LO5), C4 (LO3 - LO5), C6 (LO2, LO3, LO5), C7 (LO1-LO5) Practical: P2 (LO5), P5 (LO2, LO3, LO5) Transferable: T1 (LO1-LO5), T4 (LO1-LO5), T5 (LO1-LO5) (please note that Computing skills are applied to the QAA Benchmarks not the SEEC Criteria)		

INDICATIVE SYLLABUS CONTENT:

- Legislation within the IT field– DPA, Fol, Sarbanes Oxley, etc
- *Legal requirements relating to sustainability*
- The impact of legislation upon the development process and IT professional
- Patent laws in the software domain
- Ethical issues for the IT professional and industry
- *History and recent developments in the area of sustainability*
- *Areas of IT affected by the sustainability debate (infrastructure, resources, etc.)*
- *Sustainability auditing and design of reorientation towards sustainability*
- Corporate, social and personal responsibility and the role of IT
- Technology transfer models and their influence within the IT field
- Research methods in IT – relationship with hard and social sciences and their relevance within the profession
- Professional bodies (BCS, SOCITM) and skills frameworks (e.g. SFIA) and their role within a maturing discipline

APPROVAL: DATE OF APPROVAL: XX/XX/XX

DATE OF IMPLEMENTATION: XX/XX

DATE(S) OF APPROVED CHANGE: XX/XX/XX

FACULTY:

Technology

SCHOOL:

SOCCE

PARTNER

INSTITUTION:

(For FHSW) **NAME OF SITE:**

MODULE LEADER: A.N.Other

Session 06/SP/M ??

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APPENDIX 3

Examples of existing University of Plymouth modules with a focus on sustainability

University of Plymouth Module Record		
Module Code: GGX1111	Credits: 20	Level: 1
<p>Module Title: Sustainable Development: Geographical Perspectives</p> <p>Pre-requisite(s): None Co-requisite(s): None Compensatable within this Programme: Yes</p> <p>Short Module Descriptor (For module catalogue. Maximum four lines Arial 12pt print): This module provides an introduction to geographical perspectives on the principles and realities of sustainable development (SD). It covers the origins of SD, its core principles, critical debates, and case studies of geographical spaces of sustainability.</p> <p>Elements of Assessment: Examination 50% Coursework 50% Give Subject Assessment Panel Group to which module should be linked: Geography Minimum pass mark for professional body accreditation: n/a</p> <p>Module Aims:</p> <ul style="list-style-type: none"> • To identify the origins, key principles, and relevance of SD to contemporary geography; • To discuss the key debates on SD ('limits to growth', developed and developing countries, global, national and local impacts, and public participation); • To review the practice of SD across a variety of scales, settings and issues. <p>Assessed Learning Outcomes At the end of the module, the learner will be expected to be able to:</p> <ul style="list-style-type: none"> • Understand definitions and aims of SD, and its effects at different geographical scales • Demonstrate awareness of the key debates on sustainable development • Understand geographical differences in the emphasis and application of SD <p>Indicative Syllabus Content: Sustainability Principles: Defining SD, origins and political rise of SD, geography and SD (global, national and local contexts); Critical debates (limits to growth, environmental Kuznets curve, SD as a social construction, intra- and inter-generational equity). Geographical Spaces of Sustainability: Top-down & bottom-up policy, sustainable cities, rural sustainability, sustainable business, tourism, civil society, education, developing areas</p> <p>Approval: Date of Approval: XX/XX/XX Date of Implementation: XX/XX/XX Date(s) of Approved Change: XX/XX/XX</p>		
Faculty: Social Science and Business	School: Geography	
Partner Institution:	Name of Site:	
Module Leader: Dr Ian Bailey	Term: AY	

University of Plymouth Module Record	
Module Code: ARCH403	Credits: 20
Level: 3	
<p>Module title: Conservation and Sustainability Pre-Requisite(s): None Co-Requisite(s): None Compensatable Within this Programme: No Short Module Descriptor (For module catalogue. Maximum four lines 12pt print): This module introduces students to key theoretical positions, arguments and tools relating to the conservation and sustainability of the built environment. Elements of Assessment: (C1) <u>COURSEWORK</u> 100% Give Subject Assessment Panel Group to which module should be linked: GRAD. Minimum pass mark for professional body accreditation: 40% in all components.</p> <p>Module Aims:</p> <ul style="list-style-type: none"> • To develop in the learner the awareness and ability to manage the implications of ethical dilemmas and work proactively with others to formulate solutions • To support the student in developing a comprehensive understanding of relevant techniques / methodologies applicable to the conservation and sustainability of individual buildings and the built environment as a whole • To explore the reasons for conservation and sustainability and their consequences on the environment, communities, the wider economy • To develop an understanding of the attitudes and philosophies which inform change within the built environment. <p>Assessed Learning Outcomes: At the end of the module the learner will be expected to be able to:</p> <ul style="list-style-type: none"> • Critically appraise and form considered judgements about the technical and social qualities of a design within the scope and scale of a wider environment (CU4), <i>including the evaluation of the existing built form and the significance of change</i> • Understand the processes which are developing to achieve compliance with national and international policy, guidelines and legislation relating to Conservation and Sustainability (MP4) • Understand the inter-relationship of people, buildings and the environment and the need to relate buildings and the spaces between them to human needs and scale (CU3). • Produce documentation and reports which are clear, analytical and logical covering a range of architectural issues of culture, theory and design (CM4). <p>Indicative Syllabus Content:</p> <ul style="list-style-type: none"> • An historical review of the changing perceptions of the built environment including resources, culture and heritage; and a review of current attitudes and philosophies (policies, legislation, worldviews, poverty/equity) • The 'values' of the existing built environment • Emerging methodologies to establish cultural and environmental significance • Case study evaluation and systematic analysis • The alternative architecture of sustainable lifestyles and sustainable building procurement. <p>Approval: Date of Approval: 10/2006 Date of Implementation: 09/2007 Date(s) of Approved Change:</p> <p>Faculty: Arts School: Architecture and Design Partner Institution: N/A (for IHS only) Name Of Site: Plymouth</p>	
Module Leader: Mhairi Mackie	Term 07/AY/AU/M

Module code: ARCH403

Assessment Mode:

Written position Paper (2,500 words)

Assessment Criteria:

- Demonstrate a personal ethical position in relation to change and the built environment
- Development of a coherent argument set in the context of emerging policy and legislation
- Be able to systematically analyse an existing building and place and make judgements about their values
- Communicate clearly and effectively
- Identify, understand (and reference appropriately) literature and other sources relevant to the chosen personal agenda
- Be able to adopt the position of another in order to fully understand and discuss alternative views of the built environment

Schedule of Teaching and Learning:

This module will be delivered through two hour per week sessions over two terms, Lectures, workshops and visits will form part of the teaching and learning and this will be supplemented by role playing/debates and the interrogation of design project positions as part of peer assessment.

Indicative Reading List

Key Texts and Sources

Fox, Warwick (2000) *Ethics and the Built Environment*, Routledge, London

Clark, K (2001) *Informed conservation*, English Heritage

Hausladen, G, de Saldanha, M, Lledl, P and Sager, C (2004) *Climate Design: Solutions For Buildings That Can do More With Less Technology*, Birkhauser, Munich

Recommended Texts and Sources:

Max Lock Centre (2005) *Rough Guide to Community Asset Management*, MLC Press, London

Brand, S (1994) *How Buildings Learn: What happens after they're built*, Viking Penguin, London

Jones, D Lloyd (1998) *Architecture and the Environment, Bioclimatic Building Design*, Lawrence King, London

Guy, S and Moore, S A (2005) *Sustainable Architectures: Cultures and Natures in Europe and North America*, Spon Press, London

Sassi, P (2006) *Strategies for Sustainable Architecture*. Taylor & Francis, Abingdon

Halliday, S (2004) *Sustainable Construction*, Butterworth, Heinemann

UoP Architecture and Sustainability Website: <http://staff.plymouth.ac.uk/archsus/>

UNIVERSITY OF PLYMOUTH MODULE RECORD			
MODULE CODE: TDEX 212		CREDITS: 20	
LEVEL: 2			
MODULE TITLE: Sustainability; materials, processes, ethics and utopia.			
PRE-REQUISITE(S): None			
CO-REQUISITE(S): None			
IF LINKED, MODULE LINKED TO:			
SHORT MODULE DESCRIPTOR (For module catalogue. MAXIMUM four lines 9pt print): This optional module will allow students to explore ideas and materials that forward sustainability concerns and ethical issues. Designers have to respond to changes in environment and the use of materials, which contribute to the impact on the planet. This module would discuss methods and uses, framed in theoretical and practical debate, which offer some solutions to the challenging role of design practice at both industry and craft levels.			
ELEMENTS OF ASSESSMENT COURSEWORK 100% EXAMINATION 0% END MODULE TEST 0% PRACTICE 0%* Give Subject Panel Group to which module should be linked: 3. D. Design: Minimum pass mark for module: 40 %			
MODULE AIMS:			
<ul style="list-style-type: none"> • To enable students to investigate and demonstrate approaches to sustainability, its methods, theories and practices. • To encourage modes of research and ideas generation and evaluation in a holistic way. • To enable students to explore develop and give examples of new approaches to core sustainability issues. • To encourage students to understand and innovate new approaches to process and material. 			
ASSESSED LEARNING OUTCOMES: At the end of this module students will be able to:			
<ul style="list-style-type: none"> • Express ideas and innovate through chosen methodology ideas, which contribute to sustainability issues. • Carry out both theoretical understanding and practical approaches to the design process. • Exhibit creative competence and coherence in the development and presentation of solutions and actively engage in debate relating to their chosen study. • Be motivated in obtaining results and show proper levels of participation and attendance, while managing their own learning. 			
INDICATIVE SYLLABUS CONTENT:			
Students are encouraged to understand and contextualise issues related to the theories of sustainability and approaches to new materials and processes. Strategies for the implementation of designs are discussed within the broad implications of design and product behaviours. Connections are sought between ideals, ethics and how these influence product at both craft and industry level. Students are asked to seek innovative solutions to real problems and consider the implications of manufacture on a small or large scale.			
VALIDATION: DATE OF APPROVAL: XX/XX/XX DATE OF IMPLEMENTATION 2007-8 DATE(S) OF APPROVED CHANGE: XX/XX/XX			
FACULTY: Arts Design and Architecture	DEPT: 3D Design	PARTNER INSTITUTION:	(for IHS only) NAME OF SITE
MODULE LEADER: Peter Davis		Term 2	

*For professional programmes only within Faculty of Human Sciences

**Please designate modules as S1, S2, S1/S2(=S1 or S2) or S1+S2 (=S1 and S2) where S1 = Autumn (Semester 1), S2 = Spring (Semester 2)

2007/2008

Assessment Mode: Participation and performance in the module and submission of coursework
Assessment Criteria: The student will be able to operate within appropriate modes of enquiry. Have the ability to use empirical and other modes of research in support of design work. Show a familiarity with the selection and use of appropriate presentation methods processes and materials. Be able to communicate effectively through presentations. The student will show an effective contribution to the group dynamic, working towards a research objective, in participation and attendance.
Indicative Teaching and Learning: <i>Lectures, seminars and tutorials.</i> <i>Personal learning time, private study and personal development.</i>
Recommended Texts and Sources: The Total Beauty of Sustainable Products: Edwin Datschefski. RotoVision. 2001 Design and Environment: Helen Lewis. Greenleaf Pubns. 2001 The Eco-design Handbook: Alistair Faud Luke. Thames and Hudson. 2002 The Green Imperative: Victor Papanek. Thames and Hudson. 1995 Websites: www.biothinking.com www.3ddesign.org.uk www.treehugger.com Students are expected to take advantage of the library facilities available within the University, keeping abreast of current developments through appropriate books, exhibitions, periodicals and the Internet, and be are aware of the work of major practitioners and commentators within their subject.

UNIVERSITY OF PLYMOUTH MODULE RECORD			
MODULE CODE: EOE1201		CREDITS: 20	LEVEL: 1
MODULE TITLE: Human Systems			
PRE-REQUISITE(S): None			
CO-REQUISITE(S): None			
COMPENSATABLE WITHIN THIS PROGRAMME: Yes			
SHORT MODULE DESCRIPTOR (Maximum 4 lines, 12 pt Ariel)			
An overview of the development of human societies, the fundamental importance of economics to human society and the relevance of political and social sciences to environmental and sustainability issues, including the importance of population growth and globalisation on resources and environmental pollution.			
ELEMENTS OF ASSESSMENT:			
COURSEWORK 50% EXAMINATION 50% PRACTICE XX%**			
Give Subject Assessment Panel Group to which module should be linked .ENV.....			
Minimum pass mark for professional body accreditationn/a.....			
MODULE AIMS: To introduce and describe:			
1. The development of human culture and the emergence of modern, industrial society.			
2. The principles underlying economic systems and the basic principles of social and political systems.			
3. The relationship between human population growth, globalization, consumerism and sustainable development			
ASSESSED LEARNING OUTCOMES: At the end of a module the learner will be expected to be able to:			
1. Describe the origins of humans, their culture and organisational structure of their societies. (KU)			
2. Identify the fundamental aspects of economics, sociology and politics that have a bearing on Environmental Science. (KU, CIS)			
3. Recognise the main strands of modern environmentalism and sustainability; and understand how different value systems can affect outcomes. (KU, CIS)			
4. Engage in the process of self-reflection and evaluation required for personal learning development. (KTS)			
INDICATIVE SYLLABUS CONTENT:			
Introduction to Environmental Science: Reductionism, holism and interdisciplinarity.			
Human evolution and cultural development: Origin of early humans, the Neolithic and agriculture. The beginnings of trade and of social stratification. Urbanisation. The Scientific Revolution/Reformation/Renaissance.			
Economics and environmental economics: The science of scarcity and choice. The market as cause of, and solution to, environmental problems.			
Political systems and processes: Politics and the environment. Government, the state and political systems. Electoral systems. The policy process and pressure groups including the green movement.			
People and their environment: Social Science approaches to the environment. Understanding attitudes and behaviour. Social movements and the environment.			
Some human-environmental relationships: The general impact of agriculture on the environment. Human population growth. The relationship to resource base and technology. Demographic theory.			
Environmentalism and Sustainability: Technocentric and ecocentric solutions.			
APPROVAL: DATE OF APPROVAL: XX/XX/XX			
DATE OF IMPLEMENTATION: XX/XX/XX			
DATE(S) OF APPROVED CHANGE: XX/XX/XX			
FACULTY: SEOES	SCHOOL: Earth, Ocean & Environmental Sciences	PARTNER INSTITUTION:	(For FHSW) NAME OF SITE:
MODULE LEADER: Dr Colin Trier		Term*: AY	

<p>Assessment Criteria (Threshold Level) :</p> <p>Coursework: Content (correct relevant facts), understanding and application (ability to apply content to problem-solving) (LO1-3) Participation in groupwork, presentation to rest of group and attendance at tutorials (LO4)</p> <p>End-of year summative examination: Content (correct relevant facts), understanding and application (ability to apply content to problem-solving) (LO1-3)</p>
<p>Assessment Mode: Coursework (50%) Six assessments, formative and summative 3 essays, 2 library workshops and a tutorial presentation</p> <p>End of year summative examination (50%)</p>
<p>Schedule of Teaching and Learning: 48 x 1 hour lectures introducing and reviewing information and concepts</p> <p>3 x 2 hour workshops on library techniques, referencing and use of internet plus 1 x 1 hour introduction to library and computing in first week.</p> <p>6 x 1 hour tutorial meeting in small groups 2 x 2 hour sessions, one to one with each student</p>
<p>Recommended Texts and Sources The recommended texts for the course are: Chalmers, A. F. (1999) What is this thing called science? - 3rd ed. Buckingham : Open University Press</p> <p>Foley, R. (1995) Humans Before Humanity, Blackwell Publishers, UK.</p> <p>Giddens, A. (2001) Sociology. Cambridge: Polity</p> <p>Martell, L. (1994) Ecology and Society. Cambridge: Polity</p> <p>O'Riordan, T. (ed).(2000) Environmental Science for Environmental Management. 2nd ed. Prentice Hall</p> <p>William, M.A.J et al. (1993) Quaternary Environments. Australian National University Press.</p> <p>Ball, A. (2000) Modern Politics and Government (6th edition), Macmillan</p> <p>Coxall, B. and Robins, L. (1999) Contemporary British Politics, Macmillan</p>

UNIVERSITY OF PLYMOUTH MODULE RECORD		
MODULE CODE: MLS 5202	CREDITS: 20	LEVEL: M
MODULE TITLE: Science, systems and sustainability		
PRE-REQUISITE(S): none		
CO-REQUISITE(S): none		
COMPENSATABLE WITHIN THIS PROGRAMME: Yes		
SHORT MODULE DESCRIPTOR This module evaluates the role of science in the development of sustainability theory and practice. Students will consider the influence of differing worldviews, such as holistic and mechanistic, on perceptions of nature, environment, society and sustainability. The role of sustainability indicators and criteria will be examined.		
ELEMENTS OF ASSESSMENT: <u>COURSEWORK</u> 100% <u>EXAMINATION</u> 0%		
Give Subject Assessment Panel Group to which module should be linked: MLS		
Minimum pass mark for professional body accreditation n/a		
MODULE AIMS: <ul style="list-style-type: none"> • To develop understanding of science and sustainability • To evaluate critically the application of indicators and criteria for sustainability • To review the impact and sustainability of food production systems at a local, national and global scale • To engage with the range of sustainability visions, and debate the role of science in the sustainability debate and sustainable development strategies • To provide an opportunity for structured debate and discussion 		
ASSESSED LEARNING OUTCOMES: At the end of a module the learner will be expected to be able to: <ol style="list-style-type: none"> 1. Define sustainability, and criticize criteria for sustainability 2. Evaluate strategies to increase the sustainability of selected systems, and assess the sustainability of these systems against criteria for sustainability 3. Debate issues relating to science and sustainable systems 4. Demonstrate a clear understanding of contrasting worldviews, such as mechanistic, modernist, holistic and ecological 		
INDICATIVE SYLLABUS CONTENT: <ul style="list-style-type: none"> • Sustainability, science and environment • Indicators and criteria for sustainability • Holistic and reductionist approaches to science and sustainability • Sustainability and food production systems • The contribution of science-based sustainability concepts to the understanding of ecological impacts • Science, sustainable development and sustainable communities • The origins and nature of mechanistic thinking and its manifestations in understandings of the human/nature relationship, society, education • The roots and nature of ecological and holistic thinking, and their expression in the emergent culture of ecological sustainability • Environmentalism and ecological, holistic and indigenous worldviews and learning 		

APPROVAL: DATE OF APPROVAL: 24/03/06			
DATE OF IMPLEMENTATION: Sept 2006			
DATE(S) OF APPROVED CHANGE: XX/XX/XX			
FACULTY: Science	SCHOOL: SEOES	PARTNER INSTITUTION:	(For FHSW) NAME OF SITE:
MODULE LEADER: Dr Rob Parkinson		Term 2	

Assessment Criteria (Threshold Level) :

Knowledge and Understanding

Knowledge base: has systematic understanding of science, systems and sustainability concepts, and can work with research-based knowledge relevant to the academic discipline, with few omissions and errors.

Cognitive and Intellectual Skills

Analysis: with critical awareness, can undertake analysis of selected systems

Evaluation: displays a level of conceptual understanding to allow to critical evaluation, research, advanced scholarship and methodologies & argue alternative approaches.

Key/Transferable Skills

Learning resources and Management of information: is able to use a full range of learning resources, and can competently undertake research tasks with a minimum of guidance.

Communication: can engage in academic debate with others, reporting on action clearly and autonomously.

Assessment Mode:

1. Single topic analysis (1,500 words) as an individual essay (30%, LO1, LO2, LO3) and presentation (20%, LO4) on key issues of science and sustainability
2. Report (50%, LO2, LO3). Major end-of-module report (2,500-3,000 words) investigating a selected case or issue

Schedule of Teaching and Learning:

- Lectures, seminars and workshops, in total 12 x 2 hour sessions
- Field visits to support case studies

Recommended Texts and Sources

Adams, W. M. (2001) Green development – Environment and sustainability in the Third World. Routledge, London. 2nd Edition.

Azapagic, A., Perdan, S. and Cliff, R. (2004) Sustainable development in practice: case studies for engineers and scientists. Wiley, Chichester.

Barnett, V., Payne, R. and Steiner, R. (1995) Agricultural sustainability: economic, environmental and statistical considerations. Wiley, Chichester.

Capra, F. (2003). The Hidden Connections. Flamingo: London

*Capra, F. (1995). The Web of Life. A New Scientific Understanding of Living Systems. New York: Anchor/Doubleday

Clayton, T. (1996) Sustainability: a systems approach. Earthscan, London.

Harding, S. (2006) Animate Earth: science, intuition and Gaia. Green Books.

*Lovelock, J. E. (1987) Gaia – a new look at life on earth. Oxford.

Lovelock, J. E. (2006) The revenge of Gaia: why the Earth is fighting back - and how we can still save humanity. Allen Lane.

MAFF (2000) Towards sustainable agriculture. HMSO, London.

*Pretty, J. (1998) The living land. Earthscan, London.

Rapport, D. (1998) Ecosystem health. Blackwell, Oxford.

In addition, students will be expected to refer to a range of journals, including:

Environment, Development and Sustainability; Journal of Environmental Management; Science; Sustainability: Science, Policy and Practice

UNIVERSITY OF PLYMOUTH
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APPENDIX 4

Some examples of modules from other Universities which have sustainability as a focus

“Language and Ecology”

University of Gloucestershire

<http://www.ecoling.net/courses.html>

This module is generic in the sense that it is part of the Biology, Human Geography and English Language degrees.

For more information, please contact Arran Stibbe < astibbe@glos.ac.uk >

“Living Sustainability”

University of Swansea/ Swansea Institute of Higher Education

This generic module is open to everyone (UG, PG, and adult learners) and is a stand alone course for personal interest, as part of professional development, or as part of a degree. This scheme was given a *Good Practice Award at the Global Learning Awards*.

For more information, please contact Elizabeth May < elizabeth.may@sihe.ac.uk >

“Open Unit in Sustainable Development”

University of Bristol

This module is open to any undergraduate and designed explicitly as an interdisciplinary module. It introduces diverse sustainable development principles, practices and problems. This module was given the 2006/7 Green Gown Award (Course Content – Degree).

For more information, please contact Siobhan Harris < Siobhan.Harris@bristol.ac.uk >

“Promoting Sustainability: The Role of Individual”

“Promoting Sustainability: The Role of Organization”

Stow College (validated by Scottish Qualification Authority)

“Promoting Sustainability: The Role of Individual” helps learners to make lifestyle changes and take actions at home, at work and within the community. “Promoting Sustainability: The Role of Organization” focuses on activities at an organizational level in the promotion of sustainable development.

For more information please contact June Thomas < jnethomas@aol.com > or David Grant < David.Grant@sqa.org.uk >