Faculty of Computer Science

Academic Curriculum 2015-2016

Our 4-year programmes are leading to a Bachelor of Computer Science degree in one of the following pathways:

- Computer Science Pathway,
- Internet Computing Pathway,
- Software Engineering Pathway.

Students must complete a total of 140 credit hours to receive one of the above degrees.

During the first 4 semesters, all students in the CS faculty build a solid background and required knowledge in areas such as programming and software development, database design and applications, system analysis and design methodologies, Math, Networking, and Humanities and Social Sciences.

- General Semesters

First Semester		C. H.	Pre-requisites		Second Semester		C. H.	Pre-requisites
MTH100	Calculus	3	None		CS102x	Fundamentals of Computing II	3	CS101x
ENG101x	English for Academic Purposes	3	None		ENG102x	English for Study Skills	3	ENG101x
CS100x	Introduction to Information Technology	3	None		MTH106	Linear Algebra	3	MTH100
CS101x	Fundamentals of Computing I	3	None		PHY103x	Fundamentals of Electronics	3	None
H/S Elective I	Humanities and Social Sciences	3	None		H/S Elective II	Humanities and Social Sciences	3	ENG101x
MTH103	Discrete Mathematics	3	None					
		18					15	
Third Semester		**C. H.**	**Pre-requisites**		**Fourth Semester**		**C. H.**	**Pre-requisites**
ENG201x	English for Research Purposes	3	ENG102x		CS217	Professional Computing Ethics	3	CS102x
MTH204	Probability and Statistics	3	MTH100		CS232	Multimedia Programming	3	CS213
CS213	Algorithms and Data Structures	3	CS102x		CS215	Fundamentals of Database Systems	3	CS205
CS205	Principles of Information Systems	3	CS100x		CS216	Computer Networks	3	CS100x
CS203	Computer Organization	3	CS102x		CS214	Systems Analysis and Design	3	CS205
CS283	Web Programming	3	CS102x		MGT200	Introductory Management	3	ENG101x
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- Computer Science Pathway

Fifth Semester		C. H.	Pre-requisites		Sixth Semester		C. H.	Pre-requisites
CS351	Operating Systems Concepts	3	CS213		CS326	Mobile Computing	3	CS216
CS334	Programming Concepts and Compiler Design	3	CS213		CS381	Computer Graphics	3	CS232
CS314	Object-Oriented Software Engineering	3	CS214		CS352	Advanced Operating Systems	3	CS351
CS313	Data Storage and Retrieval	3	CS215		CS364	Cloud Computing	3	CS351
CS316	Artificial Intelligence	3	CS102		CS Elect I	Selected Topics in Computer Science I	3	Depending on selected Topics
FAC I	Faculty Elective I	3			FAC II	Faculty Elective II	3	
		18					18	
Seventh Semester		**C. H.**	**Pre-requisites**		**Eighth Semester**		**C. H.**	**Pre-requisites**
CS403	Advanced Algorithms	3	CS213		CS301	Industrial Training	1	CS102
CS486	Image Processing	3	MTH106		CS411	Theory of Computing	3	CS334
CS427	Advanced Graphics and Visualisation	3	CS381		CS475	Data Mining	3	MTH204
CS Elect II	Selected Topics in Computer Science II	3	Depending on selected Topics		CS401	Computer Security	3	CS351
FAC III	Faculty Elective III	3			CS484	Human Computer Interaction	3	CS314
CS405x	Graduation Project I	3	Senior Standing		CS406	Graduation Project II	4	CS405x
		18					17	

The seven coloured modules are the module specific to the senior students in Computer Science Pathway.

- Internet Computing Pathway

Fifth Semester		C. H.	Pre-requisites		Sixth Semester		C. H.	Pre-requisites
CS351	Operating Systems Concepts	3	CS213		CS382	Web Content Management System	3	CS215
CS334	Programming Concepts and Compiler Design	3	CS213		CS385	Web Engineering	3	CS334
CS314	Object-Oriented Software Engineering	3	CS214		CS384	Advanced Web Programming	3	CS283
CS313	Data Storage and Retrieval	3	CS215		CS364	Cloud Computing	3	CS351
CS316	Artificial Intelligence	3	CS102		CS Elect I	Selected Topics in Computer Science II	3	Depending on selected Topics
FAC I	Faculty Elective I	3			FAC II	Faculty Elective II	3	
		18					18	
Seventh Semester		**C. H.**	**Pre-requisites**		**Eighth Semester**		**C. H.**	**Pre-requisites**
CS425	Service-Oriented Computing	3	CS384		CS301	Industrial Training	1	CS102
CS476	Web Database Application	3	CS385		CS489	Semantic Web Programming	3	CS385
CS465	Software Project Management	3	CS314		CS475	Data Mining	3	MTH204
FAC III	Faculty Elective III	3			CS401	Computer Security	3	CS351
CS Elect II	Selected Topics in Computer Science I	3	Depending on selected Topics		CS484	Human Computer Interaction	3	CS314
CS405x	Graduation Project I	3	Senior Standing		CS406	Graduation Project II	4	CS405x
		18					17	

The seven coloured modules are the module specific to the senior students in Internet Computing Pathway.

- Software Engineering Pathway

Fifth Semester		C. H.	Pre-requisites		Sixth Semester		C. H.	Pre-requisites
CS351	Operating Systems Concepts	3	CS213		CS347	Software Requirements and Specifications	3	CS214
CS334	Programming Concepts and Compiler Design	3	CS213		CS344	Component-Based Computing	3	CS314
CS314	Object-Oriented Software Engineering	3	CS214		CS384	Advanced Web Programming	3	CS283
CS313	Data Storage and Retrieval	3	CS215		CS364	Cloud Computing	3	CS351
CS316	Artificial Intelligence	3	CS102		CS Elect II	Selected Topics in Computer Science II	3	Depending on selected Topics
FAC I	Faculty Elective I	3			FAC II	Faculty Elective II	3	
		18					18	
Seventh Semester		**C. H.**	**Pre-requisites**		**Eighth Semester**		**C. H.**	**Pre-requisites**
CS425	Service-Oriented Computing	3	CS384		CS301	Industrial Training	1	CS102
CS442	Software Construction Quality	3	CS347		CS458	Software Implementation	3	CS314
CS465	Software Project Management	3	CS314		CS475	Data Mining	3	MTH204
FAC III	Faculty Elective III	3			CS401	Computer Security	3	CS351
CS Elect I	Selected Topics in Computer Science I	3	Depending on selected Topics		CS484	Human Computer Interaction	3	CS314
CS405x	Graduation Project I	3	Senior Standing		CS406	Graduation Project II	4	CS405x
		18					17	

The seven coloured modules are the module specific to the senior students in Software Engineering Pathway.

- CS Electives

A student choosing a specific pathway has to choose a project subject in the same pathway.

3 modules out of the 35 Computing modules are faculty electives, in addition to 2 other modules as CS electives. 2 out of the 3 Humanities and Social Sciences modules are also elective modules.

CS Elective Modules in Computer Science		C. H.	Pre-requisites		Elective Modules in Humanities & Social Sciences		C. H.	Pre-requisites
CS472	Advanced Database Systems	3	CS215		The Elective module can be chosen from any level 1 and 2 Humanities & Social Sciences Modules such as:			
CS488	Robotic Interfacing	3	CS203		BUS 102	Business and Society	3	ENG 101
CS384	Advanced Web Programming	3	CS283		FAC 101	Essentials of Accounting I	3	ENG 101
CS423	Parallel and distributed Systems	3	CS352		ECO 101	Introduction to Economics I	3	ENG 101
CS393	Operations Research	3	MTH106		ECO 102	Introduction to Economics II	3	ENG 101
CS485	Pattern Recognition	3	CS361		MKT 201	Marketing I	3	ENG 101
CS353	Systems Programming	3	CS102					
CS391	Modelling and Simulation	3	MTH204					

Faculty Electives (IS Flavour)		C. H.	Pre-requisites		Faculty Electives (Pure CS)		C. H.	Pre-requisites
CS372	Data Warehousing	3	CS215		CS361	Signal Processing	3	MTH103
CS373	Geographical Information Systems	3	CS215		CS362	Knowledge Representation & Reasoning	3	CS316
CS466	Decision Support and Intelligent systems	3	CS372		CS477	Machine Learning	3	CS361