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

CHED MEMORANDUM ORDER (CMO)
NO. 09
Series of 1998

SUBJECT: UPDATED POLICIES AND STANDARDS FOR PHARMACY EDUCATION

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

Article I
AUTHORIZATION

Section 1. Only schools, colleges and universities duly authorized by the Commission on Higher Education shall operate the pharmacy education courses.

Section 2. All curricular programs in pharmacy education shall be submitted to the CHED Regional Office concerned as basis for issuance of a special order.

Article II
MISSION STATEMENT

Section 1. The main concern of pharmacy education is to provide the country with pharmacists who are professionally competent and or legally qualified to deliver the full spectrum of pharmaceutical services necessary in health care delivery.

Section 2. At the end of the course, the student should have acquired and developed the necessary knowledge, skills, aptitude and competencies:

2.1 in scientific research methods and processes, and in the development, utilization and evaluation of drugs for the prevention, mitigation diagnosis and treatment of diseases of man and animals;

2.2 in identifying, analyzing, compounding, manufacturing, and storage of drugs and their dosage forms;

2.3 in dispensing drugs as well as in counseling clients in the proper use of medication both prescribed and the patient's choice;

2.4 in contributing to the overall social, mental, emotional, and physical health of the individual, community and the country;

2.5 in providing drug information to health professionals on all matters pertaining to drugs and their dosage forms.

Article III
ADMINISTRATION

Section 1. The Pharmacy Education program shall be administered by a duly appointed Dean with the following qualifications:

1.1 Must be a registered Pharmacist with a Master's Degree in Pharmacy or appropriate Master's degree;

1.2 Must have 5 years of teaching experience, and preferably with 2 years supervisory experience.

Section 2. The general function and responsibility of the Dean is to effectively and efficiently manage the pharmacy education program.

Article IV
FACULTY

Section 1. The faculty for the professional pharmacy subjects must be licensed Pharmacists.

Section 2. The faculty must have the academic preparation appropriate to their teaching assignment. They must:

2.1 preferably have completed a Master's Degree in their major field and/or allied subjects, and must have credentials on file and available when called for:

2.2 preferably be active members of accredited scientific and professional organization as indicated in their personal files.

Article V
CURRICULUM

Section 1. The minimum requirements for the Bachelor of Science in Pharmacy curriculum are flexible depending on the needs of the profession and in accordlance with the Policies and Standards of CHED.

Section 2. The prototype BS Pharmacy curriculum is attached (Appendix A).

Article VI
INSTRUCTIONAL STANDARDS

Section 1. The institution shall maintain a high standard of quality instruction.

1.1 All the subjects shall have course syllabi with appropriate teaching strategies reflected therein.

1.2 The institution shall provide for a continuing faculty development program by providing logistical support.

1.3 It shall provide for a systematic and continuing plan of evaluation of student progress through a grading system that is consistent and congruent with the objectives set by the college/university.

1.4 The pharmacy curricular program may adopt any textbook which is of fairly recent edition and which reflects current trends in the pharmacy profession. Adopted basic textbooks may be changed only once in every three (3) years.

Section 2. The ratio of faculty to students in science laboratory classes should be a maximum of 1:35.

Section 3. Evaluation must be an integral part of the teaching-learning process and the students informed of results. A variety of appropriate test and assessment methods must be utilized.

Section 4. In the internship training program (required preparatory to the board examination) where the student develops professional pharmacy skills by

a systematic application of scientific knowledge to actual life situations in the communities, hospitals and industries, the following conditions shall be considered:

4.1 There shall be a close correlation of theoretical knowledge to the internship training program;

4.2 The internship training program shall be organized to meet the objectives of the pharmacy education program;

4.3 In determining the adequacy and effectiveness of the training program, the following factors must be considered:

4.3.1 background knowledge, skills and attitudes of the students in the three (3) training areas;

4.3.2 hospital, community, industrial affiliation, and research affiliation should be accredited by the NCAT* (DOH) for government facilities and BFAD for private.

4.3.3 ratio of students to available and existing facilities in accredited Community, Hospital and Industrial affiliations;

4.3.4 student interns shall undergo training for 160 hours in each of the three (3) areas and an additional 480 hours for the chosen areas as their major field.

Article VII
LIBRARY**

Section 1. Every college/university offering Pharmacy Education should have one full-time licensed librarian.

Section 2. There should be a sufficient number of books of the latest edition with at least 3 titles per professional subject.

Section 3. There should be adequate subscription to scientific journals as well as periodicals for the different professional subjects.

Section 4. There should be a state of the art materials and equipment.

*National Council for Affiliation and Training
**See Appendix B - Listings of Suggested Titles

Article VIII
RESEARCH

Section 1. The college/university must encourage and support research activities in the field of pharmacy to be done by competent and qualified research team.

Section 2. Faculty members assigned to do research activities shall be credited with an equivalent teaching load for time engaged in research activities.

Section 3. The institution should encourage and support research among its students and faculty members for the improvement of the pharmacy profession..

Article IX
LABORATORY STAFF AND FACILITIES***

Section 1. The school/college of Pharmacy should have laboratory assistants to assist laboratory instructors.

Section 2. It should provide lecture and laboratory rooms, facilities, materials and equipment that are adequate not only for instructional and experimental work but also for researches.

2.1 A Laboratory room should:

2.1.1 be well-lighted, well ventilated, and provided with accessible safety devices and first aid facilities;

2.1.2 have adequate working and free spaces for the convenience of students;

2.1.3 have a laboratory table that is chemical-resistant and fire-resistant;

2.1.4 have a minimum floor space of one (1) square meter per student;

2.1.5 have one (1) locker per 1-4 students.

***See Appendix C - Listings of Laboratory Equipment/Instruments

2.2 Separate laboratories for the physical, biological and pharmaceutical sciences should be provided.

2.3 Facilities in the science laboratory should include:

2.3.1 a continuous and adequate supply of electricity, water, gas, and purified/distilled water;

2.3.2 safety, emergency, and first aid devices, such as: fire extinguisher and first aid kit/cabinet; emergency shower and exhaust system/fume hoods shall be available and easily accessible.

2.4 Equipment and supply should:

2.4.1 be adequate for each laboratory course based on the types and number of students;

2.4.2 should be functional at all times;

2.4.3 include other teaching aids as needed for efficient instruction in the laboratory.

2.5 Experiments to be performed in a given laboratory subject should:

2.5.1 be adequate in scope to cover the concepts and theories to be taught and learned;

2.5.2 emphasize investigation and inquiry;

2.5.3 be so designed as to be undertaken by the students with the minimum of instruction from the teacher.

Section 3. Provision should be made for maintaining live plants and animals and for the study of microorganisms.

3.1 Special equipment should be provided for the technique utilized in microbiology.

3.2 Adequate space should be provided in the school campus for botanical/medicinal gardens, including a green house, if possible.

3.3 Facilities for housing laboratory animals should be available; sanitary and aesthetic conditions in the areas provided for this purpose should be maintained.

Article X

ADMISSION, SELECTION AND RETENTION OF STUDENTS

Section 1. The applicant for admission to a degree course in Pharmacy must:

1.1 Have graduated from a general secondary course authorized by the government.

1.2 Have satisfactorily complied with the admission requirements of the school.

1.3 Have never been convicted or found guilty of any misconduct involving moral character.

1.4 Have complied with the selection and retention policies of the University.

SO ORDERED.

Pasig City, Philippines, January 21, 1998

ANGEL C. ALCALA
Chairman

MONA D. VALISNO
Commissioner

KATE C. BOTENGAN
Commissioner

ESTER A. GARCIA
Commissioner

ROBERT N. PADUA
Commissioner

Standards Div./bec/pharmacy/policies and standards files

APPENDIX A

B.S. PHARMACY
PROTOTYPE CURRICULUM
(effective SY 1996-1997)

FIRST YEAR

1st Semester

Course Title	Lec.	Lab.	Units
Communication Skills	3		3
Sining ng Pakikipagtalastasan	3		3
General Psychology	3		3
College Algebra	3		3
General and Inorganic Chemistry	3	6	5
Gen. Botany w/ Taxonomy	3	6	5
P.E. 1	2		2
Military Science 11	(1.5)		(1.5)
			24

2nd Semester

Communication Skills II	3		3
Panitikang Filipino	3		3
Trigonometry	3		3
Pharmacy and Chemistry of Inorganic Medicinals	3	6	5
General Zoology	3	6	5
Introduction to Pharmacy (History and Orientation)	2		2
Pharmaceutical Calculation	2		2
P.E. 2	2		2
Military Science 12	(1.5)		(1.5)
			25

SECOND YEAR

1st Semester

Course Title	Lec.	Lab.	Units
Speech Communication Skills	3		3
General Physics	4	3	5
Human Anatomy and Physiology with Patho-Physiology	3	6	5
Organic Chemistry	3	6	5
Introduction to Calculus	3		3
P.E. 3	2		2
Military Science 21	(1.5)		(1.5)
			23

2nd Semester

Introduction to Literature	3		3
Biochemistry	3	6	5
Microbiology and Parasitology	3	6	5
Biostatistics	3		3
Physical Chemistry	3	3	4
P.E. 4	2		2
Military Science 22	(1.5)		(1.5)
			22

THIRD YEAR

1st Semester

Course Title	Lec.	Lab.	Units
Biopharmaceutics & Pharmacokinetics	3	3	3
Pharmacy & Chemistry of Organic Medicinals	3	3	4
Physical Pharmacy	3	6	4
Pharmaceutical Dosage Forms (Solids and Liquids)	3		5
Socio-Anthropology	3		3
Computer Science	3		3
Effective Writing	3		3
			25

2nd Semester

Pharmacology	3		3
Pharmaceutical Manufacturing	2	6	4
Hospital Pharmacy	2	3	3
Quality Control I (Drug Testing and Assaying)	3	6	5
Pharmacognosy and Plant Chemistry with Philippine Medicinal Plant	3	6	5
Technical Writing	3		3
			23

FOURTH YEAR

1st Semester

Course Title	Lec.	Lab.	Units
Pharmacology II & Therapeutics	2	3	3
Quality Control II w/ Instrumentation	3	3	4
Research and Thesis Writing	1	6	3
Taxation and Agrarian Reform and Economics	3		3
Dispensing and Incompatibilities	3	6	5
Pharmacy Jurisprudence and Ethics	2		2
Philippine Government & New Constitution	3		3
			23

2nd Semester

Pharmaceutical Seminar (Accounting, Economics, Administration and Materials Management)	3		3
Clinical Toxicology	2	3	3
Pharmaceutical Marketing	2		2
Clinical Pharmacy	2	3	3
Community Health Pharmacy	3		3
Rizal	3		3
Art Appreciation	3		3
			20

APPENDIX B

LIBRARY HOLDINGS

A. Basic Textbooks Collection - There must be one copy of the prescribed textbook for each General Education and Professional Pharmacy subjects in the library.

General Education Subjects

1. Communication Skills I and II
2. Speech
3. Effective Writing
4. Technical Writing
5. Introduction to Literature
6. General Psychology
7. Socio Anthropology
8. Art Appreciation
9. College Algebra
10. Trigonometry
11. Calculus
12. Biostatistics
13. General Botany with Taxonomy
14. General Zoology
15. Human Anatomy and Physiology with Pathophysiology
16. General and Inorganic Chemistry
17. Organic Chemistry
18. Physics
19. Physical Chemistry
20. Computer Science
21. Taxation and Agrarian Reform and Economics
22. Philippine Government and New Constitution
23. Philippine History and Current Issues with Rizal
24. Research and Thesis Writing

Professional Pharmacy Subjects

1. Introduction to Pharmacy
2. Pharmaceutical Calculation
3. Pharmacy and Chemistry of Inorganic Medicinals

4. Biochemistry
5. Microbiology and Parasitology
6. Biopharmaceutics and Pharmacokinetics
7. Pharmacy and Chemistry of Organic Medicinals
8. Physical Pharmacy
9. Pharmaceutical Dosage Form
10. Pharmacology I and II
11. Pharmaceutical Marketing
12. Hospital Pharmacy
13. Quality Control I and II
14. Pharmacognosy with Plant Chemistry
15. Dispensing and Incompatibilities
16. Pharmacy Jurisprudence and Ethics
17. Pharmacy Economics, Administration and Management
18. Clinical Toxicology
19. Clinical Pharmacy
20. Community Health Pharmacy

B. Reference Books - There must be two copies of reference book per title. For each subject, there must be at least three titles

In addition, the following reference books must be made available:

1. Remington's Pharmaceutical Sciences (latest edition)
2. Combined United States Pharmacopeia and National Formulary (latest edition)
3. British Pharmacopeia
4. Merck Index

C. Pharmaceutical Journals - There must be a minimum of 5 titles.

APPENDIX C

LABORATORY FACILITIES/EQUIPMENT, SUPPLIES

I. Physical Chemistry, Physical Pharmacy
Quality Control I & II

1. Analytical Balance Digital
2. Pycnometers
3. Mohr Westphal Balance
4. Viscometer
5. Refractometer
6. Polarimeter
7. Ovens - Drying
8. Melting Point Apparatus
9. UV vis Spectrophotometer
10. Disintegration Apparatus
11. Friabilators
12. Soxhlet Apparatus
13. Dissolution Apparatus
14. Hardness Testers
15. Hygrometers
16. Hydrometers

17. Glassware - 1 set for a group of 4 students

    a. test tubes/test tube rack

    b. beakers

    c. buret (alkali, acid)

    d. pipets

    e. aspirators

    f. flasks

    g. distilling apparatus

    h. percolators

    i. Dumas bulbs

    j. Porcelain crucibles

    k. Assembly for Chromatographic methods of analysis (CC, PC, TLC)

    l. fluorophotometer - (optional)

18. Hot plates

19. Stalagmometers

20. Suction Pump

21. Calipers

22. High Pressure Liquid Chromatograph (HPLC)

II. Pharmaceutical Dosage Forms I & II (Liquids & Solids)

    1. Liquids

        a. glassware - 1 set per group of 4

        b. mixing container (preferably stainless)

c. stirrers (stainless)

d. funnels (preferably stainless)

1.1 Parenterals

(a) controlled room - air-conditioned

(b) filling apparatus for ampules and vials

(c) filter assembly

(d) sterilizers/autoclaves

1.2 Emulsion

(a) Blenders

(b) mortar & pestles

2. Solids

2.1 Tablets and Capsule

(a) mixer

(b) granulator

(c) drying oven

(d) tablet machine/compression machine

(e) weighing scale

1. analytical balance

2. top loading balance

(f) capsule filler

(g) coating pan

(h) sieves

2.2 Ointment

(a) mixer

(b) mixing bowl

(c) crimper

(d) ointment filler

2.3 Suppository

(a) suppository mold

III. Pharmaceutical Chemistry/Plant Chemistry

1. Basic Glassware
2. Soxhlet Apparatus
3. Distilling Unit
4. Percolators
5. Thin Layer Chromatograph
6. Infra-red Spectrophotometer (optional)
7. Oven (Circulating)
8. Botanical Garden
9. Clavenger Apparatus
10. Kjeldahl Assembly
11. Separatory Funnels

IV. Microbiology, Parasitology

1. Refrigerators
2. Incubators

3. Autoclaves

4. Stoves

5. Inoculating Chamber

6. Inoculating Needle & Loop

7. Microscopes

8. Glassware

   (a) Erlenmeyer flasks

   (b) petri discs

   (c) glassware for biochemical reaction

   (d) slides

V. Pharmacology, Toxicology, Anatomy and Physiology

1. Kymograph

2. Endoctorium

3. Animal Cage

4. Disposable Syringe and Needles

5. Equipment for Pyrogen Test

6. Sphygmomanometer

7. Stethoscope

8. Anatomical Model

9. Hand Lens