

BSc (Hons) Computer Science (P/T) - E318E

1. Aims and Objectives

Computer Science spans a wide range, from its theoretical and algorithmic foundations to cutting-edge developments in robotics, computer vision, intelligent systems, bioinformatics, and other novel areas. The field of Computer Science is, today, evolving at an unprecedented pace and is contributing massively to improve our everyday life.

The aim of this programme is to produce graduates with the required theoretical and algorithmic skills required in industry to develop software in wide variety of areas from systems level to specific application areas ranging from general business applications to specific high-tech areas as listed above. The programme also ensures that the students develop sufficient theoretical and practical abilities to pursue research in Computer Science and related areas.

Graduates from this programme can work in software development and systems administration and can aspire to be team and project leaders. They will have the necessary skills and knowledge to easily adapt to new technologies and emerging software development areas.

The programme is based on the recommendations of Computing Curricula 2005 proposed by a joint task force of the Association for Computing Machinery (ACM), the Association for Information Systems (AIS) and the IEEE Computer Society (IEEE-CS).

2. General Entry Requirements

As per General Entry Requirements for admission to the University for Undergraduate Degrees.

3. Programme Requirements

At least 2 GCE 'A' Level Passes including:

(i) Mathematics

and

(ii) Computing or a Science subject

4. Minimum Requirements for Awards

(i) Degree Award

<u>MODULES</u>	<u>CREDITS</u>
GEM	6
Humanities & Management	3
Departmental (Including final Year Project)	99
TOTAL	108

For the award of the **BSc (Hons) Computer Science**, the student must obtain at least 108 credits including 84 credits from all the core modules prescribed by the department and at least 24 credits from the departmental elective modules.

(ii) Diploma Award

<u>MODULES</u>	<u>CREDITS</u>
Humanities & Management	3
Departmental	54
Diploma Project (CSE 2000(3))	6
TOTAL	63

The diploma is provided as a possible exit point in the programme. A student may opt for a Diploma in Computer Science, by making a written request, provided s/he satisfies the minimum requirements, as specified above. The Diploma project would normally be of 8 weeks duration for an input of at least 90 hours.

5. Programme Duration

	Normal (Years)	Maximum (Years)
Degree:	5	8

- 6. Credits per Academic Year:** Maximum 48 credits, Minimum 6 credits, subject to section 5.
Credits per Semester: Maximum 24 credits, Minimum 3 credits, subject to section 5.

Semester modules to be registered on a semester basis.

Yearly modules to be registered only once, normally at the beginning of academic year.

Note: For Yearly modules, for the purpose of calculation of minimum and maximum credits, the credits will be considered as half for each semester.

7. Assessment

Each module will be assessed over 100 marks (i.e. expressed as %) with details as follows (unless otherwise specified):

Assessment will be based on written examination and continuous assessment. The written examination will be of 3-hour duration for yearly modules and of 2-hour duration for semester modules.

The continuous assessment will count for 20-30% of the overall percentage mark of the module(s), except for the following modules:

		Continuous Assessment	Exams
CSE 1041(1)	Web Technologies I	50%	50%
CSE 2041(3)	Web Technologies II	50%	50%

Continuous assessment may be based on laboratory work and/or assignments and should include at least two class tests/assignments per module.

An overall total of 40% for combined continuous assessment and written examination components would be required to pass the module, without minimum thresholds within the individual continuous assessment and written examination.

Written examinations for the semester modules will be carried out at the end of the respective semester while for yearly modules they will be carried out at the end of the academic year.

8. List of Modules - BSc (Hons) Computer Science

CORE MODULES

		Hrs/Wk L+P	Credits
Humanities and Management (Including GEMs)			
COMS 1010(1)	Communication Skills	DE	3
GEM			3
GEM			3
Departmental			
CSE 1003(1)	Computer Programming	2+2	3
CSE 1005(1)	Database Systems I	2+2	3
CSE 1041(1)	Web Technologies I	2+2	3
CSE 1131(1)	Mathematics for Computing	3+0	3
CSE 1142(1)	Formal Logic	3+0	3
ELEC 1105(1)	Digital Logic	3+0	3
CSE 1200	Practical Training		0
CSE 1242(1)	Human Computer Interaction	2+2	3
CSE 1243(1)	Programming Paradigms	2+2	3
CSE 1244(1)	Computer Architecture	3+0	3
CSE 1255(1)	Discrete Mathematics	3+0	3
CSE 2031Y(3)	Object-Oriented Software Development	2+2	6
CSE 2032Y(3)	Data Structures and Algorithms	2+2	6
CSE 2033Y(3)	Computer Networks and Open Systems	3+0	6
CSE 2041(3)	Web Technologies II	2+2	3
CSE 2142(3)	Software Engineering	3+0	3
CSE 2143(3)	Operating Systems	2+2	3
CSE 2242(3)	Computer Graphics	2+2	3
CSE 2243(3)	Theory of Computation and Compilers	3+0	3
CSE 2255(3)	Database Systems II	2+2	3
CSE 3000(5)	Project		9

ELECTIVES

Departmental

CSE 3012(5)	Machine Learning	2+2	3
CSE 3013(5)	Mobile Network Architectures	3+0	3
CSE 3014(5)	Operations Research	2+2	3
CSE 3015(5)	Parallel Processing	2+2	3
CSE 3018(5)	Simulations	2+2	3
CSE 3019(5)	Software Testing and Quality Assurance	2+2	3
CSE 3020(5)	Ubiquitous Computing	3+0	3
CSE 3021(5)	Virtual Reality	2+2	3
CSE 3022(5)	Wireless Networking	2+2	3
CSE 3032(5)	Semantic Web	2+2	3
CSE 3041(5)	Artificial Intelligence	2+2	3
CSE 3042(5)	Bioinformatics	2+2	3
CSE 3043(5)	Computer Security	3+0	3
CSE 3044(5)	Concurrent Programming	2+2	3
CSE 3045(5)	Data Mining	2+2	3
CSE 3046(5)	Distributed Systems	2+2	3
CSE 3047(5)	Embedded Systems	2+2	3
CSE 3048(5)	Enterprise Resource Planning	2+2	3
CSE 3049(5)	Game Development	2+2	3
CSE 3050(5)	Geometric Modelling and Animation	2+2	3
CSE 3051(5)	Internet Architectures	3+0	3
CSE 3056(5)	Robotics	2+2	3
CSE 3142(5)	Introduction to Real-time Systems	3+0	3
CSE 3145(5)	Digital Image Processing	2+2	3
CSE 3202(5)	Real-Time Multiprocessing Systems	3+0	3
CSE 3241(5)	Computer Vision	2+2	3

Note: The offer of electives will be subject to availability of resources and existence of a critical mass of demand for the modules.

9. Programme Plan – BSc (Hons) Computer Science –Part Time

YEAR 1							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L + P	Credits	Code	Module Name	Hrs/Wk L + P	Credits
CSE 1003(1)	Computer Programming	2+2	3	CSE 1005(1)	Database Systems I	2+2	3
CSE 1131(1)	Mathematics for Computing	3+0	3	CSE 1255(1)	Discrete Mathematics	3+0	3
CSE 1142(1)	Formal Logic	3+0	3	CSE 1242(1)	Human Computer Interaction	2+2	3
COMS 1010(1)	Communication Skills	DE	3	CSE 1243(1)	Programming Paradigms	2+2	3
Total Credits			12	Total Credits			12

YEAR 2							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L + P	Credits	Code	Module Name	Hrs/Wk L + P	Credits
ELEC 1105(1)	Digital Logic	3+0	3	CSE 1244(1)	Computer Architecture	3+0	3
CSE 1041(1)	Web Technologies I	2+2	3	CSE 2255(3)	Database Systems II	2+2	3
				CSE 1200	Practical Training*		0
CSE 2031Y(3)	Object-Oriented Software Development					2+2	6
	GEM						3
	GEM						3
Total Credits			6 + 6	Total Credits			6 + 6

YEAR 3							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L + P	Credits	Code	Module Name	Hrs/Wk L + P	Credits
CSE 2032Y(3)	Data Structures and Algorithms					2+2	6
CSE 2033Y(3)	Computer Networks and Open Systems					3+0	6
CSE 2041(3)	Web Technologies II	2+2	3	CSE 2242(3)	Computer Graphics	2+2	3
CSE 2142(3)	Software Engineering	3+0	3	CSE 2243(3)	Theory of Computation and Compilers	3+0	3
Total Credits			6 + 6	Total Credits			6 + 6

YEAR 4							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L + P	Credits	Code	Module Name	Hrs/Wk L + P	Credits
CSE 2143(3)	Operating Systems	2+2	3		Elective 4		3
	Elective 1		3		Elective 5		3
	Elective 2		3		Elective 6		3
	Elective 3		3		Elective 7		3
Total Credits			12	Total Credits			12

YEAR 5							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L + P	Credits	Code	Module Name	Hrs/Wk L + P	Credits
	Elective 7		3				
CSE 3000(5)	Project						9
Total Credits			3+4.5	Total Credits			4.5

* Note: The Practical Training will be conducted after Semester 4 Exams

Note: PQ – Pre-requirement, **PR** - Pre-requisite

- (i) A student will be allowed to follow module **y** of which module **x** is a *pre-requisite* (PR) provided the student has passed module **x** (i.e. obtained at least Grade D in the Pre-requisite), unless decided otherwise by the Faculty/ Centre/ Cluster Board and Senate.
- (ii) A student will be allowed to follow module **y** of which module **x** is a *pre-requirement* (PQ) provided s/he has followed module **x** and sat for the examinations in module **x** unless decided otherwise by the Faculty/ Centre/ Cluster Board and Senate.

March 2010