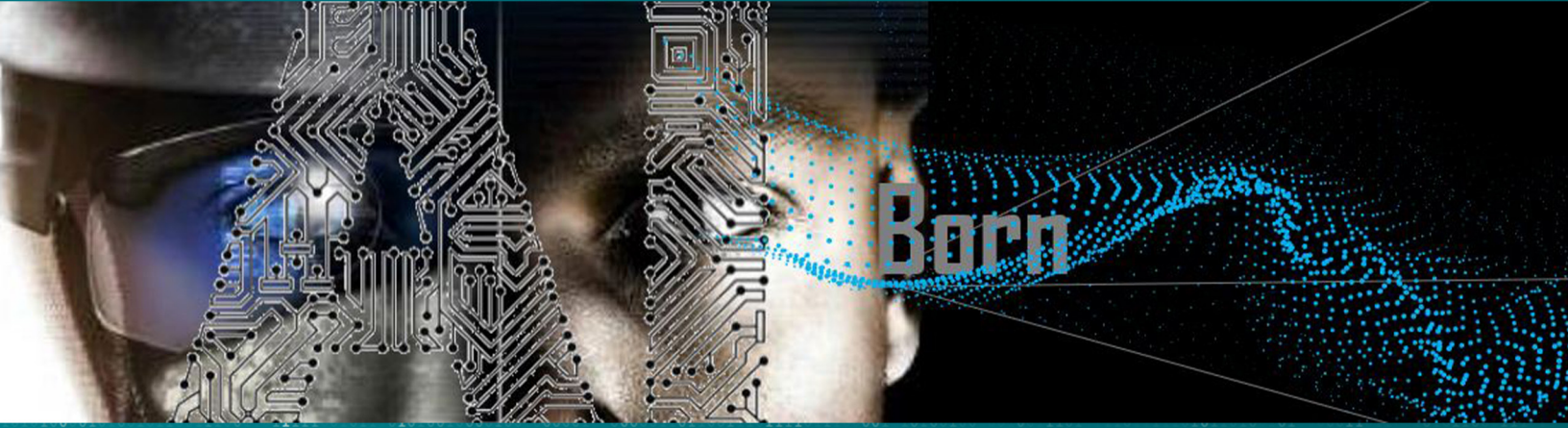




**THE UNIVERSITY OF THE WEST INDIES
FIVE ISLANDS CAMPUS**



**RE-IMAGINING
THE CREOLIZATION
OF SCIENCE, COMPUTING &
ARTIFICIAL INTELLIGENCE IN
AN ERA OF AI AND THE 4IR**

**SCHOOL OF SCIENCE, COMPUTING AND
ARTIFICIAL INTELLIGENCE (SoSCAI)
FIVE ISLANDS CAMPUS
STUDENT HANDBOOK
2021/2022**



THE UNIVERSITY
OF THE
WEST INDIES
FIVE ISLANDS
CAMPUS

The Five Islands School of Science, Computing and Artificial Intelligence (SoSCAI), Undergraduate Handbook is provided for the convenience of students. It sets out the School's regulations governing the programmes offered; important guidelines; information on the courses offered at Five Islands Campus.

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SoSCAI'S FACULTY MESSAGE TO STUDENTS

Dear Five Islands Campus Digital Learners,

I am thrilled to welcome you to our dynamic University – an engine of innovation where you can reimagine and be ready for the future of work. After months of uncertainty because of the COVID-19 pandemic, I have renewed hope for this 2021-2022 Academic year.

As the 4th Industrial Revolution unfolds, your learning experiences at The UWI-Five Islands Campus will prepare you to enhance your knowledge and acquire the skills necessary to think critically in the labor market of the future; become an eloquent and dynamic communicator; demonstrate competencies in technology and entrepreneurship; innovate and create; learn about the world while being committed to the development of your own communities; engage in socially responsible ventures and behave ethically regardless of your field of study. You are embarking on an exciting time in Antigua and Barbuda, in the Eastern Caribbean, and in the world.

This is your time. Given the circumstances of the moment, we encourage you to pause and reflect on the global awakening to the conditions that threaten the health of every person on the planet. But you are here, to learn, to grow, to take risks, to ask questions, to seek solutions and to make a difference in this world. Again, this is your time! Whether face-to-face or online, take advantage of this learning opportunity to become more brilliant, more thought-provoking, and more compassionate to your fellow man.

Let's get into "good trouble" and do our very best to have hope for the future.

The Faculty of the School of Science, Computing and Artificial Intelligence.

MESSAGE FROM THE HEAD OF SCHOOL



On behalf of Principal Williams, our students, faculty, and staff, I welcome to the School of Science, Computing and Artificial Intelligence. Consider for a moment, that as we enter the 4th Industrial Revolution, The UWI Five Islands Campus' digital learners are facing a global workforce where only 33% of the world's demand for employees with technology skills is being met; and the percentage of jobs requiring technology skills

will increase to 77% in less than a decade, and where, 65% of students currently in primary school will perform jobs that have not been invented yet. In addition, 47% of any predictable or near predictable jobs are expected to be taken over by machines during the next two decades. To add, co-bots are disrupting China's manufacturing industry, and AI algorithmic platforms are tearing through the financial markets. According to PwC's study on the Workforce of the future: The competing forces shaping 2030, "How humans respond to the challenges and opportunities which the megatrends bring will determine the worlds in which the future of work plays out."

Grounded in the disciplines of Computer Science and Information Technology, all SoSCAI graduates will demonstrate a level of proficiency in artificial intelligence as they learn to use data in computer guided decision-making. As a strong AI presence is embedded in each academic program within the School, students will learn popular machine learning algorithms and how to use data for developing solutions for Mechanical AI, Thinking AI, and Feeling AI. SoSCAI's faculty and administrators are dedicated to the following student services and academic enhancements to each program of study:

- A. All SoSCAI students enrolled in a degree program will be afforded the opportunity to participate in various pathways that include the fundamentals of artificial intelligence and machine learning.
- B. Two specialized artificial intelligence tracks will be available during Year II of the program:
 - (1) Mathematics and Statistics and (2) Data Analytics as used by government agencies.
- C. During Level II of each program, students will be invited to participate in seminars and lectures related to undergraduate research projects in the COGNITIVE AI Lab, a research arm of the School of Science, Computing and Artificial Intelligence (SoSCAI) that explores problem solving and solution seeking in real-world business

and societal implementations of AI and data analytics.

- D. Within the School, there will be a heavy leaning towards artificial intelligence and cutting-edge new cases, as is true of most computer science and information technology courses today.
- E. Graduates of the SoSCAI's programs will be able to (Student Learning Outcomes related to AI):
 - apply the principles and mechanisms underlying various kinds of Artificial Intelligence processes,
 - deal more effectively with natural intelligence using Artificial Intelligence tools and techniques,
 - specify and design **Artificial Intelligence** computer-based systems,
 - utilize scaffolding tools developed from **Artificial Intelligence** during the software development process,
 - discuss the philosophical issues that arise within **Artificial Intelligence**,
 - explain social, professional, ethical, and legal issues involved within **Artificial Intelligence** systems
 - identify key issues in **Artificial Intelligence** that will continue to challenge researchers in the future, and
 - solve complex challenges, where algorithms study historical datasets to gain deep insight to improve performance and predict future trends and behaviors of industry verticals, such as tourism, climatology, law, automotive, retail, finance, manufacturing, healthcare, government, and others.

Curtis Charles, PhD., MSPA., SMArchS., B.Arch.

Director of Academic Affairs

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HEAD OF SCHOOL

TBA

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ACADEMIC CALENDAR 2021-2022

Graduation Dates Sunday November 7th 2021

Semester I Dates 2021-2022

Semester *begins* August 29th, 2021
Teaching *begins* September 6th, 2021
Teaching *ends* November 26th, 2021
Review/Study Week November 28th, 2021 – December 28th, 2021
Examinations December 6th, 2021
Semester I *ends* December 22nd, 2021

Semester II Dates 2021-2022

Semester II *begins* January 16th, 2022
Teaching *begins* January 17th, 2022
Teaching *ends* April 15th, 2022
Review/Study Week Monday April 18th, 2022
Semester Break Monday April 19th, 2022
Examinations Monday May 2nd, 2022
Semester II *ends* Friday May 20th, 2022

GENERAL REGULATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN THE SCHOOL OF SCIENCES, COMPUTING AND ARTIFICIAL INTELLIGENCE

DEFINITION OF TERMS

Advising Hold	An Advising Hold may be placed on a student record to indicate that the student must get academic advising prior to registration
Anti-Requisites	Refers to courses where content overlap precludes courses being taken together for credit. Students are urged to view the listings in this handbook and consult their department for guidance
Core or compulsory courses	Courses that students must complete in order to be awarded a degree
Credit	Refers to a unit of study counting towards a degree or diploma. Undergraduate courses in the Faculty normally carry a weighting of three (3) credits. A number of courses, however, carry a weighting of six (6) credits.
Exemption with credit	Refers to cases where a student is granted exemption from UWI courses because the student has already passed courses in other programmes at UWI or passed courses of similar content at other recognized institutions. Students are not required to take replacement courses.
Free electives	Courses which are optional in the degree programme concerned and may be selected from any department or faculty. Please note that Level I courses cannot be used as electives in Level II/III of the programme.
Level I, Level II & Level III	Represents the different standard of courses that must be completed in the undergraduate degree programme. Each level is designated by the first numeral in the course code. Levels II and III courses are equally weighted for the assessment of class of degree
Prerequisites	Courses which must be completed before registration for another course is permitted

1. QUALIFICATIONS FOR ADMISSION

Duration	Minimum Admission Requirements
Five (5) Years	<p>Minimum Requirements for the Five (5) Year Degree Programme</p> <p><i>Applicants must satisfy the requirements in:</i></p> <p>CXC/CSEC or GCE O'Level passes in a minimum of five (5) subjects. Subject requirements are Mathematics and English Language. Grade requirements for CXC/CSEC are General Proficiency, Grades I or II pre-1998 and Grades I, II, or III from June 1998;</p>
Four (4) Years	<p>Minimum Requirements for the Four (4) Year Degree Programme</p> <p><i>Applicants must satisfy the requirements in either (a) and (b) below</i></p> <p>(a) CXC/CSEC or GCE O'Level passes in a minimum of five (5) subjects. Subject requirements are Mathematics and English Language. Grade requirements for CXC/CSEC are General Proficiency, Grades I or II pre-1998 and Grades I, II, or III from June 1998, and</p> <p>(b) CAPE or GCE A'Level passes in at least one (1) subject. CAPE subject must consist of both Unit 1 and Unit 2</p>
Three (3) Years	<p>Minimum Requirements for the Three (3) Year Degree Programme</p> <p>CAPE or GCE A'Level passes in a minimum of two (2) subjects. CAPE subjects must consist of both Unit 1 and Unit 2.</p>

English Language Proficiency Test (ELPT)

- 1.2 All applicants to the University of the West Indies are required to sit the English Language Proficiency Test (ELPT) to determine their level of entry to FOUN1006 Exposition for Academic Purposes or FOUN1008 Introduction to Professional Writing.
- 1.3 Applicants for entry into Economics, Accounting, Management Studies, Psychology and degree options (specialization and majors) are required to have a minimum of a Grade III pass in CXC (General) Mathematics or a qualification deemed by the Faculty Board to be equivalent.

Exemption from Sitting ELPT

- 1.4 Applicants in the categories below are NOT required to sit the test:
 - (a) Persons with any ONE of the following English Language qualifications:
 - Grade 1-CXC/CSEC English A examination
 - Grade A-GCE O'Level English Language examination
 - Grade A-GCE A/O'Level General Paper examination
 - Grades 1 & 2-CAPE Communication Studies
 - Grade B or above-college English course from an approved university.
 - (b) Persons who are already holders of an undergraduate degree from the UWI or from an approved university.

Mathematics Proficiency Test (MPT)

- 1.5 Students who possess one of the following within the last five (5) years are exempt from taking the Mathematics Proficiency Test (MPT) and can register for ECON1003 Introduction to Mathematics for Social Science I and ECON1005 Introduction to Statistics.
 - Associate Degree in Mathematics (solely or jointly with another discipline),
 - Grades 1 to 4 in ALL CAPE Mathematics Units 1 or 2,
 - Grades A, B or C in Cambridge 'A' Level Mathematics,
 - Grades 1 or 2 in CSEC General Proficiency Mathematics,
 - Grades 1 or 2 in CSEC Additional Mathematics,
 - Grades 9, 8, 7 or 6 in GSCE Mathematics under the new grading scheme (A or B under the old grading scheme),
 - A pass in the SCHOOL OF BUSINESS AND MANAGEMENT, Mathematics Proficiency Test,

- Grade C or higher in the Faculty's Preliminary Mathematics for Social Sciences course.
- Grades 7, 6, 5 and 4 for the International Baccalaureate (IB) in (a) Mathematical Studies SL, (b) Mathematics SL, (c) Mathematics HL and (d) Further Mathematics HL

N.B.:

- (a) SL = standard level HL = higher level
- (b) From 2021, the names of the IB mathematics courses will be replaced by Mathematics Analysis and Approaches (SL/HL) and Mathematics and Interpretations (SL/HL)

2. TRANSFERS

Inter and Intra Faculty Transfers

- 2.1 Students in another School who have completed Level I of a degree programme of the University of the West Indies are eligible for transfer to Level II of a degree programme offered by the School of Science, Computing and Artificial Intelligence. Such students must, at the time of transfer, have passed courses which satisfy the Level I requirements of the School of Science, Computing and Artificial Intelligence, as well as the pre-requisites of the relevant courses of the programme into which the transfer is sought. Transfers are offered to students who have acquired a strong Level I record. (B+ average and above)
- 2.2 Students registered in the Faculties of Sciences and Technology on another Campus who have completed Level I of a degree programme are eligible for transfer to Level II in the School of Science, Computing and Artificial Intelligence at the Five Islands Campus.
- 2.3 Transfer may also be offered to any student registered in any other Faculty of the University of the West Indies and who has successfully completed the Level I prerequisites to Levels II & III courses in the area of intended major or special and has also completed the required Foundation Course(s).
- 2.4 Consideration for transfer will not be given to students in the year they were accepted to the Faculty. Students may, upon receipt of an offer from the Admission Office, choose to reject that initial offer and immediately request their desired Major.
- 2.5 Students approved for transfer must pursue the programme requirements outlined in the Handbook for the year approval was granted.

3. COURSE OF STUDY

Candidates for any of the degree programmes must pursue a course of study comprising at least ninety (90) credits at least thirty(30) credits at Level I and at least sixty (60) credits at Levels II and III. The Faculty Board may require that the timing of registration in particular courses be such as to ensure that the course of study extends over either at least five (5) semesters and two (2) summer school sessions or six (6) semesters.

LEVEL I REQUIREMENTS

- 3.1 Students MUST complete ALL the requirements for Level I and Level II/III of their degree programme as indicated here.

Level I consists of a minimum of thirty (30) credits or ten (10) three 3-credit Level I courses, depending on the choice of degree i.e. a single major, a double major, one (1) major and one (1) or two (2) minors or a special. The choice made will determine whether or not additional courses must be taken.

Requirements for Level I of the degree are as follows:

- a. Three (3) University foundation courses
- b. Prerequisites for Level II courses and/or free electives
- c. Any other courses designated by the respective departments which are not included in the above.

UNIVERSITY FOUNDATION COURSES

- 3.2 As of 1998-99 all students registered in the University of the West Indies will be required to complete a minimum of nine (9) credits of Foundation Courses including MGMT1000 Introduction to Computers.

Foundation courses are University-wide courses and they are designed to promote sensitivity to and awareness of distinctive characteristic features of Caribbean cosmologies, identities and cultures.

- a. FOUN1006 Exposition for Academic Purposes
- b. FOUN1008 Introduction to Professional Writing
- c. FOUN1101 Caribbean Civilization
- d. FOUN1201 Science, Medicine and Technology in Society
- e. FOUN1301 Law, Governance, Economy and Society

Any other course approved for the purpose by the Board of Undergraduate Studies

Students registered in the School of Science, Computing and Artificial Intelligence will be required to include among such Foundation Courses FOUN1008 Introduction to Professional Writing or FOUN1006 Exposition for Academic Purposes.

The elective Foundation course, FOUN1301 Law, Governance, Economy and Society, will count for credit in the programme of the School of Science, Computing and Artificial Intelligence for persons pursuing Computer Sciences or Information Technology based programmes.

Exemption in whole or in part from the requirements under [3.2(a- e)] may be granted from time to time by the Board for Undergraduate Studies.

4. REQUIREMENTS FOR ENTRY TO LEVELS II AND III

- Students are required to satisfy pre-requisites for Levels II and III courses
- A minimum of twenty-four (24) credits at Level I including eight core courses is required to progress to Level II.

5. REQUIREMENTS FOR THE AWARD OF THE DEGREE

5.1 In order to qualify for the award of a degree a student must:

- Have completed a minimum of ninety (90) credits (normally equivalent to thirty (30) semester courses)
- Have completed at least thirty (30) credits from Level I semester courses (including the Foundation Course requirements), and at least sixty (60) credits from Levels II and III semester courses

Students registering for more than twenty (20) Level II/III courses must indicate in writing which of the additional courses are “not for credit at the time of registration”. Students will not be permitted to register for “not for credit” courses after satisfying the requirements for the award of the degree.

5.2 Degrees are offered in the following categories:

Special Major

5.2.1 The degree majors with which the above minors may be combined will be approved by the Faculty Board and Board for Undergraduate Studies and listed as programme offerings in the School’s Handbook.

5.2.2 Students may also request to combine a School of Science, Computing

and Artificial Intelligence major with a minor offered by another School. To do this, the permission of the Director of Academic Affairs of both Schools must be sought and obtained.

5.2.3 A student may with the permission of the Director of Academic Affairs change any major, special or minor for which that student is registered.

6. REGULATIONS FOR FULL-TIME PROGRAMME

A full-time student:

- (a) Shall complete the degree programme in no more than eleven (11) semesters and five (5) summer school sessions;
- (b) Will, unless the Academic Board approves otherwise on the recommendation of the Faculty Board, be required to register for ten (10) semester courses in any one year and five (5) semester courses in any one semester. Permission may be sought for no more than one (1) additional course per semester by any student who needs that one (1) course for completion of the requirements for the degree or who has been awarded a grade of A as the examination mark for more than half of the courses for which that student has been examined when registered in the Faculty.
- (c) Will be required to withdraw from the Faculty unless he/she has gained at least:
 - fifteen (15) credits at the end of the second semester
 - thirty-three (33) credits at the end of the fourth semester
 - fifty-one (51) credits at the end of the sixth semester
 - sixty-nine (69) credits at the end of the eighth semester

N.B. Credits gained from courses done in another programme will not be counted towards the rate of progress.

7. REGULATIONS FOR PART-TIME PROGRAMME

7.1 (a) A part-time programme is offered for Level I of the B.Sc. degree at Five Islands Campus. Level II and III are available in all programmes offered at the Five Islands Campus.

(b) The Faculty Board may require that the timing of registration in particular courses be such as to ensure that the course of study for the Level I programme extends over at least three (3) semesters inclusive of one (1) summer school

session. At the Five Islands Campus, usually part-time students will complete a maximum of six (6) courses in the first year, eight (8) courses or (24 credits) in level 2, eight (8) courses in the third year and eight (8) courses in their fourth year. Part-time students can register for up to three (3) courses or (9 credits) in Summer School.

7.2 A part-time student will be required to withdraw from the School unless he/she has gained:

- six (6) credits at the end of the second semester
- eighteen (18) credits at the end of the fourth semester
- twenty-four (24) credits at the end of the sixth semester
- thirty-nine (39) credits at the end of the eighth semester
- fifty-four (54) credits at the end of the tenth semester
- seventy-two (72) credits at the end of twelfth semester
- ninety (90) credits at the end of the fourteenth semester

(a) Part-time students shall usually be expected to register for a maximum of eighteen (18) credits (6 courses) in the first year and a maximum of nine (9) credits (3 courses) in any one semester.

(b) Upon acquiring fifteen (15) credits at level 1 with a GPA 3.0 or above, a part-time student may then register as a full time student (Allowed 12 credits/4 courses per Semester).

(c) A part-time student may be allowed to register for twenty-one (21) credits if he/she has maintained a minimum GPA of 3.3. Finalizing part-time students may also be allowed to register for twenty-one (21) credits.

(d) Part-time in the School is defined by a student's workload per semester and does not mean evening studies. While some Level I courses are offered in the evening, the majority of the courses at Levels II and III are taught during the day only. Thus, students registered part-time must be prepared to attend classes between 8 a.m. and 9 p.m.

(e) Once a Part-time student transfers into the Full-time programme, he/she is required to maintain the rate of progress mandated for the Full-time programme.

N.B. Credits gained from courses done in another programme will not be counted towards the rate of progress.

8. REGULATIONS FOR GPA STUDENTS

(a) Except where otherwise prescribed in Faculty Regulations, a student whose GPA for a given semester is less than or equal to 2.00 shall be deemed to be performing unsatisfactorily and shall be placed on warning. A student on warning whose GPA for the succeeding semester is less than 2.00 will be required to withdraw.

(b) A student on warning shall be counselled by the Director of Academic Affairs or a designated faculty advisor. Such a student may, except where otherwise prescribed in Faculty Regulations, be permitted by the Academic Board on the recommendation of the Faculty Board to carry a reduced course load.

9. REGISTRATION/EXAMINATIONS

(a) Students will be examined during each semester and the summer session in the courses for which they are registered.

(b) A course may be examined by one or more of the following methods:

(i) written examination papers

(ii) oral (under the conditions in Regulation 1 below)

(iii) practical examinations

(iv) coursework (which may include written in-course tests, practical work, dissertations, essays, projects, studies and other forms of coursework exercises as approved by the Faculty Board, or the Campus Committee on Examinations as appropriate).

(c) A student failing a course may subject to the rate of progress requirements of these Regulations be allowed to substitute another approved course in a subsequent semester or repeat the failed course.

(d) All optional courses (electives) listed in the various degree programmes in the Faculty Handbook will not necessarily be available in any one year.

(e) Deadlines for changes of registration including withdrawal from or addition of courses will be as prescribed in University Regulations.

(f) Registration for a course constitutes registration for the examination in that course.

(g) A student who does not take an examination in a course for which he/she is registered is deemed to have failed that examination unless permission to be absent has been granted.

- (h) A student who, on grounds of illness or in other special circumstances as referred to in Examination Regulations fails to take an examination in a course for which he/ she is registered, may be given special consideration by the Board of Examiners to take examination at the next available opportunity, without penalty
- (i) Students are asked to pay special attention to Examination Regulation which states:

“Any candidate who has been absent from the University for a prolonged period during the year for any reason other than illness or whose attendance at prescribed lectures, classes, practical classes, tutorial or clinical instructions has been unsatisfactory or who has failed to submit essays or other exercises set by his teachers may be debarred by the relevant Academic Board, on the recommendation of the relevant Faculty Board, from taking any University examinations.”

10. ORAL EXAMINATIONS FOR FINAL YEAR STUDENTS

- (a) The Board of Examiners may recommend to the School concerned that a student who has failed the last one (1) or two (2) course(s) required to complete the degree be offered an Oral Examination in that one (1) or those two (2) courses provided that he/she has obtained in each instance a mark of at least 45% for the course(s). If an Oral Examination is granted the student may choose to decline the offer.

The Oral Examination, which will be of maximum length of one hour, will be held as soon as possible after the previous examination and within the academic year in which the student is expected to graduate. The student must contact the department concerned immediately so that arrangements may be made for the Oral Examination.

- (b) The Oral Examination will concern the course as a whole, and not be restricted to the questions set in the examination which the student did. The First Examiner and at least one (1) other must be present at an Oral Examination.
- (c) If the examination is passed, the student cannot be awarded a grade higher than 50 – C and this grade will replace that previously gained for the entire evaluation in that course.
- (d) If he/she fails the Oral, the student will not have any right of appeal or review.

11. EXAMINATIONS ONLY

- (a) Final year students failing one (1) or two (2) (but no more than two) courses may apply to register for “Exams Only” in the course(s).
- (b) The candidate’s assessment will be based entirely on the examinations which will count for 100%.

12. COURSEWORK

- (a) In the case of examination by coursework, only a student gaining an overall mark higher than 50% but passing in only one component will be required to repeat at the next available sitting the failed component.
- (b) A student who is absent from a coursework examination may apply to the Head of School for exemption from this examination no later than one (1) week following the date of this examination. He/she must at the same time submit to the Campus Registrar justification for such absence (such as, in case of illness, a medical certificate complying with any applicable Examination Regulations). The Head shall consider any such request for exemption in consultation with the relevant Head of School and course lecturer. If the exemption is granted, the candidate’s assessment will be based entirely on the final examination.
- (c) A student may request to submit coursework assignments, essays, etc. after the stipulated deadline date on the basis of appropriate justification (such as, in case of illness, a medical certificate complying with any applicable Examination Regulations). This request must be made within 48 hours after the stipulated deadline date and must be addressed to the Director of Academic Affairs, who in consultation with the relevant Head of School and course lecturer may allow the extension. The Director of Academic Affairs, acting on advice of the relevant Head of School and course lecturers, may consider requests for extension of the coursework assignment, essays etc. If the extension is not granted the student will not be given any special consideration and will be graded based on both coursework and final examination.
- (d) If a student misses an examination for medical reasons or other extenuating circumstance approved by the Board of Examiners, he/she will be obliged to register again for the full course. However the Faculty may allow the student’s coursework/mid-term marks (if the coursework is within one academic year) to be applied and he/she will only have to attend classes and write the final examination.

13. LEAVE OF ABSENCE

- (a) A candidate who for good reason wishes to be absent from an academic programme for a semester or more must apply for formal leave of absence to the Campus Faculty Board, through the appropriate Head of School stating the reason for the application.
- (b) The length of such leave of absence, if granted, will be subject to approval by the Academic Board of the Campus concerned, but will not exceed one academic year in the first instance terminating at the end of the academic year for which the application is approved.
- (c) Leave of absence will not be granted for more than two (2) consecutive academic years.
- (d) Leave of absence may be granted for one semester or for an academic year.
- (e) Applications for leave of absence for a semester shall normally be submitted by the end of the third week of the relevant semester.
- (f) Applications for leave of absence for the academic year shall normally be submitted the end of the third week of semester I.

Note: Students who have been attending classes and then apply for Leave of Absence after the deadline date are liable for payment of full tuition fees for the semester/ academic year whether they sit examinations or not.

14. WITHDRAWAL

- (a) A student whose GPA for a given semester is less than or equal to 2.00 shall be deemed to be performing unsatisfactorily and shall be placed on warning. A student on warning whose GPA for the succeeding semester is less than 2.00 will be 'Required to Withdraw' (RTW).
- (b) A candidate who has been required to withdraw from the Faculty may apply to the Faculty for re-admission one (1) year after withdrawal. Each case will be considered on its own merit, but will only succeed if the Faculty is satisfied that the circumstances attending the reasons for the withdrawal have been altered substantially.
- (c) Students thus admitted to a Faculty may in accordance with its regulations be granted exemption from Level I courses subject to there being no change in the content of the courses and provided that no more than five (5) years have elapsed since the date of withdrawal. Level II University courses, for the purposes of exemption may be treated in the same way as Level I Faculty courses.

- (d) Students from one (1) Faculty who had been required to withdraw from the University for failing to complete their degree programme within the stipulated period may be admitted to another Faculty after a minimum period of one (1) year had elapsed since their withdrawal. Such students may be granted exemption from Level I courses relevant to the new programme subject to regulations (b) and (c) above.

15. AWARD OF DEGREES

15.1 Notification of Results

For those candidates who have completed the requirements of the B.Sc. degree a pass list shall be published and arranged alphabetically in the following categories:

- First Class Honours
- Second Class Honours
 - Upper Division
 - Lower Division
- Pass

16. GRADE POINT AVERAGE SYSTEM

- (a) These regulations shall apply to all students admitted to the University commencing academic year 2003-2004.
 - (i) The class of degree to be awarded shall be determined on the basis of a weighted Grade Point Average (GPA).
 - (ii) In the calculation of the weighted GPA a weight of zero shall be attached to all Level I courses.
 - (iii) Levels II and III courses shall have equal weight in the determination of the weighted GPA.
 - (iv) Core courses satisfying the requirements of specials, majors and minors must be taken into account in the determination of the weighted GPA.
 - (v) A course designated at not-for-credit (NFC) shall not count in the determination of the weighted GPA.

(vi) The class of degree shall be awarded as follows:

- First Class Honours – Weighted GPA of 3.6 and above
- Second Class Honours – Upper Division – Weighted GPA 3.00 – 3.59
- Second Class Honours – Lower Division – Weighted GPA 2.50 – 2.99
- Pass – Weighted GPA 2.00 – 2.49

17. MARKING SCHEME FOR EXAMINATION IN THE SCHOOL OF BUSINESS AND MANAGEMENT

In the determination of GPA, the grades with corresponding quality points shall be as defined in the University Regulations governing the GPA.

The authorized marking scheme is as follows:

REVISED GRADE DEFINITIONS W.E.F. 1 AUGUST 2020

Grade	% Range	Grade Point	Grade Definition	Grade Description
A+	90 –100	4.3	Exceptional	Demonstrates exceptional performance and achievement in all aspects of the course. Exceptional application of theoretical and technical knowledge that demonstrates achievement of the learning outcomes. Goes beyond the material in the course and displays exceptional aptitude in solving complex issues identified. Achieves the highest level of critical, compelling, coherent and concise argument or solutions within the course.
A	80–89	4.0	Outstanding	Demonstrates outstanding integration of a full range of appropriate principles, theories, evidence and techniques. Displays innovative and/or insightful responses. Goes beyond the material with outstanding conceptualization, which is original, innovative and/or insightful. Applies outstanding critical thinking skills.

A-	75–79	3.7	Excellent	Demonstrates excellent breadth of knowledge, skills and competencies and presents these in appropriate forms using a wide range of resources. Demonstrates excellent evidence of original thought, strong analytical and critical abilities; excellent organizational, rhetorical and presentational skills.
B+	70–74	3.3	Very Good	Demonstrates evidence of very good critical and analytical thinking in most aspects of the course. Very good knowledge that is comprehensive, accurate and relevant. Very good insight into the material and very good use of a range of appropriate resources. Consistently applies very good theoretical and technical knowledge to achieve the desired learning outcomes.
B	65–69	3.0	Good	Demonstrates good knowledge, rhetorical and organizational skills. Good insight into the material and a good use of a range of appropriate resources. Good integration of a range of principles, techniques, theories and evidence.
B-	60–64	2.7	Satisfactory	Displays satisfactory evidence of the application of theoretical and technical knowledge to achieve the desired learning outcomes. Demonstrates sound organizational and rhetorical skills.
C+	55–59	2.3	Fair	Demonstrates fair breadth and depth of knowledge of main components of the subject. Fair evidence of being able to assemble some of the appropriate principles, theories, evidence and techniques and to apply some critical thinking.

C	50-54	2.0	Acceptable	Demonstrates acceptable application of theoretical and technical knowledge to achieve the minimum learning outcomes required in the course. Displays acceptable evidence of critical thinking and the ability to link theory to application.
F1	40-49	1.7	Unsatisfactory	Demonstrates unsatisfactory application of theoretical and technical knowledge and understanding of the subject. Displays unsatisfactory ability to put theory into practice; weak theoretical and reflective insight. Unsatisfactory critical thinking, organizational and rhetorical skills.
F2	30-39	1.3	Weak	Weak overall performance with very limited knowledge and understanding of the subject. Little evidence of theoretical and reflective insights. Weak organizational and rhetorical skills.
F3	0-29	0	Poor	Overall poor or minimal evidence of knowledge and understanding of the subject. Displays little ability to put theory into practice; lacks theoretical and reflective insights. Incomplete breadth and depth of knowledge on substantive elements of the subject. Little or no evidence of critical engagement with the material. Responses are affected by irrelevant sources of information, poor organizational and rhetorical skills.

18. CO-CURRICULAR CREDITS

- (a) Students will be eligible for no more than three (3) credits for involvement in co-curricular activities. The activities may be Campus specific.
- (b) Co-curricular credits will be awarded on the following basis:
 - Students must be involved in the activity for at least one (1) semester;
 - Explicit learning outcomes must be identified for each activity.
 - There must be clearly defined mode(s) of assessment for each activity
 - The Office of Student Services and the School of Education on each campus will administer the award of credits.
- (c) The grading of co-curricular credits will be pass/fail.
- (d) All co-curricular activities/programmes must be approved in advance by the Faculty and Academic Board.
- (e) Subject to Faculty Regulations, co-curricular credits will form part of the ninety (90) credits for a degree. However, in special circumstances, if credits are earned in excess of those required for the degree, these and the associated activity will be included on the student's transcript.

19. AEGROTAT DEGREE

- (a) A candidate taking examinations in respect of a final degree, diploma or certificate programme and who had been absent through illness from one or more papers, may apply for the award of an aegrotat degree, diploma or certificate on the following conditions.
- (b) Where the final examination is in two (2) or more parts (the award of the degree, diploma or certificate depending on performance in each of these parts) and he/she has successfully completed the first one (1) or two (2) parts or more than half of the final part, but has been absent from the remainder of the examinations for the final part.
- (c) Where the final examination is in two or more parts (the award of the degree, diploma or certificate depending on performance in each of these parts) and he/she has successfully completed the first one or two parts or more than half of the final part, but has been absent from the remainder of the examinations for the final part.
- (d) Where the final examination is in two parts and the student has completed the first part (level II) with a **B** average or higher and his course work during the

final year of the course has been of a consistently high standard, but he/she has been absent from the other part of the examinations.

(e) The Examiners consider that in the work which the candidate has submitted at such of the final examination as he/she had attended, he/she reached a standard which, if also reached in the remainder of the examination, would have qualified him/her for the award of a degree, diploma or certificate.

19.1 All applications for an aegrotat degree, diploma or certificate must be referred by the Registrar to the Faculty Board of Examiners and the Board for Examinations for a recommendation to the Board of Undergraduate Studies (BUS). Applications from or on behalf of candidates must be accompanied by a medical certificate signed by medical personnel appointed for this purpose by the University, and shall reach the Registrar not later than thirty days from the last examination paper written by the candidate.

19.2 In assessing an application for an aegrotat degree, diploma or certificate, reports from Heads of School on the candidates work should be taken into consideration. Oral examinations, where possible, by internal examiners may be an aspect of examinations for the award of an aegrotat degree.

19.3 An aegrotat degree, diploma or certificate will be awarded without distinction or class.

19.4 Holders of an aegrotat degree, diploma or certificate will not be permitted to re-enter for the same examination but may proceed to a higher degree if accepted by the Board for Graduate Studies and Research

Revised August 2020 - Grading Policy

Grade	Quality Points	Mark%
A+	4.3	90-100
A	4.0	80-89
A-	3.7	75-79
B+	3.3	70-74
B	3.0	65-69
B-	3.0	60-64
C+	2.3	55-59
C	2.0	50-54
FI	1.7	40-49
F2	1.3	30-39
F3	0	0-29

The following designations may be assigned, but shall not be used in the calculation of Grade Point Average:

PC: Preliminary Credits - used for matriculation purposes or the satisfying of prerequisites only

EX: Exemption

EI: Examination Irregularity - Candidate disqualified from examination on account of breach of the Regulations

EQ: Examination Query

The following designations may be assigned and shall count towards the GPA:

FA: When a student is absent from an examination without a valid reason

FC: Failed Coursework - indicates that a candidate has failed to satisfy the Examiner in the coursework component of the course

FE: Failed Examination - when a candidate has successfully completed the coursework requirement but has failed to satisfy the Examiners in the examination component of the course

AM: Absent Medical

IM: Incomplete Medical

V: Audited - when the course has been taken in accordance with Regulation 14

NV: When a student has been permitted to audit a course but has not done so satisfactorily

P: Pass - a pass obtained in a course taken on a Pass/Fail basis

F: Fail

I: Incomplete - indicated that the student has made progress in a course but at the end of the semester has not finished the work required to receive a letter grade. An I designation is not counted in credit hours earned, or quality hours until a letter grade is reported. If neither a letter grade nor notification of an extension of time is received by the Registry from the Office of Director of Academic Affairs, the 'I' designation is replaced by an F letter grade at the end of the first six weeks into the next semester. An extension of time may be granted but shall not normally extend beyond the end of the semester in which the extension is granted. Any remaining I symbol at the end of the period of extension will be deemed an F.

NR: Not Reported – Grade not yet available.

IP: In Progress – when a dissertation, thesis, project, student teaching, practicum, internship, proficiency requirement, or other course intended to last more than one semester is not completed during the semester in which the student is

1. The scheme to be used for conversion of numerical marks to letter grades shall be as prescribed in Faculty regulations as follows:

Revised August 2020 Grading Policy

Grade	Quality Points	Mark%
A+	4.3	90-100
A	4.0	80-89
A-	3.7	75-79
B+	3.3	70-74
B	3.0	65-69
B-	3.0	60-64
C+	2.3	55-59
C	2.0	50-54
F1	1.7	40-49
F2	1.3	30-39
F3	0	0-29

2. The courses to be used for the purpose of determining the Weighted GPA for the class of degree to be awarded shall be as prescribed in the School's Regulations.

3. Where a course has been repeated, the penalty to be applied for failure and the grade to be used in the computation of the student's GPA if the course is subsequently passed shall be as prescribed in Faculty Regulations.

4. For the purpose of determining the Weighted GPA, failed courses shall be treated as prescribed in the School's Regulations.

5. (i) Where credit for a course taken at another institution is requested, it is the student's responsibility to provide all the information needed by the University to enable it to assess the course.

Credit hours earned from another institution at the time of admission to the University of the West Indies will not be used in the computation of a grade point average.

6. (i) The following shall apply to credits earned by a UWI undergraduate from another approved institution:

A UWI student who wishes to take academic courses elsewhere and apply those credits toward the UWI degree must obtain approval in advance from the relevant Academic Board on the recommendation of the Board of the Faculty in which he/she is registered.

A student must have obtained a minimum UWI GPA of 3.00 to be approved to take courses as an exchange/transfer student.

(ii) Only the grade equivalent as determined by the Board for Undergraduate Studies of the results achieved and not the marks or grades so earned at another institution shall be used in the computation of the student's GPA.

7. (i) Except where otherwise prescribed in the School's Regulations, a student whose GPA for a given semester is less than or equal to 2.00 shall be deemed to be performing unsatisfactorily and shall be placed on warning. A student on warning whose GPA for the succeeding semester is less than 2.00 will be required to withdraw. However, a student may be reinstated if his/her GPA improves beyond 2.00 by credits obtained in Summer School. The credits would then be rolled into the GPA of the preceding Semester of the academic year.

(ii) A student on warning shall be counselled by the Director of Academic Affairs or a designated faculty advisor. Such a student may, except where otherwise prescribed in the School's Regulations, be permitted by the Academic Board on the recommendation of the Faculty Board to carry a reduced course load.

8. (i) A registered student may be permitted to audit a course on the approval of the Director of Academic Affairs and the Head of School.

(ii) Auditing means recorded attendance at the lectures, tutorials and laboratory sessions for a given course without the requirement of sitting the final exam.

(iii) Satisfactory attendance certified by the Head of School shall be awarded the designation V. In absence of such certification, the designation NV shall be recorded

(iv) No academic credit may be granted for auditing a course.

9. (i) A student who voluntarily withdraws from the University and who applies for re-admission within five (5) years shall be granted exemption and credit for courses previously passed, subject to the time limit for the

maintenance of credits stipulated in the relevant School's Regulations and subject to the stipulation that the courses previously passed are not determined by the Board of the relevant Faculty to be obsolete.

- (ii) Where exemption and credit are granted in accordance with (i), the grades obtained at previous attempts at such courses shall be used in the determination of the student's GPA.
10. (i) A student who was required to withdraw for reasons of failure to progress as prescribed in Faculty Regulations may be readmitted on the following conditions:
 - (ii) A minimum of one (1) year must have passed since the date of withdrawal;
 - (iii) All grades previously obtained shall continue to apply for the purpose of determining the student's GPA;
 - (iv) Work done during the period between the students being required to withdraw and being granted readmission may be eligible for credit under Regulation 11.
 11. Where there is a conflict between Faculty Regulations and these regulations, these Regulations shall apply.

HOW TO CALCULATE YOUR WEIGHTED GPA

STEP ONE: A 'grade point' is assigned for every course in which you receive a final grade. For example, if you receive an A as a final grade, you will be assigned a grade point of 4.0.

STEP TWO: The grade point assigned for each course completed is multiplied by the 'credit hours' of the course to determine your 'quality points'. For example, if you receive a grade point of 3.7 [equivalent of letter grade A-] for a 3-credit course the quality points would be calculated as follows: $3.7 \times 3 = 11.1$ quality points.

STEP THREE: Your 'Weighted GPA' is the average obtained by dividing the total quality points earned in your programme to date by the total credit hours taken, excluding courses taken on a pass/fail basis, audited courses, courses taken for preliminary credit, incomplete courses and any other courses which do not count towards the class of degree according to Faculty regulations.

For example: 54 quality points earned divided by 15 credit hours [equivalent to 5 3-credit courses] = a Weighted GPA of 3.6.

UNIVERSITY REGULATIONS ON PLAGIARISM (FIRST DEGREES, DIPLOMAS AND CERTIFICATES)

Application of these Regulations

1. These Regulations apply to the presentation of work by a student for evaluation, whether or not for credit, but do not apply to invigilated written examinations.

Definition of Plagiarism

2. In these Regulations, “plagiarism” means the unacknowledged and unjustified use of the words, ideas or creations of another, including unjustified unacknowledged quotation and unjustified unattributed borrowing.

“Level 1 plagiarism” means plagiarism which does not meet the definition of Level 2 plagiarism;

“Level 2 plagiarism” means plagiarism undertaken with the intention of passing off as original work by the plagiariser work done by another person or persons.

3. What may otherwise meet the definition of plagiarism may be justified for the purposes of Regulation 2 where the particular unacknowledged use of the words, ideas and creations of another is by the standards of the relevant academic discipline a function of part or all of the object of the work for evaluation whether or not for credit, for example:
 - (a) The unacknowledged use is required for conformity with presentation standards;
 - (b) The task set or undertaken is one of translation of the work of another into a different language or format;
 - (c) The task set or undertaken requires producing a result by teamwork for joint credit regardless of the level of individual contribution;
 - (d) The task set or undertaken requires extensive adaptation of models within a time period of such brevity as to exclude extensive attribution;
 - (e) The task set or undertaken requires the use of an artificial language, such as is the case with computer programming, where the use of unoriginal verbal formulae is essential.
4. It is not a justification under Regulations 2 and 3 for the unacknowledged use of the words, ideas and creations of another that the user enjoys the right of use of those words ideas and creations as a matter of intellectual property.

Other Definitions

5. In these Regulations, - “Chairman” means the Chairman of the relevant Campus Committee on Examinations; - “Examination Regulations” means the Examination and other forms of Assessment Regulations for First Degrees, Associate Degrees, Diplomas and Certificates of the University; - “set of facts” means a fact or combination of facts. Evidence of plagiarism
6. In order to constitute evidence of plagiarism under these Regulations, there shall be identified as a minimum the passage or passages in the student’s work which are considered to have been plagiarised and the passage or passages from which the passages in the student’s work are considered to have been taken.

Student Statement on Plagiarism

7. When a student submits for examination work under Regulation 1, the student shall sign a statement, in such form as the Campus Registrar may prescribe, that as far as possible the work submitted is free of plagiarism including unattributed quotation or paraphrase of the work of another except where justified under Regulation 3.
8. Quotation or paraphrase is attributed for the purpose of Regulation 7 if the writer has indicated using conventions appropriate to the discipline that the work is not the writer’s own.
9. The University is not prohibited from proceeding with a charge of plagiarism where there is no statement as prescribed under Regulation 7.

Electronic vetting for plagiarism

10. The results of any electronic vetting although capable, where the requirements of Regulation 7 are satisfied, of constituting evidence under these Regulations, are not thereby conclusive of any question as to whether or not plagiarism exists.

Level 1 Plagiarism

11. In work submitted for examination where the Examiner satisfied that Level 1 plagiarism has been committed, he/ she shall penalise the student by reducing the mark which would have otherwise been awarded, taking into account any relevant School regulations.

Level 2 plagiarism

12. Where an examiner has evidence of Level 2 plagiarism in the material being examined, that examiner shall report it to the Head of School or the Director of Academic Affairs and may at any time provide the Director of Administrative Affairs with a copy of that report. In cases where the examiner and the Head are one and the same, the report shall be referred to the Director of Academic Affairs and also to the Director of Administrative Affairs.
13. Where any other person who in the course of duty sees material being examined which he or she believes is evidence of Level 2 plagiarism that other person may report it to the Head of School or the Director of Academic Affairs and may at any time report it to the Director of Administration who shall take such action as may be appropriate.
14. Where a Head of School receives a report either under Regulation 12 or 13, the Director of Academic Affairs or Head of School, as the case may be, shall:
 - (a) where in concurrence with the report's identification of evidence of Level 2 plagiarism, report the matter to the Director of Administration; or
 - (b) where not concurring in the identification of evidence of plagiarism, reply to the examiner declining to proceed further on the report; or
 - (c) where concluding that there is evidence of Level 1 plagiarism, reply to the examiner indicating that conclusion and the Examiner shall proceed as under Regulation 11.
15. Where a report is made to the Director of Administration under Regulation 14a or 16, the Director of Administration shall lay a charge and refer the matter to the Campus Committee on Examinations.
16. Where the Director of Administration receives a report alleging Level 2 plagiarism from the Examiner or any other person except the Director of Academic Affairs or Head of School, the Director of Administration shall refer the matter to a senior academic to determine whether there is sufficient evidence to ground a charge of plagiarism and where such evidence is found, the Director of Administration shall proceed as under Regulation 15.
17. Where the matter has been referred to the Campus Committee on Examinations pursuant to Regulation 15, proceedings under these Regulations prevail over any other disciplinary proceedings within the University initiated against the student based on the same facts and, without prejudice to Regulation 21, any other such disciplinary proceedings shall be stayed, subject to being reopened.

18. If the Campus Committee on Examinations is satisfied, after holding a hearing, that the student has committed Level 2 plagiarism, it shall in making a determination on the severity of the penalty take into consideration:
 - (a) the circumstances of the particular case;
 - (b) the seniority of the student; and
 - (c) whether this is the first or a repeated incidence of Level 2 plagiarism.
19. Where the Campus Committee is of the view that the appropriate penalty for an offence of Level 2 plagiarism is for the student to be:
 - (i) awarded a fail mark;
 - (ii) excluded from some or all further examinations of the University for such period as it may determine;
 - (iii) be dismissed from the University, it shall make such recommendation to the Academic Board.

Clearance on a Charge of Level 2 Plagiarism

20. A determination of the Campus Committee on Examinations that Level 2 plagiarism has not been found will be reported to the Director of Administration who shall refer it to the Examiner and notify the student. Where the Committee has not identified Level 2 but has identified Level 1, it shall be reported to the Director of Administration who shall refer it to the Examiner.

Level 2 plagiarism: Appeal to the Senate

21. A student may appeal to the Senate from any decision against him or her on a charge of plagiarism made by the Academic Board.

Delegation by Director of Academic Affairs or Head of School

22. The Director of Academic Affairs or Head of School, as the case may be, may generally or in a particular instance delegate that officer's functions under these Regulations.

Conflict of Interest Disqualification

23. Any person who has at any time been an Examiner of work or been involved in procedures for laying charges in relation to which an issue of plagiarism is being considered under these Regulations shall withdraw from performing any functions under these Regulations other than those of Supervisor and Examiner.

REGULATIONS FOR THE DEGREE OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

All students of the University are subject to the University Regulations for Students approved by the Senate of the UWI.

Where there is conflict between the regulations of any School and the University Regulations, the University Regulations shall apply.

A. QUALIFICATION FOR ADMISSION

1. In order to be admitted to the **three-year degree programme**, candidates must satisfy the University requirements for Matriculation (see *The UWI University Regulations for Students*) and have passed Mathematics and two approved science subjects at CSEC General Proficiency level at Grades I, II or, since 1998, Grade III (or equivalent qualification)

and

- a. Have obtained passes in four (4) Units at CAPE, at least two (2) Units in one (1) subject, all at Grade V or better (or equivalent qualification). One of the CAPE subjects must be an Approved Science subject.

or

- b. Have an approved Associate Degree with a GPA of 2.5 (or equivalent qualification) or higher, from a Tertiary Level Institution.

(N.B. Candidates must also satisfy Departmental Requirements).

2. In order to be admitted to the **four-year degree programme**, candidates must satisfy the University requirements for Matriculation (see *The UWI University Regulations for Students*) and have passed Elementary Mathematics at CSEC General Proficiency level at Grades I, II or, since 1998, Grade III (or equivalent qualification) plus at least two of the disciplines listed.

B. OUTLINE OF THE DEGREE PROGRAMME

3. The degree of B.Sc. is awarded on the basis of a programme of studies comprising combinations of courses in Science disciplines, together with certain Foundation courses.
4. The School of Science, Computing and Artificial Intelligence (SoSCAI) offer the following Bachelors degrees in Science:
 - a. **A degree with a single Major** (30 credits minimum from Levels 2 and 3)

or a **double Major** in one (1) or two (2) Science disciplines (2 x 30 credits minimum or 1 x 60 credits minimum, from Levels 2 and 3).

b. A degree with a **single Major** in a Science discipline **plus**

- (i) one (1) or two (2) Minors from other distinct Science disciplines (each with **15** credits minimum from Levels 2 and 3)
- (ii) a Major, or one (1) or two (2) Minors, from other Faculties. Out-of-School Majors and Minors are governed by the regulations of the School of origin. Only certain such combinations are allowed and these are considered Option.

5. The following types of courses, which may consist of both theoretical and practical parts, are offered by the University:

- a. Courses taught by the SoSCAI faculty include Preliminary (Level 0) and Levels 1, 2 and 3 courses. (Preliminary courses may be used to satisfy entry requirements of Regulation 1 above, but do not contribute towards the requirements for the award of a degree.)

- b. **Service courses**, which provide students with basic techniques and skills needed for dealing with the academic programme.

- c. Approved **Out-of-School courses** which may contribute toward the requirements for the award of a degree.

- d. **Foundation courses** which are given throughout the University to augment the general education of students.

- e. **Co-curricular activities** approved for credit by the Academic Board. A maximum of **three (3)** credits of co-curricular activities may be included as part of the credits required for the award of a degree, but shall not be taken into account in the determination of the Cumulative GPA or the class of degree. They may not be substituted for Foundation Courses. Co-curricular credits gained in excess of three (3) will be entered on the student's transcript but will not contribute toward the requirements for the degree.

6. Courses normally extend over no more than one (1) semester, but in special cases may extend over two (2) semesters. The contact hours for a course are expressed in terms of Credit Hours (credits) and the credit-rating of a course is determined by the Faculty which administers the course.

7. In order to be eligible for award of the degree, candidates **must**:

- a. have been in satisfactory attendance for a period equivalent to at least six (6) semesters of full-time study from entry into Level 1;

and

b. have passed courses totalling a minimum of ninety-three (93) credits from Level 1, 2 and 3 School and Foundation courses for the degree as follows:

- Level 1 24
 - Level 2 and Level 3 60
 - Foundation courses 9
 - Total 93
- A minimum of twelve (12) credits at Level 1 and thirty (30) credits at Levels 2 and 3 must be taken from in-School courses.
 - Specific Options, or Cross-School programmes, may require more than ninety-three (93) credits.
 - A Degree GPA of at least 2.00.

C. REGISTRATION

8. A student pursuing a degree in SoSCAI may register full-time or part-time. A student who is in full-time employment may pursue a degree on a part-time basis only.
9. Students must register for courses at the beginning of the academic year. Time limits governing changes in registration are as outlined in the student handbooks for each Campus. A student is deemed to be registered for a course only after his/her financial obligations to the University have been fulfilled.
10. Registration for any course (except audited courses) automatically implies entry for the associated examinations. A student who fails to attend the examinations without having previously withdrawn from the course, or without having tendered evidence of illness at the time of the examinations, certified by a medical practitioner recognized by the University, will be deemed to have failed the course. Medical certificates must reach the Campus Registrar no later than seven (7) days after the date of the examination concerned.
11. (a) A student who has passed a course will not be permitted to re-register for that course.
(b) Likewise, students may not register for Preliminary courses in a subject which overlaps substantially with any CAPE/GCE A-Level courses (or equivalent) previously passed.

D. PROGRESS THROUGH THE PROGRAMME

12. Students admitted into the four-year degree programme who have already obtained one CAPE/GCE A-level pass (or equivalent) in an approved science subject, may be permitted to register for up to nine (9) credits of Level 1 courses.
13. (a) Full-time Part I students are required to register for a minimum of twelve (12) credits from Faculty courses and Foundation course, per semester. A student registering for less than twelve (12) credits will be deemed to be a part-time student.
(a) In order to register for Level 2 courses, a student must normally pass a minimum of eighteen (18) credits in Level 1 School courses. At least twelve (12) of these credits must be from in-School courses.
(a) A student must not register for less than two (2) courses in any one semester, except with the permission of the Director of Academic Affairs.
(a) The normal load for a full-time student is fifteen (15) course credits per semester, plus one (1) Foundation course i.e.: 33 credits over Semester I & II.
14. The maximum number of credits for which a student may register in any one semester is eighteen (18) credits, if full-time, and eleven (11) credits, if part-time.
15. (a) Students must make a final declaration of their proposed major(s) and/or minor(s) by the end of the registration period of the semester in which they intend to graduate.
(b) Students **must** graduate as soon as they have met the requirements for the degree for which they are registered.

E. EXAMINATIONS

16. In order to pass a course, a student must have been in satisfactory attendance at the course and must have satisfied the examiners in the associated examinations.
17. The examination associated with each course shall be conducted mainly by means of written and/or practical papers, normally taken at the end of the semester in which the candidate has registered for the courses concerned. However, oral examinations as well as performance in course work in the form of essays, in-course tests, research papers, projects, or continuous assessment of theoretical and/or practical work may contribute towards the final grade awarded in a course.

18. (a) When practical papers and/or practical coursework contribute towards an examination, candidates must satisfy the examiners in both the theoretical and practical aspects of the course. On the basis of performance in the practical component of the course, a candidate may, on the recommendation of the Department concerned, be exempted from the practical part of the examination.
19. A candidate who marginally fails the examination associated with a Preliminary or Level I course may, if recommended by the relevant Department, be granted permission by the Board of Examiners to sit a Supplemental Examination. Such permission will be given on the basis of the performance of the candidate in the courses concerned.
20. A finalist who marginally fails a course needed for graduation, having satisfied the Departmental requirements, may, at the discretion of the Faculty Board of Examiners, be offered a Supplementary Oral. Any candidate who satisfies the examiners in a Supplementary Oral will be given the minimum passing grade in the course. No more than two (2) Supplementary Orals may be gained. However, a third oral examination may be granted to final year students in circumstances when passing a single course is all that is required. A Supplementary Oral precludes the student requesting a Remark.
21. A candidate who fails the examination associated with a course may be given permission to repeat the course and the examination on a subsequent occasion. In the event that such a candidate has satisfied the examiners in the coursework, the candidate may, on the recommendation of the relevant Department, be exempted from the coursework passed. If such a recommendation has been made, the candidate may apply to the Director of Academic Affairs for permission to take the examination without attending the course (Exam Only).
22. The Academic Board of a candidate's Campus on the recommendation of the Faculty Board concerned, may debar the candidate from writing the examination associated with a course if the candidate has not attended and/or performed satisfactorily in the course. **The grade for such a candidate will be recorded as Absent Fail.**

MAJOR IN COMPUTER SCIENCE

SEMESTER I

PRELIMINARY (6 Credits)

COMP0001	Preliminary Computer Science I
MATH0100	Pre Calculus

SEMESTER II

PRELIMINARY (6 Credits)

COMP0002	Preliminary Computer Science II
MATH0110	Calculus and Analytical Geometry

LEVEL I

COMP1170	Entrepreneurship for Computer Scientists
COMP1180	Mathematics for Computer Science I
COMP1205	Computing I
COMP1210	Computing II
COMP1215	UNIX

LEVEL II

COMP2210	Mathematics for Computer Science II
COMP2220	Computer System Architecture
COMP2225	Software Engineering
COMP2232	Object-Oriented Programming Concepts
COMP2611	Data Structures

LEVEL III (9 Credits)

COMP3310	Algorithms
COMP3320	Design Principles of Operating Systems
COMP3330	Database Management Systems I

AND at least Six (6) Credits (including at least one Level III course) from Computer Science Elective Courses:

COMP2235	Networks I
COMP2245	Web Development Concepts, Tools and Practices
COMP2410	Computing in the Digital Age

COMP2415	Information Technology Engineering
COMP2950	Computer Science Elective
COMP3360	Networks II
COMP3365	Networks III
COMP3450	Fundamentals of Artificial Intelligence
COMP3370	Software Engineering On A Large Scale
COMP3375	Software Testing and Quality
COMP3385	Framework Design For Advanced Web Development
COMP3412	Scalable Enterprise Web Applications
COMP3415	Database Management Systems II
COMP3420	Computer Graphics
COMP3425	Mobile Applications for iOS Devices
COMP3435	User Interface Design
COMP3440	E-Commerce
COMP3445	Computer Information Systems
COMP3490	Research Project in Computer Science
COMP3495	Major Research Project in Computer Science (6 Credits)
COMP3499	Group Research Project in Computer Science
COMP3955	Computer Science Internship

AND 9 CREDITS: FOUNDATION COURSES

FOUN1006 Exposition For Academic Purposes

OR

FOUN1008 An Introduction to Professional Writing

AND

*FOUN1101 Caribbean Civilization

*FOUN1301 Law, Economy, Governance and Society

*A student may substitute one of these with a Foreign Language course

MAJOR IN INFORMATION TECHNOLOGY

SEMESTER I

PRELIMINARY (6 Credits)

COMP0001	Preliminary Computer Science I
MATH0100	Pre Calculus

SEMESTER II

PRELIMINARY (6 Credits)

COMP0002	Preliminary Computer Science II
MATH0110	Calculus and Analytical Geometry

LEVEL I

COMP1170	Entrepreneurship for Computer Scientists
COMP1180	Mathematics for Computer Science I
COMP1205	Computing I
COMP1210	Computing II
COMP1215	UNIX

LEVEL II

COMP2225	Software Engineering
COMP2232	Object-Oriented Programming Concepts
COMP2410	Computing in the Digital Age
COMP2415	Information Technology Engineering
COMP2611	Data Structures

LEVEL III

COMP3330	Database Management Systems I
COMP3415	Database Management Systems II
COMP3435	User-Interface Design

AND at least Six (6) Credits (including at least one Level III course) from Information Technology Elective Courses:

COMP2210	Mathematics for Computer Science II
COMP2220	Computer System Architecture
COMP2235	Networks I

COMP2245	Web Development Concepts, Tools and Practices
COMP2950	Computer Science Elective
COMP3310	Algorithms
COMP3320	Design Principles of Operating Systems
COMP3360	Networks II
COMP3365	Networks III
COMP3450	Fundamentals of Artificial Intelligence
COMP3370	Software Engineering On A Large Scale
COMP3375	Software Testing and Quality
COMP3385	Framework Design For Advanced Web Development
COMP3412	Scalable Enterprise Web Applications
COMP3420	Computer Graphics
COMP3425	Mobile Applications for iOS Devices
COMP3440	E-Commerce
COMP3445	Computer Information Systems
COMP3490	Research Project in Computer Science
COMP3495	Major Research Project in Computer Science (6 Credits)
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COMPUTER SCIENCE & INFORMATION TECHNOLOGY COURSES DETAIL

PRELIMINARY COMPUTER SCIENCE COURSES

COMP0001 - PRELIMINARY COMPUTER SCIENCE I (6 Credits)

Prerequisite: None

Syllabus: Fundamentals of Information Technology; Relating IT and other Computing disciplines. Distinguish between data and information; Fundamentals of Computer Architecture The components of computer-based systems; Functional components of a computer system (characteristics, performance and interactions Problem Solving with Computers; the problem-solving process; the development and use of algorithms.

Teaching: Four (4) lectures, One (1) tutorial, One (1) 2-hour laboratory per week

Method of Examination:

In-course Test(s)/Assignment(s)	20%
Laboratory Exercises	20%
Final Theory Examination (2 hrs.)	60%

COMP0002 - PRELIMINARY COMPUTE SCIENCE I (6 Credits)

Prerequisite: None

Syllabus: Data structures; Using abstract data types (ADTs); Basic algorithms for sorting and Searching; Software engineering; The software development life cycle Methods, processes, tools and techniques used in software engineering Operating systems and networks; Functions of operating systems Incorporation of networking technology and applications in operating systems Use of information technology tools; Using productivity tools to solve real-life problems Presenting information in an appropriate manner.

Teaching: Four (4) lectures, One (1) tutorial, One (1) 2-hour laboratory per week

Method of Examination:

In-course Test(s)/Assignment(s)	20%
Laboratory Exercises	20%
Final Theory Examination (2 hrs)	60%

It is a requirement of the discipline that, to pass any Computer Science course, students must pass both Coursework and Final exam.

Provided below is a complete list of all the courses offered in the Major in Computer Science:

PRELIMINARY MATHEMATICS COURSES

MATH0100 – PRE-CALCULUS (6 Credits)

Prerequisite: Caribbean Secondary Education Certificate (CSEC) General Proficiency course in Mathematic, AND / OR the CSEC General Proficiency course in Additional Mathematics, OR equivalent.

Syllabus: Propositions, logical connectives, truth tables and logical equivalence, Properties of binary operations, inequalities, methods of proof and remainder theorem, Exponential and logarithmic functions, indices, laws of logarithms and inverse functions, Domain, range, injective, surjective, equations and inequalities involving simple rational functions and modulus function, Trigonometric functions, identities and equations, Equations of tangents and normal to circles, points of intersection of two curves, parametric representation and Cartesian equation of a curve, Three dimensional representation of vectors, addition and scalar product of vectors, position and unit vectors, length and direction of vector, vector equations of lines and planes, Concept of limits, limit theorems, continuity and intermediate value theorem, Derivative as limit, gradient, rates of change, differentiation from first principles, product and quotient rules, second derivatives and curve sketching, Linearity law of integration, indefinite and definite integrals, application of integration, methods of integration and solutions of simple first order differential equations by integration. Propositions, logical connectives, truth tables and logical equivalence, Properties of binary operations, inequalities, methods of proof and remainder theorem, Exponential and logarithmic functions, indices, laws of logarithms and inverse functions, Domain, range, injective, surjective, equations and inequalities involving simple rational functions and modulus function, Trigonometric functions, identities and equations, Equations of tangents and normal to circles, points of intersection of two curves, parametric representation and Cartesian equation of a curve, Three-dimensional representation of vectors, addition and scalar product of vectors, position and unit vectors, length and direction of vector, vector equations of lines and planes, Concept of limits, limit theorems, continuity and intermediate value theorem, Derivative as limit, gradient, rates of change, differentiation from first principles, product and quotient rules, second derivatives and curve sketching, Linearity law of integration, indefinite and definite integrals, application of integration, methods of integration and solutions of simple first order differential equations by integration.

Teaching: Five (5) lectures and one tutorial per week.

Method of Examination:

Final Theory Examination (3 hours)	50%
In-course Tests/Assignments	50%

In order to pass this course, Students MUST PASS BOTH the course work component and final examination.

MATH0110 – CALCULUS AND ANALYTICAL GEOMETRY (6 Credits)

Prerequisite: Caribbean Secondary Education Certificate (CSEC) General Proficiency course in Mathematic, and / or the CSEC General Proficiency course in Additional Mathematics, or equivalent.

Syllabus: Express complex numbers in the form $a + bi$, where a and b are real numbers, Add, subtract, multiply and divide complex numbers, Interpret modulus and argument of a complex number in Argand diagram, Find the derivative of $e^{f(x)}$ and $\ln f(x)$, where $f(x)$ is a differentiable function of x , Find first and second derivatives of combinations of polynomials, trigonometric, exponential and logarithmic functions, Apply the chain rule to obtain gradients and equations of tangents and normal to curves given in parametric form, Use the concept of implicit differentiation, Integrate an improper rational function, exponential function and logarithmic function, Find integrals of the form $\int f'(x)/f(x)$ and use substitutions to integrate functions (the substitutions will be given in non-trivial cases), Derive and use reduction formulae to obtain integrals which may involve integration by parts, Define the concept of a sequence as a function from the positive integers to the real numbers, Describe the behavior of convergent and divergent sequences by simple examples, Define a series as the sum of n terms of a sequence, Define the m th partial sum as the sum of first m terms of the sequence. Use the Maclaurin and Taylor theorem for the expansion of series, Expand $(a + b)^n$, for $n \in \mathbb{Q}$ in terms of Pascal Numbers ($n r$), Use linear interpolation to find an approximation for a root in a stated interval, Use the Newton-Raphson method to approximate roots, Find the number of ways of combining and permuting different objects, Define and calculate the probability of an event occurring by using simple laws, Invert a non-singular matrix of order n for $n = 2, 3$, Reduce a system of linear equations to echelon form, Determine whether a system of linear equations is consistent or inconsistent, Solve a differential equations of the form, $dy/dx + ky = f(x)$, where k is a constant or function of x and f is a function. Solve second order ordinary differential equations with constant coefficients and given boundary conditions.

Teaching: Five (5) lectures and one tutorial per week.

Method of Examination:

Final Theory Examination (3 hours)	50%
In-class Tests/Assignments	50%

In order to pass this course, Students MUST PASS BOTH the course work component and final examination.

LEVEL I COMPUTER SCIENCE COURSES**COMP1170 – ENTREPRENEURSHIP FOR COMPUTER SCIENTISTS (3 Credits)**

Prerequisite: None

Anti-requisite: COMP1130 Web Technology Fundamentals

Syllabus: Entrepreneurship. The importance of technology entrepreneurship. Life stories of successful technology entrepreneurs. How the Internet and ebusiness applications have changed the way that we communicate and provide entrepreneurial opportunities. How the use of e-business has improved the efficiency of business processes. Privacy, security and legal issues associated with the Internet and entrepreneurship. Market research. Techniques and statistical methods for market research analysis. Pricing strategies. Determining the best price. MS Office tools. Document formatting, table of contents and creating templates. Spreadsheets. Presentation software. Tools for Statistical Analysis. SPSS, Excel or others. HTML and HTML5. Marking up text. Creating links, elements, attributes, forms. Adding images. HTML5 elements and attributes. Audio and video with HTML5. CSS for presentation. Formatting text, floating and positioning. Page layout. The box model. Introduction to JavaScript: variables, conditional statements, loops, functions, events, the browser object. Server-side scripting: Accessing and manipulating form data, Storing form data in a database, Displaying data from the server in a browser.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP1180 – MATHEMATICS FOR COMPUTER SCIENCE I (3 Credits)

Prerequisite: [(CAPE Pure Mathematics Unit 1 OR Preliminary Mathematics 1) AND (CAPE Pure Mathematics Unit 2 OR Preliminary Mathematics 2)] OR Equivalent.

Anti-requisite: MATH1101 Basic Mathematics I

Syllabus: Predicate calculus – Propositions, propositional functions, truth tables, universal and existential quantifiers, logical equivalences, rules of inference, DeMorgan’s law. Introduction to Mathematical Induction. Sets – Basic properties, Venn diagrams, algebra of sets, Cartesian product, binary operations on set, countable sets, power set, computer representation of sets. Relations – reflexive, symmetric, transitive, equivalence relation. Functions – basic properties, types (Injection, surjection, bijection, inverse), composition, inverse. Number systems – general laws of associativity, commutativity, distribution. Sequences – Arithmetic and Geometric Progressions. Number Theory – division of integers, Euclidean algorithm. Matrices – basic operation.

Teaching: Two (2) hours of lectures and one (1) hour of tutorial per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP1205 – COMPUTING I (3 Credits)

Prerequisite: None

Anti-requisite: COMP1105 Computer Programming I

Syllabus: Problem solving (top-down, bottom-up, stepwise refinement). Algorithms (pseudocode & flowcharts). Object-oriented concepts (Encapsulation, inheritance, polymorphism, classes, objects, methods, message passing). Integrated Development Environments (editors, compilers, debuggers and libraries). Program anatomy (primitives, data types, objects, variables & constants). Formatted I/O. Operators (assignment, arithmetic, relational, Boolean, precedence rules). Control structures (sequences, selection, repetition). Objects & classes (attributes, methods, interfaces, services, pass-byvalue, pass-by-reference, scope rules). Data structures: arrays (linear, multi-dimensional and parallel), array list, aggregate data structures (enumerations). Memory Concepts and Number Systems. Software testing.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

LEVEL II COMPUTER SCIENCE COURSES

COMP1210 – COMPUTING II (3 Credits)

Prerequisite: Computing I (or COMP1105 Computer Programming I)

Anti-requisite: COMP1115 Computer Programming II

Syllabus: Introduction to Objects and Classes, Fundamental Algorithms for Searching and Sorting, Randomness and Recursion, Data Types, Data Structures, Abstract Data Types, File Processing.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP1215 – UNIX (3 Credits)

Prerequisite: None

Anti-requisite: COMP1125 Introduction to UNIX

Syllabus: Overview of UNIX – A short history of UNIX and why UNIX. Getting Started – Logging on and off, passwords, overview of the shell, command and utility syntax, issuing commands. Files and directories management – creating, viewing, removing, renaming and securing. Job and process management – Scheduling and monitoring both jobs and processes. Text editors – ed, edit, ex and vi. Basic Account maintenance – shell configuration file, configuration with environmental variables, aliases and shell functions. UNIX utilities – sed, at, nawk, grep. Shell script programming.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2210 – MATHEMATICS FOR COMPUTER SCIENCE II (3 Credits)

Prerequisite: COMP1180 Mathematics for Computer Science I (or MATH1101 Basic Mathematics I)

Anti-requisite: COMP2105 Discrete Mathematics

Syllabus: Logic; Proofs; Mathematical Induction; Number Theory; Algorithms; Relations; Elementary Combinatorics; Discrete Probability; Elementary Graph Theory;

Algebraic Structures; Modeling computation.

Teaching: Two (2) hours of lectures and one (1) hour of tutorial per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2220 – COMPUTER SYSTEM ARCHITECTURE (3 Credits)

Prerequisite: [COMP1180 Mathematics for Computer Science I (or MATH1101 Basic Mathematics I) AND COMP1210 Computing II (or COMP1115 Computer Programming II)] OR [ELET1210 Digital Electronics I (or ELET1110 Digital Electronics)]

Anti-requisite: COMP2125 Computer Architecture

Syllabus: Basic Computer Architecture; Computer Memory; Computer Arithmetic; The Instruction Cycle; Instructions Sets and Assembly Language Programming; System Interconnection; Instruction Sets; Addressing Modes; CPU Structure and Function (Register organization, instruction cycle, instruction pipelining); RISC vs. CISC Architecture.

Teaching: Two (2) hours of lectures and two (2) hour of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2225 – SOFTWARE ENGINEERING (3 Credits)

Prerequisite: COMP1210 Computing II (or COMP1115 Computer Programming II)

Anti-requisite: COMP2145 Software Engineering I

Syllabus: Teams and Tools; Software Development (Requirements analysis, Specifications, design, implementation validation and verification, maintenance); Project and Product Documentation (User manuals, internal documentation); Software Process Models; Agile Development Methodologies; Project Management.

Teaching: Two (2) hours of lectures and two (2) hour of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2232 – OBJECT ORIENTED PROGRAMMING CONCEPTS (3 Credits)

Prerequisite: COMP1210 Computing II (or COMP1115 Computer Programming II)

Anti-requisite: COMP2160 Object oriented Programming

Syllabus: Object-Oriented Design; Introduction to UML; Structure of an object-oriented class (Classes and Objects, Encapsulation and Information Hiding, Message Passing); Class Design (Inheritance, Composition, Constructors, Polymorphism, Abstract Classes); Error Handling and Testing (Exceptions, Assertions, Design By Contract).

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2235 – NETWORKS I (3 Credits)

Prerequisite: COMP1210 Computing II (or COMP1115 Computer Programming II) AND COMP1215 UNIX (or COMP1125 Introduction to Unix)

Anti-requisite: COMP2150 Computer Networks I

Syllabus: OSI and TCP/IP reference models. Network performance. Transmission media. Multiplexing.

Packet switching and Circuit switching. Framing. Error detection and Error correction. Cyclic Redundancy Check (CRC). Automatic Repeat reQuest (ARQ). Media Access Control (MAC) sublayer. Ethernet. Wireless LANs and Wireless WANs. Virtual LANs. Spanning Tree Protocol (STP). Bluetooth.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2245 – WEB DEVELOPMENT CONCEPTS, TOOLS AND PRACTICES (3 Credits)

Prerequisite: COMP1170 Entrepreneurship for Computer Scientists (or COMP1130 Web Technology Fundamentals) OR SWEN1005 Mobile Web Programming

Anti-requisite: COMP2155 Building Web Applications

Syllabus: Overview of Web concepts (TCP/IP, HTTP and HTTPS); The client-server computing model; Web browser architecture; User interface: Visual design and user interaction concepts; Web development stack; Single-, two- and three-tier application architectures; Data validation and verification; Server and application configuration; Relative and absolute paths; Web-accessible directories; Server and application configuration directives; Designing and implementing a three-tier Web application architecture; Client-side programming using JavaScript; Server-Side Scripting.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2410 – COMPUTING IN THE DIGITAL AGE (3 Credits)

Prerequisite: COMP1210 Computing II (or COMP1115 Computer Programming II)

Anti-requisite: None

Syllabus: Ethics. Computer history. Computer organization. Usability. Software engineering and software reliability. Parallel computing. Digital data and copyright. Software as intellectual property. Artificial intelligence. Big Data. Massive open online courses (MOOCs). Crowd computing. Wearable computing. Computational X (biology, photography, psychology).

Teaching: Two (2) hours of lectures and one (1) hour of tutorial per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2415 – INFORMATION TECHNOLOGY ENGINEERING (3 Credits)

Prerequisite: COMP1210 Computing II (or COMP1115 Computer Programming II)

Anti-requisite: None

Syllabus: Introduction to Statistical Mathematics. Web Analytics – Log file analysis, Page-tagging. Introduction to Computer Architecture –Motherboards, Processors, Memory, Peripherals, Storage Mediums (IDE, SATA, SCSI, USB, FireWire, IEEE1394, RAID, NAS, SAN). Virtualization. Introduction to Computer Networks – RJ11, RJ45, Fiber, Wi-Fi, LANs, WANs, DHCP, DNS, VPN. Introduction to Servers – Web Servers (Apache, TomCat,

JBOSS, IIS), FTP Servers, Email Servers, Proxy Servers. Version Control – Subversion, GIT. Cloud Computing.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2611 – DATA STRUCTURES (3 Credits)

Prerequisite: COMP1210 Computing II (or COMP1115 Computer Programming II) AND COMP1215 UNIX (COMP1125 Introduction to UNIX)

Anti-requisite: COMP2115 Information Structures

Syllabus: Abstract Data Types (Lists, Queues, Doubleended queues, Priority queues, Stacks); Dictionaries (Binary search trees, AVL-trees, Red-Black trees, Splay trees, Binary heaps, B-trees); Sets; Vectors; Hashing; and collision resolution schemes; Sorting algorithms; Searching techniques; Data compression.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP2950 – COMPUTER SCIENCE ELECTIVE (3 Credits)

Prerequisites: None

Syllabus: An advanced course in Computer Science taken as an exchange student at an approved institution and pre-approved by the Director of Academic Affairs.

LEVEL III COMPUTER SCIENCE COURSES

COMP3310 – ALGORITHMS (3 Credits)

Prerequisites: COMP2210 Mathematics for Computer Science II (or COMP2105 Discrete Mathematics) AND COMP2611 Data Structures (or COMP2115 Information Structures)

Anti-requisite: COMP3180 Algorithm Design and Analysis

Syllabus: Analysis of Algorithms: Time and Space Complexities; Algorithm Design Techniques (Bruteforce, Divide and Conquer, Preprocessing, Dynamic Programming,

Greedy Algorithms); Limits of Computability (Lower Bounds, Tractable and Intractable Problems, Dealing with NPCompleteness); Empirical measurements of performance.

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3320 – DESIGN PRINCIPLES OF OPERATING SYSTEMS (3 Credits)

Prerequisites: COMP2220 Computer System Architecture (or COMP2125 Computer Architecture) AND COMP2611 Data Structures (or COMP2115 Information Structures)

Anti-requisite: COMP3100 Operating Systems

Syllabus: Characteristics of Modern Operating Systems; Operating System Structure and Architecture; Process Management (processes and threads, process creation and termination, process synchronization, CPU scheduling, deadlocks); Memory Management (memory allocation schemes, memory partitioning, paging, virtual memory, segmentation); File management (file organization, file system implementation, file system examples, mass storage; Device Management (I/O devices, device drivers, I/O design issues, disk-scheduling); Protection and Security (security threats (program and network threats), protection mechanisms, trusted systems).

Teaching: Two (2) hours of lectures and One (1) hour of tutorial per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3330 – DATABASE MANAGEMENT SYSTEMS I (3 Credits)

Prerequisite: COMP2611 Data Structures (or COMP2115 Information Structures)

Anti-requisite: COMP3160 Database Management Systems

Syllabus: Precursors to Relational Databases. Requirements Gathering, Database Design and ERDs. Normalization – Closures, Functional Dependencies and Keys, Joins and decomposition, Integrity constraints. Introduction to SQL. Database maintenance. Stored Procedures, Transactions and Triggers. Database drivers.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP3360 – NETWORKS II (3 Credits)**Prerequisite:** COMP2235 Networks I (or COMP2150 Computer Networks I)**Anti-requisite:** COMP3155 Computer Networks II**Syllabus:** Routing. Router Design and Implementation. Routing algorithms. Internet Protocol (IP). Subnets. Internet Control Message Protocol (ICMP). Internet Group Management Protocol (IGMP). Sockets. Socket programming. Transmission Control Protocol (TCP). User Datagram Protocol (UDP). Stream Control Transmission Protocol (SCTP). Congestion control. Congestion control algorithms. Quality of Service (QoS).**Teaching:** Two (2) hours of lectures and two (2) hours of labs per week.**Method of Examination:**

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP3365 – NETWORKS III (3 Credits)**Prerequisite:** COMP3360 Networks II (or COMP3155 Computer Networks 2)**Anti-requisite:** None**Syllabus:** Network modeling and measurement. Hypertext Transfer Protocol (HTTP). Domain Name System (DNS). Dynamic Host Configuration Protocol (DHCP). File Transfer Protocol (FTP). Simple Mail Transfer Protocol (SMTP). Internet Message Access Protocol (IMAP). Post Office Protocol (POP). Simple Network Management Protocol (SNMP). Network time protocol (NTP). Border Gateway Protocol (BGP). Peer-to-Peer (P2P) networks. Streaming Audio and Video. Voice over IP (VoIP). Content Delivery Network (CDN).**Teaching:** Two (2) hours of lectures and two (2) hours of labs per week.**Method of Examination:**

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP3370 – SOFTWARE ENGINEERING ON A LARGE SCALE (3 Credits)**Prerequisites:** COMP2225 Software Engineering (or COMP2145 Software Engineering I)**Anti-requisite:** COMP3140 Software Engineering II**Syllabus:** The Challenges of Engineering Large Systems; Introduction to Modelling and Class Diagrams; Reverse engineering; Software Architecture; Approaches to Project Management; Project Selection and Feasibility Analysis; Project Cost Estimation; Planning, Resource Scheduling and Control Techniques; Software Validation and Deployment; The Team Environment.**Teaching:** Two (2) hours of lectures and Two (2) hours of labs per week.**Method of Examination:**

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3375 – SOFTWARE TESTING AND QUALITY (3 Credits)**Prerequisites:** COMP2225 Software Engineering (or COMP2145 Software Engineering I)**Anti-requisite:** COMP3165 Software Quality Assurance**Syllabus:** What Is Software System Quality? Software Quality Product and Process Metrics; Measuring and Analysing Customer Satisfaction Fundamentals; The Objectives and Limits of testing; Test Types and the Software Development Process; Reporting and Analysing Errors; Specific Testing Skills; The Problem Tracking System; Test Case Design; Testing Tools; Test Planning and Test Documentation.**Teaching:** Two (2) hours of lectures and Two (2) hours of labs per week.**Method of Examination:**

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3385 – FRAMEWORK DESIGN FOR ADVANCED WEB DEVELOPMENT (3 Credits)**Prerequisites:** COMP2245 Web Development Concepts, Tools and Practices (or COMP2155 – Building Web Applications)**Anti-requisite:** COMP3170 Web-based Applications**Syllabus:** Design Patterns (Design patterns and principles, Design Patterns for

flexible object programming, Database patterns, Design patterns in JavaScript); Version Control (Configuring and using open-source version control systems); Web Services (Introduction to SOAP and XML-RPC, The REST architectural style, RESTful web services); API Design (The API design process, Characteristics and guidelines for API design); Client-side JavaScript framework design (Framework styles: structure, helper methods, plugins etc., Prototype classes, inheritance, class implementation, Selector Engines, Animations and touch, Cross-domain requests with AJAX, Feature detection, Chained APIs); Server-side framework design (Framework styles: layered, pipe-and-filter, Common framework features: scaffolding, internationalization, fall-back data validation, session management; Web services; Controllers; Data abstraction; Templating systems (themes); security; authentication; error handling).

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3412 – SCALABLE ENTERPRISE WEB APPLICATIONS (3 Credits)

Prerequisites: COMP3330 Database Management Systems I (or COMP3160 Database Management Systems) AND COMP3385 Framework Design for Advanced Web Development

Anti-requisite: None

Syllabus: Design patterns for flexible object-oriented programming; Enterprise design patterns; Good and bad design and coding practices; Continuous integration; Designing scalable web applications (Scalability patterns and best practices, Scalability challenges, Scalability testing and anti-patterns); Caching for web applications (Caching concepts, design, caching anti-patterns and strategies); Enterprise Web Applications Security; Enterprise Web Application Testing; Application Deployment to the cloud; Performance of Enterprise Web Applications; Web analytics-based performance improvement.

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3415 – DATABASE MANAGEMENT SYSTEMS II (3 Credits)

Prerequisite: COMP3330 Database Management Systems I (or COMP3160 Database Management Systems)

Anti-requisite: None

Syllabus: Physical Data Access Methods. Query Processing and Optimization. Concurrency Control, Recovery. Client Server and Distributed Databases -Failures in a Distributed Environment, Commit Protocols, Replication. Data Warehousing and Online Analytical Processing - Operational Data versus Decision Support Data, Decision Support Database Requirements, Components of a Decision Support System. Data Lakes and Data Vaults. Data Vault Modelling. Big Data Databases and NoSQL. Data mining.

Teaching: Two (2) hours of lectures and two (2) hours of labs per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP3420 – COMPUTER GRAPHICS (3 Credits)

Prerequisites: COMP2611 Data Structures (or COMP2115 Information Structures)

Anti-requisite: COMP3260 Computer Graphics I

Syllabus: Raster graphics; Coordinate systems and transformations; The viewing frustum; The graphics pipeline and toolkits; Clipping and culling; Lighting and shadows; Transparency and blending; Texture mapping; Local shading models; Environment mapping techniques; Shaders; Animation and particles; Portable Network Graphics (PNG) programming; OpenGL programming.

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3425 – MOBILE APPLICATIONS FOR IOS DEVICES (3 Credits)

Prerequisites: COMP2611 Data Structures (or COMP2115 Information Structures) AND COMP2225 Software Engineering (or COMP2145 Software Engineering 1)

Anti-requisite: None

Syllabus: Program Development on the XCode IDE; Swift programming; Xcode and Interface Builder; Cocoa Design Patterns; Views and the View Hierarchy; Memory Management; Text Input and Delegation; View Controllers; Interaction with UIControls; UITableView and UITableViewController; Orientation and iOS Device Sensors; Testing and Debugging.

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3435 – USER-INTERFACE DESIGN (3 Credits)

Prerequisites: COMP2611 Data Structures (or COMP2115 Information Structures) AND COMP2225 Software Engineering (or COMP2145 Software Engineering 1)

Anti-requisite: COMP3220 Human Computer Interaction

Syllabus: Relationship to computer science and software engineering; Influences on interface design; General models and guidelines; Methods of designing interfaces; Software and hardware interface implementation; Mechanisms of evaluation; Future directions of user interface design.

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3440 – E-COMMERCE (3 Credits)

Prerequisites: COMP2245 Web Development Concepts, Tools and Practices (or COMP2155 –

Building Web Applications)

Anti-requisite: COMP3210 Electronic Commerce

Syllabus: Introduction to e-commerce; Definition of ecommerce, e-business, m-commerce and egovernance; Advantages/disadvantages of ecommerce; Waves of e-commerce; SWOT analysis; business objectives and international issues facing ecommerce; Planning e-commerce initiatives; Identifying products and services; Business plans; ECommerce legislation and Internet law; Borders and

jurisdiction; Website design, usability, evaluation and creation; User interface design; Internetworking and the world wide web; client-side programming; serverside programming; Processing payments and order fulfilment; Securing e-commerce initiatives; Computer, server and communication channel security; Marketing website and promoting products and services; Revenue models, marketing strategies, customer relationship models and web advertising.

Teaching: Two (2) hours of lectures and Two (2) hours of labs per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3445 – COMPUTER INFORMATION SYSTEMS (3 Credits)

Prerequisites: COMP2225 Software Engineering (or COMP2145 Software Engineering I) AND COMP2245 Web Development Concepts and Practices (or COMP2155 – Building Web Applications)

Anti-requisite: COMP3115 Information Systems

Syllabus: Definitions of information and system concepts; IS frameworks; Types of information systems; Information systems in society, business and industry; Software issues and trends: Databases and business intelligence; E-business and mobile commerce; ICT in e-business and business process performance; The personal and social impact of computers; Network and telecommunication systems; Societal and ethical issues relating to information systems; Enterprise, information and decision support systems; Knowledge management systems, knowledge management workers; artificial intelligence, expert systems; and virtual reality; Characteristics of information systems professionals; information system careers; Information and specification; design, implementation and re-engineering of information systems; Systems theory; decision support; information systems strategies; role of information and IT; and role of people using, developing and managing systems; Information and organisational systems; ICT Micro enterprises and entrepreneurship; digital divide; the informal sector; Health information systems.

Teaching: Two (2) hours of lectures and One (1) hour of tutorial per week.

Method of Examination:

In-course Tests/Assignments	40%
Final Theory Examination (2 hours)	60%

COMP3450 – FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE (3 Credits)

Prerequisite: COMP2210 Mathematics for Computer Science II (or COMP2105 Discrete Mathematics) AND COMP2611 Data Structures (or COMP2115 Information Structures)

Anti-requisite: COMP3125 Artificial Intelligence

Syllabus: Intelligent agents. Search algorithms. Knowledge representation. Machine learning. Probabilistic reasoning.

Teaching: Two (2) hours of lectures and one (1) hour of tutorial per week.

Method of Examination:

In-course Test(s)/Assignment(s)	40%
Final Theory Examination	60%

COMP3490 – RESEARCH PROJECT IN COMPUTER SCIENCE (3 Credits)

Prerequisite: None

Anti-requisite: COMP3910 Research Project

Syllabus: This course provides students with the opportunity to develop a research project to solve a real-world or research-based problem. Students are given the opportunity to embark on a project that uses the skills learned during Computer Science courses. This course provides students with an opportunity to develop their research skills by collaborating with a Computer Science faculty member.

Teaching: Students are required to meet regularly with their supervisors to discuss their research projects.

Method of Examination:

Project Proposal	20%
Final Presentation	20%
Final Report	60%

COMP3495 – MAJOR RESEARCH PROJECT IN COMPUTER SCIENCE (6 Credits)

Prerequisite: None

Anti-requisite: COMP3920 Computer Science Major Research Project

Syllabus: This course provides students with the opportunity to develop a research project to solve a real-world or research-based problem. Students are given the opportunity to embark on a project that uses the skills learned during Computer Science courses. They will take this course from Semester I through Semester II. This

course provides students with an opportunity to develop their research skills by collaborating with a Computer Science faculty member.

Teaching: Students are required to meet regularly with their supervisors to discuss their research projects.

Method of Examination:

Project Proposal	20%
Final Presentation	20%
Final Report	60%

COMP3499 – GROUP RESEARCH PROJECT IN COMPUTER SCIENCE (3 Credits)

Prerequisite: None

Anti-requisite: COMP3930 Computer Science Group

Research Project

Syllabus: This course provides students with the opportunity to develop a research project to solve a real-world or research-based problem. Students are given the opportunity to embark on a project that uses the skills learned during Computer Science courses. They will complete the project in groups ranging from 2 to 4 persons. This course provides students with an opportunity to develop their research skills by collaborating with a Computer Science faculty member.

Teaching: Students are required to meet regularly with their supervisors to discuss their research projects.

Method of Examination:

Project Proposal	20%
Final Presentation	20%
Final Report	60%

COMP3955 – COMPUTER SCIENCE INTERNSHIP (3 Credits)

Prerequisite: GPA of 3.0 or above in the Computer Science or Information Technology Major. The student must have completed or be enrolled in courses totalling sixty (60) credits or more. The department must approve the student. Approval by the department does not however guarantee placement. Enrolment in internship is subject to successful placement at a participating host organization.

Objectives: To provide the opportunity for students to gain workplace experience to

improve their employment readiness by the time of graduation.

Syllabus: The course provides a formal internship of at least 4 weeks (160 hours) duration at a relevant private sector, public sector or non-Governmental organisation during which students undertake agreed upon activities relevant to their studies. Students will work under the guidance of a workplace supervisor as well as an on-campus supervisor and will submit a report and make a presentation within the Department at the end of the internship. Through exposure to the working environment, students will acquire transferable skills that will be useful in any future employment sphere. The professional placement in an organisation will normally take place during the summer school period, and students will be registered for the course as a summer school course. Students intending to register for the course in summer must present an up-to-date curriculum vitae (CV) to the course coordinator by a stated deadline in semester 2. At the same time, host organisations will meet with the course coordinator and provide a summary of possible activities (work plan) successful students would undertake in their organisation. Student CVs will be circulated to potential workplace supervisors and the course coordinator will assign placements to the mutual satisfaction of the students and host organisations. Students may have to attend an interview before embarking on the professional placement.

Method of Examination:

Student's Placement Report	50%
Workplace Supervisor's Appraisal	35%
Oral presentation of report	15%

-END-



Digital Transformation

Bsc. in Computer Science (8.1.2021)
Robotics & Intelligent Automation (5)

Responsible Innovation



BSc. in Information Technology (8.1.2021)

BSc. In Software & Application Development (8.1.2025)

MSc. in Data Science & Business Intelligence (8.1.2022)

BSc. in Marine Bioinformatics (8.1.2023)

Digital Transformation in Healthcare

Stackable Credentials, eSports

1. eSports Management
2. Game Art and Production
3. Game Design
4. Programming
5. The Business of Games
6. Creole eSports
7. Improving eSports Performance/AI
8. The Data Business of eSports
9. The Ethics of eSports (8.1.2022)

BSc. in Transportation Design (8.1.2025)

Certificate in Animation (8.1.2021)

BSc. in System Dynamics (8.1.2024)

MSc. in Supply Chain Management & Logistics (8.1.2022)

MSc. in Homeland Security & Cyber-Physical Systems (8.1.2024)

Critical Theory & Ethics Across The Curriculum

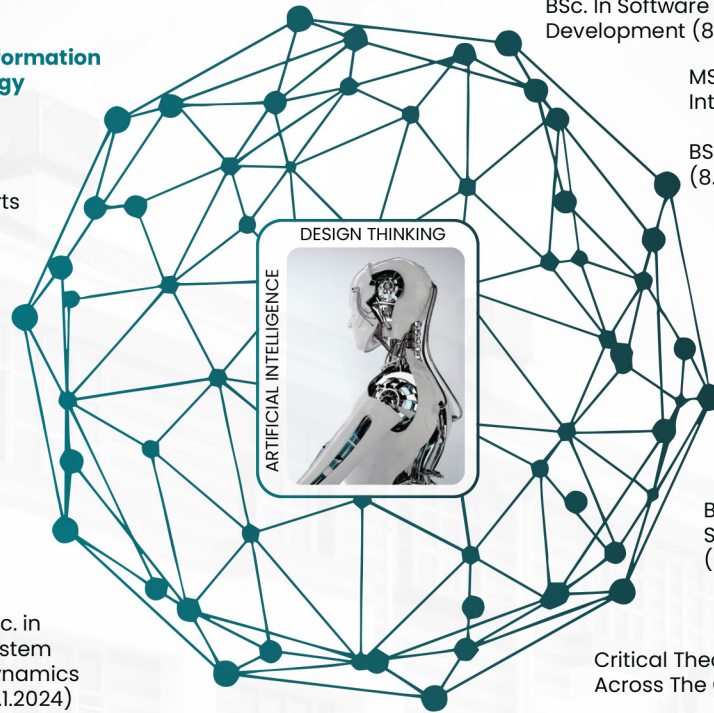
Stackable Credentials/ MSc. In Disaster Risk Management & Resilience (8.1.2023)

BSc. in Economics, Computer Science and Data Science (8.1.2022)



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