

UNIVERSITY OF COLOMBO, SRI LANKA
UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING
DEGREE OF MASTER OF INFORMATION SECURITY
BY-LAWS
of the
Degree of Master of Information Security

By-Laws made by the University of Colombo under section 135 of the Universities Act No.16 of 1978 as amended subsequently and under section 13 of the University of Colombo School of Computing Ordinance No. 01 of 2002 as amended subsequently.

BY-LAWS

Whereas the University of Colombo has been conducting the programme leading to the Degree of Master of Information Security since 2012 under its Master of Information Security By-Laws No. 12 of 2012;

Whereas the said By-Laws have subsequently been amended by the University in 2012 and the said Degree programme has been conducted in terms of the said By-laws as amended since 2012 and that students have been registered under the said amended By-Laws whose registration is still in operation;

Whereas the University Grants Commission has published Qualifications Framework norms, duration, credit values, etc. of different levels of academic qualification and has impressed upon the University to revise the existing programmes to bring them in line with the requirements in the published Qualifications Framework and the Institute of Electrical and Electronics Engineers (IEEE) Curriculum Guidelines;

Whereas it has become necessary to revise and revamp the programme leading to the Degree of Master of Information Security to bring it on par with the requirements laid down in the Sri Lanka Qualifications Framework as updated and published by the University Grants Commission in 2015;

Whereas it is also important to take cognizance that the sphere of Information Technology is a fast developing and changing one which requires constant innovation, updating and modernizing of the curriculum, including its syllabi and method of learning & teaching, if the would-be Degree holders are of relevance and of use to the profession and industry, and as such, the innovation and updating may have to take place on an annual basis facilitating the Degree holders to be up-to-date in skills &

knowledge to respond to contemporary needs of the profession and industry;

Whereas a new batch of students has been admitted to the University under the newly formulated curriculum which has already been approved by the Academic Syndicate and the Board of Management of the University of Colombo School of Computing and the Senate and the Council of the University of Colombo in terms of which approval the students have been following the said revamped and revised programme leading to the Degree of Master of Information Security; and,

Whereas it has become necessary to enact By-Laws to prescribe the revised and revamped curriculum, and other provisions including those relating to procedural and substantive aspects of the Degree Programme,

The Council of the University of Colombo on the recommendation of the Senate and the Board of Management and Academic Syndicate of the University of Colombo School of Computing enacts the following By-Laws:

1. (1) These By-Laws may be cited as the Master of Information Security By-Laws No 10 of 2018.
- (2) These By-Laws shall be deemed to have come into operation with effect from January 2017.

PART I- GENERAL

Award of Degree

2. Subject to these By-Laws, a student may be awarded the Degree of Master of Information Security (hereinafter sometimes referred to as “the Masters Degree”) if he/she has -
 - a) been a registered student of the University of Colombo School of Computing (hereinafter referred to as the School) for the period prescribed by these By-Laws;
 - b) completed thereafter, to the satisfaction of the Vice-Chancellor, the Programme of Study, as prescribed by these By-Laws, and/or other Regulations and/or Rules of the University and/or School;
 - c) satisfied the Board of Examiners in different forms of Examinations and Assessments including written examinations, practical examinations, oral examinations, assignments, seminars, group projects, independent studies, individual projects, portfolios, oral defense etc., as may be prescribed by these By-Laws and/or any other By-Laws, and/or Regulations and/or Rules of the University and/or the School;

- d) paid all prescribed fees including library fee, registration fee, course fee, supervision fee, examination fee and all other payable dues to the School;
- e) completed the relevant requirements for the award of the Masters Degree within a period of four (4) academic years including the first academic year of registration, subject to the provisions of these By-Laws; and,
- f) fulfilled all other requirements prescribed by these By-Laws and/or other relevant Regulations and/or Rules of the University and/or School.

Administration of the Programme

- 3. The School shall be in charge of the administration and general direction of the Programme leading to the Masters Degree (hereinafter sometimes referred to as “the Programme”).

Eligibility for Admission to the Programme

- 4. No person shall be eligible to be admitted to the Programme unless he/she satisfies the minimum requirements specified in the following paragraphs:
 - a) A Bachelors Degree from a University or Institution recognized by the University Grants Commission and/or the University of Colombo; OR
 - b) Any other academic or professional qualification deemed equivalent to a Bachelors Degree by the Senate of the University of Colombo on the recommendation of the School. Each application under this category shall be considered on a case-by-case basis.

Application for Admission to the Programme.

- 5. (1) Applications for admission of students to the Programme shall be called by an open advertisement published, on line or otherwise, by the Registrar under the authority of the School.

(2) Prospective applicants may be required to pay to the School the application fee, application processing fee, selection test fee, selection interview fee and any other fees as shall be prescribed by Regulations and/or Rules of the University and/or School.

Registration for the Programme.

- 6. (1) A person whose application for admission to the Programme is accepted by the School shall take steps to register for the Programme not later than the nominated date and shall pay the prescribed fees including the library fee, registration fee, course fee, supervision fee, examination fee and any other fees to the School as prescribed by the Council on the recommendation of the School.

(2) He/ She shall be registered initially for the First and Second Semesters of the Academic Year. He/ She may be registered for the Third and Fourth Semesters when he/she completes the First and Second Semesters successfully and becomes eligible for such registration under the provisions of these By-Laws and/or any relevant Regulations.

(3) When a student is registered for the Programme, such registration shall be valid for one academic year from the first day of the commencement of the Semester.

(4) It shall be the duty and responsibility of the student to ensure that his/her registration continues to be valid.

(5) The registration shall be deemed to have lapsed at the end of its period of validity. A student whose registration has so lapsed may renew such registration for a further period by paying the prescribed renewal fees provided that he/she is eligible to be registered for the Programme in terms of sub-section (6) of this section.

(6) No registration shall remain in force beyond a maximum period of four academic years including the first period of registration. However, this maximum period of four (4) academic years may, under exceptional circumstances, be extended by an academic year subject to the approval of the Senate on the recommendation of the Academic Syndicate and the Board of Management. Each such application for renewal beyond the maximum period of four academic years under any exceptional circumstance shall be considered on a case-by-case basis.

(7) Subject to sub-section (6) of this section, a student whose four academic year period has lapsed may make a written request to the School for a grace chance to complete his/her degree provided that he/she has shown a substantial progress in his/her studies in the previous Semesters. The School shall have the power to consider such requests on a case-by-case basis and recommend to the Senate for its approval.

(8) No person shall be entitled to a refund of any fee paid to the School on any ground whatsoever, except in the case that the number of students who have been so registered for the Programme is insufficient for the Programme to be financially viable. In such a case, the School shall refund to such student the fees which are already received by it on account of the completion of the registration procedure.

PART II- ACADEMIC PROGRAMME

7. (1) The Programme leading to the award of the Masters Degree shall span for two academic years consisting of four Semesters of learning activities and assessments.

(2) The duration of each Semester shall be a continuous period of 15 weeks from its beginning. However, the Senate shall have the authority, on the recommendation of the School, to shorten or extend the duration of a Semester, under exceptional circumstances.

8. (1) The Programme shall include Course Work consisting of Theory and Practical components, Independent Study/ Individual Project and a Portfolio/Dissertation on it, its Oral Examination/Defense and all other examinations prescribed by these By-Laws and/or Regulations and/or Rules.

(2) The Course Work shall consist of lectures, tutorials, practical classes and other assignments, as shall be prescribed by the Senate on the recommendation of the School. The list of Courses, compulsory (Core) and/or optional (Elective), their syllabi and the number, structure and rubric of question papers in each Course shall be those set out under Regulations made by the Senate on the recommendation of the School from time to time.

(3) Each Course shall carry a time-based Credit Value as specified under the Regulations and Rules.

(4) The School shall have the authority to offer Courses of different types, including Courses which are Compulsory as Core Courses and/or Courses which are Optional as Elective Courses.

(5) The Senate shall, on the recommendation of the School, have the power to change, amend, add to or delete from the Courses, their status as compulsory or optional, their syllabi as well as the number, structure and rubric of question papers in such Courses.

(6) Every student who is admitted to the Degree Programme shall register in each academic Semester for such number of Courses as contributing to not less than such number of Credits as prescribed by Rules and Regulations.

Medium of Instruction

9. The medium of instruction as well as that of assessment/examinations shall be English, and the medium for correspondence shall also be English.

Registration for Academic Courses

10. (1) In each Semester, students shall register for the Core Courses of the Semester and such number of Elective Courses as aggregating to not less than the prescribed number of Credits required for that Semester, if and when Elective Courses are offered by the Programme. The procedure for registering in such Core and Elective Courses, as the case may be, shall be specified by the Board of Study.

(2) When the School decides to offer Elective Courses as part of the Programme, it shall notify internally the list of Elective Courses available for registration. After notification, if for whatever reason, an Elective Course cannot be conducted and if a student has applied for registration for any such Course/s, he/she shall be permitted by the School to withdraw such application and apply for registration for any other Course/s as the case may be provided that such Course/s is/are being conducted during such Semester.

(3) A student shall not be permitted to voluntarily withdraw an application for registration for any such Elective Course/s in respect of any Semester unless such withdrawal is permitted by the Board of Study, and no student shall be permitted to apply for registration for any Elective Course/s after the prescribed date.

(4) No student who, without valid reasons acceptable to the Board of Study, fails to register for the required or needed number of Courses, shall be permitted to appear for any assessment or examination of any paper in that Semester.

PART III- ASSESSMENT & EXAMINATIONS

11. (1) The Examinations leading to the award of the Masters Degree shall consist of all four Semester Examinations and an Oral Examination for the defense of the Portfolio/Dissertation on the relevant Independent Study/ Individual Project.

(2) Each Semester examination shall consist of one or more than one written paper and such number of components of continuous assessments, assignments, reports, presentations, oral examinations or a combination of such methods of evaluation as prescribed by the Regulations and/or Rules.

(3) Each student who is registered for the Programme shall make an application in the form provided by the School for entry to the relevant Examination.

(4) No application for an Examination made by any student shall be entertained by the School unless the Director of the School has certified that the student took part in the different forms of instruction provided for each Course in the Semester.

(5) A student in a particular Semester of the Programme shall take the Examination for that Semester on the first occasion in which the Examination is held for the particular Course. If the student does not take the Examination in the first available opportunity he/she shall be deemed to have exhausted an attempt at the Examination of the Course, unless the Senate on the recommendation of the School decides otherwise due to any valid reason.

(6) A student in a particular Semester of the Programme shall undertake work related to Continuous Assessment for that Semester on the first occasion when it is set for the Semester. Where a student does not undertake the work specified for continuous assessment and/or fails to complete such work on the first occasion he/she shall be deemed to have exhausted an attempt at undertaking the work for the continuous assessment.

(7) A student who does not undertake the work specified for continuous assessment for a Semester and/or fails to complete such work and/or fails in the continuous assessment, he/she may be given an opportunity to do the continuous assessment at the ensuing Semester where it is offered. However, he/she shall not be permitted to attend lectures in such Semester except where the Senate on the recommendation of the School permits him/her to undertake the continuous assessment subject to such conditions, including a payment of prescribed fees, as may be imposed by the Senate.

(8) It shall be lawful for the School, following due process, to terminate the registration of any student after one warning in writing, if the progress of study made by such student and/or his/her conduct and behaviour are unsatisfactory. No refund of any fees shall be payable if and when the registration of such a student is terminated.

12. (1) A student who obtains less than C grade for any Course shall be eligible to retake the assessment/examination in the next available opportunity as decided by the School provided that such Course is available and that he/she is otherwise eligible to retake the assessment/examination.

(2) Such a student shall pay to the School, the prescribed fees for retaking each such evaluation, and such student shall not be entitled to attend any lectures unless the Senate on the recommendation of the School decides to permit him/her.

(3) If such a student makes use of the opportunity to retake the evaluation of such a course, the highest mark scored shall be taken into consideration for the computation of results for the award of the Degree.

Provided, for the computation of results for the award of Distinction under sub-section (2) of section 14 of these By-Laws, a GPV of 2.00 only shall be taken into consideration when he/she secures a GPV of 2.00 or more at the re-evaluation.

(4) No Grade or a percentage score or the result of the evaluation of any Course shall receive official recognition for any purpose unless such Grade or percentage or the result of such evaluation, as the case may be, has been approved by the relevant Board of Examiners and the final results pertaining to the award of the Master Degree in the relevant year have been confirmed by the Senate.

Grading System and Calculation of Grade Point Average (GPA)

13. (1) The Range of Marks and the corresponding Grades and Grade Point Values (GPV) shall be those given in Table 1 below:

Table 1
Range of Marks, Grades & their Respective Grade Point Values

Range of Marks	Grades	Grade Point Values (GPV)
90 – 100	A+	4.25
80 – 89	A	4.00
75 – 79	A-	3.75
70 – 74	B+	3.25
65 – 69	B	3.00
60 – 64	B-	2.75
55 – 59	C+	2.25
50 – 54	C	2.00
45 – 49	C-	1.75
40 – 44	D+	1.25
30 – 39	D	1.00
20 – 29	D-	0.75

0 – 19	E	0.00
0	NC	-

(2) If Grade Point Average (GPA) of a student is required for any purpose, it shall be calculated using the following equation -

GPA =

$$\left[\frac{\begin{array}{l} \Sigma \text{ GPV of compulsory course} * \\ \text{credit value of compulsory course} \end{array} + \begin{array}{l} \Sigma \text{ GPV of required optional course} \\ \text{(disregarding additional optional course)} * \\ \text{Credit value of required optional course} \end{array}}{\Sigma \text{ credit value}} \right]$$

The GPA is rounded to the second decimal place.

(3) Any student who has not appeared for the evaluation of a Course may be assigned a GPV of 00 Value for such Course for the purpose of calculating his/her GPA.

PART IV – AWARD OF DEGREE

14. (1) The minimum conditions which a student shall satisfy for the award of the Degree of Master of Information Security are that he/she has obtained -

- (a) not less than a GPV of 2.00 in the Courses which make up a minimum of 35 Credits;
- (b) not less than a GPA of 2.00 for all the Courses which total up to 45 Credits; and
- (c) not less than a C Grade (Pass) for the Independent Study/Individual Project.

(2) Subject to sub section (1) of this section and sub section (3) of section 12, a student who has qualified for the award of the Masters Degree by completing all the relevant requirements may be awarded Distinction if he/she has obtained a GPA of not less than 3.50 provided he/she had completed the Masters Degree Examinations at the first attempt.

(3) No student shall be entitled to the award of the Degree of Master of Information Security unless he/she has satisfied all the prescribed requirements and he/she has supplicated for the award of the Masters Degree at the relevant Convocation of the University of Colombo.

PART V – AWARD OF DIPLOMA/CERTIFICATE

15. (1) The Senate shall, on the recommendation of the School, have the authority to award either a Postgraduate Diploma in Information Security (hereinafter referred to as “the Diploma”) or a Postgraduate Certificate in Information Security (hereinafter referred to as “the Certificate”) to a student who has been registered for the Masters Programme but who has not been awarded the Masters Degree.
- (2) The requirements for and the conditions under which the Diploma or the Certificate may be awarded are prescribed in the Regulations made by the Senate.

PART VI – TRANSITIONAL PROVISIONS

16. (1) Notwithstanding anything contained in these Bylaws, the candidates who have already been registered under the provisions of the Master of Information Security By-Laws No. 12 of 2012 (hereinafter referred to as the 2012 By-Laws) may continue their programme under and subject to those provisions until December 2020.
 - (2) Subject to Sub-Section (1) above, the 2012 By-Laws are hereby repealed.
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17. (1) The candidates who have been registered under the 2012 By-Laws and who have not successfully completed the requirements for the award of the degree of Master of Information Security under those provisions (the 2012 programme) may within a period of 12 months from these By-Laws come into effect apply to the University that they be considered for transfer of registration for the programme under the present By Laws.

Provided the Senate shall have the right either to decline such request or to permit such request subject to such conditions as it may deem necessary to impose on the recommendation of the Academic Syndicate and Board of Study.

- (2) The Senate, on the recommendation of the Academic Syndicate and Board of Study may consider extending an exemption from following a Course and taking the examination of the Course subject to such conditions as it may deem fit and proper. This decision shall be made by the Senate on a case by case basis and its decision shall be final.
- (3) The Senate retains the discretion to deny any request made under sub section (1) of this section if it thinks that granting such facility will be prejudicial to the interests of any stake holders.

PART VII – REMOVAL OF DIFFICULTIES

18. The Vice Chancellor of the University shall have the authority, in consultation with the Director of the University of Colombo School of Computing, to take such actions or give such directions not inconsistent with the spirit and principles underlying the

provisions of these By-Laws as appears to him/her to be necessary or expedient for the purpose of removing any difficulties that may arise in the interpretation of the provisions or for which there is no provision in these By-Laws or in the case of students who had followed or have been following the Masters Degree Programme under the earlier arrangements.

PART VIII - INTERPRETATION

19. In these By-Laws, unless the context requires otherwise:

“The Act” means the Universities Act No. 16 of 1978 as amended subsequently;

“Council” means the Council of the University of Colombo;

“Director” means the Director, Deputy Director or any other Officer authorized to sign for and on behalf of the Director of the University of Colombo School of Computing;

“Prescribed” means prescribed by the University/School as the case may be either by these By-Laws, or Regulations or Rules or by decisions made by these authorities;

“Registrar” means the Registrar, Acting Registrar, Deputy Registrar, Senior Assistant Registrar, Assistant Registrar or any other Officer authorized to sign for and on behalf of the Registrar of the University of Colombo School of Computing;

“School” means the University of Colombo School of Computing established by Order made under Section 24A read with Section 18 of the Act;

“Senate” means the Senate of the University of Colombo;

“University” means the University of Colombo.

20. Any question regarding the interpretation of these By-Laws shall be referred to the Council whose decision thereon shall be final.

UNIVERSITY OF COLOMBO, SRI LANKA
UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING
DEGREE OF MASTER OF INFORMATION SECURITY

REGULATIONS
of the
Degree of Master of Information Security

Regulations made by the Senate of the University of Colombo under Section 136 of the Universities Act No.16 of 1978 as subsequently amended and read with Section 13 of the University of Colombo School of Computing Ordinance No. 1 of 2002 as subsequently amended.

Regulations

1. (1) These Regulations may be cited as the Degree of Master of Information Security Regulations No ...of 2018.
- (2) These Regulations shall be deemed to have come into operation with effect from January 2017 and shall be read in conjunction with the Degree of Master of Information Security By-Laws No. 10 of 2018.

PART I – ACADEMIC PROGRAMME

2. (1) There shall be assigned, to each Course offered in the Programme leading to the Degree of Master of Information Security, a Course Code, Title (Name), Level & Semester, Number of Credits [or Credit Value] and whether it is Compulsory or Optional Academic Course.
- (2) The Schedule to these Regulations shall provide the details mentioned in sub-section (1) of this section and also a brief syllabus of each Course.

3. (1) Each Credit Value shall correspond to different quantum of hours depending on the type of learning activities, the guidelines of which are as specified in Table I below:

Table 1. Guidelines for Volume of Learning

Course Description	Credit Value	Direct Staff-Student Contact Hours	Notional Hours (direct staff-student contact hours and independent learning)
Lecture Course	1	15	50
Laboratory Course	1	30	50
Independent Studies	5	Variable	500

- (2) The minimum number of Credits per Course is one.
- (3) One Credit is considered equivalent to 50 Notional Learning Hours for a Lecture (Taught) Course and Laboratory Course. In the case of Project Work/Independent Study, a minimum of 100 notional hours is equivalent to one Credit.
4. The Senate shall, on the recommendation of the Academic Syndicate, have the power to make changes to the list of Courses, Course Codes, Course Titles (Name), Level & Semester, and Number of Credits (Credit Values) and whether Compulsory or Optional.
5. The detailed syllabus applicable to the Courses shall be prescribed by the School from time-to-time as approved by the Academic Syndicate.

PART II- ASSESSMENT & EXAMINATIONS

6. The procedure for continuous assessment, forms of evaluation in respect of each Course and the mode of their evaluation shall be decided by the relevant Board of Study and approved by the Academic Syndicate. The Academic Syndicate shall also have power, on the recommendation of the relevant Board

of Study, to determine the structure and rubric of question papers on each Course when and where relevant.

7. Each Course including Independent Study and Individual Project shall be marked out of 100.
8. Each student may be required to submit assignments within a prescribed period as part of continuous assessments of such Courses.

Independent Study/ Individual Project

9. Every student of the Programme shall either undertake an Individual Project or engage in Independent Study and submit a Dissertation/Portfolio in the Fourth Semester of the Programme.
10. (1) A student undertaking Individual Project shall submit a Project Proposal in the format and according to the guidelines specified by the School and within the period nominated by the Board of Study for the approval of the School.

(2) Such student shall commence work on the Project once it is accepted by the School. The School shall nominate a Supervisor for each student.

(3) Throughout the whole Project, the student shall seek advice, comments and guidance from his/her Supervisor on the nature of the Project and standard expected. Students shall maintain a notebook to record the meetings with their supervisors.

(4) Progress of the work of the Project shall be evaluated based on progress reports and/or any other reports and/or presentations as prescribed by the School.

(5) Such students shall submit a Dissertation, at the end of the Fourth Semester adhering to the format as prescribed by the School. The Dissertation shall, at minimum, demonstrate the student's knowledge of methods of study, his/her competence to present material systematically, translate theoretical knowledge into practical applications by designing, implementing and

providing solutions to real world problems and his/her ability to evaluate and analyze as well as demonstrate innovative and creative applications.

(6) It shall be the responsibility of each student to contact and in touch with his/her nominated Supervisor regularly for discussion and guidance. Failure to do so may lead to the dissertation not being accepted for evaluation if the Supervisor refuses to give his/her approval for the final defense.

(7) The evaluation of the dissertation brought out in pursuance of the Project may involve a presentation and/or an oral examination.

(8) A student who did not make the presentation and/or participate at the oral examination of the Dissertation on the first occasion shall submit a request for a reschedule giving valid reasons supported by acceptable evidence to the School within seven (7) working days from the scheduled date of the examination. The School shall have the power to consider favorably such requests on a case-by-case basis.

(9) A student who is unable to defend his/her Dissertation to the satisfaction of the Board of Examiners shall receive a Grade of 'NC' (not complete) for the Individual Project. Such student shall not be permitted to resubmit the Dissertation and/or re-defend his/her Dissertation unless the relevant examiners recommend that a modified Dissertation be submitted and/or another Oral Examination is required.

(10) Such a modified Dissertation and/or an Oral Examination, if undertaken, shall be at the expense of the student the fees of which shall be specified by the Council on the recommendation of the School. A student who is unable to submit the modified Dissertation and/or re-defend the Dissertation within the prescribed period shall be deemed to have failed to complete the Individual Project.

(11) Each student who passes the Individual Project is required to submit a hard-bound copy of the Dissertation after improving it based on the comments given by the Board of Examiners. Failure to do so may result in the Grade of the Individual Project being downgraded to 'NC'.

(12) Students shall adhere strictly to the Policy and Rules/Regulations of the University on plagiarism in undertaking the Project. Unacceptable acts of

plagiarism include, but not restricted to, such actions as taking the work of others and passing them off as their own work; providing neither proper references to the original sources nor quotation marks; making use of their own work submitted already for another academic programme; getting someone else to writing the Dissertation but claiming such work as their own work; etc.

(13) When the act of plagiarism by any candidate is proven, he/she shall be subjected to punishment on the recommendation of the Examinations Committee. The punishment may include the impugned Dissertation being rejected and the Student registration with the University being cancelled with or without a debarment of future registrations. There will be penalties for such dishonest actions on the recommendation of the Exam Committee.

(14) A student shall be deemed to have passed the Oral Examination for the Individual Project if he/she satisfies the Board of Examiners of the criteria/requirements specified in Sub-Section (5) of this Section of these Regulations and other requirements prescribed by the relevant By-Laws and/or those prescribed by these Regulations.

11. (1) A student who opted to engage in Independent Study shall undertake a set of problems and submit a Report based on the solution proposed to those problems. Such student shall, through his/her Report, demonstrate his/her knowledge of the methods of problem solving, his/her competence to present material systematically and his/her ability to analyse and interpret results/data, and translate theoretical knowledge into practical applications by designing, implementing and providing solutions to real world problems.

(2) There shall be undertaken a minimum of ten (10) such Studies and maximum of fifteen (15) such Studies.

(3) Each such student shall submit a Report based on the solutions to the problems together with Log forms at the end of the Fourth Semester. An oral examination on this Report shall be a part of the process of assessment.

(4) By the end of the Fourth Semester, each such student shall complete his/her Report on Independent Study and submit it to the School within the

specified period. However it shall not be submitted unless the Course Coordinator has certified that the student has solved all the given problems. The student shall also ensure that the Report fits in to the prescribed format.

(5) A student shall be deemed to have passed the Oral Examination for the Independent Study if he/she satisfies the Board of Examiners of the criteria/requirements specified in Sub-Section (1) of this Section of these Regulations and other requirements prescribed by the relevant By-Laws and/or those prescribed by these Regulations.

PART III – ELIGIBILITY FOR PROGRESSION

12. The rules of progression within the degree programme shall be as follows;
 - a) A Student who has obtained minimum of 2.00 GPA at the First and Second Semester Courses shall proceed to the Third and Fourth Semester Courses.
 - b) A student who has obtained a GPV of not less than 2.00 for Courses which add up or exceed 12 Credits in the First and/or Second Semesters may proceed to the Third and Fourth Semester Courses.

PART IV - POSTGRADUATE DIPLOMA / POSTGRADUATE CERTIFICATE

13. (1) A student who has secured a GPV of not less than 2.00 for the Courses which add up or exceed 25 Credits may be awarded the Postgraduate Diploma in Information Security, provided he/she satisfies other conditions for the award of such Diploma as laid down in these Regulations or the relevant By-Laws.

(2) A student who has secured a GPV of not less than 2.00 for the Courses which add up or exceed 20 Credits may be awarded the Postgraduate Certificate in Information Security, provided he/she satisfies other conditions for the award of such Certificate as laid down in these Regulations or the relevant By-Laws.

(3) A student can opt to obtain the Postgraduate Diploma in Information Security after obtaining a minimum of 25 Credits or the Postgraduate Certificate in Information Security after obtaining a minimum of 20 Credits.

14. (1) A student shall satisfy the following conditions if he/she wishes to be awarded the Postgraduate Diploma in Information Security -

- i) he/she has obtained a GPV of not less than 2.00 for Courses which add up or exceed 25 credits;
- ii) he/she has obtained a minimum of 2.00 of GPA;
- iii) he/she has not qualified to be awarded the Masters Degree in Information Security; and,
- iv) he/she has made a written request for the award of the Diploma.

(2) A student shall satisfy the following conditions if he/she wishes to be awarded the Postgraduate Certificate in Information Security -

- i) he/she has obtained a GPV of not less than 2.00 for Courses which add up or exceed 20 credits;
- ii) he/she has obtained a minimum of 2.00 of GPA;
- iii) he/she has not qualified to be awarded the Masters Degree in Information Security and/or the Postgraduate Diploma in Information Security; and,
- iv) he/she has made a written request for the award of the Certificate.

THE SCHEDULE

- A. The Course Codes, Titles, Credits and their Standing in each Semester are as follows:

First Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIS1201	Principles of Information Security	03	C
MIS1202	Cryptographic Systems	03	C
MIS1203	Information Risk Management and Audit	02	C
MIS1204	Network Security	03	C
MIS1205	Special Topics in Information Security*	02	C

Each student shall submit Assignments as part of Continuous Assessment set by the School.

* Continues into Second Semester

Second Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIS2201	Database Security	03	C
MIS2202	Digital Forensics	03	C
MIS2203	Security in Mobile and Wireless Networks	03	C
MIS2204	Data Mining for Information Security	03	C
MIS1205	Special Topics in Information Security*	--	C

Each student shall submit Assignments as part of Continuous Assessment set by the School.

Third Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIS3201	Information and Coding Theory	02	C
MIS3202	Secure Software Systems	03	C
MIS3203	Information Security Governance	02	C
MIS3204	Incident Management	02	C
MIS3205	Individual Project*	05	O

*A student may undertake MIS 3205 in the Third Semester or opt to undertake MIS 4203 in the Fourth Semester. MIS 3205 shall span in to the Fourth Semester as well. A student who initially opts for MIS 3205 may be granted permission to drop it and offer MIS 4203 in the Fourth Semester. A student shall take either MIS 3205 or MIS 4203.

Each student shall submit Assignments as part of Continuous Assessment set by the School.

Fourth Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIS4201	Cyber Security and Law	03	C
MIS4202	Multimedia Security and Digital Rights Management	03	C
MIS4203	Independent Studies in Information Security	05	O

B. Brief description of the syllabus of each Course is as follows:

Course	Syllabus
MIS1201: Principles of Information Security	Introduction to information security, Introduction to cryptography, Digital signatures, Public-Key Infrastructure (PKI), e-mail security, Security Models and Policies, Program Security, Malicious Software, Operating system security, Privacy and Privacy Enhancement Tools, Social Engineering, Security threats on Social networks
MIS1202: Cryptographic Systems	Cryptography overview, one-way functions, pseudo-randomness, hash functions, symmetric encryption, authentication systems, public-key encryption systems, digital signature schemes, Interactive Proofs, Elliptic curve cryptosystems, Cryptographic protocols such as zero-knowledge protocols and e-voting, two-party secure computation, multiparty secure computation, and chosen-ciphertext security, Quantum Cryptography
MIS1203: Information Risk Management and Audit	Operative risk, Risk tolerance and risk appetite, Risk analysis and vulnerability assessment, Cost/benefit analysis, Communicating risk and developing risk metrics, Identifying risk mitigations, Acceptance Criteria, Internal Control
MIS1204: Network Security	Network authentication, Web security protocols such as SSL, VPN technology (IPSec), Security in IPV6 networks, Firewalls, Security in Web services, Intruder Detection and Prevention, DNS security
MIS1205: Special Topics in Information Security	Minimum of ten (10) and maximum of fifteen (15) seminars will be conducted under this course during the first semester.

Course	Syllabus
MIS2201: Database Security	Introduction to Database Security, Database Authentication, Discretionary Access Control, Role Based Access Control, Mandatory Access Control, Security threats with respect to SQL injections, Database Inference, Virtual Private Databases (VPD), Security in Statistical Databases, Encryption mechanisms in Databases, Database Auditing.
MIS2202: Digital Forensics	Types of computer crime, Computer misuse, Data protection, Criminal damage, Software piracy, Forgery, Pornography, Unsuitable material, Cybercrime methodologies, Computer

	forensic investigative theory, Computer forensic processing techniques, File system forensic, Forensic network investigations, Linux for forensic analysis, Linux forensic tools, Forensic investigation on mobile devices
MIS2203: Security in Mobile and Wireless Networks	Overview of technologies and protocols, security threats and problems, Security features in protocols such as WPA, EAP, RADIUS and Bluetooth. Key Management Protocols:WPA/RSN,TKIP,AES–CCMP, Security in Ad Hoc Networks, Security in Wireless Wide Area Networks:GSM, 3G, UMTS, RFIDs and NFC Protocol
MIS2204: Data Mining for Information Security	Introduction to data mining, Concepts and methods, Major data mining methods: Data generalization, characterization, association, classification, clustering, and outliers analysis techniques, Stream data processing and stream data mining, Data mining for intrusion detection, Privacy-preserving data mining, Protection of information security in data mining

Course	Syllabus
MIS3201: Information and Coding Theory	Entropy, Data Compression such as the Kraft inequality, Channel Capacity, Error Control Coding, Advanced Coding Techniques such as lattice codes, trellis coded modulation, coset codes, multi-level codes/multi-stage decoding, iterative decoding
MIS3202: Secure Software Systems	Secure software development life-cycle, Threat modeling, Risk assessment, Secure coding standards, Security code analysis, Security testing, Security code review, Empirical analysis for secure software development, Software model checking, Language based security, Building verifiable systems, Managing Code and Documentation, Cryptographic modules for Java: JSA and JCE, Java Security Provider Architecture
MIS3203: Information Security Governance	Principles for information security practitioners, Information security management practices, with focus on governance, Business Model for Information Security (BMIS), with case studies, Threats, Compliance, Security Controls, Information security governance with case study, Security Policy, Industry best practices, Business Continuity
MIS3204: Incident Management	Types of Computer Security Incidents, responding to various types of malicious activity such as the use of rootkits, botnets and distributed denial of service attacks, responding to insider threats and attacks, handling major computer security events and incidents, Incident management concepts, Scope and charter of incident management, Incident management objectives, Incident management metrics and indicators, Defining incident management procedures, Incident management resources,

	incident response capability, Elements of an incident response plan, Developing response and recovery plans, Testing response and recovery plans, Executing response and recovery plans, Documenting events, Post incident reviews
MIS 3205: Individual Project	The Individual Project shall, at minimum, demonstrate the student's knowledge of methods of study, his/her competence to present material systematically, translate theoretical knowledge into practical applications by designing, implementing and providing solutions to real world problems and his/her ability to evaluate and analyze as well as demonstrate innovative and creative applications.

Course	Syllabus
MIS4201: Cyber Security and Law	Secure e-commerce applications, Integrated Payment System, Electronic Payment Protocols, Cryptocurrency, Web application security, Cloud Security, Cyberwar, General Criminal Law Concepts, Intellectual property law, Electronic signatures law, Dispute resolution on the Internet, Digital criminal law, Common criminal Laws used in cyberspace.
MIS4202: Multimedia Security and Digital Rights Management	Overview of multimedia contents dissemination and digital storage, digital rights management systems and technical trends, Steganography, Digital watermarking, Frequency domain based watermarking, Video watermarking, Multimedia quality measurements and enhancements, Watermarking and their vulnerabilities, examples of media protection schemes: CSS, CGMS, HDCP, Emerging DRM Standards
MIS4203: Independent Studies in Information Security	Independent Studies in Information Security should complete under supervision of a senior lecturer, which results in laboratory reports or log forms. The Independent Studies in Information Security will be defined by the senior lecture and should implemented within the given time. Minimum of ten (10) and maximum of fifteen (15) Independent Studies in Information Security will be given under this course.