



## MODULE SPECIFICATION

| Part 1: Information       |                                            |                    |                                        |
|---------------------------|--------------------------------------------|--------------------|----------------------------------------|
| Module Title              | Integrated Water Management                |                    |                                        |
| Module Code               | UBGLW8-30-3                                | Level              | Level 6                                |
| For implementation from   | 2019-20                                    |                    |                                        |
| UWE Credit Rating         | 30                                         | ECTS Credit Rating | 15                                     |
| Faculty                   | Faculty of Environment & Technology        | Field              | Geography and Environmental Management |
| Department                | FET Dept of Geography & Environmental Mgmt |                    |                                        |
| Module type:              | Standard                                   |                    |                                        |
| Pre-requisites            | None                                       |                    |                                        |
| Excluded Combinations     | None                                       |                    |                                        |
| Co- requisites            | None                                       |                    |                                        |
| Module Entry requirements | None                                       |                    |                                        |

| Part 2: Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p><b>Overview:</b> Pre-requisites 60 credits at level 2</p> <p><b>Educational Aims:</b> See learning outcomes.</p> <p><b>Outline Syllabus:</b> Theme 1: Introduction to water services and their management in the 21st century: natural and social scientific perspectives:</p> <p>History and evolution</p> <p>From natural water to hydrosocial water</p> <p>Water, economics and policy</p> <p>Theme 2: Integrated water management: challenges and constraints:</p> <p>The IWRM movement</p> <p>Water management and land management</p> <p>Key technical, economic and policy challenges</p> |

## STUDENT AND ACADEMIC SERVICES

Technological solutions: opportunities and challenges

Theme 3: Water related ecosystems services and the future of water management:

The ecosystems services approach

Payment for ecosystems services

Water-related ecosystems services

**Teaching and Learning Methods:** Scheduled learning on this module includes lectures, within which students will at times work in breakout discussion groups.

Independent learning includes time engaged with essential reading, case study preparation and assessment preparation and completion.

Field Visits may be scheduled where appropriate and where the opportunity arises.

Formative work Students will receive formative feedback via discussions and exercises as the module progresses. Formative feedback for the examination may include the use of past papers, or a mock exam.

### Part 3: Assessment

Component A Examination (2 Hours) learning outcomes 1,3,5,6

Component A is assessed by an unseen 2-hour examination that will require students to demonstrate knowledge of key ideas, concepts and practices encountered during the module.. The form of assessment is considered to be the most appropriate on the basis that it will allow students to develop clear and coherent arguments and provide opportunities for research surrounding case studies and examples to be presented. Students will be expected to refer to appropriate reading and demonstrate appropriate standards of literary and presentation.

Component B Portfolio learning outcomes 1,2,3,4,5,6

Component B comprises a portfolio of written work (equivalent to 2,500 words). Some elements will be technical, while other elements will be more conceptual and will test competence in the above Learning Outcomes. Some exercises will be formative in nature, attracting detailed formative commentary from lecturers, whilst others will be summative and will therefore contribute to the mark for this component.

| First Sit Components      | Final Assessment | Element weighting | Description            |
|---------------------------|------------------|-------------------|------------------------|
| Portfolio - Component B   |                  | 50 %              | Portfolio              |
| Examination - Component A | ✓                | 50 %              | Unseen Exam (2 hours)  |
| Resit Components          | Final Assessment | Element weighting | Description            |
| Portfolio - Component B   |                  | 50 %              | Portfolio              |
| Examination - Component A | ✓                | 50 %              | Unseen Exam ( 2 hours) |

## STUDENT AND ACADEMIC SERVICES

| <b>Part 4: Teaching and Learning Methods</b>                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------|-----|------------------------|-----|
| Learning Outcomes                                                                                                                                                                                                                                        | <p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;"><b>Module Learning Outcomes</b></th> <th style="text-align: left;"><b>Reference</b></th> </tr> </thead> <tbody> <tr> <td>Describe the evolution of integrated water management frameworks pertaining especially to fresh water systems, with appropriate reference to technological applications</td> <td>MO1</td> </tr> <tr> <td>Discuss the historical background of water services provision in UK, European and world contexts</td> <td>MO2</td> </tr> <tr> <td>Discuss the evolving policy and practice of water management principally addressing water quality, water resources, flood management, biodiversity and fisheries and their progressive integration</td> <td>MO3</td> </tr> <tr> <td>Articulate the challenges of and constraints on improving efficiency in consumption of water services in domestic, commercial and agricultural sectors</td> <td>MO4</td> </tr> <tr> <td>Articulate an understanding of the evolution of systems thinking, ecosystems thinking, the Ecosystem Approach and ecosystem services, and the implications of this for the continued evolution of integrated water and environmental management contexts</td> <td>MO5</td> </tr> <tr> <td>Demonstrate critical engagement with academic and policy-based literature</td> <td>MO6</td> </tr> </tbody> </table> | <b>Module Learning Outcomes</b> | <b>Reference</b> | Describe the evolution of integrated water management frameworks pertaining especially to fresh water systems, with appropriate reference to technological applications | MO1 | Discuss the historical background of water services provision in UK, European and world contexts | MO2 | Discuss the evolving policy and practice of water management principally addressing water quality, water resources, flood management, biodiversity and fisheries and their progressive integration | MO3 | Articulate the challenges of and constraints on improving efficiency in consumption of water services in domestic, commercial and agricultural sectors | MO4 | Articulate an understanding of the evolution of systems thinking, ecosystems thinking, the Ecosystem Approach and ecosystem services, and the implications of this for the continued evolution of integrated water and environmental management contexts | MO5 | Demonstrate critical engagement with academic and policy-based literature | MO6 |                        |     |
| <b>Module Learning Outcomes</b>                                                                                                                                                                                                                          | <b>Reference</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| Describe the evolution of integrated water management frameworks pertaining especially to fresh water systems, with appropriate reference to technological applications                                                                                  | MO1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| Discuss the historical background of water services provision in UK, European and world contexts                                                                                                                                                         | MO2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
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| Articulate the challenges of and constraints on improving efficiency in consumption of water services in domestic, commercial and agricultural sectors                                                                                                   | MO4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| Articulate an understanding of the evolution of systems thinking, ecosystems thinking, the Ecosystem Approach and ecosystem services, and the implications of this for the continued evolution of integrated water and environmental management contexts | MO5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| Demonstrate critical engagement with academic and policy-based literature                                                                                                                                                                                | MO6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| Contact Hours                                                                                                                                                                                                                                            | <table border="1"> <tbody> <tr> <td colspan="2"><b>Independent Study Hours:</b></td> </tr> <tr> <td style="text-align: center;">Independent study/self-guided study</td> <td style="text-align: center;">228</td> </tr> <tr> <td style="text-align: center;"><b>Total Independent Study Hours:</b></td> <td style="text-align: center;">228</td> </tr> <tr> <td colspan="2"><b>Scheduled Learning and Teaching Hours:</b></td> </tr> <tr> <td style="text-align: center;">Face-to-face learning</td> <td style="text-align: center;">72</td> </tr> <tr> <td style="text-align: center;"><b>Total Scheduled Learning and Teaching Hours:</b></td> <td style="text-align: center;">72</td> </tr> <tr> <td><b>Hours to be allocated</b></td> <td style="text-align: center;">300</td> </tr> <tr> <td><b>Allocated Hours</b></td> <td style="text-align: center;">300</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Independent Study Hours:</b> |                  | Independent study/self-guided study                                                                                                                                     | 228 | <b>Total Independent Study Hours:</b>                                                            | 228 | <b>Scheduled Learning and Teaching Hours:</b>                                                                                                                                                      |     | Face-to-face learning                                                                                                                                  | 72  | <b>Total Scheduled Learning and Teaching Hours:</b>                                                                                                                                                                                                      | 72  | <b>Hours to be allocated</b>                                              | 300 | <b>Allocated Hours</b> | 300 |
| <b>Independent Study Hours:</b>                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| Independent study/self-guided study                                                                                                                                                                                                                      | 228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
| <b>Total Independent Study Hours:</b>                                                                                                                                                                                                                    | 228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
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| Face-to-face learning                                                                                                                                                                                                                                    | 72                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |
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| Reading List                                                                                                                                                                                                                                             | <p>The reading list for this module can be accessed via the following link:</p> <p><a href="https://uwe.rl.talis.com/index.html">https://uwe.rl.talis.com/index.html</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 |                  |                                                                                                                                                                         |     |                                                                                                  |     |                                                                                                                                                                                                    |     |                                                                                                                                                        |     |                                                                                                                                                                                                                                                          |     |                                                                           |     |                        |     |

### Part 5: Contributes Towards

This module contributes towards the following programmes of study: