



Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION

CHED MEMORANDUM ORDER (CMO)

NO. 25

Series of 2001

SUBJECT : REVISED POLICIES AND STANDARDS FOR
INFORMATION TECHNOLOGY EDUCATION (ITE)

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In accordance with the pertinent provisions of Republic Act (RA) No. 7722, otherwise known as the "Higher Education Act of 1994," and for the purpose of rationalizing Information Technology (IT) education in the country with the end in view of keeping at pace with the demands of global competitiveness, the following policies and standards for Information Technology Education (ITE) are hereby adopted and promulgated by the Commission, thus:

ARTICLE I
MISSION STATEMENT AND OBJECTIVES

Section 1. **General Objectives.** - The Information Technology Education (ITE) prepares students to be professionals in this field. Specifically, students by the time they graduate are envisioned to:

- 1.1. have undergone training in abstract and analytical processes;
- 1.2. have developed personal and social values;
- 1.3. have acquired technical skills;
- 1.4. be grounded in appropriate concepts and principles; and
- 1.5. be adaptive to the work environment.

Section 2. **Strategy on Attainment of Objectives.** - ITE aims to equip students with one or more of the following, to wit:

- 2.1. the basic principles and foundation that underlie the science of this field;
- 2.2. practical knowledge of how Information Systems (IS) are installed, operationalized, managed, and administered; and
- 2.3. ability to conceptualize, design, develop, implement and maintain IS

ARTICLE II DEGREE PROGRAMS

Section 3. **Degree Programs** - The degree programs corresponding respectively to these specific areas shall henceforth be called **Bachelor of Science in Computer Science (BSCS)**, **Bachelor of Science in Information Technology (BSIT)**, and **Bachelor of Science in Information Management (BSIM)**.

ARTICLE III AUTHORITY TO OPERATE

Section 4. **Authority to Operate** - All Higher Education Institutions (HEIs) and Local Colleges and Universities (LCUs) intending to offer degree programs in Computer Science, Information Technology, and Information Management must first secure proper authority from the Commission in accordance herein. State Universities and Colleges (SUCs), however, that are already authorized by their respective charters to offer such course(s) may no longer get the authority from the Commission but should likewise strictly adhere to the provisions herein.

ARTICLE IV ADMINISTRATION

Section 5. **Composition** - The implementation of an ITE program shall be administered by a well-organized and competent staff and faculty, meeting the appropriate professional qualifications set by the Commission.

Section 6. **Dean/Department Chair** - A Higher Education Institution (HEI) offering an ITE program shall have a full-time member of the faculty administering the program. This administrator can be a Dean, Department Head, Director, Coordinator or equivalent based on the organization of the school.

Section 7. **General Qualifications of Dean/Department Chair** - The Dean or Department Chair of an ITE program must possess at least one of the following, namely:

- 7.1. A master's degree in an ITE program namely Computer Science, Information Technology and Information Management;
- 7.2. A master's degree in another field plus at least one of the following:
 - 7.2.1 Completion of coursework requirements for a master's degree in an ITE program;
 - 7.2.2 Five (5) years experience in the IT profession such as in technical support, systems design, applications programming or equivalent;
 - 7.2.3 Bachelors degree in IT.

- 7.3. A doctorate in a physical science, math, engineering or business field plus five (5) years experience teaching ITE courses (beyond computer literacy level courses).

In addition, the Dean/Department Chair should have industry advisor(s) to assist him/her, especially if he/she does not have IT industry experience. This could be in the form of a Board of Industry Advisors that is a component of an industry-academe linkage program.

Section 8. General Functions and Responsibilities of the Dean/Department Chair. - The general functions and/or responsibilities of the IT Dean/Department Chair/Director/Coordinator should be as follows, thus:

- 8.1. To assist in the formulation of institutional policies, curriculum development and offerings;
- 8.2. To exercise educational leadership among the concerned faculty members by:
 - 8.2.1. initiating and instituting a faculty and staff development program;
 - 8.2.2. preparing and assigning the teaching load of the faculty members and directing them to advise students in their program of studies; and
 - 8.2.3. ranking and recommending the appointment, promotion, retirement, termination and instituting disciplinary actions on faculty members and non-teaching personnel of the institution vis-à-vis IT, subject to the HEI's policies and procedures;
- 8.3. To coordinate with the office concerned with student services;
- 8.4. To encourage research and extension activities among faculty and students;
- 8.5. To institute methodologies of instruction and adopt proper textbooks;
- 8.6. To exercise overall supervision of all academic and non-academic personnel of the IT college or department;
- 8.7. To oversee the formation, implementation and evaluation of plans and programs for development and the supervision/coordination of activities and services for the advancement of goals and objectives; and

- 8.8. To help enforce the concerned HEI's rules and the laws affecting education, and the procedures, policies, rules and regulations promulgated under authority of or as adopted by the Commission and/or the HEI.

Section 9. **Teaching Load.** - As a general rule, in case the dean/department chair/director/coordinator has to teach, his or her teaching load should not exceed twelve (12) units.

ARTICLE V FACULTY

Section 10. **Faculty.** - An ITE faculty member is one who teaches in either one of the ITE degree programs and should have at least one of the following, to wit:

- 10.1. A baccalaureate degree in one of the ITE programs;
- 10.2. A degree in engineering, physical sciences, mathematics or business field with eighteen (18) units of formal studies (bachelors/graduate courses) in ITE;
- 10.3. A degree in a field other than ITE plus at least three (3) years experience in the IT profession such as technical support, systems design, applications programming or equivalent;
- 10.4. A degree in a field other than ITE plus at least eighteen (18) units of master's study in ITE;
- 10.5. A master's degree in a field other than ITE plus at least two (2) years of experience in ITE research and twelve (12) units of graduate study in ITE.

Section 11. **Department.** - The IT Department must have the following:

- 11.1. At least two (2) full-time ITE faculty members, one of whom can be the Dean or the Department Chair/Director/Coordinator or equivalent.
- 11.2. For the Information Technology or Information Management programs, at least forty percent (40%) of the ITE faculty members must have a minimum of nine (9) units of master's study in ITE or two (2) years of IT-related industry experience.
- 11.3. For the Computer Science program, at least sixty percent (60%) of the ITE faculty must have a minimum of nine (9) units of master's study in ITE.

Section 12. **Assignment.** - The normal total load (that is, teaching, research or administrative assignments) of an ITE faculty member should conform to the policies of the school; however, the overload should not exceed six (6) units.

Section 13. **Faculty Development Program.** - Each full-time ITE faculty member shall be encouraged to participate in professional organizations and in programs of professional development in his / her field as well as in ITE graduate studies.

ARTICLE VI CURRICULUM

Section 14. **General Curriculum.** - ITE shall be built upon a core of Basic Subjects and a series of Professional Subjects leading to one or more of the three majors. A subject shall cover one or more of the topics specified hereinafter. The New General Education Curriculum as mandated by the Commission shall form part of the requirements for ITE. The science subjects should include a laboratory component.

Section 15. **Industry-Academe Linkage.** - Industry-academe linkage programs are important, especially for the Information Technology and Information Management majors, and thus, industry practicum, apprenticeship or internship should be included in the curriculum.

Section 16. **Topics for the Basic Core and Majors.** - The topics identified for the Basic Core and the Majors in Computer Science, Information Technology and Information Management are as follows, thus:

16.1 Basic Core Topics (All required)

16.1.1. Basic Non-ITE Core Topics (maybe classified with General Education Subjects)

1. Communication skills;
2. Technical writing / presentation skills;
3. Algebra /trigonometry;
4. Values Formation;
5. Probability / Statistics

16.1.2. Basic ITE Core Topics

6. Professional Ethics / Code of Ethics for the Filipino IT Professional;
7. Mathematical Logic / Discrete mathematics;
8. Problem Solving;
9. Quality Processes;
10. Fundamentals of programming / program logic formulation;

11. Introduction to the Internet / Web-based programming;
12. IT Fundamentals;
13. Computer Systems Organization.

16.2. Computer Science Topics (Topics 1 to 16 required)

1. Calculus;
2. Abstract Algebra;
3. Electromagnetism and electricity;
4. Digital electronics;
5. Data structures;
6. Algorithms;
7. Principles of programming languages (using C-language and other equivalent or higher level language);
8. Computer Architecture / Assembly Language;
9. Object Oriented programming;
10. Principles of operating systems;
11. Principles of file organization;
12. Principles of database management systems;
13. Compiler design;
14. Automata theory / Formal languages and Computation theory;
15. Principles of data communication and networking;
16. Modeling and simulation theory;
17. Software Engineering;
18. Multimedia systems;
19. Software Project; and
20. Other electives in mathematics or other advanced topics such as numerical analysis, artificial intelligence, robotics, hardware/software interface, computer graphics, software tools, computing, graph theory, linear algebra, parallel computing.

16.3. Information Technology Topics (Topics 1 to 14 required)

1. Art and style of programming;
2. At least two application programming languages such as C-language, COBOL, Visual C, Visual FOXPRO, Visual BASIC, JAVA and the like;
3. Operating systems such as DOS, LINUX, UNIX or Windows;
4. Database management system;
5. Relational Database Management Systems oriented development tools and programming languages;
6. Installation of computer system, hardware and software, with actual laboratory hands-on;
7. Local Area Network / Network technology;
8. Systems analysis and design;

9. Software integration, testing and documentation;
10. Systems management and administration;
11. Information resource management;
12. Accounting;
13. Data Communications and Principles of Telecommunications;
14. Multimedia systems;
15. Current / future trends in Information Technology;
16. Computer Systems and Data Security;
17. Systems Quality Assurance;
18. Entrepreneurship;
19. Wireless Applications;
20. Information Systems Security; and
21. Electives such as information systems, image processing, switching; networks, software engineering.

16.4. Information Management Topics (Topics 1 to 22 required)

1. Business processes;
2. Organizational theory;
3. Human behavior / Human Resource Management;
4. Management principles and practices;
5. Accounting, financial processes;
6. At least two application programming languages such as C-language, COBOL, Visual C, Visual FOXPRO, Visual BASIC, JAVA and the like;
7. Integrated office productivity software such as Star Office, MS Office, Smart Suite, Perfect Office, etc.;
8. Application software for accounting, purchasing, manufacturing, etc.;
9. Introduction to E-Commerce;
10. Planning, estimation and project management;
11. Systems analysis and design;
12. Software design and development / Software Engineering;
13. Management information system/information strategy plan;
14. Software integration, testing and documentation;
15. Quality assurance;
16. Information resources / System management;
17. Information Systems Audit;
18. Customer Relations Management;
19. Management of Internet Services;
20. Data communication and networking technology;
21. Database Management Systems;
22. Executive Information System;
23. Systems Integration;
24. Human - computer interaction;
25. Expert system / prototyping;

26. Enterprise Resource programming;
27. Supply Chain Management, and;
28. Other business or management subjects such as marketing, managerial and cost accounting, quantitative methods, production management, etc.

Section 17. ITE Minimum Curricular Requirements

GENERAL EDUCATION	Units	Units
<i>LANGUAGES and HUMANITIES</i>		24
English	9	
Filipino	6	
Humanities (Literature, Arts, Philosophy, etc.)	9	
<i>MATHEMATICS, NATURAL SCIENCES</i>		15
<i>TECHNOLOGY</i>		
Mathematics	6	
Natural Sciences	6	
Electives (Math, Natural Science, Technology etc.)	3	
<i>SOCIAL SCIENCES & COMMUNICATIONS</i>		15
Social Sciences & Communications	15	
Psychology, Sociology, Anthropology,		
Economics (w/ Taxation & Agrarian Reform		
Integrated), Philippine History & Culture,		
Life & Works of Rizal, Asian/Western Civilization,		
Mass Comm., Society and Culture (with Family		
Planning), Politics & Governance (with Philippine		
Constitution)		
<i>BASIC ITE CORE SUBJECTS</i>		18
<i>ITE PROFESSIONAL/MAJOR SUBJECTS</i>		33
<i>ITE ELECTIVES</i>		12
<i>FREE ELECTIVES</i>		9
TOTAL		126

Section 18. **Others.** - Citizen's Military Training, Physical Education, and other similar subjects as required by pertinent laws, rules and regulations and/or by the Commission should be accordingly added.

**ARTICLE VII
INSTRUCTIONAL STANDARDS**

Section 19. **General Standards.** - The general instructional standards for ITE are, thus:

- 19.1. HEIs should at all times maintain a high standard of instruction and a system of evaluation of teaching competence and should adopt a mode of

supervision for compliance with rules and regulations governing academic standards;

- 19.2. The different curricular programs in IT should adopt textbooks which are up to date in methods of presentation and in content and are not violative of Philippine laws.
- 19.3. The Dean/Chair of ITE should see to it that instructors and students have the necessary textbooks. Proper arrangements should be made to enable students to acquire them.

ARTICLE VIII LIBRARY

Section 20. **Librarian(s).** - HEIs offering ITE should have at least a one (1) full-time librarian with a degree in Library Science or a licensed librarian. The librarian(s) shall participate in faculty meetings and activities and serve as (a) member(s) of the educational program planning committee.

The librarian(s) should be encouraged to join recognized librarian societies and associations for professional development.

Section 21. **Book Collection.** - The library collection of the HEI should meet the following requirements, namely:

- 21.1. To support HEI's curricular needs and to provide enough books for students, its library should have at least five (5) titles per subject and one (1) volume per subject of a particular year of the curriculum for every ten (10) students enrolled in that year. At least twenty percent (20%) of the books should have been published within the last four (4) years.
- 21.2. The library should include significant holdings of up-to-date computer magazines, journals and periodicals that are published locally and internationally, including at least two (2) local and two (2) foreign publications.
- 21.3. Students must have available programming languages, and system manuals, licensed software packages, as well as documentation of materials related to the development and use of systems.
- 21.4. Electronic library materials such as CD-ROM's or via the Internet may be considered as additional library holdings beyond the minimum requirements, if they are easily accessible for reading, and that the desired materials can be readily printed.

Section 22. **Space Requirements.** - The library should have a seating capacity of at least five percent (5%) of the total students enrolled. The total library space should at least be 60 sq.m. or 2 square meters per student.

ARTICLE IX PHYSICAL FACILITIES

Section 23. **General Standards.** - The general standards for the physical facilities of the HEI offering ITE are as follows, thus:

- 23.1. **Site.** The size and location of the site of the HEI offering ITE should be adequate to meet the needs of its current population and future expansion.
- 23.2. **Physical Plants.** All physical plants should conform with existing laws, rules and regulations on the same.
- 23.3. **Start-Up Facilities.** When an HEI is starting an IT program, it should satisfy the requirements specified based on the curriculum year that it intends to offer the ITE program. The required facilities should preferably be on a contiguous piece of land or within a very short walking distance. A minimum of one thousand (1,000) square meters of floor area ready for use inclusive of outdoor sports area and the like is mandatory.
- 23.4. **Health and Safety**
 - 23.4.1. All classrooms and laboratories in the HEI should be clean and properly maintained to meet public health and safety standards.
 - 23.4.2. Comfort rooms should be kept clean and properly maintained and should be free of obnoxious odors.
 - 23.4.3. Physical education and recreational areas should conform with all rules and regulations pertaining to safety and suitability. There should be at least one area of one hundred (100) square meters minimum where physical education classes are to be conducted.
 - 23.4.4. There should be an efficient fire alarm and fire fighting system conforming with established standards.
 - 23.4.5. Corridors should be free of obstructions.

23.5. **Ventilation.** Classrooms, libraries, laboratories and offices of the HEI should be well ventilated.

23.6. **Lighting.** Illumination levels within the HEI facilities should be adequate and should conform with existing standards.

23.7. **Classrooms.** Classrooms space should at least be 1.2 square meters per student. For a class size of 40 students, for example, the room should be at least 48 square meters; for 50 students, 60 square meters. It should be well lighted and well ventilated and/or air-conditioned. There should be at least one classroom per one hundred thirty-five (135) students enrolled.

23.8. **Laboratory.** The school must provide for computer laboratories required for hands on training of the students. (additional heading for lab article)

23.8.1. **Laboratory space requirements.** The laboratory floor space should be at least 2.0 square meters per student. For the computer laboratory, there should be no more than two (2) students per terminal or workstation. The number of terminals or workstations should be such that a student is provided at least three (3) hours of individual hands-on computer time per week. On the basis that each computer terminal or work station operates effectively at least ten (10) hours a day and six (6) days a week, the computer time requirement should translate to at least one computer per twenty (20) students enrolled in the ITE program, the computers being exclusively for their use. At least one of the laboratories should be a multi-user or a networked system. Likewise, one printer is required per fifteen (15) computers. Computers should also be provided for the use of the faculty.

23.8.2. **Laboratory Equipment.** The required computer hardware and software should be able to respond to the objectives of the subjects in the curriculum. They should conform to generally accepted industry standards and be capable of providing training in the micro, mid-range or main-frame environments. At least twenty percent (20%) of the equipment should have been manufactured within the last three (3) years.

23.9. **Other Facilities.** The HEI should provide office space for faculty and administrators, sitting areas for students, and other regular common facilities required.

23.10. **Water Supply.** The building and other facilities of the HEI should be provided with adequate potable water supply in accordance with accepted standards.

23.11. **Class Size.** The maximum class size should be fifty (50) students only.

Section 24. **Audio Visual Facilities.** - As a general rule, the HEI should provide the necessary audio-visual equipment in support of the teaching-learning process, such as overhead projectors, slide projectors, LCD projectors, etc.

ARTICLE X ADMISSION and RESIDENCE REQUIREMENTS

Section 25. **Admission.** - No applicant should be enrolled in any approved ITE course unless he/she is a high school graduate and has satisfied all the published internal requirements of the HEI. As a rule, no applicant should likewise be enrolled in any approved ITE course unless he/she presents the credentials required by the HEI before the end of the enrollment period. Students who believe that they have been unduly deprived of their transfer credentials may seek the assistance of the Commission through its Higher Education Regional Offices (HEROs).

Section 26. **Residence.** - No student should be permitted to take any ITE subject without having satisfactorily passed the required prerequisites for the same, except in special cases as decided upon by the appropriate HEI official delegated with such responsibility and authority. In order to graduate a student, he or she has to take at least the last curricular year in that HEI.

ARTICLE XI REPEALING CLAUSE

Section 27. **Repeal.** - Any and all administrative issuances which are contrary to or inconsistent with any of the provisions herein are hereby deemed automatically repealed, rescinded and/or modified accordingly.

ARTICLE XII EFFECTIVITY CLAUSES

Section 28. **New Programs.** - These policies and standards shall apply immediately to new programs necessitating issuance of permits to operate for Collegiate Year (CY) 2002- 2003.

Section 29. **Existing Programs.** - Existing (Recognized and Permit Status) programs should conform herein effective CY 2002 - 2003. However, the re-naming of the degree programs, i.e., B.S. in Computer Science, B.S. in Information Technology, and B.S. in Information Management or a combination of the above thereof provided that there is only one BS degree and all of the requirements of each of the combined areas are met, should be accomplished by all HEIs offering ITE soonest. Furthermore, students in their second, third, or fourth years have the option to finish and complete the old curricular requirements.



ESTER ALBANO GARCIA
Chairperson



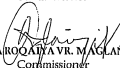
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