BSc (Hons) Software Engineering (FT) - IC320 (Under Review)

1. Introduction

The BSc Software Engineering degree concentrates more on the skills needed for a career in the software industry by focusing on the process of building software to a specification.

In Year 1 of Software Engineering, the course will cover all the fundamental topics that any IT students should know to be able to become a professional in the IT sector.

In Year 2, the course concentrates more on technical skills that a software engineer should possess covering aspects like design, implementation and project management. It also brings in real-world concepts like completing work started by other teams, and also working collaboratively with other teams – all of which are things that are common practice in industry.

In year 3, students undertake a final year project in which the student should implement a software system. They have to do two compulsory modules on Artificial Intelligence and Agile methodology, and choose two electives.

2. Objectives and Learning Outcomes

Information and Communication Technology (ICT) sector being one of the most knowledge-intensive branches of the economy, there is demand for human resource in the software engineering discipline in both the public and private sectors. Software Engineering is a field that deals with high-level designs and solutions that guide the development of specific software projects or products. The programme is in line with international recommendations of computing curricula for Undergraduate Degree Programs in Software Engineering and designed in collaboration with software industry. The objectives are:

- to produce graduates who are proficient in developing software according to Industry standards, in terms of methodologies and technologies;
- to provide students with both theoretical knowledge and practical skills in areas such as software development, testing and software project management;
- to inculcate engineering skills required to do analysis, design and implementation of software systems;
- to impart to graduates essential technical and soft skills to seamlessly make the transition from University to the software development industry and adapt to a professional environment.

After successful completion of this programme, students should be able to:

- Apply knowledge relating to Software Engineering practices
- Demonstrate technical skills related to software development
- Apply problem solving skills for software analysis and design
- Use tools and techniques for producing application software solutions
- Demonstrate ability to work in team environment and communicate computing ideas effectively in speech and in writing

3. General Entry Requirements

As per General Entry Requirements for Admission to the University for Undergraduate Degrees.

4. Programme Requirements

At least 2 GCE 'A' level Passes including Mathematics.

5. Minimum Requirements for Awards

(i) Degree Award

For the degree award in BSc (Hons) Software Engineering, the student must obtain at least 105 credits including:

Modules	Credits
Minimum Credits for Core Modules	84
Minimum Credits for Elective Modules	12
Industrial Training	0
Final Year Project	9
TOTAL	105

(ii) Diploma Award

The Diploma is provided as a possible exit point in the programme. Students may opt for a Diploma in Software Engineering, by making a written request, provided they satisfy the requirements, as per University regulations. For a student exiting at Diploma Level, the assessment of Diploma project will be based on project report, presentation and software/system demo, as per University regulations.

6. Programme Duration

	Normal (Years)	Maximum (Years)
Degree:	3	5

7. Credits Per Year

Students may register for a maximum of 48 credits and a minimum of 6 credits, per year.

8. Classification of Awards

The award classification will be based on the CPA (x) at the end of the Programme of Studies as follows:

CPA (Cumulative Point Average)	Classification
≥ 70	1st Class with Honours
$60 \leq x \leq 70$	2nd Class 1st Division with Honours
$50 \leq x < 60$	2nd Class 2nd Division with Honours
$45 \leq x < 50$	3rd Class with Honours
$40 \leq x < 45$	Pass
< 40	No Awards

9. Assessment and Pass Requirements

The assessment mode for each module will be based on one or a combination of the following:
- Examination
- Continuous Assessment (class tests, assignments, practicals, and oral presentations)
- Report Assessment (Final Year Project)
- Software Evaluation (Demo of Final Year Project)
- Portfolio Evaluation (Industrial Training)

An overall total of at least 40% for combined continuous assessment and written examination components would be required to pass the module.

Calculation of the final mark: The continuous assessment must account for no less than 30% and for no more than 50% of final mark, with the exception of modules like Final Year and Diploma Project. The specific details and/or formula for the calculation of the final mark are given in the Module Specification Sheet (MSS) for each module. Students have to retake both continuous assessment and exams in the failed modules.

If CPA of a student is less than 40%, the latter will have to repeat the entire academic year, and retake the modules as and when offered. However, students will not be required, if they wish, to retake modules for which Grade C or above has been obtained. Students are allowed to repeat (a year) only once over the entire duration of the Programme of Studies.

Industrial Training will be assessed as either "Satisfactory" or "Unsatisfactory".

10. Duration of Examinations

The written examination will be of 3 hours duration for yearly modules carrying 6 credits.

11. Termination of Registration

Termination of registration will occur in the following circumstances:

- If a student's CPA remains below 40 at the end of an academic year and the student has already repeated one year of study, unless decided otherwise by Senate.
- If the student does not successfully complete all the modules prescribed for the programme in a total of 5 years.

12. List of Modules

Module Code	Module Name
CORE	
SIS 1011Y(1)	Software Analysis and Modelling
SIS 1012Y(1)	Database Systems
ICDT 1016Y(1)	Communication and Business Skills for IT
SIS 1039Y(1)	Software Engineering Principles
SIS 1040Y(1)	Software Design Fundamentals and Programming
SIS 1042Y(1)	Discrete Structures
SIS 2015Y(3)	Object-Oriented Software Development
SIS 2018Y(3)	Software Verification and Validation
SIS 2037Y(3)	Data Structures and Algorithms
SIS 2043Y(3)	Software Project Management
SIS 2044Y(3)	Interactive System Design
SIS 2045Y(3)	Web Application Development
ICDT 2200	Industrial Training
SIS 3000Y(5)	Final Year Project
SIS 3114Y(5)	Agile Principles and Practices
SIS 3119Y(5)	Artificial Intelligence
ELECTIVES	
ICT 3040Y(5)	Network Technologies
SIS 3088Y(5)	Software Security
SIS 3115Y(5)	Software Quality Assurance And Configuration Management
SIS 3116Y(5)	Distributed Processing And Databases
SIS 3117Y(5)	Business Process Management and Enterprise Systems
SIS 3023Y(5)	Web Frameworks and Patterns
SIS 3144Y(5)	Robotic Process Automation Fundamentals

13. Programme Plan

Module Code	Module Name	UoM Credits	Hrs/Week L+P
SIS 1011Y(1)	Software Analysis and Modelling	6	3+0
SIS 1012Y(1)	Database Systems	6	2+2
ICDT 1016Y(1)	Communication and Business Skills for IT	6	3+0
SIS 1039Y(1)	Software Engineering Principles	6	3+0
SIS 1040Y(1)	Software Design Fundamentals and Programming	6	2+2
SIS 1042Y(1)	Discrete Structures	6	3+0
	Total	36	
Module Code	**Module Name**	**UoM Credits**	**Hrs/Week L+P**
SIS 2015Y(3)	Object-Oriented Software Development	6	2+2
SIS 2018Y(3)	Software Verification and Validation	6	2+2
SIS 2037Y(3)	Data Structures and Algorithms	6	2+2
SIS 2043Y(3)	Software Project Management	6	3+0
SIS 2044Y(3)	Interactive System Design	6	2+2
SIS 2045Y(3)	Web Application Development	6	2+2
ICDT 2200	*Industrial Training*	0	-
	Total	36	
Module Code	**Module Name**	**UoM Credits**	**Hrs/Week L+P**
SIS 3000Y(5)	Final Year Project	9	-
SIS 3114Y(5)	Agile Principles and Practices	6	2+2
SIS 3119Y(5)	Artificial Intelligence	6	2+2
ELECTIVES	**Choose Two (2) modules from:**		
ICT 3040Y(5)	Network Technologies	6	2+2
SIS 3088Y(5)	Software Security	6	2+2
SIS 3115Y(5)	Software Quality Assurance And Configuration Management	6	2+2
SIS 3116Y(5)	Distributed Processing And Databases	6	2+2
SIS 3117Y(5)	Business Process Management and Enterprise Systems	6	2+2
SIS 3023Y(5)	Web Frameworks and Patterns	6	2+2
SIS 3144Y(5)	Robotic Process Automation Fundamentals	6	2+2
	Total	33	

Note

(i) *The University reserves the right not to offer a given elective module if the critical number of students is not attained and/or for reasons of resource constraints.*

45P-FB-25.06.20