Module Title:	Environmental Management
Language of Instruction:	English

Credits:	5

NFQ Level:	7

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	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 sued as appropriate, including discussion of case studies, work sheets and presentations.

Module Aim:	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

Learning Outcomes	
On successful completion of this module the learner should be able to:	
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 complicance
LO3	Interpret technical reports and guidance documents and demonstrate competence on the current legislation principles regulating the working environment.

Pre-requisite learning	
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*	
No recommendations listed	
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*	
No requirements listed	

Module Content & Assessment

Indicative Content

The Natural Environment
Ecosystems. Ecosystem functions, Natural capital, Depleting natural resources, Earth equivalence, Environmental degradation, Sustainable development, Circular Economy.

Water Quality
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 assimulative capacity, Responsibilities of EPA, local authorities.

Pollution
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.

Environmental Liability Directive
Provisions, 'Polluter Pays' principle, Precautionary principle. The Pollution Linkage concept.

Industrial Emisions Directive
Provisions, IPPC licences, IPPC application process/information, Best Available Technique (BAT), BREF documents, Emission Limit Values (ELV). IPPC cases studies (Food and Pharmaceutical industry).

Environmental Impact Assessment
Methodology of EIA/EIS. Regulations. Case studies on major projects. Sustainable development. Public consultation.

Energy
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.

Waste Management
Waste production statistics, the Waste management heirachy (prevent, reduce, reuse, recycle), Environmental impacts of landfill (odous/leachate/pests/visual), Landfill Directive, Environmental impacts of incineration (technology/dioxins/GHG) Reporting, compliance, Biogradable waste treatment, composting, anaerobic digestion. Other waste legislation (WEE, VoU.).

Environmental Management Systems in Industry
EMS: Components and implimentation. Environmental quality standards (ISO 14001:2015, Environmental management and audit scheme (EMAS). Legal and other requirements. Evaluation of compliance. Auditing. Eco-labelling.

OHS1
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

OHS2
Occupational Exposure Levels; TWA, STEL, TLV, OES Engineering and other controls of airborne contaminants. Use and limitations of Personal Protection Equipment. Health Surveillance.

OHS3
Toxicity, routes of exposure, Classification of Hazardous Chemicals, Chemical Regulations, Material Safety Data Sheets. Classification of biological hazards, occupational diseases (zoonosis).

OHS4
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

No Practical

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

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
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	Bachelor of Science (Honours) in Brewing and Distilling	5	Mandatory