



Department of Environmental Sciences
Jahangirnagar University, Dhaka 1342, Bangladesh

Syllabus for M.S. of Sessions 2018-19, 2019-2020 and 2020-2021

Ordinance for Master's Program

Background

In view of the environmental concern, the Department of Environmental Sciences was established at Jahangirnagar University, Bangladesh, on April 1999 by the nationally and internationally renowned visionary scientist Professor Dr. Syed Safiullah (1935-2016). Professor Safiullah envisioned about the Earth's natural imbalance decades ago forecasting the rise of numerous environmental problems, conflicts, and crisis. In his words, "In order to reach a true understanding and fundamental solutions for the environmental problems, it is vital to ask ourselves how the Earth and human beings are to coexist in the future". To answer these fundamental questions the education program in the Department of Environmental Sciences was, therefore, designed as an interdisciplinary program integrating all branches of natural sciences, social studies as well as relevant policy and technological management that can evoke problem-solving ability to the future environmental scientists and environmental managers.

Vision Statement

The education and research in the Department of Environmental Sciences focus on two main pillars: "Sustainability" and "Safety of the Earth". To achieve excellence in environmental leadership, the main goal of the department essentially centres around the culmination of environmental sciences, management and studies with a holistic approach considering human dimension as a significant factor.

Mission Statement

Based on the two pillars of "Sustainability" and "Safety of the Earth", the Department of Environmental Sciences focuses on interdisciplinary studies without the barriers between different fields of sciences, engineering, management as well as social studies addressed on the state of the environment and environmental problems in Bangladesh and the world. Through a series of academic courses and co-curricular activities, scholars will learn how anthropogenic activities impact the environment and will obtain the critical thinking and problem-solving skills essential to effectively contribute to solutions. We believe that this system will lead us to meaningful solutions for the demands concerning an environmentally sustainable future of our planet.

1.0 Degree Offered

The admission to the Master of Science (MS) in Environmental Sciences will be offered by the Department of Environmental Sciences to a candidate in accordance with the ordinance for the degree of Master of Science of this University.

2.0 Admission Requirement

- 2.1 Candidates seeking admission to Masters' degree program must possess Bachelor Degree from Jahangirnagar University or equivalent degree from other university or institutions relevant to the desired subjects of specialization.
- 2.2 The eligibility of the candidates having degrees from other universities shall be assessed by the Admission Committee of the department.
- 2.3 An in-service candidate if selected for admission as a full-time student must obtain necessary clearance from his/her employer.
- 2.4 A candidate must possess at least CGPA 3.0 out of 4.0 in the required degree examination.
- 2.5 Every selected candidate unless s/he has already been registered, shall get himself or herself registered with the university.

3.0 Program

- 3.1 Courses of study for Masters' Degree, semester and credit system shall extend over a period of one academic year.
- 3.2 Courses will run based on student's choice of courses. Each student will be provided with course choice form to give their choice for desired courses at the beginning of academic year. A course will run if at least 10 students give their choice to take that course.
- 3.3 Each academic year should be divided into two semesters- First Semester and Second Semester.
- 3.4 After completion of a particular semester there will be a minimum of 4 weeks transition time to start the next semester. All the pertinent preparation to start a new semester should be finished during this transition time.
- 3.5 Each semester will be of duration 21 weeks.
- 3.6 A semester will be segmented into Class-weeks, Preparatory leave and Semester-end examination.
- 3.7 For 3 credit course 3 lectures have to be given in a week with total of 36 lectures i.e. one lecture per week for each credit.
- 3.8 Time distribution for completing a semester will be as follows.

Sl.	Segment	Period	Length
i.	Class-weeks	1 st week – 15 th week	15 weeks
ii.	Preparatory leave before semester end examination	16 th week – 17 th week	02 weeks
iii.	Semester end examination	18 th week – 20 th week	04 weeks
Total			21 Weeks

3.9 The students of MS in Environmental Sciences will have to complete 34 Credits.

3.10 Credit outline:

Semester			Total Credit
First Semester	Theoretical Courses	6	18
	Viva voce		1
Second Semester	Theoretical Courses	2	6
	Thesis/Internship + Presentation		8 (6 + 2)
	Viva voce		1
Total			34

3.11 Each course shall carry 100 marks.

3.12 A candidate for Master's Degree must complete all the requirements for the degree within three calendar years from the date of his/her first admission.

4.0 Theoretical Course Assessment

Assessment of a student in a course shall be based on marks obtained in the course-end examination, class assessments and attendance. For theoretical courses, at least three tutorials should be taken.

The distribution of marks for each theoretical course will be as follows:

1.	Class attendance	10%
2.	Class Assessment/tutorials	20%
3.	Semester-end examination	70%

5.0 Thesis/Internship

5.1 After completion of the 24 credit hours course work, every student shall submit a thesis/internship report of 8 credit hours on his/her research work/internship in partial fulfilment of the requirements for the degree of Masters of Science in Environmental Sciences.

5.2 Research work for a thesis/internship shall be carried out under the supervision of a full-time faculty member of the department. After receiving a written application from each student, the academic committee (AC) shall finalize the placement of students for thesis/internship and nominate supervisor. For thesis, a co-supervisor from outside the department/University can be appointed.

5.3 Every student submitting a thesis/internship report shall be required to appear at an oral examination, on a date or dates fixed by the Examination Committee (EC) and must satisfy the examiners that he/she is capable of intelligently applying the results of this research to the solution of problem, of undertaking independent work, and also afford evidence of satisfactory knowledge related to the theory and technique used in his research work.

6.0 Assessment of Thesis

- 6.1 The tentative research proposal of the thesis and the supervisor and co-supervisor (if any) shall be approved by the AC before the completion of course work requirements of the student concerned.
- 6.2 The students shall present a research proposal/internship proposal in the first semester for the approval of the research topic or for any further improvement and a presentation of his/her progress in the thesis work in the second semester in a date fixed by the Examination Committee.
- 6.3 Every student shall submit final thesis/internship report to the department with the approval letter from his/her supervisor (Attachment 1) for submission, number of typewritten copies of his/her thesis in the approved format on or before a date to be fixed by the EC.
- 6.4 The student shall certify (Attachment 2) that the research work was done by his/her and that the same work has not been submitted elsewhere for any degree or award (except for publication).
- 6.5 For assessment, two external expert member (nominated by the EC) will evaluate a thesis.
- 6.6 Thesis will be evaluated according to the Thesis Evaluation Guideline (Attachment 4).
- 6.7 Initially a draft copy of the thesis shall be submitted for the review, evaluation and comments. After the initial comments a 15 days time will be given to the students for rectification and final submission in hard-binding.

7.0 Assessment of Internship Report

- 7.1 Upon the application from student, the academic committee (AC) shall finalize the placement of students for internship and nominate supervisor.
- 7.2 Students may choose to undergo with industry/ NGO's/ Government organizations/ Micro/ Small/ Medium enterprises for internship.
- 7.3 Interns should be mentored and supervised by an academic supervisor and a site supervisor from external organization.
- 7.4 Internships must be full-time with a minimum duration of three months within the academic session.
- 7.5 Confirmation letter of internships by the organization must be submitted by the students to the Chairman of the examination committee at the beginning of the semester within the date declared by examination committee.
- 7.6 Students on joining Training at the concerned Industry/Organization, submit the Joining Report/Letters to the Chairman of the examination committee.
- 7.7 Students undergo industrial training at the concerned Industry/Organization, academic supervisor may evaluate the performance of students once/twice by visiting the Industry/Organization.
- 7.8 Students will submit a final report after completion of internship.
- 7.9 Certificate of successful completion of the internship from the authority of the industry/organization must be submitted with the final report.
- 7.10 Internship report will be evaluated according to the Thesis Evaluation Guideline (Attachment 5).

8.0 Semester end Examination

8.1 The duration of the course end examinations shall be 3 hours for each three-credit-hours theoretical course.

8.2 In the course end examination for theoretical courses, there should be a choice of questions to be answered e.g. 5 questions out of 8 questions.

9.0 Grading System

The total numerical marks obtained by a student in each theoretical course will be converted into letter grades. There shall be 11 letter grades that may be assigned to evaluate course-performances and other works. The letter grades and corresponding grade points are as follows:

Numerical Grade (% of Marks)	Letter Grade	Grade Point
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00
Incomplete	I	0.00

10.0 Earned Credits/Qualifying Marks/Repetitions or improvements

10.1 The courses in which a student will obtain “D” or a higher grade shall only be counted as credits earned by him/her. Other grades shall not be counted for Grade Point Average (GPA).

10.2 If a student obtains “F” grade in any course in any semester, s/he shall have to repeat the course, provided that s/he gets at least 2.5 GPA in that semester. Maximums allowed “F” grades in a particular semester are two. If a student gets more than 2 “F” grades in the same semester, s/he needs to repeat the whole semester.

10.3 If a student obtains a grade higher than “F” in a course and also obtains 2.5 GPA in that semester, s/he shall not be allowed to repeat that course for the purpose of grade improvement.

10.4 A student shall withdraw a course within two working weeks of the commencement of the semester; otherwise, his/her grade in that course shall be recorded as 'F'.

11.0 Calculation of GPA

Cumulative Grade Point Average (CGPA) is the weighted average of the grade points obtained in all the courses passed by a student. For example, if a student passes five courses in a semester having credits of C1, C2, C3, C4 and C5 and his/her grade points in these courses are G1, G2, G3, G4 and G5, respectively, then,

$$GPA = \frac{\sum_{i=1}^5 C_i G_i}{\sum_{i=1}^5 C_i}$$

A numerical example

Suppose a student has passed five courses in a semester and obtained the following grades:

Course Code	Credit	Letter Grade	Grade Points
Env. 5105	3	A+	4.00
Env. 5110	3	C+	2.75
Env. 5115	3	D	3.50
Env. 5120	3	B	3.00
Env. 5125	3	B	3.00
Env. 5130	3	B	3.00
Env. 5135	2	B+	3.50

Then his/her GPA for the semester will be computed as follows:

$$GPA = \frac{((3 \times 4.00) + (3 \times 2.75) + (3 \times 3.50) + (3 \times 3.00) + (3 \times 3.00) + (3 \times 3.00) + (2 \times 3.50))}{(3 + 3 + 3 + 3 + 3 + 3 + 2)}$$

$$= 3.24$$

Cumulative Grade Point Average (CGPA) is calculated by averaging the GPAs secured in two successive semesters. Total credit in each semester will be used as weights for the calculation as shown in the following example:

Semester	GPA	Credit
1st Year 1st Semester	4.0	20
1st Year 2nd Semester	3.0	16

$$CGPA = \frac{(4.00 \times 20) + (3.00 \times 16)}{36} = 3.56$$

12.0 Class Attendance

A student must have 60% class attendance to qualify to sit for semester final examination. Basis for awarding marks for class attendance will be as follows:

Class Attendance	Allocated Marks
90% and above	100%
85% to less than 90%	90%
80% to less than 85%	80%
75% to less than 80%	70%
70% to less than 75%	60%
65% to less than 70%	50%
60% to less than 65%	40%
Less than 60%	0%

13.0 Irregular Examination

A student who fails to fulfill the degree requirements within two consecutive semesters from the date of his/her enrolment in the program will be treated as an irregular student.

14.0 Time limit

No student shall be permitted to continue as a Masters Degree candidate beyond the end of three academic year of his/her first admission into Master's program.

15.0 Degree to be Awarded

A student who has secured a minimum CGPA of 2.50 after successful completion second semester will be awarded a degree of Masters of Science (M.S.) in Environmental Sciences.

16.0 Year of Degree Awarded

The results of a candidate for one year Master's Degree shall be awarded in the year in which s/he fulfills the requirements for the degree.

17.0 Conducting Examinations and Examination Offence

Ordinance Pertaining to Rules for Conducting Examinations and Examinations Offences and Discipline 2003 of Jahangirnagar University will be followed in conducting examinations and dealing with examination offences.

18.0 Resolving Special Issues

Any case which is not covered or clearly mentioned in this ordinance will be dealt on the basis of Examination Ordinance of Jahangirnagar University.

Attachment 1

[Thesis Title]



Course Code: [Course code]

‘A thesis report submitted to the Department of Environmental Sciences, Jahangirnagar University, Bangladesh in partial fulfillment of the requirements for the degree of Master of Science (MS) in Environmental Science’

Submitted By

Roll: [Roll no. provided by examination controller office]

Registration no.: [Registration no.]

Session: [Session]

Year of Examination: [Year]

[Signature]

Supervisor

[Name of Supervisor]

Designation
Department of Environmental Sciences
Jahangirnagar University
Bangladesh.

[Signature]

Chairman

**[Name of Chairman of Examination
Committee]**

Designation
Department of Environmental Sciences
Jahangirnagar University
Bangladesh.

Attachment 2

DECLARATION

This is to certify that the Thesis work entitled ‘[**Thesis Title**]’ has been carried out by [**Name of the Student**] in the Department of Environmental Sciences, Jahangirnagar University, Bangladesh. The Thesis work or any part of this work has not been submitted anywhere for the award of any degree or diploma.

Submitted By

[*Signature*]

[Name of the Student]

Roll:

Registration no.:

Session:

Department of Environmental Sciences

Jahangirnagar University

Bangladesh.

Attachment 3

Department of Environmental Sciences
Jahangirnagar University

MASTERS THESIS PROPOSAL FORM

Name of the student:	Session:
Roll No.	

1. General topic of wide interest/Field: (50 Words)

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2. Motivation of the project: (Why is the project being undertaken?) (150 words)

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3. Brief summary of previous works in the selected field (give at least 5 references)

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4. Objectives of the research: (150 words)

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5. Brief methodology and project details: (300 words)

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6. Key stakeholders (organizations)

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7. Necessary resources and supports required:

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8. Timeframe of work plan:

9. Expected outcome: (100 words)

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10. Limitations and risks: (100 words)

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Signature of Student

Recommendation of Supervisor with signature



Thesis Evaluation Guideline

No.	Issues to be assessed	Criteria of Evaluation	Allocated Marks
1	Title, introduction and objective:	<ul style="list-style-type: none"> • Is the introduction section identified research question or research need and establishes the research objectives? • Basic facts and importance of the research area is described clearly • Adequate and up to date literature review is made in setting objectives • Title of the thesis is meaningful, correct and reflects the theme of the project 	15
2	Choice of Methodology:	<ul style="list-style-type: none"> • Are objectives, methodology and focus areas well defined and consistent with the report as a whole? • Is the method to acquire evidence supporting your hypothesis? 	15
3	Results, Discussion and Conclusions	<ul style="list-style-type: none"> • Are result and conclusions written in an understandable way and with a clear connection to objectives and used information sources and chosen method? 	30
4	Logical connections of the chapters	<ul style="list-style-type: none"> • Has the thesis structures consisting of introduction with aim and objectives, method, result & discussions, conclusions and list of references? • Are these parts are logically connected in the report with an internal consistency? 	10
5	Abstract	<ul style="list-style-type: none"> • Have there a sequence of purpose and scope of the articles, methods, results, conclusion / recommendations in the abstract 	10
6	Referencing style	<ul style="list-style-type: none"> • Is it followed the same referencing system through the report? • References are up to date and appropriate and sufficient 	10
7	Language and style and formatting	<p>The language of the report is satisfactory concerning the following</p> <ul style="list-style-type: none"> • Spelling mistakes • The sentences are well organized and grammatically correct • The paragraph is well balanced • Figures and Tables are well organized according to the text • Maintained consistent style 	10
		Total	100

Attachment 5

Department of Environmental Sciences
Jahangirnagar University

Internship Guideline

The internship attempts to foster transfer of knowledge and experience sharing among interns and organizations with the overall aim of promoting increased capacity building of interns. Further, internships may help interns focus their specialization interests and offer them exposure to professional skills and techniques that the academic learning cannot provide.

In particular, the internship experience leads to:

- a) Increased confidence in himself or herself and in his or her abilities
- b) Enhanced knowledge of a specific discipline, strategies, techniques, methodologies
- c) Greater insight into the interactions between stakeholders as a critical factor in being successful in profession
- d) Expanded network of professionals

Internship Evaluation Guideline

After completion of Internship, the student should prepare a comprehensive report to indicate what he has observed and learnt in the training period. The student may contact academic supervisor and industrial supervisor for assigning special topics and problems and should prepare the final report on the assigned topics. The training report should be signed by the academic supervisor.

The internship report of the students will be evaluated in three aspects:

1. Evaluation from site supervisor/organizational authority (Format 2)
 - The industry will evaluate the students based on the Punctuality, eagerness to learn, Maintenance of Daily Duty log and skill test in addition to any REMARKS.
2. Evaluation of daily duty log book (Format 3)
 - The main purpose of writing daily log is to cultivate the habit of documenting and to encourage the students to search for details.
 - The students should record in the daily training diary the day to day account of the observations, impressions, information gathered and suggestions given, if any.
 - It should contain the sketches & drawings related to the observations made by the students.
 - The daily training diary should be signed after every day by the supervisor/ in charge of the section where the student has been working.

3. Evaluation of report

An internship report must contain the followings

- Title page
- Certificate of successful completion of the internship from the authority of the industry/organization
- The evaluation form of site supervisor/organizational authority.
- Main report
- Daily duty l

Internship Evaluation Guideline

No.	Issues to be assessed	Criteria of Evaluation	Allocated Marks
1	Title, Acknowledgement and endorsement, Introduction, Learning objective	<ul style="list-style-type: none"> • Is the introduction section identified training purposes? • Basic facts and importance of the internship is described clearly • Objectives are relevant to the duties • Title of the report is meaningful, correct and reflects the theme of the internship 	10
2	Description of the organization	<ul style="list-style-type: none"> • Description of location activity, products, raw material 	5
3	Assigned responsibilities and learning outcomes	<ul style="list-style-type: none"> • Are objectives, responsibilities and focus areas well defined and consistent with the report as a whole? • Is the thought process and recording techniques used supporting the outcomes? 	15
4	Discussion/evaluation of experiences, Conclusions and Recommendations	<ul style="list-style-type: none"> • Originality. • Adequacy and job knowledge. • Quality of information purposeful write-up. • Organization, format, drawings, sketches, style, language etc. • Variety and relevance of learning experience. • Conclusions and implications drawn from the internship, recommendations for future improvements 	15
5	Logical connections of the chapters	<ul style="list-style-type: none"> • Has the report structures consisting of introduction with aim and objectives, discussions, conclusions and list of references? • Are these parts are logically connected in the report with an internal consistency? 	5
6	Executive summary	<ul style="list-style-type: none"> • Have there a sequence of purpose and scope of the articles, discussion conclusion / recommendations in the summery 	5
7	Referencing style	<ul style="list-style-type: none"> • Is it followed the same referencing system through the report? • References are up to date and appropriate and sufficient 	5
8	Daily Duty log book		10
9	Evaluation report of industrial supervisor		20
10	Language and style and formatting	<p>The language of the report is satisfactory concerning the following</p> <ul style="list-style-type: none"> • Spelling mistakes • The sentences are well organized and grammatically correct • The paragraph is well balanced • Figures and Tables are well organized according to the text • Maintained consistent style 	10
		Total	100

Format 1

Department of Environmental Sciences
Jahangirnagar University
INTERNSHIP APPROVAL FORM
(Student's can add space if necessary)

Name of the student:	
Roll No.	Session:

11. Name of the Organization:
12. Brief Description of the Organization:
13. Name of the project, if any
14. Objectives of internship:
15. Role/Duties of the intern in the organization:
16. Duration and Time Schedule:
17. Benefits from internship:
18. Necessary resources and supports required:
19. Expected learning outcome: (100 words)
20. Limitations and risks: (100 words)

Signature of Authorized
Person of the Organization
Name:
Designation:
e-mail:

Signature of Supervisor

Signature of Student

Format 2: Evaluation form from organizational authority

Student Name: _____ Date: _____

Work Supervisor: _____ Title: _____

Company/Organization: _____

Internship Address: _____

Dates of Internship: From _____ To _____

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Behaviors	4	3	2	1
Performs in a dependable manner				
Cooperates with co-workers and supervisors				
Shows interest in work				
Learns quickly				
Shows initiative				
Produces high quality work				
Accepts responsibility				
Accepts criticism				
Demonstrates organizational skills				
Uses technical knowledge and expertise				
Shows good judgment				
Demonstrates creativity/originality				
Analyzes problems effectively				
Is self-reliant				
Communicates well				
Writes effectively				
Has a professional attitude				
Gives a professional appearance				
Is punctual				
Uses time effectively				

Overall performance of student intern (circle one):

(Satisfactory/ Good/ Excellent)

Additional comments, if any:

Signature of Industry supervisor

HR Manager

Format 3: Interns Daily Duty Log

DAY-1		DATE		
Time of arrival		Time of Departure		Remarks
Deptt./Division		Name of finished Product		
Name of HOD/Supervisor With e-mail id				
Main points of the day				

Signature of Industry Supervisor