# Master of Science in Computer Science

## Program Information

Computer Science Department is one among various departments in Computing College. It was established in 1424 H. Computer Science field is one of the most important fields in Information and Computer Technology. It includes many areas, including: databases, networks, graphics, artificial intelligence, programming languages, and software engineering. The department has graduated hundreds of students from its BS programs.

**Degree Name**: Master of Science in Computer Science

## Program Mission Statement

To provide quality education in different advanced Computer Science fields by exposing students to both theoretical and practical experiences. Preparing them to contribute significantly to the research and advancement of new and emerging technology in computing, and fostering perception and awareness of their leading role in the development of their community.

## Degree Requirement:

1. Project Track
    - Successful completion of a minimum of 36 credit hours of graduate courses.
    - Completion and successful defense of a research project of 6 credit hours.
2. Thesis Track
    - Successful completion of a minimum of 30 credit hours of graduate courses.
    - Completion and successful defense of a research project of 12 credit hours.

## Admission

FBSU invites students with a sound academic record, good personal character, strong interest to serve their communities and eagerness to serve as professionals in allied fields. Students with the most promising overall profile will be selected to join the "Master Degree Program" in Computer Science.

Applicants to FBSU must satisfy the following eligibility requirements:

1. A four-year Bachelor's (B.S.) Degree in computer science, computer engineering or any relevance degree from a recognized institution with a major in the proposed field or evidence of suitable background for entering the proposed field.
2. Prospective students having with Bachelor Degree other than computer science including (software engineering, information systems, Business information

systems, electrical engineering, and electronics) may be considered for placing the application for the admission. Admission committee will decide for the applicant's admission depending upon his suitability.

3. A Grade-Point Average (GPA) of 3.75 or higher on a scale of 5.00 or 3.0 or higher on a scale of 4.00 (i.e. 3.75/5 or 3/4).
4. In case of having 3 years and onwards of industrial experience in the computer science or software industry then 3.00 GPA may be considered after the admission committee's recommendation.
5. English language requirement (e.g. Completion of TOEFL or IELTS with a minimum score) set by the admission committee.
6. General Graduate Record Examination (GRE) score will be the advantageous at the time of admission.
7. At least three letters of recommendation from the faculty who taught the applicant undergraduate courses. [Sealed and signed]
8. Satisfactorily meeting any additional departmental or university admission requirements. Present a "No-Objection" letter from the employer, if applicable.
9. Should not have been dismissed from any academic institution.
10. Fulfill program requirements.
11. Fulfill other University requirements.

A student who satisfies the above criteria except English language requirement then English language test may be taken at FBSU.

**Program structure**

The Master of Computer Science curriculum is a two-year program designed to grant students the Master of Science in Computer Science upon the successful completion of the requirements. In the first year; the student study the required core courses, then in the second year students are allowed to determine which electives they prefer along with writing project or thesis distributed in the last two terms of the program.

**Program Structure (Project Track):**

| | | |
|---|---|---|
| ---- | 7 Required Courses | 21 cr. |
| ---- | 7 Elective Courses | 21 cr. |
| **Total** | | **42 cr.** |

**Required Courses:**

| | | |
|---|---|---|
| MSC 501 | Advanced Design and Analysis of Algorithms | 3 cr. |
| MSC 502 | Software Engineering | 3 cr. |
| MSC 503 | Database Systems | 3 cr. |
| MSC 504 | Computer Networks and Security | 3 cr. |
| MSC 505 | Seminar and Discussions | 3 cr. |

| | | |
|---|---|---|
| MCS 598 | Project I | 3 cr. |
| MCS 599 | Project II | 3 cr. |
| **Total** | | **21 Cr.** |

**Elective Courses:**

The student must choose only seven elective courses:

| | | |
|---|---|---|
| MSC 520 | Artificial Intelligence | 3 cr. |
| MSC 521 | Computer Security | 3 cr. |
| MSC 522 | Web Database & information Retrieval | 3 cr. |
| MSC 523 | Advanced Computer Graphics | 3 cr. |
| MSC 524 | Graphical User Interface | 3 cr. |
| MSC 525 | Software Project Management | 3 cr. |
| MSC 526 | Data Warehouse and Mining Systems | 3 cr. |
| MSC 530 | High Performance Computation | 3 cr. |
| MSC 531 | Distributed Systems | 3 cr. |
| MSC 532 | Interconnection Network | 3 cr. |
| MSC 533 | Selected Topics in Databases | 3 cr. |
| MSC 534 | Expert Systems & Knowledge Engineering Applications | 3 cr. |
| MSC 535 | Software Quality Management | 3 cr. |
| MSC 536 | Selected Topic in Artificial Intelligence | 3 cr. |
| MSC 537 | Selected Topics in Software Engineering | 3 cr. |
| MSC 538 | Designing Software Systems | 3 cr. |
| MSC 539 | Neural Networks & Machine learning applications | 3 cr. |

**Program Structure (Thesis Track):**

| | | |
|---|---|---|
| ---- | 5 Required Courses | 15 cr. |
| ---- | 5 Elective Courses | 15 cr. |
| MSC 400 | Thesis | 12 cr. |
| **Total** | | **42 cr.** |

**Required Courses:**

| | | |
|---|---|---|
| MSC 501 | Advanced Design and Analysis of Algorithms | 3 cr. |
| MSC 502 | Software Engineering | 3 cr. |
| MSC 503 | Database Systems | 3 cr. |
| MSC 504 | Computer Networks and Security | 3 cr. |
| MSC 514 | Research Methodology | 3 cr. |
| **Total** | | **15 Cr.** |

**Elective Courses:**

The student must choose only five elective courses:

| | | |
|---|---|---|
| MSC 520 | Artificial Intelligence | 3 cr. |
| MSC 521 | Computer Security | 3 cr. |
| MSC 522 | Web Database & information Retrieval | 3 cr. |
| MSC 523 | Advanced Computer Graphics | 3 cr. |
| MSC 524 | Graphical User Interface | 3 cr. |
| MSC 525 | Software Project Management | 3 cr. |
| MSC 526 | Data Warehouse and Mining Systems | 3 cr. |
| MSC 530 | High Performance Computation | 3 cr. |
| MSC 531 | Distributed Systems | 3 cr. |
| MSC 532 | Interconnection Network | 3 cr. |
| MSC 533 | Selected Topics in Databases | 3 cr. |
| MSC 534 | Expert Systems & Knowledge Engineering Applications | 3 cr. |
| MSC 535 | Software Quality Management | 3 cr. |
| MSC 536 | Selected Topic in Artificial Intelligence | 3 cr. |
| MSC 537 | Selected Topics in Software Engineering | 3 cr. |
| MSC 538 | Designing Software Systems | 3 cr. |
| MSC 539 | Neural Networks & Machine learning applications | 3 cr. |

## Curriculum Study Plan Table (Project track)

| Year | Course Code | Course Title | Required or Elective | Credit Hours | College or Department |
|---|---|---|---|---|---|
| **1st Year** | | | | | |
| **Semester 1** | MCS 501 | Advanced Design and Analysis of Algorithms | R | 3 | CS[1] |
| | MCS 502 | Software Engineering | R | 3 | CS |
| | MCS 503 | Database Systems | R | 3 | CS |
| | MCS 504 | Computer Networks and Security | R | 3 | CS |
| | **Total** | | | **12** | |
| **1st Year** | | | | | |
| **Semester 2** | | Elective course-1 | E | 3 | CS |
| | | Elective course-2 | E | 3 | CS |
| | | Elective course-3 | E | 3 | CS |
| | | Elective course-4 | E | 3 | CS |
| | **Total** | | | **12** | |
| **2nd Year** | | | | | |
| **Semester 1** | | Elective course-5 | E | 3 | CS |
| | | Elective course-6 | E | 3 | CS |
| | MCS 505 | Seminar and Discussions | R | 3 | CS |
| | MCS 500 | Project-1 | R | 3 | CS |
| | **Total** | | | **12** | |
| **2nd Year** | | | | | CS |
| **Semester 2** | | Elective course-7 | E | 3 | CS |
| | MCS 501 | Project-2 | R | 3 | CS |
| | **Total** | | | **6** | |

[1] Computer Science (CS)

## Curriculum Study Plan Table (Thesis Track)

| Year | Course Code | Course Title | Required or Elective | Credit Hours | College or Department |
|---|---|---|---|---|---|
| **1st Year** | | | | | |
| **Semester 1** | MCS 501 | Advanced Design and Analysis of Algorithms | R | 3 | CS[2] |
| | MCS 502 | Software Engineering | R | 3 | CS |
| | MCS 503 | Database Systems | R | 3 | CS |
| | MCS 504 | Computer Networks and Security | R | 3 | CS |
| | **Total** | | | 12 | |
| **1st Year** | | | | | |
| **Semester 2** | | Elective course-1 | E | 3 | CS |
| | | Elective course-2 | E | 3 | CS |
| | | Elective course-3 | E | 3 | CS |
| | MSC 514 | Research Methodology | R | 3 | |
| | **Total** | | | 12 | |
| **2nd Year** | | | | | |
| **Semester 1** | | | | | |
| | | Elective course -4 | E | 3 | CS |
| | | Elective course-5 | E | 3 | CS |
| | MCS 400 | Thesis(A,B) | R | 6 | CS |
| | **Total** | | | 12 | |
| **2nd Year** | | | | | CS |
| **Semester 2** | MCS 400 | Thesis(C,D) | R | 6 | CS |
| | **Total** | | | **6** | |

[2] Computer Science (CS)