Department of Computer Science and Engineering

Syllabus with Academic Guide

North Western University

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DEFINITIONS

i) 'University' means the North Western University, Khulna abbreviated as NWU, Khulna

ii) 'Board of Trustees' means Board of trusties of the University

iii) 'Syndicate' means the Syndicate of the University

iv) 'Academic Council' means the Academic Council of the University

v) 'Chancellor' means the Chancellor of the University

vi) 'Vice-Chancellor' means the Vice-Chancellor of the University

vii) 'Pro Vice-Chancellor' means the Pro Vice-Chancellor of the University

viii) 'Treasurer' means the Treasurer of the University

ix) 'Dean' means the Dean of a faculty of the University

x) 'Head of the Department' means the Head of a Department of the University

xi) 'Registrar' means the Registrar of the University

xii) 'Academic Committee' means the Academic Committee for Undergraduate Studies (ACUG) of a degree awarding department of the University

xiii) 'Degree' means the degree of Bachelor of Science in a particular discipline of Engineering offered by the University

xiv) 'Departmental Monitoring Committee' means the Committee for upgrading/changing the Undergraduate Curriculum and the Course system and monitoring the teacher-student activities

xv) 'Teacher' means Professor, Associate Professor, Assistant Professor, Lecturer and any other person approved as a teacher by the University

xvi) 'Student' means Student who has been admitted into the regular academic curriculum of the University

xvii) 'Executive Committee' means the committee consisting of five senior faculty members including Dean of Faculty and Head of the Department.

DISCLAIMER

The information contained in the booklet are intended to provide a guidance to those concern with undergraduate studies in the department of Computer Science and Engineering. No responsibility will be borne by the department or North Western University if any inconvenience or expenditure is caused to any person because of the information of the booklet or any error in guiding the rules and regulation described here in. The information contained in the booklet is subject to change at any time without prior notification.

MESSAGE FROM VICE CHANCELLOR

I am really delighted to know that the Department of Computer Science and Engineering (CSE) of North Western University, Khulna is going to publish the booklet **"Syllabus and Academic Guide"** first time as a part of academic ordinance and rules for Undergraduate (UG) Program. This booklet will help to provide the disciplinary rules for the students as well as the details of the course outline and course offered by the department in different semesters. This initiative will provide the students with the opportunity to know valuable information in different aspects of course credit system such as admission requirements, structure of credits, admission, grading system, and continuous performance evaluation system in different stages which are the most important issues for the newly introduced Outcome Based Education (OBE).

In this era of technological and industrial revolution, CSE appears to be crucial in all fields of Information Science and Engineering and I hope that all the stakeholders will be highly benefited with this booklet which will serve to reach a place of dignity of this university.

I hereby welcome the department of CSE to take this great initiative and would like to express my sincere thanks to those who worked hard and help a lot to make this hard work successful one.

Professor Dr. Md. Bazlar Rahman
Vice Chancellor
North Western University
Khulna, Bangladesh.

PREFACE TO THE FIRST EDITION

It is my great pleasure to know that Department of Computer Science and Engineering is first time going publish the booklet "Syllabus and Academic Guide". The Content illustrated in the booklet is in three district areas viz. Academic ordinance for under graduate (UG) Program, Syllabus and Disciplinary Rules for the students. The booklet contains a lot of valuable information both for the students as well as for the faculty members.

In academic ordinance one can find the different aspects of course credit system such as admission requirements, credit structure, admission, grading system, allocation of marks for class test, class participation/Performance evaluation, requirements of degree and the answer of many quarries about the academic related problems of the department. This booklet also provides the details course outline and course offered in different semester for the department.

The syllabus here prepared on the basis of OBE (outcome base education) Curriculum and printed in consolidated form. This is a new era and internationally accepted procedure of teaching learning system of education. The details of OBE syllabus are found to the office of the Dean of Faculty of Science and Technology as well as to the Head of the Department.

Disciplinary Rules for the students are divided into two parts. The first part is general discipline which all the students have to be followed. The second part is applicable to conduct the examination both inside and outside the examination hall.

Some of the information of this booklet is likely to be modified time to time, So the students are advised to be in touch with their advisors and Head of the Department.

It is hoped that this booklet would be quite helpful for the students, faculty members and those who are related with the academic activities of the University. It may be a diamond piece for the foreign students and the students of the University who intend to go abroad for higher education.

Thanks are due the academic committee for under graduate studies (ACUG), members of academic council and all the faculty members of the department.

I am grateful to all the faculty members of Computer Science and Engineering department who worked hard and helped a lot in preparing this booklet.

Khulna
January, 2023

Prof. Dr. Md. Nawsher Ali Moral
Dean
Faculty of Science & Technology
North Western University
Khulna-9100

MESSAGE FROM HEAD OF THE DEPARTMENT

Welcome to Department of Computer Science and Engineering (CSE) at North Western University, Khulna. Department of CSE is offering a 4 year and 4 year (diploma intake) undergraduate degree programs. Both the 4 year and 4 year (diploma intake) undergraduate degree programs are spread over eight terms with two terms per academic year. In the case of 4 year (diploma intake) undergraduate program, one term is exempted. The syllabus of this term is included with that subject which are studied in 4 year diploma program. The department has already established its own laboratory different development areas such as software development, mobile application development, competitive programming laboratory, network laboratory, digital logic design laboratory, computer simulation and research laboratory, electric circuit laboratory etc. The aim of this department is to impart the students to update theoretical and practical knowledge of the branch of engineering. Consequently, the undergraduate courses offered to the students have been designed considering the courses offered in BUET, KUET, KU, DUET, some foreign universities, keeping in view the ever increasing horizon of Computer Science and Engineering.

Khulna
January, 2023

Tajul Islam
Head
Department of Computer Science and Engineering
North Western University
Khulna-9100

Profile of North Western University

History

The establishment of North Western University in Khulna, is the third largest port city of the country, was indeed, a noble idea of some distinguished personalities. They placed a proposal for establishing North Western University to the Ministry of Education and the Ministry issued permission on 18 November 2012. The University started its academic programs on 11 February 2013 and 440 students were enrolled in different disciplines at undergraduate programs that marked the beginning of the University.

General Information

North Western University is a new thriving non-government university at Khulna. The academic activities of this University started in 2013 with both Bachelor and Master programs in 14 (fourteen) Departments. The 4 year Undergraduate program is spread over per academic year. The class size may be increased in the interest of effective teaching and sound learning.

The University has a good number of fulltime teachers. The full time teachers are recruited through a rigorous process: written examination, class demonstration and Viva voce. Moreover, there are a number of part time (Adjunct) Faculties from Khulna University and Khulna University of Engineering and Technology and also from other large educational institutions and professional organizations.

The aim of this University is to impart to the student's up-to-date knowledge of different branches of learning. Consequently, the undergraduate and postgraduate courses offered to the students have been designed considering the courses conducted in various reputed universities, keeping in the view the ever-expanding horizon of academic excellence in different programs.

Permanent (Own) Campus

The permanent campus of North Western University (NWU) will be constructed on the purchased land at **Mouza Kholabaria, Thana Botiaghata** under the District of Khulna. So far, NWU has already purchased **18 bighas of land** and more land is under the process of purchasing.

Vision

The University is committed to develop human resources for both National and International Markets and eventually to create leaders of outstanding quality who will contribute to build a prosperous Bangladesh and help the process of modern globalization.

Mission

M1	The Mission of University is to serve diverse communities of learners who seek intellectually stimulating education to develop their life skills so that they can achieve their high academic and career-oriented goals.
M2	To generate remarkable benefits for its students, potential life-changing situation, enhancement of professional competencies and a genuine academic environment for progressive thinking and idea sharing.
M3	To promotes and inculcates ethical and moral values, and norms and high ideals.
M4	To awaken and nourish the community of students with faith, zeal and service to society, self and the nation as well.
M5	To provide high quality education and research to collaborate between academic and industry in the field of engineering and technology.
M6	To contribute a vital role in the national policy making in socio-economic development of Bangladesh.

Objectives

The University has come into existence with the following objectives:

- To introduce need oriented and age-befitting subjects under various programs, modern and essential;
- To produce skilled and trained manpower who can amply contribute to the nation;
- To nurture highly professional fields of learning and essential branches of human knowledge and wisdom;
- To ensure dedication and commitment to the same communities of learners who seek individual, professional, spiritual and ethical development;
- To provide all modern facilities and a congenial atmosphere for learning and research;
- To establish links and networks with other institutions and organizations, where such partnerships can lead to intensive research and teaching;
- To explore the ways of intellectual pursuit, scientific success, technological achievement, liberal education, entrepreneurial and managerial scopes;

Department of Computer Science and Engineering
Academic Ordinance for Undergraduate Program
North Western University, Khulna-9100

1. ORGANIZATIONAL FRAMEWORK OF THE BACHELOR'S/BACHELOR'S (HONS) DEGREE

The undergraduate curriculum of the University is based on the Course Credit System. There are four types of courses in the system:

i) Major Course
ii) Optional Course
iii) Arts and Humanities, Social Science, Basic Science and Mathematics
iv) Minor Course

In the curriculum for the 4 Year or 4 Year (Diploma intake) Undergraduate Program, besides the core courses, strong emphasis will be given on acquiring thorough knowledge in the relevant basic courses, which will help the student to interact more positively with the society in which he/she lives.

2. STRUCTURE OF ACADEMIC PROGRAM

Students will be admitted into the Undergraduate Program in the following one of the **Department** under the Faculty's as follows:

Name of the Faculty	Name of the Department	Degrees Offered
Science and Technology	Computer Science and Engineering (CSE)	B.Sc. in CSE
	Electrical and Electronic Engineering (EEE)	B.Sc. in EEE
	Electrical and Communication Engineering (ECE)	B.Sc. in ECE
	Civil Engineering (CE)	B.Sc. in CE

The Department(s) to be opened by the authority will also follow this ordinance.

3. NUMBER AND DURATION OF TERM

There will be two terms (January Term and July Term) in an academic year. The January term is from January to June and July term is from July to December. The duration of each term will be 23 working weeks, which will be used as follows:

January Term	Classes	15* weeks
	Preparatory leave before Final Examination	2 weeks
	Final Examination	4 weeks
	Term Break	2 weeks
	Sub total	**23 weeks**
July Term	Classes	14* weeks
	Preparatory leave before Final Examination	2 weeks
	Final Examination	4 weeks
	Term Break	2 weeks
	Sub total	**23 weeks**

***Mid Term Examination will be held on Week 7.**
For publication of results, Ordinance for Undergraduate Examination has to be followed.

4. COURSE PATTERN AND STRUCTURE

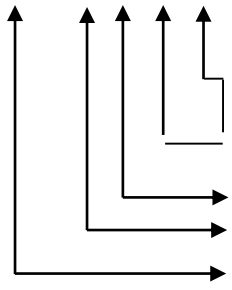
The Undergraduate Program will consist of a set of Theoretical and Laboratory (Laboratory/ field work/ thesis/ research project/ internship etc.) courses.

4.1 Course Designation and Numbering System

Each Course is designated by 2 to 4 letter-words identifying the Department that offers it, followed by a 4-digit number with the following criteria:

- **i)** The first digit corresponds to the year in which the course is taken by the students.
- **ii)** The second digit corresponds to the Term (1 for first Term, 2 for second Term and 0 for both Term) in which the course is taken by the students.
- **iii)** The third and fourth digits will define a course with the odd number indicating a theoretical course and the even number a Laboratory course.

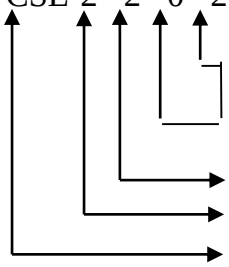
The Course Designation is Illustrated by Two Examples:



Computer Basics and Programming

1 in second positions signifies 1st Term
1 in the first position signifies 1st Year
Departmental and Non-Departmental Course identification code

CSE-2 2 0 2 Database Systems Laboratory



A Two in second position signifies 2nd Term
A Two in the first position signifies 2nd Year
Departmental and Non-Departmental Course identification code

4.2 Assignment of Credit Hours

a) Theoretical Courses

1 Credit Hour is equivalent to One Contact Period (50 minutes per week)

b) Sessional Courses

1.5 Credit Hour is equivalent to Three Contact Periods (150 minutes per weak)

5. COURSE TYPES

The courses included in Undergraduate curriculum are divided into several groups as follows:

i)Major Course

In each Department a number of courses will be offered as major courses which are mandatory for awarding Degree.

ii) Optional Course

Apart from the major Courses, students will have to complete a number of courses which will be offered as optional courses.

iii)Arts and Humanities, Social Science, Basic Science and Mathematics

The total courses for Arts and Humanities, Social Science, Basic Science and Mathematics courses will be offered as per UGC regulations for each Department. For example, Basic Science for CSE: Physics, and Chemistry.

iv) Minor Course

For each department, students will have to complete a number of courses which will be offered as minor course.

6. COURSE OFFERING AND INSTRUCTIONS

The courses to be offered in a particular Term will be announced and published in the Course Curriculum along with a tentative Term schedule before the end of the previous Term. Whether a course is to be offered in any Term will be decided by the respective Department.

Each course will be usually conducted by one or two teachers. The Course Teacher(s) will be responsible for maintaining the expected standard of the course and for the assessment of the student's performance.

6.1 Medium of Instruction

The medium of instruction in Bachelor Degree programs is English and as such proficiency in English is a prerequisite for the candidates to get admission in the degree programs.

6.2 Coordinating Courses

The Head will nominate a teacher as course coordinator for each Term in a year. He/ She will meet the students on a regular basis and advise them on all academic matters.

7. UPDATING CURRICULUM AND SYLLABUS

Consistent with its resilient policy to keep pace with new development in the field of knowledge, the Department will update its curriculum at frequent intervals (**According to the private University Act 2010, Article 24 (2)**; at least every two years) to include the expanding frontiers of knowledge.

8. ADMISSION OF STUDENTS

a) There will be a central Admission Committee for each session. The Vice-Chancellor will be the Chairman of the committee. All Deans of the Faculty's will be the members of the committee. The Registrar of the University will act as Secretary of the committee.

b) There will be an Admission Committee for this Faculty constituted by the Academic Council for each academic session. The Committee of concerned Faculty will send the list of selected candidates to the Registrar's Office for admission. In case of 4 Year undergraduate program, the SSC and HSC grade sheets will be preserved in the respective faculty office for one year. For 4 Year (Diploma Intake) undergraduate program, the diploma grade sheet (regular diploma holder) will be preserved in the respective faculty office for one year.

c) Students seeking admission in this University must pass an admission test. The date of the test is announced in major daily newspapers. Those students want to study Computer Science and Engineering, Electrical and Electronic Engineering, Electronics and Communication Engineering and Civil Engineering are required to have competence in HSC level Mathematics, Physics and Chemistry. Results of the Admission test are announced within 3 days of the test. A list of successful candidates is posted on the Bulletin Board of the University.

d) Requirements **(Reference No. UGC/PU/ 484/part3/06/9192 date 16/11/2011)**
A candidate for admission into the 4 years B.Sc. Engineering program must have the minimum following qualifications:

1. Minimum second division or an average GPA 2.5 in SSC and HSC examinations is required. A total GPA 6.0 in SSC and HSC examinations is required if a student has minimum GPA 2.00 in SSC or HSC examination.
2. Minimum total GPA 7.5 in "O" level and "A" Level examinations.
3. Minimum total GPA 5.0 in SSC and HSC examinations is required for freedom fighter's son and daughter.
4. Student should be admitted within 4 years from the passing date of HSC examination. After that date student will not be considered to admit.

e) A candidate for admission into the 4 Year (Diploma intake) B.Sc. Engineering program must have passed the minimum 3 or 4 years Diploma in Engineering examination from Bangladesh Technical Education Board (after 10 years of schooling) or any examination recognized as equivalent there to and must also fulfill all other requirements as may be prescribed by the Admission Committee. In case of confusion regarding the equivalence the case may be

referred to the degree equivalence committee. However, a candidate must fulfill the requirements mentioned below:

Sl. No.	Name of the Department	Entry Requirements
1.	Computer Science and Engineering	Diploma in Engineering (Computer, Electrical, Electronics, Communication)
2.	Civil Engineering	Diploma in Engineering (Civil/ Civil with wood specialization/Surveying/Environment/Construction/Architecture with special optional subjects)
3.	Electrical and Electronic Engineering	Diploma in Engineering (Electrical/ Electronics/Instruments and Process Control)

The rules and conditions for admission into various departments shall be framed by the Academic Council on the recommendation of the Admission Committee in each year.

f) The Registrar's office will serve as Admission Office and will deal with the students' admission and registration. The Admission Office will report the students' admission to the Academic Council. For the First year students, Department-wise course registration is mandatory. The course registration will be carried out on the basis of the advice of the Course coordinator and on the consent of the Department Head.

g) First year (Term-I/Term II**)** fresh students **must register** for the courses within the deadline of course registration decided by the concerned Faculty, otherwise his/her admission will stand cancelled. **No admission** will be allowed after fifteen working days from the beginning of the classes.

h) Fresh Students have to take the courses of First Year Term-I when he got admitted in any Term (Term-I/Term-II) of the academic year.

9. REGISTRATION PROCEDURE

Each student will fill in the course registration form in consultation with the Course coordinator under the guidance of the Department Head. The original copy of the course registration form will have to be submitted to the Registrar's office. The Registrar's Office will be responsible for its distribution to relevant authorities (Departments and Controller of Examination etc.). The course **registration** will be completed within the seven working days at the beginning of each Term. However, **late registration** will be permitted unto next seven working days on payment of late registration fees. Students having dues to the University shall not be permitted to register.

9.1 Limits on the Credit Hours to be Taken in a Term

A student must register for at least 15 credits and may be allowed to register for up to a maximum of 30 credit (not more than 6 theory course) if recommended by his/her Department Head. If any student fails to register, in any way, for minimum credit hours (15 credits), his/her studentship at the University will stand cancelled. The minimum limit may be relaxed beyond the regular eight

Terms for the students having fewer than 12 credits (only theory course) required to obtain his/her Graduation.

9.2 Course Adjustment Procedure

A student will have some limited options to add or drop courses from his/her registration list, within fifteen working days from the beginning of classes. This can be done with the advice of the concerned Course coordinator and with the consent of the Department Head. Adjustment of initially registered courses in any Term can be done by duly filling in the Adjustment Form. The Registrar's office will do the needful.

9.3 Withdrawal from a Term

If any student is unable to complete the Term Final Examination due to serious illness or serious accident, he/she may apply to the Head of the concerned Department for total withdrawal from the Term within eight working days after the end of the Term Final Examination. However, he/she may choose not to withdraw any Laboratory course if the grade obtained in such a course is C or better. A medical certificate endorsed by the Chief Medical Officer of the University must support the application. The Dean of the concerned Faculty will take the decision on such an application and inform the Registrar. If a student is allowed to withdraw from a Term, he/she will have to register from the Term he/she has withdrawn. However, he/she may be allowed to register for backlog courses, if offered.

9.4 Registration for the Second and Subsequent Term

a) Students who pass all the courses prescribed for the Term and have no backlog of courses will be eligible to register for all courses prescribed for the next Term. Other students have to register for the backlog courses plus the courses prescribed for the next Term, subject to the limits set in Article 9.1.

b) When a student is going to register for his/her courses in 3rd year 2nd Term, his/her earned credit hours unto 2nd year 2nd Term must be at least **36**. **Otherwise, his/her studentship at the University will stand cancelled.**

c) Special Term: A Special Term will be conducted for final year students only with backlog of up to three courses but it will not exceed 15 credits hours. This will be Non-Taught Term to clear backlog courses, if any. The Examination of Special Term will start 2 (two) weeks after the publication of 4^{th} year 2^{nd} Term results and will continue not more than 1(one) week. The attendance marks (10%) and continuous assessment marks (30%) will be carried over from previously registered theory course(s) and Special Term Final Examination will carry the remaining (60%) marks. Final Year Term Thesis/Dissertation/Design or Core Laboratory(s) supervisor(s) in consultation with the Head may allow the student(s) to re-submit the Thesis/Dissertation/ Design or Core Laboratory(s) within the special Term schedule. However, it must be within the allowed limits of the special Term credits.

d) Internship program/research study will be conducted according to the course curriculum of the respective Departments.

10. ABSENCE DURING A TERM

A student should not be absent from quizzes/class test(s)/Mid-Term/field work etc. during the Term. Such absence will naturally lead to reduction in points/marks, which count toward the final grade **Absence in Term.** Final Examination will result in **F Grades.**

A student who has been absent for a short period, up to a maximum of three weeks due to illness, should approach the course teacher(s) or Course coordinator(s) for a make-up of quizzes/class test(s)/ mid-Term or assignments etc. immediately on returning to the classes. Such request should be supported by a medical certificate endorsed by the Chief Medical Officer of the University. The medical certificate issued by a registered medical practitioner (with the registration number shown explicitly on the certificate) and endorsed by the Chief Medical Officer of the University will also be acceptable only in those cases where the student has valid reasons for his absence from the University.

11. THE GRADING SYSTEM

The total performance of a student in a given theoretical course is based on a scheme of continuous assessment made through a set of quiz/class test(s)/ mid-Term, class attendance and participation, homework assignments, and a Term Final Examination. The assessment in Laboratory courses is made through observation of the student at work in class/field work, viva-voce during Laboratory hours and quizzes. A Letter Grade with a specified number of Grade Points is awarded in each course for which a student has registered. A student's performance is measured by the number of credits that he/she has completed satisfactorily and the weighted average of the Grade Point is required to be maintained for satisfactory progress. Similarly, a minimum number of earned credits should be acquired in order to qualify for the Degree, as prescribed in Article 16.

11. 1 Grading Scale

Letter Grades and corresponding Grade Points will be awarded in accordance with provisions shown below:

NUMERICAL GRADE	LETTER GRADE	GRADE POINT
80% or above	A+ (A plus)	4.00
75% to less than 80%	A (A regular)	3.75
70% to less than 75%	A- (A minus)	3.50
65% to less than 70%	B+ (B plus)	3.25
60% to less than 65%	B (B regular)	3.00
55% to less than 60%	B- (B minus)	2.75
50% to less than 55%	C+ (C plus)	2.50
45% to less than 50%	C (C regular)	2.25
40% to less than 45%	D	2.00

NUMERICAL GRADE	LETTER GRADE	GRADE POINT
Less than 40%	F	0.00
Incomplete	I	
Withdrawn	W	
Continuation (For project and thesis/design course)	X	

11. 2 DISTRIBUTIONS OF MARKS

Fifty percent (50%) of marks shall be allotted to continuous assessment, i.e. semester mid examination, quizzes, assignments and external participations in curricular/co-curricular activities. The remaining marks will be allotted to semester end examination, which will be conducted centrally by the University. There will be two examiners for each theoretical course in the semester end examination.

The distribution of marks for given theory courses will be as follows:

Category	Tests		Assignments/Presentation	Quizzes	External Participation in Curricular/Co-Curricular Activities /Class Attendance and Participation	Semester End Examination
	Mid Term Examination	Class Test				
Marks	20	5	10	5	10	50

Grade Point (GP) of any theoretical course of a student will be calculated on the basis of continuous assessments (marks obtained in semester mid examination, quizzes, assignments and external participations in curricular/co-curricular activities) and semester end examination.

Suggestive Assessment Pattern:

CIE – Continuous Internal Evaluation (50 Marks)

Bloom's Category Marks (out of 50)	Tests (25)	Assignments (10)	Quizzes (05)	External Participation in Curricular/Co-Curricular Activities (10)
Remember			05	
Understand		05		
Apply	08			10
Analyze	09			
Evaluate	08			

Bloom's Category Marks (out of 50)	Tests (25)	Assignments (10)	Quizzes (05)	External Participation in Curricular/Co-Curricular Activities (10)
Create		05		

SEE – Semester End Examination (50 Marks)

Bloom's Category	**Final Examination**
Remember	05
Understand	10
Apply	15
Analyze	10
Evaluate	05
Create	05

(Source: Sample OBE Curriculum: Page-33 Sent by UGC)

The distribution of marks for a given Sessional Course will be as follows:

No.	**Description**	**Marks**
(i)	Class participation/ contact with teacher	10
(ii)	Performance and reports	40
(iii)	Quizzes	30
(iv)	Viva voce/Lab test	20
Total		100

Grade Point (GP) of any Sessional course of a student will be calculated on the basis of continuous assessments (marks obtained in Class participation/ contact with teacher, Performance and reports) and semester end examination (Quizzes, Viva voce/Lab test)

In a similar manner, the distribution of marks for a given Thesis/Monograph/Research Project will be as follows:

No.	**Description**	**Marks**
(i)	Evaluation	60
(ii)	Viva-voce & presentation	30
(iii)	Contact/Discussion/Communication with the supervisor	10
Total		100

*__Students have to present their dissertation otherwise results will not be published__.

There will be two Examiners (one is Supervisor) to examine the Thesis. Each examiner will evaluate the Thesis separately and the average marks will be considered for grading. However, if the marks given by the First and Second Examiners vary 20% or more, a Third Examiner to be appointed by the concerned Examination Committee, from the outside of the University will evaluate the Thesis/Monograph/ research Project Report. Among these numbers, average of the closest two number will be considered for grading. However, if the marks given by the Third Examiner happen to stand at the middle of the marks given by the first Two Examiners, the average of the three marks will be considered for grading.
Basis for awarding marks for class attendance and participation will be as follows:

ATTENDANCE & PARTICIPATION	MARKS
90% and above	10
85% to less than 90%	9
80% to less than 85%	8
75% to less than 80%	7
70% to less than 75%	6
65% to less than 70%	5
60% to less than 65%	4
Less than 60%	0

***Students have to take the permission from academic council to attend the final examination if their attendance and participations are less than 60%.**

12. EARNED CREDITS

The courses in which a student obtains D or a higher Grade will only be counted as credits earned by him/her. If a student obtains F grade in any core course in any Term, he/she will have to repeat the course. In case of F grade in an optional course, he/she may choose to take a substitute course, if available.

12.1 Regular Grading

F Grade will not be counted for Grade Point Average (GPA) calculation but will be shown on the Grade Sheet. When a student will repeat a course in which he/she previously obtained F grade, he/she will be given just immediate lower grade that he/she obtained in the repeated course. But in case he/she obtains D grade, that will be maintained and this grade will be shown in the transcript. If a student has to repeat a course due to punishment on him/her, the grade obtained will be maintained.
If a student obtains a grade other than F in a course, he/she will be allowed to repeat the course for the purpose of grade improvement.

12.2 Repetition of Course(s)

If a student repeats a course for which he obtained F grade (in any previous Term), he may be allowed to repeat the continuous assessment (i. e. class test/quiz/assignment/Term paper) to

improve the grade, but he/she has to apply to the Head through concerned course teacher within 20 working days from the beginning of the Term. However, the marks of class attendance and participation will be taken from the previous record.

13. CALCULATION OF GPA AND CGPA

Grade Point Average (GPA) is the weighted average of Grade Points obtained in all the courses passed/completed by a student. For example, if a student has passed/complete five courses in a Term having credits of C_1, C_2, C_3, C_4 and C_5 and his/her points in these courses are G_1, G_2, G_3,G_4 and G_5 respectively then,

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

A Numerical Example:

Suppose a student has completed five courses in a Term and obtained the following grades:

COURSE	CREDIT, C_i	GRADE	GRADE POINT, G_i
EEE-2103	3	A+	4.00
CSE-2101	3	A	3.75
Math-2121	2	B	3.25
Hum-2131	1	B+	3.50

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

$$\boldsymbol{GPA} = \frac{\mathbf{3\times4.00+3\times3.75+2\times3.25+1\times3.50}}{\mathbf{(3+3+3+2+1)}} = \mathbf{2.77}$$

Cumulative Grade Point Average (CGPA) gives the cumulative performance of the student from first Term up to any other Term to which it refers and is computed by dividing the total weighted grade points ($\sum C_i G_i$) accumulated up to the date by the total credit hours ($\sum C_i$) Both GPA and CGPA will be rounded off to the second place of decimal for reporting.

14. PERFORMANCE EVALUATION

The performance of a student will be evaluated in Terms of three indices, viz. Term Grade Point Average (TGPA), Yearly Grade Point Average (YGPA) and Cumulative Grade Point Average (CGPA). The SGPA is computed by dividing the total grade points earned in a Term by the number of credit hours taken in the Term. The YGPA is computed by dividing the total grade points earned in two terms in a year by the number of credit hours taken in that year. The CGPA is computed by dividing the total grade points accumulated up to date by the total completed credits. Thus, a student who has earned 2.75 grade points in attempting 100 credit hours of courses would have an overall CGPA of 2.75.

15. DEGREE WITH DISTINCTIONS

The students will be awarded the Degree with distinction and Honors, if their CGPA is 3.75 or above.

15.1 The Dean's List

In recognition of excellent performance, the name of students who maintain a GPA of 3.75 or above in regular Term(s) of an academic year, may be published in the Dean's List in each Faculty. In this regard Dean will give a certificate to the student confirming his name in the Dean's List. The student will be honored Tk. 2000 for his name in the Dean's List by the approval of academic council. Students who have earned 'F' grade in any course during any Terms will not be considered for Dean's List in that year.

15.2 University Gold Medal

University Gold Medal for outstanding graduates will be awarded to the students who secure the 1st position with cumulative GPA not below 3.75 in each Department. The student must have completed his/her undergraduate course work within four/three consecutive academic years. Students who have earned 'F' grade in any course during any Terms will not be considered for University Gold Medal.

16. GPA REQUIRMENTS FOR TUITION FEE WAIVER

16.1 Full Free Tuition Award (FFTA)

As per Private University Act, 5% of the students promoted to every class of a Term will be offered the **Full Free Tuition Award (FFTA)** on the basis of the earned Grade Point Average (GPA) of all courses of the immediate previous academic year except the courses Project/Thesis & Surveying Laboratory. If the grade point averages of more than one student are equal, then the total marks obtained by the students in the courses will be considered for the award. The bonfire students, who are promoted, get admitted and continue their studies at **the University** are eligible for FFTA on the basis of merit and other rules and regulations of the University.

16.2 Half Free Tuition Award (HFTA)

The University also offers **Half Free Tuition Award (HFTA)** to a maximum of another 5% of the students promoted to every class of an academic year whose results are considered to be brilliant as those for FFTA. The interested students are required to submit application for HFTA in prescribed form available in the office of the Registrar positively by the date notified. No application/candidature/appeal will be considered after the date notified. The selection for HFTA will be, among other rules and regulations, on the basis of the earned grade point average (GPA) of all courses of the immediate previous academic year except the courses Project/Thesis & Surveying Laboratory. If the grade point averages of more than one student are equal, then the total marks obtained by the students in the courses will be considered for the award.

The following criteria will also be considered in the selection for both FFTA and HFTA awards:

a) To be eligible for the award a student needs to continue his/her study at the University. The award will be cancelled/forfeited for any discontinuation/interruption of study at the University**.**
b) If any disciplinary action has been taken against a student, he/she is not eligible for FFTA or HFTA.
c) The students having less than 60% class attendance in the immediate previous Term are not eligible for any award.
d) Student, already selected for FFTA, is not eligible for HFTA and HFTA will be sanctioned only on the basis of application and rules and regulations and not as a matter of right of the student.
e) There are also provisions for financial help to the distressed students from the Fund for Welfare of the Distressed Students.
f) If two or more students of the same parent's study concurrently as regular students in this University, one of them may get Half Free Tuition Award on application as per the rules of the University.

17. MINIMUM EARNED CREDITS AND GPA REQUIREMENTS FOR OBTAINING DEGREE

The minimum number of credits that a student has to complete for award of B.Sc. Engg. degree will be 160. A maximum of 20 credits may be exempted for 4 year B.Sc. Engg. Program with diploma intake (as they completed 3 or 4 year diploma course)

A student of 4 year B.Sc. Engg. / Bachelor (Hon's) must complete his studies within 7 (seven) consecutive academic year (fourteen regular terms) for completion of degree. A student of 4 year B.Sc. Engg. with diploma intake must complete his studies within 6 (six) consecutive academic years (twelve semester) for completion of degree, but he must have to be regular student for at least 7 (seven) semesters in this university or any other equivalent institute.

The minimum CGPA required for obtaining B.Sc. Engg / Bachelor (Hon's) degree is 2.20

18. APPLICATION FOR GRADUATION AND AWARD OF DEGREE

A student, who has fulfilled all the academic requirements for Bachelor/Bachelor's (Hons.) Degree will have to apply to the Controller of Examinations through his/her Head of Department for Graduation. Provisional Degree will be awarded on completion of credit hours and CGPA requirements. The Syndicate will award such provisional Degrees on the basis of recommendation of the Academic Council. Original certificates will normally be awarded through convocation or thereafter.

19. INDUSTRIAL/PROFESSIONAL ATTACHMENT

Depending on each Department's own requirements, a student may have to complete a prescribed number of days of industrial/professional training/attachment/field work in addition to the minimum credit and other requirements, to the satisfaction of the concerned Department as credit/non-credit requirements.

20. TEACHER STUDENT CONTRACT

The proposed system encourages students to come in close contact with teachers. For promotion of teacher-student contact, each student is assigned to an Advisor and the student is free to discuss with his/her advisor all academic matters, especially those related to courses taken and classes being attended by him/her. Students are also encouraged to meet other teachers any time for help on academic matters.

21. EXAMINATION COMMITTEE

a) Committee Formation: On recommendation of the EXECUTIVE COMMITTEE of The Faculty of Science and Technology, the ACADEMIC COUNCIL will formulate EXAMINATION COMMITTEE for each academic session and for each year for each Department. EXAMINATION COMMITTEE formation will be as follows:

- **i)** One Chairperson, normally he/she will be the Head of the Department.
- **ii)** Three internal teacher members from the concerned Department must not be below the rank of Assistant Professor. In case teachers of this rank are not available the Lecturers may be nominated as member(s).
- **iii)** One external member of relevant subject/field from outside the concerned Department who will not be below the rank and status of an Assistant Professor.

b) Duties of the Examination Committee:

- **i)** The EXECUTIVE COMMITTEE of the Faculty of Science and Technology will recommend the proposed panel(s) of examiner for each academic year received from the concerned Department to the ACADEMIC COUNCIL for approval.
- **ii)** The CONTROLLER OF EXAMINATIONS will select Question paper setters and answer script examiners from the approved panel for appointment.
- **iii)** EXAMINATION COMMITTEE will organize and manage all other activities including Moderation of questions, Scrutinizing of answer scripts and appointment of Tabulators for successful completion of the examination process. The Committee will also recommend the results to be published by the CONTROLLER OF EXAMINATIONS.

22. EQUIVALENCE COMMITTEE

DEGREE EQUIVALENCE COMMITTEE formation will be as follows:

- **i)** One Chairperson, he/she will be the Dean of the Faculty.
- **ii)** All Heads from the concerned department will be the member of EQUIVALENCE COMMITTEE**.**
- **iii)** One internal member from the concerned Faculty will be the member of DEGREE EQUIVALENCE COMMITTEE who will not be below the rank and status of an Associate Professor.

22.1 ACUG means the Academic Committee for Undergraduate Studies in a degree-awarding department of the University. Each degree-awarding department will form a departmental

monitoring committee with Head of the Department as Chairman and 4 (four) senior most teachers of the department as members. The committee will also nominate course coordinator and advisors for the student.

22.2 The ACUG shall consist of the following members:

i.	Head of the Department	Chairman
ii.	All faculty members	Member
iii.	One expert from the relevant field having experience in any industry, research or commercial organization to be nominated by the ACUG.	Member

22.3 At least one-third members will fulfil the quorum.

23. SUBSEQUENT ORDINACES

In case, there is any conflict of this ordinance with the subsequent ordinance(s) like ordinance for Undergraduate Examinations, the provisions of this ordinance shall prevail**.**

This Syllabus is Proposed based on OBE (Outcome Based Education) curriculum for Bachelor of Science in Computer Science and Engineering
(B.Sc. in CSE)

The undergraduate students of the Department of Computer Science and Engineering have to follow the course schedule given below. The letter prefix in any course number indicates the department offering the course viz. **CSE** for Computer Science and Engineering, **EEE** for Electrical and Electronic Engineering, **ME** for Mechanical Engineering, **Chem** for Chemistry, **Phy** for Physics, **Math** for Mathematics and **Hum** for Humanities. The first digit in the number indicates the year, second digit indicates semester for which the course is intended. Odd numbered (3rd and 4th digit) courses are theory courses, even numbered (3rd and 4th digit) courses are Laboratory courses.

SUMMARY OF COURSE PLAN FOR 4 YEAR B.Sc. in CSE

Year	Term	Theory		Laboratory/ Project		Total Credit
		No. of Course	Credit	No. of Course	Credit	
1st	1st	06	18	04	3.75	21.75
	2nd	06	18	04	4.50	22.50
2nd	1st	06	21	03	3.00	21.00
	2nd	06	16.50	05	5.25	21.75
3rd	1st	06	18	04	3.75	21.75
	2nd	05	13.50	05	4.50	18.00
4th	1st	05	15	05	4.50	19.50
	2nd	05	15	01	0.75	15.75
Total		**45**	**132.00**	**31**	**30**	**162.00**

Department of Computer Science and Engineering
SCHEME OF FIRST YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-1101	Computer Basics and Programming	B.Sc. in CSE	3.00	50	50	100
2	CSE-1102	Computer Basics and Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
3	Math-1131	Engineering Mathematics-I	B.Sc. in CSE	3.00	50	50	100
4	Phy-1133	Physics-I	B.Sc. in CSE	3.00	50	50	100
5	Phy-1134	Physics-I Laboratory	B.Sc. in CSE	0.75	50	50	100
6	Chem-1135	Chemistry	B.Sc. in CSE	3.00	50	50	100
7	Chem-1136	Chemistry Laboratory	B.Sc. in CSE	0.75	50	50	100
8	Hum-1141	English and Human Communications	B.Sc. in CSE	3.00	50	50	100
9	Hum-1142	English and Human Communications Laboratory	B.Sc. in CSE	0.75	50	50	100
10	Hum-1143	History of the Emergence of Bangladesh	B.Sc. in CSE	3.00	50	50	100
Total				**21.75**	**500**	**500**	**1000**

SCHEME OF FIRST YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-1201	Structured Programming	B.Sc. in CSE	3.00	50	50	100
2	CSE-1202	Structured Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
3	CSE-1203	Digital Logic Design	B.Sc. in CSE	3.00	50	50	100
4	CSE-1204	Digital Logic Design Laboratory	B.Sc. in CSE	1.50	50	50	100
5	Phy-1233	Physics-II	B.Sc. in CSE	3.00	50	50	100

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
6	Math-1231	Engineering Mathematics-II	B.Sc. in CSE	3.00	50	50	100
7	EEE-1221	Basic Electrical Circuit	B.Sc. in CSE	3.00	50	50	100
8	EEE-1222	Basic Electrical Circuit Laboratory	B.Sc. in CSE	0.75	50	50	100
9	ME-1223	Mechanics and Heat Engineering	B.Sc. in CSE	3.00	50	50	100
10	ME-1224	Computer Aided Design Laboratory	B.Sc. in CSE	0.75	50	50	100
Total				**22.50**	**500**	**500**	**1000**

SCHEME OF SECOND YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	Program	Credits	Marks		
					CIE	SEE	Total
1	CSE-2101	Object Oriented Programming	B.Sc. in CSE	3.00	50	50	100
2	CSE-2102	Object Oriented Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
3	CSE-2103	Data Structures	B.Sc. in CSE	3.00	50	50	100
4	CSE-2104	Data Structures Laboratory	B.Sc. in CSE	0.75	50	50	100
5	CSE-2105	Computer Architecture	B.Sc. in CSE	3.00	50	50	100
6	CSE-2107	Discrete Mathematics	B.Sc. in CSE	3.00	50	50	100
7	EEE-2121	Electronic Devices and Circuits	B.Sc. in CSE	3.00	50	50	100
8	EEE-2122	Electronic Devices and Circuits Laboratory	B.Sc. in CSE	0.75	50	50	100
9	Math-2131	Engineering Mathematics-III	B.Sc. in CSE	3.00	50	50	100
Total				**21.00**	**450**	**450**	**900**

SCHEME OF SECOND YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	Program	Credits	Marks		
					CIE	SEE	Total
1	CSE-2200	Software Development Laboratory	B.Sc. in CSE	1.50	50	50	100
2	CSE-2201	Database Systems	B.Sc. in CSE	3.00	50	50	100
3	CSE-2202	Database Systems Laboratory	B.Sc. in CSE	1.50	50	50	100
4	CSE-2203	Algorithm Analysis and Design	B.Sc. in CSE	3.00	50	50	100
5	CSE-2204	Algorithm Analysis and Design Laboratory	B.Sc. in CSE	0.75	50	50	100
6	CSE-2205	Numerical Analysis	B.Sc. in CSE	3.00	50	50	100
7	CSE-2206	Numerical Analysis Laboratory	B.Sc. in CSE	0.75	50	50	100
8	EEE-2221	Electrical Drives and Instrumentation	B.Sc. in CSE	3.00	50	50	100
9	EEE-2222	Electrical Drives and Instrumentation Laboratory	B.Sc. in CSE	0.75	50	50	100
10	Math-2231	Engineering Mathematics-IV	B.Sc. in CSE	3.00	50	50	100
11	Hum-2241	Psychology	B.Sc. in CSE	1.50	50	50	100
Total				**21.75**	**550**	**550**	**1100**

SCHEME OF THIRD YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-3101	Microprocessors and Microcontrollers	B.Sc. in CSE	3.00	50	50	100
2	CSE-3102	Microprocessors and Microcontrollers Laboratory	B.Sc. in CSE	0.75	50	50	100
3	CSE-3103	Software Engineering	B.Sc. in CSE	3.00	50	50	100
4	CSE-3104	Software Engineering Laboratory	B.Sc. in CSE	0.75	50	50	100
5	CSE-3105	Theory of Computation	B.Sc. in CSE	3.00	50	50	100

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
6	CSE-3108	Internet Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
7	CSE-3109	Digital System Design	B.Sc. in CSE	3.00	50	50	100
8	CSE-3110	Digital System Design Laboratory	B.Sc. in CSE	0.75	50	50	100
9	CSE-3121	Data Communication	B.Sc. in CSE	3.00	50	50	100
10	Hum-3141	Engineering Economics and Accounting	B.Sc. in CSE	3.00	50	50	100
Total				**21.75**	**500**	**500**	**1000**

SCHEME OF THIRD YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-3200	Advanced Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
2	CSE-3201	System Programming and Operating System	B.Sc. in CSE	3.00	50	50	100
3	CSE-3202	System Programming and Operating System Laboratory	B.Sc. in CSE	0.75	50	50	100
4	CSE-3203	Computer Networks	B.Sc. in CSE	3.00	50	50	100
5	CSE-3204	Computer Networks Laboratory	B.Sc. in CSE	0.75	50	50	100
6	Hum-3241	Bengali Language and Literature	B.Sc. in CSE	3.00	50	50	100
7	CSE-3208	Technical Writing and Presentation Laboratory	B.Sc. in CSE	0.75	50	50	100
8	CSE-32xx	Optional-I	B.Sc. in CSE	3.00	50	50	100
9	CSE-32xx	Optional-I Laboratory	B.Sc. in CSE	0.75	50	50	100
10	Hum-3241	Industrial Management	B.Sc. in CSE	1.50	50	50	100
Total				**18.00**	**500**	**500**	**1000**

SCHEME OF FOURTH YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-4100	Project/Thesis-I	B.Sc. in CSE	1.50	70	30	100
2	CSE-4101	Artificial Intelligence	B.Sc. in CSE	3.00	50	50	100
3	CSE-4102	Artificial Intelligence Laboratory	B.Sc. in CSE	0.75	50	50	100
4	CSE-4103	Compiler Design	B.Sc. in CSE	3.00	50	50	100
5	CSE-4104	Compiler Design Laboratory	B.Sc. in CSE	0.75	50	50	100
6	CSE-4105	Information Security and Control	B.Sc. in CSE	3.00	50	50	100
7	CSE-41xx	Optional-II	B.Sc. in CSE	3.00	50	50	100
8	CSE-41xx	Optional-II Laboratory	B.Sc. in CSE	0.75	50	50	100
9	CSE-41xx	Optional-II	B.Sc. in CSE	3.00	50	50	100
10	CSE-41xx	Optional-II Laboratory	B.Sc. in CSE	0.75	50	50	100
Total				**19.50**	**520**	**480**	**1000**

SCHEME OF FOURTH YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-4200	Project/Thesis-II	B.Sc. in CSE	3.00	70	30	100
2	CSE-4201	Computer Graphics	B.Sc. in CSE	3.00	50	50	100
3	CSE-4202	Computer Graphics Laboratory	B.Sc. in CSE	0.75	50	50	100
4	CSE-4206	Industrial Training	B.Sc. in CSE	0.00	50	50	100
5	CSE-42xx	Optional-III	B.Sc. in CSE	3.00	50	50	100
6	CSE-4205	Applied Probability and Queuing Theory	B.Sc. in CSE	3.00	50	50	100

7	Hum-4241	Government and Sociology	B.Sc. in CSE	3.00	50	50	100
Total				**15.75**	**470**	**430**	**900**

Optional-I

Optional-I should be selected from the following courses:

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-3209	Distributed Database	B.Sc. in CSE	3.00	50	50	100
2	CSE-3210	Distributed Database Laboratory	B.Sc. in CSE	0.75	50	50	100
3	CSE-3211	Data Warehousing and Mining	B.Sc. in CSE	3.00	50	50	100
4	CSE-3212	Data Warehousing and Mining Laboratory	B.Sc. in CSE	0.75	50	50	100
5	CSE-3213	Digital Signal Processing	B.Sc. in CSE	3.00	50	50	100
6	CSE-3214	Digital Signal Processing Laboratory	B.Sc. in CSE	0.75	50	50	100

Optional-II

Optional-II should be selected from the following courses:

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
01	CSE-4107	Modeling and Simulation	B.Sc. in CSE	3.00	50	50	100
02	CSE-4108	Modeling and Simulation Laboratory	B.Sc. in CSE	0.75	50	50	100
03	CSE-4109	VLSI Design	B.Sc. in CSE	3.00	50	50	100
04	CSE-4110	VLSI Design Laboratory	B.Sc. in CSE	0.75	50	50	100
05	CSE-4111	Computer Peripheral and Interfacing	B.Sc. in CSE	3.00	50	50	100
06	CSE-4112	Computer Peripheral and Interfacing Laboratory	B.Sc. in CSE	0.75	50	50	100
07	CSE-4113	Wireless Networks	B.Sc. in CSE	3.00	50	50	100

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
08	CSE-4114	Wireless Networks Laboratory	B.Sc. in CSE	0.75	50	50	100
09	CSE-4115	Pattern Recognition	B.Sc. in CSE	3.00	50	50	100
10	CSE-4116	Pattern Recognition Laboratory	B.Sc. in CSE	0.75	50	50	100
11	CSE-4117	Computer Vision and Image Processing	B.Sc. in CSE	3.00	50	50	100
12	CSE-4118	Computer Vision and Image Processing Laboratory	B.Sc. in CSE	0.75	50	50	100
13	CSE-4119	Machine Learning	B.Sc. in CSE	3.00	50	50	100
14	CSE-4120	Machine Learning Laboratory	B.Sc. in CSE	0.75	50	50	100

Optional-III

Optional-III should be selected from the following courses:

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-4207	Decision Support System	B.Sc. in CSE	3.00	50	50	100
2	CSE-4209	Fault Tolerant System	B.Sc. in CSE	3.00	50	50	100
3	CSE-4211	Parallel and Distributed Processing	B.Sc. in CSE	3.00	50	50	100
4	CSE-4213	Biomedical Engineering	B.Sc. in CSE	3.00	50	50	100
5	CSE-4215	Natural Language Processing	B.Sc. in CSE	3.00	50	50	100

Details Syllabus for 4 Year B.Sc. in Computer Science and Engineering Program

1st Year 1st Semester

CSE-1101: Computer Basic and Programming

3.00 credits, 3 hrs/week

Algorithms and flow charts, Information presentation on computer, Number System, Binary operation, Computer Generation and structure, Program level, computer devices, C Programming Language, Structured Programming Concepts, Program branch statements, Decision Making and Looping, Arrays.

CSE-1102: Computer Basic and Programming Laboratory

1.5 credits, 3 hrs/week

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming).

Math-1131: Engineering Mathematics-I

3.00 credits, 3 hrs/week

Basic concept on Differentiation, Differentiation of various functions, Significance of derivatives, Successive differentiation of various types of functions, Leibnitz's theorem, Partial differentiation, Various Theorems on Differentiation, Evaluate and Applications of differential calculus, Introduction of Integral Calculus, Improper Integrals, Beta function and Gamma function, Solve different types of area, lengths and volume problems.

Phy-1133: Physics-I

3.00 credits, 3 hrs/week

Concept of Gases, Laws of Thermodynamics, Waves and Oscillation, Physical Optics, Electricity and magnetism, Electricity and magnetism.

Phy-1134: Physics-I Laboratory

0.75 credits. 1.5hrs/week

All the topics covered in this course are based on Phy-1134 (Physics-I Laboratory).

Chem-1135: Chemistry

3.00 credits, 3 hrs/week

Chemical Equilibrium, Chemical Kinetics, Electrochemistry, Thermochemistry, Chemistry of polymerization, Acids and Bases, Chemical Bond, Atomic Structure, Solutions.

Chem-1136: Chemistry Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on Chem-1135 (Chemistry).

Hum-1141: English and Human Communication

3.00 credits, 3 hrs/week

Grammar and Vocabulary Building, Listening Skill and Note Taking, Developing Speaking Skill, Developing Reading Skill, Developing Writing Skill.

Hum-1142: English and Human Communication Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on Hum-1142 (English and Human Communication Laboratory).

Hum-1143: History of the Emergence of Bangladesh

3.00 credits, 3 hrs/week

Historical Roots of Bangladesh (Medieval: 1204 – 1757) and British Rule in Bengal: 1757 – 1947, Bangla Language and People and background of Bangladesh, Nationalist and Political Circumstances: 1947 – 1971 and Language Movement of 1952, The Liberation War and its Causes and Six-Points Movement in 1966, Declaration of Independence, Operation Searchlight, War of Liberation, Politics and Governance and Bangladesh Society and Culture and Heritage, Development: Agriculture and Industries and Socio-economic Policies: Foreign Policy, Bangladesh and Globalization.

1st Year 2nd Semester

CSE -1201: Structured Programming

3.00 credits, 3 hrs/week

Data types and variables, Arrays, String, Program control statements, Modular programming with functions, Pointers, Dynamic Arrays, Recursion, Iteration versus Recursion, Structure and dynamic memory allocation, File management, Screen and Graphics Functions, Linked Lists.

CSE-1202: Structured Programming Laboratory

1.5 credits, 3 hrs/week

All the topics covered in this course are based on CSE-1201 (Structured Programming).

CSE-1203: Digital Logic Design

3.00 credits, 3 hrs/week

Binary System, Boolean algebra and Logic gates, Simplification of Boolean function, Combinational logic, Combinational circuit with MSI and LSI, Sequential circuit.

CSE-1204: Digital Logic Design Laboratory

1.5 credits, 3 hrs/week

All the topics covered in this course are based on CSE-1204 (Digital Logic Design).

EEE-1221: Basic Electrical Circuit

3.00 credits, 3 hrs/week

Fundamental electric concepts and measuring units, D.C. voltage, Current, Resistance and power, Laws of electrical circuits and methods of network analysis, Principles of D.C. measuring apparatus, Laws of magnetic fields and methods of solving simple magnetic circuit, instantaneous and r. m. s. current, Voltage and power, Average power for various combinations of R. L and C circuit, Phasor representation of sinusoidal quantities. Single phase AC circuit analysis.

EEE-1222: Basic Electrical Circuit Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on EEE-1221 (Basic Electrical Circuit).

ME-1223: Mechanics and Heat Engineering

3.00 credits, 3 hrs/week

Resultant and components of forces. Equilibrium of coplanar forces, Centroids and Center of Gravity, Moment of inertia of area and mass, Frictions, Maximum and minimum forces, Kinetics of absolute motions and Kinetics of relative motions, Kinetics of plane motion of rigid bodies, Principles of work and energy, Working principles of a few representative boilers, Introduction to the principle of operation of steam turbine, Introduction to internal combustion engine and working principle of petrol engine, Working principle of diesel engine and gas turbine, Basic concepts of refrigeration, Basic concepts of air conditioning and reviews.

ME-1223: Computer Aided Design Laboratory

1.50 credits, 3 hrs/week

All the topics covered in this course are based on ME-1223 (Mechanics and Heat Engineering).

Math-1231: Engineering Mathematics-II

3.00 credits, 3 hrs/week

Coordinate Geometry of two dimensions, General equation of 2^{nd} degree, Change of axes, Coordinate Geometry of three dimensions, Projection, Direction cosines and ratios, Equation of planes and lines, Shortage distance, Cone, Degree and order of ordinary differential equations, Solution of first order differential equations by various methods, Physical applications of first order differential equations, Solution of second and higher order linear differential equations, Solution of Cauchy-Euler Equation, Matrix Operation: Field and matrices over a field, Special

types of matrices with their properties, Elementary transformations of matrix, System of linear equations: Solution of system of linear equations using matrices, Consistency of system of linear equations, Vector Spaces: General vector spaces, Basis and Dimension, Eigenvalues and Eigenvectors, Cayley-Hamilton theorem, Inner product of vector spaces, Orthogonality.

Phy-1233: Physics-II

3.00 credits, 3 hrs/week

Concept of Properties of matter, Material characteristics, Surface tension, Solid State Physics, Modern Physics, Nuclear Physics.

2nd Year 1st Semester

CSE-2101: Object Oriented Programming

3.00 credits, 3 hrs/week

Philosophy of Object Oriented Programming (OOP), features of OOP, advantages of OOP over structured programming, Classes and Objects, constructors, destructors and copy constructors, array of objects, object references, function overloading, operator overloading and type conversion of object, Inheritance, Polymorphism, virtual function run time type identification, exception handling, template functions and classes, namespace, standard template library.

CSE-2102: Object Oriented Programming Laboratory

1.50 credits, 3 hrs/week

All the topics covered in this course are based on CSE-2101 (Object Oriented Programming).

CSE-2103: Data Structures and Algorithms

3.00 credits, 3 hrs/week

Elementary data types and objects, Arrays, Linked lists, Stack, Queues, Recursion, Trees, Heaps, Sorting, Searching, Merging, Hash techniques, Memory Management.

CSE-2104: Data Structures Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-2103 (Data Structures and Algorithms).

CSE-2105: Computer Architecture

3.00 credits, 3 hrs/week

Fundamentals of Computer Architecture, Fundamentals of computer design, Instruction set principles, Input/output Organization, Memory Hierarchy technology, Memory System, Pipelined

processor, CPU Structure and Function, Introduction to High Performance Techniques, Micro Programmed Control, SIMD Architecture, Vector architecture and MIMD Architecture.

CSE-2107: Discrete Mathematics

3.00 credits, 3 hrs/week

Set Theory, Relation and Function, Logic and Propositional Calculus, Algebraic structure, Boolean Algebra, Graph Theory, Tree, Combinatorics, Discrete Probability.

EEE-2121: Electronic Devices and Circuits

3.00 credits, 3 hrs/week

Semiconductors and Junction diode characteristics, Bipolar transistor characteristics, Small-signal low frequency h-parameter model, hybrid pie model, Amplifiers, Darlington pairs, Introduction to Oscillators, differential amplifiers, Linear application of op-amp, gain, input and output impedances, offset null adjustment, frequency response and noise, Introduction to JFET, MOSFET, NMOS and CMOS; Biasing and application in switching circuits, SCR, TRIAC, DIAC, and UJT: characteristics and applications, Introduction to rectifiers, active filters, regulated power supply, Stabilizer and UPS. Basic ideas about IC fabrication techniques.

EEE-2122: Electronic Devices and Circuits Sessional

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on EEE-2121 (Electronic Devices and Circuits).

Math-2131: Engineering Mathematics-III

3.00 credits, 3 hrs/week

Basic vector operations, Vector Integrations, Vector Differentiations, Theorems on vectors, Concept of complex variables, Complex Integration and series, Residue, Series Solution of Differential Equations, Partial Differential Equations.

2nd Year 2nd Semester

CSE-2200: Software Development Laboratory

1.50 credits, 3 hrs/week

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming), CSE-1201 (Structured Programming), CSE-2101 (Object Oriented Programming).

CSE-2201: Database Systems

3.00 credits, 3 hrs/week

Introduction to database systems, Relational Model, ER diagrams, Relational Algebra, Functional Dependencies, Normalization, Database Indexing and Index Structures, Transaction Processing and Management, Database Security and Authorization, Advance Database Concepts.

CSE-2202: Database Systems Laboratory

1.50 credits, 3 hrs/week

All the topics covered in this course are based on CSE-2201 (Database Systems).

CSE-2203: Algorithm Analysis and Design

3.00 credits, 3 hrs/week

Introduction to Algorithms, Divide and Conquer algorithms, Divide and Conquer algorithms, Greedy algorithms, Dynamic Programming, Traversal and search techniques, Backtracking, Randomized algorithms, Approximation algorithms. Traveling Salesman Problem. Branch And Bound.

CSE-2204: Algorithm Analysis and Design Laboratory

1.50 credits, 3 hrs/week

All the topics covered in this course are based on CSE-2203 (Algorithm Analysis and Design).

CSE-2205: Numerical Analysis

3.00 credits, 3 hrs/week

Introduction to Numerical Computing, Approximation and Errors in Numerical Computation, Numerical solution of Nonlinear equation, Curve fitting, Numerical Linear Algebra (Direct and iterative method), Interpolation, Numerical Differentiation and Integration.

CSE-2206: Numerical Analysis Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-2205 (Numerical Analysis).

EEE-2221: Electrical Drives and Instrumentation

3.00 credits, 3 hrs/week

Self and mutual inductance, Transient analysis of simple circuits, Polyphase circuit analysis and power measurement, Single phase transformer, Equivalent circuits, Three phase transformers, DC generator and motor: operation and characteristics, 3 - phase induction motors: Types, Operations, Equivalent circuit, Characteristics, Starting, Introduction to 3 phase alternators and synchronous motors. Fractional horse-power motors, Differential, logarithmic and chopper amplifiers; Frequency and voltage measurements using digital techniques; Recorders and display devices,

spectrum and logic analyzers, Transducers: Terminology, Types, Principles and Applications of Photovoltaic, piezoelectric, thermoelectric, variable reactance and optoelectronic transducers, DMM, Digital meters, VTVM, Oscilloscope; Statistical methods in measurements.

EEE-2222: Electrical Drives and Instrumentation Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on EEE-2221 (Electrical Drives and Instrumentation).

Math-2231: Engineering Mathematics-IV

3.00 credits, 3 hrs/week

Introduction of Fourier Series, Various types of Fourier Series, Finite Fourier transforms and Fourier Integral, Application of Fourier transforms and their uses to solve boundary value problems, Introduction of Laplace transform, Inverse Laplace transform, Convolution theorem, Application of Laplace transform to solve problem, Introduction of Z-transform, Basic Concept of Statistics, Probability distributions, Data Analysis.

HUM-2241: Psychology

3.00 credits, 3 hrs/week

Introduction to Psychology, Cognitive Science, Reasoning, Object recognition and language understanding, Learning Industrial Psychology, Introduction to Job and Job analysis, Methods of selection, Training in Industry, Motivation and Work, Job satisfaction, Introduction to Ergonomics, System Engineering, Accident and Safety.

3rd Year 1st Semester

CSE-3101: Microprocessors and Microcontrollers

3.00 credits, 3 hrs/week.

Introduction and overview of microprocessors, Microcomputer Structure, 8085 and 8086 microprocessor, Addressing modes, Coprocessors, Introduction to assembly language and machine language programming, Assembly language, Stacks, Procedures, 8051 microcontroller architecture, 8051 programming, Peripheral devices.

CSE-3102: Microprocessors and Microcontrollers Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3101 (Microprocessors and Microcontrollers).

CSE-3103: Software Engineering

3.00 credits, 3 hrs/week.

Introduction to software engineering, Presentation on SDLC, software engineering principles, Software Engineering process models description, Agile Development, Rigor and formality, modularity, abstraction, instrumentality in design, OOP design paradigms, Requirement gathering and Testing techniques, Testing strategies, cost estimation.

CSE-3104: Software Engineering Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3103 (Software Engineering).

CSE-3105: Theory of Computation

3.00 credits, 3 hrs/week.

Language theory, Finite automata, Regular expressions and languages, Context free grammar and languages, Push down automata, Turing machines, Undecidability.

CSE-3108: Internet Programming Laboratory

3.00 credits, 3 hrs/week.

CSE-3109: Digital System Design

3.00 credits, 3 hrs/week.

Combinational logic with MSI and LSI, BCD Adder, Boolean functions implementation using Decoder and Multiplexer, Read Only Memory (ROM) and Programmable Logic Array (PLA), Sequential Logic, State diagrams, state tables, state equations, Counters and Registers, Memory unit, Register Transfer Logic, Processor Logic Design, Control Logic Design.

CSE-3110: Digital System Design Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3109 (Digital System Design).

CSE-3121: Data Communication

3.00 credits, 3 hrs/week.

Fundamentals of Data Communication and signals, Link layer functionalities, Introduction to modulation techniques, Local area network technologies, Internetworking devices and others, Transport layer protocols Applications layer protocols, Communication medium and waves, Pulse Systems, error correction, Network security measures.

Hum-3141: Engineering Economics and Accounting

3.00 credits, 3 hrs/week.

Basic knowledge about economics, Resources, scarcity, Production possibility curve, economic decision taking, Demand and supply theory and application, Elasticity, theory of production, cost benefit analysis, Demand, supply and government policies, National income, Basic knowledge of accounting, development of accounting, accounting problems and scopes etc., The Accounting Process, Measuring Business Income, Accounting Systems and Special Ledgers, Ratio Analysis.

3rd Year 2nd Semester

CSE-3200: Advanced Programming Laboratory

1.5 credits, 3 hrs/week.

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming), CSE-1201 (Structured Programming), CSE-2101 (Object Oriented Programming).

CSE-3201: System Programming and Operating System

3.00 credits, 3 hrs/week.

Introduction: Components of System Software, Language Processing Activities, Fundamentals of Language Processing, Text Editor, Compiler, Assemblers, Linker, Loader, Interpreter, Introduction to OS, Process, Memory Management, Input and Output, File System.

CSE-3202: System Programming and Operating System Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3201 (System Programming and Operating System).

CSE-3203: Computer Networks

3.00 credits, 3 hrs/week.

Introduction, Network Models, Transmission media, Network Layer: Logical Addressing, Network layer: Internet protocol, Delivery, Forwarding and Routing, Transport layer, Congestion control and Quality of Service (QoS), Application layer, Cryptography.

CSE-3204: Computer Networks Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3203 (Computer Networks).

Hum-3241: Bengali Language and Literature

3.00 credits, 3 hrs/week.

বাংলা ভাষা :

১. বাংলা ধ্বনি, বর্ণ, অড়্গার, রূপমূল, শব্দ ও পদ

২. বাংলা ব্যকরণে আবশ্যিক ও মৌলিক সূত্রসমূহ

৩. বাংলা লিখন কৌশল সারমর্ম, প্রবন্ধ, রচনা ইত্যাদি লিখন।

৪. প্রমিত বাংলা বানানরীতি

বাংলা সাহিত্য :

ছোটগল্প

১.রবীন্দ্রনাথ ঠাকুর : খোকাবাবুর প্রত্যাবর্তন

২.মানিক বন্দ্যোপাধ্যায় : প্রাগৈতিহাসিক

৩.সৈয়দ মুজতবা আলী : পাদটীকা

প্রবন্ধ :

১.রবীন্দ্রনাথ ঠাকুর : বাজে কথা, পাগল

২.কাজী নজরুল ইসলাম : বিশ্বসাহিত্য

কবিতা

১.রবীন্দ্রনাথ ঠাকুর : ক্যামেলিয়া

২.কাজী নজরুল ইসলাম : মানুষ

৩.জীবনানন্দ দাশ : বনলতা সেন

৪.শামসুর রাহমান : নির্বাচিত

৫.আল মাহমুদ : সোনালী কাবিন (নির্বাচিত)

উপন্যাস :

সৈয়দ ওয়ালীউল্লাহ : চাঁদের অমাবস্যা

নাটক :

মুনীর চৌধুরী : কবর

CSE-3208: Technical Writing and Presentation Laboratory

0.75 credits, 1.5 hrs/week

Overview of Technical Research and Technical Writing: Technical Writing, Why Technical Writing, Role of a Technical Writer. Information Structure/Techniques in Technical Writing, Types of Technical Report, Business Letters, Graphic Aids, Software Development Life Cycle, DDLC, Documentation Process, and Technical Writing Process: Writing from rough draft, Audience Analysis, Task Analysis, Libraries, documentation and cross-referencing, Grammar and Editing, Technical Writing Software Tools: Microsoft Word, Macromedia Robohelp, Adobe Framemaker, MS Visio, Microsoft PowerPoint, and Adobe Photoshop.

Hum-3243: Industrial Management

1.5 credits, 1.5 hrs/week.

Administration, Management and organization, Authority and responsibility, Scientific management, Organization structure, organization chart, Span of control, Selection and recruitment of employees, training and its types, promotion, Material handling, Maintenance, Maintenance policy, wage system and incentive, job-evaluation and merit rating, Plant layout, layout of physical facilities, Production Management: functions of production control, Purchasing procedures, Inventory Management.

CSE-3209: Distributed Database

3.00 credits, 3 hrs/week.

Introduction, Distributed database design, Data and access control, Query processing/ optimization, Transaction Management, Concurrency Control, Distributed DBMS Reliability.

CSE-3210: Distributed Database Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3209 (Distributed Database).

CSE- 3211: Data Warehousing and Mining

3.00 credits, 3 hrs/week.

Data Preprocessing, Data Warehousing and Mining Techniques, Data classification, Evaluation Criteria of Classification, Cluster analysis, Outlier detection.

CSE- 3212: Data Warehousing and Mining Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3211 (Data Warehousing and Mining).

CSE- 3213: Digital Signal Processing

3.00 credits, 3 hrs/week.

Introduction, Discrete-time signals in the time domain, Linear time-invariant systems, Frequency domain representation of discrete signals and systems, Sampling theory, Discrete-time processing of analog signals, Z-transform, Transform analysis of systems, Discrete Fourier Transform (DFT), circular convolution, Fast Fourier Transform (FFT), Digital filters: specifications, FIR filter theory and design methods, IIR filter theory and design methods.

CSE- -3214: Digital Signal Processing Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-3213 (Digital Signal Processing).

4th Year 1st Semester

CSE-4100: Project/Thesis-I

1.5 credits, 1.5 hrs/week.

Study, research and solution of a problem in the field of Computer Science and Engineering.

CSE-4101: Artificial Intelligence

3.00 credits, 3 hrs/week.

AI Techniques and Applications, Different Search Strategies and Problem Solving, Reasoning, different propositional logic and quantifiers, Inference rule, canonical form and natural language understanding, Framework problems, Complex actions and Planning.

CSE-4102: Artificial Intelligence Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4101 (Artificial Intelligence).

CSE-4103: Compiler Design

3.00 credits, 3 hrs/week.

Introduction to Compilers, lexical analyzer, Analyze regular expression, non-deterministic finite automata (NFA) and deterministic finite automata (DFA), Contexts free grammar, ambiguous grammar and basic parsing techniques, Syntax Analyzer: top-down parsing, Bottom-up parsing, operator-precedence parsing, LR parsers, Intermediate code, symbol table, data structure for symbol table, Error detection and recovery, code optimization, code generation.

CSE- 4104: Compiler Design Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4103 (Compiler Design).

CSE- 4105: Information Security and Control

3.00 credits, 3 hrs/week.

Introduction, Cryptography, Digital Signature, Hash Function, Message Authentication Code (MAC), Key Management and Distribution, User Authentication, Network Access Control and Cloud Security, Wireless Network Security, Electronic Mail Security.

CSE-4107: Modeling and Simulation

3.00 credits, 3 hrs/week.

Simulation Methods, Model Building, Simulation Examples, Statistical Models in Simulation, Statistical Analysis of Results, Validation and Verification, Simulation and Analytical Methods for Analysis of Computer Systems and Practical Problems in Engineering, Random Numbers and Variates Generation, Modeling Methods, Building Valid, Credible Simulation Models.

CSE- 4108: Modeling and Simulation Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4107 (Modeling and Simulation).

CSE-4109: VLSI Design

3.00 credits, 3 hrs/week.

VLSI Design Methodology, Introduction to Microelectronics and CMOS technology, Brief overview of Fabrication process, Basic electrical properties of CMOS and BiCMOS circuits, Logic networks, State diagrams, Data flow, Behavioral optimization, Introduction to GaAs technology: Ultra-fast VLSI circuits and systems, Stick diagram and Lambda-based design rules, Subsystem Design processes, Gate Logic, Combinational Design, Clocked Sequential circuits, Bus designs, ALU sub-system, Adder, Multipliers, Memory, Registers and aspects of system timing, Architectural Synthesis: Circuit specification, Architectural optimization, Data-path synthesis, Control unit synthesis, Synthesis and testing of VLSI circuits, Various CAD tools for design, simulation and verification, Introduction to hardware description languages (VHDL and Verilog), Design style: FPGA and CPLDs.

CSE- 4110: VLSI Design Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4109 (VLSI Design).

CSE-4111: Computer Peripheral and Interfacing

3.00 credits, 3 hrs/week.

Introduction, Memory Interfacing, Data Transfer Techniques and Their Implementation, Common Peripherals and their Interfacing, Programmable Peripheral Interface, Programmable Interval Timer, I/O Devices for Process Control and Instrumentation, Microprocessor in Scientific Instruments and Other Applications.

CSE- 4112: Computer Peripheral and Interfacing Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4111 (Computer Peripheral and Interfacing).

CSE-4113: Wireless Networks

3.00 credits, 3 hrs/week.

Overview of the wireless communication, Propagation, Capacity, IEEE standard and protocol, Wireless access, Cordless and Wireless System, Generation of wireless, Bluetooth technology, Wireless Protocol.

CSE- 4114: Wireless Networks Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4113 (Wireless Networks)

CSE-4115: Pattern Recognition

3.00 credits, 3 hrs/week.

Introduction, Statistical and Neural Pattern Recognition, Linear Classifiers, Nonlinear Classifiers, Template Matching, Context Dependent Classification, Syntactic Pattern Recognition, Unsupervised Classification.

CSE- 4116: Pattern Recognition Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4115 (Pattern Recognition).

CSE- 4117: Computer Vision and Image Processing

3.00 credits, 3 hrs/week.

Introduction to Digital Image Processing, Intensity Transformations, Image Enhancement in Spatial Domain, Image enhancement in frequency domain, Image Restoration, Image Compression, Morphological Image Processing, Image Segmentation.

CSE- 4118: Computer Vision and Image Processing Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4117 (Computer Vision and Image Processing).

CSE- 4119: Machine Learning

3.00 credits, 3 hrs/week.

Introduction to machine learning, Artificial Neural Networks, Support Vector Machine, Decision Trees, Genetic Algorithms, Swarm Intelligence, Clustering and Unsupervised Learning, Dimensionality Reduction.

CSE- 4120: Machine Learning Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4119 (Machine Learning).

4th Year 2nd Semester

CSE- 4200: Project/Thesis-II

3.00 credits, 3 hrs/week.

Continuation of project and thesis topic undertaken in CSE-4100.

CSE-4201: Computer Graphics

3.00 credits, 3 hrs/week.

Display devices, Input devices, Color, Scan Conversion-Basic raster graphics algorithms for drawing 2D primitives, 2D Transformation, 2D Viewing and clipping, 3D transformation,

Projections, Geometric Representation and Hidden Surface, Color and Shading Model, Ray Tracing.

CSE- 4202: Computer Graphics Laboratory

0.75 credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4201 (Computer Graphics).

CSE-4206: Industrial Training

0.00 credits, 0 hrs/week.

Students will take 3 weeks industrial training in Computer Science and Engineering related industries or establishments.

CSE-4205: Applied Probability and Queuing Theory

3.00 credits, 3 hrs/week.

Probability Theory, Probability distribution and expectations, discontinuous probability distribution, Discrete time Markov chain, Continuous time Markov Chain, Birth-death process in queuing, Queuing models: M/M/1, Queuing models: M/M/Q.

Hum-4241: Government and Sociology

3.00 credits, 3 hrs/week.

Introduction to basic concept of government and politics, Basic key terms of government and contemporary issues, Administrative functions and various tiers of government and international politics, Significance of Sociology, Social structure of Bangladesh, Social research methods and key sociology terms, Cultural content and growth of capitalism and development of civilization, Understand family, marriage issues, industrial society and development of urbanization, Develop the concept of population and migration, youth issues and how technological factors affect in life.

CSE- 4207: Decision Support System

3.00 credits, 3 hrs/week.

Review of Systems Principles, Methods of Decision Making and Problem Solving, Decision Support Systems (DSS), Expert Systems Overview, Knowledge Acquisition and Meta-Knowledge, Manipulation of Models as a decision-making procedure, Building Management Models.

CSE- 4209: Fault Tolerant System

3.00 credits, 3 hrs/week.

Definition of fault tolerance, Redundancy, Applications of fault-tolerance, Fundamentals of Dependability Attributes: reliability, availability, safety; Impairments: faults, errors and failures; Means: fault prevention, removal and forecasting; Dependability Evaluation

Techniques, Common Measures: failures rate, mean time to failure, mean time to repair, etc.; Dependability Model Types, Dependability Computation Methods, Hardware Redundancy: Redundancy Allocation; Passive Redundancy: Triple Modular Redundancy; Reliability Evaluation; Voting Techniques; N-modular Redundancy; Active Redundancy: Duplication, Hybrid Redundancy: Self-purging Redundancy, N-modular Redundancy; Evaluation and comparison, Applications, Information Redundancy: Coding Theory: Parity codes, Hamming codes, Cyclic codes, Checksum, M-of-N codes, Berger codes, Arithmetic codes, etc.; Encoding and decoding techniques; Applications; Algorithm based fault tolerance, Time Redundancy: Check-pointing and roll-back; Analysis and optimality; Alternating Logic, Software Redundancy: Single-version Techniques**;** Multi-version, Techniques Software Testing; Self-checking Software, Fault Detection in Cryptographic Systems: Overview of Ciphers, Security attacks through fault injection: Fault attacks on symmetric key ciphers, Fault attacks on public (asymmetric) key ciphers, Countermeasures, Fault-models: Layers of Reality; Stuck-at fault model and the Single fault assumption**;** Functional fault models.

CSE- 4211: Parallel and Distributed Processing

3.00 credits, 3 hrs/week.

Motivation for Parallelism, Parallel and Distributed Computers, Performance Measures, Interconnection Networks, Distributed Processing, Design of distributed data, Applications.

CSE- 4213: Biomedical Engineering

3.00 credits, 3 hrs/week.

Bioelectric Phenomena and Bio signals, Physiological Measurement, Bio signal Processing, Diagnostic Methods and Biomedical Equipment, Diagnostic Methods and Biomedical Equipment, Electrical Safety.

CSE- 4215: Natural Language Processing

3.00 credits, 3 hrs/week.

Regular Expression and Text Normalization, N-grams, Spelling Correction, Part of Speech Tagging, Context Free Grammar (CFG), Parsing, Semantics, Lexicons for Sentiment, Corpus based work, Text categorization.

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This Syllabus is Proposed based on OBE (Outcome Based Education) curriculum for Bachelor of Science (Diploma Intake) in Computer Science and Engineering (B.Sc. in CSE)

The undergraduate students of the Department of Computer Science and Engineering have to follow the course schedule given below. The letter prefix in any course number indicates the department offering the course viz. **CSE** for Computer Science and Engineering, **EEE** for Electrical and Electronic Engineering, **ME** for Mechanical Engineering, **Chem** for Chemistry, **Phy** for Physics, **Math** for Mathematics and **Hum** for Humanities. The first digit in the number indicates the year, second digit indicates semester for which the course is intended. Odd numbered (3rd and 4th digit) courses are theory courses, even numbered (3rd and 4th digit) courses are Laboratory courses.

SUMMARY OF COURSE PLAN FOR B.Sc. (Diploma Intake) in CSE

Year	Term	Theory		Laboratory/ Project		Total Credit
		No. of Course	Credit	No. of Course	Credit	
1st	1st	05	15	04	5.00	20.00
	2nd	06	18	05	5.25	23.25
2nd	1st	06	18	03	3.75	21.75
	2nd	06	18	05	5.25	23.25
3rd	1st	06	18	03	3.00	21.00
	2nd	05	16.50	05	4.50	21.00
4th	1st	05	13.50	04	3.00	16.50
	2nd	04	12	02	3.00	15.00
Total		**43**	**129.00**	**31**	**32.00**	**161.75**

Department of Computer Science and Engineering
SCHEME OF FIRST YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-1101	Computer Basics and Programming	B.Sc. in CSE	3.00	50	50	100
2	CSE-1102	Computer Basics and Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
3	Phy-1133	Physics-I	B.Sc. in CSE	3.00	50	50	100
4	Phy-1134	Physics-I Laboratory	B.Sc. in CSE	0.75	50	50	100
5	Chem-1135	Chemistry	B.Sc. in CSE	3.00	50	50	100
6	Chem-1136	Chemistry Laboratory	B.Sc. in CSE	0.75	50	50	100
7	Hum-1141	Government and Sociology	B.Sc. in CSE	3.00	50	50	100
8	Hum-1143	Psychology	B.Sc. in CSE	3.00	50	50	100
9	CSE-1104	Software Development Laboratory-I	B.Sc. in CSE	2.00	50	50	100
Total				**20.00**	**450**	**450**	**900**

** The courses of 1st year 1st Term are exempted because of the candidates have Diploma in Engineering backgrounds after 10 years of schooling.

SCHEME OF FIRST YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-1201	Structured Programming	B.Sc. in CSE	3.00	50	50	100
2	CSE-1202	Structured Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
3	CSE-1203	Digital Logic Design	B.Sc. in CSE	3.00	50	50	100
4	CSE-1204	Digital Logic Design Laboratory	B.Sc. in CSE	1.50	50	50	100
5	EEE-1221	Basic Electrical Circuit	B.Sc. in CSE	3.00	50	50	100

6	EEE-1222	Basic Electrical Circuit Laboratory	B.Sc. in CSE	0.75	50	50	100
7	ME-1223	Mechanics and Heat Engineering	B.Sc. in CSE	3.00	50	50	100
8	ME-1224	Computer Aided Design Laboratory	B.Sc. in CSE	0.75	50	50	100
9	Math-1231	Engineering Mathematics-I	B.Sc. in CSE	3.00	50	50	100
10	Hum-1241	English and Human Communications	B.Sc. in CSE	3.00	50	50	100
11	Hum-1242	English and Human Communications Laboratory	B.Sc. in CSE	0.75	50	50	100
Total			**23.25**		**550**	**550**	**1100**

SCHEME OF SECOND YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	**Course Code**	**Course Title**	**PoE**	**Credits**	**Marks**		
					CIE	**SEE**	**Total**
1	CSE-2101	Object Oriented Programming	B.Sc. in CSE	3.00	50	50	100
2	CSE-2102	Object Oriented Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
3	CSE-2103	Data Structures and Algorithms	B.Sc. in CSE	3.00	50	50	100
4	CSE-2104	Data Structures and Algorithms Laboratory	B.Sc. in CSE	1.50	50	50	100
5	Phy-2133	Physics-II	B.Sc. in CSE	3.00	50	50	100
6	EEE-2121	Electronic Devices and Circuits	B.Sc. in CSE	3.00	50	50	100
7	EEE-2122	Electronic Devices and Circuits Laboratory	B.Sc. in CSE	0.75	50	50	100
8	Math-2131	Engineering Mathematics-II	B.Sc. in CSE	3.00	50	50	100
9	Hum-2141	Bengali Language and Literature	B.Sc. in CSE	3.00	50	50	100
Total				**21.75**	**450**	**450**	**900**

SCHEME OF SECOND YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-2200	Software Development Laboratory-II	B.Sc. in CSE	1.50	50	50	100
2	CSE-2201	Database Systems	B.Sc. in CSE	3.00	50	50	100
3	CSE-2202	Database Systems Laboratory	B.Sc. in CSE	1.50	50	50	100
4	CSE-2203	Algorithm Analysis and Design	B.Sc. in CSE	3.00	50	50	100
5	CSE-2204	Algorithm Analysis and Design Laboratory	B.Sc. in CSE	0.75	50	50	100
6	CSE-2205	Numerical Analysis	B.Sc. in CSE	3.00	50	50	100
7	CSE-2206	Numerical Analysis Laboratory	B.Sc. in CSE	0.75	50	50	100
8	EEE-2221	Electrical Drives and Instrumentation	B.Sc. in CSE	3.00	50	50	100
9	EEE-2222	Electrical Drives and Instrumentation Laboratory	B.Sc. in CSE	0.75	50	50	100
10	Math-2231	Engineering Mathematics-III	B.Sc. in CSE	3.00	50	50	100
11	Hum-2243	History of the Imergence of Bangladesh	B.Sc. in CSE	3.00	50	50	100
Total				**23.25**	**550**	**550**	**1100**

SCHEME OF THIRD YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-3101	Microprocessors and Microcontrollers	B.Sc. in CSE	3.00	50	50	100
2	CSE-3102	Microprocessors and Microcontrollers Laboratory	B.Sc. in CSE	1.50	50	50	100
3	CSE-3103	Software Engineering	B.Sc. in CSE	3.00	50	50	100
4	CSE-3104	Software Engineering Laboratory	B.Sc. in CSE	0.75	50	50	100

5	CSE-3105	Theory of Computation	B.Sc. in CSE	3.00	50	50	100
7	CSE-3109	Digital System Design	B.Sc. in CSE	3.00	50	50	100
8	CSE-3110	Digital System Design Laboratory	B.Sc. in CSE	0.75	50	50	100
9	CSE-3111	Computer Architecture	B.Sc. in CSE	3.00	50	50	100
10	CSE-3107	Discrete Mathematics	B.Sc. in CSE	3.00	50	50	100
Total				**21.00**	**500**	**500**	**1000**

SCHEME OF THIRD YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	**Course Code**	**Course Title**	**PoE**	**Credits**	**Marks**		
					CIE	**SEE**	**Total**
1	CSE-3200	Advanced Programming Laboratory	B.Sc. in CSE	1.50	50	50	100
2	CSE-3201	System Programming and Operating System	B.Sc. in CSE	3.00	50	50	100
3	CSE-3202	System Programming and Operating System Laboratory	B.Sc. in CSE	0.75	50	50	100
4	CSE-3203	Computer Networks	B.Sc. in CSE	3.00	50	50	100
5	CSE-3204	Computer Networks Laboratory	B.Sc. in CSE	0.75	50	50	100
6	CSE-3205	Applied Probability and Queuing Theory	B.Sc. in CSE	3.00	50	50	100
8	CSE-3218	Internet Programming Laboratory	B.Sc. in CSE	0.75	50	50	100
9	Math-3231	Engineering Mathematics-IV	B.Sc. in CSE	3.00	50	50	100
10	CSE-32xx	Optional-I	B.Sc. in CSE	3.00	50	50	100
11	CSE-32xx	Optional-I Laboratory	B.Sc. in CSE	0.75	50	50	100
12	Hum-3241	Industrial Management	B.Sc. in CSE	1.50	50	50	100
Total				**21.00**	**500**	**500**	**1000**

SCHEME OF FOURTH YEAR FIRST SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-4100	Project/Thesis-I	B.Sc. in CSE	1.50	70	30	100
2	CSE-4101	Artificial Intelligence	B.Sc. in CSE	3.00	50	50	100
3	CSE-4102	Artificial Intelligence Laboratory	B.Sc. in CSE	0.75	50	50	100
4	CSE-4103	Compiler Design	B.Sc. in CSE	3.00	50	50	100
5	CSE-4104	Compiler Design Laboratory	B.Sc. in CSE	0.75	50	50	100
7	CSE-41xx	Optional-II	B.Sc. in CSE	3.00	50	50	100
8	CSE-41xx	Optional-II Laboratory	B.Sc. in CSE	0.75	50	50	100
9	CSE-41xx	Optional-II	B.Sc. in CSE	3.00	50	50	100
10	CSE-41xx	Optional-II Laboratory	B.Sc. in CSE	0.75	50	50	100
Total				**16.50**	**470**	**430**	**900**

SCHEME OF FOURTH YEAR SECOND SEMESTER CSE PROGRAM

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-4200	Project/Thesis-II	B.Sc. in CSE	3.00	70	30	100
2	CSE-4201	Computer Graphics	B.Sc. in CSE	3.00	50	50	100
3	CSE-4202	Computer Graphics Laboratory	B.Sc. in CSE	1.50	50	50	100
4	CSE-4206	Industrial Training	B.Sc. in CSE	0.00	50	50	100
5	CSE-42xx	Optional-III	B.Sc. in CSE	3.00	50	50	100
6	CSE-4208	Technical Writing and Presentation Laboratory	B.Sc. in CSE	1.50	50	50	100

7	Hum-4241	Engineering Economics and Accounting	B.Sc. in CSE	3.00	50	50	100
Total				**15.00**	**420**	**380**	**800**

Optional-I

Optional-I should be selected from the following courses:

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-3209	Distributed Database	B.Sc. in CSE	3.00	50	50	100
2	CSE-3210	Distributed Database Laboratory	B.Sc. in CSE	0.75	50	50	100
3	EEE-3221	Data Communication	B. Sc. In CSE	3.00	50	50	100
4	CSE-3211	Data Warehousing and Mining	B.Sc. in CSE	3.00	50	50	100
5	CSE-3212	Data Warehousing and Mining Laboratory	B.Sc. in CSE	0.75	50	50	100
6	CSE-3213	Digital Signal Processing	B.Sc. in CSE	3.00	50	50	100
7	CSE-3214	Digital Signal Processing Laboratory	B.Sc. in CSE	0.75	50	50	100

Optional-II

Optional-II should be selected from the following courses:

Sl. No.	Course Code	Course Title	PoE	Credits	Marks		
					CIE	SEE	Total
1	CSE-4105	Information Security and Control	B.Sc. in CSE	3.00	50	50	100
2	CSE-4107	Modeling and Simulation	B.Sc. in CSE	3.00	50	50	100
3	CSE-4108	Modeling and Simulation Laboratory	B.Sc. in CSE	0.75	50	50	100
4	CSE-4109	VLSI Design	B.Sc. in CSE	3.00	50	50	100
5	CSE-4110	VLSI Design Laboratory	B.Sc. in CSE	0.75	50	50	100
6	CSE-4111	Computer Peripheral and Interfacing	B.Sc. in CSE	3.00	50	50	100

6	CSE-4112	Computer Peripheral and Interfacing Laboratory	B.Sc. in CSE	0.75	50	50	100
7	CSE-4113	Wireless Networks	B.Sc. in CSE	3.00	50	50	100
8	CSE-4114	Wireless Networks Laboratory	B.Sc. in CSE	0.75	50	50	100
9	CSE-4115	Pattern Recognition	B.Sc. in CSE	3.00	50	50	100
10	CSE-4116	Pattern Recognition Laboratory	B.Sc. in CSE	0.75	50	50	100
11	CSE-4117	Computer Vision and Image Processing	B.Sc. in CSE	3.00	50	50	100
12	CSE-4118	Computer Vision and Image Processing Laboratory	B.Sc. in CSE	0.75	50	50	100

Optional-III

Optional-III should be selected from the following courses:

Sl. No.	**Course Code**	**Course Title**	**PoE**	**Credits**	**Marks**		
					CIE	**SEE**	**Total**
1	CSE-4203	Machine Learning	B.Sc. in CSE	3.00	50	50	100
2	CSE-4204	Machine Learning Laboratory	B.Sc. in CSE	0.75	50	50	100
3	CSE-4207	Decision Support System	B.Sc. in CSE	3.00	50	50	100
4	CSE-4209	Fault Tolerant System	B.Sc. in CSE	3.00	50	50	100
5	CSE-4211	Parallel and Distributed Processing	B.Sc. in CSE	3.00	50	50	100
6	CSE-4213	Biomedical Engineering	B.Sc. in CSE	3.00	50	50	100
7	CSE-4215	Natural Language Processing	B.Sc. in CSE	3.00	50	50	100

Details Syllabus for B.Sc. (Diploma Intake) in Computer Science and Engineering Program
1st Year 1st Semester

CSE-1101: Computer Basic and Programming

3 Credits, 3hrs/week

Algorithms and flow charts, Information presentation on computer, Number System, Binary operation. Computer Generation and structure, Program level, computer devices, C Programming Language, Structured Programming Concepts, Program branch statements, Decision Making and Looping, Arrays.

CSE-1101: Computer Basic and Programming Laboratory

1.5 Credits, 3hrs/week

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming).

Phy-1133: Physics-I

3 Credits, 3hrs/week

Concept of Gases. Laws of Thermodynamics, Waves and Oscillation, Physical Optics, Electricity and magnetism.

Phy-1134: Physics-I Laboratory

0.75 Credits, 1.5 hrs/week

Based on Phy-1133 (Physics-I).

Chem-1135: Chemistry

3 Credits, 3hrs/week

Chemical Equilibrium, Chemical Kinetics, Electrochemistry, Thermochemistry, Chemistry of polymerization, Acids and Bases, Chemical Bond, Atomic Structure, Solutions.

Chem-1136: Chemistry Laboratory

0.75 Credits, 1.5 hrs/week

Based on Chem-1135(Chemistry).

Hum-1141: Government and Sociology

3 Credits, 3hrs/week

Introduction to basic concept of government and politics, Basic key terms of government and contemporary issues, Administrative functions and various tiers of government and international politics, Significance of Sociology, Social structure of Bangladesh, Social research methods and key sociology terms, Cultural content and growth of capitalism and development of civilization, Understand family, marriage issues, industrial society and development of urbanization, Develop the concept of population and migration, youth issues and how technological factors affect in life.

CSE-1143: Psychology

3 Credits, 3hrs/week

Introduction to Psychology, Cognitive Science, Reasoning, Object recognition and language understanding, Learning Industrial Psychology, Introduction to Job and Job analysis, Methods of selection, Training in Industry, Motivation and Work, Job satisfaction, Introduction to Ergonomics, System Engineering, Accident and Safety.

CSE-1104: Software Development Laboratory

2 Credits, 2hrs/week

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming) and some general programming knowledge.

1st Year 2nd Semester

CSE-1201: Structured Programming

3 Credits, 3hrs/week

Data types and variables, Arrays, String, Program control statements, Modular programming with functions, Pointers, Dynamic Arrays, Recursion, Iteration versus Recursion, Structure and dynamic memory allocation, File management, Screen and Graphics Functions, Linked Lists, Review class.

CSE-1202: Structured Programming Laboratory

1.5 Credits, 3hrs/week

Based on CSE-1201 (Structured Programming).

CSE-1203: Digital Logic Design

3 Credits, 3hrs/week

Binary System, Boolean algebra and Logic gates, Simplification of Boolean function, Combinational logic, Combinational circuit with MSI and LSI, Sequential circuit**,** REVIEW CLASS.

CSE-1203: Digital Logic Design Laboratory

1.5 Credits, 3hrs/week

Based on CSE – 1203 (Digital Logic Design)

EEE-1221: Basic Electrical Circuit

3 Credits, 3hrs/week

Fundamental electric concepts and measuring units, D.C. voltage, Current, Resistance and power, Laws of electrical circuits and methods of network analysis, Principles of D.C. measuring apparatus, Laws of magnetic fields and methods of solving simple magnetic circuit instantaneous and r. m. s. current, Voltage and power, Average power for various combinations of R. L and C circuit, Phasor representation of sinusoidal quantities. Single phase AC circuit analysis.

EEE-1221: Basic Electrical Circuit Laboratory

0.75 Credits, 1.5hrs/week

Based on EEE-1221 (Basic Electrical Circuit).

ME-1223: Mechanics and Heat Engineering

3 Credits, 3hrs/week

Resultant and components of forces. Equilibrium of coplanar forces, Centroids and Center of Gravity, Moment of inertia of area and mass, Frictions, Maximum and minimum forces, Kinetics of absolute motions and Kinetics of relative motions, Kinetics of plane motion of rigid bodies, Principles of work and energy, Working principles of a few representative boilers, Introduction to the principle of operation of steam turbine, Introduction to internal combustion engine and working principle of petrol engine, Working principle of diesel engine and gas turbine, Basic concepts of refrigeration, Basic concepts of air conditioning and reviews.

ME-1224: Computer Aided Design Laboratory

0.75 Credits, 1.5hrs/week

Introduction and free hand drawing, Scale drawing, Isometric Drawing, Sectional Drawing, Auxiliary Drawing, Detail and assembly drawing, Review and Project Drawing.

Math – 1231: Engineering Mathematics-I

3 Credits, 3hrs/week

Basic concept on Differentiation, Differentiation of various functions, Significance of derivatives, Successive differentiation of various types of functions, Leibnitz's theorem, Partial differentiation, Various Theorems on Differentiation, Evaluate and Applications of differential calculus, Introduction of Integral Calculus, Improper Integrals, Beta function and Gamma function, Solve different types of area, lengths and volume problems.

Hum-1241: English and Human Communication

3 Credits, 3 hrs/week

Grammar and Vocabulary Building, Listening Skill and Note Taking, Developing Speaking Skill, Developing Reading Skill, Developing Writing Skill.

Hum-1242: English and Human Communication Laboratory

0.75 Credits, 1.5 hrs/week

Based on Hum-1142 (English and Human Communication Laboratory).

2nd Year 1st Semester

CSE – 2101: Object Oriented Programming

3 Credits, 3 hrs/week

Philosophy of Object-Oriented Programming (OOP), features of OOP, advantages of OOP over structured programming, Classes and Objects, constructors, destructors and copy constructors, array of objects, object reference's function overloading, operator overloading and type conversion of object, Inheritance, Polymorphism, virtual function run time type identification, exception handling, template functions and classes, namespace, standard template library, Review class.

CSE – 2102: Object Oriented Programming Laboratory

1.5 Credits, 3 hrs/week

Based on CSE-2101 (Object Oriented Programming)

CSE – 2103: Data Structures and Algorithms

3 Credits, 3 hrs/week

Concept of data structures, Elementary data types and objects, Arrays, Linked lists, Stack, Queues, Recursion, Graphs theory, Trees, Heaps, Sorting, Searching, Merging, Hash techniques, Memory Management, Review class.

CSE – 2104: Data Structures Sessional

1.5 Credits, 3 hrs/week

Based on CSE-2103 (Data Structures).

Phy-2133: Physics-II

3 Credits, 3 hrs/week

Concept of Properties of matter, Material characteristics, Surface tension, Solid State Physics, Solid State Physics, Modern Physics, Nuclear Physics.

EEE-2121: Electronic Devices and Circuits

3 Credits, 3 hrs/week

Semiconductors and Junction diode characteristics, Bipolar transistor characteristics, Small-signal low frequency h-parameter model, hybrid pie model, Amplifiers, Darlington pairs, Introduction to Oscillators, differential amplifiers, Linear application of op-amp, gain, input and output impedances, offset null adjustment, frequency response and noise, Introduction to JFET, MOSFET, NMOS and CMOS; Biasing and application in switching circuits, SCR, TRIAC,

DIAC, and UJT: characteristics and applications, Introduction to rectifiers, active filters, regulated power supply, Stabilizer and UPS. Basic ideas about IC fabrication techniques.

EEE-2122: Electronic Devices and Circuits Laboratory

0.75 Credits, 1.5 hrs/week

Based on EEE-2121 (Electronic Devices and Circuits).

Math – 2131: Engineering Mathematics-II

3 Credits, 3 hrs/week

Coordinate Geometry of two dimensions, General equation of 2^{nd} degree, Change of axes, Coordinate Geometry of three dimensions, Projection, Direction cosines and ratios, Equation of planes and lines, Shortage distance, Cone, Degree and order of ordinary differential equations, Solution of first order differential equations by various methods, Physical applications of first order differential equations, Solution of second and higher order linear differential equations, Solution of Cauchy-Euler Equation, Matrix: Matrix Operation: Field and matrices over a field, Special types of matrices with their properties, Elementary transformations of matrix, System of linear equations, Solution of system of linear equations using matrices, Consistency of system of linear equations, Vector Spaces: General vector spaces, Basis and Dimension, Eigenvalues and Eigenvectors, Cayley-Hamilton theorem, Inner product of vector spaces, Orthogonality.

Hum-2143: Bengali Language and Literature

3 Credits, 3 hrs/week

বাংলা ধ্বনি, বর্ণ, অড়্গার, রূপমূল, শব্দ ও পদ, বাংলা ব্যকরণে আবশ্যিক ও মৌলিক সূত্রসমূহ,

বাংলা লিখন কৌশল সারমর্ম, প্রবন্ধ, রচনা ইত্যাদি লিখন, প্রমিত বাংলা বানানরীতি

ছোটগল্প: খোকাবাবুর প্রত্যাবর্তন, প্রাগৈতিহাসিক, পাদটীকা

প্রবন্ধ: বাজে কথা, পাগল,

কবিতা: ক্যামেলিয়া, মানুষ, বনলতা সেন, নির্বাচিত, সানালী কাবিন (নির্বাচিত)

উপন্যাস: চাঁদের অমাবস্যা

নাটক: কবর

2nd Year 2nd Semester

CSE – 2200: Software Development Laboratory

1.5 Credits, 3 hrs/week

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming), CSE-1201 (Structured Programming), CSE-2101 (Object Oriented Programming).

CSE – 2201: Database Systems

3 Credits, 3 hrs/week

Introduction to database systems, Relational Model, ER diagrams, Relational Algebra, Functional Dependencies, Normalization, Database**,** Indexing and Index Structures, Transaction Processing and Management, Database Security and Authorization, Advance Database Concepts.

CSE – 2202: Database Systems Laboratory

1.5 Credits, 3 hrs/week

All the topics covered in this course are based on CSE-2201 (Database Systems).

CSE – 2203: Algorithm Analysis and Design

3 Credits, 3 hrs/week

Introduction to Algorithms, Divide and Conquer algorithms, Divide and Conquer algorithms, Greedy algorithms, Dynamic Programming, Traversal and search techniques, Backtracking, Randomized algorithms, Approximation algorithms. Traveling Salesman Problem. Branch And bound.

CSE – 2204: Algorithm Analysis and Design Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-2203 (Algorithms Analysis and Design).

CSE – 2205: Numerical Analysis

3 Credits, 3 hrs/week

Introduction to Numerical Computing, Approximation and Errors in Numerical Computation, Numerical solution of Nonlinear equation, Curve fitting, Numerical Linear Algebra (Direct and iterative method), Interpolation, Numerical Differentiation and Integration, REVIEW CLASS.

CSE – 2206: Numerical Analysis Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE – 2205 (Numerical Analysis)

EEE – 2221: Electrical Drives and Instrumentation

3 Credits, 3 hrs/week

Self and mutual inductance, Transient analysis of simple circuits, Polyphase circuit analysis and power measurement, Single phase transformer, Equivalent circuits, Three phase transformers, D. C. generator and motor: operation and characteristics, 3 - phase induction motors. : Types, Operations, Equivalent circuit, Characteristics, Starting, Introduction to 3 phase alternators and

synchronous motors. Fractional horse-power motors, Differential, logarithmic and chopper amplifiers; Frequency and voltage measurements using digital techniques; Recorders and display devices, spectrum and logic analyzers, Transducers: Terminology, Types, Principles and Applications of Photovoltaic, piezoelectric, thermoelectric, variable reactance and optoelectronic transducers; DMM, Digital meters, VTVM, Oscilloscope; Statistical methods in measurements.

EEE – 2222: Electrical Drives and Instrumentation Laboratory

0.75 Credits, 1.5 hrs/week

Based on EEE-2221 (Electrical Drives and Instrumentation).

Math – 2231: Engineering Mathematics-III

3 Credits, 3 hrs/week

Basic vector operations, Vector Integrations, Vector**,** Differentiations, Theorems on vectors, Concept of complex variables, Complex Integration and series, Residue, Series Solution of Differential Equations, Partial Differential Equations**.**

Hum-2243: History of the Emergence of Bangladesh

3 Credits, 3 hrs/week

Historical Roots of Bangladesh (Medieval: 1204 – 1757) and British Rule in Bengal: 1757 – 1947**,** Bangla Language and People And background of Bangladesh, Nationalist and Political Circumstances: 1947 – 1971 And Language Movement of 1952, The Liberation War and its Causes And Six-Points Movement in 1966, Declaration of Independence, Operation Searchlight, War of Liberation, Politics and Governance And Bangladesh Society And Culture and Heritage, Development: Agriculture and Industries And Socio-economic Policies: Foreign Policy, Bangladesh and Globalization.

3rd Year 1st Semester

CSE – 3101: Microprocessors and Microcontrollers

3 Credits, 3 hrs/week

Introduction and overview of microprocessors, Microcomputer Structure, 8085 and 8086 microprocessors, addressing modes, Coprocessors, Introduction to assembly language and machine language programming, Assembly language, Stacks, Procedures, 8051 microcontroller architecture, 8051 programming, Peripheral devices.

CSE – 3102: Microprocessors and Microcontrollers Laboratory

1.5 Credits, 3 hrs/week

Based on CSE-3101 (Microprocessors and Microcontrollers).

CSE – 3103: Software Engineering

3 Credits, 3 hrs/week

Introduction to software engineering. Presentation on SDLC, software engineering principles, Software Engineering process models description, Agile Development, Rigor and formality, modularity, abstraction, instrumentality in design, OOP design paradigms, Requirement gathering and Testing techniques, Testing strategies, cost estimation.

CSE – 3104: Software Engineering Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-3103 (Software Engineering).

CSE – 3105: Theory of Computation

3 Credits, 3 hrs/week

Language Theory, Finite Automata, Regular Expressions and Languages, Context Free Grammar and Languages, Push Down Automata, Turing Machines, Undecidability.

CSE – 3109: Digital System Design

3 Credits, 3 hrs/week

Combinational logic with MSI and LSI, BCD Adder, Boolean functions implementation using Decoder and Multiplexer, Read Only Memory (ROM) and Programmable Logic Array (PLA), Sequential Logic, State diagrams, state tables, state equations, Counters and Registers, Memory unit, Register Transfer Logic, Processor Logic Design, Control Logic Design.

CSE – 3110: Digital System Design Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-3109 (Digital System Design).

CSE – 3111: Computer Architecture

3 Credits, 3 hrs/week

Fundamentals of Computer Architecture, Fundamentals of computer design, Instruction set principles, Input/Output Organization**,** Memory Hierarchy technology, Memory System, Pipelined processor, CPU Structure and Function, Introduction to High Performance Techniques: Micro Programmed Control, SIMD Architecture, Vector architecture and MIMD Architecture.

CSE – 3107: Discrete Mathematics

3 Credits, 3 hrs/week

Set Theory, Relation and Function, Logic and Propositional Calculus, Algebraic structure, Boolean Algebra, Graph Theory, Tree, Combinatorics, Discrete Probability, REVIEW CLASS.

3rd Year 2nd Semester

CSE – 3200: Advanced Programming Laboratory

1.5 Credits, 3 hrs/week

All the topics covered in this course are based on CSE-1101 (Computer Basic and Programming), CSE-1201 (Structured Programming), CSE-2101 (Object Oriented Programming).

CSE – 3201: System Programming and Operating System

3 Credits, 3 hrs/week Introduction: Components of System Software, Language Processing Activities, Fundamentals of Language Processing, Text Editor, Compiler, Assemblers, Linker, Loader, Interpreter, Introduction to OS, Process, Memory Management, Input and Output, File System.

CSE – 3202: System Programming and Operating System Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-3201 (System Programming and Operating System).

CSE – 3203: Computer Networks

3 Credits, 3 hrs/week

Introduction, Network Models, Transmission media, Network Layer: Logical Addressing, Network layer: Internet protocol, Delivery, Forwarding and Routing, Transport layer, Congestion control and Quality of Service (QoS), Application layer, Cryptography.

CSE – 3203: Computer Networks Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-3203 (Computer Networks).

CSE – 3205: Applied Probability and Queuing Theory

3 Credits, 3 hrs/week

Probability Theory, Probability distribution and expectations, discontinuous probability distribution, Discrete time Markov chain, Continuous time Markov Chain, Birth-death process in queuing, Queuing models: M/M/1, Queuing models: M/M/Q, Review Class.

CSE – 3218: Internet Programming Laboratory

0.75 Credits, 1.5 hrs/week

Based on Laboratory Work.

Math – 3231: Engineering Mathematics-IV

3 Credits, 3 hrs/week

Introduction of Fourier Series, Various types of Fourier Series, Finite Fourier transforms and Fourier Integral, Application of Fourier transforms and their uses to solve boundary value problems, Introduction of Laplace transform, Inverse Laplace transform, Convolution theorem, Application of Laplace transform to solve problem, Introduction of Z-transform, Basic Concept of Statistics, Probability distributions, Data Analysis.

Math – 3241: Industrial Management

1.5 Credits, 1.5 hrs/week

Administration, Management and organization, Authority and responsibility. Scientific management, Organization structure, organization chart. Span of control, Selection and recruitment of employees, training and its types, promotion, Material handling, Maintenance, Maintenance policy, wage system and incentive, job-evaluation and merit rating, Plant layout, layout of physical facilities, Production Management: functions of production control, Purchasing procedures, Inventory Management.

CSE – 3209: Distributed Database

3 Credits, 3 hrs/week

Introduction, Distributed database design, Data and access control, Query processing/ optimization, Transaction Management, Concurrency Control, Distributed DBMS Reliability.

CSE – 3210: Distributed Database Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-3209 (Distributed Database).

EEE – 3221: Data Communication

3 Credits, 3 hrs/week

Fundamentals of Data Communication and and signals, Link layer functionalities, Introduction to modulation techniques, Local area network technologies, Internetworking devices and others, Transport layer protocols Applications layer protocols, Communication medium and waves, Pulse Systems, error correction Network security measures.

CSE – 3211: Data Warehousing and Mining

3 Credits, 3 hrs/week

Data Preprocessing, Data warehousing and Mining Techniques, Data classification, Evaluation Criteria of Classification, Cluster analysis, Outlier detection.

CSE – 3212: Data Warehousing and Mining Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE – 3211 (Data Warehousing and Mining).

CSE – 3213: Digital Signal Processing

3 Credits, 3 hrs/week

Introduction. Discrete-time signals in the time domain, Linear time-invariant systems, Frequency domain representation of discrete signals and systems, Sampling theory. Discrete-time processing of analog signals, Z-transform. Transform analysis of systems, Discrete Fourier Transform (DFT),

circular convolution. Fast Fourier Transform (FFT). Digital filters: specifications. FIR filter theory and design methods, IIR filter theory and design methods.

CSE – 3214: Digital Signal Processing

0.75 Credits, 1.5 hrs/week

Based on CSE-3213 (Digital Signal Processing).

4th Year 1st Semester

CSE – 4100: Project/Thesis-I

1.5 Credits, 3 hrs/week

Study, research and solution of a problem in the field of Computer Science and Engineering.

N.B.: The project/thesis topic selected in this term will be continued until the next term ends.

CSE – 4101: Artificial Intelligence

3 Credits, 3 hrs/week

AI Techniques and Applications, Different Search Strategies and Problem Solving, Reasoning, different propositional logic and quantifiers, Inference rule, canonical form and natural language understanding, Framework problems, Complex actions and Planning.

CSE – 4102: Artificial Intelligence Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4101 (Artificial Intelligence)

CSE – 4103: Compiler Design

3 Credits, 3 hrs/week

Introduction to Compilers, lexical analyzer, Analyze regular expression, non-deterministic finite automata (NFA) and deterministic finite automata (DFA), Contexts free grammar, ambiguous grammar and basic parsing techniques, Syntax Analyzer: top-down parsing, Bottom-up parsing, operator-precedence parsing, LR parsers. Intermediate code, symbol table, data structure for symbol table, Error detection and recovery, code optimization, code generation.

CSE – 4104: Compiler Design Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4103 (Compiler Design).

CSE – 4105: Information Security and Control

3 Credits, 3 hrs/week

Introduction, Cryptography, Digital Signature, Hash Function, Message Authentication Code (MAC), Key Management and Distribution, User Authentication, Network Access Control and Cloud Security, Wireless Network Security, Electronic Mail Security.

CSE – 4107: Modeling and Simulation

3 Credits, 3 hrs/week

Simulation Methods, Model Building, Simulation Examples, Statistical Models in Simulation, Statistical, Analysis of Results, Validation and Verification, Simulation and Analytical Methods for Analysis of Computer Systems and Practical Problems in Engineering, Random Numbers and Variants Generation, Modeling Methods, Building Valid, Credible Simulation Models.

CSE – 4108: Modeling and Simulation Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4107 (Modeling and Simulation).

CSE – 4109: VLSI Design

3 Credits, 3 hrs/week

VLSI Design Methodology, Introduction to Microelectronics And CMOS technology, Briefoverview of Fabrication process; Basic electrical properties of CMOS and BiCMOS circuits, Logic networks, state diagrams, Data flow, behavioral optimization, Introduction to GaAs technology: Ultra-fast VLSI circuits and systems, Stick diagram and Lambda-based design rules, Subsystem Design processes, Gate Logic, Combinational Design, Clocked Sequential circuits, Bus designs, ALU sub-system, Adder,Multipliers, Memory,Registers,and aspects of system timing, Architectural Synthesis: Circuit specification, Architectural optimization, Data-path synthesis, Control unit synthesis, Synthesis and testing of VLSI circuits. Various CAD tools for design, simulation, and verification, Introduction to hardware description languages (VHDL and Verilog); Design style: FPGA and CPLDs.

CSE – 4110: VLSI Design Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4109 (VLSI Design).

CSE – 4111: Computer Peripheral and Interfacing

3 Credits, 3 hrs/week

Introduction, Memory Interfacing, Data Transfer Techniques and Their Implementation, Common Peripherals and their Interfacing, Programmable Peripheral Interface, Programmable Interval Timer, I/O Devices for Process Control and Instrumentation, Microprocessor in Scientific Instruments and Other Applications.

CSE – 4112: Computer Peripheral and Interfacing Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4111 (Computer Peripheral and Interfacing)

CSE – 4113: Wireless Networks

3 Credits, 3 hrs/week

Propagation, capacity, IEEE standard and protocol, Wireless access, Cordless and Wireless System, Generation of wireless, Bluetooth technology, Wireless Protocol.

CSE – 4114: Wireless Networks Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4113 (Wireless Networks)

CSE – 4115: Pattern Recognition

3 Credits, 3 hrs/week

Introduction, Statistical and Neural Pattern Recognition, Linear Classifiers, Nonlinear Classifiers, Template Matching, Context Dependent Classification, Syntactic Pattern Recognition, Unsupervised Classification.

CSE – 4116: Pattern Recognition Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4115 (Pattern Recognition).

CSE – 4117: Computer Vision and Image Processing

3 Credits, 3 hrs/week

Introduction to Digital Image Processing, Intensity Transformations, Image Enhancement in Spatial Domain, Image enhancement in frequency domain, Image Restoration, Image Compression, Morphological Image Processing, Image Segmentation.

CSE – 4118: Computer Vision and Image Processing Laboratory

0.75 Credits, 1.5 hrs/week

Based on CSE-4117 (Computer Vision and Image Processing).

4th Year 2nd Semester

CSE – 4200: Project/Thesis-II

3 Credits, 6 hrs/week

Continuation of project and thesis topic undertaken in CSE-4100.

CSE – 4201: Computer Graphics

3 Credits, 3 hrs/week

Display devices, Input devices, Color**,** Scan Conversion-Basic raster graphics algorithms for drawing 2D primitives, 2D Transformation, 2D Viewing and clipping, 3D transformation, Projections, Geometric Representation and Hidden Surface, Color and Shading Model, Ray Tracing.

CSE – 4202: Computer Graphics Laboratory

1.5 Credits, 3 hrs/week

Based on CSE-4201 (Computer Graphics).

CSE – 4206: Computer Graphics Laboratory

0.0 Credits, 3 hrs/week

Students will take 3 weeks industrial training in Computer Science and Engineering related industries or establishments. Student will be evaluated on the basis of a report submitted by them after the completion of the training, oral examination and the report from the concerned industry or establishment. This training is to be organized during the inter - term break

CSE – 4208: Technical Writing and Presentation Laboratory

1.5 Credits, 3 hrs/week

Overview of Technical Research and Technical Writing, Documentation Process, and Technical Writing Process, Technical Writing Software Tools.

Hum-4241: Engineering Economics and Accounting

3 Credits, 3 hrs/week

Basic knowledge about economics, Resources, scarcity, Production possibility curve, economic decision taking, Demand and supply theory and application, Elasticity, theory of production, cost benefit analysis, Demand, supply and government policies, National income, Basic knowledge of accounting, development of accounting, accounting problems and scopes etc, The Accounting Process, Measuring Business Income, Accounting Systems and Special Ledgers, Ratio Analysis.

CSE – 4203: Machine Learning

3 Credits, 3 hrs/week

Introduction to machine learning, Artificial Neural Networks, Support Vector Machine, Decision Trees, Genetic Algorithms, Swarm Intelligence, Clustering and Unsupervised Learning, Dimensionality Reduction.

CSE – 4204: Machine Learning Laboratory

0.75 Credits, 1.5 hrs/week

All the topics covered in this course are based on CSE-4203 (Machine Learning).

CSE – 4207: Decision Support System

3 Credits, 3 hrs/week

Review of Systems Principles, Methods of Decision Making and Problem Solving, Decision Support Systems (DSS), Expert Systems Overview, Knowledge Acquisition and Meta-Knowledge, Manipulation of Models as a decision-making procedure, Building Management Models.

CSE – 4209: Fault Tolerant System

3 Credits, 3 hrs/week

Definition of fault tolerance; Redundancy; Applications of fault-tolerance, Fundamentals of Dependability: Attributes: reliability, availability, safety; Impairments: faults, errors and failures; Means: fault prevention, removal and forecasting, Dependability Evaluation

Techniques: Common**,** Measures: failures rate, mean time to failure, mean time to repair, etc.; Dependability Model Types, Dependability Computation Methods. Hardware Redundancy: Redundancy Allocation; Passive Redundancy: Triple Modular Redundancy; Reliability Evaluation; Voting Techniques; N-modular Redundancy; Active Redundancy: Duplication, Hybrid Redundancy: Self-purging Redundancy, N-modular Redundancy; Evaluation and comparison, Applications, Information Redundancy: Coding Theory: Parity codes, Hamming codes, Cyclic codes, Checksum, M-of-N codes, Berger codes, Arithmetic codes, etc.; Encoding and decoding techniques; Applications; Algorithm based fault tolerance, Time Redundancy: Check-pointing and roll-back, Analysis and optimality; Alternating Logic, Software Redundancy: Single-version Techniques**;** Multi-version, Techniques Software Testing; Self-checking Software, Fault Detection in Cryptographic Systems: Overview of Ciphers, Security attacks through fault injection: Fault attacks on symmetric key ciphers, Fault attacks on public (asymmetric) key ciphers, Countermeasures, Fault-models: Layers of Reality; Stuck-at fault model and the Single fault assumption**;** Functional fault models, Review Class.

CSE – 4211: Parallel and Distributed Processing

3 Credits, 3 hrs/week

Motivation for Parallelism, Parallel and Distributed, Computers, Performance Measures, Interconnection Networks, Distributed Processing, Design of distributed data, Applications.

CSE – 4213: Biomedical Engineering

3 Credits, 3 hrs/week

Bioelectric Phenomena and Bio signals, Physiological Measurement, Bio signal Processing, Diagnostic Methods and Biomedical Equipment, Diagnostic Methods and Biomedical Equipment, Electrical Safety.

CSE – 4215: Natural Language Processing

3 Credits, 3 hrs/week

Regular Expression and Text Normalization, N-grams, Spelling Correction**,** Part of Speech Tagging**,** Context Free Grammar (CFG), Parsing, Semantics, Lexicons for Sentiment, Corpus based work, Text categorization.

নর্থ ওয়েস্টার্ন বিশ্ববিদ্যালয়

খুলনা-৯১০০

নর্থ ওয়েস্টার্ন বিশ্ববিদ্যালয় ছাত্র শৃঙ্খলা বিধি

❖ সাধারণ শৃঙ্খলা ও আচরণ বিধিঃ

১.

ক) কোন ছাত্র কর্তৃক বিশ্ববিদ্যালয়ের আদেশ, বিধি, প্রবিধান, অর্ডিন্যান্স নিয়ম বা সংবিধি অমান্য করা এবং/ বা প্রকাশ্যে নিন্দাবাদ করা; বিশ্ববিদ্যালয়ের কোন কর্মকর্তা বা কর্মচারীর প্রতি অসৌজন্যমূলক আচরন বা অন্য কোন অপরাধকে বিশ্ববিদ্যালয়ের ভাইস-চ্যান্সেলর, প্রো-ভাইস চ্যান্সেলর, প্রক্টর বা বিশ্ববিদ্যালয়ের শিক্ষকবৃন্দ অসদাচরণ বা আইন শৃঙ্খলা পরিপন্থী কাজ বলে বিবেচনা করতে পারবেন এবং ঐ ছাত্রের বিরুদ্ধে শাস্তিমূলক ব্যবস্থা গ্রহন করা যাবে। এ ধরণের ছাত্রের বিরুদ্ধে অপরাধের গুরুত্ব অনুসারে ১(খ) ধারায় বর্ণিত কর্তৃপক্ষ কর্তৃক সতর্কীকরণ, জরিমানা ধার্য করা, সাময়িক বরখাস্ত, বিশ্ববিদ্যালয় থেকে চিরতরে বহিস্কার প্রভৃতি শাস্তি প্রদান কর যাবে।

খ) শাস্তি প্রদানকারী কর্তৃপক্ষ, তাদের ক্ষমতা এবং পুনঃ বিবেচনার কর্তৃপক্ষ।

শাস্তি প্রদানকারী কর্তৃপক্ষ	ক্ষমতা	পুনঃ বিবেচনার কর্তৃপক্ষ
১) ছাত্র শৃঙ্খলা কমিটি	সতর্কীকরণ, জরিমানা ধার্য, যে কোন মেয়াদের জন্য সাময়িক বরখাস্ত, বিশ্ববিদ্যালয় থেকে চিরতরে বহিস্কার।	একাডেমিক কাউন্সিল
২) ভাইস-চ্যান্সেলর	সতর্কীকরণ, জরিমানা ধার্য, অনধিক ৬ মাসের জন্য সাময়িক বহিস্কার।	ছাত্র শৃঙ্খলা কমিটি
৩) ডীন সংশ্লিষ্ট অনুষদ	সতর্কীকরণ, ২৫০০ টাকা পর্যন্ত জরিমানা, হল থেকে সাময়িক বা স্থায়ীভাবে বহিস্কার।	ভাইস-চ্যান্সেলর
৪) বিভাগীয় প্রধান	সতর্কীকরণ, ২০০০ টাকা পর্যন্ত জরিমানা।	ভাইস-চ্যান্সেলর
৫) প্রক্টর	সতর্কীকরণ, ২০০০ টাকা পর্যন্ত জরিমানা, হল থেকে সাময়িক বা স্থায়ীভাবে বহিস্কার।	ভাইস-চ্যান্সেলর
৬) প্রভোষ্ট	সতর্কীকরণ, ২০০০ টাকা পর্যন্ত জরিমানা, হল থেকে ১ বছর পর্যন্ত সাময়িক বহিস্কার।	প্রক্টর এর মাধ্যমে ভাইস- চ্যান্সেলর
৭) সহকারী প্রভোষ্ট	সতর্কীকরণ, ৫০০ টাকা পর্যন্ত জরিমানা ও প্রভোষ্টকে অবহিতকরণ।	প্রভোষ্ট
৮) বিশ্ববিদ্যালয়ের কোন শিক্ষক	সতর্কীকরণ, ৫০০ টাকা পর্যন্ত জরিমানা।	সংশ্লিষ্ট বিভাগীয় প্রধান

২. ভাইস-চ্যান্সেলরের বিবেচনায় আইন শংখলা পরিপন্থী কোন ঘটনার জন্য কোন ছাত্র বা ছাত্রগোষ্ঠীর বিরুদ্ধে ১(খ) ধারায় উল্লেখিত কর্তৃপক্ষ (ছাত্র শৃঙ্খলা কমিটি বাদে) কর্তৃক গৃহীত ব্যবস্থা সন্তোষজনক মনে না হলে বা আদৌ কোন ব্যবস্থা গৃহীত না হলে তিনি ঐ ছাত্র/ছাত্রীদের বিরুদ্ধে যথোপযুক্ত শাস্তিমূলক ব্যবস্থা গ্রহন করতে পারবেন। আর যদি তিনি মনে করেন তার/ তাদের অপরাধের শাস্তি ৬ মাস সাময়িক
বহিস্কারের চেয়ে অধিক হওয়া উচিৎ তা হলে তিনি বিষয়টি বিবেচনার জন্য ছাত্র শৃঙ্খলা কমিটির নিকট উপস্থাপন করবেন।

৩. যে কোন শাস্তির বিষয়ে প্রক্টরকে নোট প্রদান করতে হবে। তিনি গৃহীত ব্যবস্থার লিখিত বিবরণ নথিভূক্ত করবেন। কোন ছাত্র বা ছাত্রগোষ্ঠী তার/তাদের বিরুদ্ধে ১(খ) ধারায় বর্ণিত কর্তৃপক্ষ কর্তৃক গৃহীত ব্যবস্থায় সন্তুষ্ট না হলে উক্ত ধারায় নির্দেশিত কর্তৃপক্ষের নিকট শাস্তি পূনর্বিবেচনার জন্য আপিল করতে পারবে।

৪. প্রক্টর দন্ডপ্রাপ্ত ছাত্র/ ছাত্রদের বিরুদ্ধে শাস্তিমূলক ব্যবস্থা বলবৎ/ কার্যকর করার জন্য দায়ী থাকবেন।
তিনি আইন-শৃঙ্খলা পরিপন্থী ও অসদাচরনের জন্য দোষী ছাত্রদের অপরাধের বিষয় প্রশংসাপত্রে/ চারিত্রিক সনদপত্রে উল্লেখপূর্বক উক্ত পত্র সংশ্লিষ্ট ছাত্রকে প্রদান করবেন। তবে সংশ্লিষ্ট ছাত্রের আবেদন ক্রমে ভাইস-চ্যান্সেলরের মার্জনায় লিখিত অনুমোদনের পরিপ্রেক্ষিতে দোষী ছাত্রের প্রশংসাপত্রে/ চারিত্রিক সনদপত্রে এ ধরনের অপরাধের বিষয় উল্লেখ করা থেকে বিরত থাকবেন।

৫. কোন ছাত্র বিশ্ববিদ্যালয়ের রেজিস্ট্রার বা কোন শিক্ষকের কাছে থেকে চারিত্রিক সনদপত্র গ্রহন করতে চাইলে তাকে অবশ্যই প্রক্টর কর্তৃক ইস্যুকৃত প্রশংসাপত্র/চারিত্রিক সনদপত্রে যদি উক্ত ছাত্রের বিরুদ্ধে আইন শৃঙ্খলা পরিপন্থী/ অসদাচরন সম্পর্কিত কিছু লিখিত থাকে তবে তা ঐ প্রশংসাপত্রে/ চারিত্রিক সনদপত্রে হুবহু দেখার পর আবেদনকৃত পত্র ইস্যু করতে পারবেন।

৬. আবাসিক কোন ছাত্রের আচরণ সন্তোষজনক না হলে অথবা কোন ছাত্র আইন শৃঙ্খলা পরিপন্থী কাজের সাথে জড়িত থাকলে সংশ্লিষ্ট প্রভোষ্ট, প্রক্টরকে অবহিতকরণ সাপেক্ষে ঐ ছাত্রকে কোন নির্দিষ্ট (১ বছরের অধিক) সময়ের জন্য হল পরিত্যাগ পূর্বক বিশ্ববিদ্যালয়ের বাইরে অবস্থান করাতে পারবেন।

৭. অন্য হলের কোন ছাত্র/ ছাত্রীদের কর্তৃক সংঘটিত কোন অসদাচরন বা আইন শৃঙ্খলা পরিপন্থী ঘটনার জন্য যে হলে তা সংঘটিত হয়েছে ঐ হলের প্রভোষ্টকে অবহিত করলে তিনি যথাযথ শাস্তির ব্যবস্থা করবেন।
গৃহীত শাস্তির ব্যাপারে প্রথম আবাসিক হলের প্রভোষ্ট সন্তুষ্ট না হলে তিনি পূনর্বিচারের জন্য বিষয়টি প্রক্টরের দৃষ্টিগোচরেও আনবেন।

৮. কোন ছাত্র/ ছাত্রগোষ্ঠী ভাইস-চ্যান্সেলর বা রেজিস্ট্রার এর লিখিত অনুমোদন ছাড়া প্রথাসিদ্ধ ইউনিয়ন/ কমিটি/ সমিতি/ (ছাত্র সংসদ, হল ইউনিয়ন, বিভাগীয় সমিতি) ছাড়া অন্য কোন প্রকার সমিতি/ কমিটি গঠন করতে পারবে না বা এ উদ্দেশ্য সভা সমিতিও আহবান করতে পারবে না। উভয় কাজই শাস্তিযোগ্য অপরাধ বলে বিবেচিত হবে।
ভাইস-চ্যান্সেলর বা রেজিস্ট্রারের পূর্বানুমোদন ছাড়া কোন ছাত্র/ছাত্রগোষ্ঠী
ক্যাম্পাসে কোন রাজনৈতিক দলের সভা সমিতি বা ভোজসভার আয়োজন করতে পারবে না। ক্যাম্পাসে বাদ্যযন্ত্র বা সাংস্কৃতিক অনুষ্ঠান আয়োজনের জন্য পূর্বানুমোদন প্রয়োজন হবে। এ রকম কোনো প্রকার নিয়মের লংঘণ শাস্তিযোগ্য অপরাধ বলে বিবেচিত হবে।

৯. কোন ছাত্র/ ছাত্রগোষ্ঠী ক্যাম্পাসে ধর্মঘট আহবান করতে পারবে না বা কোন ছাত্রকে স্বাভাবিক চলাচলে বাধা প্রদান করতে পারবে না বা তাকে ক্লাস করা থেকে বিরত রাখতে পারবে না এবং এই উদ্দেশ্য কোন সভা/ সমিতি র‍্যালি করতে পারবে না। এ ধরনের কাজের সাথে জড়িত ছাত্র/ ছাত্রগোষ্ঠী দোষী সাব্যস্ত হলে বিশ্ববিদ্যালয় থেকে বহিস্কার পর্যন্ত করা যেতে পারে। যারা এ উদ্দেশ্যে ক্লাস করা থেকে বিরত থাকবে ঐ সব ছাত্রের স্কলারশীপ/কোর্স বাজেয়াপ্তসহ অন্যান্য শাস্তিমূলক ব্যবস্থা গ্রহন করা যাবে।
১০. কোন ছাত্র/ছাত্রগোষ্ঠী বিশ্ববিদ্যালয়ের এলাকায় অন্য কোন ছাত্র/ছাত্রগোষ্ঠীর সহিত দূর্ব্যবহার, উচ্ছৃঙ্খল আচরণ, শারীরিক বা মানসিক নির্যাতন করতে পারবে না। এ ধরনের ঘটনা শাস্তিমূলক আচরনের মধ্যে পড়বে। বিশ্ববিদ্যালয়ের বাইরে কোন ছাত্র/ ছাত্রগোষ্ঠী অন্য কোন ছাত্র/ ছাত্রগোষ্ঠীর সাথে দূর্ব্যবহার বা অসদাচরণ করলে তা ও শাস্তিযোগ্য অপরাধ বলে বিবেচিত হবে। প্রক্টর এ ব্যাপারে যথোপযুক্ত ব্যবস্থা গ্রহন করবেন এবং অপরাধের গুরুত্ব অনুযায়ী বিষয়টি ভাইস-চ্যান্সেলরের দৃষ্টি গোচরেও আনবেন।

১১. যে কোন অনাকাঙ্খিত ঘটনা ভাইস-চ্যান্সেলর এর দৃষ্টিগোচর হলে তিনি পরবর্তী ব্যবস্থা গ্রহনের নির্দেশ দান করবেন বা সাময়িক ব্যবস্থা গ্রহনের জন্য উপযুক্ত কর্তৃপক্ষকে নির্দেশ দান করতে পারবেন। ভাইস-চ্যান্সেলর ক্যাম্পাসে শান্তি শৃঙ্খলা বজায় স্বার্থে মাঝে মধ্যে বিজ্ঞপ্তি জারি করতে পারবেন। তিনি আপত্তিকর পোষ্টার, পত্রিকা বা প্রকাশনা নিষিদ্ধ ঘোষনা করতে ও বাজেয়াপ্ত করতে পারবেন।

১২. বিশ্ববিদ্যালয়ের কোন জিনিস (লিফট, সিসি ক্যামেরা, তালা, দরজা, ল্যাবের যন্ত্রপাতি, যানবাহন প্রভৃতি) ক্ষতি/ধ্বংস বা অনুমতি ছাড়া ব্যবহার করিলে তাহা শাস্তিযোগ্য অপরাধ বলিয়া বিবেচিত হবে এবং ২ নং বিধি অনুযায়ী শাস্তি প্রদান করা যাবে।

১৩. কোন ছাত্র/ ছাত্রগোষ্ঠী বিশ্ববিদ্যালয় এলাকায় যে কারও সাথে অসৌজন্যমূলক/ উচ্ছৃঙ্খল আচরণ করলে তা শাস্তিযোগ্য অপরাধ বলে বিবেচিত হবে এবং অপরাধের গুরুত্ব বিবেচনায় তাকে/ তাদেরকে বিশ্ববিদ্যালয় থেকে চিরতরে বহিস্কার পর্যন্ত শাস্তি প্রদান করা যাবে।

১৪. বিশ্ববিদ্যালয়ের কোন ছাত্র মাদকাসক্তি, অসামাজিক কার্যকলাপ বা নৈতিক অবক্ষয়জনিত অপরাধে দোষী সাব্যস্ত হলে তার বিরুদ্ধে প্রচলিত রাষ্ট্রীয় ব্যবস্থা ছাড়াও বিশ্ববিদ্যালয় কর্তৃপক্ষ শাস্তিমূলক ব্যবস্থা গ্রহণ করতে পারবেন।

১৫. বিশ্ববিদ্যালয়ের কোন শাস্তি প্রদানকারী কর্তৃপক্ষের কাছে যদি কোন ছাত্র/ ছাত্রগোষ্ঠীর সংঘটিত অপরাধ সুনির্দিষ্টভাবে প্রতীয়মান হয় এবং বিশ্ববিদ্যালয়ের সুষ্ঠু পরিবেশের স্বার্থে তাৎক্ষণিক শাস্তি বিধান জরুরী হয় তা হলে উল্লেখিত শাস্তি দানকারী কর্তৃপক্ষ তাৎক্ষণিক শাস্তির মাত্রা অবশ্যই কর্তৃপক্ষের প্রদানযোগ্য শাস্তির সর্বোচ্চ সীমার মধ্যে থাকবে।

১৬. কোন কর্তৃপক্ষের স্বাক্ষর নকল করে কোন কিছু বিশ্ববিদ্যালয়ে জমা প্রদান করিলে তাহা শাস্তিযোগ্য অপরাধ বলিয়া বিবেচিত হইবে।

১৭. লাইব্রেরীর কোন বই, ল্যাবরেটরীর কোন যন্ত্রপাতির ক্ষতিসাধন করিলে তাহা বিশ্ববিদ্যালয় কর্তৃপক্ষের মাধ্যমে শাস্তির ব্যবস্থা গ্রহন করা।

১৮. স্যোশাল মিডিয়াতে কোন আপত্তিজনক/অসত্য লিখিত বক্তব্য বা ছবি আপলোড করিলে তাহা শাস্তিযোগ্য অপরাধ বলিয়া বিবেচিত হইবে।

১৯. নাগরিক/দেশ এর জন্য ক্ষতিকার এমন কোন সামাজিক, রাজনৈতিক বা ধর্মীয় সংগঠনের সহিত যোগাযোগ/সংযুক্ত হইলে তাহা শাস্তিযোগ্য অপরাধ বলিয়া বিবেচিত হইবে। প্রক্টোর সেক্ষেত্রে যথাযথ ব্যবস্থা গ্রহন করিবেন এবং ভাইস-চ্যান্সেলরকে অবহিত করিবেন।

২০. বিশ্ববিদ্যালয় ক্যাম্পাসে কোন ছাত্র দৃষ্টিকটু বস্ত্র পরিধান করিলে তাহা শৃঙ্খলা বিধির আওতায় ব্যবস্থা গ্রহন করা যাইবে।

❖ পরীক্ষায় শৃঙ্খলা ও আচরন বিধিঃ

১. প্রধান প্রত্যবেক্ষক পরীক্ষার হলে শান্তি শৃঙ্খলা বজায় রাখার জন্য দায়ী থাকবেন।

২. পরীক্ষার হলে কোন ছাত্র কর্তৃক সংঘটিত আইন শৃঙ্খলা পরিপন্থী কোন কার্যকলাপ পরিলক্ষিত হলে কর্তব্যরত প্রত্যবেক্ষক প্রধান প্রত্যবেক্ষককে অবহিত করবেন। প্রধান প্রত্যবেক্ষক অপরাধের গুরুত্ব বিবেচনা করে ঐ ছাত্রকে সর্বোচ্চ উক্ত পত্রের পরীক্ষা থেকে বহিস্কার করতে পারবনে। এ রকম ঘটনা কর্তব্যরত প্রত্যবেক্ষক প্রধান প্রত্যবেক্ষকের মাধ্যমে ভাইস-চ্যান্সেলরকে রিপোর্ট করবেন।

৩. পরীক্ষার্থীরা নিম্নবর্নিত নির্দেশসমূহ কঠোরভাবে মেনে চলতে বাধ্য থাকবেঃ

ক) পরীক্ষার্থীরা উত্তরপত্রের কভার পৃষ্ঠাসহ কোথাও নিজের নাম লিখতে পারবে না। কোন পরীক্ষার্থীরা যদি এটা করে তবে তার উত্তরপত্র মূল্যায়িত হবে না।
খ) প্রত্যেক পরীক্ষার্থী স্পষ্টাক্ষরে তার রোল নম্বর উত্তর পত্রের কভার পৃষ্ঠায় নির্দিষ্ট জায়গায় লিখবে। এর কোন ব্যত্যয় ঘটলে উত্তরপত্র মূল্যায়ন করা হবে না।
গ) কোন পরীক্ষার্থী অতিরিক্ত প্রশ্নোত্তরের খাতা ব্যবহার করলে উক্ত খাতার সঙ্গে তার রোল নম্বর লিখবে এবং তা মূল খাতার সাথে শক্তভাবে সংযুক্ত করবে।
ঘ) কোন পরীক্ষার্থী প্রবেশপত্র ও পরিচয়পত্র ছাড়া কোন প্রকার কাগজপত্র সহ পরীক্ষার হলে প্রবেশ করতে পারবে না। কারও কাছে এ ধরনের কাগজপত্র পাওয়া গেলে তাকে তাৎক্ষনিকভাবে পরীক্ষার হল থেকে বহিস্কার করা যাবে। পরীক্ষার্থীগণ শুধুমাত্র কর্তৃপক্ষ কর্তৃক সরবরাহকৃত কাগজপত্রে লিখতে/ খসড়া হিসাব করতে পারবে। পরীক্ষার খাতা ও অতিরিক্ত খাতা পরীক্ষা শেষে অবশ্যই প্রত্যবেক্ষকের কাছে জমা দিতে হবে এবং এসব খাতা পরীক্ষা শেষে অবশ্যই প্রত্যবেক্ষকের কাছে জমা দিতে হবে এবং এসব খাতা ছেঁড়া বা অন্যের সঙ্গে অদল-বদল করা যাবে না।
ঙ) কোন পরীক্ষার্থী সাধারণভাবে পরীক্ষা আরম্ভ হওয়ার আধ ঘন্টা পরে পরীক্ষার হলে প্রবেশ করতে পারবে না এবং পরীক্ষার এক ঘন্টা কাল পূর্ণ না হলে পরীক্ষার হল ত্যাগ করতে পারবে না।
চ) পরীক্ষার খাতায় বিষয় বহিভূত কিছু লেখা দুষনীয়/ অপরাধ বলে বিবেচিত হবে।
ছ) কোন পরীক্ষার্থী প্রশ্নপত্রের উপরেও কিছু লিখতে পারবে না।

জ) কোন পরীক্ষার্থীর নির্ধারিত টেবিল, চেয়ারে পরীক্ষার বিষয়বস্তু সংক্রান্ত কোন কিছু লেখা থাকলে তা পরীক্ষা শুরু হওয়ার পূর্বেই কর্তব্যরত প্রত্যবেক্ষকের দৃষ্টিগোচরে আনতে হবে। অন্যথায় এটি পরীক্ষার্থী কর্তৃক সংঘটিত অপরাধ বলে বিবেচিত হবে।

ঝ) এই বিধিতে অনুল্লেখিত কোন বিষয়ে পরীক্ষার্থীগণ কর্তব্যরত প্রত্যবেক্ষকের সিদ্ধান্ত মেনে চলতে বাধ্য থাকবে।

৪. পরীক্ষার হলে অসদুপায়, অসদাচরণ বা পরীক্ষাসংক্রান্ত কোন কাজে শৃঙ্খলা পরিপন্থী কোন কিছু করলে সংশ্লিষ্ট ছাত্রের বিরুদ্ধে নিম্নবর্ণিত উপায়ে শাস্তিমূলক ব্যবস্থা গ্রহণ করা যাবে ঃ

ক্রমিক নং	**সংঘটিত অপরাধ**	**প্রদেয় শাস্তি**
(ক)	অন্য পরীক্ষার্থী/ পরীক্ষার্থীদের সাথে কথা বলা/ যোগাযোগের চেষ্টা করা।	১ম বারঃ সতর্কীকরন/ সিট পরিবর্তন ২য় বারঃ ঐ পত্রের ৫% মার্ক কেটে নেয়া ৩য় বারঃ প্রধান প্রত্যবেক্ষকের অনুমোদনক্রমে ঐ পত্রের জন্য হল থেকে বহিস্কার করা
(খ)	পরীক্ষার হলে সংশ্লিষ্ট পরীক্ষা সংক্রান্ত কাগজপত্র নিজের কাছে রাখা বা কোন উৎস থেকে নকল করা না অন্য কোন পরীক্ষার্থীর খাতা দেখে লেখা।	পরীক্ষার হল থেকে বহিস্কার সহ ঐ পত্রের পরীক্ষা বাতিল এবং ৪/৬ মাস থেকে ২ বছরের জন্য বিশ্ববিদ্যালয় থেকে বহিস্কার।
(গ)	পরীক্ষার্থীর শরীর ক্যালকুলেটর সহ পরীক্ষায় ব্যবহৃত জ্যামিতিক যন্ত্র পাতিতে লেখাসহ হলে প্রবেশ।	পরীক্ষার হল থেকে বহিস্কার সহ ঐ পত্রের পরীক্ষা বাতিল এবং ৪/৬ মাস থেকে ২ বছরের জন্য বিশ্ববিদ্যালয় থেকে বহিস্কার।
(ঘ)	পরীক্ষার্থী টেবিল/চেয়ারে পরীক্ষার বিষয়ে কোন কিছু লিখিত পাওয়া গেলে।	পরীক্ষার হল থেকে বহিস্কার সহ সর্বনিম্ন ঐ পত্রের পরীক্ষা বাতিল এবং সর্বোচ্চ রেজিস্ট্রেশনকৃত সকল বিষয়ের পরীক্ষা বাতিল।
(ঙ)	প্রত্যবেক্ষক বা পরীক্ষকের প্রতি উগ্র বাক্য ব্যবহার অথবা প্রত্যবেক্ষক/ পরীক্ষাকাকে ভীতি প্রদর্শন।	সর্বনিম্ন রেজিস্ট্রেশনকৃত সকল পরীক্ষা বাতিল এবং সর্বোচ্চ বিশ্ববিদ্যালয় থেকে চিরতরে বহিস্কার।
(চ)	পরীক্ষা শুরু হওয়ার পূর্বে ভিন্ন পন্থায় প্রশ্নপত্র সংগ্রহ করা/ সংগ্রহের চেষ্টা করা।	বিশ্ববিদ্যালয়ে থেকে ২ বছরের জন্য বহিস্কার/বিশ্ববিদ্যালয় থেকে ১ বছরের জন্য বহিস্কার।
(ছ)	পরীক্ষার্থীর নিকট পরীক্ষা সম্পর্কীত নয় এরূপ কোন কিছু লিখিত পাওয়া গেলে।	ঐ পত্রের পরীক্ষা বাতিল সহ পরীক্ষার হল থেকে বহিস্কার করা যেতে পারে।
(জ)	পরীক্ষক প্রভাবিত করা।	ঐ পত্রের পরীক্ষা বাতিল

(ঝ)	কোন ছাত্রের পরিবর্তে পরীক্ষা দেওয়া বা দেওয়ার চেষ্টা করা।	উভয় পরীক্ষার্থীর ঐ সেমিষ্টারের রেজিস্ট্রেশনকৃত সকল বিষয়ের পরীক্ষা বাতিল সহ বিশ্ববিদ্যালয় থেকে সর্বনিম্ন ১ বছর এবং সর্বোচ্চ চিরতরে বহিস্কার।
(ঞ)	বাহির থেকে কোন প্রশ্নপত্রের উত্তর লিখে পরীক্ষার খাতার সাথে সংযুক্ত করে দেওয়া বা দেওয়ার চেস্টা করা।	রেজিস্ট্রেশনকৃত সকল সেমিস্টারের এর পরীক্ষা বাতিল এবং/ বা ১ থেকে ২ বছরের জন্য বিশ্ববিদ্যালয় থেকে বহিস্কার।

সেমিস্টার ফাইনাল, ক্লাস টেষ্ট, কুইজ প্রভৃতি সকল পরীক্ষার জন্য উপরে উল্লেখিত বিধিসমূহ প্রযোজ্য হবে।

৫. পরীক্ষা সংশ্লিষ্ট শাস্তি প্রয়োগকারী কর্তৃপক্ষ ও তাদের ক্ষমতাবলীঃ

ক্রমিক নং	**কর্তৃপক্ষ**	**ক্ষমতা**	**পুনঃ বিবেচনার/ আপীল কর্তৃপক্ষ**
(ক)	ছাত্র শৃঙ্খলা কমিটি	সর্বনিম্ন সতর্কীকরন এবং সর্বোচ্চ বিশ্ববিদ্যালয় থেকে চিরতরে বহিস্কার।	একাডেমিক কাউন্সিল
(খ)	ভাইস-চ্যান্সেলর	সতর্কীকরন, ৪/৬ মাস পর্যন্ত বিশ্ববিদ্যালয় থেকে বহিস্কার/ চলতি সেমিস্টারের রেজিস্ট্রেশনকৃত সকল বিষয়ের পরীক্ষা বাতিল।	ছাত্র শৃঙ্খলা কমিটি।
(গ)	অনুষদের ডীন/ বিভাগীয় প্রধান/ প্রধান প্রত্যক্ষেক।	সতর্কীকরন পরীক্ষার হল থেকে বহিস্কার। বিষয়টি ভাইস-চ্যান্সেলরের কাছে রিপোর্ট করতে হবে।	
(ঘ)	প্রত্যবেক্ষক	সতর্কীকরন, ৫% নম্বর কেটে নেয়া। ৫% নম্বর কেটে নেয়ার বিষয়টি ভাইস-চ্যান্সেলর এর কাছে প্রধান প্রত্যবেক্ষক এর মাধ্যমে রিপোর্ট করতে হবে।	প্রধান প্রত্যবেক্ষক।