

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

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 Technology since 2008 under its Master of Information Technology By-Laws No. 8 of 2008;

Whereas the said By-Laws have subsequently been amended by the University in 2009 and the said Degree programme has been conducted in terms of the said By-laws as amended since 2009 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 Technology 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 Technology; 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 Technology By-Laws No 8 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 Technology (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, individual projects, research projects, dissertations, oral defense of dissertations 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, an Individual Project and a 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. The procedure for registering in such Core and Elective Courses, as the case may be, shall be specified by the Board of Study.

(2) The School 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 Dissertation on the relevant 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 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 subsection (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 Technology 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 make up a minimum of 45 Credits; and
 - (c) not less than a C Grade (Pass) for the 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 GPA of not less than 3.50 provided he/she had completed the Masters Degree at the first attempt.

(3) No student shall be entitled to the award of the Degree of Master of Information Technology 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 Technology (hereinafter referred to as “the Diploma”) or a Postgraduate Certificate in Information Technology (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 By-Laws, the candidates who have already been registered under the provisions of the Master of Information Technology By-Laws No. 08 of 2008 as subsequently amended in 2009 (hereinafter referred to as the 2009 By-Laws) may continue their programme under and subject to those provisions until December 2020.

(2) Subject to Sub-Section (1) above, the 2009 By-Laws are hereby repealed.

17. (1) The candidates who have been registered under the 2009 By-Laws and who have not successfully completed the requirements for the award of the degree of Master of Information Technology under those provisions (the 2009 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 TECHNOLOGY

REGULATIONS
of the
Degree of Master of Information Technology

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 Technology 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 Technology By-Laws No. 8 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 Technology, 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 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.

Individual Project

9. (1) Every student of the Masters Degree Programme shall undertake an Individual Project and submit a Dissertation in the Fourth Semester of the Masters Degree Programme.
 - (2) Each student 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.
 - (3) Each student shall commence work on the Project once it is accepted by the School. The School shall nominate a Supervisor for each student.
 - (4) 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.
 - (5) 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.
 - (6) Each Masters Degree student 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

(7) 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.

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

(9) 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.

(10) 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.

(11) 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.

(12) 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'.

(13) 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.

(14) 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.

10. 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 (6) of Section 9 of these Regulations and other requirements prescribed by the relevant By-Laws and/or those prescribed by these Regulations.

PART III – ELIGIBILITY FOR PROGRESSION

11. (1) The rules of progression within the Masters Degree Programme shall be as follows;
 - a) A Student who has obtained minimum of 2.00 GPA for all the courses at the First and Second Semester 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

- 12. (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 Technology, 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 Technology, 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 Technology after obtaining a minimum of 25 Credits or the Postgraduate Certificate in Information Technology after obtaining a minimum of 20 Credits.
- 13. (1) A student shall satisfy the following conditions if he/she wishes to be awarded the Postgraduate Diploma in Information Technology –
 - 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 Technology; 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 Technology -

- 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 Technology and/or the Postgraduate Diploma in Information Technology; 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]
MIT1201	Program Design and Programming	03	C
MIT1202	Computer Systems	03	C
MIT1203	Database Management Systems	03	C
MIT1204	Systems Analysis and Modelling	03	C

Second Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIT2201	Computer Networking	03	C
MIT2202	Software Engineering	02	C
MIT2203	Data and Network Security	03	C
MIT2204	Agile Software Development	03	C
MIT2205	IT Innovation	02	C

Third Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIT3201	Individual Project	05	C
MIT3202	Project Management & Professional Issues in IT	02	O
MIT3203	The Foundations of e-Learning	02	O

MIT3204	Data Mining and Warehousing	03	O
MIT3205	User Interface Design	03	O
MIT3206	Mobile Computing	03	O

Fourth Semester Courses

Code	Title	Credits	Standing [Compulsory / Optional]
MIT4201	Software Quality Assurance	03	O
MIT4202	IT Strategy and Policy	02	O
MIT4203	Business Statistics and Operational Research	02	O
MIT4204	e-Business Applications and Strategies	03	O

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

MIT 1201: Program Design and Programming	Basic Syntax and Semantics of Higher Level Programming Languages; Control Structures and Related Problem Solving Activities; Functions and Parameter Passing, Structured Programming Concepts and Recursive Problem Solving; Primitive Data Types, Arrays, Records, Tuples, Dictionaries, etc. and Basic String and String Processing, Design, Implementation, Testing and Debugging; Data Representation in Memory, Pointer Based and Reference Based Implementation, Linked List Data Structures and Application; Hash Functions, Stack and Queue Applications; Graphs and Trees Traversals Techniques and Applications; Sorting Algorithm Families and their Running Times, Advanced Sorting Algorithms, Searching Algorithms, Time Complexity.
---	--

<p>MIT1202: Computer Systems</p>	<p>Data Representation – Numbering Systems, Positive/Negative Number Representation, Floating Point Number Representation; Logic Operations - Basic Logic Operators and Logic Gates, Basic Logic Circuit Design, Combinational Logic, Sequential Logic; Inner Workings of the CPU- Components of a CPU, Specifications, Instruction Set Architecture, Fetch and Execution Cycle; Memory Components and Organization - Types of Memory, Memory Hierarchy, Cache Memory and Mapping Schemes, Virtual Memory, Measuring Memory Performance</p>
<p>MIT 1203: Database Management Systems</p>	<p>Introduction to Database Management Systems, Relational Data Model, Conceptual Design (ER Concepts and Terminology), Logical Design, Structured Query Language (SQL), and Data Normalization Process and the Normal Forms.</p>
<p>MIT 1204 Systems Analysis and Modelling</p>	<p>Information Systems and System Development Environments, Life Cycle, Methodologies and Software Process Models, Requirements Analysis and Discovery Methods, Feasibility Analysis, System Modelling, Computer Aided Systems Engineering Tools, System Concepts for Object Modelling, User Stories, UML, Use Case Modelling, Activity Diagrams, Conceptual Modelling and Structural Modelling Class and Package Diagrams, CRC cards, Behavioural Modelling, Interaction Diagrams, User Interface Flow Diagrams, Behavioural State Machines, UML 2.* Diagrams, System Modelling Using Case Studies, Rational Unified Process, Model Driven Engineering, Architecture and Executable UML.</p>

<p>MIT 2201: Computer Networking</p>	<p>Fundamentals in Data Communication and Transmission, Computer Networks, Channel Access Methods, Structure of the Internet, TCP/IP Protocol Suite, IP Addressing, Subnetting/Supernetting, Routing and Multicasting, Introduction to IPv6, Transport Layer Protocols, Application Layer Protocols, Wireless Local Area Networks (WLAN).</p>
---	---

<p>MIT 2202: Software Engineering</p>	<p>Introduction to Software Engineering, Software Quality Attributes; Software Processes: Waterfall Model, Prototyping Approaches, Evolutionary Development; Incremental Development, Rapid Application Development, Unified Process, Spiral Model, Agile Methods, Requirement Analysis and Specification, Software Design, Designing for Reusability, Adaptability, Maintainability, Software Architecture, MVC, Repository, Client-Server, Object Oriented Design, Design Patterns, Coding, Coding Practices, Code Reviews, Code Walkthroughs, Testing, Testing Strategies, Maintenance, Project Management, Quality Management.</p>
<p>MIT2203: Data and Network Security</p>	<p>Introduction to Network Security, Introduction Cryptography, Hash Algorithms, Secure Secret Key (Symmetric) Systems, Public Key (Asymmetric key) Encryption Systems, Key Management Protocols, Operating Systems Security, Database Security, Program Security, Secure Electronic Mail, Authentication Protocols, Network Security Issues and Technologies, Web Security, Web Application Security, Legal Issues</p>
<p>MIT2204: Agile Software Development</p>	<p>Overview of Agile Software Development Process, Agile Web Application Development, MVC based Application Development, Content Management System based Application Development, User Interface/UX Development, Full Stack Web Application Development, Agile Testing, Agile Application Security</p>
<p>MIT2205: IT Innovation</p>	<p>Theoretical perspectives, best practices in IT innovation, creative problem solving and strategies, impact of technological innovations on the economy and society, innovation skills needed for today's dynamic, global, and technology-enabled competitive environment, successful innovative product, commoditization of IT, strategic importance of the web as a platform, information organization, searching for knowledge, introduction to relevant tools and libraries, economics of digital goods and services, knowledge management in the corporate sector, challenges to innovation, disruptive innovation, managing, guiding, facilitating, nurturing the innovative ideas, solutions in software development organizations.</p>

MIT3201: Individual Project	This course unit aims to enhance the capacity of candidates to develop project proposals and apply appropriate software engineering principles and adopt a suitable software development life cycle to develop an innovative application. This includes the analysis, design and development of a software application. The major expectations of this course unit are: conduct in relevant domain analysis to identify the requirements in order to address the problem and study similar systems and technologies; document the analysis, design and development (implementation) of the software solution; conduct an evaluation of the system which clearly demonstrates the technical quality using user evaluation and application of relevant quality assurance processes including the use of testing tools; submit a dissertation which will be evaluated and accepted; demonstrate the work at the oral examination.
---------------------------------------	--

MIT3202: Project Management & Professional Issues in IT	Professional Issues in IT - ethical theories, professionalism and professional organizations, from theory to implementation; project management - introduction to project management, project integration, scope, time, cost management, IT project quality and communications management, project human resource management, financial calculations for project appraisals
MIT3203: The Foundations of e-Learning	e-learning theories and concepts - learning theories, from learning to e-learning, technologies, rules and standards for e-learning; planning and managing elearning projects - planning e-learning, managing e-learning, evaluating e-learning; design and development of elearning objects - instructional design methodology, developing e-learning content, delivering e-learning courses, emerging trends.
MIT3204: Data Mining and Warehousing	Introduction to data mining, data warehouse and olap, data preprocessing, data mining knowledge representation, data mining algorithms, data mining algorithms: classification, evaluation techniques, data mining algorithms: clustering, advanced techniques, emerging trends.
MIT3205: User Interface Design	Introduction, human factors - human perception and graphic design, human visualization, system colour theory and design principles, typography; design theory - elements of design, principles of design guidelines; evolving rich interaction - animation and video technology, multimodal technology; ui requirements - pact analysis, persona and scenario, task analysis; user-centre design - task design and help documentation, user assessment, UI software architectures; principles and heuristics of usability; prototyping, emerging trends.

MIT3206: Mobile Computing	Introduction, operating systems for wireless mobile devices, android overview and android development environment, anatomy of an android app and the app lifecycle, applications development for android devices with android studio, android user interface, android intents & android persistence, android web view & web services, android animation and graphics, location-based apps, sensing and sensors, hybrid mobile app development, native mobile app development, mobile testing, mobile security.
-------------------------------------	--

MIT4201: Software Quality Assurance	Introduction, software quality factors, the components of a Software Quality Assurance (SQA) system (pre-project components, project life-cycle components including the design, development, testing and maintenance stages, infrastructure components, managerial aspects and human resource perspectives, standards, certification and assessment), software testing - strategies and implementation, software test automation (Selenium, TestNG, JUnit, JMeter and Fire Fly) introduction to test automation frameworks and paradigms, testing mobile applications (of Appium) continuous integration and build tools, performance testing, and new trends in quality assurance.
MIT4202: IT Strategy and Policy	Policies in information domain - privacy and security policy, COBIT 5 and IT strategies, Val IT and GET IT, IT frameworks and models, emerging trends.
MIT4203: Business Statistics and Operational Research	Basic Statistics - Introduction to Statistics and Data Collection Techniques, Graphical Representation of Data, Numerical Representation of Data, Introduction to Probability, Random Variables, Basic Probability Distributions, Hypothesis Testing, Analysis of Variance, Correlation and Regression Analysis; Operational Research - Introduction, Graphical Method, Simplex Method, Transportation Problems, Assignment Problems, Statistical Software Tools
MIT4204: e-Business Applications and Strategies	The e-Business Environment, e-Business Application Development Tools, e-Customer Relationship Management, E-Procurement and Supply Chain Management, Electronic Payment Systems, e-Business Security, e-Marketing, Regulation of e-Business(Legal Issues) and Ethics, Future Directions in e-Business