

Module code	SS-2203		
Module Title	Database Design		
Degree/Diploma	Bachelor of Science (Computer Science)		
Type of Module	Major Core		
Modular Credits	4	Total student Workload	10 hours/week
		Contact hours	4 hours/week
Prerequisite	SS-1202 Computer Systems and Information Technology		
Anti-requisite	None		
Aims			
The student acquires an understanding of the capabilities and limits of database systems and develops skills in designing databases that perform efficiently and fulfill the user requirements.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	20%	- translate a prose specification, which may be ambiguous and vague, into an explicit data model	
Middle order :	60%	<ul style="list-style-type: none"> - evaluate various database storage schemes for their appropriateness, given the expected access behaviour of a database application - normalize data schema to eliminate redundancies - write efficient query code - apply semantic rules to transform high level queries into low level ones 	
Higher order:	20%	<ul style="list-style-type: none"> - write database applications in high level languages using appropriate bindings - identify critical query sequences that must be transactionalised 	
Module Contents			
<ul style="list-style-type: none"> - Data modeling using entity relationship, network model, hierarchical model and relational model - Database storage implementation schemes for efficient retrievals and updates; Normalisation to ensure data consistency and integrity by eliminating multi-valued dependencies, functional dependencies and join dependencies; Low-level cursor-based queries and high-level relational queries; Semantic models such as relational algebra and relational calculus - SQL and associated facilities such as XML serialisation, language bindings and front-ends - Transaction features to support multi-user access, auditing and error-recovery 			
Assessment	Formative assessment	Interactive Quizzes and Feedback	
	Summative assessment	Examination: 50% Coursework: 50% <ul style="list-style-type: none"> - 2 class tests (20%) - 1 written assignment (15%) - 1 laboratory exercise (15%) 	