

<b>Module Title:</b>	Environmental Management
<b>Language of Instruction:</b>	English
<b>Credits:</b>	5
<b>NFQ Level:</b>	7
<b>Module Delivered In</b>	<a href="#">1 programme(s)</a>
<b>Teaching &amp; Learning Strategies:</b>	This module will be delivered as 48 hours of lecture. Classes may take the form of formal lectures or tutorial-type session. As range of techniques will be used as appropriate, including discussion of case studies, work sheets and presentations.
<b>Module Aim:</b>	The aim of this module is to give the student an overview of legislation and management aspects of environment-related activities in the brewing and distilling industries
<b>Learning Outcomes</b>	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Evaluate and discuss current issues in the natural environment in Ireland and globally, and those specifically related to the brewing and distilling industries
LO2	Identify the necessary elements of an industrial or waste licence to ensure compliance
LO3	Interpret technical reports and guidance documents and demonstrate competence on the current legislation principles regulating the working environment.
<b>Pre-requisite learning</b>	
<b>Module Recommendations</b> <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
<b>Incompatible Modules</b> <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
<b>Co-requisite Modules</b>	
No Co-requisite modules listed	
<b>Requirements</b> <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

## Module Content & Assessment

Indicative Content
<b>The Natural Environment</b> Ecosystems. Ecosystem functions, Natural capital, Depleting natural resources, Earth equivalence, Environmental degradation, Sustainable development, Circular Economy.
<b>Water Quality</b> Surface waters/Groundwater/aquifers, Water Framework Directive. Drinking water (Public, group, private supplies), legislation. Industrial and urban waste water: types, treatment, discharge licences and legislation, river and lake assimilative capacity, Responsibilities of EPA, local authorities.
<b>Pollution</b> Classes of pollution, Chemical (organic - PAHs/PCBs/Dioxins/VOCs/Biocides/Pharmaceuticals, inorganic - nutrients (N-P)/heavy metals), biological (bacteria/viruses/protozoa), physical (light/thermal) Rio de Janeiro Earth Summit 1992. Global warming.
<b>Environmental Liability Directive</b> Provisions, 'Polluter Pays' principle, Precautionary principle. The Pollution Linkage concept.
<b>Industrial Emissions Directive</b> Provisions, IPPC licences, IPPC application process/information, Best Available Technique (BAT), BREF documents, Emission Limit Values (ELV). IPPC cases studies (Food and Pharmaceutical industry).
<b>Environmental Impact Assessment</b> Methodology of EIA/EIS. Regulations. Case studies on major projects. Sustainable development. Public consultation.
<b>Energy</b> Fossils fuels, environmental impacts (extraction-processing), effects of combustion - atmosphere, GHG-particulate matter, carbon footprint, renewable energy (environmental impacts of solar, hydroelectric, wind, biofuel), Kyoto. Paris 2015. Energy audits.
<b>Waste Management</b> Waste production statistics, the Waste management hierarchy (prevent, reduce, reuse, recycle), Environmental impacts of landfill (odours/leachate/pests/visual), Landfill Directive, Environmental impacts of incineration (technology/dioxins/GHG) Reporting, compliance, Biodegradable waste treatment, composting, anaerobic digestion. Other waste legislation (WEE, VoU.).
<b>Environmental Management Systems in Industry</b> EMS: Components and implementation. Environmental quality standards (ISO 14001:2015, Environmental management and audit scheme (EMAS). Legal and other requirements. Evaluation of compliance. Auditing. Eco-labelling.
<b>OHS1</b> Common law and statute law, criminal law and civil law, European law. Health, Safety and Welfare Act, 2005; scope of the Act, duties of employers, employees and providers, the Safety statement, hazard identification and risk assessment
<b>OHS2</b> Occupational Exposure Levels; TWA, STEL, TLV, OES Engineering and other controls of airborne contaminants. Use and limitations of Personal Protection Equipment. Health Surveillance.
<b>OHS3</b> Toxicity, routes of exposure, Classification of Hazardous Chemicals, Chemical Regulations, Material Safety Data Sheets. Classification of biological hazards, occupational diseases (zoonosis).
<b>OHS4</b> Distribution and cause of accidents in different workplaces, accident investigation, accident reporting. The role of Inspectors and the Health and Safety Authority

Assessment Breakdown	%
Continuous Assessment	40.00%
End of Module Formal Examination	60.00%

Special Regulation
Students must achieve a minimum grade (35%) in both the CA and final examination

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Other	Case study report/Short essay/Short Answer type	1,2	20.00	n/a
Essay	Case study report/Short essay/Short Answer type (OHS)	3	20.00	n/a

No Project
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No Practical
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End of Module Formal Examination				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	End of year exam	1,2,3	60.00	End-of-Semester

**SETU Carlow Campus reserves the right to alter the nature and timings of assessment**

**Module Workload**

<b>Workload: Full Time</b>		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	12 Weeks per Stage	4.00
Independent Learning	15 Weeks per Stage	5.13
Total Hours		125.00

**Module Delivered In**

Programme Code	Programme	Semester	Delivery
CW_SABRE_B	<a href="#">Bachelor of Science (Honours) in Brewing and Distilling</a>	5	Mandatory