

## College of Computer Studies

In November 1988, the Silliman University Computer Center (SUCC) was established with the objective of centralizing computer course offerings of the University. Engr. Alfredo T. Ang was the appointed head of this unit. Originally, the center serviced the computer subjects required by the Commission on Higher Education (CHED) for non-IT degrees as well as short courses. These short courses were open to all interested members of the community. In 1992, services were expanded to include the computer degree (Bachelor of Science in Business Computer Application), a degree offering of the College of Business Administration (CBA).

In June 1994, the Computer Center moved to the newly completed Uytensu Foundation Computer Center Building, which was later renamed Uytensu Foundation Computer Center (UFCC).

In 1999, the UFCC's services were further expanded to include the second computer degree offering of the CBA, Bachelor of Science in Information Technology. In line with the Commission on Higher Education's thrust to control the number of Information Technology Education degrees and to centralize its offering within the institution, Silliman University created the College of Information Technology and Computer Sciences. The College became fully operational in June 2001, with Engr. Ang as its Acting Dean. The first degree offerings were the Bachelor of Science in Information Technology (BSIT) and Bachelor of Science in Computer Science (BSCS). In the following year, the College offered the Bachelor of

Science in Information Management (BSIM), now known as the Bachelor of Science in Information Systems (BSIS) program.

To guarantee that effective degrees are offered with appropriate subjects and competent methods, the College had the BSIT degree accredited in May 2004 by the Philippine Accrediting Association of Schools, Colleges and Universities (PAASCU). It was granted Level 1 status.

In August 2006, the College was renamed to what is now known as the College of Computer Studies (CCS).

The Commission on Higher Education (CHED) has granted the College the distinction as Center of Development (COD) in Information Technology Education from 2007 to 2010.

Following the untimely demise of its Acting Dean in September 2006, Prof. Dave E. Marcial was appointed Dean in June 2007.

To date, the College continues to service the computer-related courses of the other Colleges in the university as well as offer short courses to the general public.

### ADMISSION REQUIREMENTS

#### **For Regular Applicants**

(Non SUHS graduates)

At least 40% overall SUAPE rating and at least 40% in English and in Math.

Applicants' with a SUAPE overall rating below 40% will be advised to see the Dean to further evaluation. Those who do not reach the grade requirement may still be accepted on probationary status

#### **For SU High School Graduates**

Applicants will automatically be

accepted as regular first year students provided that the General Average is at least 80% (with no grades below 80% in any subject).

Those applicants with a General Average of at least 80% but have a grade below 80% in any subject may be accepted as an On Probation (OP) student. Policy for OP students applies.

**For Shiftees**

Those shifting from other Schools/ Colleges of the university may be allowed to shift to any of the courses offered by the college provided that the student has a cumulative QPA of at least 2.0. Those who fall below the 2.0 cut-off will be accepted as on probation students

**For Transferees**

Applicants from other schools and universities may be admitted to the College provided that the student: has a QPA of not less than 2.0 or its equivalent; submits a Transcript of Records (TOR) and complete description of computer courses taken ( course outline and syllabus) in other schools for proper evaluation and validation;

repeats all major subjects if the student comes from a non-PAASCU or non-ACSC accredited school/university.

**For Foreign Students**

A committee composed of the department chairpersons and/or faculty will decide on the admission of foreign students. A signature indicating their approval will be required by the University Office of Admission prior to enrolment.

**BACHELOR OF SCIENCE IN  
INFORMATION TECHNOLOGY**

**First Year**

**First Semester**

|  | <b>Units</b> |
|--|--------------|
| IT 11            IT Fundamentals                   | 3            |
| ♣Math 11        College Algebra                    | 3            |
| *BC 11           Preparatory English 2             | 3            |
| Socio 11 R      Introduction to Sociology          | 3            |
| Psych 11R       General Psychology                 | 3            |
| Rel 11            Old Testament Message            | 3            |
| PE 11            Basic Physical Education          | 2            |
| NSTP 1           National Service Training Program | 3            |
| <br>Total  | <br>23       |

**Second Semester**

|  | <b>Units</b> |
|--|--------------|
| IT 12            Introduction to Programming       | 3            |
| IT 14            Multimedia Systems                | 3            |
| Math 12          Plane Trigonometry                | 3            |
| Math 16          Statistics                        | 3            |
| Philo 31         Introduction to Logic             | 3            |
| BC 12            Basic Communication I             | 3            |
| Rel 22            New Testament Message            | 3            |
| PE 12            Basic Physical Education          | 2            |
| NSTP 2           National Service Training Program | 3            |

Total 26

♣Those who did not pass the SUAPE/ELPT cut-off will have to take MATH 1.

\*Those who did not pass the SUAPE/ELPT cut-off will have to take BC1.

## Second Year

| <b>First Semester</b> |                                     | <b>Units</b> |
|-----------------------|-------------------------------------|--------------|
| IT 21                 | Intermediate Programming            | 3            |
| IT 23                 | Discrete Structures                 | 3            |
| IT 25                 | Computer Organization               | 3            |
| BC 25                 | Research Writing in the Disciplines | 3            |
| Math 25               | Analytic Geometry/Calculus I        | 3            |
| Physics 45            | General Physics I                   | 4            |
| Fil 13                | Sining ng Pakikipagtalastasan       | 3            |
| PE 21                 | Basic Physical Education            | 2            |
| Total                 |                                     | 24           |

| <b>Second Semester</b> |   | <b>Units</b> |
|------------------------|---|--------------|
| IT 24                  | Data Structures                             | 3            |
| IT 26                  | Object-Oriented Programming                 | 3            |
| Acctg 12               | Fundamentals of Acctg I                     | 6            |
| Physics 46             | General Physics II                          | 4            |
| Fil 26                 | Pagbasa at Pagsulat sa Ibat-ibang Disiplina | 3            |
| Speech 23              | Speech and Oral Communication               | 3            |
| PE 22                  | Basic Physical Education                    | 2            |
| Total                  |   | 24           |

## Third Year

| <b>First Semester</b> |                             | <b>Units</b> |
|-----------------------|-----------------------------|--------------|
| IT 31                 | Systems Analysis & Design   | 3            |
| IT 33                 | Database Management Systems | 3            |
| IT 35                 | Operating Systems           | 3            |
| IT 37                 | Network Technology          | 3            |
| IT 39                 | Elective I                  | 3            |
| FA 51                 | Understanding Arts          | 3            |
| Total                 |                             | 24           |

| <b>Second Semester</b> |  | <b>Units</b> |
|------------------------|--|--------------|
| IIT 32                 | Software Engineering                               | 3            |
| IT 34                  | Web Development                                    | 3            |
| IT 36                  | Elective II  | 3            |
| Lit 21                 | Literature of the Philippines                      | 3            |
| Rel 61                 | Christian Ethics                                   | 3            |
| Hist 31                | Phil. History and Government w/ Phil. Constitution | 3            |
| Total                  |  | 18           |

|               |            |              |
|---------------|------------|--------------|
| <b>Summer</b> |            | <b>Units</b> |
| IT 38         | Internship | 9            |

### Fourth Year

|                       |  |              |
|-----------------------|--|--------------|
| <b>First Semester</b> |  | <b>Units</b> |
| IT 41                 | Independent Study I w/ Technopreneurship | 3            |
| IT 43                 | IT Elective III                          | 3            |
| IT 45                 | IT Elective IV                           | 3            |
| IT 47                 | IT Elective V                            | 3            |
| IT 49                 | IT Elective VI                           | 3            |

|       |  |    |
|-------|--|----|
| Total |  | 15 |
|-------|--|----|

|                        |                        |              |
|------------------------|------------------------|--------------|
| <b>Second Semester</b> |                        | <b>Units</b> |
| IT 40                  | Computer Ethics        | 3            |
| IT 42                  | Independent Study II   | 3            |
| IT 44                  | IT Elective VII        | 3            |
| IT 46                  | IT Elective VIII       | 3            |
| Hist 41                | Rizal's Life and Works | 3            |

|       |  |    |
|-------|--|----|
| Total |  | 15 |
|-------|--|----|

## BACHELOR OF SCIENCE IN COMPUTER SCIENCE

### First Year

|                       |                                   |              |
|-----------------------|-----------------------------------|--------------|
| <b>First Semester</b> |                                   | <b>Units</b> |
| ComSci 11             | CS Fundamentals                   | 3            |
| Math 11               | College Algebra                   | 3            |
| BC 11                 | Preparatory English 2             | 3            |
| Socio 11 R            | Introduction to Sociology         | 3            |
| Psych 11R             | General Psychology                | 3            |
| Rel 11                | Old Testament Message             | 3            |
| PE 11                 | Basic Physical Education          | 2            |
| NSTP 1                | National Service Training Program | 3            |

|       |  |    |
|-------|--|----|
| Total |  | 23 |
|-------|--|----|

|                        |                                   |              |
|------------------------|-----------------------------------|--------------|
| <b>Second Semester</b> |                                   | <b>Units</b> |
| ComSci 12              | Introduction to Programming       | 3            |
| Math 12                | Plane Trigonometry                | 3            |
| Math 16                | Statistics                        | 3            |
| Philo 31               | Introduction to Logic             | 3            |
| BC 12                  | Basic Communication I             | 3            |
| Rel 22                 | New Testament Message             | 3            |
| PE 12                  | Basic Physical Education          | 2            |
| NSTP 2                 | National Service Training Program | 3            |

|       |  |    |
|-------|--|----|
| Total |  | 23 |
|-------|--|----|

### Second Year

|                       |                          |              |
|-----------------------|--------------------------|--------------|
| <b>First Semester</b> |                          | <b>Units</b> |
| ComSci 21             | Intermediate Programming | 3            |

|            |                               |   |
|------------|-------------------------------|---|
| ComSci 23  | Digital Design                | 3 |
| Math 25    | Analytic Geometry/Calculus I  | 3 |
| Physics 45 | General Physics I             | 4 |
| FA 51      | Understanding Arts            | 3 |
| Fil 13     | Sining ng Pakikipagtalastasan | 3 |
| PE 21      | Basic Physical Education      | 2 |

Total 21

**Second Semester** **Units**

|            |  |   |
|------------|--|---|
| ComSci 22  | Computer Systems Organization                      | 3 |
| ComSci 24  | Data Structures                                    | 3 |
| ComSci 26  | Object-Oriented Analysis and Design                | 3 |
| Physics 46 | General Physics II                                 | 4 |
| Math 26    | Analytic Geometry/Calculus II                      | 3 |
| Fil 26     | Pagbasa at Pagsulat sa Ibat-ibang Disiplina        | 3 |
| Hist 31    | Philippine History & Gov't w/ the New Constitution | 3 |
| PE 22      | Basic Physical Education                           | 2 |

Total 24

**Third Year**

**First Semester** **Units**

|            |   |   |
|------------|---|---|
| ComSci 31  | Database Management Systems               | 3 |
| ComSci 33  | Operating Systems                         | 3 |
| ComSci 35  | Object-Oriented Programming (C++ or Java) | 3 |
| ComSci 37  | Analysis and Design of Algorithms         | 3 |
| ComSci 39  | Discrete Structures                       | 3 |
| ComSci E-1 | Elective I (see listing)                  | 3 |
| ComSci E-2 | Elective II (see listing)                 | 3 |
| BC 25      | Research Writing in the Disciplines       | 3 |

Total 24

**Second Semester** **Units**

|            |                               |   |
|------------|-------------------------------|---|
| ComSci 32  | Software Engineering          | 3 |
| ComSci 34  | Web-based Programming         | 3 |
| ComSci E-3 | Elective III (see listing)    | 3 |
| ComSci E-4 | Elective IV (see listing)     | 3 |
| ComSci E-5 | Elective V (see listing)      | 3 |
| Speech 23  | Speech and Oral Communication | 3 |
| Rel 61     | Christian Ethics              | 3 |

Total 21

**Summer** **Units**

|           |                                      |   |
|-----------|--------------------------------------|---|
| ComSci 40 | Research Writing in Computer Science | 3 |
|-----------|--------------------------------------|---|

**Fourth Year**

**First Semester** **Units**

|           |  |   |
|-----------|--|---|
| ComSci 41 | Data Communications and Networking               | 3 |
| ComSci 43 | Automata Theory                                  | 3 |
| ComSci 45 | Thesis 1: (Research Project Analysis and Design) | 3 |

|            |                                       |   |
|------------|---------------------------------------|---|
| ComSci 47  | Microprocessor with Assembly Language | 3 |
| ComSci 49  | Programming Languages                 | 3 |
| ComSci E-6 | Elective VI (see listing)             | 3 |
| Hist 41R   | Rizal's Life and Works                | 3 |

Total 21

**Second Semester** **Units**

|            |   |   |
|------------|---|---|
| ComSci 42  | Professional Ethics                       | 3 |
| ComSci 44  | Modeling and Simulation                   | 3 |
| ComSci 46  | Thesis 2: Research Project Implementation | 3 |
| ComSci 48  | Compiler Design                           | 3 |
| ComSci E-7 | Elective VII (see listing)                | 3 |
| Litt 21    | Literatures of the Philippines            | 3 |

Total 18

**BACHELOR IN SCIENCE IN  
INFORMATION SYSTEMS**

**First Year**

**First Semester** **Units**

|           |  |   |
|-----------|--|---|
| Math 11   | College Algebra                                  | 3 |
| BC 11     | Preparatory English II                           | 3 |
| Socio 11R | Introduction to Sociology                        | 3 |
| Rel 11    | Old Testament Messages                           | 3 |
| PE 11     | Basic Physical Education                         | 2 |
| NSTP 1    | National Service Training Program                | 3 |
| IS 11     | IS Fundamentals & Personal Productivity Using IS | 3 |

Total 20

**Second Semester** **Units**

|          |                                   |   |
|----------|-----------------------------------|---|
| Math 12  | Plane Trigonometry                | 3 |
| Math 16  | Statistics                        | 3 |
| BC 12    | Basic Communication I             | 3 |
| Rel 22   | New Testament Messages            | 3 |
| Philo 31 | Introduction to Logic             | 3 |
| PE 12    | Basic Physical Education          | 2 |
| NSTP 2   | National Service Training Program | 3 |
| IS 12    | Programming I                     | 3 |

Total 23

**Second Year**

**First Semester** **Units**

|           |   |   |
|-----------|---|---|
| BC 25     | Research Writing in the Disciplines     | 3 |
| Psych 11R | General Psychology                      | 3 |
| Phys 45   | General Physics I                       | 4 |
| PE 21     | Basic Physical Education                | 2 |
| ISE 1     | Elective I – OOAD                       | 3 |
| IS 21     | Fundamentals of Management and Business | 3 |

|       |                     |    |
|-------|---------------------|----|
| IS 23 | Programming II      | 3  |
| IS 25 | Discrete Structures | 3  |
| Total |                     | 24 |

|                        |                                    |              |
|------------------------|------------------------------------|--------------|
| <b>Second Semester</b> |                                    | <b>Units</b> |
| Phys 46                | General Physics II                 | 4            |
| Speech 23              | Speech & Oral Communications       | 3            |
| PE 22                  | Basic Physical Education           | 2            |
| ISE 2                  | Elective II – (Principles of Mktg) | 3            |
| IS 22                  | Accounting and Financial Systems   | 6            |
| IS 24                  | Systems Analysis and Design        | 3            |
| IS 26                  | Business Processes                 | 3            |
| Total                  |                                    | 24           |

### Third Year

|                       |                               |              |
|-----------------------|-------------------------------|--------------|
| <b>First Semester</b> |                               | <b>Units</b> |
| Fil 13                | Sining ng Pakikipagtalastasan | 3            |
| FA 51R                | Understanding Arts            | 3            |
| Math 25               | Analytic Geometry/Calculus I  | 3            |
| IS 31                 | Object-Oriented Programming   | 3            |
| IS 33                 | Database Systems              | 3            |
| IS 35                 | Management of Technology      | 3            |
| Total                 |                               | 18           |

|                        |  |              |
|------------------------|--|--------------|
| <b>Second Semester</b> |  | <b>Units</b> |
| Fil 26                 | Pagbasa at Pagsulat sa Iba't-ibang Disiplina | 3            |
| Hist 31                | Phil History & Gov't w/ the New Constitution | 3            |
| Hist 41                | Rizal's Life and Works                       | 3            |
| Rel 61                 | Christian Ethics                             | 3            |
| Litt 21                | Literatures of the Philippines               | 3            |
| IS 32                  | Software Engineering                         | 3            |
| IS 34                  | Web-Based Programming                        | 3            |
| Total                  |  | 21           |

|               |                          |              |
|---------------|--------------------------|--------------|
| <b>Summer</b> |                          | <b>Units</b> |
| OJT           | Internship/OJT/Practicum | 9            |

### Fourth Year

|                       |                                 |              |
|-----------------------|---------------------------------|--------------|
| <b>First Semester</b> |                                 | <b>Units</b> |
| ISE 3                 | Elective III                    | 3            |
| ISE 4                 | Elective IV                     | 3            |
| ISE 5                 | Elective V                      | 3            |
| IS 41                 | Network and Internet Technology | 3            |
| IS 43                 | Human Computer Interaction      | 3            |
| IS 45                 | Information Systems Planning    | 3            |
| Total                 |                                 | 18           |

| <b>Second Semester</b> |   | <b>Units</b> |
|------------------------|---|--------------|
| ISE 6                  | Elective VI                                     | 3            |
| ISE 7                  | Elective VII                                    | 3            |
| IS 42                  | Professional Ethics                             | 3            |
| IS 44                  | Evaluation of Business Performance              | 3            |
| IS 46                  | Capstone Project - Enterprise Resource Planning | 3            |
| Total                  |   | 15           |

## **COURSE DESCRIPTION**

### **Information Technology**

#### **IT 11 - IT Fundamentals 3 Units**

This course provides an introduction to the industry of Information Technology, an overview of the IT profession, and basic computer concepts.

#### **IT 12 - Introduction to Programming 3 Units**

This course allows the student to learn and apply the art and style of procedural programming to solve computational problems adhering to the standards and guidelines of documentation.

#### **IT 14 - Multimedia Systems 3 Units**

This course equips the IT student with the skills to develop interactive multimedia applications which combine audio, video, text, animation, and still images that can be delivered from CD-ROM to LAN, from Internet to the Intranet.

#### **IT 21 - Intermediate Programming 3 Units**

This course allows the student to apply advanced techniques in procedural programming to solve computational problems adhering to the standards and guidelines of documentation. It covers the creation, manipulation and application of user-defined data structures, recursion, and file-handling techniques.

#### **IT 23 - Discrete Structures 3 Units**

This course introduces the foundations of discrete mathematics as they apply to computer science. Topics include functions, relations and sets, basic logic, proof techniques, basics of counting and introduction to digital logic and digital systems.

#### **IT 25 - Computer Organization 3 Units**

The course presents the various hardware structures (down to transistor level) that compose a computer, their individual functions, how they interact with each other, how they can be organized and controlled to perform the task assigned to the computer

#### **IT 24 - Data Structures 3 Units**

This discusses simple and complex data structures, such as records, stacks, queues and link lists. Sorting techniques, dynamic storage allocation and applications are also discussed here.



**IT 26 - Object Oriented Programming****3 Units**

This course allows the student to learn and apply the basic language syntax and principles of object-oriented programming to solve computational problems adhering to the standards and guidelines of documentation.

**Acctg 12 - Fundamentals of Acctg I****3 Units**

This course is an introduction to the fields of managerial and financial accounting, focusing more on the latter. It is designed to equip Information Management students with knowledge and skills on accounting processes, systems, concepts, principles, and applications in both a manual and computer-based environment.

**IT 31 - Systems Analysis & Design****3 Units**

This course covers the different phases of systems development focusing on analysis and design. Students will learn the rudiments of systems development through a feasibility study.

**IT 33 -Database Management System****3 Units**

The course covers discussion of database systems, the nature of the data, data association, data semantics and data models. A specific DBMS will be used to implement data models for use in business application programs.

**IT 35 - Operating Systems****3 Units**

This course provides an introduction to the concepts, theories and components that serve as the bases for the design of classical and modern operating systems. Topics include process and memory management, process synchronization and deadlocks.

**IT 37 - Network Technology****3 Units**

This course introduces the concept of data communication and computer networking. Detailed discussion is based on the 7-layers of the OSI reference models and TCP-IP.

**IT 32 - Software Engineering****3 Units**

This course introduces the software engineering processes; its principles, techniques and practices to produce quality software products.

**IT 34 - Web Development****3 Units**

This course covers various web design concepts and techniques that will allow students to design, build and create effective, interactive and dynamic web applications.

**IT 38 - Internship****3 Units**

Internship/OJT/Practicum is an immersion program wherein the students will have the chance and opportunity to be with the IT industry. The students will have the chance to apply the skills, knowledge and attitude learned in the school and at the same time the opportunity to experience the corporate environment.

**IT 41 - Independent Study I w/ Technopreneurship****3 Units**

This course covers the principles and theories of technopreneurship. Students are expected to develop and implement a feasible IT business plan and design a system.

**IT 40 - Computer Ethics****3 Units**

The course introduces ethics and ethical theories; provides discussions on the ethical dilemmas and issues facing IT practitioners. An appreciation and discussion of the Code of Ethics of I. T. Professionals; cybercrimes and appropriate Philippine Laws are also included.

**IT 42 - Independent Study II****3 Units**

This course is the continuation of IT 41. Students are expected to continue developing and then implement their designed system.

**Computer Science****ComSci 11 (Introduction to Computers and Office Automation Tools)****3 Units**

This course introduces to the students the basic concepts of computers, what they are and how they are used in society. Topics include: history and development of computers, classification of hardware and software, computer viruses, the Disk Operating System, current trends in computers, jobs related to computers, some common software that run in the Windows environment like word processors, electronic spreadsheets, database management systems and presentation software. The last topic is the Code of Ethics for the IT Professional which deals with the code of conduct that the students should adhere to, especially as they go out into the world of information technology.

**ComSci 12 (Introduction to Programming)****3 Units**

This course teaches the students how to use the basic tools in program design such as flowcharts and pseudocodes. Through these tools, the students would develop their own programming styles and techniques using a pedagogical programming language like C. Other topics include: data-level structures (i.e. constants, variables, data types), program-level structures (i.e. expressions, subprograms) and control-level structures (i.e. iteration, subprogram control).

**ComSci 21 (Intermediate Programming)****3 Units**

This course introduces the Java programming language. Topics include data-level (i.e. data types, variables), program-level (i.e. operators, expressions, modularization, parameter-passing) and control-level (i.e. looping, subprogram control) structures/constructs, objects and classes, constructors and destructors, introduction to OOP concepts, overriding, and exception handling. Other topics include arrays, linked lists and text files.

**ComSci 23 (Digital Design)****3 Units**

This course discusses the fundamentals of digital circuits such as boolean algebra, maxterm and minterm, combinational logic circuits, and algebraic and graphical

simplifications of logic expressions using methods like Tabulation, K-Map and Boolean Algebra.

**ComSci 22 (Computer Systems Organization)**

**3 Units**

The course is an introduction to computer architecture and organization. Two main subjects that are covered are the function of processor and the fundamentals of operating system function and implementation

**ComSci 24 (Data Structures)**

**3 Units**

This course is a continuation of ComSci 21. Topics include stacks, queues, trees (binary trees, binary search trees, AVL trees), heaps, and graphs. The students will simulate these data structures and their operations through the use of a programming language.

**ComSci 26(Object-Oriented Analysis and Design)**

**3 Units**

This course teaches the students the science and art of developing complex systems through the use of object-oriented analysis and design. Topics include the fundamental concepts of the object model, and the method used for the development of complex systems based on the object model (the notation and process of object-oriented analysis and design).

**ComSci 31 (Database Management Systems)**

**3 Units**

This course provides the students with a comprehensive overview of Relational Database Management Systems (RDBMSs). It discusses the fundamental concepts, analysis and design, and development and administration of RDBMSs.

**ComSci 33 (Operating Systems)**

**3 Units**

This course discusses the principles and design philosophies of operating systems (MS-DOS, UNIX/LINUX and/or Windows). This includes process and storage management, deadlocks, synchronization, interrupts, processor scheduling and performance analysis. Case studies will be given to the students to simulate the functions of an operating system.

**ComSci 35 (Object-oriented Programming)**

**3 Units**

This course teaches the students how to make programs using an object-oriented programming language like C++, Eiffel or Java. It will be taught in a non-Visual programming environment. Concepts learned in Object-Oriented Analysis and

**ComSci 37(Analysis and Design of Algorithms)**

**3 Units**

This course is an introduction to the analysis of algorithms. Topics include a review of the concepts of data structures and how they are used in the design of efficient algorithms. Mathematical notations used to describe the running times and memory requirements of algorithms will be introduced. The students are also taught how to compute and analyze the best-case, worst-case, and average-case complexities of problems.

**ComSci 39 (Discrete Structures)****3 Units**

This course talks about logic, relations and operations on sets, combinatorics, abstract algebra, recursion, models of computation and graphs.

**ComSci 32 (Software Engineering)****3 Units**

The computer science discipline is concerned with developing large applications. This course will cover not only the technical aspects of building software systems, but also management issues, such as directing programming teams, scheduling, and budgeting.

**ComSci 34 ( Web-based Programming)****3 Units**

This course introduces to the students a Web programming and/or scripting language that can be used in Internet applications (like Java or Perl). Topics will depend on the language that will be taught.

**ComSci 40(Research Writing in Computer Science)****3 Units**

This course orient the student to a structured approach in developing applied research in the field of information technology. Putting theories learned into practice, students will write and defend their undergraduate thesis proposal to a panel of faculty members. Through the course, various concepts, tools and techniques in research methodology are introduced to the students.

**ComSci 41 (Data Communication and Networking)****3 Units**

This course discusses the different topologies of Networking and how data or information is transferred from one computer to another via direct cable connections or telecommunications links involving the telephone system and modems.

**ComSci 43 (Automata Theory)****3 Units**

This course discusses finite state automata and regular expressions. Other topics include context free grammars, pushdown automata, formal grammars, turing machines, nondeterministic finite automaton and deterministic finite automaton.

**ComSci 45 (Thesis 1: Research Project Analysis and Design)****3 Units**

The students are required to design the actual system based on the documented proposal they made in ComSci 40.

**ComSci 47 (Microprocessor with Assembly Language)****3 Units**

This course discusses the organization and structures of different microprocessors, microprocessor programming and interfacing techniques. Assembly language will be introduced to enable the students to write low-level programs for microprocessor programming and interfacing.

**ComSci 49 (Programming Languages)****3 Units**

This course discusses the comparison of structures between programming languages. Topics include: history of software and the machines that were used to run these software, a review of data structures, control structures and program

structures and classification of programming languages

**ComSci 42(Professional Ethics)**

**3 Units**

The course introduces ethics and ethical theories; provides discussions on the ethical dilemmas and issues facing IT practitioners. An appreciation and discussion of the Code of Ethics of I. T. Professionals; cybercrimes and appropriate Philippine Laws are also included.

**ComSci 44(Modeling and Simulation)**

**3 Units**

This course introduces the students to modelling and simulation concepts. Topics discussed in the course includes, system analysis and classification, abstract and simulation models, continuous, discrete, and combined models, heterogeneous models. It also covers pseudorandom number generation and testing, queuing systems, Monte Carlo method, and continuous simulation.

**ComSci 46(Thesis 2: Research Project Implementation)**

**3 Units**

A continuation to ComSci 45, it is in this course where students will implement and test output of their project.

**ComSci 48 (Compiler Design)**

**3 Units**

This course discusses the fundamentals of compilers. Topics include review of automata, data structures, file structures and programming languages. By the middle of the semester, the students are required to create their own compiler.

**Information Systems**

**IS 11(IS Fundamentals and Personal Productivity using IS Technology)**

**3 Units**

This course provides an introduction of computers, number systems, operating systems, and internetworking. It also provides an overview of the career paths. Hands-on training will also be provided on the emphasis on personal productivity concepts using functions and features in common computer applications such as word processing, spreadsheet, presentation, and web.

**IS 12 (Programming I)**

**3 Units**

This course teaches the basics of computer programming. It aims to discuss program development and concentrate on logic formulation using a programming language (C). It teaches students how to design structured programs that are easy to use, read, debug, modify and maintain. Topics include basic input/output statements, two-way/multi-way selection statements, control statements with the use of relational/logical operators, arithmetic operators/operations, functions and parameter passing by value and by reference.

**ISE 1(Elective I (OOAD))**

**3 Units**

This course teaches the students the science and art of developing complex object-oriented systems. Topics include: the fundamental concepts of the object model, and the method used for the development of complex systems based on the object model (the notation and process of object-oriented analysis and design).

**IS 21(Fundamentals of Management and Business)****3 Units**

This is an introduction to business and management. The principal objective of this course is to enable students to understand the four interdependent functions of planning, organizing, leading, and controlling in an organization.

**IS 23(Programming II)This course is a continuation of IS 12.****3 Units**

Topics include a review of pointers, functions and parameter passing (by value and by reference), arrays, records, singly and doubly-linked lists.

**IS 25(Discrete Structures)****3 Units**

This course introduces the foundations of discrete mathematics as they apply to computer science. Topics include functions, relations and sets, basic logic, proof techniques, basics of counting and introduction to digital logic and digital systems.

**ISE 2 (Elective II (Principles of Marketing))****3 Units**

This course examines the basic concepts and practices of marketing management. Emphasis is placed on various issues that will be faced by marketing firms, such as demand analysis of a market, ways of satisfying the needs of consumer with specific products or services through the marketing management process.

**IS 22(Accounting and Financial Systems)****3 Units**

The main focus of this course is on financial accounting. It discusses accounting principles, concepts, systems and applications in both manual and computer-based environment.

**IS 24(Systems Analysis and Design)****3 Units**

This course teaches the students to analyze and design information systems. It discusses the life cycle of a typical information system with emphasis on user communication, system integration, and management. Students will be grouped into teams wherein each team will be working on a specific project. This will give the students an experience in playing the role of a team member (i.e. systems analyst, database designer, programmer, etc). Project scheduling and monitoring of each team will be done in this course to ensure that each milestone in the project is completed. Each team will defend their project output before the end of the semester.

**IS 26(Business Processes)****3 Units**

The course discusses the three business processes: management, operational, and support. The students will be taught how to determine a customer's needs and produce an output that will fulfill these needs through the use of tools and methodologies.

**IS 31(Object-Oriented Programming)****3 Units**

This course discusses the concept of object-oriented programming requiring a background in Object-Oriented Analysis and Design. In addition,

the students will be given a hands-on experience in using one of the well-known object-oriented programming languages. The choice of the language is based on its applicability in web-based applications.

**IS 33(Database Systems)**

**3 Units**

This course discusses the concepts of databases and database analysis and design. The relational data model will be the main focus of this course. Topics include but are not limited to conceptual, logical, and physical database design; structured query language; object-oriented model; transaction management; and database security.

**IS 35(Management of Technology)**

**3 Units**

This course discusses how information technology is managed in today's organizations or how to manage the current technology for human advantage. Topics include but are not limited to IT infrastructure, IT organization, data resources and systems.

**IS 32(Software Engineering)**

**3 Units**

This course introduces the students to the phases and techniques of structured and organized software development. It teaches the students the related principles of project management and software maintenance that ensure the effective application of IT in industry.

**IS 34(Web-Based Programming)**

**3 Units**

In this course, the students are taught how to create web-based information systems through the use of programming languages such as PHP or Java. Principles learned from business processes, systems analysis and design, and database design and implementation will be used in this course.

**OJT - Internship/OJT/Practicum**

**3 Units**

Internship/OJT/Practicum is an immersion program wherein the students will have the chance and opportunity to be with the IT industry. The students will have the chance to apply the skills, knowledge and attitude learned in the school and at the same time the opportunity to experience the corporate environment.

**IS 41(Network and Internet Technology)**

**3 Units**

This course introduces to the students the concepts of data communication and networking and how they are implemented in an organization. The main focus of this course is on the analysis and design of networking applications in organizations. How to evaluate, select, and implement different communication options within an organization are also discussed.

**IS 43(Human Computer Interaction)**

**3 Units**

This course discusses the design, evaluation and implementation of interactive computing systems for human use.

**IS 45(Information Systems Planning)****3 Units**

This course introduces to the students the challenges of planning, building and managing information systems. Topics include but are not limited to selection of systems to invest in, project management issues, situation analysis, information requirement analysis, and approaches to MIS planning and IS planning. The output of the students will be a documented information systems strategic plan for a particular organization.

**IS 42(Professional Ethics)****3 Units**

The course introduces ethics and ethical theories; provides discussions on the ethical dilemmas and issues facing IT practitioners. An appreciation and discussion of the Code of Ethics of I. T. Professionals; cybercrimes and appropriate Philippine Laws are also included.

**IS 44(Evaluation of Business Performance)****3 Units**

In this course students will be able to assess the performance of business information systems with the use of different tools. Topics include but are not limited to data warehousing, KPI/KRA, business intelligence and quality metrics.

**IS 46(Capstone Project – Enterprise Resource Planning)****3 Units**

The Capstone Project for Information Management students will be focused on the implementation of an Enterprise Resource Plan.

**Master in Information Systems**

The Master in Information Systems (MIS) is a non-thesis degree program intended to prepare students for industrial practice in project management, information systems planning, design, development and management of technical personnel.

**OBJECTIVES**

At the end of the program, students should be able to:

1. Plan and use information technology properly and effectively to help solve business problems, and improve or reengineer business processes of organizations;
2. Demonstrate theoretical and practical knowledge on various information systems planning;
3. Describe and explain the technical concepts behind the implementation of information systems;
4. Demonstrate broad sense of strategic systems information systems, and project management of information
5. Analyze and decide on the moral and ethical issues pertaining to information technology and information systems.

**CURRICULUM**

Core Courses

18 units



|                  |          |
|------------------|----------|
| Major Courses    | 18 units |
| Capstone Project | 6 units  |
|                  | 42 units |

**SEMESTRAL LOADING**

| <b>First Year</b>  | <b>Fulltime</b>   | <b>Part-Time</b> |
|--------------------|-------------------|------------------|
| 1st Sem            | 12 Units          | 9 Units          |
| 2nd Sem            | 12 Units          | 9 Units          |
| Summer             |                   | 9 Units          |
| <b>Second Year</b> |                   |                  |
| 1st Sem            | 13 (with MIS 301) | 10 Units         |
| 2nd Sem            | 5 units           | 5 units          |

**OFFERINGS**

|   |          |
|---|----------|
| Core Courses  | 18 Units |
| MIS 101 IS Organization, Management, and Administration | 3 units  |
| MIS 102 IT Project and Change Management                | 3 units  |
| MIS 103 Advance Financial and Managerial Accounting     | 3 units  |
| MIS 104 IS Policy and Strategy                          | 3 units  |
| MIS 105 Computer Ethics                                 | 3 units  |
| MIS 106 Advance Software Engineering                    | 3 units  |

**Major Courses (Areas of Concentration)**

**Concentration: Consulting & Research**

|   |         |
|---|---------|
| MIS 201 Knowledge Management                          | 3 units |
| MIS 202 Enterprise Resource Planning                  | 3 units |
| MIS 203 Networks & Telecommunications                 | 3 units |
| MIS 204 IS Research                                   | 3 units |
| MIS 205 Statistical Research Methods                  | 3 units |
| MIS 206 Programming Principles and Tools for Research | 3 units |

**Concentration: IT Resource Planning and Management**

|  |         |
|--|---------|
| MIS 207 Information Systems Security, Audit & Control                      | 3 units |
| MIS 208 Computer Resource Plan   | 3 units |
| MIS 209 Decision Support and Executive IS                                  | 3 units |
| MIS 210 Principles and Theories in Management                              | 3 units |
| MIS 211 IT-enabled Business Planning & Manigement.                         | 3 units |
| MIS 212 Effective Communications and Behavior in the Corporate Environment | 3 units |

**Capstone Project**

**6 units**

|   |         |
|---|---------|
| MIS 301 Seminar & Capstone Project Proposal<br>(Prerequisite: Comprehensive Exam) | 1 Units |
| MIS 302 Capstone Project Implementation<br>(Prerequisite: MIS 301)                | 5 Units |

## **COMPREHENSIVE EXAMINATION**

All Student must have completed all core courses equivanlent to 18 units and have completed 50% of the major courses equivalent to 9 units. the comprehensive exam is a requisite in taking MIS 301 (Seminar and CP Proposal)

## **Capstone Project 6 Units**

The Capstone Project shall require active participation of the student in the industry who must hold key responsibilities towards development. its aim is to encourage students to develop information systems application that are responsive to the demands in the community, public and to the national standards. It must be at least pilot tested and the result of the research study must be presented in a public forum. It is also encourage that the capstone project be presented in a national or international conference.

## **Admission Requirements**

Applicants for the MIS program must submit the following:

1. Accomplished application forms for admission. (The forms are available at Admission Office and Graduate Programs, Silliman University);
2. Two copies of official transcript of record and transfer credentials (for Transferees);
3. Two letters of recommendation from school and a prominent member of the community
4. Copy of Birth Certificate issued by National Statistics Office (NSO)
5. One latest 2" x 2" or passport size picture;
6. One Short-size window envelope with postage stamp

## **Faculty**

### **Engr. Ed O. Omictin III**

Chairperson

Master in Information Technology (on-going)

BS in Computer Engineering

Email Address: edo@su.edu.ph; Iced\_3@yahoo.com

Area of Specialization: Computer Architecture & Design, Hardware, Data Communication, Assembly Language Programming & Interfacing

### **Prof. Janice Antoniette V. Förster**

Master in Business Administration

Diploma in Computer Science

BS in Business Computer Applications

Email Address: janice@su.edu.ph; jv\_forster@yahoo.com

Area of Specialization: Multimedia, C Programming, Animation Picture & Video Editing

**Mr. Jonathan Mark N. Te**

Master in Information Technology, (on-going)

Diploma in Computer Science

BS in Business Computer Applications

Email Address: otan@su.edu.ph; jonathanmarkte@yahoo.com

Area of Specialization: C and C++ Programming; AutoCAD

**Mr. Allan V. Credo**

Master in Computer Science (on-going)

BS in Business Computer Applications

Email Address: credo\_al@yahoo.com

Area of Specialization: C Programming, Office Applications

**Ms. Marianne M. Sy**

Master in Computer Science (on-going)

BS in Business Computer Applications

Email Address: sy\_marianne@yahoo.com

Area of Specialization: Office Productivity Tools, Multimedia

**Engr. Chuchi S. Montenegro**

Chairperson

Master of Computer Science, Candidate

BS in Computer Engineering

Email Address: chuchi@su.edu.ph; chuchi.montenegro@gmail.com

Area of Specialization: Java, Data Communication and Networking, Linux

**Prof. Melody Angelique C. Rivera**

Chairperson

Master in Information Systems

Diploma in Computer Science

BS in Computer Science

BS in Medical Technology

Email Address: mcrivera@su.edu.ph; Migay\_ph@yahoo.com

Area of Specialization: DBMS, Web Design, C Programming

**Engr. Albert Geroncio Y. Rivera**

Master in Information Systems

Diploma in Computer Science

BS in Mechanical Engineering

Email Address: albert@su.edu.ph; alrivs@yahoo.com

Area of Specialization: Automata Theory, Analysis and Design of Algorithm, Software Engineering

**Mrs. Maria Lourdes Saba Curativo**

Master in Information Technology (on-going)

BS in Business Computer Application

Area of Specialization: Multimedia, Office Productivity Tools