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Faculty members of the school

Academic Activity of the School

The ongoing academic programs of the school are Diploma in Computer Science and Application (DCSA), B.Sc in Computer Science and Engineering, Master of Disability Management and Rehabilitation (MDMR), Master of Public Health (MPH), Postgraduate Diploma in Ultrasound and BSc.(Hons) in Food and Nutrition. and Bachelor of Science in Nursing. The DCSA program was launched in 1998. It consists of 35 credits and duration of the program is one and half year. After completion of the program, diploma holders are well-placed in society. In 2013 school launched a 4-year B.Sc. in computer science and Engineering. Students are well-established in the IT sector including higher studies. Other popular programs are Master of Disability Management and Rehabilitation (MDMR) and Master of Public Health (MPH). These are 72

credits and 60 credits programs and have been launched in 1997 and 2018 respectively. The school arranges seminars, promotional activities of the programs, and coordination meetings with the coordinators, tutors of the study centers, and other resource persons. Study tours and picnics are arranged to renowned places of the country regularly.

Scientific Seminar at Dhaka campus

Journal and Publication

In recent year, a handsome amount of research papers by the faculty members have been published in several renowned national and international journals and conference proceedings. Research works are motivated by academic interest as well as the socio-economic problems at the national level. Once a year, school publishes a research journal named "Journal of Scientific and Technological Research (JSTR)". Books in the modular form, program handbook/brochure, study guide and other study materials are published by the school as well.

Basic Information and Regulation of the Program

Name of the program
Bachelor of Science in Computer Science and Engineering, in short 'B. Sc in CSE'.

Title of the Degree
Bachelor of Science in Computer Science and Engineering

Code of the Program
The program code of the B.Sc in CSE program shall be 52.

Aims and Objectives of the Program
The B.Sc in Computer Science and Engineering (CSE) program is designed to produce skilled graduates to satisfy the growing demands of computer engineers at home and abroad. It provides the learners with an opportunity to obtain a broad knowledge of Computer Science and Engineering with some freedom to tailor the program according to the learner's individual needs. The objectives of the program are-

- to produce engineers equipped with technical knowledge and skills, with the ability to apply them correctly, and with creativity and self-development.
- to train them the communication and collaboration skills and the ability to use new technologies to develop themselves to move with the rapidly innovative world.
- to produce scientists and engineers equipped with morals and ethics.
- to create opportunities for teaching and research in Computer Science and Engineering.

Prospect/Employments Opportunity
After completion of B.Sc in Computer Science and Engineering program, a learner should be able to get a job in the field of information and Communication Technology (ICT). Graduates with their degree of B.Sc in Computer Science and Engineering will be well placed in the following key areas-

- production and development industry;
- software development company;
- measurements, instrumentation and testing computing;
- information and communication technology sector; and
- teaching and research;

Besides this, an in-service graduate will get up graduation/promotion.

Eligible Criteria for Admission
To be eligible for admission, a candidate must be passed HSC/equivalent examination in the current year or years before the notification. For applying and taking part in the admission test for admission into the B. Sc in Computer

Science and Engineering program, a candidate must fulfill the following requirements.

(i) Candidates must have passed SSC and HSC examinations or its equivalent examinations in Science group with a minimum GPA of 3.0/2nd division in SSC/equivalent and 3.0/2nd division in HSC/equivalent examinations. In addition, Applicants must have in Mathematics /Higher Mathematics and in Physics with a minimum GPA of 2.5/2nd division in HSC examination separately.

Or,

(ii) Applicants who obtained a 4(four) years Diploma from the Technical Education Board in Mathematics /Higher Mathematics and Physics with a minimum GPA of 2.5(scale-4)/2nd division are eligible to apply. In addition, Applicants must have a Mathematics /Higher Mathematics and in Physics with a minimum GPA of 2.5(scale-4)/2nd division in HSC examination separately.

Or,

(iii) Applicants who passed the 'Diploma in Computer Science and Application (DCSA)' from Bangladesh Open University are eligible to apply for the admission test. But candidates from Science group in HSC/equivalent examination will be given priority.

Application Procedure

Application shall be submitted online after advertising of admission of the program in the National Dailies, Radio and TV. Application processing fee shall also be sent online using a mobile banking service during submission of application. All the instructions and guidelines regarding submission of application, collection of admit card and application fee payment procedure would be mentioned clearly both in the advertisement and the web site. A hard copy (printed copy) of application with the following necessary documents shall be submitted during the viva-voce.

- Online application form with original certificates, mark sheets/transcripts of SSC & HSC examinations;
- Admit card;
- Small ethnic groups/ Freedom fighters/Dependents of freedom fighters/employee of BOU/Diploma holders from BOU must produce an original certificate of proof and attested copy of it;
- 3 copies of duly attested passport-size photograph;
- Birth certificate.

Selection Procedure

Selection of learners shall be given based on competitive written tests and viva voce.

(i) **Written Admission Test:** Admission test will be conducted based on the current syllabi of Mathematics, Physics, Bangla and English of the HSC examination. The written test consists of MCQ and/or descriptive questions/problem solving and the total mark is 80. Duration of the written test shall be an hour. Subject-wise distribution of marks is as follows.

Serial	Subject	Marks	Syllabus
1.	Mathematics	35	Current Syllabi of the HSC Examination
2.	Physics	35	
3.	Writing Ability test (Bangla and English)	5+5	
	Total	80	

(ii) **Interview/Viva-voce:** Candidates will be attending an interview/viva-voce based on their results of the written test. 10 marks are allocated for viva voce and 10 marks are allocated for obtaining a score out of 5 from SSC and HSC examinations.. Based on both the marks (written, viva-voce and score from SSC and HSC examinations) learners shall be finally selected and then a merit list shall be published

(iii) Applicants who passed the Diploma in Computer Science and Application (DCSA) program from Bangladesh Open University can apply.

(iv) 10% seats will be reserved for the applicants who have completed Diploma in Computer Science and Application Program from BOU and other quotas shall be maintained as per Govt. rules.

(v) Admission Committee reserves all rights to make any changes.

Number of seats: 130 (may vary as and when BOU decides).

Academic Year and Semester of the Program

The academic year of the program shall start in July of each calendar year and shall end in June of the next year. Each academic year shall be divided into two semesters as follows:

Semester	Duration
1st Semester	January-July
2nd Semester	July-December

Program Plan

A learner shall have to complete 148 credits to receive the degree. Learner should submit a Project report and should appear Comprehensive Viva-voce in the 8th semester.

Duration of the program	: 4 year
Total Semester	: 8
Semester length	: 6 months
Total credit	: 148

Tenure of Registration

The registration of a learner in the B.Sc in CSE program shall remain valid for 8 years (i.e., for consecutive 16 semesters) since her/his admission into the program unless the learner falls under any of the following categories.

- ❖ cancellation or suspension of registration, or
- ❖ discontinuation, or
- ❖ expulsion for adopting unfair means.

Condition for next year and semester registration

(i) Regular students are allowed to register in the next year and semester by paying the necessary fee(s) as directed in the regulation.

(ii) Irregular students are allowed to register in the next year and semester with due permission from Dean, SST, BOU and by paying twice the regular semester registration fee.

(iii) Besides it, in both cases above students have to register for a course after attending the classes and appearing in the examination of prerequisite course(s).

Medium of Instruction

Medium of instruction for the B.Sc in CSE must be English unless otherwise directed.

Types of Courses

The courses for this program consist of

- ❖ Theoretical courses;
- ❖ Laboratory/ Sessional courses;
- ❖ Comprehensive viva voce;
- ❖ Project work.

Number of Courses and Credit Distributions

Total credits of the program are 148 and the credit distributions are given bellow.

	Type	**Number of Courses**	**Credits**
A.	General Courses	04	09
B.	Basic Science Courses	06	17
C.	Core Courses (Theory)	30	86
D.	Practical/ Laboratory/ Sessional courses	24	30
E.	Project Work	1	4
F.	Comprehensive Viva Voce	1	2
Total(Theory + Practical/ Laboratory/ Sessional courses + Project + Comprehensive Viva Voce)		(4+6+30+24+1+1)=66	148

Course Designation and Numbering System

Each course is designated by a three-letter code identifying the discipline and by four digits. Number/character is as follows:

(i) The first digit will correspond to the year in which the course is normally taken;
(ii) The second digit indicates the semester;
(iii) The third digit indicates the total credit of the course;
(iv) The character 'P' indicates either 1.5 credit or 0.75 credit for each practical/ laboratory/ sessional course;
(v) The fourth digit is reserved for the course number;

Year and Semester Wise Course and Credit Hour Distribution

First Year First Semester

Course Code	Course Title	Credit	Pre – requisite*
ENG1131	Communicative English	3.0	-
PHY1132	Wave, Optics and Thermodynamics	3.0	-
BUS1123	Introduction to Business	2.0	-
MAT1134	Differential and Integral Calculus	3.0	-
EEE1135	Electricity, Magnetism and Electrical Circuit	3.0	-
EEE11P6	Electricity, Magnetism and Electrical Circuit Lab	0.75	-
CSE1127	Computer Fundamentals	2.0	-
CSE11P8	Computer Fundamentals Lab	0.75	-
Total Credit		**17.5**	

First Year Second Semester

Course Code	Course Title	Credit	Pre - requisite*
MAT1231	Linear Algebra and Differential Equations	3.0	-
HUM1222	Bangladesh Studies	2.0	-
EEE1233	Electronic Device and Circuits	3.0	EEE1135
EEE12P4	Electronic Device and Circuits Lab	1.5	EEE11P6
CSE1235	Digital Logic Design	3.0	-
CSE12P6	Digital Logic Design Lab	1.5	-
CSE1237	Structured Programming Language	3.0	-
CSE12P8	Structured Programming Language Lab	1.5	-
Total Credit		**18.5**	

Second Year First Semester

Course Code	Course Title	Credit	Pre - requisite*
MAT2131	Coordinate Geometry and Vector Analysis	3.0	-
CHE2122	Chemistry	2.0	-
CSE2133	Discrete Mathematics	3.0	-
CSE2134	Computer Architecture and Organizations	3.0	
CSE2135	Data Structure	3.0	CSE1237
CSE21P6	Data Structure Lab	1.5	CSE12P8
CSE2137	Object Oriented Programming	3.0	CSE1237
CSE21P8	Object Oriented Programming -I Lab	1.5	CSE12P8
Total Credit		**20**	

Second Year Second Semester

Course Code	Course Title	Credit	Pre - requisite*
ECO2221	Introduction to Economics	2.0	-
CSE2232	Microprocessors and Microcontrollers	3.0	CSE2134
CSE22P3	Microprocessors and Assembly Language Lab	0.75	-
CSE2234	Information System Analysis and Design	3.0	-
CSE22P5	Information System Analysis and Design Lab	0.75	-
CSE2236	Computer Algorithms	3.0	CSE2135
CSE22P7	Computer Algorithms Lab	1.5	CSE21P6
CSE2238	Database Management System	3.0	-
CSE22P9	Database Management System Lab	1.5	-
Total Credit		**18.5**	

Third Year First Semester

Course Code	Course Title	Credit	Pre - requisite*
MAT3131	Statistics and Probability	3.0	-
CSE3122	Theory of Computation	2.0	CSE2133
CSE3133	Data and Telecommunications	3.0	
CSE3134	Operating System	3.0	-
CSE31P5	Operating System Lab	1.5	-
CSE3136	Advanced Database Management System	3.0	CSE2238
CSE31P7	Advanced Database Management System Lab	1.5	CSE22P9
CSE31P8	Object Oriented Programming-II Lab	1.5	CSE2137
CSE31P9	Numerical Analysis Lab	1.5	
Total Credit		**20**	

Third Year Second Semester

Course Code	Course Title	Credit	Pre - requisite*
CSE3221	E-commerce	2.0	-
CSE3232	Human-Computer Interaction	3.0	
CSE3233	Computer Networks	3.0	CSE3133
CSE32P4	Computer Networks Lab	1.5	CSE3133
CSE3235	Computer Peripherals and Interfacing	3.0	CSE2232
CSE32P6	Computer Peripherals and Interfacing Lab	0.75	CSE22P3
CSE3237	Software Engineering	3.0	CSE2137 & CSE2234
CSE32P8	Software Development Project	1.5	CSE21P8
CSE32P9	Technical Writing and Seminar	1.5	-
Total Credit		**19.25**	

Fourth Year First Semester

Course Code	Course Title	Credit	Pre - requisite*
CSE4121	Professional Ethics and Cyber Law	2.0	-
CSE4132	Principles of Distributed Systems	3.0	CSE3233
CSE4133	Artificial Intelligence	3.0	
CSE41P4	Artificial Intelligence Lab	0.75	-
CSE4135	Web Engineering	3.0	-
CSE41P6	Web Engineering Lab	1.5	-
CSE4137	Computer Graphics and Multimedia System	3.0	-
CSE41P8	Computer Graphics and Multimedia System Lab	0.75	
Total Credit		**17**	

Fourth Year Second Semester

Course Code	Course Title	Credit	Pre - requisite*
CSE4231	Cryptography and Network Security	3.0	CSE3233
CSE4232	Compiler Design	3.0	CSE3122
CSE42P3	Compiler Design Lab	0.75	-
CSE4234	Mobile Application Development	3	CSE3237
CSE42P5	Mobile Application Development Lab	1.5	
CSE4246	Project	4.0	-
CSE4227	Comprehensive Viva Voce	2.0	-
Total Credit		**17.25**	

* Learners will be able to register for a course(s) after attending the classes and appearing in the examination of the pre-requisite course(s) (if applicable).

Credit-Wise Learning Hour Distribution

Credit	Mode of Delivery	
	Class Room Learning/Face-to-Face Session	**Web-Based Lectures, Self-Learning, Assignment, Quiz etc.**
3.0 (Theory)	24 Hours	21 Hours
2.0 (Theory)	16 Hours	14 Hours
1.5 (Laboratory)	36 Hours	6 Hours
0.75 (Laboratory)	18 Hours	3 Hours

TUTORIAL SERVICE

The methodology of instruction of the university is different from that of the conventional universities. The Bangladesh Open University system is more learner-oriented, and the learner has to be an active participant in the teaching-learning process. Bangladesh Open University uses a mix of media considering the access and affordability of the learners. Both synchronous and asynchronous media are used for the effective delivery of the courses. Most of the instruction is imparted through a distance with only a small component of face-to-face communication. The university follows a multi-channel approach to instruction and it comprises a suitable mix of learning modes.

- Face-to-face lecture delivery and support;
- Reference books;
- Video lectures on YouTube, Facebook and twitter;
- Web-based learning system support;
- Interactive virtual class supports;
- Assignments, Laboratory/ Sessional;
- Project work.

Tutorial Service and Study Center

In BOU system, all classes are arranged in the particular institutions. An institution selected by the BOU for counseling is called a study center (SC). In BOU system, tutorial class is optional. Learner's come to the study center to solve their course-related problems and to get necessary information of the program. Due to the technology-based program, huge numbers of practical/ laboratory/ sessional are included in the syllabus, so learners are advised to attend in the tutorial class regularly.

Learners in the classroom

Who is your Tutor?

According to the BOU concept, a teacher who delivers lectures and provides tutorial services is called a 'Tutor'. For each course, there is tutor in a study center, who is selected by the BOU authority. For present program, faculties of BOU and faculties of different study centers will be Tutors of the program. They deliver lectures, course and tutorial service-related information, evaluate assignments and conduct examinations.

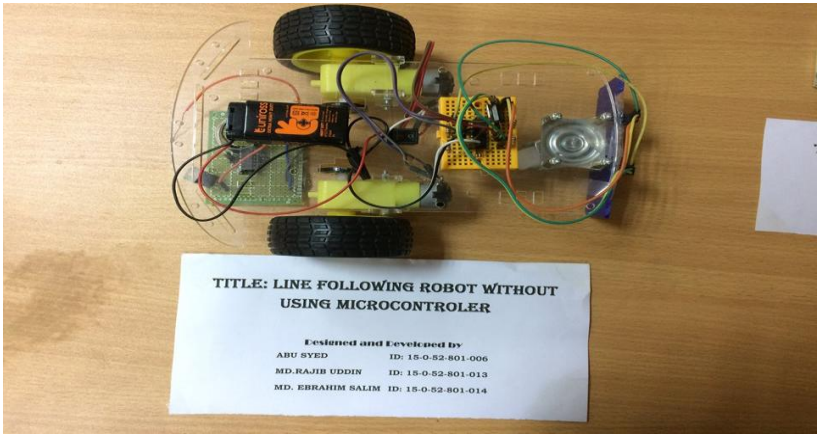
How will you contact the Tutor?

For any query about tutors and tutorial services, you may contact with respective study centre coordinator. For any problem don't hesitate to contact the Dean's office of the School of Science and Technology (SST), BOU, Gazipur, Tel:9291111.

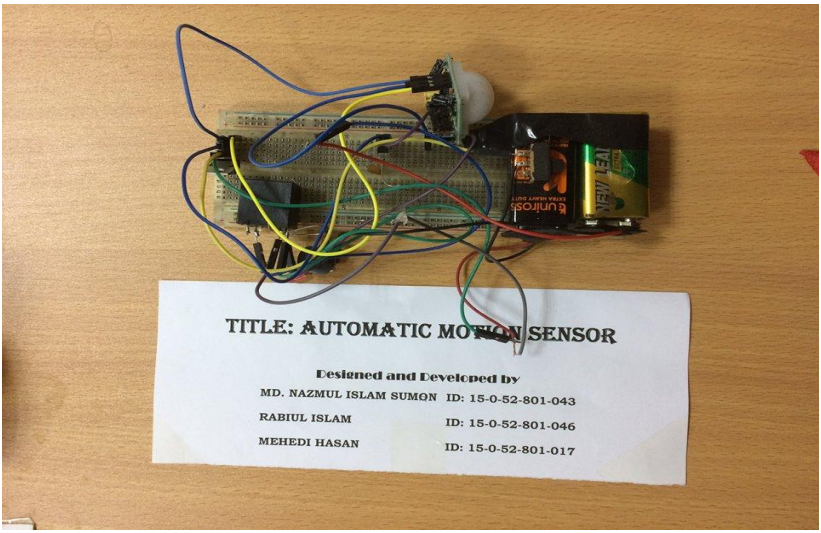
Software Lab Room

Students performing lab work

Demonstrate various project works



Robot without Microcontroller



Automatic Motion Sensor

Is it Necessary to Attend in the Tutorial Classes?

The program is a technical and practical based, so learners are advised to attend in the tutorial class regularly. A log book will be provided from the School of Science and Technology, BOU for recording both the theoretical and practical/ laboratory/ sessional hours. It must be preserved by the course tutors.The log book further be submitted to Dean, SST, BOU at the end of each semester for evaluation. Keep in mind that ***10% marks is allocated for participation in tutorial sessions for laboratory courses and 5% for theory courses.***

Tutorial Class Time

The tutorial classes are conducted as per academic calendar of the program. We advise learners to follow the academic calendar and class schedule. Before attending the tutorial class, please go through your course material as per the session schedule and make a plan of the points to be discussed. Unless you have gone through the Units, there may not be much to discuss and may not be fruitful.

Photo Gallery

Conducting orientation & fresher's program (session 2015-2016)

Orientation & Fresher's Program (session 2021-2022)

During admission test of CSE program

BOU Coach &Participants at National Programming Competition

BOU Participants with Judge at National Programming Competition

Astronomy Seminar 2017

Performing lab work at digital lab

Conducting seminar

Study tour at AEC, Savar

Learning session in Microbiology lab at AEC

Delicious launch at AEC's Dining Hall

Visiting different laboratories in AEC, Savar

Regular Scientific Seminar

Welcoming of chief guest in the Orientation & Fresher's Reception

Orientation & Fresher's Reception-2017

Student's Address at Orientation & Fresher's Reception-2017

Anchoring team

Photo session after cultural program

BOU's students' participation in the Inter-university Poem Recitation Competition-2016

An Attractive Scene of Drama 'Takar Apad'

A remarkable scene from Drama 'Takar Apad'

A Charming Scene of Drama 'Takar Apad'

Annual Study Tour & Picnic-2018 at BARD, Comilla

Photo Session at War Symmetry, Comilla

Photo Session at BARD, Comilla

Raffle draw at Annual Picnic

Demonstration of Project work (Learners of 1st year 2nd semester)

Lab work of Digital Logic Design course

A project was done by the learners

Learners in outdoor games

EVALUATION PROCEDURE

To complete a course a learner shall be required to go through an evaluation procedure. The performance of a learner in each course (Theoretical, Practical/ Laboratory/ Sessional) shall be evaluated based on a scheme of continuous assessment and semester final examination. The 40% marks are considered pass of a course provided that student(s) must appear in the semester final examination of a course(s) and must obtain 10% marks of that course(s) of the semester final examination.

For theory courses the continuous assessment shall be evaluated through a set of quizzes, class tests, class evaluation, class participation, homework assignment, case study and seminar/presentation;

- For laboratory courses, the continuous assessments shall be evaluated by the performance of the learner during laboratory hours, class participation, assignments, class test, notebook on experiments, viva-voce during laboratory hours and quizzes.

Distribution of Marks

Theory Courses

(i) Total one hundred marks are allotted for each course. Thirty percent (30%) of the marks shall be allotted for continuous assessment and seventy percent (70%) for semester final examination. The distribution of marks for each course is as follows:

Category	Marks%
Class Attendance	5%
Assignment/Case study	10%
Quizzes/Class test	15%
Semester Final Examination	70%
Total	100%

(ii) The number of assignment/case study of a course shall be at least three (3) in each course. Average marks shall be considered as final assignment marks.

(iii) At least two midterm/quizzes/class tests shall be conducted for each course. Average marks shall be considered as final midterm/quizzes/class test marks and added to the final score.

(iv) The basis of awarding marks for class attendance shall be as follows:

Attendance	Marks
90% and above	5
80% to less than 90%	4
70% to less than 80%	3
60% to less than 70%	2
50% to less than 60%	1
Less than 50%	0

Laboratory Courses

(i) Total one hundred marks are allotted for each course. Forty percent (40%) of the marks shall be allotted for continuous assessment and sixty percent (60%) for semester final examination. Distribution of marks for each course is as follows:

Category		Marks%
Class attendance		10%
Lab performance		10%
Assignment/case study		10%
Quizzes/class test		10%
Semester Final Examination		60%
Problem-solving/Lab test	40	
Viva-voce	10	
Notebook on experiment/Lab report	10	
Total		100%

(v) Number of assignment/case study of a course shall be at least three (3) in each course. Average marks shall be considered as final assignment marks.

(vi) At least two midterm/quizzes/class tests shall be conducted for each course. Average marks shall be considered as final midterm/quizzes/class test marks and added to the final score

(ii) Basic of awarding marks for class attendance shall be as follows:

Attendance	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
55% to less than 60%	3
50% to less than 55%	2
Less than 50%	0

Project Work

(i) The learners shall certify that the project was done by her/him and that has not been submitted elsewhere or for any other degree or diploma

(ii) Total one hundred marks are allotted for Project Work. Distribution of marks is as follows:

Category	Marks%
Project Supervisor	30%
Evaluation of Project Work	40%
Presentation	30%
Total	100%

(iii) There shall be an evaluation committee for evaluating the project that shall consist of two members. The examination committee of the relevant semester shall recommend the names of the member for approval of the Vice-Chancellor. This approval will be reported to the Academic council. The evaluation committee shall be constituted as follows.

Serial	Category	Position
1.	Chairman of the examination committee of the relevant semester	Chairman
2.	One expert member and not below the rank of an Associate Professor	Member

(iv) If a member is unable to accept the appointment or has to relinquish his appointment before conducting the project evaluation, the Vice-Chancellor shall appoint another member in his place on the recommendation of the Examination Committee of the relevant semester. The appointment will be also reported to the Academic Council.

Comprehensive Viva Voce

(i) Total one hundred marks are allotted for Comprehensive Viva Voce.

(ii) There shall be an Examination Board for conducting the Comprehensive Viva-Voce that shall consist of at least five members.

Continuous Assessment Report

(i) The respective course teacher/tutor shall conduct the in-course mid-semester/class test/class performance/assignment respectively.

(ii) All class tests, assignments, presentations; class performance will be evaluated by the course teacher or faculty of BOU. At the end of the syllabus of each course, s/he shall calculate the total number of continuous assessment, class participation marks and prepare a marks sheet. S/he shall submit the same to the chairman of the respective examination committee as well as to the Controller of the Examination of BOU before the start of the semester final examination.

(iii) The course teacher shall also submit the class attendance report with the register/documents to the chairman of the respective examination committee.

Semester Final Examination

Semester Final Examination will be conducted by Bangladesh Open University.

Pattern of Question Paper

The question shall be set including short type, problem-solving and analytical (depending on the nature of the course) and have to answer 5 out of 7 questions.

Time: 3 Hours Marks: 70

5 out of 7 - 5×14 marks = 70 marks

Laboratory Question

Distribution of the laboratory works among the learners will be done by the external and internal examiner during the examination with the help of the question paper supplied by the respective examination committee.

Time: 3 Hours Marks: 60

Re-evaluation of Answer Script

Re-evaluation of any answer script shall not be allowed.

Grading System

Each course has a certain number of credits, which describes its corresponding weight. A learner's Performance is measured by the number of credits completed satisfactorily and by the weighted average of the grade points earned. A minimum grade point average (GPA) is essential for satisfactory progress. A minimum number of earned credits also have to be acquired to qualify for the degree. Letter grades and corresponding grade points are given as follows.

Numerical Grade	Letter Grade	Grade Point
80% or above	A+	4.0
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.5
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.0
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.5
45% to less than 50%	C	2.25
40% to less than 45%	D	2.0
Less than 40%	F (Fail)	0.0

Calculation of Cumulative Grade Point Average (CGPA)

A learner will get an individual GP for every completed course. In choosing of completion of a number of courses, the 'Grade Point Average' (GPA) of those completed courses will be calculated by using the following formula where the individual GP of courses and the respective credit of those courses will be taken into consideration.

The GPA is calculated as follows:

$$GPA = \frac{\sum(Credits\ passed \times grade\ point\ value)}{Total\ credit\ of\ all\ courses\ attempted}$$

Upon successful completion of the program requirements, the CGPA of the learner will be calculated by using the following formula.

$$CGPA = \frac{\sum(Credits\ of\ courses\ passed \times grade\ point\ earned\ in\ the\ course)}{Total\ credit\ of\ the\ program}$$

Repeat/ Improvement

The repeat/improvement course(s) will be guided by the following rules.

(a) Learner earning 'F' grade in any course shall be required to improve the grade when offered in the subsequent semester(s), since achieving a passing grade ('D') by paying the necessary re-examination fee(s).

(b) A learner earning a 'B-' (B minus) grade or below may also choose to improve the grade when offered in the subsequent semester(s) by paying also necessary re-examination fee(s). The following rules will apply in these regards:

(i) Improvement opportunities shall be once only for each course. Otherwise, the learner shall have to pay twice the normal re-examination fee for a course. However, improvement of a course shall not be allowed after graduation.

(ii) In the case of failure to improve her/his grade after the course improvement examination, the previous grade shall remain valid.

(c) In both the cases stated in (a) & (b), the learner shall not require to submit assignments/quizzes/class tests, if submit once.

(d) Learners having 'F' grade in any course/courses or having courses/courses still incomplete will get an opportunity for registration of maximum 12 credits from the previous semester(s) in subsequent semester(s). on the contrary, the outgoing learners having 'F' grade in maximum 20 credits or having course(s) still incomplete, may be allowed to register for the subsequent semester(s) to complete the degree.

Requirement for obtaining 'B.Sc in CSE Degree

(i) Complete 148 credits successfully;

(ii) Obtain a minimum grade of 'D' in each course;

(iii) Secure a minimum 'Cumulative Grade Point Average(CGPA)' of 2.5;

(iv) Complete the program within eight academic years of her/his first admission year in the program.

Detail Syllabus

First Year First Semester

COURSE CODE	COURSE TITLE	CREDIT
ENG1131	**Communicative English**	**3.0**

Listening - Introducing learners to GIE - Types of listening - Listening to audio (verbal & sounds); Listening and responding to video lectures/talks; Listening to specific task-focused audio tracks; Watching videos/documentaries and responding to questions based on them; Listening to different accents, Listening to Speeches / Presentations, Listening to broadcast & telecast from Radio & TV;
Speaking - Speaking about one's place, important festivals etc. – Introducing oneself, one's family/friend; Describing a simple process (filing a form, etc.) - Asking & answering questions - Telephone skills – Telephone etiquette; Role-play – Simulation - Group interaction - Speaking in formal situations (teachers, officials, foreigners); Responding to questions - Different forms of interviews - Speaking at different types of interviews; Giving impromptu talks, Making presentations on given topics;
Reading - Skimming a reading passage – Scanning for specific information - Note-making; Critical reading - Finding key information in a given text - Sifting facts from opinions; Reading and interpreting visual material; Making inference from the reading passage - Predicting the content of a reading passage; Email communication - Reading the attachment files having a poem/joke/proverb - Sending their responses through email;
Writing - Free writing on any given topic (My favourite place / Hobbies / School life, etc.) - Sentence completion - Autobiographical writing (writing about one's leisure time activities, hometown, etc.); Biographical writing (place, people) - Lab descriptions (general/specific description of laboratory experiments) - Definitions - Recommendations; Jumbled sentences - Coherence and cohesion in writing - Channel conversion (flowchart into process) - Types of paragraph (cause 10 & effect / compare & contrast / narrative / analytical) - Informal writing (letter/e-mail/blogs) - Paraphrasing; Interpreting visual materials (line graphs, pie charts etc.) - Essay writing – Different types of essays; Creative writing, Poster making;
Grammar - Prepositions - Reference words – Wh - questions - Tenses (Simple); Use of imperatives - Subject-verb agreement; Tenses (Past) - Use of sequence words - Adjectives; Adverbs – Tenses – future time reference; Direct and indirect speech;

Vocabulary - Word formation - Word expansion (root words / etymology); Compound words - Word Association; Different forms and uses of words, Cause and effect words; Single word substitutes - Use of abbreviations & acronyms; Lexical items (fixed / semi fixed expressions);

Books Recommended:

(i) Mindscapes: English for Technologists and Engineers, Orient Black Swan, 2012.
(ii) S.P. Dhanavel, English and Communication Skills for students of Science and Engineering. Oriented Black Swan, Chennai, 2011
(iii) Pickett, Nell Ann, Ann A.Laster and Katherine E.Staples. Technical English: Writing, Reading and Speaking. New York: Longman, 2001.
(iv) Bailey, Stephen. Academic Writing: A practical guide for students. New York: Rutledge, 2011.

COURSE CODE	COURSE TITLE	CREDIT
PHY1132	**Wave, Optics and Thermodynamics**	**3.0**

Waves: Waves on a String, Transverse and longitudinal waves, The wave equation, Phase velocity, The sine wave, Power transmission, Superposition principle, Interference, Standing waves and Resonance, Sound waves, Wave speed (without derivation), Displacement and pressure waves, Beats, Doppler effect for sound waves.

Optics: Huygen's Principle (eg. in Refraction), The electromagnetic wave, Coherence, Young's experiment, Intensity in double slit interference, Thin film interference (including wedge films and Newton's rings), The Phasor Method, Single slit diffraction, The diffraction grating. Total internal reflection: mechanism of wave propagation and applications.

Heat and Thermodynamics: Temperature, Heat and the First Law Measuring temperature, Constant Volume gas thermometer, Ideal gas temperature, Measurement of thermodynamic temperature, Absorption of heat by solids and liquids, Molar specific heat, Heat and Work, Calculation of work done by an ideal gas at constant temperature, Differential form of First Law of Thermodynamics and application to selected cases, Kinetic Theory of Gases, RMS speed, pressure, translational kinetic energy and pressure, Adiabatic equation of an ideal gas, Entropy and the Second law of Thermodynamics, Heat engines and refrigerators

Books Recommended:

(i) Walker, J., & Halliday, D. (2008). Fundamentals of physics (8th ed.). Hoboken, NJ: Wiley.
(ii) Tipler, P., & Mosca, G. (2008). Physics for scientists and engineers (6th ed.). New York, NY: W.H. Freeman.

COURSE CODE	COURSE TITLE	CREDIT
BUS1123	**Introduction to Business**	**2.0**

The Business: Its Nature and Scope: Meaning of Business, Characteristics of Business, Objectives of Business, Requisites of a Successful Business, Scope of Business, Difference between Business and Profession, Iner-relationship between Industry, Commerce and Trade.

Ownership Structure: Proprietorship, Partnership, Company, Cooperative, Selection of an Appropriate Form of Ownership Structure, Ownership Pattern in Small-Scale Enterprises in Bangladesh.

General and Human Resource Management: Meaning of Management, Characteristics of Management, Difference between Management and Administration, Scope of Management, Functions of Management, Management Process, Manpower Planning, Motivation, Job Recruitment, Selection, Training and Development, Remuneration and Benefits.

Financing of Enterprise: Need for Financial Planning, Sources of Finance, Capital Structure, Term-Loans, Sources of Short-term Finance, Capitalization, Venture Capital, Export Finance., Working Capital- Significance of Working Capital, Assessment of Working Capital, Factors Determining Requirements of Working Capital, Sources of Working Capital, Management of Working Capital.

Production and Operation Management: Investment Analysis, Plant Location, Plant Layout, Product Design, Production Design, Quality Control, Small Business Technology,Inventory Management- Concept of Inventory, Motive of Holding Inventories, Benefits of Holding Inventories, Objectives of Inventory Management, Models of Inventory Management.

Marketing Management: Concept of Marketing, Problems of Marketing, Market Assessment, Market Segmentation, Marketing Mix, Branding and Packaging, pricing Policy, Distribution Channels or Methods of Marketing.

Accounting: Meaning and Process of Accounting, Users and Uses of Accounting, Distinction between Book-keeping and Accounting; Accounting Profession, Conceptual Framework of Accounting; Generally Accepted Accounting Principles(GAAP), Basic Accounting Equation, Accounting Cycle, The Account, Double Entry System, Debit and Credit Procedures, Steps in the Recording Process, Financial Statements, Cost and Management Accounting.

Text Books:

(i) Khanka, S. S. (2004). *Entrepreneurial Development* (4th Edition). New Delhi: S. Chand & Company Ltd.

(ii) Weygandt, J.J. Kieso, P.D. and Kimmel, D.E.(2015).*Accounting Principles*(12th Edition). John Wiley & Sons Inc.
(iii) H. Garrison, R., W. Noreen, E., & C. Brewer, P. (2010). Managerial Accounting (13th ed.). McGraw Hill.
(iv) Weygandt, J., & Kimmel, P. (n.d.). Accounting principles (11e [edition]. ed.).
(v) Larson, K. (1993). Fundamental accounting principles (7th Canadian ed.).

COURSE CODE	COURSE TITLE	CREDIT
MAT1134	**Differential and Integral Calculus**	**3.0**

Functions and Models: Exponential Functions, Inverse Functions and Logarithms

Limits and Derivatives: The Tangent and Velocity Problems, The Limit of a Function, Calculating Limits Using the Limit Laws, The Precise Definition of a Limit, Continuity, Limits at Infinity; Horizontal Asymptotes, Derivatives and Rates of Change, The Derivative of a Function

Differentiation Rules: Derivatives of Polynomials and Exponential Functions, The Product and Quotient Rules, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Derivatives of Logarithmic Functions, Rates of Change in the Natural and Social Sciences, Exponential Growth and Decay, Related Rates, Linear Approximations and Differentials, Hyperbolic Functions

Applications of Differentiation: Maximum and Minimum Values: The Mean Value Theorem, How Derivatives Affect the Shape of a Graph, Indeterminate Forms and L'Hospital's Rule, Summary of Curve Sketching, Optimization Problems, Antiderivatives.

Integrals: Areas and Distances, the Definite Integral, the Fundamental Theorem of Calculus, Indefinite Integrals and the Net Change Theorem, the Substitution Rule

Applications of Integration: Areas between Curves, Volume, Volumes by Cylindrical shells, Work, Average value of function

Books Recommended:

(i) Anton, H., & Bivens, I. (2012). Calculus: Early transcendentals. (10th ed.). Hoboken, NJ: John Wiley & Sons.
(ii) Das, B., & Mukherjee, B. (1949). Differential Calculus (50th ed.). U. N. DHUR & Sons Private.
(iii) Das, B., & Mukherjee, B. (1977). Integral calculus: Including differential equations (23rd ed.). Calcutta: U.N. Dhur.
(iv) Ayres, F., & Mendelson, E. (n.d.). Schaum's outlines calculus (Sixth ed.).

COURSE CODE	COURSE TITLE	CREDIT
EEE1135	**Electricity, Magnetism and Electrical Circuit**	**3.0**

Electrical Charge and Coulomb's Law: Introduction, charge, conductors and insulators, Coulomb′s Law

The Electric Field: Fields, the E field, field from point charges, fields from charge distributions, force on charges, electric dipole in an E field

Gauss's Law: Flux of a vector field, electric flux, gauss′s law, applications of Gauss's law

Electric Potential: Electric potential energy, potential/field relationships, potential due to point charges and distributions.

The Magnetic Field: B fields, force on moving charge, force on a current, magnetic dipole, Biot-Savart law and applications, Ampere′s law and applications.

Magnetic Properties of Matter: Magnetization, magnetic materials, bar magnet, magneto motive force, magnetic flux, magnetic circuit, comparison with electrical circuit.

Circuit Principles: Circuit concept, open and short circuit, series and parallel circuits with characteristics. Circuit laws: KVL, KCL, Voltage & Current divider rules and network theorems: Thevenin's theorem, Norton's theorem, Superposition theorem, Maximum power transfer theorem.

AC fundamentals: Equations of alternating voltages and currents, cycle, time period, frequency and amplitude of a wave; phase difference; RMS and average values; AC through resistance, Inductance and capacitance only. Series LRC circuit; Resonance in LRC circuit; impedance & calculation, resonance curve, bandwidth of resonance circuit; parallel ac circuit, simplification of parallel ac circuit. admittance calculation, power calculations, frequency response, and resonance.

Books Recommended:

(i) Halliday, D., & Resnick, R. (2002). Physics (latest ed.). Part-II, New York, Wiley
(ii) Electric circuits, By Joseph Edminister and Mahmood Navi, Schaum's outlines, Tata Mc Grew-Hall, 2012
(iii) Electrical Technology, Vol. 1: Basic Electronics, B.L. Theraja and A.K. Theraja, 2012
(iv) Electrical Engineering, B.L. Theraja and A.K. Theraja, 2012