Computer Science - Sample 4-year Study Plan (Total 135 credit hours)

Year 1				Computer Science			
Semester 1				**Semester 2**			
CODE	***COURSE TITLE***	***PREREQUISITE***	***C.H.***	***CODE***	***COURSE TITLE***	***PREREQUISITE***	***C.H.***
CSCI 101	Computer & Information Skills		3	ECEN 101	Electric Circuits	PHYS101 or concurrent	3
MATH 111	Analytical Geometry and Calculus I		4	MATH 112	Calculus II	MATH 111	4
PHYS 101	Physics I	MATH 111 or concurrent	4	HUMA 103	Selected Topics in Humanities & Arts		3
CSCI 105	Introduction to Programming		3	CSCI 205	Introduction to Computer Systems		3
ENGL 101	English I		3	ENGL 102	English II	ENGL101	3
TOTAL CREDIT HOURS			**17**	***TOTAL CREDIT HOURS***			**16**

Year 2	Computer Science						
Semester 3				**Semester 4**			
CODE	***COURSE TITLE***	***PREREQUISITE***	***C.H.***	***CODE***	***COURSE TITLE***	***PREREQUISITE***	***C.H.***
HUMA 101	Introduction to Logic and Critical Thinking		2	CSCI 304	Analysis and Design of Algorithms	CSCI 207	3
MATH 210	Calculus III	MATH 112	3	HUMA 102	Introduction to Ethics		1
CSCI 207	Fundamentals of Data Structures & Algorithms	CSCI 201	3	MATH 203	Differential Equations	MATH 112	4
MATH 201	Intro. to Probability & Statistics	MATH 111	3	CSCI 221 CSCI 221L	Logic Design Logic Design Lab	PHYS 101 and PHYS 102 or conc.	3 1
MATH 211	Discrete Mathematics	MATH 111	3	CSCI 217	Advanced Computer Programming and Concepts	CSCI 105	3
ENGL 201	Writing Skills	ENGL 102	3	ENGL 202	Communication & Presentation Skills	ENGL 201	3
TOTAL CREDIT HOURS			**17**	***TOTAL CREDIT HOURS***			**18**

Year 3				Computer Science			
Semester 5				**Semester 6**			
CODE	***COURSE TITLE***	***PREREQUISITE***	***C.H***	***CODE***	***COURSE TITLE***	***PREREQUISITE***	***C.H.***
CSCI 311	Computer Architecture	CSCI 105, CSCI 221	3	CSCI 313	Software Engineering	CSCI 207 and CSCI 217	3
MATH 301	Linear Algebra	MATH203	4	CSCI 404	Database Systems	CSCI 207	3
SSCI 101	Selected Topics in Egyptian & Arab Heritage		3	CSCI 415	Compiler Design	CSCI 311 and CSCI 304	3
CSCI 322	Data Analysis	MATH 201,203	4	SSCI 102	Selected Topics in World Cultures & Diversity		3
CSCI 315	Operating Systems	CSCI 311 and CSCI 304	3	NSCI 102	Selected Topics in Natural Sciences		3
				COMM 401	Internship and Service Learning		3
TOTAL CREDIT HOURS			**17**	***TOTAL CREDIT HOURS***			**18**

Year 4 Computer Science - General Track							
Semester 7				**Semester 8**			
CODE	***COURSE TITLE***	***PREREQUISITE***	***C.H***	***CODE***	***COURSE TITLE***	***PREREQUISITE***	***C.H***
CSCI 471	Introduction to Bioinformatics	ALL Core MATH and PHYS and CSCI 304	3	CSCI 451	Digital Image Processing	ALL Core MATH and CSCI 322, and CSCI 304	3
CSCI 461	Introduction to Big Data	CSCI 304	3	CSCI 467	Data Mining and Analytics	CSCI 322 and CSCI 417	3
XXXX XXX	Elective HUMA, SSCI or NSCI		3	CSCI 419	Theory of Computing	CSCI 304	3
CSCI 417	Machine Intelligence	CSCI 304	3	CSCI 490	Industrial/Research Training		2
CSCI 463	Introduction to Computer Networks	CSCI 304	3	SSCI 103	Selected Topics in Social Sciences		3
CSCI 495	Senior Project I	8 core OR concur.	2	CSCI 496	Senior Project II	CSCI 495	2
TOTAL CREDIT HOURS			**17**	***TOTAL CREDIT HOURS***			**16**

Year 4 Computer Science -	Media Informatics Track						
Semester 7				**Semester 8**			
CODE	***COURSE TITLE***	***PREREQUISITE***	***C.H.***	***CODE***	***COURSE TITLE***	***PREREQUISITE***	***C.H.***
CSCI 451	Digital Image Processing	ALL Core MATH and CSCI 304	3	CSCI 456	Interactive Multimedia Systems	CSCI 451 or CSCI 452	3
CSCI 452	3D Computer Graphics and Visualization	ALL Core MATH and CSCI 304	3	CSCI 457	Mixed and Augmented Reality	CSCI 456 and CSCI 452 or concur.	3
XXXX XXX	Elective HUMA, SSCI or NSCI		3	CSCI 419	Theory of Computing	CSCI 304	3
CSCI 417	Machine Intelligence	CSCI 304	3	CSCI 490	Industrial/Research Training		2
CSCI 463	Introduction to Computer Networks	CSCI 304	3	SSCI 103	Selected Topics in Social Sciences		3
CSCI 495	Senior Project I	8 core OR concur.	2	CSCI 496	Senior Project II	CSCI 495	2
TOTAL CREDIT HOURS			**17**	***TOTAL CREDIT HOURS***			**15**

Year 4 Computer Science - Big Data and Data Science Track							
Semester 7				**Semester 8**			
CODE	***COURSE TITLE***	***PREREQUISITE***	***C.H.***	***CODE***	***COURSE TITLE***	***PREREQUISITE***	***C.H.***
CSCI 465	Introduction to Parallel Computing	CSCI 207, CSCI 311	3	CSCI 462	Computational Intelligence	CSCI 417 and All Core MATH and PHYS	3
CSCI 461	Introduction to Big Data	CSCI 304	3	CSCI 467	Data Mining and Analytics	MATH 302 and CSCI 417	3
XXXX XXX	Elective HUMA, SSCI or NSCI		3	CSCI 419	Theory of Computing	CSCI 304	3
CSCI 417	Machine Intelligence	CSCI 304	3	CSCI 490	Industrial/Research Training		2
CSCI 463	Introduction to Computer Networks	CSCI 304	3	SSCI 103	Selected Topics in Social Sciences		3
CSCI 495	Senior Project I	8 core OR concur.	2	CSCI 496	Senior Project II	CSCI 495	2
TOTAL CREDIT HOURS			**17**	***TOTAL CREDIT HOURS***			**15**

Electives – General Track		
CODE	***COURSE TITLE***	***C.H.***
CSCI 451	Digital Image Processing	3
CSCI 452	3D Computer Graphics and Visualization	3
CSCI 455	Computer Vision Systems	3
CSCI 456	Interactive Multimedia Systems	3
CSCI 457	Mixed and Augmented Reality	3
CSCI 458	Serious Computer Games	3
CSCI 461	Introduction to Big Data	3
CSCI 462	Computational Intelligence	3
CSCI 464	Numerical Methods & Math Precision	3
CSCI 465	Introduction to Parallel Computing	3
CSCI 467	Data Mining and Analytics	3
CSCI 471	Introduction to Bioinformatics	3
CSCI 472	Signal Processing	3
CSCI 475	Embedded Real-Time Systems	3
CSCI 479	Selected Topics in Computer Science	3

Electives – Media Informatics Track		
CODE	***COURSE TITLE***	***C.H.***
CSCI 451	Digital Image Processing	3
CSCI 452	3D Computer Graphics and Visualization	3
CSCI 455	Computer Vision Systems	3
CSCI 456	Interactive Multimedia Systems	3
CSCI 457	Mixed and Augmented Reality	3
CSCI 458	Serious Computer Games	3
CSCI 459	Selected Topics in Media Informatics	3
Electives – Big Data and Data Science Track		
CODE	***COURSE TITLE***	***C.H.***
CSCI 461	Introduction to Big Data	3
CSCI 462	Computational Intelligence	3
CSCI 464	Numerical Methods & Math Precision	3
CSCI 465	Introduction to Parallel Computing	3
CSCI 467	Data Mining and Analytics	3
CSCI 469	Selected Topics in Big Data and Data Science	3