

## Scheme of Study MS (CS)

The detailed structure of MS (Computer Science) is in accordance to HEC approved (revised 2013) curriculum as given below:

- Minimum credit hours shall be 30 for MS (Computer Science) program.
- The program shall comprise 4 semesters spread over 2 years with two semesters a year.
- The additional major areas may be added in the list of specialization as appropriate to university.

### Category wise Credit Hours Distribution:

Category or Area	Credit Hours
Core	6
Electives	18
Thesis	6
<b>Total Credit Hours</b>	<b>30</b>

### Programme Objectives

A challenging graduate programme may be structured based on the classical objective, which is the preparation for study of doctoral level, and this remains an important aspect of such programmes, but it is believed that all programmes should prepare the student for study beyond the master level.

Many people, who are already in the field, desire additional training in computer science. These individuals may have undergraduate degrees in computer science and desire to advance; or they may have considerable experience in computer science, but little formal education in the field. While the latter group should be declining in number as more undergraduate computer science majors enter the job market, the demand does exist and will continue to do so in the foreseeable future. In addition, there will be a continuing need for individuals with a bachelor's degree in computer science to update their training.

Among the objectives for students in master's programmes is entry into the computer science field at a relatively high level of responsibility and expertise. Computer science is such a new and rapidly expanding field that individuals entering with a master's degree in this field will almost immediately move to positions with great responsibility. This, in turn, implies the requirement for an advanced level of prior training in both technical and related areas

### Programme Structure

The graduate programme should embody sufficient flexibility to fulfil the requirements of either an "academic" degree curriculum model to assure that the common aspects of various potential masters' programmes in computer science are captured.

The proposed curriculum structure may be implemented within four semester's time. A project/thesis work may be unified with student's chosen depth-oriented specialties. Generally, graduate programmes are structured with common core of fundamental material and wide range of options for the rest of the course work.

**Eligibility**

BS (CS) 4 years degree programme (minimum 130 credit hours), or computer science conversion course 2 Years degree programme referred to as “MCS” or “MSc”.

- BCS-3 year’s degree programme student will be required to complete the deficiency of difference of total earned credit hours and 130 credit hours.
- 16 years science and engineering graduates are eligible but they have to cover deficiency.

<b>Scheme of studies MS (CS)</b> <b>2–Years program (4 Semesters)</b> (30 Credit Hours)
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Semester 1			
S. No	Code	Category	Cr. Hrs.
1	CS 701	Core subject	3
2	CS 702	Core subject	3
3		Elective I	3
<b>Semester Total</b>			<b>09</b>
Semester 2			
S. No	Code	Category	Cr. Hrs.
1		Elective II	3
2		Elective III	3
3		Elective IV	3
<b>Semester Total</b>			<b>09</b>
Semester 3			
S. No	Code	Category	Cr. Hrs.
1		Elective V	3
2		Elective VI	3
<b>Semester Total</b>			<b>06</b>
Semester 4			
S. No	Code	Category	Cr. Hrs.
1	CS 790	Thesis (full registration)	06
<b>All Semester Total Credit hrs</b>			<b>30</b>

### List of Core Courses

S. No.	Code	Course Title	Credit Hours	Semester
1	CS701	Advance theory of computation	3	1
2	CS 702	Advance algorithm analysis	3	1

### List of Elective Courses

S. No.	Code	Course Title	Credit Hours
1			
2	CS 711	Research methods for computer science	3
3	CS 712	Statistical analysis	3
4	CS 713	Introduction to mathematical logic	3
5	CS 714	Advance operating system	3
6	CS 715	Advance computer architecture	3
7	CS 716	Data analysis and probabilistic inference	3
8	CS 717	Information retrieval and data mining	3
9	CS 718	Advance languages in computer science	3
10	CS 719	E-government	3
11	CS 720	E-business	3
12	CS 721	Project management	3
13	CS 722	Distributed database	3
14	CS 723	User-centric design	3
15			
16	CS 731	Advance artificial intelligence	3
17	CS 732	Computer vision and machine learning	3
18	CS 733	Dynamic systems and deep learning	3
19	CS 734	Advance statistical machine learning and pattern recognition	3
20	CS 735	Computer graphics and animation	3
21	CS 736	Neural network	3
22	CS 741	Cryptography and network security	3
23	CS 742	Advance computer networks	3
24	CS743	Topics in computer networking	3
25	CS744	Wireless and mobile networks	3
26	CS 745	Advance network security	3
27	CS746	Intelligent and active networks	3
28	CS747	Network design and management	3
29	CS748	Enterprise networking	3
30	CS 749	Network performance evaluation	3
31	CS 750	Broadband and satellite communication	3
32	CS 751	Mobile and pervasive computing	3
33	CS 752	Cluster computing	3
34	CS 753	Distributed computing	3

35	CS 754	Network robotics	3
36	CS 761	Semantic web	3
37	CS 762	Information architecture	3
38	CS 763	Web mining	3
39	CS 764	Ontology engineering	3
40	CS 765	Description logic	3
41	CS 766	Web engineering	3
42	CS 771	Requirements engineering	3
43	CS 772	Software quality assurance	3
44	CS 773	Software risk management	3
45	CS 774	Software measurement and metrics	3
46	CS 775	Software configuration management	3
47	CS 776	Software system architecture	3
48	CS 777	Component-based software engineering	3
49	CS 778	Design patterns	3
50	CS 779	Complex networks	3
51	CS 780	Agent based modelling	3
52	CS 781	Formal methods in software engineering	3