Faculty	Natural Sciences
Home Department	Computer Science
Module Topic	Human Computer Interaction, Software Engineering, and Database Systems.
Generic Module Name	Computer Science 312
Alpha-numeric Code	**CSC312**
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 (Mathematics and Statistical Sciences) (3227); BSc (Physical Science) (3233,3120)
Year level	3
Main Outcomes	On completion of this module, students should be able to: **In Software Engineering** • Interpret and implement principles, processes, methods and tools for quality software development. • Use UML to specify, visualize, construct and document a software system. **In Database Systems** • Explain the Relational Model Concepts & Principles. • Represent the Architecture for a Database System. • Design a Relational Database. • Implement a Relational Database. **In human Computer Interaction** • Analyse interface needs for interactive applications. • Design and implement effective user interfaces with CLI,GUI, and API. • Understand the importance of feedback and help systems.
Main Content	**Software Engineering** • Definition of software engineering, principles, goals, process, methods and tools. • The evolving role of software. • SE paradigms / process models. • Object-oriented analysis & design. • Introduction to formal specification. • Verification and validation. • Software quality assurance / reliability. • Unified Modeling Language (UML). **Database Systems** • File systems and databases. • Modeling. • Database design principles. • Database models. • Normalization. • Structured Query Language. **Human Computer Interaction** • Human factors of interactive software. • Theories, principles and guidelines of HCI design including command line interface (CLI), graphical user interface (GUI) and application programmatic interface (API)

	• Event-driven application design and development. • Direct manipulation. • Interaction devices. • System and feedback messages.			
Pre-requisite modules	CSC211 and CSC212			
Co-requisite modules	None			
Prohibited module Combination	Database modules offered by other faculties and departments			
Breakdown of Learning Time	**Hours**	**Timetable Requirement per week**		**Other teaching modes that does not require time-table**
Contact with lecturer: / tutor:	42	*Lectures p.w.*	3	
Assignments & tasks:	28	*Practicals p.w.*	0	
Practicals:	84	*Tutorials p.w.*	2	
Tutorials:	0			
Tests & Examinations:	3			
Selfstudy:	143			
Other:	0			
Total Learning Time	**300**			
Methods of Student Assessment	Continuous Assessment (CA): 100% Final Assessment (FA): 0%			
Assessment Module type	Continuous Assessment (CA)			