Semester	5		
Course Code:	ENCM 31722		
Course Name:	Environmental Monitoring		
Credit Value:	2		
Status	Compulsory		
Pre-requisites	ENCM 12742		
Co-requisites	None		
Hourly Breakdown	Theory	Practical	Independent Learning
	24	18	58

Intended Learning Outcomes:

After completion of this course unit, the student will be able to;

1. explain the importance of scientifically reliable and legally defensible data in environmental monitoring,
2. discuss applicability of different environmental monitoring approaches for environmental management,
3. design environmental monitoring programs relevant to key environmental issues, and
4. demonstrate adequate competencies in the analysis of selected environmental samples and present and interpret the results.

Course Content:

Environmental monitoring vs environmental surveying and importance of environmental monitoring for environmental management, Data quality objectives, Scientifically reliable and legally defensible data: custody or control, documentation and traceability, Quality assurance and Quality control (QA/QC), Environmental data acquisition: Sampling techniques, preparation and analysis: Water (surface and ground water), Soil, Air (near surface air), Sampling error vs. Analytical error during data acquisition, Applications of physico-chemical methods in environmental monitoring, Bio monitoring methods and applications: use of bio accumulators, bio indicators and biomarkers in environmental monitoring, Human bio monitoring methods; Selection of priority parameters, Design and execution of monitoring programmes relevant to key environmental issues, designing environmental monitoring programs relevant to selected environmental issues in Sri Lanka.

Practical sessions on quality control and quality assurance procedures, Analysis of river water, well water and effluents using physico-chemical monitoring methods; Applications of selected bio monitoring approaches for monitoring environment.

Teaching /Learning Methods:
A combination of lectures, laboratory and field practical sessions, computer based learning, self-studies, case studies and small group discussions.

Assessment Strategy:
Continuous assessment and end of semester examination. Percentage given for each sub component indicates the percent contribution to the final marks.

Continuous Assessment	Final Assessment
30 %	70 %

Details:	Theory	Practical	Other
Assignments 10 Practical reports 20	70	-	-

Recommended Readings:

1. Artiola, J. F., I. L. Pepper &, M.L, Brusseau (2004). Environmental Monitoring and Characterization. Elsevier Inc
2. Csuros, M. (1997). Environmental Sampling and Analysis: Lab manual. CRC press, New York.
3. Patnaik, P. (2017). Handbook of Environmental Analysis: Chemical Pollutants in Air, Water, Soil, Solid Wastes.3rd edition. CRC press, New York.
4. Wiersma, G.B. (2004). Environmental Monitoring. CRC Press, New York.
5. Zhang, C. (2007). Fundamentals of Environmental Sampling and Analysis. John Wiley and Sons, New Jersey.
6. Current review papers on air quality management published by reputed publishers.