HOASEN UNIVERSITY
FACULTY OF INFORMATION TECHNOLOGY
DEPARTMENT OF SOFTWARE ENGINEERING

PROGRAMME SPECIFICATION

(Date amended: 2019)

1. **Programme Title**: B.A. Programme in Information Technology
2. **Name of The Final Award**: Bachelor of Information Technology (In Vietnamese: Cử nhân Công nghệ thông tin)
3. **Programme Code**: 7480201
4. **Awarding Institution**: Hoa Sen University
5. **Teaching Institution**: Department of Software Engineering, Faculty of Information Technology, Hoa Sen University
6. **Programme Accredited by**: Hoa Sen University
7. **Programme Certified by**: Ministry of Education and Training
8. **Entry requirements**: To be eligible for the admission into the B.A. Programme in Information Technology of Hoa Sen University, students are required as follows.
    a. Passing a national high school graduation examination,
    b. Satisfying Hoa Sen University requirements that clearly stated in the admission process and procedures that are defined by the University and are approved by the Ministry of Education and Training of Vietnam.
9. **Date of Programme Specification Review**: September 2019 for the student intake from the 2019-2020 academic year.
10. **Delivery Mode**: Full time
11. **Instruction Language**:
    a. English is used for courses of professional knowledge (18 credits)
    b. Vietnamese is used for general courses (125 credits).

12. Programme Objectives:

In alignment with the University's vision and missions, the B.A. Programme in Information Technology is designed to provide its students with following goals:

- PG.1: To train students the ability and capacity to participate in and to take on positions in application software development projects and the computerization of information systems that require the application of new technological achievements from the fields of artificial intelligence, data processing and big data to serve the operation of organizations and individuals.
- PG.2: To equip students the skills to self-study, to experiment, and to apply new technology meeting the development needs of the profession and society. Thereby, students improve their capacity to solve new and more complex problems that arise in the development of society.
- PG.3: To equip students with teamwork skills as well as the ability to communicate and to present problems so that they can work with and consult to convince many people in many different careers.
- PG.4: To help students to understand and to apply rules and standards of Professional Ethics. To apply knowledge and skills into practice, contributing and promoting the sustainable development of society and the world.
- PG.5: To provides a wide range of professional orientations to help students to develop an in-depth or wide-range direction in information technology
- PG.6: To have a flexible programme structure in response to advancements in technology as well as the needs of the community.

13. Expected Learning Outcomes (PLOs):

- PLO.1: Applying software engineering theories, principles, tools and processes, as well as the theories and principles of computer science and mathematics to develop and to maintain the software systems.
- PLO.2: Applying modern principles, techniques and technologies in the field of information technology to develop intelligent application systems.
- PLO.3: To design and to evaluate the software prototypes.
- PLO.4: To participate effectively in IT projects.

- PLO.5: Applying business processes knowledge to evaluate the effectiveness and impact of potential IT solutions.
- PLO.6: To apply modern techniques, skills, and tools needed to practice engineering.
- PLO.7: Applying appropriate professional ethical and behavioral practices to address technical issues in the IT sector.
- PLO.8: To apply industry knowledge and professional skills for the benefit of the society.
- PLO.9: To participate in activities that encourage intellectual property protection, such as using legitimate software, and respecting copyrights.
- PLO.10: To effectively communicate in both verbal and written information technology documents.
- PLO.11: To use fluent English communication skills in professional and some social issues; to achieve an English Proficiency Certificate of equivalence to at least B1 level.
- PLO.12: To work, to coordinate, to orient and to promote individual's strengths in group activities.
- PLO.13: Lifelong learning through self-research activities, fostering advanced knowledge, advanced skills in the field of information technology and interdisciplinary knowledge throughout the career.

14. Programme Structure/Curriculum Map:

SPECIFICATION OF B.A. PROGRAMME IN INFORMATION TECHNOLOGY (143 CREDITS)

GENERAL KNOWLEDGE (55C, in Vietnamese)

POLITICAL COURSES (11C)

Marxist-Leninist Philosophy	3
Marxist-Leninist Political Economy	2
Scientific Socialism	2
Ho Chi Minh's Ideology	2
Vietnam Communist Party's History	2

SOCIAL SCIENCE COURSES (15C)

General Law	3
Soft Skills: Effective Skills in Workplace	3
Group A-Method and Skills	3
Group B-Values in Society	3
Group C-Culture and Ideology	3

ENGLISH COURSES (20C)

EIC3	5
EIC4	5
EIC5	5
EIC6	5

MATHEMATICS COURSES (9C)

Discrete Mathematics	3
Linear Algebra	3
Probability and Statistics for engineer	3

PROFESSIONAL KNOWLEDGE (79C, 18C in English)

FUNDAMENTAL COURSES (24C)

Programming Fundamentals	3
Data Structures and Algorithms	3
Object Oriented Programming	3
Computer System	3
Fundamentals of Computer Network	3
Operating Systems Theory	3
Database Fundamentals	3
Database Management Systems	3

WORK EXPERIENCE INTERNSHIP (3C)

PRACTICAL AND PROJECT COURSES (7C)

Information Technology Practice 1	1
Information Technology Practice 2	1
Information Technology Practice 3	1
Professional Programming Practices A	2
Major Project A	2

CORE COURSES (12C)

Object-oriented Analysis and Design	3
Software Engineering	3
Algorithms Analysis and Design	3
Advanced Programming Techniques	3

IN-DEPTH CORE COURSES (12C)

Artificial Intelligence	3
Software Architecture	3
Software Project Management	3
Emerging Technologies	3

SUPPLEMENTARY ELECTIVE COURSES (6C)

CONCENTRATION COURSES (15C)

APPLIED AI TECHNOLOGY

Machine Learning	3
Data Mining Fundamentals	3
Practical Artificial Intelligence Programming	3
Application Development for E-Commerce	3
Decision Support System	3

IOT AND BLOCKCHAIN

Internet of Things Technologies and Applications	3
Internet of Things Application Development	3
Blockchain Technology	3
Real Time Computing and Embedded Systems	3
Cloud Application Development	3

SOFTWARE DEVELOPMENT AND QUALITY ASSURANCE

Software Application Development	3
Web Development	3
Application Development for Mobile Devices	3
Software Testing	3
Software Quality Management	3

APPLIED TECHNOLOGY IN BIG DATA AND DATA SCIENCE

Advanced Database	3
Big data with Hadoop	3
Datawarehouse Development Techniques	3
NoSQL Database	3
Knowledge Management System	3

GRADUATION COURSES (9C)

15. Tentative Programme Schedule:

Year 1							
Semester 1A (Courses)	**17**	**Semester 1B (Courses)**	**0**	**Semester 2A (Courses)**	**19**	**Semester 2B (Courses)**	
EIC3	5	National Defence Education	0	EIC4	5	Students can take courses in advance, or retake courses.	
Soft Skills: Effective Skills in Workplace	3			Data Structures and Algorithms	3		
General Law	3			Linear Algebra	3		
Programming Fundamentals	3			Marxist-Leninist Philosophy	3		
Discrete Mathematics	3			Marxist-Leninist Political Economy	2		
Microsoft Office - Level A	0			Selective course of Social science	3		

Year 2							
Semester 3A (Courses)	**20**	**Semester 3B (Courses)**	**0Cre.**	**Semester 4A (Courses)**	**19**	**Semester 4B (Courses)**	**3**
EIC5	5	Students can take courses in advance, or retake courses.		EIC6	5	Work Experience Internship	3
OOP	3			Database Management Systems	3		
Database Fundamentals	3			Fundamentals of Computer Network	3		
Computer System	3			Operating Systems Theory	3		
Probability and Statistics for engineer	3			Ho Chi Minh's Ideology	2		

Information Technology Practice 1	1			Athletic Education #2	0		
Scientific Socialism	2			Selective course of Social science	3		
Athletic Education #1	0						

Year 3							
Semester 5A (Courses)	**18**	**Semester 5B (Courses)**	**0**	**Semester 6A (Courses)**	**17**	**Semester 6B (Courses)**	
Object-oriented Analysis & Design	3	Students can take courses in advance, or retake courses.		Emerging Technologies	3	Students can take courses in advance, or retake courses.	
Software Engineering	3			Artificial Intelligence	3		
Algorithms Analysis and Design	3			Major Project A	2		
Advanced Programming Techniques	3			Information Technology Practice 3	1		
Professional Programming Practices A	2			Vietnam Communist Party's History	2		
Information Technology Practice 2	1			Athletic Education #4	0		
Selective course	3			Selective course	3		
Machine Learning				Data Mining Fundamentals			
Advanced Database				Big data with Hadoop			
Software Application Development				Web Development			
Internet of Things Technologies and Applications				Internet of Things Application Development			
Athletic Education #1	0			Selective course of core course	3		
				Decision Support System			

				NoSQL Database		
				Software Testing		
				Cloud Application Development		

Year 4							
Semester 7A (Courses)	**21**	**Semester 7B (Courses)**	**0.**	**Semester 8A (Courses)**	**9**	**Semester 8B (Courses)**	**0**
Software Architecture	3			Select 1	9		
Software Project Management	3			Graduation Internship			
Selective course	3			Graduation Paper			
Practical Artificial Intelligence Programming							
Knowledge Management System							
Application Development for Mobile Devices							
Real Time Computing and Embedded Systems							
Selective course	3						
Application Development for E-Commerce							
Datawarehouse Development Techniques							
Software Quality Management							
Blockchain Technology							
Selective course	3						
Introduction to Research Methods							
Communication skills							
Intercultural Communication							
Free selective 1	3						
Free selective 2	3						

16. Courses' Description:

Code	Course (en)	Description (en)

DC140DV01	Marxist-Leninist Philosophy	This course includes 3 chapters: - Chapter 1 presents the most general features of Marxist-Leninist philosophy and its role in real life. - Chapter 2 presents the basic contents of dialectical materialism such as: matter and consciousness, materialistic dialectic, cognitive theory. - Chapter 3 presents the basic contents of historical materialism such as: socio-economic form, class and nation, state and social revolution, social realism and philosophy about human.
DC141DV01	Marxist-Leninist Political Economy	This course includes 6 chapters: Chapter 1 discusses the object, research methods and functions of the Marxist-Leninist political economy. From chapter 2 to chapter 6 present the core content of Marxist-Leninist political economy according to the objectives of the subject. Specific issues such as: - Goods, markets and the role of actors in the market economy; - Producing surplus value in a market economy. - Competition and monopoly in the market economy. - The socialist-oriented market economy and economic interest relations in Vietnam. - Industrialization, modernization and international economic integration of Vietnam.
DC142DV01	Scientific Socialism	This course includes 7 chapters: chapter 1, presents the introductory basic issues of scientific socialism (the process of formation and development of scientific socialism). From chapters 2 to 7, the basic contents of the subject's objectives are presented.
DC143DV01	Ho Chi Minh's Ideology	This course consists of 6 chapters providing students with basic knowledge of: Objects, research methods and learning significance of Ho Chi Minh Ideology; on the basis, process of formation and development of Ho Chi Minh's ideology; on national independence and socialism; about the Communist Party and State of Vietnam; on great national solidarity and international solidarity; about culture, morality, and people.
DC144DV01	Vietnam Communist Party's History	In addition to the introduction and conclusion, this course consists of 3 programs presenting basic knowledge, core and systematic about the birth of the Party (1920-1930) and the process of the Party leading the revolution from birth to now on.
DC137DV01	General Law	This course introduces basic knowledge of the State and law. Students understand the state apparatus structure and the Vietnamese legal system, thereby forming a habit of living and working according to the law. In addition to the general theory of the State and law, students have access to specialized laws such as Criminal Law, Criminal Procedure Law, Civil Law, Civil Procedure Law, Constitutional Law (House Law country), Labor Law, Marriage and Family Law.
DC139DV01	Soft Skills: Effective Skills in Workplace	This course gives students effective working skills such as listening comprehension skills, decision making skills, effective time management skills, communication skills, and presentation skills.

KHTQ105DV01	Discrete Mathematics	This course is for students majoring in information technology, in order to introduce the basic concepts of mathematics, such as logic, propositions, aggregation, mapping, algorithm, equivalence relations, etc … The course also provides students with deductions, proof methods, graph theory and its practical applications.
KHTQ107DV01	Linear Algebra	This course covers the basic contents of linear algebra: matrix concepts, math operations on matrices; determinant of the square matrix; eigenvalue, the eigenvector of a square matrix; linear spaces and linear operators; matrix cross-section and quadratic forms.
KHTQ114DV01	Probability and Statistics for engineer	This course aims to provide students with the basic concepts of probability theory and math statistics. From there, students understand the application of the law of probability to build decision-making methods in terms of inadequate information in statistics. The practicality of the knowledge of statistical probability will help students apply it to the reality of the field of study.
AV116DV01	EIC3	This course helps students achieve skills and language competence at B1 level based on CEFR. Besides the traditional four skills of listening, reading, speaking and writing, this course also focuses on academic reading and writing at high-beginning to low intermediate level to prepare students for their effective further university study. As a result, this gives students a full picture of what the language is and how it works in a certain context.
AV117DV01	EIC4	This course helps students achieve skills and language competence at B1 level based on CEFR. Besides the traditional four skills of listening, reading, speaking and writing, this course also focuses on academic reading and writing at lower intermediate level to prepare students for their effective further university study.
AV210DV01	EIC5	This course helps students achieve skills and language competence at B1+ level based on CEFR. As a result, this gives students a full picture of what the language is and how it works in a certain context.
AV211DV01	EIC6	This course helps students achieve skills and language competence at B1+ level based on CEFR. Besides the traditional four skills of listening, reading, speaking and writing, this course also focuses on EAP to prepare students for their effective further university study. As a result, this gives students a full picture of what the language is and how it works in a certain context.
TIN130DV03	Programming Fundamentals	This course provides students with the most basic knowledge of computers and programming. Course content includes the most basic knowledge of computers, computer programs, flowcharts and simple algorithms, and programming knowledge. In addition, the course is also equipped with additional skills when using the C programming language to write simple computer programs.

TIN131DV02	Data Structures and Algorithms	This course provides students with basic knowledge of how to organize data, build algorithms and understand the importance of these two components in the process of writing a program; help students to apply data structures, appropriate algorithms to solve computer problems and improve programming skills.
TIN132DV02	Object Oriented Programming	This course aims to provide students with knowledge of object oriented programming methods including the concepts of abstraction, encapsulation, inheritance and polymorphism (polymorphism). The course helps students practice their skills and apply object-oriented programming techniques to the construction of programs and software.
MT120DV01	Computer System	This course gives students the ability to understand the hardware inside the computer, such as the processor, memory, drive, etc. and the combined working of hardware components from which the student will understand how a computer system works and know how to program more tightly, optimize compiler, optimize performance and organize, and manage memory better.
MT106DV01	Fundamentals of Computer Network	This course provides general knowledge of computer networks such as the OSI model. Students know how to install windows and linnux operating systems, basic configuration on devices such as switches, routers, accesspoints and ADSL / FTTH routers.
MT221DV01	Operating Systems Theory	This course provides an overview of the operating system, the components within an operating system, the functions of each component. How to communicate between processes, CPU timing mechanism. Provides theories about memory management, file system management, and I / O management. Programming techniques for communication between processes (Shared Memory, IPC, Socket ..). Theory of the resource dispute resolution of the processes (Semaphore, Banker Algorithm…) and Deadlock resolution. System security mechanisms of the operating system.
TIN209DV01	Database Fundamentals	This course introduces the basic concepts of the database, the concepts of the associative entity model, and the relational model. The concept of relational algebra language and data query language (SQL). The concepts of functional dependency, key, minimal overlay, standard form, and decomposition and aggregation algorithms in the design of a database. Students analyze the problem and build a combined entity model, gradually converting it to a relational model. Proceed to install material. Write data queries in relational algebra language and SQL language. At the same time, uphold the spirit of teamwork.
TIN210DV01	Database Management Systems	This course provides an overview of the basic concepts of relational database management systems, how to implement programming with RDBMS. Provides the concepts of operating principles, organizational structure of the RDBMS system. Also instructs the implementation of installation, application and maintenance of a specific RDBMS system.

TIN251DV01	Object-oriented Analysis and Design	This course is intended to introduce methods of determining the structure and operation of a software system using an object oriented model approach. Students are introduced to the concepts, techniques, and steps involved. Through the analysis and design of a specific system, students see the effectiveness in managing complexity in this approach.
TIN252DE01	Software Engineering	This course aims to provide students with a background in software development processes and steps, and to equip students with a basic understanding of methods of evaluation and analysis. and implementing the project according to the process.
TIN231DV01	Algorithms Analysis and Design	This course gives students knowledge of problem analysis, design and evaluation of complex algorithms. Problem solving methods such as: Division for value, trial and error, ... Typical problems: sorting, searching, graphing, ..., at the same time, train students to be able to think logically and apply pressure. use algorithms in programming problems. Students have the ability to apply knowledge learned to solve problems in any language.
TIN235DE01	Advanced Programming Techniques	This course will help students develop and reinforce the knowledge and skills needed to develop higher quality software applications. Specifically, the course helps students to program more quickly and with fewer problems. In particular, this course will give students insight into why they had problems with programming in the past and will show them how to avoid problems in the future.
TIN104DV01	Information Technology Practice 1	This course aims to reinforce students' foundations in error checking and code standardization by modeling, performing analysis, and developing IT applications. Students will understand and be able to design and apply programming and modeling techniques to deliver simple real-world applications.
TIN216DV01	Information Technology Practice 2	This course aims to reinforce the programming knowledge and skills and practical software development processes for students. Students will understand and be able to apply techniques, algorithms, and process parts required in accordance with software development requirements. The content of the subject focuses mainly on the ability to apply modern programming techniques and application development processes.
TIN217DV01	Information Technology Practice 3	This course aims to reinforce the programming knowledge and skills and practical software development processes as well as the ability to self-study new technologies for students. The content of the subject focuses mainly on the applicability of new technologies and the applicability in application development.

TIN230DV01	Professional Programming Practices A	This course helps students combine and consolidate knowledge learned in previous subjects to become familiar with solving a real programming problem. Through the process of implementing the topic, students will become familiar with the methods of learning and analyzing an actual problem in order to decompose into smaller problems. With each of these small problems, students will divide in groups to find specific solutions. The process of integrating specific solutions into common solutions trains team members to work collaboratively.
TIN330DV01	Major Project A	This course not only helps students combine and consolidate knowledge learned in previous subjects, but also have to specialize in some knowledge (learned or self-researched) to solve a problem.Through the project implementation process, students will work with methods to learn and analyze a real problem in order to decompose into smaller problems. With each of these small problems, students will divide in groups to find specific solutions. The process of integrating specific solutions into common solutions trains team members to work collaboratively. Project topics will serve as a foundation for students to develop more deeply to do their graduation thesis.
TIN460DE01	Artificial Intelligence	This course provides students with the basic and necessary knowledge about the field of artificial intelligence and its applications in life. Besides, you can improve your programming skills through hands-on exercises.
TIN451DE01	Software Architecture	Software architecture is becoming an important factor in the development of software engineering. The core of software system which has high technical quality is dependent on stable software architecture. This course introduces the types of software architecture commonly used in high-level architecture design for software systems.
TIN452DE02	Software Project Management	Project management software equippes student with the knowledge, techniques and tools required to manage the process of building software products. Students will be exposed to the materials necessary for a project manager to plan a process for building software using skills to estimate size and effort efficiently. From there, to control the process of implementing projects with high productivity and quality. Based on the gained knowledge and guidance from instructor, students will have to learn through case studies exercise methods of modern project management and discussed in class.

TIN321DE01	Emerging Technologies	The aim of this course is to provide students with the opportunity to study and apply technologies that are either currently being adopted, trailed by commercial early adopters, and expected to become mainstream within the next 12-18 months or expected to be widely adopted in the 18 month timeframe. The module will be delivered in series of seminars led by technology experts from both industry and academics world. Interleaved with these seminars are a mixture of instructor-led class discussion, coding demonstration, tutorial, and group code review -- inspired by a problem-based learning (PBL) approach. The focus of the course will be both the development of knowledge of aspects of technological topic, and the development of associated practical skills. Students will focus on establishing an understanding of the key drivers for the trends and potential applications of the technology.
Concentration: Applied AI		
TIN340DV01	Machine Learning	This machine learning has been successfully applied to many different fields such as automotive and robotics control, natural language processing, image recognition, health science, biology, and data mining. This course introduces the basic concepts and methods to learn from data for computational data analysis, including pattern recognition, prediction, and visualization. Therefore, this subject includes supervised learning, unsupervised learning, and reinforcement learning. This course is mainly focused on applying machine learning techniques to different problems.
TIN411DV01	Data Mining Fundamentals	This course provides research algorithms and computational models that allow computers to find patterns and patterns in a database, perform predictions and predictions, and generally improve their performance. through interaction with data. Data mining is a step of the Knowledge Discovery Process in extracting useful knowledge from raw data. The Data Mining process includes data selection, cleaning, coding, the use of statistical techniques and machine learning methods, and various visualizations of generated structures. The course will cover all of these issues and will illustrate the whole process with examples. Special emphasis is placed on machine learning methods as they provide real knowledge discovery tools.
TIN410DV01	Practical Artificial Intelligence Programming	This course provides the theoretical foundation and practical applications of the field of artificial intelligence including Logical Inference, Semantic Web, System of Experts, Genetic Algorithms and Neural Networks, Language Processing. Natural Language and Information Collection. Student groups will receive topics to learn, present and illustrate in front of the class by practical teachers to improve their organization and presentation skills. At the same time, uphold the spirit of teamwork.

TIN357DV01	Application Development for E-Commerce	This course provides the concepts, technologies, and applications of e-commerce (e-commerce). Since the user can participate in e-commerce from a fixed device (eg, PC) or from a mobile device (eg, mobile phone). Explain B2C characteristics and examples, and examine the growing role of social commerce. Representation of B2B and contrast with B2C. Provide security checks and payments in e-commerce. Also present the necessary technological infrastructure to support an e-commerce system and describe how to build e-commerce. Besides, case studies are used to illustrate knowledge of the subject.
TIN358DV01	Decision Support System	This course presents the concepts of decision support environments in both automatic and non-automatic. Focus on the application of decision theory, analytical models, and engineering simulations to solving organizational problems. Presentation of group decision support systems (Group Decision Support Systems), operating information systems (Executive Information Systems) and systems experts (Expert Systems). Besides, case studies are used to illustrate knowledge of the subject.
Concentration: Applied Technology in Bid Data and Data Science		
TIN303DV01	Advanced Database	This course introduces the concepts and features of transaction processing, the model of influential transactions in the design of applications, and how to install and support transaction processing in mechanical transaction processing systems. databases such as concurrency control and logging. Database backup, recovery, and refinement techniques. Database security. In addition, the subject also studies SQL query processing, query optimization measures. The course introduces the concepts of a large distribution system. Calculation and processing of distributed data. architecture of a distributed database. At the same time, provide a way to design, install, exploit and administer a distributed database management system. Distributed query optimization method. Provides concepts about object-oriented databases such as object structure, unique identifier, type constructor, ... building inheritance relationships, association relationships. Distributed and object-oriented database application in Oracle database management system 11g. Student groups will receive topics to learn, present and illustrate in front of the class by practical teachers to improve their organization and presentation skills. At the same time, uphold the spirit of teamwork.
TIN341DV01	Big data with Hadoop	This course introduces the concepts of big data, providing students with knowledge of the Hadoop Framework, a popular framework in storage and analysis of big data. With Hadoop framework, students will be guided on platforms and tools such as HDFS, Hbase, Hive, MapReduce, Pig, Zookeeper to solve distributed file organization problems, distributed databases, and data warehouses. , building applications for big data mining in the problem of organization and big data exploitation.

TIN359DV01	Datawarehouse Development Techniques	This course covers the required needs and components of a data warehouse, Planning and Requiring Data Warehouse. Understand architecture and infrastructure for data warehouse design and construction. Ways to design and refine data. Besides, case studies are used to illustrate knowledge of the subject.
TIN360DV01	NoSQL Database	This course provides students with general knowledge about NoSQL database, which is a database with modeled data storage and retrieval mechanism different from relational type database. The course introduces students to four basic types of NoSQL databases: key-value, document, column family, graph. Students are equipped with the skills of analyzing the data structure of the problem to choose the right database type. Students are instructed to model, design, install, and use NoSQL database.
TIN412DV01	Knowledge Management System	This course provides concepts, theories and technologies for the foundation of Knowledge Management System (KMS). The systems and structures that form KMS solutions, and the process of developing, implementing, and evaluating KMS solutions. Provide multi-disciplinary perspectives, management organizations and knowledge exploration.
Concentration: Software Development and Quality Assurance		
TIN336DV01	Software Application Development	This course provides students with knowledge about the development of management application software such as how to access database processing, data representation in applications, in the form of reports, … Students learn how to transform information system representation models in computer systems and programmatically simulate a number of practical applications that meet design requirements. From there, students can build a number of management applications to serve as a foundation for future subjects.
TIN327DV01	Web Development	This course provides the basic concepts in building Web applications using Microsoft.NET platform including: C# programming language, MVC model in ASP.NET, data access with administration system. Microsoft SQL Server database. Students are guided step by step to implement a website with basic functions applied in e-commerce based on the platforms provided above.
TIN334DV01	Application Development for Mobile Devices	This course focuses on developing cross-platform iOS and Android apps using React Native and Expo SDK. Students will learn about UI development with React Native, as well as supporting the layout and access of mobile platform capabilities from Javascript using the Expo SDK.
TIN253DV01	Software Testing	This course aims to equip students with fundamental knowledge in performing the testing of a computer software, which focuses on mastering and applying the processes and techniques commonly used in testing. soft. Students will understand and be able to design test scripts that suit software requirements. The content of the subject focuses mainly on black box testing techniques and white box testing techniques.

TIN450DV01	Software Quality Management	This course aims to introduce the theory and provide methods to help students assess software quality, understand the role and position of QA / QC in project development, and plan for quality monitoring throughout. the process of implementing a software project.
Concentration: IoT and Blockchain		
TIN361DV01	Internet of Things Technologies and Applications	This course helps students grasp the studies of the Internet of Things, its applications, architecture and technologies. The course identifies potential future directions and technologies thereby enabling students to have a deep understanding of its applications in science, business and consumption.
TIN362DV01	Internet of Things Application Development	This course will introduce the basic knowledge about the Internet of Things, the potentials and challenges of applying IoT into practice. Thereby, providing students who are not specialized in hardware but still have access to make IoT products easy; can self-develop integrated systems for IoT products; avoid unnecessary mistakes when developing and designing the wrong system.
TIN413DV01	Blockchain Technology	This course aims to provide students with a fundamental knowledge of all topics related to Blockchain technology including cryptography, cryptocurrencies, Bitcoin, Ethereum and many other platforms; and tools used to develop Blockchain applications.
TIN326DV01	Real Time Computing and Embedded Systems	This course aims to provide students with programming knowledge and skills and real-time embedded software development. The content of the course focuses mainly on the ability to analyze, build and program embedded systems with real-time processing capabilities. The course also provides learners with the basic foundation in how to communicate between embedded devices and their surroundings.
TIN325DV01	Cloud Application Development	This course provides software application development knowledge and skills on current popular cloud platforms. Students understand the models and architectures for building operating systems in the cloud.
TIN250DV01	Work Experience Internship	Cognitive internships help students approach businesses while still sitting on the school bench as a trainee at the company. From the perspective of perception, students will observe, learn and do the assigned work in the real environment of an enterprise, departments in the company as well as departments in the future. . At the end of the internship, students will present to the council what they have done and the experiences they have learned through the internship.
TIN498DV01	Graduation Internship	The internship aims to help students prepare for job opportunities right after graduation through jobs assigned by enterprises as an intern at the company. And perform assigned research or practice topics in accordance with the reality and needs of the business. Students will defend the implementation results of the topic before the graduation internship evaluation committee.
TIN499DV01	Graduation Paper	Students do a graduation thesis in 15 weeks to learn, research or apply some issues related to their major.

17. Modes of Instruction:

To promote declarative and procedural knowledge, student engagement, and collaboration in a supportive learning environment, diverse instructional modes are designed. Activities which involve teacher-centered transmission models (e.g. lectures) and student-centered constructivist models (e.g. discussions and task-based activities) will provide a variety of input-output procedures to ensure the quality of learning. Generally, each meeting might be conducted in the following way:

- Lectures (around 20% of the time): Students will be introduced to new concepts

- Discussions, presentation or assigned tasks (approximately 65% of the time): Students will participate in discussion activities or tasks designed to activate the concepts presented in lectures or reading materials.

- Commentary (about 15% of the time): The instructor will give comments on the opinions/problems presented in group/class discussion or problems found in the tasks.

18. Types of Assessment:

The formative and summative assessment are applied in the B.A programme in Information Technology to observer student learning, gather ongoing feedback, and evaluate student learning at the end of each courses.

To enhance the formative feedbacks that help student in their improvement and adjustment, a reasonable rate is given with 60% of the grading weight is placed on the formative assessment and the rest 40% is on the summative one.

A wide range of the assessment methods is currently applied for evaluating students' learning achievement including quizzes, at-class assignment, examinations, report, presentation, project output, capstone projects, etc.

The course assessment is clearly and fully informed to students by lecturers at the first day of class or in HSU information system. All the information of course or course outlines with time frame and weight for quizzes, assignments, presentations, the midterm and final tests as well as all of the related assessment methods are always already on HSU's website.

19. Grading Scheme:

For courses: 10-point grading scale is applied including midterm, final, group project/ presentations, etc. For Grade Point Average (GPA) calculation: as prescribed in the Students' Handbook.

20. Programme Benchmark Outcomes:

To graduation, besides meeting HSU's Regulations, GPA 2.0 at least, and grades without D levels of all courses finish, students of the BIT programme have to satisfy English proficiency of B1 level to meet output quality.

21. Job Opportunities:

Information technology is one of the very few industries with lots of upside and very little downside, it is the backbone to almost every developed economy. What makes information technology such a desirable career path is that it is dynamic and the employment opportunities are endless. Graduates of Information Technology can enter and benefit all sectors of industry such as IT professionals design, support, and maintain computer hardware and software for various industrial and individual applications. Here is a list of the top jobs that student can pursue after graduation: Software developer, Systems analyst, Information Technology Consultant, Computer Forensic Analyst, Information Technology Business Analyst, Computer Network Architect, Technical sales representative, IT support analyst, Project manager, Web designer, QA analyst.

22. Vision and Mission:

22.1. *Hoa Sen University*

Vision

Hoa Sen University is a reputable world-class university in Asia which aims to implement practice in its educational framework and create quintessential manpower for society.

Mission

HSU strives to fulfill the mission of offering learners with extensive and intensive knowledge, intellectual-creative capacity, and aspiration to rise to challenges and professional experience, which will allow them to embark on entrepreneurship and assert themselves with their exceptional identity.

Philosophy of Education

Hoa Sen University adheres to the educational philosophy of "Human and the liberal spirit".

22.2. ***Faculty of Information Technology***

FIT's Vision

To be one of the most highly recognized Information Technology Faculties well-known educational conglomerates in Vietnam in the spheres of teaching, learning, research, and community services according to international standards.

FIT's Mission

Faculty of Information Technology strives to:

• Prepare graduates in the field of Information Technology who are well-equipped with knowledge, skills and highly motivated to lifelong learning as well as capable of fulfilling contemporary requirements.

• Foster teaching, learning and research towards application-oriented

• Build human values and the community-serving spirit in each individual learner.

FIT's Educational philosophy

We believe that our charge is to facilitate active learning and foster the knowledge, critical thinking and life/work skills required for participation in our global society. We believe that excellence in education must occur in an ethical climate of integrity and respect. We believe that the strength of our society is rooted in diversity and respect for differences.

22.3. **The Department of Software Engineering**

Vision: Graduates of the Department of Software Engineering will be recognized as innovative developers in the fields of applying software engineering. This recognition will come from their work in software development in a myriad of application areas.

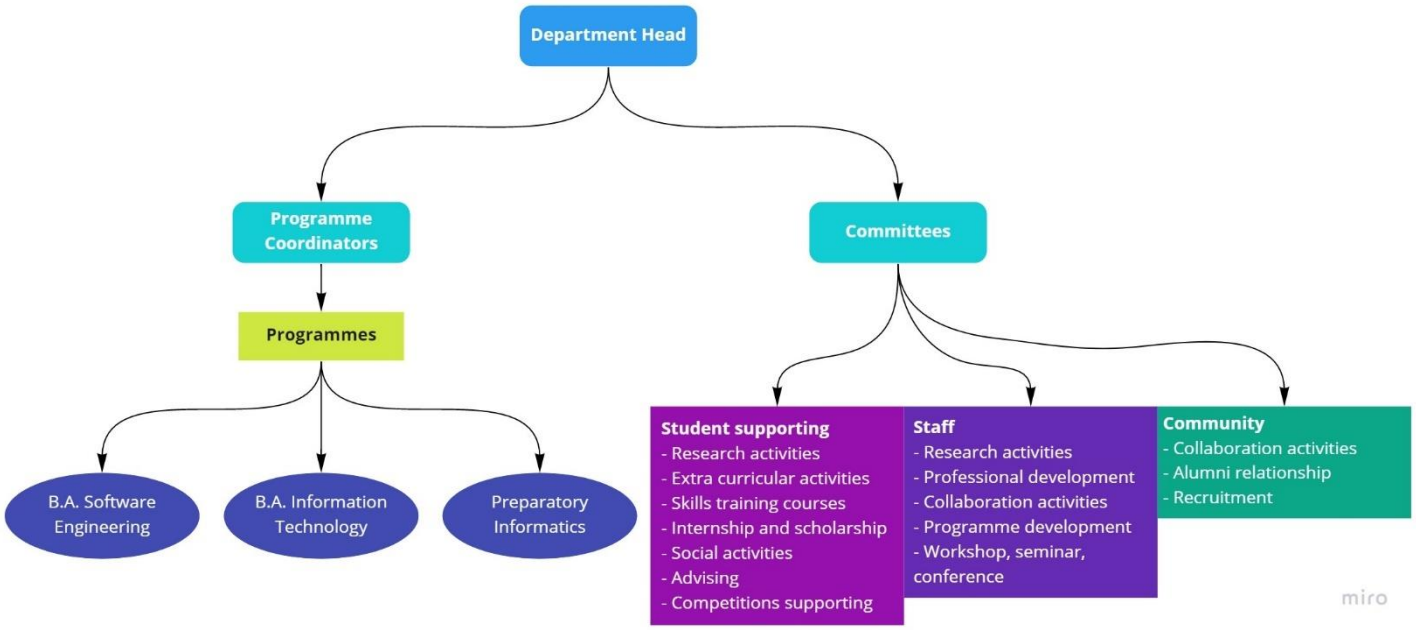
Missions: Our mission is to teach and prepare liberally educated, articulate, and skilled software engineers for professional careers and for life-long learning. A central objective of our programme is to contribute to society by advancing the fields of software engineering through innovations in teaching and research, thus enhancing student knowledge through interactive instruction, global engagement, and experiential learning. The programme will serve as a resource to inform society about innovations related to the production and uses of software.

23. Programme Offered by the Department of Software Engineering (DSE):

The Department of Software Engineering offer 3 programmes including Information Technology, Software Engineering and Preparatory Informatics. With programme Information Technology, student has 4 concentrations namely Applied Artificial Intelligence Technology, Applied Technology in Big Data and Data Science, Software Development and Quality Assurance, IoT and Blockchain.

From next academic year 2021-2022, Artificial Intelligence will be a new programme in DSE.

24. Structural Organization of the Department of Software Engineering:



25. Extra curriculum activities:

- Outreach activities
- Service learning
- Competitions
- Talk-shows & seminars

- Fieldtrips

- Learning support activities

- Community research

26. Contact/ Help Information & Resources:

Website: https://cntt.hoasen.edu.vn/vi/bo-mon/bo-mon-ky-thuat-phan-mem-229.html

Office: Room 106, Lott 10, Quang Trung Software Park, District 12, Ho Chi Minh City, Vietnam

Academic Advising:

The Academic advising team of the Department of Software Engineering include staffs with full of experiences not only in academic but also in advising. They are assigned to support students for academic achievement. Besides, lecturers are in charge of their courses so the student can request advice from them if necessary.

Academic Affairs: Ms. Huynh Thi Mong Chau (chau.huynhthimong@hoasen.edu.vn)

Student Affairs & Programme Coordinators: Mr. Trang Hong Son (son.tranghong@hoasen.edu.vn)