



Bangladesh University of Professionals

Faculty of Science and Technology

**Department of Information and Communication
Technology (ICT)**

Masters in Information Systems Security 2016

ACADEMIC GUIDELINE

ID No :.....

Name :.....

Course :.....

Batch :.....

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PART ONE: GENERAL

1. Introduction:

Bangladesh University of Professionals (BUP), which is one of the public universities of Bangladesh, was established on June 5, 2008. The aim was to facilitate professional degrees and to run undergraduate, graduate and post graduate degrees through its faculties, affiliated and embodied colleges, institutes, academies or organizations. BUP, with its own unique features, is set up in a green landscape of Mirpur Cantonment located in Dhaka Metropolitan City. The university provides a tranquil, pollution free and secured campus life and above all, a congenial academic atmosphere.

BUP deals with not only the education of the Armed Forces personnel but also the students of civilian community from home and abroad. It welcomes those students who intend to dedicate their total attention and devotion to serious academic pursuits to build up better tomorrow for the nation. BUP is dedicated to provide high quality education that delivers real benefits for the students. Thus, BUP is the unique academic entity in the country, where blending between the civilian and the Armed Forces students of diverse skills, experience, exposure and attitude is possible.

2. Student Services

2.1 Guidance and Counseling

The guidance and counseling service is available to students on academic and other matters of interest. A faculty member is assigned as Faculty Adviser for each section of a batch, who, as a routine matter, meets the students at least once a week and also attends them whenever the students feel necessary. The faculty adviser keeps close contact with the students in understanding and solving the problems relating to their academic program, facilities and other issues, if any.

2.2 Scholarship

Each year scholarships and stipend are granted to a large number of students based on criteria set by the university. The aim of the scholarships is rewarding the best performing students and also supporting the students who need financial assistance. The students are granted scholarships and stipends duly scrutinized by a committee.

2.3 Internship/Placement

There is a committee to provide required assistance to the students for placement in the organizations as part of internship program. The committee is comprised of Faculty Dean, Department Chairman, Batch Faculty Adviser and Placement Officer.

2.4 Extra-Curricular and Club Activities

The students of this faculty voluntarily participate in extra-curricular and club activities in order to enhance their physical, intellectual, moral and ethical development. The clubs are active and contribute successfully in arranging different events in the university. They organize inter-batch/department competitions, teams for inter-university and other competitions etc. They also organize different important events like cultural, sports, debate etc and participate in different events and competitions. The students of BUP are also connected with other universities through different clubs. The clubs that are functional in BUP are:

- Cultural Club (Sponsor: Department of Disaster & Human Security Management, FASS)
- Career Club (Sponsor: Department of Business Administration (General), FBS)
- Sports Club (Sponsor: Department of Management Studies, FBS)

- Business and Communication Club (Sponsor: Department of Marketing, FBS)
- Literature and Debating Club (Sponsor: Department of English, FASS)
- Global Affairs Council (Sponsor: Department of International Affairs, FSSS)

In coming days, the number of clubs will be more covering other important and interesting matters.

2.5 Study Tour/Excursion and Industrial/Organizational Visits

FST organizes visits to different industries and organizations for all the programs of FST and Study Tour/Excursion for the students of ICT each year as part of their academic curriculum.

2.6 Guest Lectures/Seminars

Seminars/workshops on important academic/business issues and lectures/presentations by eminent academician/professionals/experts are organized throughout the academic year for the students.

2.7 Tuition and other Fees

Ser	Category of fees/charges	M.Sc	M.Engg	Remarks
1.	Application Processing Fee	700.00	700.00	once
2	Admission Fee	5,000.00	5,000.00	once
3	Semester Registration Fee	500.00	500.00	once
	Course Registration Fee (100/ Cr)	3600.00	3600.00	As Per Cr Reg
	Thesis / Project (2000/ Credit)	36000.00	12000.00	As Per Cr Reg
4	Library Fee (200 /Sem)	800.00	800.00	Each semester
5	Computer Lab and Training Aid Fee (500/Sem)	2000.00	2000.00	Each semester
6	Security Money	10000.00	10000.00	Once(Refundable)
7	Internship Fee			Once(Only in last semester)
8	Tuition Fee (2000 / Credit)	72000.00	72000.00	Each semester
9	Exam Fee/ Course Registration Fee (1000/ Theory Credit)	18000.00	30000.00	Per subject
10	Grade Sheet Fee (375/ Sem)	1500.00	1500.00	Each semester
11	Student Welfare Fee (1000/ Sem)	4000.00	4000.00	Each semester
12	Education Enhancement Fee			Each semester
13	Cultural/ Magazine Fee (150/ Sem)	600.00	600.00	Each semester
14	Center Fee (1000/ Sem)	4000.00	4000.00	Each semester
15	ID Card Fee	100.00	100.00	once
	Grand Total	1,58,225.00	1,46,225.00	

Additional Fees/Payments (As Required):

Ser	Subjects	Amount (Tk.)
1.	Re-admission	3500.00
2.	Migration	500.00
3.	Non Collegiate (per subject)	3000.00
4.	Provisional / Original Certificate Fee	375.00
5.	Late Registration Fee	1000.00
6.	Convocation	5000.00
7.	Special Final Exam Fee	4000.00

2.8 Security Money

The students must pay specific amount as security money, which is refundable on completion of last semester. The following rules will apply for refund of security money:

- There will be no forfeiture, if a student opts to withdraw before the closing of admission activities allowing another candidate to avail the seat.
- 25% of the security money will be forfeited, if a student opts to withdraw before completion of one year after admission. However, rest of the money will be refunded on completion of 1st year.
- For withdrawal after 1st year of study, there will be no forfeiture of security money. But all other fees/charges (case by case basis) may be refunded to the student, and in such case the security money will be converted into caution money and the same may be refunded excluding any claim from BUP, if any.

2.9 Review of Fee Structure

All fees mentioned in the above table will be reviewed as and when necessary by the university authority and the students will be liable to pay the fees as per changed/reviewed fees.

2.10 Deadline for Submission of Fees/Dues

The 1st year students will have to clear all the fees during the admission process after publication of result. For subsequent semesters, the payment of all fees/dues must be maintained semester wise and the following rules will apply in this regard:

- The semester fees can be paid within 15 days after commencement of each semester without any penalty.
- The students may pay their fees after 1st 15 days within one month time by paying a penalty of Tk. 500.00 for each 15 days.
- If a student fails to pay the semester fees within one and a half month, his/her name will be dropped and the student will have to apply for re-admission, should he/she desires to continue his/her study. If approved, he/she may take re-admission paying required re-admission fee.

2.11 Course Load to Student

For M. Engg., completing a minimum of 10 courses (4 core and 6 elective) is compulsory for the successful completion of the MISS Program. For M. Sc Engg., completing a minimum of 6 courses (3 core and 3 elective) is compulsory for the successful completion of the MISS Program. An elective is offered, subject to the availability of faculty and minimum number (Twelve) of students signing up for a course. However, the Academic Council on the basis of faculty availability and number of applicants decides the offering of an elective course in a semester.

2.12 Conduct of Courses

Generally a single teacher is assigned to plan and teach a particular course in a semester. The following guidelines will be followed for conduct of courses:

- At the beginning of the semester, the course teacher will prepare a course outline incorporating the course syllabus, performance evaluation and grading system (as laid

down in the policy), list of suggested text books/references, and a tentative schedule of classes, examinations and events. He/she will distribute a copy of the same to each student registered for the course and will submit a copy to the Department Office.

- The course teachers are expected to ensure conduct of minimum 6 (six) quizzes/weekly tests in a semester for each course.
- An individual term paper will be assigned to the students that will be followed by presentation.
- Any fraction in the marks obtained is to be rounded up to the advantage of student i.e. any fraction to be rounded up to the next number.
- Attendance in all classes is mandatory. A certain percentage of marks are allotted for class attendance.

2.13 Examination and Assessment System

BUP follows a single examiner system and continuous assessment is done to evaluate a student in a semester. The following rules will apply for all tests and examinations:

- All tests, assignments, term papers, presentations, class performance will be evaluated by the course teacher. He/she will show the scripts, assignments, term papers, etc to the students in the classroom in the following week. However, the scripts of final examination will not be shown to them.
- The course teacher is required to submit all scripts, assignments, etc with a compiled up-to-date result summary for all the tests/performance evaluated prior to semester final examination to the Controller of Examination of BUP.
- The questions for the semester final examination will be set by the course teacher, who will submit the same to the Controller of Examination. More than one teacher can take a single course in different section of a batch. In that case, a combined set of question/s will have to be prepared. The Controller of Examination may moderate the question through Moderation Committee, if necessary.
- The course teacher alone will evaluate the scripts and submit marks obtained to the Controller of Examination.

2.14 Supplementary Final Examination

As a general rule, supplementary examinations of any kind are not allowed. However, if a student fails to appear scheduled semester final examination for extremely unavoidable and valid reasons, he/she may be allowed to appear this examination on case by case basis under the following guidelines:

- He/she must appear the supplementary within four weeks from date on which the particular examination was held.
- Students should apply to Dean FST (through respective department) within seven days after final examination with required supporting documents describing the reasons for his/her inability to appear scheduled semester final examination. The Dean, if convinced,

will forward the same to the office of the Controller of Examination duly recommended for approval and making arrangements to conduct the subject examination.

- Student will have to pay the required fees as per the university policy for appearing supplementary examination and complete other examination formalities for the course(s) so appeared.
- Not more than 'B' grading will be awarded to the students for supplementary examinations. However, special cases may be considered with prior approval of the VC.
- The existing rules of semester final examination will apply to the conduct of supplementary examinations e.g. question setting, moderation, evaluation, and result publication etc.

3. Performance Evaluation System

3.1 Distribution of Marks for Evaluation

Letter grades are used to evaluate the performance of a student in a course. The following grading system is currently followed for performance evaluation of the students:

1.	Class test	20 percent
2.	Assignment, Home Work, Presentation etc	10 percent
3.	Class Attendance and class participation, etc	10 percent
4.	Semester Final Examination	60 percent
Total		100 Percent

The BUP authority reserves the right to review/revise the above grading system. However, depending on the nature of course, minor modifications can be made by respective course teacher, provided it is incorporated in the course outline.

3.2 Grading System

Numerical Grade	Letter Grade		Grade Point
80% and above	A+	(A Plus)	4.00
75% to < 80%	A	(A Regular)	3.75
70% to < 75%	A-	(A Minus)	3.50
65% to < 70%	B+	(B Plus)	3.25
60% to < 65%	B	(B Regular)	3.00
55% to < 60%	B-	(B Minus)	2.75
50% to < 55%	C+	(C Plus)	2.50
45% to < 50%	C	(C Regular)	2.25
40% to < 45%	D	-	2.00
< 40%	F	-	0.00
-----	I	-	Incomplete
-----	W	-	Withdrawal/Withdrawn

3.3 Calculation of GPA (Grade Point Average) and CGPA (Cumulative Grade Point Average)

Grade Point Average (GPA) is the weighted average of the grade points obtained in all the courses passed/completed by a student. CGPA will be computed after each semester to determine the

academic standing of the student in the program. GPA is calculated for specific semester whereas CGPA is calculated considering all past records. GPA and CGPA is calculated using following simple formula:

$$\text{GPA} = \frac{\text{Total Grade Point earned in a particular Semester}}{\text{Number of Courses in that particular Semester}}$$

$$\text{CGPA} = \frac{\text{Total Grade Point so far earned}}{\text{Number of Total Courses Taken}}$$

- When a course is repeated for improvement, better grade shall be counted for calculation of GPA and CGPA
- Performance in all the subjects including all the 'F' grades shall be reflected in the transcript.

3.4 Conduct of Examination

- In addition to tests, assignments and/ or examinations during the semester as may be given by the teacher(s) concerned, there shall be a written examination and / or other tests for each of the subjects offered in a semester at the end of that semester, the dates of which shall be announced by the department as advised by Dean of the respective faculty in coordination with BUP at least two weeks before the commencement of the examination. The final grade in a subject shall be based on the performance in all tests, assignments and / or examinations.
- The department and BUP shall keep up to-date record of all the grades obtained by a student in individual Academic Record Card. Grades shall be announced by the Controller of Examinations at the end of each semester. In addition, each student is entitled to one official transcript of the University record at the completion of his academic program from the office of the Controller of Examinations on production of statement of clearance from all departments' offices.
- The Head of the department shall propose the names of the examination question paper setters, moderators and examiners for the semester examinations at least two weeks before the date of commencement of the examination to the Academic Committee for approval.

3.5 Qualifying Requirements

- The qualifying requirement for graduation is that a student must earn a minimum grade point based on the weighted average in his course work.
 - a. Two courses may be repeated for improvement with the prior approval of the Head of the Department/ Dean on the recommendation of the Supervisor / Advisor/ Course Coordinator. Such approval shall be reported to the Academic Committee.
 - b. A student obtaining F grade in a course may be allowed to repeat the course with the prior approval of Head of the Department/ Dean on the recommendation of the Supervisor / Advisor. Such approval shall be reported to the Academic Committee.
- Any student obtaining a GPA or a CGPA of less than 2.00 in any semester or at the end of any semester respectively shall be withdrawn from the program. But, if a student fails to maintain a GPA and CGPA of 2.50 in any semester or at the end of a semester, but obtains GPA or CGPA 2.00 or more, will be placed on probation. Failure by a student placed on probation to raise the CGPA to 2.50 in the immediate next semester will lead to withdrawal from the program. Upon clearing the probation, a student will be withdrawn if he/she subsequently in any semester or at the end of any semester obtains or reach a GPA / CGPA of less than 2.5. However, a student failing to obtain and maintain a GPA or CGPA of 2.5 in the

final semester or at the end of the final semester shall be allowed to repeat course(s) of the final semester in which he/she has earned 'C' grade or below. This opportunity should be taken once only. Even after repeating the course(s), if a student fails to raise GPA or CGPA to 2.5 in the final semester or at the end of final semester, will be withdrawn from the program.

- In addition to successful completion of course works every student shall submit a thesis on his research work or a report on his/her project work, fulfilling the requirements as detailed in the following sections.

3.6 Thesis

- Research work for a thesis shall be carried out under the supervision of a full-time member of the staff belonging to the relevant department/ Institute of BUP/ MIST/ BUET/ any other university recognized by UGC. However, in special cases, a full-time member of the staff belonging to a department outside ICT may be appointed as Supervisor, if the research content of the thesis is within the field of specialization of the member of the staff. A Co-supervisor from within or outside the department may be appointed, if necessary. The thesis proposal of a student shall be submitted for approval of the Academic Committee after completion of at least 12 credit hours of course work.
- If any change is necessary of the approved thesis (title, content, cost, Supervisor, Co-supervisor etc.) it shall be approved by the Academic Committee.
- The research work must be carried out in BUP or at a place(s) recommended by the Academic Committee. The work schedule and financial involvement should be mentioned in the research proposal for carrying out research work outside the University.
- Every student shall submit to the Head of the Department/ Dean, through his/her Supervisor, required number of type written copies of his/her thesis in the approved format on or before a date to be fixed by the Supervisor concerned in consultation with the Head of the Department/ Dean.
- The student shall certify that the research work was done by him/her and that this work has not been submitted elsewhere for the award of any other diploma or degree.
- The thesis should demonstrate an evidence of satisfactory knowledge in the field of research undertaken by the student.
- Every student submitting a thesis in partial fulfillment of the requirements of a degree, shall be required to appear at an oral examination, on a date or dates fixed by the Supervisor concerned in consultation with the Head of the Department and must satisfy the examiners that he/she is capable of intelligently applying the results of this research to the solution of problems, of undertaking independent work, and also afford evidence of satisfactory knowledge related to the theory and technique used in his/her research work.

3.7 Examination Board

(a) An Examination Board for every student for thesis and oral examination shall be approved by the Head on recommendation of the thesis Supervisor in consultation with the Head of the Department and to be forwarded to Dean for final approval. The Supervisor shall act as the Chairman and the Head of the Department will be an ex-officio member of the Examination Board. The Board shall consist of at least four members including the Head of the Department and the Supervisor.

The Examination Board shall be constituted as follows:

i.	Supervisor	Chairman
ii.	Co-supervisor (if any)	Member
iii.	Head of the Department (Ex-officio)	Member
iv.	One or two members from within the Department	Member
v.	One external member from outside the student relevant institute/ Department	(External)

(b) If any examiner is unable to accept the appointment or has to relinquish his/her appointment before the examination, Dean, FST shall appoint another examiner in his/her place, on suggestion from the Supervisor in consultation with the Head of the department. This appointment will be reported to the Academic Committee.

(c) In case a student fails to satisfy the Examination Board in thesis and /or oral examination, the student shall be given one more chance to resubmit the thesis and/or appear in oral examination as recommended by the Board.

3.8 Project

- Project work shall be carried out under the supervision of a full-time member of the staff belonging to the relevant department of BUP/ MIST/ BUET/ any other university recognized by UGC. However, in special cases, a full-time member of the staff belonging to a department outside may be appointed as Supervisor, if the research content of the project work is within the field of specialization of the member of the staff. The title of the project, cost and the Supervisor shall be recommended by the Academic Committee for approval which will be reported to the Dean, FST. The project proposal of a student shall be submitted for approval of the Academic Committee after completion of minimum 18 Credits.
- If any change is necessary of the approved thesis (title, content, cost, Supervisor, Co-supervisor etc.) it shall be approved by the Academic Committee.
- The project work must be carried out in BUP or at a place(s) approved by the Dean FST or recommended by the Academic Committee. The work schedule and financial involvement should be mentioned in the project proposal for carrying out project work outside the BUP.
- Every student shall submit to the Head of the Department, through his/ her Supervisor, required number of type written copies of his/ her project report in the approved formation or before a date to be fixed by the Supervisor concerned in consultation with the Head of the Department.
- The student shall certify that the research work was done by him/ her and that this work has not been submitted elsewhere for the award of any other diploma or degree.
- Submission of Project:**
- Every student submitting a project report in partial fulfillment of the requirement of a degree shall be required to appear at an oral examination, on a date or dates fixed by the Supervisor concerned in consultation with the Head of the Department and must

satisfy the examiners that he/ she has gained satisfactory knowledge related to the project work.

▪ **Examination Board for Project:**

An Examination Board for every student for the project and oral examination shall consist of at least three members including the Supervisor. The Supervisor shall act as the Chairman. The Academic Committee shall recommend the names of the examiners for approval of Dean FST. The Examination Board shall be constituted as follows:

- (i) Supervisor : Chairman
- (ii) One member from within the Department : Member
- (iii) One member from within or outside the Department : Member (External)

- If any examiner is unable to accept the appointment or has to relinquish his/ her appointment before the examination, Dean FST shall appoint another examiner in his/ her place on the recommendation of the relevant Academic Committee.
- In case a student fails to satisfy the Examination Board in project report and /or oral examination, the student shall be given one more chance to resubmit the project report and/ or appear in oral examination as recommended by the Board.

3.9 Striking off and removal of names from the rolls

The name of the student shall be struck off and / or removed from the rolls of the university on the following grounds:

- (i) Non-payment of dues within prescribed period.
- (ii) Failing to proceed with the program .
- (iii) Failing to make satisfactory progress in his/her program as reported by the supervisor through the Academic Committee.
- (iv) Forced to discontinue his/her studies by the Committee of Discipline.

3.10 Students Withdrawal Policy:

MISS program run by Faculty of Science and Technology (FST) require persistent hard work by the students throughout the program duration. Few students may face difficulties in keeping pace with quality requirements of the programs. University will have no option other than withdrawing unsuccessful students to ensure quality education. Despite the academic standing of a student, he/she may be dismissed from the program on disciplinary ground. A student may also be allowed to withdraw on own accord subject to the approval of Academic Council of BUP.

Definitions

Few related definitions will help understanding the withdrawal policy in a better way. The definitions are given below:

- a. **Withdrawal.** The term ‘Withdrawal’ will imply a complete discontinuity from the program of the university.
- b. **Temporary Withdrawal.** The term Temporary Withdrawal means that the student has been allowed by the Academic Council, BUP to discontinue temporarily. The student, so withdrawn, may re-enter the course as per terms and conditions set by the authority.

c. **Permanent Withdrawal.** The term ‘permanent withdrawal’ means a permanent, voluntary discontinuity from the program. The implication of permanent withdrawal includes cancellation of admission and expiry of registration. Once a student is permanently withdrawn, he/she will require a readmission and fresh registration to re-enter in the program.

d. **Expulsion.** The term ‘Expulsion’ means expulsion from the university on disciplinary ground. A student, if expelled, will never be allowed to re-enter the course or similar programs in BUP and be subjected to other terms and conditions as set by the authority while approving the expulsion order.

e. **Temporary Expulsion.** The term ‘Temporary Expulsion’ means expulsion from an academic program for a certain period on disciplinary ground. A student, if expelled temporarily, may be allowed to re-enter the course/program on expiry of the punishment period and on fulfillment of other terms and conditions (if any) set by the authority while approving the temporary expulsion order.

f. **Dismissal.** The term dismissal means a permanent, forced withdrawal from the ongoing program. The implication of dismissal includes cancellation of an admission and expiry of registration. Once a student is dismissed, he/she will require a readmission and fresh registration to re-participate in the program.

g. **Withdrawal on Various Grounds.** Students may be withdrawn for poor performance in the program or they may also take temporary withdrawal on their own accord. The details are as follows:

h. **Withdrawal on Poor Performance.** The rules on withdrawal on poor performances are given below:

(1) Students may be withdrawn from the program because of their poor performance. A student must maintain a minimum GPA (for 1st semester) or CGPA of 2.50 in a 4.00 point rating scale in the program. Any student obtaining a GPA (for 1st semester) or CGPA of less than 2.00 at the end of any semester shall be withdrawn from the program. However, when a student fails to maintain a GPA (for 1st semester) or CGPA of 2.50 at the end of a semester, but obtains GPA (for 1st semester) or CGPA 2.00 or more, will be placed on probation. Failure by a student placed on probation to raise the CGPA to 2.50 in the immediate next semester will be relegated to the next lower batch and will remain on probation. Failure by a student placed on 2nd time probation to raise the CGPA to 2.50 (considering only the semester(s) up to the next lower batch) will lead to withdrawal from the program.

(2) While on 2nd probation, a student has to undertake all the semester courses where he/she previously obtained C+ (grade point 2.5) or lower grading. Upon clearing the 2nd probation, a student will be withdrawn if he/she subsequently obtains CGPA of less than 2.5. However, a student failing to obtain and maintain a CGPA of 2.5 at the end of the final semester shall be allowed to repeat course(s) of the final semester in which he/she has earned ‘C’ grade or below. This opportunity should be given only once. Even after repeating the course(s), if a student fails to raise CGPA to 2.5 at the end of final semester, will be withdrawn from the program.

i. **Withdrawal on Own Accord.**

(1) **Temporary Withdrawal.** A student who has already completed some courses and has not performed satisfactorily or for any other personal reasons may apply for a temporary

withdrawal. Academic Council may allow a student to take temporary withdrawal from a course or the program due to sickness or any other reason and exigency. A student must hold minimum CGPA of 2.8 in 4.00 point rating scale for MISS Program at that point of time. Temporary withdrawal from the first semester of the programs is not allowed. The student must apply for such temporary withdrawal within one week (for MISS Program) from the beginning of the semester for any reason other than sickness. However, for extreme emergencies including sicknesses, a student may apply for temporary withdrawal any time during the semester. Upon re-entry, a student must complete the required courses of the program remaining in force. The student can only be accommodated within the course offered for the regular students. A student however, must complete the program within valid registration period from the date of initial registration after which his/ her registration will be cancelled.

(2) **Permanent Withdrawal.** A student may apply for a permanent withdrawal due to poor academic performance, sickness, or any other reason in any semester. If approved by academic Council, his/her admission and registration will be cancelled.

j. Dismissal on Disciplinary Ground.

- (1) **Unfairmeans.** Adoption of unfair means may result in the dismissal of a student from the program and expulsion from the university subject to the decision of the BUP disciplinary committee. Following would be considered as unfair means adopted during Examinations and other contexts:
 - (a) Communicating with fellow students for obtaining help in the examination.
 - (b) Copying from another student's script/paper/report.
 - (c) Copying from desk or palm of a hand or from other incrimination documents.
 - (d) Possession of any incriminating document whether used or not.
- (2) **Influencing Grades.** Academic council may dismiss any student for approaching directly or indirectly in any form to influence a teacher for grades.
- (3) **Other Indiscipline Behavior.** Academic council may dismiss any student on disciplinary ground if any form of indiscipline or unruly behavior is observed in him/her which may disrupt the academic environment or program or is considered detrimental to BUP's image. Academic Committee will process the matter.

PART-TWO

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

1. Introduction - Faculty of Science and Technology (FST)

The Faculty of Science and Technology (FST) under BUP started its activity in full swing from the early 2012.

ICT plays vital and in fact indispensable role in all fields of modern human activities. Consequently, recent development in ICT has a considerable impact on society. It has already expanded to all fields of study starting from genetic engineering to space technology. Recent development in Artificial Intelligence has taken the human history a long way. That day is not very far when man can make machine like him.

The Department of Information and Communication technology is one of the pioneer Departments of this University providing top-quality educations in Information and Communication technology (ICT) at its undergraduate program. ICT is the leading booming sector in present day. It is already declared as a thrust sector in Bangladesh. Keeping this in mind, the department offers ICT courses to produce Information Technology and Communication specialist.

To achieve the desired level of excellence, the FST emphasizes on the followings:

A meticulous admission and selection process for best possible screening.

- Interactive sessions in the classroom and uninterrupted curriculum.
- Effective teaching through innovative methods blended with latest trends and developments in the world and with its state of the art facilities.
- Competent internal faculties with flexibility to outsourcing expert resource persons.
- Regular guest lectures and visits to organizations.
- Well thought-out and continuous feedback and assessment system.
- A culture of discipline, punctuality and commitment.
- Emphasis on Code of Conduct and Dress Code.
- Focus to develop students as a good human being with all possible attributes of a successful business leader.
- A tranquil, external turbulence free secured campus life.

2. Current Programs

The faculty is running following programs:

- a. B.Sc. (Hons) in Information and Communication Technology (ICT)
- b. Master in Information and Communication Technology (MICT)
- c. Master (M.Sc. Engr. /M Engr.) in Information and System Security (MISS)
- d. Certificate Course on Information and System Security (CISS)
- e. CISCO Certified Network Administrator (CCNA)

3. Dean:

Brig Gen Shaikh Muhammad Rizwan Ali, psc, te
Dean
Faculty of Science & Technology (FST)
Bangladesh University of Professionals

4. Mailing Address:

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5. Department of Information and Communication technology (ICT)

Bachelor of Information and Communication technology (ICT) program is designed to produce graduates with solid foundation in information technology skills and knowledge that can be applied across a wide range of application. It focuses on the systems development aspects of employment in the information technology profession. Students gain extensive experience in developing information and communications technology to address the needs of modern organizations.

The program includes basic programming concepts and modern programming environments, network engineering principles, communication system networking, object-oriented software architectures, enterprise web, cloud and mobile technologies, and software quality management it also encompasses.

Industrial orientation, project management and communication skills are developed in addition to exploration of the technical and human aspects of information technology and its use. Modern communication technologies with internet protocol, wireless, optical mobile, satellite multimedia etc are different signal processes.

6. Courses in Information System Security Program

6.1 Semester-wise Credit Hour Distribution

Total minimum credit hour for MISS Program is 36 Credit Hours. Semester-wise distribution of credit hours for a full time student is shown below:

Semester	Credit Hours
First	09
Second	09
Third	09
Forth	09
Total	36

6.2 Syllabus and Credit Hours

For M. Engg., completing a minimum of 10 courses (4 core and 6 elective) is compulsory for the successful completion of the MISS Program. For M. Sc Engg., completing a minimum of 6 courses (3 core and 3 elective) is compulsory for the successful completion of the MISS Program. An elective is offered, subject to the availability of faculty and minimum number (Twelve) of students signing up for a course. However, the Academic Council on the basis of faculty availability and number of applicants decides the offering of an elective course in a semester.

The semester-wise likely distribution of courses is shown below:

Course Code	Course Name	Credit Hour	Total Contact Hour
MISS 1101	Information Security	3.00	42.00
MISS 1102	Cryptography	3.00	42.00
MISS 1103	Digital Forensics	3.00	42.00
MISS 1204	Cyber Law and Ethics	3.00	42.00
MISS 1205	Business continuity and Disaster Recovery Plan	3.00	42.00
MISS 1206	Network and OS Security	3.00	42.00
MISS 2107	IT Systems Audit	3.00	42.00
MISS 2108	Internet Security and Policy	3.00	42.00
MISS 2109	Database and Storage Security	3.00	42.00
MISS 2110	Cloud Security	3.00	42.00
MISS 2211	Telecommunication Networks Security	3.00	42.00
MISS 2212	Data Center Security	3.00	42.00
MISS 2213	e-Transaction Security	3.00	42.00
MISS 2214	Pervasive Computing Security	3.00	42.00
MISS 2215	Intrusion Management and Ethical Hacking	3.00	42.00
MISS 2216	Recent Developments in Information Systems Security	3.00	42.00
MISS 2200	Thesis	18.00	
MISS 2299	Project	6.00	--

6.3 Core Course Pre-requisite

For taking some core courses, one has to complete one or more pre-requisite courses. The core courses and their pre-requisite courses are:

6.3.1 For M.Sc Engg:

Course Code	Course Name	Credit Hour	Total Contact Hour
MISS 1102	Cryptography	3.00	42.00
MISS 1103	Digital Forensics	3.00	42.00
MISS 1204	Cyber Law and Ethics	3.00	42.00

- 2 more elective subjects are to be taken, in addition MISS 1101.

6.3.2 For M. Engg:

Course Code	Course Name	Credit Hour	Total Contact Hour
MISS 1101	Information Security	3.00	42.00
MISS 1102	Cryptography	3.00	42.00
MISS 1103	Digital Forensics	3.00	42.00
MISS 1204	Cyber Law and Ethics	3.00	42.00

- 6 more elective subjects are to be taken.

6.4 Course Curriculum of MISS :

MISS 1101 Information Security

Introduction to Security; Overview of Threats, Security Infrastructure & Centralized Security Management; Introduction to Authentication, Authorization, and Accounting (AAA); Identity Management, SSO, AAA; Attacks Against OSs and Applications; Cryptography Overview; Cryptography Implementation; SSL Encryption; Physical Vulnerabilities; Network Security; Firewall and/or Intrusion Detection (IDS/IDP) and/or Network Access Control (NAC); Wireless Security; Cloud security; e-transaction security; Pervasive computing security; Security Implications of Disaster Recovery, Security Incident Response; Digital Forensics; Security Policies; Security Administration; Ethics and Law.

MISS 1102 Cryptography

Introduction: Classical vs. Modern Cryptography, Some Historical Ciphers, Principles of Modern Cryptography. Perfectly Secret Encryption: Perfect Secrecy and the One-Time Pad Encryption Scheme, Limitations of Perfect Secrecy. Private-Key Encryption: Computational security, Constructing secure encryption schemes, Chosen-Plaintext Attacks (CPA) and Constructing CPA-Secure Encryption Schemes, Modes of Operation, Security Against Chosen-Cipher text Attacks. Message Authentication Codes (MAC): Message Integrity, MAC Definitions, Constructing Secure MAC, CBC-MAC, Authenticated Encryption. Hash Functions and Applications: Definitions, MAC using Hash functions, Generic Attacks on Hash Functions, Random-Oracle Model. Block and Stream Ciphers: RC4, DES, 3DES, AES, MD5, SHA-1, SHA-2. Number Theory and Cryptographic Hardness Assumptions: Basic Group Theory, Primes, Factoring and RSA, Cryptographic Assumptions in Cyclic Groups. Key Management and Distribution: Key-Distribution Centers, Key Exchange and the Diffie–Hellman Protocol. Public-Key Encryption: Security against CPA and CCA, Multiple Encryptions, El Gamal Encryption, RSA Encryption, Padded RSA, OAEP. Digital Signature Schemes: Definitions, Hash-and-Sign Paradigm, RSA Signatures, Schnorr Signature Scheme, DSA and ECDSA.

MISS 1103 Digital Forensics

Digital Forensics: An overview, Forensics basic and criminalities, Basics of Operating system and networking: A review, Forensic modeling and principles, Forensic duplication and analytics, File carving and testing, Cyber forensics tools and testing, processing crime and incident scenes, mobile device forensics, network surveillance and accountability, network attach trace back and attribution, multicast finger printing, multimedia forensics, Intrusion and online frauds detection, Steganography; Cyber law, Security and Privacy policies; Court testimony and report writing skills; Digital Evidence control.

MISS 1204 Cyber Law and Ethics

Introduction to ethical theories and principles, Ethics and critical reasoning in computer science, Privacy, personal information, and trust, Software piracy, Music and video piracy, Misuse of software, Viruses and hacking, Computer communication and freedom of

expression, Security and encryption, Content control and censorship, Computer crime, Professional issues and decision-making, Intellectual property and licensing, ACM Code of Ethics and Professional Conduct Software Engineering, Code of Ethics and Professional Practice as recommended by the ACM/IEEE-CS Joint Task Force. Law: National ICT Act, National ICT Policy, National e-services rules, National Information security policy guideline, National Copyright, patent, trademark related laws, Laws on document & records retention, UN conventions/Laws related to internet or cyber security, Rights to know, Freedom of Information. Case Study: Methods for case analysis, Analysis of Cases, Minutes of Annual Meetings of ITU, UN on ICT policy, Report/Presentation.

MISS 1205 Business Continuity and Disaster Recovery Plan

Disaster: Definition, Services disruptions and failures, Challenges of disaster recovery plan, traditional disaster recovery; Recovery sites: remote recovery sites, data replication, remote site preparation; Disaster recovery and business continuity: disaster recovery plan, testing, post-disaster problems, business continuity plan, storage architecture; Planning process: risk assessment, business impact analysis, regulatory compliance, recovery point objectives, Develop DRPs, design DR systems, Develop BCPs, Test DRPs; Using decision tree to design DRP: select application, priorities, levels of protection and recovery sites, Design backups, storage, replication, and power management; Using decision tree to design business continuity plan: level of service, impact on production at multi-use recovery sites, Backups at multi-use recovery site, Managing power and facilities.

MISS 1206 Network and OS Security

Network Security: Introduction to network security, security models, basic type of attacks, authentications, mutual authentications and authentication protocols, Mediated Authentication (with KDC), Kerberos, public key infrastructure (PKI), secured RTP. Physical network security, LAN security, resilient network topologies, VPN security, IPsec, Secure Socket Layer (SSL) and Transport Layer Security (TLS), electronic mail security, firewalls and web security, DNS security, anomaly detection and traffic analysis, intrusion detection algorithms.

OS security: Vulnerabilities, threats, exploits and defense mechanisms in operating systems, logging, auditing, address space randomization, memory protection, virtual machine introspection, malware and malware immunization, use of best practice to configure operating systems to industry security standards, distributed OS security.

MISS 2107 IT Systems Audit

IT Audit Fundamentals: What is IT Auditing, Why Audit, Who gets audited; Auditing in Context: IT Governance, Risk management, Compliance and Certification, Quality management and quality assurance, Information security management; Internal auditing: Internal audit or organizational capacity building, Establishing IT audit program, Benefits and challenges; External auditing: Operational aspects, roles and responsibilities, External audit drivers, Benefits and challenges; Types of Audit: Financial audits, operational audits, Certification audits, Compliance audits; IT Audit Components: Scopes, Types of Controls, Auditing IT assets, Auditing procedural controls; IT Audit Drivers: Laws and regulations, Security and privacy laws, Certification standards; IT Audit Process: Audit planning, Audit performance, Report findings; Methodologies and Frameworks: Standard methodologies, IT

governance and management framework; Audit related organizations: National and International perspectives, ISO Standards, IEEE Standards.

MISS 2108 Internet Security and Policy

TCP/IP Protocols, Vulnerabilities, Attacks, and Countermeasures: ARP protocol and ARP cache poisoning, IP protocols, packet sniffing, IP Spoofing, IP fragmentation attacks, IP traceback, ICMP protocol and ICMP misbehaviors, TCP protocol, TCP session hijacking, SYN flooding attacks, DoS attacks, and DDoS attacks, IP Routing protocols and Attacks, DNS and Pharming attacks, BGP protocols and Attacks, Port scanning and signature identification, IPsec, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Firewalls, Intrusion Detection, Web Attacks and Defenses, Botnet, spams. Authentications and authentication protocols, Mediated Authentication (with KDC), Needham-Schroeder, Expanded Needham-Schroeder, Otway-Rees protocols, Kerberos, public key infrastructure (PKI), Secured RTP. Privacy values and interest, Privacy Norms, privacy and e-commerce, Internet policy routing.

MISS 2109 Database and Storage Security

Storage device hardware introduction, File systems, Erasure coding and array coding, RAID array coding techniques, Storage area networks (SAN), Network-attached storage (NAS), Cloud storage and big data, Cloud and big data file systems: Hadoop Distributed File System, (HDFS), GFS, Windows Azure file systems, Amazon S3 file systems, Programming with HDFS, GFS, Azure, and Amazon S3, DB in clouds, Relational storage models, Key value stores, Data consistency and availability in the cloud, Cloud data privacy and security, Personal cloud storage systems design and implementation.

MISS 2110 Cloud Security

Introduction of several novel security challenges. The co-residency of machines: virtual machines, database engines, hardware resources, storage resources. Cloud Security vulnerabilities: infrastructure level, primary level, user level. Operating system in cloud computing. Security breaches: unauthorized connections, unauthorized leakage of information, unmonitored login attempts, malware propagation. Internal cloud infrastructure. Mount cross-VM side-channel attacks. Security controls for the protection of tenant resources, security concerns of un-authorized disclosure, segregation of tenants, isolation of compute, storage and network resources, Firewalls and License issue.

MISS 2211 Telecommunication Networks Security

Telecommunications networks: global, economic and social infrastructures; securing critical infrastructure; Telecommunication Network Security Management: including emerging threats, system vulnerability, network evolution, and network defense mechanisms.

Network Models, Network Security Architecture, Circuit Switching Security, VoIP Security, Lawful Interception, Securing different OSI layers, Wireless Security, IP Sec, VPN, L2TP, PPTP, Security Devices and applications.

MISS 2212 Data Center Security:

Data Center architectures, critical computing infrastructure, hardware devices, computers, firewalls, routers, switches, software applications, email systems, Web servers, computer desktop operating systems. Critical systems: intranet, extranet and Internet. Critical data: applications and servers, data centers' core assets, customer information, intellectual property, and other business-critical data. Big Data, mobility, and global online collaboration.

MISS 2213 e-Transaction Security

Payment Technologies: EMV & Contactless Chip Technology, Payment Systems & Banking Infrastructures, Secure Online Banking & Payments, Card Payments- Issuing & Acquiring; SecureMobile Technologies: Mobile Payments, Trusted Service Manager, Introduction to NFC, Smart Cards for GSM, UMTS & CDMA, Mobile Wallet, Cloud based mobile payments; Secure Transport and Energy Technologies: Automated Fare Collection, Electronic Fee Collection, Secure Smart Metering; ID Management Technologies: ID Management in the Public Domain, Electronic Identity Documents, Public Key Infrastructure for Electronic Identity Documents, Trusted Electronic Identities in Cyberspace; Cryptocurrency: Introduction to Cryptocurrency, Security of Bitcoin, Litecoin and some other well-known cryptocurrencies; Financial cryptography: Automated teller machines (ATM), Point-of-sale (POS), Hardware Security Modules (HSM), Anonymous Internet Banking, Online Auctions, Virtual Goods and Virtual Economies, Identity Theft, Legal and Regulatory Issues.

MISS 2214 Pervasive Computing Security

Introduction to ubiquitous computing; Security in Mobile Agents; Security in Wireless Sensor Networks (WSN): key management, Secure routing, Attacks and Countermeasures; Trust and Reputation Models: Trust-Based Web Service Provision, Trust Based Security, Reputation Systems, Authentication: Multi-factor Authentication, Persistent/Continuous Authentication, Security in Pervasive Computing: Concepts, basis and trends, Identity and access control, Languages for Identity and access control, Risk Assessment for Better Identity Management in Pervasive Computing, Security of Multi-Application Smart Cards, Context-Aware Security, Biometric security for Pervasive systems; Privacy: Incorporating privacy and security into the design and development process of pervasive applications, Privacy and security for smart homes, smart cars, healthcare, urban computing, smart phones, wearable computers, RFIDs.

MISS 2215 Intrusion Management and Ethical Hacking

Trojans and backdoors: Introduction, Overt and covert channels, Security risks, OS file systems roles; Virus and worms: Introduction, Characteristics, Countermeasures; Sniffers: Introduction, Lawful intercept, Using tools, hardware protocols, Detect sniffing; Social Engineering: Introduction, Types of social engineering, Treats, Defenses, Countermeasures; Phishing: Introduction, Overview, Attacks, Countermeasures; Denial of Service: Introduction, Attacks, Preventing DoS/ DDoS; Buffer Overflow: Introduction, Testing vulnerability, Attacks, Countermeasures.

MISS 2216 Recent Developments in Information Systems Security

MISS 2299 Projects

MISS 2200 Thesis

7. FACULTY MEMBERS



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