Semester	7		
Course Code:	ENCM 41832		
Course Name:	Insects and Environmental Management		
Credit Value:	2		
Status:	for BSc Honours in ENCM degree		
Pre-requisite:	ZOOL 12733		
Co-requisite	None		
Hourly Breakdown	Theory	Practical	Independent Learning
	24	18	58

Intended Learning Outcomes:

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

1. identify the environmentally important major insect groups and describe their ecosystem roles,
2. explain the anthropogenic practices and environmental effects on insect pest outbreaks,
3. discuss the impacts and mitigatory measures of insect pest management methods on environment,
4. explain the importance of insects in environmental impact assessment and environmental monitoring,
5. identify the major forest insect pests and explain their ecology, distribution and impact on management values,
6. explain the value of insects as biological indicators.

Course Content:

Environmentally important major insect groups in the terrestrial and aquatic environments, their identification, ecosystem services and their roles. Beneficial and destructive insects. Environmental effects on insects and their population dynamics. Insect population response to environment stress. Environmental effects on insects. Adaptations of insects to changing environment. Anthropogenic and environmental effects on insect pest outbreaks. Environmentally friendly pest management methods. Impacts and mitigatory measures of insect pest management methods on environment. Major forest insect pests, their ecology, distribution and impact on forest plantation management. Forest insect and human interactions, Monitoring and assessment of forest Insects. Insects important in environmental impact assessment and environmental monitoring. Insects as biological indicators and sentinel species. Ecological effects of invasive alien insects. Insect conservation.

Teaching /Learning Methods:

A combination of lectures, laboratory and field sessions, assignments, self-studies, computer assisted learning, and group discussions.

Assessment Strategy:

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

Continuous Assessment	Final Assessment
40%	60%

Details:	Theory	Practical	Other
Assignments 20 Presentations 10 Field reports 10	60		

Recommended Reading

1. Triplehorn, C. & N. F. Johnson (2006). Borror and Delong's Introduction to the Study of Insects, 7th Edition, Thomson Publishers, USA.
2. Gullen, P.J. & P.S. Cranston (2014). The Insects, an outline of Entomology, 5th Edition, Blackwell Science.
3. Alford, D.V (2019) Beneficial Insects. First Edition. Taylor and Francis
4. Ciesla W.M (2011). Forest Entomology: A Global Perspective, First Edition, Wiley-Blackwell
5. Hopwood, J. et.al (2016). Habitat planning for beneficial insects - Guidelines for conservation biological control. XERCES society for invertebrate conservation, 74 p. (e-book available)
6. Recently published scholarly articles on insects and the environment.