

**INSTITUTE OF INFORMATION TECHNOLOGY  
(IIT)  
UNIVERSITY OF DHAKA  
DHAKA-1000, BANGLADESH**



**MASTER OF SCIENCE IN SOFTWARE  
ENGINEERING (MSSE)**

**INFORMATION FOR ADMISSION**

**Session: 2023-2024**



**Please read carefully before submitting your application**

Web: <http://www.iit.du.ac.bd>

**December, 2024**

## **1. Institute of Information Technology (IIT)**

The Institute of Information Technology (IIT), University of Dhaka, started its journey in June 2001 to create efficient manpower in information technology. IIT currently offers Bachelor of Science in Software Engineering (BSSE), Master of Science in Software Engineering (MSSE), Executive Master in Information Technology (MIT) and Post Graduate Diploma in Information Technology (PGDIT). Apart from its regular activities, it also produces state-of-the-art researches which are published in world-class journals and conferences.

IIT has a quiet ambience and is adjacent to the Dhaka University Science Library. The four-storied red ceramic IIT building contains six software laboratories, one seminar library and two large classrooms. The laboratories and classrooms are air-conditioned and equipped with multimedia, document camera system and Internet facilities.

The sole purpose of IIT is to plant the seeds of professionalism, excellence and respect through teaching based on real life experience. IIT believes that doing so should aid in realizing its vision. The main focus of IIT is to enhance the competitiveness of the students through academic innovation and research which will eventually help them to serve the society effectively.

## **2. Masters of Science in Software Engineering (MSSE)**

Software engineering is a systematic and disciplined approach to developing software. It applies computer science, mathematics and business principles and practices to the creation, operation and maintenance of software systems. It is now more than an integrated approach of design, development, QA and maintenance rather than only programming. Therefore, it becomes increasingly important that while understanding developing technologies, architectures and their influence on software engineering processes, research for novel methods and methodologies on those very issues. The research is the only sustainable way of meeting the ever increasing global demands.

CNN/Money Magazine (2011) rated software engineering as the number one best job for salary and opportunities [<http://money.cnn.com/magazines/moneymag/bestjobs/>]. Graduates of Software Engineering find work as software developers and testers, software architects and designers, team leaders and project managers, and executive-level positions in software development projects. At the same time, the appeal of research and development on new findings is gradually creating inroads in this popular market. Even in Bangladesh, world-reputed companies like Samsung, LG and many others are opening their research and development centers.

The Master of Science in Software Engineering degree encompasses a wide range of activities covering software engineering practice, software architectures, formal design methods, automated verification, computational models and foundations in accordance with the traditional computer sciences. Mary Shaw shows in his famous journal on research in software engineering that there are six typical phases in this very new area of research which distinguishes software engineering research from other traditional fields like Physics, Chemistry etc. Those are: Basic Research, Concept formulation, Development and Extension, Internal Extension and Exploration, External extension, Exploration and Popularization. The aim of this proposed program is to introduce those

formal phases to the prospective students, and thus to make them ready for this newest challenge in the industry.

This will be a three-semester (one and a half year) full-time program with two distinct parts. Half the semester credits will be allocated for theoretical studies to prepare students to do research. The rest will be allocated to do research and formal publications.

This will be an elite degree for those students who have excellent grades and also possess strong communication skills along with an outwardly worldly focus and personality.

This document serves as the admission brochure for the MSSE program, Session: 2023-2024, conducted by the Institute of Information Technology, University of Dhaka.

## **2.1 Eligibility and Admission**

1. **“Information for Admission”** can be downloaded directly from the website (<http://www.iit.du.ac.bd>) of the Institute of Information Technology, University of Dhaka. And the **“Online Application Form”** is available at the website <https://admission.iit.du.ac.bd>
2. Seats for the MSSE program are limited.
3. Candidates who have completed their undergraduate degree with good grades from IIT through Bachelor of Science in Software Engineering (BSSE) (internal candidates), shall get admission to the Master of Science in Software Engineering (MSSE) automatically.
4. In case of lower number of internal candidates than the MSSE program capacity, external candidates may be selected for those available seats.
5. External candidates (candidates outside the IIT) must fulfill the following criteria:
  - a) The candidate must have an undergraduate degree in Software Engineering or CS/CSE/IT or equivalent.
  - b) The candidate must have CGPA not less than 3.25 on a scale of 4 in his/her undergraduate degree.
  - c) Candidates must have at least CGPA of 3.5 on a scale of 5 in both S.S.C. and H.S.C. / equivalent examinations, and the total CGPA of S.S.C and H.S.C should be at least 8.00. Candidate having CGPA except on the scale of 5, or with a different grading system, should contact with IIT office before applying.
  - d) Candidates having a degree from a foreign university, or a CGPA not on a scale of 4, or a different grading system in the undergraduate level should contact the IIT office before applying.
  - e) Candidates who have completed the undergraduate final examination and expect to get the result by February 18, 2025 can also apply
6. All the prospective candidates must sit for an admission test conducted by IIT authority, and IIT shall have the ultimate authority to select students from the test subject to the availability of seats.
7. The duration up to which an internal candidate can automatically get admitted to the MSSE program is as per the university rule. After that duration, an internal candidate will have to attend

the admission test and follow the similar process to an external candidate.

### **8. Schedule for the Admission Test:**

Application start date	December 8, 2024
Last date to submit the application	February 18, 2025
Venue & time for written test	IIT Building, DU 02:00-03:30 PM February 22, 2025 (Saturday)
Date of viva voce	March 8, 2025
Publishing the list of eligible candidates	March 10, 2025
Starting date of registration	March 11, 2025
Orientation and classes begin	April 6, 2025

**9.** Admission test will be held in two phases.

#### **Phase 1: Written Test**

Written test: It will be a 60 marks exam consisting of

- 50 marks in MCQs
- 10 marks in analytical writing

The exam duration will be 90 minutes. Exam topics include (but not limited to) the following:

- Subject Knowledge (60% of MCQ marks) –
  - i. Software Engineering
  - ii. Computer Networking and Security
  - iii. Operating Systems
  - iv. Data Structure and Algorithm
  - v. Structured and Object-Oriented Programming
  - vi. Database management
  - vii. Artificial Intelligence
- Mathematics, Statistics and Analytical Ability (40% of MCQ marks)

#### **Phase 2: Interview**

Generally, successful students in Phase 1 will be invited for the viva voce. Candidates must bring their original required documents to attend the viva voce.

A final list of candidates will be published after the viva voce for admission.

### 10. Fees and others:

Since this will be the regular MS program offered within the jurisdiction of the University of Dhaka, the program fee structure will be as per the university rules. However, external candidates are required to pay a processing fee of 2000/= BDT during the application process. Moreover, if any additional costs should incur, IIT holds the right to charge those extra fees with permission from the Academic Committee of IIT.

### 3. MSSE Curriculum

Course Outline and Schedule of the program is as follows:

#### Semester 1

Course Code	Course Title	Credit	Theory	Lab
MS1001	Research Methodology	3	2	1
MS1002	Formal methods and Models in Software Engineering	3	2	1
MS1003	Secure Software Design and Programming	3	2	1
MS1004	Distributed Software Engineering	3	2	1
4 Courses		12	8	4

#### Semester 2

Course Code	Course Title	Credit	Theory	Lab
MS1XXX	Elective 1	3	2	1
MS1XXX	Elective 2	3	2	1
MS1007	*Thesis	6	-	-
3 Courses		12	13	5

#### Semester 3

Course Code	Course Title	Credit	Theory	Lab
MS1007	*Thesis	12	-	-
1 Course		12	-	-

*\* Thesis (MS1007) shall be considered as a single course of 18 credits, however spanned over 2<sup>nd</sup> and 3<sup>rd</sup> Semester. The evaluation of this course will be done at the end of 3<sup>rd</sup> semester.*

## **Elective Courses**

The elective courses enrich students' knowledge regarding advanced studies and research. More promising course might be included here based on demand and the availability of the resource personnel.

<b>Number</b>	<b>Course Code</b>	<b>Course Name</b>
1.	<b>MS1008</b>	User Interface Design and Development
2.	<b>MS1009</b>	Reusable Software Architecture
3.	<b>MS1010</b>	Quality of Services for Software Architectures
4.	<b>MS1011</b>	Information Security Theory and Practices
5.	<b>MS1012</b>	Software Engineering and Security Architecture
6.	<b>MS1013</b>	Security Risk Analysis and Management
7.	<b>MS1014</b>	Software Engineering Economics
8.	<b>MS1016</b>	Cloud Computing
9.	<b>MS1018</b>	Mobile and Wireless Security
10.	<b>MS1020</b>	Distributed Databases
11.	<b>MS1021</b>	Data Warehousing and Mining
12.	<b>MS1026</b>	Simulation and Modeling
13.	<b>MS1028</b>	Algorithm and Optimization
14.	<b>MS1041</b>	Software Evolution and Reengineering
15.	<b>MS1042</b>	Computer Vision
16.	<b>MS1043</b>	Wireless and Mobile Network
17.	<b>MS1044</b>	Software Analytics
18.	<b>MS1045</b>	Graph Theory
19.	<b>MS1XXX</b>	Empirical Methods in Software Engineering
20.	<b>MS1XXX</b>	Software Project Planning and Estimation

### **Course Schedule**

One credit hour subject shall normally require one hour of class attendance per week for one semester; while one credit hour of thesis/project should normally require two hours of work per week for one semester including guided and unguided supervision; also one credit hour of laboratory should normally require two hours of work per week for one semester.

### **Total Semester/Class Length**

<b>Weeks</b>	<b>Purpose</b>
15 weeks	For holding classes
1 week	Preparation time for examinations
3 weeks	Semester final examination
3 weeks	Result publication
4 weeks	Vacation and holidays

### **Letter Grade, Grade Points and their Meaning**

Grades in each subject will be assigned as follows:

<b>Marks</b>	<b>Letter Grade</b>	<b>Numeric Grade</b>	<b>Comments</b>
80% or above	A+	4.00	Excellent
$\geq 75$ but $< 80\%$	A	3.75	Better
$\geq 70$ but $< 75\%$	A-	3.50	Good
$\geq 65\%$ but $< 70\%$	B+	3.25	Above average
$\geq 60\%$ but $< 65\%$	B	3.00	Average
$\geq 55\%$ but $< 60\%$	B-	2.75	Below average
$\geq 50\%$ but $< 55\%$	C+	2.50	Satisfactory
$\geq 45\%$ but $< 50\%$	C	2.25	Not satisfactory
$\geq 40\%$ but $< 45\%$	D	2.00	Pass
Less than 40%	F	0.00	Fail
	I		Incomplete
	W		Withdrawn

Note:

- Examination can be re-taken (supplementary exam) for students who will get **F** in any course. For this purpose, a student has to register for that concerned examination depositing Tk. 2,000 (Two Thousand Only) per course. However, he/she will get no more than **B+** in that course.

**Degree Requirement for MSSE:**

- To obtain MSSE degree the following conditions must be fulfilled:
  - (a) Completion of 36 credits, AND
  - (b) Passing of all courses individually with at least D grade, AND
  - (c) Grade Point Average (GPA) of 2.5 or above.
- The registration validity of MSSE students is as per the rule of the university.
- After successful completion of the course, all the students will be awarded a certificate from the University of Dhaka showing GPA and transcript showing details of grades obtained in various semesters.

**4. Final Remarks**

Software Engineering is an important stream of typical computer science which IIT is planning to address. There are other streams such as, database, networking, etc., that have acute market demands. The future goal of IIT is to produce quality researchers in those streams as well.

IIT authority will resolve any other points not mentioned in this brochure.