Outcome Based Education (OBE) Curriculum

**ASSOCIATE IN COMPUTER TECHNOLOGY**

**Revised Curriculum**

**Major in NETWORKING**

*Academic Year 2024-2025*

1. **GENERAL EDUCATION 30**
2. **Language and Humanities 6**

* ENGLISH

English 1 Purposive Communication 3

* Humanities (Literature, Arts, Philosophy, etc.)  Humanities Art Appreciation 3

1. **Mathematics, Natural Sciences and Technology**

* MATHEMATICS **3**

MATH 1 Mathematics in the Modern world 3

* ELECTIVES **6**

ETHICS Ethics 3

SCIENCE Science, Technology and Society 3

1. **Social Sciences and Communication 3**

SOC SCIE 1 Life and Works of Rizal 3

1. **GENERAL EDUCATION ELECTIVES 9**

Mathematics, Science & Technology (Living in the IT Era) 3  
Social Science and Philosophy (Philippine Indigenous Communities) 3

Arts & Humanities (Peace Studies and Education) 3

1. **COMMON COURSES 15**

CC 101 Introductions to Computing 3

CC 102 Fundamentals of Programming 3

CC 103 Intermediate Programming 3

CC 104 Data Structures and Algorithms 3

CC 105 Information Management 1 3

1. **PROFESSIONAL TRACK/ELECTIVES 18**

ACT-PT/Elec 101 Platform Technologies 1 3

ACT-PT/Elec 102 Data Communications and Networking 1 3

ACT-PT/Elec 103 Systems Administration 3

ACT-PT/Elec 104 Data Communications and Networking 2 3

ACT-PT/Elec 105 Network Administration 3

ACT-PT/Elec 106 Network Security 3

1. **PROFESSIONAL ISSUES AND COMPUTING 3**

ACT- PIC 101 Professional Issues in Computing 3

1. **INTERNSHIP 6**

ACT-OJT On The Job Training 6

1. **PHYSICAL EDUCATION 8**

PE 1 (PATHFIT 1) Movement Competency Training (MCT) (2)

PE 2 (PATHFIT 2) Exercise-based Fitness Activities (2)

PE 3 (PATHFIT 3) Dance (Folk Dance) (2)

PE 4 (PATHFIT 4) Sports (Volleyball/Basketball) (2)

1. **NSTP 6**

NSTP 1 Civil Welfare and Training Service 1 3

NSTP 2 Civil Welfare and Training Service 2 3

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**ASSOCIATE IN COMPUTER TECHNOLOGY**

**Revised Curriculum**

**(NETWORKING)**

*Academic Year 2024-2025*

**PROGRAM STRUCTURE**

**FIRST YEAR**

**First Semester**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **COURSE CODE** | **COURSE TITLE** | **LEC UNIT(S)** | **LAB**  **UNIT(S)** | **UNIT(S)** | **PRE-**  **REQUISITES** |
| CC 101 | Introduction to Computing | 2 | 1 | 3 | None |
| CC102 | Fundamentals of Programming (C#) | 2 | 1 | 3 | None |
| GE-101 | English 1 (Purposive Communication) | 3 | 0 | 3 | None |
| GE-102 | Math 1 (Mathematics in the Modern World) | 3 | 0 | 3 | None |
| ACT-PT/Elec 101 | Platform Technologies | 3 | 0 | 3 | None |
| ACT-PT/Elec 102 | Data Communications and Networking 1 - | 3 | 0 | 3 | None |
| NSTP 1 | Civil Welfare and Training Service | 3 | 0 | (3) | None |
| PE 1 (PATHFIT 1) | Movement Competency Training (MCT) | 2 | 0 | (2) | None |
|  |  | 21 | 2 | 23 |  |

**Second Semester**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **COURSE CODE** | **COURSE TITLE** | **LEC UNIT(S)** | **LAB**  **UNIT(S)** | **UNIT(S)** | **PRE-**  **REQUISITES** |
| CC 103 | Intermediate Programming | 2 | 1 | 3 | CC 101 |
| GE Elec. 1 | Mathematics, Science & Technology (Living in the IT Era) | 3 | 0 | 3 |  |
| GE Elec. 2 | Social Science and Philosophy | 3 | 0 | 3 |  |
| GE-103 | Science Technology and Society | 3 | 0 | 3 | None |
| GE-104 | Ethics | 3 | 0 | 3 | None |
| ACT-PT/Elec 103 | Systems Administration - | 2 | 1 | 3 | None |
| NSTP 2 | Civil Welfare and Training Service | 3 | 0 | (3) | NSTP 1 |
| PE 2 (PATHFIT 2) | Exercise-based Fitness Activities | 2 | 0 | (2) | PE 1 (PATHFIT 1) |
|  |  | 21 | 2 | 23 |  |

*  
PREPARED BY: NOTED BY: REVIEWED BY: NOTED BY:*

Engr. Jay A. Dadea, MIT Ramon S.L. Moraleda, LLB Alicia M. Nieto, MIT Rachel D. Casimero

**Dean Administrator/RMO Education Supervisor II Chief Education Program Specialist**

**ASSOCIATE IN COMPUTER TECHNOLOGY**

**Revised Curriculum**

**(NETWORKING)**

*Academic Year 2024-2025*

**SECOND YEAR**

**First Semester**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **COURSE CODE** | **COURSE TITLE** | **LEC UNIT(S)** | **LAB**  **UNIT(S)** | **UNIT(S)** | **PRE-**  **REQUISITES** |
| CC 104 | Data Structures and Algorithms | 2 | 1 | 3 | None |
| ACT-PIC 101 | Professional Issues in Computing – | 3 | 0 | 3 | None |
| ACT-PT/Elec 104 | Data Communication and Networking 2 | 2 | 1 | 3 | ACT-PT/Elec 102 |
| ACT-PT/Elec 105 | Network Administration - | 2 | 1 | 3 | ACT-PT/Elec 103 |
| GE Elec. 3 | Arts & Humanities (Peace Studies and Education) | 3 | 0 | 3 |  |
| GE-105 Soc. Scie 1 | Soc. Scie 1 (Life and Works of Rizal) | 3 | 0 | 3 | None |
| PE 3 (PATHFIT 3) | Dance (Folk Dance) | 2 | 0 | (2) | PE 2 (PATHFIT 2) |
|  |  | 17 | 3 | 20 |  |

**Second Semester**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **COURSE CODE** | **COURSE TITLE** | **LEC UNIT(S)** | **LAB**  **UNIT(S)** | **UNIT(S)** | **PRE-**  **REQUISITES** |
| OJT | On-the-Job Training (320 hours) | 6 | 0 | 6 | None |
| ACT-PT/Elec 106 | Network Security- | 2 | 1 | 3 | ACT-PT/Elec 105 |
| GE-107/Humanities 1 | Art Appreciation | 3 | 0 | 0 | None |
| ACT-C105 | Information Management 1 | 3 | 0 | 3 | None |
| PE 4 (PATHFIT 4) | Sports ( Volleyball/Basketball) | 2 | 0 | (2) | PE 3 (PATHFIT 3) |
|  |  | 16 | 1 | 17 |  |

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**SAMPLE MEANS OF CURRICULUM DELIVERY**

The Information Technology graduates are expected to become globally competent, innovative and socially and ethically responsible computing professionals engaged in life-long endeavors. They are capable of contributing to the country’s national development goals.

The Graduate outcomes of the Associate in Computer Technology Curricula are archived through, but not limited to the following.

1. Lecture and Classroom Discussions.
2. Programming Demonstrations.
3. Guided Hands-On Programming.
4. Guided Design and Development of Project Specifications.
5. Independent Programming Assignments such as Machine Problems.
6. Case Analysis and Case Studies
7. Capstone Project which involves requirements gathering, design and implementation.
8. Mentorship and Monitored Internship.

|  |
| --- |
| **Table I: CURRICULUM** |

|  |  |  |
| --- | --- | --- |
| **COURSE**  **Bachelor of Science in Information Technology**  **(Networking)** | **Required Minimum Number of Units per CMO No. 13, Series 2021** | **Institution** |
| General Education | 15 | 30 |
| ITE Common Computing | 15 | 15 |
| Professional Track/Electives | 18 | 18 |
| Professional Issues in Computing | 3 | 3 |
| Internship (320hours) | 6 | 6 |
| PATHFIT | 8 | 8 |
| NSTP | 6 | 6 |
| Minimum Total Units | 71 | 86 |

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**ASSOCIATE IN COMPUTER TECHNOLOGY**

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*Academic Year 2024-2025*

**COURSE DESCRIPTION**

**SUBJECT Units Lec Lab**

**Introduction to Computing 3 2 1**

This course provides an overview of the computing industry and computing profession, including research and applications in different fields; an appreciation of computing in different fields such as biology, sociology, environment and gaming, an understanding of ACM requirements, an appreciation of the history of computing and knowledge of the key components of computer systems, malware, computer security, internet and internet protocols, HTML 4/5 and CSS.

**Fundamentals of Programming 3 2 1**

This course introduces the fundamental concepts of structured programming, and

provides a comprehensive introduction to programming and technology majors. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging.

**Platform Technologies 3 3 0**

This course provides the hardware/software technology background for information technology personnel. Hardware topics include CPU architecture, memory, registers, addressing modes, busses instructions sets and a variety of input/output devices. Software topics include operating system modules, process management, and memory and file system management. Also included are basic network components and multi-user operating systems.

**Purposive Communication 3 3 0**

Purposive communication is a three-unit course that develops students’ communicative competence and enhances their cultural and intercultural awareness through multimodal tasks that provide them opportunities for communicating effectively and appropriately to a multicultural audience in a local or global context. It equips students with tools for critical evaluation of a variety of texts and focuses on the power of language and the impact of images to emphasize the importance of conveying messages responsibly. The knowledge, skills, and insights that students gain from this course may be used in their other academic endeavors, their chosen disciplines, and their future careers as they compose and produce relevant oral, written, audio-visual and/or web-based output for various purposes

**Mathematics in the Modern World 3 3 0**

The course deals with nature of mathematics, appreciation of its practical, intellectual, and aesthetic dimensions, and application of mathematical tools in daily life.

The course begins with an introduction to the nature of mathematics as an exploration of patterns (in nature and the environment) and as an application of inductive and deductive reasoning. By exploring these topics, students are encouraged to go beyond the typical understanding of mathematics as merely a set of formulas but as a source of aesthetics in patterns of nature, for example, and a rich language itself (and of science) governed by logic and reasoning.

The course then proceeds to survey ways in which mathematics provides a tool for understanding and dealing with various aspects of present-day living, such as managing personal finances, making social choices, appreciating geometric designs, understanding codes used in data transmission and security, and dividing limited resources fairly. These aspects will provide opportunities for actually doing mathematics as way of knowing, and test the students understanding and capacity.

**Civil Welfare and Training Service 1 3 3 0**

The Civic Welfare Training Services (CWTS) as a component of the Civil Welfare and Training Service (NSTP) is a course for the first year students both male and female designed to help them understand, appreciate and eventually live by the concepts of the Students Transformation and Enrichment for Truth (STET) with the end in view of empowering them in becoming a potent resource community development.

**Physical Fitness and Gymnastics 2 2 0**

This course introduces the good posture and the movements of physical body. It contains information and activities the students can use throughout their lives. It also contains suggested areas for the basic physical education program which will provide the students practical and scientifically sound introduction to exercise and fitness. Topics on this course where included for better understanding of the structure and function of the body systems which lead to more appropriate and sound fitness practices.

**Intermediate Programming 3 2 1**

This course provides the transition from the functional paradigm to the object-oriented paradigm. It introduces OOP using Java as the implementation language. It emphasizes proper formulation and abstraction of the problem domain in the programming process in order to build programs that are robust, flexible, and extensible. The course also covers data structures and algorithms to manipulate them that are essential to programming, such as lists, stacks, queues, trees, tables. These structures are implemented as systems of cooperating objects using appropriate design patterns. The course will also cover both stream I/O and event-driven I/O.

**Data Communication and Networking 1 3 3 0**

This course provides the fundamental knowledge and skills in designing and managing data communication and computer networks. Emphasis is on the 7 layers of Open Systems Interconnection. (OSI) model and TCP/IP. Topics include introduction to LANs, WANs, service provider packets and IP addressing and networking hardware and software.

**Systems Administration 3 2 1**

This course will provide the knowledge and hands-on skills necessary to manage a Local Area Network and its resources. Topics covered include directory services, server management, file and print services, and user/client administration in a heterogeneous operating system environment. Students will setup and manage a fully functioning computer network of systems. Hands-on active learning required.

**Science, Technology and Society 3 3 0**

The coverage of this course in interactions between science and technology and social, cultural, political and economic contexts which shape and are shaped by them; specific example throughout human history of scientific and technological developments.

**Ethics 3 3 0**

This course provides with principles of ethical behavior in modern society at the level of the person, society and interaction with the environment and other shared resources. Morality pertains to the standards of right and wrong that an individual originally picks up from the community. The course discusses the context and principles of ethical behavior in modern society and interaction with the environment and other shared resources. The course also teaches students to make moral decisions by using dominant moral frameworks and by applying a seven-step moral reasoning model to analyze and solve moral dilemmas.

**Civil Welfare and Training Service 2 3 3 0**

The Civic Welfare Training Service (CWTS 2) is a sequel to CWTS. It is designed to immerse students in activities that will arm them the capacity to contribute in the upliftment of the general welfare and the quality of life of the community and the enhancement of its facilities especially those

that are devoted to improving the health, environment, entrepreneurship, safety, recreation and morale of the citizen

**Individual and Team Sports 2 2 0**

This course introduces Individual ad Dual Sports such as Athletics, Table Tennis, badminton, Arnis and Swimming. It includes discussions of history when and where it was originated, the facilities and equipment, the players, how to play safely the said game and disseminating of rules of every individual games in order to fit the needs of the students and for them to gain a general comprehension and unified view of the entire course and also to find enjoyment. Physical activities include all movements that can contribute to improve health. Physical Education activities through sports programs improve the quality of life and the physical well-being of an individual.

**Data Structures and Algorithms 3 2 1**

An overview of data structure concepts, arrays, stack, queues, trees, and graphs. Discussion of various implementations of these data objects, programming styles, and run-time representations. Course also examines algorithms for sorting, searching and some graph algorithms. Algorithm analysis and efficient code design is discussed.At the end of the course, the students are expected to be able to incorporate algorithmic design know-how and data structures to create reliable and structured programs.

**Information Management 1 3 3 0**

The course covers the basic theories behind database, data models and database analysis and design. The course will tackle different data models but will concentrate mainly on relational databases. The course introduces learners to concepts on conceptual design of databases using then concepts of the Entity- Relationship (ER) model and normalization, relational model, relational database design and database query languages.

**Professional Issues in Computing 3 3 0**

This module aims to raise awareness of social legal, ethical and economic implications of computing in modern society. It highlights the responsibilities and issues facing IT professionals and computer scientists in industry.

**Data Communication and Networking 2 3 2 1**

This course introduces students to the networking field. Topics include network terminology and protocols, local-area networks, wide-area networks, OSI model, cabling, router programming, Ethernet, IP addressing, and network standards. Upon completion, students should be able to perform tasks related to networking mathematics, terminology, and models, media, Ethernet, subnetting, and TCP/IP Protocols.

**Network Administration 3 2 1**

This current topics course will focus on the design, installation, configuration, and operation of

local area networks. This course provides students with the knowledge and skills necessary to

install and configure a stand-alone and client computers that are part of a workgroup or domain.

**Network Security 3 2 1**

This course covers the underlying principles and techniques for network and communication security. Practical examples of security problems and principles for countermeasures are given. The course also surveys cryptographic and other tools used to provide security and reviews how these tools are utilized in protocols and applications and focus on network scanning, building firewalls, configuration of an intrusion detection system (IDS).

**Art Appreciation 3 3 0**

This course is a three-unit course that develops student’s ability to appreciate, analyze and critique work of art. Through interdisciplinary and multimodal approaches, this course equips students with a broad knowledge of the practical, historical, philosophical, and social relevance of the arts in order to hone student’s ability to articulate their understanding of the arts. The course also develops students’

competency in researching and curating art as well as conceptualizing, mounting and evaluating art productions. The course aims to develop students’ genuine appreciation for Philippines Arts y providing them opportunities to explore the diversity and richness and their rootedness in Filipino culture.

**Life and Works of Rizal 3 3 0**

A course on the life, works, ideas, and ideals of Jose Rizal which aims to provide students an in-depth appreciation of Rizal’s contribution to the building of Filipino nationhood. The course involves the critical and analytical discussion of Rizal in the context of Philippine History.

**Reading in Philippine History 3 3 0**

The course analyzes Philippine History from multiple perspectives through the lens of primary sources coming from various disciplines and of different genres. Students are given the opportunities to analyze the author’s background and main arguments, compare different points of view, identify biases and examine the evidences presented in the document. The discussions will tackle traditional topics in history and other interdisciplinary themes deepen and broaden their understanding of Philippine political, economic, cultural, social, scientific and religious history. Priority is given to primary materials that could help students develop the historical and critical consciousness of the students so that they will become versatile, articulate, broad minded, morally upright and responsible citizen. This course also includes the topic on history of the Philippine constitution from 1899 Malolos Constitution to the 1987 Constitution.

This further includes the topic on the Philippine Agrarian/Land Reform under RA 6657.otherwise known as Comprehensive Agrarian Reform Law.

**Rhythmic and Folkdances 2 2 0**

This course highlights the application of the rhythmic bodily movements which have emphasis on fundamental rhythm, basic dance steps and appreciation of the country’s rich cultural heritage which strengthens the awareness on dance education as a global perspective in the 21st century. Students will be given varied rhythmic activities and experiences to develop their skills and creativity in dancing

**Recreational Sports 2 2 0**

This course introduces Recreational Activities such as Badminton, Bowling and Swimming. It includes discussion of history, facilities and equipment, the payers, how to play safely the said game and disseminating of rules every individuals games in order to fit the needs of the students and for them to gain a general comprehension and unified view of the entire course and also to find enjoyment.

**On-the-Job Training 6 6 0**

OJT or Practicum is a non-classroom learning environment. The objective of the said practicum program is to provide students with the opportunity to develop confidence, exercise judgment and to apply the diversified skills, knowledge and attitude learned in school and at the same time the opportunity to experience the corporate environment.

**Mathematics, Science & Technology 3 0 0**This course covers the study on basic transition that began in the mid-20th century in a traditional industry characterized by Industrial Revolution to an economy based upon information technology.   
The said course provides an overview about Information Communication Technology, elements of a computer system and how ICT be used in appositive way. Thru the creation of different outputs like AVPs, digital posters and cartoons it will help teachers demonstrate how verbal and non-verbal classroom strategies.

**Peace Studies and Education 3 0 0** This course enable the students and teachers to advocate peace with training as Peace educators and students. The said course will acquire a holistic and critical understanding of the theory and practice of peace education. It will also enhance students intellectual flexibility, creativity and problem- solving capacities.

**Social Science & Philosophy 3 0 0**This course provides a study of indigenous groups in the Philippines. Their way of Life, role and contribution to Filipino society. The said course gives emphasis on the rights protection and preservation of their culture as they are the identity of our country that needs to be learned continuously.