Faculty	Natural Sciences
Home Department	Computer Science
Module Topic	Operating Systems, Computer Networks, and Machine Learning
Generic Module Name	Computer Science 311
Alpha-numeric Code	**CSC311**
NQF Level	7
NQF Credit Value	30
Duration	Semester
Proposed semester to be offered.	Second Semester
Programmes in which the module will be offered	BSc Computer Science (3221) (3023) BSc Mathematical (3227) (3031) BSc Statistical Sciences (3227) (3031)
Year level	3
Main Outcomes	On completion of this module students should be able to: In Operating Systems: • Explain the fundamental tasks performed by a modern operating system. • Implement fundamental operating systems tasks and algorithms. Computer Networks: • Build networks with current network topologies, protocols, operating systems, and applications. • Develop an appreciation of standards and protocols. Machine Learning: • Apply linear, logistic regression and regulization to data. • Implement neural networks and support vector machines.
Main Content	Operating Systems: • History of operating systems. • Operating system concepts and structure. • Emphasis on processes (communication and scheduling). • Basic Input/Output. • Concurrency. Computer Networks: • Communications media. • Network standards and layers. • Communications protocols. • Network architectures. • Client/server and peer-to-peer networks, Network design. • Network operations and operating systems. • Network administration. • Construction and installation of networks. Machine Learning: • Linear and logistic regression. • Regularization. • Neural networks. • Support Vector Machines.
Pre-requisite modules	CSC211 and 212
Co-requisite modules	None
Prohibited module Combination	None

Breakdown of Learning Time	**Hours**	**Time-table Requirement per week**		**Other teaching modes that does not require time-table**
Contact with lecturer / tutor:	42	Lectures p.w.	5	
Assignments & tasks:	28	Practicals p.w.	2X3	
Practicals:	84	Tutorials p.w.		
Assessments:	3			
Selfstudy:	143			
Other:				
Total Learning Time	300			
Method of Student Assessment	Continuous Assessment (CA): 100% Final Assessment (FA) : 0 %			
Assessment Module type	Continuous Assessment (CA)			