PROPOSAL FOR A MODEL CORE CURRICULUM FOR THE FIRST TWO UNDERGRADUATE YEARS IN INSTITUTIONS OF HIGHER EDUCATION IN VIETNAM

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NGUYỄN VĂN THÙY

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ABSTRACT

PROPOSAL FOR A MODEL CORE CURRICULUM FOR THE FIRST TWO UNDERGRADUATE YEARS IN INSTITUTIONS OF HIGHER EDUCATION IN VIETNAM

By

Nguyễn Văn Thùy

The purpose of this study is to propose a model core curriculum for the first two years of undergraduate education in institutions of higher education in Vietnam. The model core curriculum is planned to provide students with the following: (1) preparation for citizenship under national standards of undergraduate education, and (2) basic and general studies common to all who pursue higher education as well as pre-professional preparation. It also intends to maintain the optimum distribution of resources within the university to insure effective balances of instructional programs and other educational services.

The study involves the following processes: (1) direct documentary analyses of the status of higher education and its current undergraduate curriculum, (2) assessment of a future undergraduate education that would meet the needs of the students and the nation, and (3) design of the proposed model core curriculum.

The analyses of a survey of Vietnamese educators' attitude and opinion toward the improvement and change in the college curriculum show that: (1) the findings appear to support a new curriculum in higher education: basic sciences should be the foundation of the student's knowledge; mathematical sciences should support the studies in basic sciences; and courses in humanities and arts, in agricultural sciences, and in professional fields are relevant to the undergraduate curriculum; (2) the present college curriculum does not meet the needs of students; hence, courses in humanities and social sciences are believed relevant to an individual's participation and cooperation in the community activities; (3) the improved college curriculum should be designed for the student's interest and learning as well; basic and general knowledge is deemed fundamental for further vocational or professional preparation; and (4) courses that will be conducive to a change in the student's attitudes and to the development of his critical thinking abilities are found, in order of importance, in vocational studies, humanities, and professional studies.

It appears that the future undergraduate education in Vietnam would present these criteria: (1) to provide the student with sufficient basic knowledge to make him conscious of himself and the environment in which he lives, (2) to promote and develop the student's skills of

communication, thus making human interactions and relationships almost limitless, (3) to provide the student with a total view of his college experience which would help develop his broad competencies in and readiness for self-education and self-improvement, (4) to provide the student with full mastery in his professional preparation, and (5) to emphasize learning in basic sciences, social sciences, and humanities.

These five criteria serve as a guide in the selection and clarification of objectives in planning the proposed model core curriculum which includes the following components: general core requirements, college or divisional specialization or major concentration requirements, and concentration electives or free electives. The evaluation of the core curriculum indicates that the requirements for the first two years of undergraduate programs are equal to, or greater than, the requirements for the propaedeutic and second years together, of the present university four-year curriculum.

The recommendations for implementing the proposed core curriculum are: (1) a careful consideration of the proposed core curriculum at the level of the state universities and community junior colleges, (2) a clarification of curriculum objectives which stress the student's learning, (3) an academic reorganization in the present university governance, and (4) a reorganization of the

Vietnamese public higher educational system. Recommendations for further research and survey to be conducted beyond this study are expected, too.

Higher education in Vietnam is confronted with the need for personal improvement and change. Its curriculum is relevant to the national progress when its graduates, as citizens, are aware of their responsibilities, rights, and obligations towards themselves and their fellow men as well. Its duty is to build up relationships, foster inter-group, national and international understanding and emotional integration.

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By

Nguyễn Văn Thùy
Lic. Ès-Sc., DES. Sc., M.S.

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CHAPTER I

THE PROBLEM

Introduction

Higher education provides a methodical and orderly help to a person--hence, to a population--to grow and to develop the potentiality of learning, understanding, mastering, and adapting to the environment in which that person is living. In fact, a college or university cannot stand by itself as a social agent with responsibilities for both the citizen's material and his moral life in a country. It must, on the contrary, be a means by which all levels of manpower and resources can appropriately cooperate and contribute to national advancement. But it must first insure the fulfillment of the "minimum requirements of manpower trained in modern skills to make possible sustained economic growth and modernization and to provide gradually improving" social programs and services.[1]

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[1]Clifton R. Wharton, Jr., The U.S. Graduate Training of Asian Agricultural Economists (New York: The Council of Economic and Agricultural Affairs, Inc., 1959), p. 13. See also Guy Hunter, Higher Education and Development in South East Asia, Vol. III, Part 1 (Paris: UNESCO and International Association of Universities, 1967);

Among a multitude of meanings of "higher education" and/or "college education" the following is found pertinent to this study:

> Higher education serves a different function for each of the two large groups into which the students attending [colleges and universities] are divided. For the majority of students in college, higher education is the capstone of secondary education and the end of formal schooling; the baccalaureate degrees received by the members of this group represent the completion of formal education for citizenship in the world's [. . .] democracy as well as for life generally. For those who continue their formal education which is more and more required by our complex society, higher education has two functions: preparation for citizenship and life generally, and the provision of a foundation for professional and/or graduate training in one of the professions or major areas of organized enterprise.[2]

To this definition which stresses the function of higher education, Dressel adds:

> Higher education prepares the student to lead a more satisfying and productive life as a citizen, and provides concurrently, if not simultaneously, a background of foundation for a vocation or further

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Robert M. Hutchins, "The College and the Needs of Society," Journal of General Education, III (April, 1949), 175ff.

[2]Lucille Allen, John J. Geise, and Ben Euwema, "The Nature and Functions of Higher Education," College and University, XXXV, No. 1 (1959), 29ff, see also: John S. Brubacher, Bases for Policy in Higher Education (New York: McGraw-Hill Book Company, 1965), p. 1; John S. Brubacher, "The Theory of Higher Education," Journal of Higher Education, XLI, No. 2 (1970), 103ff; Oliver C. Carmichael, "Higher Education: Some Problems and Prospects," Journal of Higher Education, XXII (1951), 145ff; W. H. Cowley, and Donald T. Williams, "The Meaning of Higher Education," Educational Forum, XXXIII, No. 4 (1969), 497ff; Paul L. Dressel, "The Meaning of a College Education," Journal of Higher Education, XXXIX, No. 9 (1968), 481ff.

> professional or graduate training. These two functions of higher education are not clearly separable. Nor is higher education entirely separable from preceding levels of higher education. Indeed, it should not be, rather, it should be a continuation, sequential rather than repetitious in nature. It is therefore necessary that the student's higher education experience differ in nature, as well as in content, from his earlier education.[3]

Higher education undertakes to serve the needs of both the individual and the nation. It provides the student with: (1) the acquisition of knowledge and its use; (2) the mastery of skills of communication; (3) the awareness of his own values and commitments; (4) the ability to cooperate and to collaborate with others; (5) the concern of responsibility regarding contemporary events, issues, and problems; and (6) sufficient experiences and competencies relevant to his further development as an individual and to the fulfillment of his obligations as a responsible citizen in a democratic society.[4] Consequently, higher education certainly not only contributes to the social changing order but also to its development and modernization.[5]

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[3]Paul L. Dressel, The Undergraduate Curriculum in Higher Education (New York: The Center for Applied Research in Education, Inc., 1963), p. 70.

[4]Dressel, "The Meaning of College Education," pp. 484ff.

[5]Paul L. Dressel, "The Impact of Higher Education on Student Attitudes, Values, and Critical Thinking Abilities," Educational Record, XLVI (1965), 248ff; Mervin B. Freedman, The Impact of College, New Dimensions in Higher Education No. 4 (Washington, D.C.: Government Printing

Social reconstruction and national development require basic and essential elements (the people) and fundamental factors (customs and moral values), but the changing processes should be enlightened by modern thinking and educational concepts as well as science and technology. The university can provide opportunities for such an approach. For developing countries, the demands of the society are of paramount importance:

> Whereas the rapid changes in technology are gradually leading the universities of the most advanced countries to give up highly specialized types of training in favour of more "polyvalent" types of general training, the universities of the developing countries are giving up general education in order to adopt curricula which provide the specialized types of training required by the technological development of the country. The trend is reversed, but the conditions are very different. Moreover, the concept of "general education" is directed to different ends and that of "specialization" refers to different levels.[6]

But, even the university is capable of promoting a cause-and-effect relationship between its programs and the national development, and *inter alia*, higher education in the developing countries still promotes a body of knowledge

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Office, 1960); Alex Inkeles, "The Modernization of Man," in *Modernization, The Dynamics of Growth*, ed. by Myron Weiner (New York: Basic Books, Inc., 1966); Clark Kerr, "The University in a Progressive Society," *The Pacific Spectator*, VII, No. 3 (1957), 268ff; Edward Shils, "Modernization and Higher Education," in *Modernization, The Dynamics of Growth*, ed. by Myron Weiner (New York: Basic Books, Inc., 1966).

[6] Henri Janne, *The University and the Needs of Contemporary Society*, Papers of the International Association of Universities, No. 10 (Paris: UNESCO, 1970), p. 54.

which the graduates have not really learned how to use. Thus,

> the principal concern of the college should be the universe in its physical, chemical and biological aspects and human society in its historical, philosophical, and functional aspects.[7]

This anticipated socio-educational concept makes higher education more contributive to the nation's progress and prosperity.

The concern for curriculum in modern higher education is both real and understandable. Given the task of providing both "for transmission of knowledge and for production of new ideas for public use,"[8] every university curriculum must meet the challenge of the age,[9] to prepare young men and women to expect and to welcome change and yet maintain the roots of family and community upon which a strong society must rest. Moreover, the college curriculum must foresee further social changes with its consequences and national development as its outcome. If, on the contrary, the university curriculum merely follows the changing order in the society, it would be an accumulation of information, a program responding to

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[7]Allen, Geise, and Euwema, op. cit., p. 32.

[8]Kerr, "The University in a Progressive Society," p. 275.

[9]Wilfred R. Smith and Sharon Mac Laren, "Challenges to the Future Curriculum," in Educational Issues in a Changing Society, ed. by A. Kerber and Wilfred R. Smith (Detroit: Wayne State University Press, 1968), pp. 460ff.

a ready-made social system with its own values crystallized in its processes and attitudes.

On this basis, the curriculum in Vietnamese universities, and especially the undergraduate curriculum, cannot be considered as an isolated issue. It must, first of all, be related to (1) the student, and to (2) society. Such a curriculum must be broad, varied, and practical, in addition to its present "literary"[10] character, so that the student's chances of being well-educated are enhanced.

The Need for This Study

Surveys of higher education in Vietnam reveal that the present university curriculum does not help strengthen the country's talent pool. The Report of Wisconsin State University, Stevens Point, describes the circumstances as follows:

> It is hard to know and perhaps irrelevant to consider the extent to which the wide gap between the economic needs of Vietnam and its programs in the universities is due to the nation's preoccupation with war, the shortage of resources, the relative newness of its institutions, or to the academic customs that have been inherited by the country. Whatever its root causes, all Faculties except Medicine, Dentistry and Pedagogy have graduated less than 5% of their total enrollment. The survey team interprets this as an indication of a waste of manpower, traceable in part to present university policies and programs.
>
> Rigid standards applied in the form of examinations have the effect of controlling the numbers of students entering occupations for which there is

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[10] Đỗ Bá Khê, "The Community Junior College Concept: A Study of Its Relevance to Postwar Reconstruction in Vietnam" (unpublished Ph.D. dissertation, University of Southern California, 1970), p. 62.

> a surplus such as lawyers, pharmacists, and architects. The same rationale also dictates a reduction in the number of students in occupations badly needed by the country, for instance, medicine and dentistry. Not only is the country deprived of the services of more leaders and experts under such a system, but the catastrophy to individuals is immeasurable.[11]

Outside of Vietnam, a similar situation is reported:

> The basic problem of most of the underdeveloped countries is not a poverty of natural resources but the underdevelopment of their human resources; hence, their first task must be to build up their human capital. To put it in more human terms, that means improving the education, skills, and hopefulness, and thus the mental and physical health of their men, women, and children.[12]

At the individual level, that critical situation is described, once again in terms of Vietnam, as follows:

> If a student enters one faculty and fails after two or three years, he has utterly wasted his time. To get a degree in a different faculty, he must start over again. There's no possibility for a certificate for his two years' work and he's little better off than a holder of Bac II, a high school graduate.[13]

When entering an institution of higher education, the Vietnamese student anticipates a continuing extension of his high school learning for completion and fulfillment

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[11] Wisconsin State University, Stevens Point, Public Universities of the Republic of Vietnam (Saigon: USAID/ Wisconsin State University, Stevens Point, Foundation, Inc., 1967), p. 14.

[12] Frederick Harbison, "Education for Development," Scientific American, CCIX, No. 3 (1963), 140.

[13] Nguyễn Lưu Viên, "Democracy of the Mind," An Interview with South Vietnam's Minister of Education, Horizons, XIX, No. 9 (1970), 111.

of knowledge, thinking abilities, and values. However, since the present university curriculum does not meet his anticipated needs, the problem of continuing to educate Vietnamese at the university level remains critical. The needs of a growing population;[14] the exigency of a progressing society facing up to post-war reconstruction;[15] the requisites of an economy with effective factors influencing the course of agricultural development;[16] the impact of science and technology, mechanization, and automation on the Vietnamese's life--all are certain to effect every phase and level of Vietnam's higher education at the present time as well as during the years ahead.

But, "little has been done for Vietnamese youth," as remarks a Vietnamese educator:

> There are many conditions which frustrate them. It is hard to find a seat in public schools. Too many national examinations create obstacles to their advancement. . . . The lucky students who overcome the hurdles of the "Baccalauréat" cannot always find a place in higher education, which is highly selective. The literary courses in the university do not prepare

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[14] A population of 22,500,000 is projected for 1978, compared to 16,259,334 in 1968, 16,543,000 in 1969, and 17,333,000 in 1970, with over 2,000,000 of university age [National Institute of Statistics, Vietnam Statistical Yearbook 1970, Vol. XVI (Saigon: Directorate General of Planning, 1970), pp. 106f].

[15] Joint Development Group, The Post-War Development of the Republic of Vietnam: Policies and Programs, Vol. II (Saigon/New York: Post-War Planning Group and Development and Resources Corporation, 1969).

[16] Clifton R. Wharton, Jr., Research on Agricultural Development in South East Asia (New York: The Agricultural Development Council, Inc., 1965).

> them for life and the university sometimes fail up to 90 percent of its enrollment. . . . Such frustrations create restless youth.[17]

Many scholars are suggesting that the university curriculum must be reorganized to meet the educational needs in our changing order.[18] These suggestions, still relevant to this study, must be considered in the light of the actual situation in Vietnam.

Current programs of instruction in higher education have little pertinence to a country at war. The university remains a privilege of an urban society rather than a nation-wide service. Its outcomes do not provide for both urban and rural communities with communication.

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[17] Khê, op. cit., pp. 184ff.

[18] Trần Quang Đệ, Phúc-trình của Phái-đoàn Viện-trưởng Đại-học về Tổ-chức Đại-học Mỹ-quốc, qua cuộc công-du quan-sát từ 7.10 đến 20.11.1967 [Report of the Delegation of Universities Rectors on Higher Education in the United States, following their observation tour from October 7 through November 20, 1967] (Saigon: University of Saigon, 1967) [in Vietnamese]; Burdette W. Eagon, Proposal for the Preparatory Center at the University of Saigon (Saigon: USAID, 1969); Charles J. Falk, Higher Education in Vietnam, Field Study No. 5, Provisional Report (Saigon: USOM Vietnam, 1956); Phạm Hoàng Hộ, Phúc-trình của Viện-trưởng Đại-học Cầnthơ về tổ-chức Đại-học Mỹ-quốc, qua cuộc công-du quan-sát từ 7.10 đến 20.11.1967 [Report of the Rector of the University of Cantho on American Higher Education, following the observation tour from October 7 to November 20, 1967] (Cantho, Vietnam: Rectorate of the University of Cantho, 1967) [in Vietnamese]; Khê, op. cit.; Myrne R. Riley, Report on the School of Mechanical Engineering, National Technical Center, Saigon, South Vietnam (Saigon: USAID/University of Missouri, Rolla, 1971); Wisconsin State University, op. cit.

Thus, cities and villages can never be considered as socio-economic-educational complements in the nation.

Cursory surveys of current university curriculums show the needs for reviewing the courses, their quality, and costs. In any community of scholars, curriculum and instruction are the plan and means of action for making the institution's objectives more apparent.[19] Since the traditional organization of the Vietnamese universities neither encourages the growth of an organic view of the institution nor facilitates ready communication from one area of knowledge to another, it is understood that the compartmentalization might arise from (1) an institutional need, or (2) a tendency to fragmentation aggravated by an additional divisive influence within the institution.[20] But, in either case, the concern for curriculum and instruction should be reflected in the institutional planning. However, most, if not all, faculty has rigid acceptance of the separation of power and independence in building a distinctive curriculum. Hence, the absence of a total view is certain, and as a result

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[19] Paul L. Dressel, College and University Curriculum (Berkeley, Calif.: McCutchan Publishing Co., 1968), p. 153.

[20] Edward L. Litchfield, "The University: A Congeries or an Organic Whole?" AAUP Bulletin, XLV, No. 3 (1959), 354; Edward L. Litchfield, "Organization in Large American Universities: The Faculties," Journal of Higher Education, XXX, No. 7 (1959), 376.

departmental units are developed at the expense of others, and duplications of expensive programs are not few within a university, or even within a faculty or school.

The Problem for Investigation

The idea of a changing university curriculum in Vietnam which was initiated by Falk became a reality only in recent years.[21] Presently, university leaders are carefully reconsidering Falk's ideas, focusing their interest on the development of a common program or "common trunk" in sciences, humanities, and social sciences. There are indications that the common program is a solution emerging in response to these crucial issues in higher education: (1) rapid growth of enrollment, (2) shortage of teaching staff, and (3) inadequate sources of university income for maintaining efficient teaching and learning with the available physical facilities, educational materials, and equipment. This common program would offer two years of undergraduate education with a basic structure providing for the broadening and strengthening of the student's basic knowledge, guidance and preparation for further vocational and professional studies, and the insuring of the student's interest during his first two years of college education. Stimulated by the fears and hopes accompanying the increasing pace of education, this program

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[21]Falk, op. cit.

finds its greatest manifestation and backing in the introduction of the community junior college concept.[22]

The Statement of the Problem

The present study is stimulated by three factors:

1. Vietnamese faculties rarely focus on a unified undergraduate curriculum. It involves many uncorrelated, if not conflicting, interests, and this situation is not easily changed.
2. The existing university curriculum is designed primarily to educate those people who intend to pursue a specific career rather than to prepare the general citizenry for active participation in society and the community.
3. College teaching and student learning processes do not create purposeful expectations which result in educational and social concepts focused on a three-fold relationship, Individual-Community-Society.

The Purpose of the Study

Accepting the present situation in Vietnamese higher education, the purpose of this study is to design a model core curriculum for the first two undergraduate years of college education which would meet the needs of

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[22] Khê, op. cit.

students and nation, provide general education programs common to all who pursue higher education, and maintain the optimum distribution of resources within the university to insure effective and balanced instructional programs and other educational services.

The development of this core curriculum raises three fundamental questions which this study attempts to answer. They are:

1. How does the program for the first two undergraduate years fit into the functional framework of higher education? Will it provide for more latitude in instruction and courses?

2. What effective accommodation might the core curriculum have, given the realities of the conditions of university governance and academic leadership?

3. Assuming the distinctive role of the first two years of undergraduate curriculum, what would be a rational design for a core curriculum which is <u>not</u> merely a reflection of either the extended secondary school curriculum or of the present university curriculum?

The Objectives of the Study

To attain the major purpose of this study, the objectives of the investigation are two-fold.

The first objective is primarily to evaluate the current undergraduate curriculum, using two of the three perspectives of evaluation suggested by Dressel[23] as distinctive aspects of higher education. The evaluation focuses on the environment and the process, since at the present time it is impracticable to deal with the third perspective--the end results. Judging the worth of the current curriculum first necessitates consideration of its breadth, depth, continuity and sequence, flexibility, and integrated learning and teaching. The evaluation then concentrates on the characteristics of the environment in which undergraduate education develops. This study of the environment considers the "instructional and library facilities, extracurricular cultural programs, residence halls, student activities centers, and the climate of learning generated by these facilities."[24]

The second objective, which deals with four steps suggested by Dressel,[25] is to plan and develop a curriculum.

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[23]Dressel, College and University Curriculum, p. 178.

[24]Ibid., pp. 179ff.

[25]Ibid., pp. 30ff; Dressel, The Undergraduate Curriculum in Higher Education, pp. 22ff.

Selection and Clarification of Objectives

The objectives of all the experiences that students have under the auspices and direction of an institution of higher education may derive from these sources: (1) the needs for the perpetuation and improvement of society, (2) the needs of individuals, (3) authoritative statements, and (4) a philosophy of education.[26] However, since it is recognized in Vietnam that both political control and "bureaucracy exercise too much authority over education,"[27] the third and fourth sources are deleted in defining the curriculum objectives.

Selection and Planning of Educational Experiences

The educational experiences suggested as relevant to the core curriculum are those revealed by Dressel.[28]

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[26] Ronald C. Doll, Curriculum Improvement: Decision-Making and Process (Boston: Allyn and Bacon, Inc., 1964), p. 180.

[27] Guy H. Fox and Charles A. Joiner, "Perceptions of the Vietnamese Public Administration System," Administration Science Quarterly, VIII, No. 4 (1964), 469; Robert Devreux, "South Vietnam's New Constitutional Structure," Asian Survey, VIII (1968), 467ff; Wisconsin State University Report, op. cit., p. 77; Ralph B. Kimbrough and Eugene A. Todd, "Bureaucratic Organization and Educational Change," Educational Leadership, XXV, No. 3 (1967), 220ff; A. Ross Thomas, "Innovation Within a Bureaucratic Education System," Part 1, Journal of Educational Administration, VI, No. 2 (1968), 116ff.

[28] Paul L. Dressel, et al., Evaluation in Higher Education (Boston: Houghton Mifflin Company, 1961), p. 14; Dressel, The Undergraduate Curriculum in Higher

The selection of these experiences is made in light of the university professor's reaction to change[29] and the actual method of teaching and the learning process at the university level which is criticized as a "cite, record, and recite method," and as "a feat of memory."[30]

Organization of Experiences

The organization of courses in the core curriculum respects the logical order in the learning process that stresses both inductive and deductive forms. In applying such an organization of experiences, it is necessary to observe three criteria identified by Dressel.[31] They are: continuity, sequence, and integration. Continuity in the organization of courses provides logical relations of learning experiences, with the earlier ones being prerequisites for later ones. Sequence naturally involves the connection between preceding and succeeding experiences. Finally, integration in the organization of experiences allows students the opportunity to build from their learning

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Education, p. 30; Dressel, College and University Curriculum, p. 33.

[29]Jack M. Patt, "The Language Dilemma in Vietnamese Education," Journal of Higher Education, XXXX, No. 5 (1969), 386.

[30]Edgar N. Pike, "Public and Private Education in Vietnam," Asian Culture, II, No. 2 (1960), 113.

[31]Dressel, The Undergraduate Curriculum in Higher Education, pp. 31ff; Dressel, College and University Curriculum, pp. 34ff.

experiences, which are structured according to a continuous and sequential design, their own pattern of organization of courses. To this extent, the primary purpose of integration is for the students to fully develop those skills necessary to acquire and accumulate as many learning experiences as they need.

Evaluation

In this study, evaluation specifically involves judging the worth of the objectives of educational experiences in the core curriculum. The judgment presupposes the following elements: (1) educational roles, (2) curriculum and student motivation, and (3) administrative structure and functions. The final phase of this exercise focuses on these components: (1) the internal organization and control, (2) the costs of higher education and their distribution, and (3) the leadership in higher education.

The Assumptions

For the purpose of this study, the following assumptions are made in the light of the structure and functions of the undergraduate education, the curriculum and instruction in higher education, the organizational structure and administration of the university, and the future of the first two-year undergraduate curriculum.

It is assumed:

1. That "teaching of knowledge, long-preserved or newly discovered, should not be restricted to any one group or class, but should be made freely available to all who can make good use of it."[32]

2. That the structure of undergraduate education should insure its role "both in relation to the secondary school . . . which it follows and in relation to graduate education and vocational activity which it precedes and for which it prepares."[33]

3. That the function of undergraduate education is to prepare and to introduce the student to "unifying ideas, concepts, principles, and methods; primary rather than secondary sources; a critical, sophisticated, and value-conscious approach to issues and problems."[34]

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[32]John A. Hannah, "We Believe . . . " A Statement by John A. Hannah, President of Michigan State University, in Michigan State University Catalog 1968 (East Lansing, Mich.: Michigan State University Registrar's Office, 1968), p. ix.

[33]Dressel, The Undergraduate Curriculum in Higher Education, p. 72.

[34]Ibid., p. 70.

4. That "curriculum and instruction [in higher education] are two major dimensions stimulating the learning process in students, . . . and the purpose of curriculum and instruction is to induce change, demonstrated in more mature behavior, intellectual development, and personal competence."[35]

5. That the organization and administration of the university should be concerned "with creating, maintaining, stimulating, and unifying the energies within an educational institution toward realization of the predetermined objectives."[36]

6. That the reorganization of the Vietnamese universities should make them "more responsive to the economic, social, political and cultural needs of the country which supports them."[37]

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[35]Clyde E. Blocker, Robert H. Plummer, and Richard C. Richardson, Jr., The Two-Year College: A Social Synthesis (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), p. 202; Dressel, College and University Curriculum, p. 155.

[36]Stephen J. Knezevich, Administration of Public Education (New York: Harper and Row, Publishers, 1962), p. 171.

[37]Wisconsin State University Report, op. cit., pp. 14ff.

7. That the proposed model core curriculum for the first two undergraduate years would be worthy of consideration by any one of the four types of two-year colleges proposed for the future in Vietnam--public community junior colleges, private junior colleges, technical institutes, and university extension centers.[38]

The Procedures

This study follows these four steps:

1. To analyze the status of higher education in Vietnam and its historical development, which explains the necessity of an evaluation of curriculum.

2. To analyze the present undergraduate curriculum in Vietnamese public institutions of higher education, with special reference to the universities selected for study: the University of Saigon and the University of Cantho. (Since duplication of programs is recognized within the state universities,[39] the undergraduate curriculum of the University of Hue will not be included in the analysis.)

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[38]Blocker, Plummer, and Richardson, op. cit., p. 269.

[39]Falk, op. cit., pp. 62f; Wisconsin State University Report, op. cit., pp. 14ff.

3. To assess the essential characteristics of future undergraduate education in Vietnam, focusing on its fundamental elements to determine if it was conceived to meet the needs of students and nation.

4. To present a model core curriculum for the first two undergraduate years as it would necessarily function and effectively deal with the realities in Vietnam.

Thus, no hypothesis is tested for this study, due to its descriptive and exploratory nature, and no cause-and-effect relationships are expected to be discovered at the present time. Hence, no real experimental inquiry will be undertaken.

The Instruments Employed

The study utilizes the technique referred to as direct documentary analysis,[40] with its known advantages and limitations. This technique requires fundamental instruments and data such as university catalogs, college bulletins, and syllabi that provide information about the current curriculum offerings.

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[40] Walter R. Borg, Educational Research (New York: David McKay Company, Inc., 1963), p. 256; Deobold B. Van Dalen and William J. Meyer, Understanding Educational Research: An Introduction (enl. rev. ed.; New York: McGraw-Hill Book Company, Inc., 1966), pp. 211ff.

The technique requires additional instrument setting as a norm upon which the analyses must be based. This norm is borrowed from Dressel's curriculum model (Table 1.1).

The format of the study and reference notation follows those recommended by Turabian,[41] as advised by the Michigan State University School for Advanced Graduate Studies.

The Sources of Data

The sources of data for the study consist of university catalogs, college bulletins, school or department syllabi, and other official publications, such as the Secondary Education Curriculum 1970 published by the Ministry of Education.

Catalogs of the National Institute of Administration, the National Agricultural Center, and the National Technical Center--all located in Saigon--are referred to as supplementary references.

Since such an approach to the development of a model core curriculum involves many procedures and criteria, further qualitative information is collected from the following sources. First, inquiry into specific areas

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[41]Kate L. Turabian, Student's Guide for Writing College Papers (2nd ed. rev.; Chicago: The University of Chicago Press, 1969); Kate L. Turabian, A Manual for Writers of Term Papers, Theses, and Dissertations (3rd ed.; Chicago: The University of Chicago Press, 1967).

TABLE 1.1.--A curriculum model.[a]

Curriculum Component	Per Cent of Degree Requirements (Based on 120 Semester Credits)	Arts and Science Majors	Technical and Professional
A. University-wide Core	25	Basic courses in Composition, Social Science, Science, Humanities	
B. General Requirement in Arts & Science	30	Foreign Languages, Mathematics, Additional breadth	Concentration in the disciplines upon which field is based.
C. College or Divisional-wide Specialization Core	10	Divisional requirements to buttress majors	Common requirement for all specialties included in a college
D. Major or Concentration Common Requirement	15	Departmental core required of all majors in a department	Common requirement within each of the several specialties included in a college
E. Major or Concentration Electives	10	Elective within major field	Electives within specialty
F. Free Electives	10	Preferably not to be taken in department of major	Preferably not to be taken in professional or technical college

[a]The percentages presented in this model are arbitrary, but analysis of a number of undergraduate curriculums indicates that they are reasonable. Physical education and other nonacademic requirements are ignored in setting up this model.

Source: Paul L. Dressel, The Undergraduate Curriculum in Higher Education (Washington, D.C.: The Center for Applied Research in Education, Inc., 1963), Chapter V, Table 1, p. 81.

of concern is made by means of cautious individual interviews. Akin to informal conversation, these interviews focus on three fundamental issues in undergraduate education: the student's learning, faculty teaching, and the outcomes of the actual undergraduate curriculum. An article published in Đạt-Nhân (The Attained Man), the monthly bulletin-news of the University of Cantho (Appendix A), is used as an outline of the discussion topic.

The outcomes of the current undergraduate education are evaluated in terms of these questions:

1. With how much ease or difficulty does the graduate of the university use the knowledge acquired under the present system of undergraduate education?

2. When pursuing his undergraduate work at the university, what types of knowledge did the graduate consider most relevant to his future career?

Following the interview, a survey check-list of opinions regarding undergraduate education in Vietnam is given to the interviewee (Appendix B). This survey check-list, exploratory in purpose, is comprised of two parts, identifying information, and opinion. It is written in Vietnamese and English to better convey ideas between the interviewer and the interviewee. Part 2 of the survey check-list is designed to explore: (1) what should be the basic learning required of an individual who wishes to

become an active agent in the community development, and (2) what should be taught in the first two years of undergraduate education in Vietnam. It proposes to find the answer to the first of the three questions which this study attempts to solve.

Second, information is also gathered from reports of meetings of the task force planning two-year general basic studies curriculum at the University of Saigon. The first meeting for the planning and development of a "common trunk" program was held on January 20, 1971. The writer did not attend this session or the subsequent session on February 3, 1971. Upon agreement between the University of Saigon, the University of Cantho, and USAID/ Higher Education Division in Saigon, attendance at the committee's meetings started on March 29, 1971. Meetings were held weekly until the ninth session on May 11, 1971. They were then adjourned to facilitate additional data collecting.

At the University of Cantho, an attempt was made during the University Council meeting on April 22, 1971, to establish a committee for a systematic revision of the undergraduate curriculum. The committee's first meeting on curriculum was held June 10, 1971, to discuss course revision and the credit system.

Definition of Terms

The principal concern of this dissertation is the communication of concepts and ideas in higher education. The terminology concerning higher education in Vietnam, particularly that related to community college education, is well-defined elsewhere.[42] However, those terms which specifically concern curriculum, instruction and learning, and evaluation in higher education should be defined--and translated--for the purpose of this study.

Higher Education/College Education (Giáo-dục Đại-học).--Higher education or college education can be regarded as education at the third level of formal schooling, higher than primary and secondary education--being, respectively, the first and second levels--and provided by an institution of higher learning, whether it is an independent institution (e.g., the National Institute of Administration) or a constituent part of a large or small university in Vietnam (e.g., the Faculty of Science, the Faculty of Medicine).

Undergraduate Education/Graduate Education (Giáo-dục Sơ-cấp Đại-học/Giáo-dục Cao-cấp Đại-học).--Undergraduate education denotes education given during the first four years at an institution of higher learning and leading toward the degree of cử-nhân or its equivalents--

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[42]Khê, op. cit., pp. 16ff.

the "licence" or the bachelor's degree. Graduate education refers to that formal education available beyond the bachelor's degree and offered by the graduate school.[43]

Degree/Diploma (Cấp-bằng/Văn-bằng).--Translations of the degree and diploma granted and issued by universities in Vietnam often refer to French equivalent terms from a system of higher education which does not correspond to that in Canada and the United States. English dictionaries usually define a degree and a diploma as follows:

"degree. A rank given by a college or university to a student who has completed a required course of study."

"diploma. A certificate issued to a student by a school, college, or university, indicating the completion of a prescribed course of study."[44]

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[43] John G. Darley, "The Graduate School as a Professional School," in Education for the Professions, ed. by Nelson B. Henry (Chicago: The University of Chicago Press, 1956), pp. 191ff; Dressel, College and University Curriculum, pp. 139ff; Raymond C. Gibson, The Challenge of Leadership in Higher Education (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1964), pp. 10f; Algo D. Henderson, Policies and Practices in Higher Education (New York: Harper and Row, Publishers, 1960), pp. 167ff.

[44] Webster's New World Dictionary of the American Language (College ed.; Cleveland, Ohio: The World Publishing Company, 1964), pp. 387, 413.

These terms should be translated and understood throughout this dissertation as the following:

degree = cấp-bằng ("cấp" means "a rank"), and

diploma = văn-bằng ("văn" means "a written document").

In comparing the length of study required for each degree in the Vietnamese and American higher education systems, the following degrees granted by universities in Vietnam are the recommended equivalents to corresponding degrees awarded by colleges and universities in the United States. The recommendation and translation of terms implies no accreditation by institutions or associations of higher education in either two countries.[45]

American degrees	Vietnamese degrees
Associate degree in General Basic Studies	Cấp-bằng Đại-học Căn-bản
Bachelor's degree (formerly translated as "Licence")	Cấp-bằng Cử-nhân
Master's degree (formerly translated as "Doctorate in Third Cycle")	Cấp-bằng Tiến-sĩ Đệ-Tam-cấp
Doctor's degree (Ph.D.)	Cấp-bằng Tiến-sĩ Quốc-gia

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[45] Hattie Jarmon, Ellsworth Gerritz, and William S. Patrick, A Study of the System of Higher Education and Guide to the Admission and Academic Placement of Vietnamese Students in Colleges and Universities in the United States (Washington, D.C.: American Association of Collegiate Registrars and Admissions Offices, 1970), pp. 126ff.

Prior to this study the reader may have found elsewhere the Vietnamese term "Văn-bằng" which is often translated as "Diploma"; it should be understood as "Cấp-bằng" when referred to as degree.

University or College/Faculty or School (Viện Đại-học/Phân-khoa Đại-học).--The meanings of these terms are well defined in the context of higher education in Vietnam.[46] Moreover, these structural organizations are best understood if special attention is given to each particular institution of higher education with its own type of governance and enrollment size. Basically, it should be understood that,

> A College [or Faculty] in a university should not be just an administrative convenience made up of a congeries of unrelated, quasi-independent schools, department, and curriculum; rather, it should result from a grouping of faculty members and of fields of study which have some common elements.[47]

University College (Đại-học Căn-bản).--In this study, unless otherwise noted, "University College" is the term confined to a newly introduced organization within the Vietnamese university. In the University College, during the first two undergraduate years, predominance is given to liberal arts and general education

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[46] Khê, op. cit., pp. 17ff.

[47] Dressel, The Undergraduate Curriculum in Higher Education, p. 75.

studies, the foundation upon which well-conceived professional and preprofessional curricula are based.[48]

Graduate School (Đại-học Cao-cấp).--The Graduate School provides opportunities for further studies, research, and professional training to students who earn the "licence" or bachelor's degree from an accredited institution of higher learning. The graduate program is not, however, merely an extension of work beyond the undergraduate level. More rigorous academic standards are applied and a greater degree of independence in the pursuit of knowledge is required. Special emphasis is placed on the cultivation of scholarly attitudes and behavior, the formation of managerial leadership, and the methods of research and instruction.

University Department (Ban Chuyên-khoa).--In the context of this study, the term "university department" connotes a basic academic component of the university "responsible for all teaching, research, and extension work appropriate to the subject matter of the department,"[49]

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[48]Oliver C. Carmichael, "Higher Education: Some Problems and Prospects," Journal of Higher Education, XXII (1951), 145ff.

[49]H. W. Hannah, Resources Book for Rural Universities in the Developing Countries (Urbana, Ill.: University of Illinois Press, 1966), p. 53; Dressel, College and University Curriculum, pp. 110ff.

and having the authority to propose the selection or promotion of faculty members, to suggest changes in conditions affecting the student's status, and to involve itself in curriculum revision and evaluation.[50] This definition does not refer to the current status of the departmental organization within a public university in Vietnam. Hence,

> A department in a [university] should not be simply an administrative unit offering a wide array of unrelated courses. Rather, it should embrace a single discipline or field of study and offer a single major to undergraduate students with a large proportion of the courses being a common requirement for all majors in the department.[51]

Discipline (Ngành học).--"Discipline" used in this dissertation denotes a field or an area of study, i.e., sociology, mathematics, etc.[52]

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[50] Ibid., pp. 401ff; Kay J. Andersen, "The Ambivalent Department," Educational Record, XLIX (Spring, 1968), 211ff.

[51] Dressel, The Undergraduate Curriculum in Higher Education, p. 75.

[52] Ibid.; Dressel, College and University Curriculum, p. 111; James W. Brown and James W. Thorton, Jr., College Teaching: Perspectives and Guidelines (New York: McGraw-Hill Book Company, Inc., 1963), pp. 108f; William H. Garner, "A Systematic Approach to the Establishment of an Office of Institutional Research in a Small University: An Exploratory Study" (unpublished Ph.D. dissertation, Michigan State University, 1970), p. 21; Bernard T. Rattigan, "A Critical Study of the General Education Movement" (unpublished Ph.D. dissertation, The Catholic University of America, 1952), p. 89.

Curriculum (Chương-trình-học).--Theoretically, curriculum could be defined as follows:

> . . . a structured series of intended learning outcomes. Curriculum prescribes (or at least anticipates) the results of instruction. It does not prescribe the means, i.e., the activities, materials, or even the instructional content, to be used in achieving the results. In specifying outcomes to be sought, curriculum is concerned with ends, but at the level of attainable learning products, not at the more remote level at which these ends are justified. In other words, curriculum indicates what is to be learned, not why it should be learned.[53]

However, throughout this study,

> "Curriculum" means the entire instructional offering of a college or university. The word is also equated with "course of study," meaning the pattern of subjects proposed for students who pursue a stated specialization. The word "course" will be used to connote a unit of instruction in a particular subject.[54]

Core Curriculum (Chương-trình-học Căn-bản).--The term "core curriculum" connotes a concept of curriculum, with the crucial point of definition being the idea of core. A "core" is in one instance defined as

> . . . a continuous, carefully planned series of experiences which are based on significant personal and social problems and which involve learnings of common concern to all youth.[55]

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[53] Mauritz Johnson, Jr., "Definitions and Models in Curriculum Theory," Educational Theory, XVII (1967), 130.

[54] Brown and Thorton, op. cit., p. 85.

[55] Hollis L. Caswell, et al., The American High School, Eighth Yearbook of the John Dewey Society (New York: Harper and Brothers, 1946), p. 143.

But that definition of core is not completely satisfying, as it may be variously interpreted:

> With one group of educators the word "core" is used synonymously with minimum essentials. It means those courses or that subject matter to which everyone should be exposed at a particular grade level.
>
> To a second and rather large group it means giving one teacher the responsibility to teach two or more of the commonly accepted areas of knowledge. To this group core is largely an administrative device to insure greater concern for the growth and development of the [student].
>
> A third group, small in number, views core as a means of helping [students] gain experience in areas of living which provide wholesome growth opportunities at their stage of development. To this group core is the kernel around which experience revolves; it becomes the raison d'être for the subject matter to be selected, the skill to be developed, the understandings to be acquired. To this group core is a method of learning.[56]

Then, used as referring to an outcome,

> The core . . . refers to that part of the curriculum which takes as its major job the development of personal and social responsibility and competency needed by all youth to serve the needs of a democratic society.[57]

The latter definition is endorsed by other concepts of the core.[58] Of these, Faunce's words are noteworthy:

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[56] Jos S. Butterveck, "Core Curriculum--The Ideal," School and Society, LXXVI (1952), 213.

[57] J. Paul Leonard, Developing the Secondary School Curriculum (rev. ed.; New York: Rinehart and Co., 1953), pp. 396ff.

[58] J. H. Bailey, "Introducing a Limited Core Curriculum," Industrial Arts and Vocational Education, XLV (November, 1956), 289; Edward A. Krug, Curriculum Planning (rev. ed.; New York: Harper and Brothers, Publishers, 1957), p. 108; Harold H. Shively, "The Core Curriculum in Higher Education for Business," Journal of Higher Education, XXXVII (1966), 89.

> The Core program . . . refers to the total organizational activities of that part of the school curriculum devoted to the determination of the personal and social competencies needed by all, and the procedures, materials, and facilities by which the school assures the adequacy of the learning experiences essential to the development of these competencies. . . . The core curriculum [then] refers to a pattern of the experience curriculum organized into a closely integrated and interrelated whole, in which one division, the core program, is devoted to the development of the common competencies needed by all, and the other division emphasizes the development of special competencies based upon recognition of individual differences in interests, aptitudes and capacities; the entire curriculum utilizing consistently the same basic principles of learning, learning methods, and problem organization.[59]

The emphasis on the learning aspect of the core curriculum makes it more relevant to this study, since the core curriculum is considered as "a way of organizing some of the important common learnings,"[60] as "the heart of the program [with] the indispensable fundamentals from which every other . . . subject draws sustenance,"[61] and as "a problem-centered or problem-solving conception of education which is in keeping with the demands that a democratic, highly specialized, industrialized, urbanized, inter-dependent society exacts of its people."[62]

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[59] Roland C. Faunce and Nelson L. Bossing, Developing the Core Curriculum (2nd ed.; Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1958), pp. 57f.

[60] Vernon E. Anderson, Principles and Procedures of Curriculum Improvement (New York: The Ronald Press Co., 1956), p. 316.

[61] Shively, op. cit.

[62] Otto Hollaway, "Scope, Trends, and Problems of Core Curriculum Work in Alabama," Educational Administration and Supervision, XLV, No. 3 (1959), 153.

For the purpose of this dissertation, "core curriculum" refers to common general instructional offerings embracing the major fields of knowledge that are required of all undergraduates, whether or not they "move to a level of relatively broad specialization in the sciences, social sciences, humanities, or arts and then into professional or technical courses built upon these."[63]

Credit (Tín-chỉ).--For the purpose of the essential function of a Vietnamese institution of higher education accrediting and certifying people for degrees, a credit hour is defined as follows:

> a credit hour value is assigned to each course, [and] . . . refers to as a reasonable value to place on a given number of clock hours spent in the classroom, laboratory, or lecture hall, [during the week and throughout the term].[64]

Term/Semester Calendar (Học-kỳ/Học lịch bán niên).--In conformance with the university governance and organization in Vietnam, and unless otherwise indicated, the "term" is defined within a semester calendar as a period of schooling lasting for sixteen weeks.

The "semester calendar" generally consists of two regular terms, running from the middle of September to

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[63]Dressel, The Undergraduate Curriculum in Higher Education, p. 67.

[64]H. W. Hannah, op. cit., p. 210.

early June, plus a summer session of ten weeks. The academic calendar pattern is then 16-16-10.

Hour or Class Hour (Giờ học).--In this study both "hour" and "class hour," shall refer to an amount of time of fifty minutes, a period of student activity in the classroom, laboratory, or lecture hall.

Hence, a semester hour is the unit of credit in any course and represents the satisfactory completion, with all required preparation, of one class period per week and for a period of sixteen weeks, or the equivalent. Semester credits can be converted to quarter credits by multiplying by one and a half (i.e., four semester credits are equivalent to six quarter credits). Quarter credits are converted to semester credits by multiplying by two-thirds (i.e., nine quarter credits are equivalent to six semester credits).

An Overview of the Study

To achieve the purpose of the study in terms of the stated objectives and in the light of the problem stated above requires the following additional development.

In Chapter II, review of the literature will help to place the problem in historical perspective and explore the relationship of the proposed model core curriculum to previously completed studies of the undergraduate curriculum. Special attention is given to

descriptive studies focusing on the undergraduate curriculum and the teaching-learning processes and concepts in colleges and universities in developing countries, since they give guidance in formulating a model core curriculum.

In Chapter III are presented: (1) the background of education in Vietnam; (2) the status of higher education through its historical development, organization, and administration; and (3) the analysis of the present undergraduate curriculum that will lead to a conceived undergraduate education for the welfare of the student and the nation.

In Chapter IV, after consideration of the actual situation of higher education in Vietnam, a model core curriculum is presented.

In Chapter V, recommendations for implementing the core curriculum will be considered in light of the findings from previous chapters.

CHAPTER II

THE REVIEW OF THE LITERATURE

In this review, major emphasis is given to the concept of undergraduate education, the general trends in developing an undergraduate curriculum, and the context of current programs of instruction at the undergraduate level.

The general plan of the chapter observes the following topical sequence:

1. Studies which generally concern that teaching and learning pertinent to the foundation of an undergraduate curriculum.
2. Descriptive studies which explain the educational concepts and the teaching-learning process in developing countries.
3. Studies related to specific disciplines, either for the purpose of an evaluation or for assistance in establishing the undergraduate curriculum or a part thereof--the core curriculum.

4. Studies and surveys pertaining to higher education in Vietnam.

This chapter is not limited in its use of quotations or its use of the writings of others. It intends, indeed, to draw from highly valuable writings by authoritative persons in the field of college and university curriculum and to point out by use of various university catalogs or college bulletins the facts of curriculum practices and the ideas, concepts, and aspects of the undergraduate curriculum.

General Studies

Within the last decade, numerous valuable works concerning the college undergraduate curriculum have been published; among these writings, two were found particularly relevant to this dissertation.[1]

In The Undergraduate Curriculum in Higher Education (1963),[2] Dressel's recommendations regarding the

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[1]Paul L. Dressel and Frances H. DeLisle, Undergraduate Curriculum Trends (Washington, D.C.: American Council on Education, 1969); G. W. Ford and Lawrence Pugno, eds., The Structure of Knowledge and the Curriculum (Chicago: Rand McNally and Company, 1964); Lewis B. Mayhew, The Collegiate Curriculum (Atlanta, Ga.: Southern Regional Education Board, 1966); Lewis B. Mayhew, Contemporary College Students and the Curriculum, SREB Research Monograph, No. 1 (Atlanta, Ga.: Southern Regional Education Board, 1969); Willis Rudy, The Evolving Liberal Arts Curriculum: A Historical Review of Basic Themes (New York: Teachers' College, Columbia University Press, 1960).

[2]Dressel, The Undergraduate Curriculum in Higher Education.

basic considerations in curriculum planning remain the foundation for any attempt such as this study. These recommendations include: the definition of purpose, functions, and objectives of higher education and the identification of stages in the development of the curriculum. They discern four distinctive types of undergraduate curricula, namely: (1) liberal education of nonpreparatory nature, (2) undergraduate education pursued as preparation for graduate study, (3) preprofessional undergraduate education, and (4) undergraduate occupational education. To a large extent, these types of curricula have influenced the nature of the proposed model core curriculum.

Moreover, Dressel's curriculum model (Table 1.1) is noteworthy for further reasons. The relevancy of Dressel's work to this dissertation is apparent upon examination of the author's explicit ideas as expressed under principles for curriculum planning. These principles are of great assistance to Vietnamese higher education in the search for its identity.[3]

A further statement from Dressel which was meaningful and important to this dissertation concerned "The Education of College and University Professors." Observations and facts of higher education in Vietnam would prompt remarks similar to these:

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[3] *Ibid.*, pp. 83ff.

> The majority of those receiving the [university] degree have given no systematic attention to their role as college teachers.
>
> There exists the blithe assumption that a person who really knows a field is perforce a good teacher. The assumption is readily refuted by the many examples of recognized scholars who are painfully disorganized and incoherent in the classroom. Knowledge is necessary but not sufficient.
>
> The new [college teacher] seldom has any conception of the nature of the learning process and probably has not had his attention directed to the fact that there are many different ways of carrying on instruction.[4]

Thus, the need for an understanding of the essential nature of higher education and for attention to the instruction and learning process would be a basic and rather general concern of all faculty members as they were involved in curriculum planning and development.[5]

In College and University Curriculum (1968),[6] Dressel dealt with contemporary issues and problems in curriculum in higher education, focusing on major factors currently influencing colleges and universities, factors which were *sine qua non* true everywhere: (1) the social and economic pressures, (2) the increasing of knowledge, (3) the changes in students, (4) the changes in faculty orientation, and (5) the changes in character of the

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[4] *Ibid.*, pp. 93ff.

[5] Twyla M. Shear, "An Evaluation of the Core Curriculum in the College of Home Economics" (unpublished Ed.D. thesis, Michigan State University, 1964), p. 150.

[6] Dressel, College and University Curriculum.

institution. Among Dressel's remarks, the following relates directly to this study:

> The dissatisfaction of those interested in curriculum re-examination and reform is not that there is no change but that the change too often is merely the addition of new courses or the repacking of old materials. . . . Faculties often resist curriculum examination and change, although many institutions, as a result of the intensive faculty effort, have made major changes in the program.[7]

Special attention is also given to Dressel's ideas regarding instruction and the curriculum. Instruction should not consist of merely an impartation of the instructor's wisdom and its absorption by the students. Rather, its functions are noted as follows:

> [1] To motivate the student.
> [2] To clarify to the student what new knowledge, behavior, and reactions are expected of him.
> [3] To provide extensive and meaningful materials for the students.
> [4] To give the student satisfaction by showing him his progress.
> [5] To organize the work so that its sequential, cumulative aspect is readily apparent to the student and so that current learning is related to past and future study.
> [6] To provide the student with high standards of performance and with means for judging his performance in relation to these standards.[8]

These are the premises of an approach to curriculum development suggested by Dressel. The approach introduced four continuums, five essential elements, and ten facilitating agents.

The four continuums are: (1) the individual student contrasting to the discipline; (2) the practical

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[7] Ibid., p. 1.

[8] Ibid., p. 156.

conception of education contrasting to the "ivory tower"; (3) the flexible and adaptable programs contrasting to rigid, uniformly imposed patterns; and (4) the integration, coherence, and unity contrasting to compartmentalization, inconsistency, and discord (Table 2.1).

The essential elements required in planning a curriculum are: (1) liberal and vocational education; (2) breadth and depth; (3) continuity and sequence; (4) conception of learning and teaching; and (5) continuing planning and evaluation.

Facilitating agents included: (1) requirements; (2) organization of learning and teaching; (3) noncourse experiences; (4) schedules; (5) calendars; (6) evaluation; (7) student load and faculty load; (8) selection, orientation, and evaluation of students; (9) selection, orientation, and evaluation of faculty; and (10) administrative organization.

Finally, Dressel listed the following twelve empirical elements essential to a balanced undergraduate program:

1. The student should have sustained contact with at least two different disciplines or areas of study.
2. The student should have an opportunity to explore the historical, philosophical, and cultural backgrounds and implications of the disciplines studied.
3. The student should confront several current problems to which the disciplines he is studying have direct relevance.
4. The student should confront a distinctively different culture and value system.

TABLE 2.1.--Continuums suggestive of possible curricular emphases.

1. Individual student Personal development Behavioral orientation Affective concerns	Disciplines Mastery of content Structure and methodology of disciplines Scholarly objectivity
2. Problems, policies, actions Competencies Present and future oriented	Abstractions, ideas, theories Verbal facility Past oriented
3. Flexibility, autonomy Adaptation to individual's needs and interests Democratic	Rigidity, conformity Prescribed program and standards based on demands of disciplines and/or "average" student or ideal scholar Authoritarian
4. Integration, coherence, and unity in and from learning experiences	Compartmentalization, inconsistency, and discord in learning experiences

Source: Paul L. Dressel, College and University Curriculum (Berkeley, Calif.: McCutchan Publishing Company, 1968), Chapter 2, Figure 1, p. 16.

5. The student should be introduced early to independent study and continue this increasing scope throughout his four years.
6. The student should have a practical experience which has a significant relationship to the disciplines which he has chosen to emphasize.
7. The student should have team experiences in learning and problem-solving.
8. The student should have the experience of living and working in a community of educated people, an experience which provides a model for the kind of living pattern which we hope to encourage by higher education.
9. The student should have continuing experiences in studying and discussing current events.
10. The student should have continuing experiences in organizing and presenting ideas in speech and writing.
11. The student should have a continuing relationship with one or more faculty members who know him well and are interested in his long-term development as a person.
12. The individual should have continuing experiences with a broad evaluation program which is future-oriented and provides a detailed information about his progress toward the desired competencies.[9]

Descriptive Studies

The purpose of this part of the review of related literature was to point out, from the undergraduate curriculum as described in the catalogs of colleges or universities in several countries selected for this study, the range and frequency of prevailing undergraduate curricular practices. Major trends in the requirements either for the common and general studies or for the degree were then determined. The countries selected were: Korea, Taiwan (Republic of China), and Thailand. Catalogs of institutions in the United States randomly chosen for

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[9] *Ibid.*, pp. 219ff.

this study were representative of geographic regions: the East, the Mid-West, and the Pacific, with emphasis on the institutions of the Mid-West since this part of the United States is known as favorable to the establishment of the two-year colleges.[10]

Thailand[11]

Thammasat University.--This public university functioned with six faculties: Faculty of Laws, Faculty of Commerce and Accountancy, Faculty of Political Science, Faculty of Economics, Faculty of Social Administration, and Faculty of Liberal Arts. The university offered programs of both undergraduate and graduate education in these various faculties.

The university requirements concerning the undergraduate education as prescribed by the institution's ordinance were as follows:

> The undergraduate course leading to a bachelor degree is a four-year course. A student is required to spend his first two semesters of the first year in the university at the Faculty of Liberal Arts.[12]

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[10]Blocker, Plummer, and Richardson, op. cit., p. 25.

[11]Warm thanks are extended to Dr. Sippanondha Ketudat of the University Development Commission, Office of National Education Council, Thailand, for providing very helpful references.

[12]Thammasat University, Bangkok, Thailand, Bulletin 1969-1970, pp. 14ff.

Hence a first-year liberal arts curriculum was established for all university requirements as indicated by Table 2.2. This curriculum was built on six subjects: Thai, English, General Science, Humanities, Social Science, and departmental requirements for the major. The total required semester credit hours ranged from 38 to 52, but flexibility was observed as reported in Table 2.3. General trends in designing common courses--or common groups of courses--extended to the sophomore and even the junior year in different faculties were also noticed (Table 2.4), although the administrative organization of the university was rearranged in 1949 into separate faculties, each being responsible for a particular field of study and each offering courses of study in its specialized field.[13]

Khon Kaen University.--This small public university was opened at Khon Kaen city in 1964 "to meet the most urgent needs of the fifteen provinces which constitute the Northeast of the country. . . . The university places due emphasis on sound scholarship, good citizenship, and the responsibility of the individual to the community and the country."[14] The institution operated with four faculties: Agriculture, Education, Engineering,

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[13] Ibid., p. 4.

[14] Khon Kaen University, Khon Kaen, Thailand, Catalog 1970-1971, pp. 11ff.

TABLE 2.2.--First-year liberal arts curriculum (all university requirements), Thammasat University.

Subjects	Credit Hours
First Semester	
English	8
Thai I	2
General Science:	
Compulsory: Physical Science	3
Elective: Man, Physiological and Psychological Bases	2
or General Mathematics	3
Humanities:	
Compulsory: Comparative Religion	3
Elective: Arts Appreciation or Music Appreciation	2
Social Science:	
Compulsory: Eastern Civilization	3
Elective: Development of Economic, Thought, and Institution	2
or Social Psychology	-
Major: Department Requirements	
Second Semester	
English II	8
Thai II	2
General Science:	
Compulsory: The Living Organisms and Development of Biological Sciences	3
Elective: Development of Science	2
or Calculus	3
Humanities:	
Compulsory: Man and the Universe: Problem in Philosophy	3
Elective: Logic or Interpretation of Man in Great Masterpieces of World Literature	2
Social Science:	
Compulsory: Western Civilization	3
Elective: Development of Political Thought and Institution	2
or Social Evolution	2
Major: Department Requirements	-
Total Semester Credit Hours:	38-52

Note: Students who wish to specialize in mathematics, statistics, and psychology must take general mathematics and calculus in the second semester.

Source: Thammasat University Bulletin 1969-1970, p. 125ff.

TABLE 2.3.--First-year liberal arts curriculum as applied in various faculties at Thammasat University.

Subjects	Faculty of Laws and Faculty of Liberal Arts	Faculty of Commerce and Accountancy	Faculty of Political Science		Faculty of Economics	Faculty of Social Administration		
			Public Administration	International Relations		Social Work	Journalism	Sociology & Anthropology
First Semester								
English I.....	8	8	8	8	8	8	8	8
Thai I.....	2	2	2	2	2	3	3	3
General Science: Compulsory...	3	-	-	-	-	-	-	-
Elective.....	2-3	3	3	3	3	3	3	-
Humanities: Compulsory...	3	3	3	3	3	3	3	3
Elective.....	2	-	2	2	-	-	-	-
Social Science: Compulsory...	3	3	3	3	3	3	3	3
Elective.....	2	-	-	-	3	3	-	3
Major: Department Requirements	-	5	-	2	-	-	3	2
Second Semester								
English II.....	8	8	8	8	8	8	8	8
Thai II.....	2	2	2	2	2	3	3	3
General Science: Compulsory...	3	-	-	3	-	3	3	3
Elective.....	2-3	3	-	-	2-3	2	-	-
Humanities: Compulsory...	3	3	3	3	-	3	3	3
Elective.....	2	-	-	-	-	-	2	2
Social Science: Compulsory...	3	3	5	3	3	3	3	3
Elective.....	2	-	2-3	-	3	3	-	-
Major: Department Requirements	-	5	-	2	2	-	1	3
Total Semester Credit Hours:	38-52	39-45	40-41	41	42-43	47	41-46	43-50

Source: Thammasat University Bulletin 1969-1970, pp. 125ff.

TABLE 2.4.--Comparison of courses in three faculties at Thammasat University.

Faculty of Political Science (Department of Government)		Faculty of Economics (Department of Economics)		Faculty of Social Administration (Department of Social Work)	
Second Year Courses					
Subjects	Cr-Hr	Subjects	Cr-Hr	Subjects	Cr-Hr
English III	6	English III	8	English III	4
English IV	6	English IV	8	English IV	4
Principles of Economics 1	3	Principles of Economics 1	4	Introduction to Economics	3
Principles of Economics 2	3	Principles of Economics 2	4	Principles of Social and Economic Development	3
Introduction to Political Science	3			Introduction to Political Science	3
Social Psychology	3	Sociology and Anthropology	2	Social Psychology	3
		Economic Geography	2	General Psychology	4
				Introduction to Anthropology	3
Statistics	3	Elementary Statistics 1	3	Social Problems and Social Measures	3
Elements of Laws	3	Elementary Statistics 2	3	Social Security and Public Welfare	4
Administrative Law	3	Calculus and Analytical Geometry 1	3	General Principles of Law	3
Comparative Government	3	Calculus and Analytical Geometry 2	3	Criminology and Penalogy	3
Demography	2			Government of Thailand	3
Constitutional Law	3			Field Observation	
Total Semester Credit Hours:	41	Total Semester Credit Hours:	42	Total Semester Credit Hours:	46
Third Year Courses					
Subjects	Cr-Hr	Subjects	Cr-Hr	Subjects	Cr-Hr
English V	3	English V	4	English V	4
English VI	3	English VI	4	English VI	4
History of Political Thought	3	Price and Distribution Theory	3	Community Organization and Development 1	4
Political Parties and Election	3	Income and Employment Theory	3	Population and Manpower	3
Principles of Civil and Commercial Law	3	Accounting for Economists	3	Labour Welfare	2
Law on the Organization of the Courts of Justice	2	Money and Banking	3	Principles of Administration	2
Law on Criminal Procedure	2	Government in Theory and Practice	2	Principles of Civil and Commercial Law	3
Criminal Code Law	3	Economic and Social Statistics	3	Penal Code	4
Criminology	2	Mathematical Logic	3	Medicine Information	4
International Law	3	Linear Algebra	3	Social Survey and Research	6
Geopolitics	2			Social Case Work 1	3
Research Methodology	2			Social Case Work 2	2
				Social Group Work 1	3
				Field Practice 2	12
Total Semester Credit Hours:	31	Total Semester Credit Hours:	31	Total Semester Credit Hours:	54
Fourth Year Courses					
Subjects	Cr-Hr	Subjects	Cr-Hr	Subjects	Cr-Hr
English VII	3	English VII	0	English VII	3
English VII	3	English VIII	0	English VIII	3
Public Administration 1	3	History of Economic Thought	3	Social Welfare Administration	3
Administrative Procedure	2	Agricultural Economics	3	Public Relations	3
Local Government	3	The Economy of Thailand	3	Family and Child Welfare	4[a]
Comparative Government 2	3	Economic Development	3	Community Organization and Development 2	2
Public Finance	3	Public Finance	3	Social Group Work 2	2
Criminal Investigation and Medical Jurisprudence	2	International Economics	3	Medical Social Work	4[a]
International Politics	3	Elementary Mathematical Economics	3	School Social Work (elective)	4[a]
Private International Law and International Criminal Law	2	Economics (elective): Either a. Current Economic Problems Seminar, or b. Field Research	6	Program activities for Social Group Work	4[a]
One elective subject: History of Political Thought, International Organizations, Mass Communication and Public Relations, Community Development, Labour Administration, Comparative Constitutional Law	3			Directed Individual Study	b
				Field Work 2	c
				Field Work 3	d
				Industrial Social Work	0
				Social Group Work with Minority Groups	0
				Rehabilitation	0
				Probation and Parole	0
Total Semester Credit Hours:	33	Total Semestor Credit Hours:	27	Total Semester Credit Hours:	34

[a]4 hours a week for 6 weeks. [b]1 hour a week for 6 weeks. [c]2 days a week. [d]Block placement 10 weeks.

Source: Thammasat University Bulletin 1969-1970, pp. 69, 87-88, 111-12.

and Science-Arts, the fourth being a non-degree-granting faculty at the present time. Its size of enrollment was 1,200 students in 1970. Its agriculture and education curricula were worthy of consideration.

The Faculty of Agriculture consisted of six departments: Agricultural Economics, Agricultural Extension, Animal Science, Plant Protection, Plant Science, and Soil Science. Agriculture students were required, during their first three years, to:

> . . . follow a common curriculum which include[s] 118 credit points of course work and 6 credit points of field work. At the fourth year level, students must select one major area of concentration from among the following fields of study: Animal Science, Plant Science, and Soil Science. A minimum of 161 credit points of course work [is] required for graduation.[15]

Tables 2.5A and 2.5B indicated a course distribution that derived from a total overview of the academic governance and faculty participation in curriculum planning. Both required courses and courses in major concentration were offered by the Faculty of Agriculture, Faculty of Education, and Faculty of Science-Arts. This type of organization and administration would certainly contribute to the effectiveness of the institution and its components--department and faculty--in terms of sharing both the responsibility and institutional resources (teaching staff and university budget).

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[15] *Ibid.*, p. 22.

TABLE 2.5A.--Common first-, second-, and third-year curriculum[a] in the Faculty of Agriculture, Khon Kaen University.

First Year[b]			Second Year[b]			Third Year[b]		
	Subjects	Cr-Hr		Subjects	Cr-Hr		Subjects	Cr-Hr
S101	English	6	S201	English	6	S301	English	2
S101	Mathematics	6	A201	Agricultural Mechanization	4	A304	Agricultural Economics	3
S102	Inorganic Chemistry	4	S202	Analytical Chemistry	2	S302	Biochemistry	6
S103	Organic Chemistry	4	S203	Physics 1	6	A305	Plant Pathology	3
S104	Botany	4	S204	Economics	3	A306	Entomology	3
S105	Zoology	4	S205	Microbiology	4	A307	Principles of Agricultural Experimentation	3
T106	Fundamental Psychology	3	A202	Principles of Animal Production	3	A308	Rural Sociology	2
S107	Physical Education & Hygiene	2	A201	Genetics	4	A309	Principles of Nutrition	3
A102	Agricultural Orientation and Practice	4	A203	Principles of Plant Production	3	A310	Poultry Production	3
			A204	Soil Science	4	A311	Field Crop Production	3
			A205	Weeds and Weed Control	2	A312	Horticulture 1	3
						A313	Farm Management 1	3
						A314	Agricultural Extension	3
Total Semester Credits:		37	Total Semester Credits:		41	Total Semester Credits:		40

[a]Courses were offered by three faculties: Agriculture (A), Education (T), and Science-Arts (S).

[b]Students were required to do two weeks of field work during the vacations.

Source: Khon Kaen University Bulletin 1970-1971, pp. 23-24.

TABLE 2.5B.--Fourth-year curriculum in agriculture[a] (areas of major concentration), Faculty of Agriculture, Khon Kaen University.

Fourth-year students may major in any of the following three fields: Plant Science, Animal Science, or Soil Science. Students must complete at least 18 credits of compulsory courses in their major field and at least 10 credits of elective courses including seminars. In addition, students are also required to do two weeks of field work in order to complete the requirements for the degree.

Compulsory Courses			Elective Courses		
	Animal Science Major	Credits			Credits
A410	Livestock Diseases and Sanitation	3	E401	Surveying	2
A411	Animal Nutrition	3	E402	Field Irrigation and Drainage	3
A412	Beef Production	3	T201	Educational Psychology	3
A408	Anatomy and Physiology of Domestic Animals	3	T202	Method of Teaching Agriculture	3
A409	Livestock Breeding and Improvements	3	T203	Evaluation in Education	3
A413	Dairy Production	3	A406	Pasture and Forage Crop	3
A437	Seminar	1	A418	Soil Genesis and Formation	3
			A421	Industrial Crop Production	3
	Plant Science Major		A422	Fiber Crop Production	3
A401	Crop Ecology	3	A423	Marketing	2
A404	Food Crop Production	3	A424	Fish Culture	3
A407	Seed Technology	3	A425	Marketing Livestock Products	3
A402	Crop Physiology and Nutrition	3	A426	Biometric and Research Methods	3
A403	Plant Breeding and Improvement	3	A427	Farm Management 2	3
A405	Pomology	3	A428	Rural Development	2
A437	Seminar	1	A429	Agrarian Laws	2
			A430	Swine Production	3
	Soil Science Major		A431	Agricultural Meteorology	2
A415	Soil Chemistry	3	A432	Meat Products	2
A416	Soil Physics	3	A433	Crop Products	2
A417	Soil Biology	3	A434	Audio-Visual Aids	3
A414	Soil Fertility	3	A435	Silk Production	3
A419	Soil Survey and Classification	3	A436	Floriculture and Ornamental Plants	3
A420	Soil Conservation	3	A439	Vegetable Crops	3
A437	Seminar	1			

Source: Khon Kaen University Bulletin 1970-1971, pp. 25-27.

A similar trend in curriculum practice was observed in the curriculum in Education (Tables 2.6A, 2.6B). Special mention was made of the fourth-year curriculum (Table 2.6B) because concentration in the area of the students' majors in this senior year could be helpful to the graduates, since they then were practicing their future role in the classroom and aware of their ability to teach one of the four majors as listed in the curriculum.

Chieng Mai University.--Chieng Mai University was opened in 1965 as a state-financed institution, "divided into six faculties; each faculty mutually offer[ed] the courses of study for the program leading to B.A. or B.S. degree."[16] These faculties were: Faculty of Agriculture, Faculty of Education, Faculty of Humanities, Faculty of Science, Faculty of Medicine, and Faculty of Social Science.

The curriculum of different faculties as described in the university catalog presented the following characteristics: First, there was a tendency toward setting a common program which consisted of basic requirements in all of the six faculties. This common program was planned to be extended through the first two years of the undergraduate education, sometimes through the senior year. The most significant of that type of program referred to

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[16]Chieng Mai University, Chieng Mai, Thailand, General Catalog 1969-1970, p. 2.

TABLE 2.6A.--Common first-, second-, and third-year curriculum in education, Faculty of Education, Khon Kaen University.

First Year			Second Year			Third Year		
	Subjects	Cr-Hr		Subjects	Cr-Hr		Subjects	Cr-Hr
T101	Thai 1	2	T201	Thai 3	2	T301	Speech	2
T102	Thai 2	2	T202	Thai 4	2	T301	English 5	2
T180	Physical Education Activities 1a & 1b	1	T201	English 3	2	T301	Introduction to Developmental Psychology	2
T101	English 1	2	T202	English 4	2	T301	Utilization of Instructional Media	2
T102	English 2	2	T280	Physical Education Activities 2a & 2b	1	T301	Secondary School Curriculum	2
T150	Survey of Thai Literature	2	T201	Art Appreciation	2	S350	Scientific Methods	2
T101	Music Appreciation	2	T250	Philosophy of Education	2	T350	Teaching Secondary School Sciences	2
T101	Personal Health Community	2	S201	General Physics 2a & 2b	6	T351	Teaching Secondary School Mathematics	2
T101	Studying Methods	1	S201	General Chemistry 2	4	T303	Measurement and Evaluation in Education	2
T102	General Mathematics a & b	8	S201	Principles of Biology	8	-	Area of Concentration	6-9
S102	General Physics 1a & 1b	6	T251	History of Thai Education	1	-	Electives	2-4
T150	Introduction to Philosophy	2	T252	School and Society	2			
T101	Introduction to Psychology	3	T201	Introduction to Educational Psychology	3			
S101	General Chemistry 1	4	T250	Principles of Economics	2			
	Total Semester Credits:	41		Total Semester Credits:	39		Total Semester Credits:	32-40

Source: Khon Kaen University Bulletin 1970-1971, pp. 44-46.

TABLE 2.6B.--Fourth-year curriculum in education, Faculty of Education, Khon Kaen University.

General Requirements

T480	Student Teaching	8 credits
S401	Geology for Teachers	2 credits
S401	General Astronomy	2 credits
-	Area of Major Concentration	2-4 credits
-	Electives	8-11 credits

Areas of Major Concentration

Physics

S301	Electronics 1	3 cr.
S302	Electronics 2	3
S303	Physics of Matters	3
S304	Modern Physics	3
S305	Optics	3
S306	Acoustics	3
S307	Analytical Mechanics	3
S308	Electromagnetic Theory	3

Mathematics

S301	Basic Statistics	3
S302	Differential Equations	3
S303	Mathematical Analysis 1	3
S304	Mathematical Analysis 2	3
S305	Mathematical Analysis 3	3
S306	Development of Mathematics	3

Chemistry

S301	Organic Chemistry	3 cr.
S302	Quantative and Instrumentation	3
S303	Physical Chemistry	3
S304	Inorganic Chemistry	3

Biology

S301	Animal Morphology and Physiology	3
S302	Plant Morphology and Physiology	3
S303	General Microbiology	3
S304	Genetics	3
S305	Fundamental Cytology	3
S306	General Ecology	3
S307	Elementary Plant Physiology	3

Electives in General Education

T350	Thai Government and Politics	2 cr.
T351	World Civilization	2
T352	Contemporary World Affairs	2
T353	Rural Sociology	2
T354	World Geography	2
T350	Logic	2

Electives in Professional Education

T302	Statistics for Teachers	2
T350	Guidance in the Secondary School	2
T450	Administration of School Systems	2
T351	Mental Health Education	2
T455	Elements of Educational Research	2

Source: Khon Kaen University Bulletin 1970-1971, pp. 46-48.

the basic requirements for the Bachelor's degree in the Faculty of Science (Table 2.7) and the general program in Agriculture required for all students in the Faculty of Agriculture (Table 2.8). Basic requirements were also found common to the Faculty of Education,[17] the Faculty of Humanities,[18] and the Faculty of Social Science.[19] Second, some faculties provided special first two-year programs beside their own programs leading to their proper fields. The Faculty of Science offered such a program in Pre-Medical Science which opened five accesses to the Faculty of Medicine: Pre-Dentistry, Pre-Medical Technology, Pre-Medicine, Pre-Nursing, and Pre-Pharmacy (Figure 2.1). Details of these programs (Table 2.9) indicated that flexibility, continuity, and sequence in the curriculum were strictly observed (Appendix C). Finally, it is noted that all students who earned an associate degree in pre-professional curriculum were admitted to the appropriate department in the Faculty of Medicine as third-year students. The length of the program required for the degree, including the pre-professional curriculum, was: six years in Dentistry (Doctor of Dental Surgery, D.D.S.), Medicine (Doctor of Medicine, M.D.), and Medical Science (Doctor of Medical Science, D.M.Sc.); five years in Pharmacy (Bachelor of Science in Pharmacy); and four years

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[17] *Ibid.*, p. 16. [18] *Ibid.*, p. 29. [19] *Ibid.*, p. 98.

TABLE 2.7.--Basic requirements for the B.S. degree in four different majors, Faculty of Science, Chieng Mai University.

Subject Title	Biology		Chemistry		Mathematics		Physics	
	Course No.[a]	Cr.	Course No.[a]	No.	Course No.[a]	Cr.	Course No.[a]	Cr.
Biology	103,111,112	10	103,111/112	7	103/105	4	103	4
Chemistry	101,102,201,202 103 332	16 2 3	101,102,103 201,202	18	101,102,103	10	101,102,103	10
Physics	101,102,201,202 or 105,106,205,206	16 16	105,106,205,206	16	105,106[b] 105,106,205,206	8 16	105,106,205,206	16
Mathematics	103,104,203 or 101,102,201,206	12 12	103,104,203	12	103,104,203,206 207/209,208	21	103,104,203	12
English	101,102,291,292	12	101,102,291,292	12	101,102,291,292	12	101,102,291,292	12

[a]See Appendix C for course descriptions.

[b]Applies to mathematics major students who wish to minor in any subject except physics.

(Sign "/" denotes an alternative and means "or")

Source: Chieng Mai University Catalog 1970, pp. 8, 16, 35-36, 48.

TABLE 2.8.--Repartition of the general program required for all agriculture students in the Faculty of Agriculture, Chieng Mai University.

Subjects	Basic Requirement	First Year	Second Year	Third Year	Fourth Year
1. English	18	6	6	6	
2. Social Science	6		3		3
3. Humanities	3				3
4. Chemistry:					
a. General Chemistry	8	8			
b. Organic Chemistry	4		4		
5. Mathematics	6	6			
6. General Biology	4	4			
7. Botany	3	3			
8. Zoology	3	3			
9. General Agriculture	4	4			
10. Agricultural Mechanics	2	2			
11. Microbiology	4	4	4		
12. Genetics	4		4		
13. Physics	6		6		
14. Principles of Horticulture	3		3		
15. Introduction to Soil Science	3		3		
16. Principles of Animal Husbandry	3		3		
17. Principles of Agricultural Extension	2		2		
18. Entomology	4			4	
19. Plant Pathology	4			4	
20. Farm Machinery	3			3	
21. Surveying	3			3	
22. Principles of Agronomy	3			3	
23. Important Crops of Thailand	3			3	
24. Soil Fertility	3			3	
25. Animal Feeds and Feeding	3			3	
26. Principles of Experimentation	3			3	
27. Agricultural Economics	3				3
28. Farm Management	3				3
29. Major subjects	-			3	17
30. Seminars	2				2
31. Electives	-				6
Total Semester Credits:	123	36	38	38	37

Source: Chieng Mai University Catalog 1969-1970, pp. 6-10.

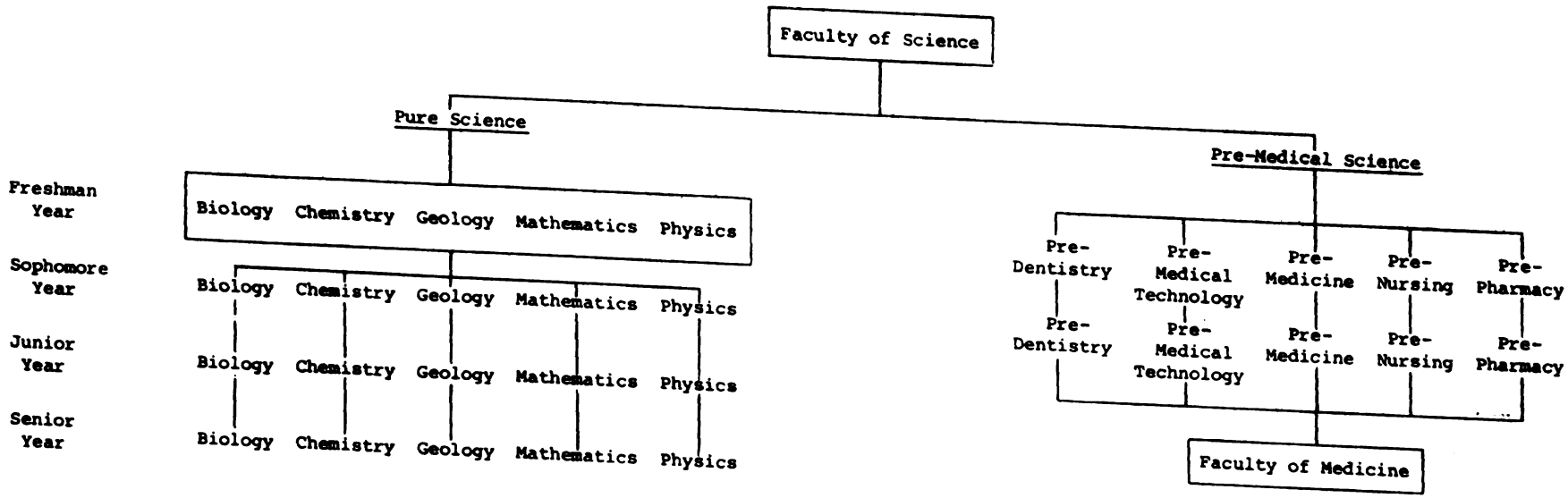

FIGURE 2.1.--Major fields of students in the Faculty of Science, Chieng Mai University

Source: Chieng Mai University Catalog 1970, p. 5.

TABLE 2.9.--Special programs,[a] Faculty of Science, Chieng Mai University.

Special programs are offered in the Faculty of Science. A student must enroll in any of the special programs which requires at least two years of residence in the Faculty. The courses of study and minimum requirements for the special programs are prescribed below.

All students in the pre-medical sciences at the Faculty of Science will comply with the following provisions:

PRE-DENTISTRY

Freshman				Sophomore			
First Semester		Second Semester		First Semester		Second Semester	
Biology 103	4 sem. hrs	Biology 111	3 sem. hrs	Biology 222	5 sem. hrs	Biology 317	4 sem. hrs
Chemistry 101	4 sem. hrs	Biology 112	3 sem. hrs	Biology 223	4 sem. hrs	Chemistry 202	4 sem. hrs
English 101	3 sem. hrs	Chemistry 102	4 sem. hrs	Chemistry 201	4 sem. hrs	Chemistry 208	3 sem. hrs
Mathematics 101	3 sem. hrs	English 102	3 sem. hrs	English 291	3 sem. hrs	English 292	3 sem. hrs
Physics 101	4 sem. hrs	Mathematics 102	3 sem. hrs	Physics 201	4 sem. hrs	Physics 202	4 sem. hrs
Psychology 103	3 sem. hrs	Physics 102	4 sem. hrs	Sociology 115	2 sem. hrs	Mathematics 206	3 sem. hrs
Total:	21 sem. hrs	Total:	20 sem. hrs	Total:	22 sem. hrs	Total:	21 sem. hrs

PRE-MEDICAL TECHNOLOGY

Freshman				Sophomore			
First Semester		Second Semester		First Semester		Second Semester	
Biology 103	4 sem. hrs	Biology 111	3 sem. hrs	Chemistry 201	4 sem. hrs	Chemistry 202	4 sem. hrs
Chemistry 101	4 sem. hrs	Chemistry 102	4 sem. hrs	Chemistry 203	4 sem. hrs	Chemistry 206	4 sem. hrs
English 101	3 sem. hrs	Chemistry 103	2 sem. hrs	English 291	3 sem. hrs	English 292	3 sem. hrs
Mathematics 101	3 sem. hrs	English 102	3 sem. hrs	Mathematics 201	3 sem. hrs	Mathematics 206	3 sem. hrs
Physics 101	4 sem. hrs	Mathematics 102	3 sem. hrs	Physics 201	4 sem. hrs	Physics 202	4 sem. hrs
Sociology 115	2 sem. hrs	Physics 102	4 sem. hrs	Psychology 103	3 sem. hrs		
Total:	20 sem. hrs	Total:	19 sem. hrs	Total:	21 sem. hrs	Total:	18 sem. hrs

PRE-MEDICINE

Freshman				Sophomore			
First Semester		Second Semester		First Semester		Second Semester	
Biology 103	4 sem. hrs	Biology 111	3 sem. hrs	Biology 222	5 sem. hrs	Biology 317	4 sem. hrs
Chemistry 101	4 sem. hrs	Biology 112	3 sem. hrs	Biology 223	4 sem. hrs	Chemistry 202	4 sem. hrs
English 101	3 sem. hrs	Chemistry 102	4 sem. hrs	Chemistry 201	4 sem. hrs	Chemistry 208	3 sem. hrs
Mathematics 101	3 sem. hrs	English 102	3 sem. hrs	English 291	3 sem. hrs	English 292	3 sem. hrs
Physics 101	4 sem. hrs	Mathematics 102	3 sem. hrs	Mathematics 206	3 sem. hrs	Physics 202	4 sem. hrs
Sociology 115	2 sem. hrs	Physics 102	4 sem. hrs	Physics 201	4 sem. hrs		
Total:	20 sem. hrs	Total:	20 sem. hrs	Total:	23 sem. hrs	Total:	18 sem. hrs

PRE-NURSING

Freshman				Sophomore			
First Semester		Second Semester		First Semester		Second Semester	
Biology 103	4 sem. hrs	Biology 111	3 sem. hrs	Anatomy 201	3 sem. hrs	Bio-Chemistry 202	3 sem. hrs
Chemistry 111	4 sem. hrs	Chemistry 112	4 sem. hrs	Chemistry 203	4 sem. hrs	English 292	3 sem. hrs
English 101	3 sem. hrs	English 102	3 sem. hrs	English 291	3 sem. hrs	Microbiology 201	4 sem. hrs
Mathematics 111	3 sem. hrs	Mathematics 206	3 sem. hrs	Nursing 201	1 sem. hr	Nursing 204	4 sem. hrs
Nursing 101	1 sem. hr/	Physics 112	4 sem. hrs	Parasitology 301	2 sem. hrs	Pathology 201	2 sem. hrs
Physics 111	4 sem. hrs	Psychology 103	3 sem. hrs	Physiology 302	6 sem. hrs	Psychology 204	3 sem. hrs
Elective (Social Sc.)	3 sem. hrs			Elective (Social Sc.)	3 sem. hrs		
Total	22 sem. hrs	Total:	20 sem. hrs	Total	22 sem. hrs	Total:	19 sem. hrs

PRE-PHARMACY

Freshman				Sophomore			
First Semester		Second Semester		First Semester		Second Semester	
Biology 103	4 sem. hrs	Biology 111	3 sem. hrs	Biology 222	5 sem. hrs	Chemistry 202	4 sem. hrs
Chemistry 101	4 sem. hrs	Biology 112	3 sem. hrs	Chemistry 201	4 sem. hrs	Chemistry 206	4 sem. hrs
English 101	3 sem. hrs	Chemistry 102	4 sem. hrs	Chemistry 205	4 sem. hrs	English 292	3 sem. hrs
Mathematics 101	3 sem. hrs	English 102	3 sem. hrs	English 291	3 sem. hrs	Mathematics 206	3 sem. hrs
Physics 101	4 sem. hrs	Mathematics 102	3 sem. hrs	Mathematics 201	3 sem. hrs	Physics 202	4 sem. hrs
Elective (Humanity)	3 sem. hrs	Physics 102	4 sem. hrs	Physics 201	4 sem. hrs	Psychology 103	3 sem. hrs
Total	21 sem. hrs	Total:	21 sem. hrs	Total:	23 sem. hrs	Total:	21 sem. hrs

[a]See Appendix C for course descriptions.

in Medical Science (Bachelor of Science in Medical Science), Medical Technology (Bachelor of Science in Medical Technology), and Nursing (Bachelor of Science in Nursing).[20]

Prince of Songkla University.--The single Faculty of Engineering of this national university, which opened in 1967 with fifty students, aimed to improve the quality of education, rather than quantity--to produce not only more engineers, but also better engineers for Thailand.[21]

Its four-year curriculum, leading to the degree of Bachelor of Engineering in Civil Engineering, Electrical Engineering, and Mechanical Engineering, consisted of two years of a common program required of all engineering students (Table 2.10) and of a third- and fourth-year program in one of the above specialized branches. Flexibility for the course organization was planned to develop broad understanding of principles and concepts and essential knowledge in engineering that would help students in shifting their vocational studies to three other branches to be offered in the near future: Chemical Engineering, Mining and Metallurgical Engineering, and Production Engineering.[22]

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[20] Ibid., pp. 58ff.

[21] Prince of Songkla University, Faculty of Engineering, Syllabus 1969, p. 1.

[22] Ibid., p. 6.

TABLE 2.10.--Common first- and second-year curriculum in engineering, Faculty of Engineering, Prince of Songkla University.

First Year

First Semester				Second Semester			
Courses			Credits	Courses			Credits
Hum	101	Humanities 1	1	Hum	102	Humanities 2	1
Lang	101	English 1	3	Lang	102	English 2	3
Math	101	Mathematics 1	4	Math	102	Mathematics 2	4
Phys	101	Physics 1	3	Phys	102	Physics 2	3
Chem	101	Chemistry 1	4	Chem	102	Chemistry 2	4
GE	101	Basic Engineering Practice 1	2	GE	103	Basic Engineering Practice 3	2
GE	102	Basic Engineering Practice 2	2	GE	104	Basic Engineering Practice 4	2
GE	111	Engineering Drawing 1	2	GE	112	Engineering Drawing 2	2
Total Semester Credits:			21	Total Semester Credits:			21

Second Year

First Semester				Second Semester			
Lang	203	English 3	3	Lang	204	English 4	3
Math	203	Mathematics 3	4	Math	204	Mathematics 4	4
Phys	203	Physics 3	3	Phys	204	Physics 4	3
GE	205	Basic Engineering Practice 5	2	GE	206	Basic Engineering Practice 6	2
GE	221	Electric Circuits and Measurements 1	3	GE	241	Electronics 1	3
GE	221	Engineering Mechanics	3	GE	251	Thermodynamics 1	3
GE	222	Mechanics of Solids 1	3	GE	261	Surveying	3
Total Semester Credits:			21	Total Semester Credits:			24

Source: Prince of Songkla University Syllabus 1969, pp. 9-10.

Republic of China (Taiwan)

Catalogs of four universities were studied: National Taiwan Normal University, Taipei;[23] Tung Hai University, Tai Chung Province;[24] National Cheng Chi University, Taipei;[25] and National Chiao Tung, Hsin Chu Province.[26] The undergraduate curriculum as described in these catalogs presented one common pattern with: (a) all university course requirements, (b) college course requirements, (c) departmental course requirements, and (d) elective courses (Table 2.11). In fact, general university requirements were distributed throughout the four years of undergraduate education but often concentrated on the freshman and sophomore years (Table 2.12). Another aspect of the undergraduate curriculum worthy of noting in this brief comparative analysis was its well-defined set of objectives. The following quotation was of great assistance in this study:

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[23]National Taiwan Normal University, Taipei, Taiwan, General Information 1970-1971. (Sincere thanks are due to Dean Chien-hou Huang of the National Taiwan Normal University, Taipei, for this useful reference).

[24]Tung Hai University, Tai Chung, Taiwan, Catalog 1968-1970.

[25]National Cheng Chi University, Taipei, Taiwan, Bulletin 1967-1969.

[26]National Chiao Tung University, The College of Engineering, Hsin Chu, Taiwan, Bulletin 1968-1969.

TABLE 2.11.--Comparison of the requirements for undergraduate students in three universities: National Chengchi University, National Taiwan Normal University, Tunghai University.

National Chengchi University		National Taiwan Normal University		Tunghai University	
University Requirements:	Cr.	University Requirements:	Cr.	University Requirements:	Cr.
San Min Chu I	4	Dr. Sun Yat-sen's Thought	4	Dr. Sun Yat-sen's Thought	4
Chinese	8	Chinese	8	Chinese	6-8
English	8	English	8	English	4-8
International and Current Affairs	5-8[a]	Introduction to Education	4	Modern Chinese History	4
Modern History of China		Psychology	6	Natural Sciences	6
Introduction to Humanity		General Methods of Teaching	2	Logic	3
or Ethics		Practice in Teaching	12	Humanities	3-6
or Philosophy of Life		International Organization and International Relationship	5-8[b]		
Chinese Constitution		Modern History of China			
Introduction to Social Sciences		Logic			
Introduction to Natural Sciences		Introduction to Humanity or Ethics or Philosophy			
		Constitution			
		Introduction to Social Sciences			
		Introduction to Natural Sciences			
		Physical Education			
College Requirements.		College Requirements.		College Requirements.	
Division Requirements.		Department Requirements.		Department Requirements.	
Electives.		Electives.		Electives.	

[a]Select any two courses. [b]Select any two or three courses.

Source: National Chengchi University Catalog 1967-1969, p. 49; National Normal Taiwan University Catalog 1970-1971, p. 16; Tunghai University Catalog 1968-1970, p. 38.

TABLE 2.12.--Course requirements in several colleges of the National Taiwan Normal University.

	Total Credits Required	College of Education		College of Science				College of Arts	
		Department of Education		Department of Physics		Department of Biology		Department of Chinese	
		Cr.	Year[a]	Cr.	Year[a]	Cr.	Year[a]	Cr.	Year[a]
University General Requirements:									
Dr. Sun Yat-sen's Thought	4	4	Fr	4	So	4	Fr	4	Fr
Chinese	8	4-8	Fr	8	Fr	8	Fr	8	Fr
English	8	8	Fr	8	Fr	8	Fr	8	Fr
Introduction to Education	4	4	Fr	4	Fr	4	Fr	4	Fr
General Methods of Teaching	2	6	Sr	2	So	2	Jr	2	So
				4	Sr	4	Sr	6	Jr
Practice in Teaching	12	6	Sr	6	Sr	6	Sr	6	Sr
		6	Int	6	Int	6	Int		
Psychology	6	6	Fr	6	Jr	6	So	6	Fr
Any Two or Three Courses:	5-8								
1. International Organization and International Relationship		-	-	2	So	-	-	-	-
2. Modern History of China		4	So	4	Fr	4	So	6	Fr
3. Introduction to Philosophy		4	So	3	So	3	Jr	3	So
Physical Education	8	8	Fr-Sr.	8	Fr-Sr	8	Fr-Sr	8	Fr-Sr
Total:	49-52	64		65		63		61	
Major Requirements (excluding Physical Education):		113		145		145		132	
Department and/or Free Electives:	-	37		5		5		18	

[a]Year required to take these courses: (Fr) Freshman, (So) Sophomore, (Jr) Junior, (Sr) Senior, and (Int) Internship.

Source: General Information 1970-1971, pp. 15-12, 64-68, 73-77.

> The present curricula . . . were based upon the following principles. First, the curricula must fulfill the requirements set up by the Ministry of Education. Second, they must be dynamic and creative and should follow the general trend of the present-day education. . . . Third, as present rapid changes in science and technology emphasize the value of basic knowledge, our undergraduate programs should aim at training of fundamentals. Fourth, since the curricula of the four departments are closely correlated, the courses are divided into two categories; the courses for the College requirement and the courses for the department requirement. Fifth, the method of group teaching is adopted whenever possible.
>
> . . . . . .
>
> Each curriculum consists of a four-year program of general education emphasizing basic science and technology, humanities and social acience and a group of subjects in the area of one professional interest. The lower level comprises for the freshman and sophomore years. The courses in the lower level are the same for all of the four departments and thus constitute the major part of the College requirements. The upper level comprises the courses of the junior and senior years. The curricula start to diverge in the junior year. But since there is considerable overlap among four departments, technical courses of common nature are made identical and constitute the remainder part of the College requirements. Because of the overlap of the four programs, a transfer from one department to another would not, in general, delay the graduation or present serious problems in fulfilling the different department requirements if the changes were made early enough. However, the program to which a student is eventually transferred must be completed in all respects.[27]

Republic of Korea

Catalogs of Hanyang University and Ewha Womans University were randomly selected from other catalogs and bulletins of 122 public and private institutions of higher education in the country,[28] excluding graduate schools,

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[27] Ibid., pp. 61f.

[28] Ministry of Education, Korea, Statistic Yearbook of Education 1968 (Seoul: Kwang Myong Printing Co., 1968), p. 402.

nurses' training schools, and miscellaneous schools. Both Hanyang University and Ewha Womans University were private universities.

Ewha University.--The academic regulations for undergraduate studies in this institution, as stated in the catalog, were as follows:

> A candidate is required to take a total of at least 160 semester hours credit of which not more than 80 hours are to be in her major field. If a graduation thesis is required, it may be counted as 8 credit hours of work.
>
> Forty-seven hours of General Requirement courses are needed. . . . In addition to the General Requirement courses, one must take the Departmental Requirements not exceeding 40 hours. . . .[29]

These regulations were instituted within the following objectives of the undergraduate curriculum as stated by the university:

> The curriculum offers the undergraduate opportunity to cultivate the liberal arts and sciences through the general studies program to explore her cultural heritage; to discover and develop her capacity for intellectual adventure; and to establish habits of thought whereby she may utilize her knowledge in all facets of her future life. Although a student must decide her major field of work at the time of entrance examinations, for the first two years she must concentrate on the required courses in the humanities, and social and natural sciences. For the last two years of study, each department provides the best means for the student to prepare for her professional career.30

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[29]Ewha Womans University, Seoul, Korea, Bulletin 1968, p. 14.

[30]Ibid., pp. 7f.

Such educational concepts were extended to the determination of the aims of each department in nine colleges of the university.

Hanyang University.--This university offered undergraduate programs that required four years of residence in all fields, except Medicine where the requirement was six years. All students admitted to Hanyang University were placed in the College of General Studies during their first two years:

> The College is not simply a preparatory stage but a component of all baccalaureate programs at Hanyang. The General Studies curriculum provides the wider social and cultural understanding increasingly necessary for successful participation as citizens in modern society and a broad base upon which a specialization can be built. While in the General Studies program, freshmen concurrently take a small number of specialized courses offered by the departments of their major fields.[31]

Common general requirements that must be met by all university freshmen and sophomores were reported in Table 2.13. These requirements were distributed within the first two years in all nine colleges of the university in a flexible manner depending upon the type of program chosen by the student. Generally, it included:[32]

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[31]Hanyang University, Seoul, Korea, Bulletin 1970-1971, p. 24.

[32]Ibid., p. 20.

TABLE 2.13.--Common general study requirements for all freshmen and sophomores at Hanyang University.

Subjects	Credits
Korean	4
English	6-10
Second Foreign Language	4-6
History of Civilization	3
Introduction to Philosophy	3
Introduction to Natural Sciences	3
Humanities: 1 course	3
Social Sciences: 1 course	3
Natural Sciences: 1 course	3
Physical Education	2-4
Military Training	2-4

Source: Hanyang University Bulletin 1970-1971, pp. 36-39.

	Freshman Year	Sophomore Year
University requirements:	30-48 cr.	10-14 cr.
College requirements:	2-24 cr.	32-36 cr.
Total for standing:	50-54 cr.	42-50 cr.
Total for junior standing:	70 cr.	

The Pacific Region of the United States

University of Hawaii (Manoa Campus, Honolulu).--Conscious of the cultural and vocational needs, interests, and motivations of American students coming to colleges and universities, the University of Hawaii described its attempt to respond to these demands in undergraduate education in a two-fold purpose:

> The primary purpose of each undergraduate curriculum is intellectual--to educate students to think for themselves: to analyze, to apply appropriate standards, to arrive at their own judgments. In the process, students should gain knowledge and sharpen their ability to communicate, both in standard prose and in the symbolism of mathematics, logic and the arts. . . .
>
> Secondly, each undergraduate curriculum tries to lead the student to sufficient depth in a field of learning so that he can understand its central concepts, some of its methodology in examining problems, the standards of truth, value and relevance which it employs.[33]

From this standpoint, the university requirements for a Bachelor's degree focused on the objectives of liberal education as formulated in these terms:

> The liberal education objectives of undergraduate learning include an understanding of the fundamentals of major fields of knowledge which should be the common possession of educated men and women, whatever their specialized interest. This objective is not likely to be attained from a random arrangement of courses. Consequently, a program of liberal or general education is required of all students seeking a baccalaureate from the University. The general education "core" [italics mine], as it is frequently called, amounts to about a third of a four-year curriculum. It tries to assure for each student reasonable competence in organizing his thoughts in written and spoken English--and in understanding the expression of others--in mathematics, in the humanities, natural sciences and social sciences.
>
> The "core" need not be completed during the first two years, though general education courses are frequently concentrated in the freshman and sophomore terms.[34]

Under this formulation, students were required to include these major fields in the core:

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[33] University of Hawaii, Manoa Campus, Honolulu, Hawaii, Catalog 1970-1971, pp. 57f.

[34] Ibid., pp. 58f.

Communications: Each student must have competence in expository writing and oral communication appropriate for study at an institution of higher learning.

Requirements: English..... 3 credits
Speech-Communication..... 3 credits

Quantitative Reasoning: Each student ought to demonstrate his ability to apply, understand or appreciate the uses of mathematics, or its philosophical base.

Requirements: Mathematics..... 3 credits
Philosophy or Logic..... 3 credits

Humanities: The educational objective sought here is to develop standards of value and beauty, to sharpen critical judgment by the study of literature and other creative arts, of philosophy and religion.

Requirements: English or Literature..... 3 credits
Philosophy or Religion.... 3 credits
American Studies or Interdisciplinary Studies 3 credits

Natural Sciences: Sought here is a critical understanding of natural phenomena and the methods of science used in their study.

Requirements: Select any three courses:
Chemistry..... 3 credits
Geography..... 3 credits
Geosciences..... 3 credits
Oceanography..... 3 credits
Physics..... 3 credits
Biology..... 3 credits
Botany..... 3 credits
Genetics..... 3 credits
Microbiology..... 3 credits
Zoology..... 3 credits
General Sciences..... 3 credits
Information Sciences..... 3 credits

Social Sciences: The purposes of this requirement are: (1) to seek an understanding of the extent to which scientific method can be used in studying human behavior and institutions and (2) to assist students in assessing their own behavior in society.

Requirements: Select any three courses:
American Studies..... 3 credits
Anthropology..... 3 credits
Botany..... 3 credits
Psychology..... 3 credits
Sociology..... 3 credits
Economics..... 3 credits
General Engineering..... 3 credits
Geography..... 3 credits
Political Science..... 3 credits[35]

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[35] Ibid., pp. 59ff.

The Mid-West Region of the United States

Black Hawk College (Moline, Illinois).--This junior college district, founded in 1946, aimed to serve the needs of the people of its district and subscribed to these concepts:

> Black Hawk College provides quality instruction to the student. It assists him in his desire to understand himself and to search out a philosophy of life based on desirable values and ideals of character and service. It assists him toward an understanding of his cultural heritage and the cultural heritage of others so that he may become an informed and more tolerant individual in a democratic society. It assists him toward a knowledge of the physical and biological world and the content and methods of natural science. It assists him in developing his communication skills so that he can read efficiently, speak and write understandably, and thus communicate more effectively with his fellow man. It assists the student in his desire to achieve physical well-being and economic self-sufficiency.[36]

To help its students achieve these goals, the college offered four types of curriculum: (1) the transfer program, (2) the general education program, (3) the occupation-oriented program, and (4) the community service program. These curricula would lead to either an Associate Degree (in Arts, or in Science, or in General Education) or a Bachelor Degree, depending upon the student's work and whether he satisfactorily completed his lower and/or upper division work in undergraduate studies. The Associate Degree curriculum was designed for the first two years

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[36]Black Hawk College, Moline, Illinois, Catalog 1970-1971, p. 8.

of college education. The requirements for a two-year Associate Degree varied slightly within the three basic Associate Degree curricula (Table 2.14). Hence, students might earn one of the following Associate Degrees: (1) Associate Degree in Arts, (2) Associate Degree in Applied Arts, (3) Associate Degree in Science, (4) Associate Degree in Applied Science, (5) Associate Degree in General Education.

The East Coast Region of the United States

Simmons College (Boston, Massachusetts).--This women's college was a private and non-sectarian institution. Its educational goals were revealed in this statement:

> Simmons College believes
>
> That its graduates should be committed to, and prepared for, a meaningful and significant career; whether this takes the form of a job, a vocation, or some other purposeful activity upon graduation, or whether it means continuation of the postgraduate study that becomes increasingly necessary for many areas of career preparation.
>
> That mere vocational training is not enough; that a Simmons graduate must relate her career preparation to its broader context, so as to make her employment more satisfying in itself, to enable her to find opportunities for intellectual growth and professional advancement within her chosen career, and to equip her to assume expanding responsibility and leadership in her field of endeavor.
>
> That a woman should be prepared for a career in ways that will not become automatically useless to her after marriage; and that her career preparation should not only fit her for advanced positions in the business and professional world, but enrich and enhance her life outside the area of her career. And the Simmons graduate should be prepared not only to become employed immediately after leaving college or

TABLE 2.14.--Comparison of the requirements for Associate Degree in Arts and Associate Degree in General Education at Black Hawk College.

Associate in Arts	Associate in General Education
Each student who is awarded the Associate in Arts Degree by the college shall have completed:	Each student who is awarded the Associate in General Education Degree by Black Hawk College shall have completed:
1. The following specific courses which may NOT be used to satisfy any other requirement: English 101/101-A, 102/102-A Speech 101 Health 102 Physical Education (1 required course and 1 elective course--maximum 2 semester/hrs.)	1. The following specific courses which may NOT be used to satisfy any other requirement: English or Communications (a minimum of 6 semester hours) Speech 101 Health 102 Physical Education (1 required course and 1 elective course--maximum 2 semester/hrs.)
2. A major consisting of 15 semester hours in an area of study as identified by a departmental classification.	
3. A minimum of six semester hours from each of the three groups listed below which MAY be counted toward the major and/or minor:	2. A minimum of six semester hours for each of the three groups listed below including courses numbered BELOW 100:
Group A Advanced Composition Applied Music Lessons Art Beginning Reporting Creative Writing Foreign Language Literature Mass Communication Modern Fiction Music Appreciation Music Fundamentals Music Literature Music Theory Philosophy Speech Theatre	Group B Accounting Anthropology Archeology Business Law Economics History Political Science Psychology Social Science[a] Sociology Group C Anatomy and Physiology Astronomy Biology Botany Chemistry Geography Geology Mathematics Microbiology Physics Zoology[a]
4. A minimum of 15 semester hours in courses numbered 200 or above.	3. A minimum of 10 semester hours in courses numbered 200 or above.
5. An examination covering the Declaration of Independence, Constitution of the United States of America, Constitution of the State of Illinois, the proper use and display of the American flag and the Australian Ballot System. All students not taking Political Science 252 must take a special examination which is given each semester. Students enrolled in Political Science 252 will have an opportunity to take this examination during a regular scheduled class period.	4. An examination covering the Declaration of Independence, the Constitution of the United States of America, the Constitution of the State of Illinois, the proper use and display of the American flag and the Australian Ballot System. Students enrolled in Political Science 252 will have an opportunity to take this examination during a regularly scheduled class period. All students not taking Political Science 252 must take a special examination which is given each semester.
6. A minimum of 62 semester hours of credit with a "C" (2.00) average or above for all college work attempted, and a "C" (2.00) average for all work completed at Black Hawk College.	5. A minimum of 62 semester hours of credit with a "C" (2.00) average or above for all college work attempted and including not more than 12 semester hours in courses numbered below 100.

[a]Not required for Associate in Arts Degree curriculum.

graduate school, but also to re-enter the labor market after her responsibilities to home and family lessen, or to return to formal education at that time in her life, as increasing numbers of women are now doing.[37]

These guidelines formulated the structure of the educational programs in Simmons College which emphasized career preparation for women. This undergraduate career preparation provided both a broad education in the arts and sciences and a specialization in at least one field that related to the student's career objectives (Table 2.15). Hence, the undergraduate curriculum was designed with much flexibility that would enable the student to develop a program of study suited to her intellectual interests and career plans. Such a flexible curriculum would help students to elect their "courses from one or more fields of concentration or [to] take courses in one or more of the areas of the distribution requirements (humanities, science and mathematics, and social science and history)" (Table 2.16). It also focused on the freshman year, which the college considered as "a year devoted on the one hand to helping each student to become better acquainted with herself, her abilities, interests, and on the other hand the broadening and deepening of her intellectual interests."[38]

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[37] Simmons College, Boston, Massachusetts, Catalogue 1969-1970, pp. 14ff.

[38] Ibid., p. 51.

TABLE 2.15.--Fields of concentration in career areas in the undergraduate curriculum at Simmons College.

Career Area in Administration and Communication	Career in Humanities	Career Area in Education
Business Administration	American Studies	Secondary Teaching of
Hospital and Health Services Administration	English	English
Retailing Administration	French	French
Finance	Spanish	Spanish
Publication	History	History and Social Studies
Consumer Services	Philosophy	Biology
Governmental Affairs	Art	Chemistry
		Physics
		Mathematics
Career Area in Social Science	**Career Area in Science**	Elementary School Teaching with specialization in such core communications as English-Social Studies or Mathematics-Science
Government	Biology	Home Economics Education
Economics	Chemistry	
Psychology	Physics	
Guidance and Psychometric Work	Mathematics	
Hospital Clinic Research	Foods and Nutrition	
Industrial Human Factors Research	**Career Area in Health Services**	
Child Development	Nursing	
Sociology	Physical Therapy	
	Orthoptics	
	Medical Technology	
	Institution Management and Dietetics	

Source: Simmons College Catalogue 1969-1970, pp. 51-52.

TABLE 2.16.--Minimum requirements for bachelor degree at Simmons College.

Requirements	Courses	Semester/ Hours
1. Distribution Requirements:	6	24
Humanities (Literature, Arts, Philosophy)	2	8
Science and Mathematics	2	8
Social Science and History	2	8
2. Depth in Arts and Sciences to be elected from all three areas or limited to one or two areas	6	24
3. Field of Concentration	5-10	20-40
4. Independent Study and/or Senior Seminar	2	8
5. Electives	8-13	32-52

Source: Simmons College Catalogue 1969-1970, pp. 52-53.

The review of some university and college catalogs served to point up several ideas that deal with curricular practice. First, all the curricula showed their well-defined objectives through different patterns of course distribution and grouping, responsive to the student's desires and abilities. Second, the organization of all the reviewed curricula presented the same pattern: (1) basic or university requirements, (2) major or college and/or departmental requirements, (3) departmental and/or free electives. All university or basic requirements were often grouped as common or "core" courses spread throughout the freshman and sophomore years. They then structured the pre-professional curricula for schools such as Medicine, Pharmacy, Dentistry, Architecture, Nursing, Engineering, and Agriculture. Third, professional education (e.g., Medicine) required about the same length of time, usually started after two years of pre-professional education with or without an associate degree. All curricula showed the institution's concern for learning and teaching at the lower division of undergraduate education through the college or university's objectives or statements of the department or courses' purposes (e.g., Simmons College and Ewha Womans University). And fourth, the major tendency toward fragmentation within the university or college was recognized in some institutions through the catalog (e.g., Ewha Womans University offered courses

through its forty-six departments in nine colleges). If admitting that the university organization should meet the specialization of its teaching staff, the tendency to departmentalize would resume in lack of an organic overview as a whole.[39] As a result it would hinder rather than promote the student's learning. Still, duplications and overlaps of courses and instruction would certainly be unavoidable among departments.[40]

Specialized Studies

The focus of this part of the review of related literature was the core curriculum. Two investigations in this field were found pertinent to this research: one pertaining to the proposed two-year college curriculum and the other concerning the evaluation of a core curriculum.

A Proposed Two-Year College Program for Elementary Teacher Education in Vietnam, 1967

In Chapter V of his dissertation, Nguyễn-Qúy-Bỗng proposed "a functional junior college program with emphasis on rural community development . . . for the

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[39]Litchfield, "The University: A Congeries or an Organic Whole?" p. 375; Litchfield, "Organization in Large American Universities: The Faculties," p. 353.

[40]Paul L. Dressel, "Specific Points of Attack in Curriculum and Course Revision," Journal of Educational Research, LIX, No. 7 (1966), 312.

pre-service education of Vietnamese elementary school teachers."[41] Considering that the community school teacher was at the same time community leader, the author focused his attention on a training program that prepared a teacher in an elementary community school.[42] This objective was endorsed by the following specific goals that required the elementary school teacher:

> [To] understand the values of democracy and freedom indispensable to the process of nation building;
>
> [To] be liberally and professionally educated;
>
> [To] understand the nature of children and have some knowledge of the learning process;
>
> [To] understand the school community and assist in its development;
>
> [To] develop a spirit of initiative and self-help;
>
> [To] develop sensitivity and objectivity in his work for peace.[43]

Based upon these goals, the author suggested an elementary teacher education program, similar to that proposed for Jordanian schools,[44] which concentrated on three educational fields: general education, professional

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[41]Nguyễn Qúy Bổng, "Elementary School Teacher Education for the Republic of Vietnam" (unpublished Ed.D. dissertation, George Peabody College for Teachers, 1967), p. 14.

[42]Ibid., p. 181. [43]Ibid., pp. 183ff.

[44]Said Mustafa Tell, "A Proposed Program for the Improvement of Elementary School Teacher Education in Jordan" (unpublished Ph.D. dissertation, University of Pittsburg, Pennsylvania, 1963), p. 100.

education, and community education. The distribution of the courses in the proposed curriculum were, respectively, 25, 50, and 25 per cent.[45]

General education assumed to afford the teacher with self-concern, community leadership, and contribution to international civilization. This program represented a pattern of courses covering these areas: communication skills, humanities, social sciences, science, health and physical education.[46]

The professional education curriculum included concentrations in: (1) foundations of education, (2) psychology, (3) curriculum construction and evaluation, and (4) pedagogy. The author stressed that the concentration in pedagogy involved methodology and laboratory experiences and that former courses "should be closely related to the latter ones."[47] It was proposed that laboratory experiences be organized in five subsequent quarters, starting from the second quarter.

Finally, the author understood community education to be a part of his proposed two-year program for elementary teacher education and to have a connotation "synonymous [to that of] fundamental education, adult education, and social education."[48] Hence, the courses in community

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[45] Bỗng, op. cit., p. 190.

[46] Ibid., pp. 190ff. [47] Ibid., pp. 196ff.

[48] Ibid., p. 209.

education would provide students with: "(a) understanding of the social structure of the community, its problems, and its resources; (b) understanding of a field of specialization in relation to the whole program of community education; and (c) competencies and skills needed to help people identify their problems and to motivate and guide them toward solution of these problems."[49]

In summary, the proposed two-year curriculum offered a good opportunity for improving teacher education in Vietnam. The program of study consisted of "120 quarter hour credits or approximately two and one-half years of intensive study [covering] six full quarters of eighteen hours each, plus two summers, each encompassing six quarters hours of study."[50] The term load (18 credits) as proposed would probably not be effective, since most four-year programs of study at the undergraduate level required a minimum total of 180 quarter credits[51] or 120 semester credits.[52] Thus, it appeared that the requirements might not be met, since under no circumstance would an undergraduate student be permitted to carry an overload.

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[49] Ibid., p. 209. [50] Ibid., p. 218.

[51] Dressel, The Undergraduate Curriculum in Higher Education, pp. 80ff.

[52] Harold A. Haswell and Clarence B. Lindquist, Undergraduate Curriculum Patterns (Washington, D.C.: Government Printing Office, 1965), Table 3, p. 10.

An Evaluation of Core Curriculum in the College of Home Economics, Michigan State University, 1964

"The purpose of this study," as stated by the author, "was to evaluate the new core curriculum introduced into the College of Home Economics at Michigan State University in the fall of 1961."[53] In approaching the problem, the study sought to answer these four questions:

1. To what extent did the faculty in the College of Home Economics develop and/or utilize curriculum theory in the curriculum study and revision process?
2. To what extent did the faculty in the College of Home Economics recognize the importance of dynamics of change in the curriculum study and revision process?
3. What were the changes evident in the curriculum as witnessed by the materials developed to implement the curriculum?
4. What was the impact of the new core curriculum on the student?[54]

The procedures for collecting evidence consisted of faculty interviews, questionnaires to students, and the Graduate Record Examination Area Tests. Through the use of these procedures, it was found that the core curriculum was supported by the faculty. First, the core the faculty decided upon had these three foci: human growth and development, management principles, and integration.[55] It was reported that the core grew out of these basic agreements:

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[53]Shear, op. cit., p. 147.

[54]Ibid., pp. 148ff. [55]Ibid., p. 16.

1. There is a body of common learnings which should be a part of curriculum for all home economists.
2. A core curriculum for home economics should:
   a. Have flexibility. (There was no consistent interpretation of this term. Does flexibility mean freedom of choice within the core itself or reduced credits in core to permit more electives and flexibility in the total program?)
   b. Focus on the family in a changing society. Curriculum and course content must adjust to changing patterns of family living and needs of families in a changing society.
   c. Emphasize basic principles and application of basic principles from other disciplines.
   d. Minimize skills as such, except as they serve to illuminate principles, and require less laboratory time, at least in core courses.
   e. Have a liberalizing rather than a specialist approach and courses should have appeal for students, both men and women, outside of home economics.[56]

Second, the students gave much support to these objectives for "they perceived home economics as primarily preparation for several related professions [and], core courses as contributing to both general and specialized education."[57] The study also pointed up the democratic leadership in the college administration, the participation of the faculty in an atmosphere of freedom but with evidence of divergent ideas and points of view having been reported, the opportunity for faculty members to work on the development of the core courses--all appeared to build up the forces that were operating for and against change in the core curriculum.

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[56] Ibid., p. 9.

[57] Ibid., pp. 148f.

For obvious reasons, reviewing the contents of a proposed two-year program for teacher education in Vietnam and evaluating a core curriculum have had substantial impact upon a study concerning an approach to the designing of such a program for a system of higher education.

Studies Related to This Problem

The area of academic affairs in higher education in Vietnam has not been studied in depth. The literature pertaining to the Vietnamese college education may be found in a few reports and surveys. In the field of curriculum, no particular study carried on either by Vietnamese or foreign scholars has been reported.

This part of the review of the literature was devoted to (1) reports and surveys that dealt with current issues and problems of Vietnamese universities, and (2) the proposal for the Preparatory Center at the University of Saigon.

General Reports and Surveys

Falk (1956) conducted an early survey on "Higher Education in Vietnam," in which the author brought several suggestions and recommendations arising from the problems of university governance and administration of academic affairs:

> The system of higher education, which the Republic of Vietnam has inherited and which it intends to improve, is structured after a French pattern with these characteristic weaknesses.

> a. All schools of higher education, within and outside of the National University, are highly specialized, individually administered institutions with distinct buildings and equipment, individual libraries, faculties and administrative staffs. . . .
>
> b. The curricula are so distinct and specialized that there is no possibility of the sharing of the professional staffs by the various schools--for example, the sharing of biology and chemistry professors (and laboratories) by the schools of Science and Medicine and the Higher School of Pedagogy. Thus, where professional staffs are short-handed on all sides, there can be no coordination of activities to save laboratory costs and professional manpower.[58]

Curricula in Vietnamese universities, stressed the author, resulted from lack of a total view of the university in its organic entirety. Individualization and specialization have made it difficult to share the professional staffs and physical facilities within an institution of higher education. Thus, overlapping and duplicating of programs of instruction and, hence, the administration of these programs weakened both the organization and governance of the university. This tendency, aggravated by some "blind spots"[59] in the educational planning, has made the development and re-appraisal of the undergraduate curriculum necessary. The report also pointed out that there was no distinction between lower and upper courses of undergraduate programs or even between graduate and undergraduate work.

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[58] Falk, op. cit., p. 62.

[59] Ibid., p. 63.

The report of Wisconsin State University, Stevens Point (1967), touched upon a wide range of the administration in public universities in Vietnam. Recommendations for implementing programs in university education, the learning process in higher education, and the material resource for higher education were within the limitations of this study. Worthy of basic consideration is one of the report's ideas which initiated this research.

> All students should be admitted to a balanced program of studies, including some electives, at the beginning of their university careers. One possible way to accomplish this is to combine the present Faculties of Letters, Science, and some of the functions of the Faculty of Law into a common program combining humanities, social sciences, foreign languages, mathematics, and natural sciences. . . .
>
> A core program in each university which offers a basic education to undergraduates can provide a more efficient way of utilizing the human resources which it is the university's responsibility to train and educate. From the student's points-of-view it is a more orderly transition to higher education that provides a necessary period of exploration of the career possibilities of university training. From the points-of-view of faculties, it provides an important basis on which to estimate the probabilities of the success of individual students in particular programs such as law, medicine, dentistry, and pharmacy.[60]

Turning to the implementation of this idea, the report noted:

> Representatives of all three of the public universities of Vietnam expressed uncertainty about the recommendation for the establishment of a core or basic studies program at the university level. Deans of the Faculties of Letters expressed the greatest number of qualifications on the matter. Deans of

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[60] Wisconsin State University Report, op. cit., pp. 17ff.

> Pedagogy had the least objection, perhaps because they already have something similar in their schools. Their students take courses in arts and sciences in other faculties and so the idea is not so foreign to them, nor does it threaten their faculty independence.[61]

Divergent attitudes toward the basic studies or core programs were noticed among officials in three public universities. While in one university the idea of a strong background for students in the basic arts and sciences was favored, it was recognized in other institutions as necessary "to repair shortcomings in secondary preparation."[62] While this university considered the core program as a two-year college general studies program, the other one recognized it as equivalent to its propaedeutic year. While the core program was conceived as an all-university basic curriculum, required of all freshmen and sophomores, each faculty has proposed its own core program--either a one- or a two-year program--which would be entirely administered by each individual faculty or even each individual department. Hence, the development of a core program would meet with the following comprehensive difficulties:

1. The structure of secondary education in Vietnam, more particularly the Bach II. First, there is a feeling, ill-founded in fact, that students completing the Bach II already have a sufficient basis of general education. Comparative analysis of the hodgepodge of themes surveyed at Bach II level make this unlikely claim. Achievement testing would probably prove it absurd. Secondly,

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[61] Ibid., p. 74.

[62] Ibid., p. 77.

there is a problem that area specialization already begins at the Bach II level and that students have already begun specialized education before they are admitted to the professional faculties at the university level. At Bach II level students elect special certification in Chinese Classics, Mathematics or Sciences and the choice in secondary school controls education and limits flexibility at the university level. Hence, university people point out that educational guidance and orientation should also be established at the secondary level and take place before students elect their areas of concentration in Bach II.

2. The certificate system, instead of a unit credit system makes any internal transfer of credits within a university or across faculties a very cumbersome business. This encumbrance affects the installation of a basic studies or core program. Hence, some examination of the possibility of modifying the certificate system is necessary.
3. There is generally no tradition of interchange or transfer between faculties in the Vietnamese universities. Hence, faculty autonomy complicates matters.
4. There is a lack of trained and committed staff.[63]

These remarks have continued to be invaluable up to the present time, or they would not be incorporated in the premises of this study.

Clevenger (1967) followed up the Wisconsin State University report, pointing out the necessity for the development of a program of student affairs. He believed that "a core curriculum" should be established. This was the only means to prevent duplication of courses and, hence, an unnecessary expenditure by the university. The core curriculum would "better serve the individual student by providing a basic background of general studies from

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[63] *Ibid.*, pp. 75f.

which he could then move to advanced work."[64] It also would effect major changes in higher education in Vietnam. These considerations were within the scope of this research.

Hammond has had concern because the student "cannot transfer from faculty to faculty, but must enter each faculty as a new first year student."[65] This author saw the possibility of organizing a common but flexible program of instruction available to all students. This viewpoint became a consideration of this study.

Hoshall visualized no difficulty in implementing a basic curriculum, but he recommended that "it must be indigenous to the culture, heritage, character and needs of Vietnam. The super-imposing of a French system or the blind adoption of an American system of education can never meet the needs of the people of Vietnam."[66]

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[64] J. C. Clevenger, Student Personnel Services in the Public Universities of the Republic of Vietnam, Final Report (Saigon: USAID, 1967), p. 11.

[65] Granville S. Hammond, A Brief Review of the Development of Higher Education in South Vietnam Washington, D.C.: Southeast Asia Development Advisory Group, National Academy of Science and Office of Institutional Development and Field Operation, 1967), p. 6.

[66] C. Earle Hoshall, Some Proposals for a USAID Education Action Program to Improve Higher Education in Vietnam (Saigon: USAID Education, 1967), p. 8.

Seyler, in his proposal for establishing a Registrar's Office in higher education in Vietnam,[67] raised major questions concerning problems in record maintenance, research, and statistics. His recommendations for implementation regarding: (1) the organization of the semester system, (2) the determination of the course credit, (3) the notion of grades and a grading system, and (4) the establishment of an admissions committee were of great interest to this study.

Đỗ Bá Khê, first reporting on the community junior college concept in Vietnam, stated that:

> If small community colleges are to be established at many places in Vietnam, they could retain at least for two years those students who intend to pursue their education beyond the second university year. These new small institutions would offer the same kind of academic programs as in the universities and, after two years, those students who desire to do so could transfer to universities.[68]

To this author, the "Preparatory Center" as proposed by Eagon[69] concerned itself with "students aspiring to university studies, whereas the comprehensive community college offered more opportunities [in making higher education more realistic and practical] by its curriculum

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[67]Earl C. Seyler, Toward the Establishment of a Registrar's Office in the Universities of the Republic of Vietnam (Saigon: USAID, 1967).

[68]Khê, op. cit., p. 202.

[69]Eagon, op. cit.

variety, thus salvaging more human resources."[70] College education in Vietnam--especially undergraduate education--appeared more important than ever, seeing that the nation must face up to reconstruction and social equalization. The author wished that this college education might provide the student with transfer and terminal programs, with "knowledge broad enough to be sensitive to social sufferings, to be aware of post-war problems in Vietnam, and at the same time to be conscious of what is happening in the world in order to measure his country's status in the framework of the world community."[71]

Jarmon et al.,[72] reviewing the system of higher education in Vietnam, the state of guidance and placement recommendations of Vietnamese students planning to attend colleges and universities in the United States, gave a quasi complete description of curricula in institutions of higher education. This reference was included in this study.

Orr et al. in their Survey of Engineering Education in Vietnam,[73] proposed basic courses for the first

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[70]Khê, op. cit., p. 204.

[71]Ibid., p. 207.

[72]Jarmon, Gerritz, and Patrick, op. cit.

[73]Wesley L. Orr, Thomas E. Hicks, and Ralph J. Smith, Survey of Engineering Education in Vietnam, A Report to the Minister of Culture and Education of the Republic of Vietnam (Saigon: USOM, 1965).

two years of all engineering curricula. These authors recommended that during the

> . . . first two years, all engineering students should receive the scientific training which will enable them to benefit from advanced engineering courses. The basic training should also permit them to continue their education throughout their professional careers; an engineer can never stop learning.[74]

This point of view helped to formulate an approach to the development of a core curriculum, regardless of whether it is general, liberal, vocational, or professional education. The survey also suggested that a sound knowledge of foreign languages would be of great assistance to students in the use of foreign references and textbooks. Appendix C of this survey was a valuable reference for this research.

Riley's report following up the survey by a team from the University of California at Los Angeles centered its attention on the programs of instruction in the School of Mechanical Engineering at the National Technical Center in Saigon. The report, conscious of all kinds of difficulties that both the School and the Center might have, firmly recommended:

> [That] a consistent degree requirement should be required for all the schools with a core curriculum taught by Center level faculty. If at all possible the curriculum should be outlined so higher

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[74] Ibid., p. 33.

> educational institutions can evaluate it for the purpose of accepting students for graduate work.[75]

It also attacked the 1969-1970 curriculum which covered "a broad spectrum of courses." The proposed 1970-1971 curriculum revealed an effort to combine and coordinate courses and laboratory work, an effort that could eliminate about 30 credits (Table 2.17). The author believed that:

> These curriculum changes would not burden the teaching loads of the engineering faculty and will decrease the hours of contact the student has with the technology level labs. [Rather], they . . . encourage the development and use of practical engineering level laboratories.[76]

One pertinent curriculum change was the combination of laboratories with their course lectures for more effective use of these physical facilities. This relevant combination of instructional method and educational activity became evident as the author expressed the following concern over the teaching and learning:

> The educational process at the Center is one where the students are exposed to a subject primarily through lectures. Theory is taught but not utilized at practical levels by working problems.[77]

The report of the University of Florida team paid considerable attention to agricultural education in Vietnam. In reviewing the current curriculum of the School of Agriculture in Saigon, the team reported:

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[75] Riley, op. cit., p. 52.

[76] Ibid., p. 27.

[77] Ibid., p. 49.

TABLE 2.17.--Comparison of two mechanical engineering curriculums in Saigon Mechanical Engineering School.

1969-1970 Curriculum				Proposed 1970-1971 Curriculum		
Freshman Year						
	First Semester	Sem. Hrs	Cr.	**First Semester**	Sem. Hrs	Cr.
101	Manufacturing Processes & Materials	3	3	Introduction to Mechanical Engineering	1	1
102	Industrial Drawing A/B	3-4	1	Manufacturing Processes & Materials	3-4	4
104	Algebra	2	2	Industrial Drawing	3-4	1
106	Calculus	3	3	College Algebra	3	3
107A	Mechanics and Sound	3	3	Trigonometry	2	2
107C	Electricity	3	1	Physics I	4-3	5
107D	Physics Lab	3	3	Inorganic Chemistry	3-3	4
108A	Inorganic Chemistry	3	1	French	3	3
108B	Chemistry Lab	3	3	Physical Education	-	-
114	French	2	0			
118	Physical Education	8	3		—	21
	Shop		27			
	Second Semester			**Second Semester**		
101	Manufacturing Processes & Materials	3	3	Introduction to Mechanical Engineering	1	1
102	Industrial Drawing A/B	3-4	1	Manufacturing Processes & Materials	3-4	4
104	Algebra	2	2	Industrial Drawing	3-4	1
105	Analytical Geometry	2	2	Calculus and Analytical Geometry	5	5
106	Calculus	3	3	Physics II	4-3	5
107B	Thermodynamics	3	3	Economics	2	2
107D	Physics Lab	3	1	English	3	3
108B	Chemistry Lab	3	1	Physical Education	-	-
116	Economics	2	2			
115	English	3	3			
118	Physical Education	2	0		—	21
	Shop	8	3			
			25			
Sophomore Year						
	First Semester	Sem. Hrs	Cr.	**First Semester**	Sem. Hrs	Cr.
201	Manufacturing Processes & Materials	3	3	Manufacturing Processes and Materials	3-4	4
202	Industrial Drawing	3	1	Industrial Drawing (Graphic Design)	3	1
204	Calculus	3	3	General Mechanics I	3	3
205	General Mechanics	2	2	Calculus I	4	4
208	Thermodynamics	3	3	Electrical Measurements	2-3	3
210	Electricity	2	2	Strength of Materials	2-3	3
212	Physics Lab	3	1	English	3	3
215	English	3	3	Physical Education	-	-
216	Strength of Materials	2	3			
218	Physical Education	2	0		—	23
	Shop	8	3			
			23			
	Second Semester			**Second Semester**		
201	Manufacturing Processes & Materials	3	3	Manufacturing Processes & Materials	3-4	4
202	Industrial Drawing	3	1	Industrial Drawing (Graphic Design)	3	1
204	Calculus	3	3	General Mechanics II	3	3
205	General Mechanics	2	2	Calculus II	4	4
209	Optics	3	3	Electrical Networks DC	2	2
210	Electricity	2	2	Strength of Materials	2-3	3
212	Physics Lab	3	1	Kinematics of Mechanism	2-3	3
214	French	3	3	French	3	3
216	Strength of Materials	2	2	Physical Education	-	-
218	Physical Education	2	0			
	Shop	8	3		—	23
			23			

Junior Year

First Semester

		Sem. Hrs	Cr.
303	Heat Engines	1-2	2
305	Pattern and Mold Design	3-4	4½
306	Mechanical Vibration	3-0	3
307	Fluid Mechanics	2-0	2
309	Materials Testing	2-2½	3
310	Metallurgy	3-4½	5
311	Electric Machinery	1½-4	3
315	Commercial and Labor Law	2	2
317	Field Trip	-	0
318	Technical English	3	3
320	Professional Guidance	-	0
321	Physical Education	2	0
			27½

Second Semester

301	Structural Design--Metal	1-2	2
302	Structural Design--Concrete	1-2	2
307	Fluid Mechanics	2-0	2
308	Heat Transfer	3	3
311	Electrical Machinery	1½-4	3
312	Air Conditioning & Refrigeration	2	3
314	Work Organization	2	2
316	Economics	2	2
321	Physical Education	2	0
304	Technology of Construction Transportation Equipment	1-2	2
313	Design Project	1-5	5
			25

First Semester

	Sem. Hrs	Cr.
Fluid Mechanics	2-2	3
Vibrations	3-3	4
Metallurgy	3-3	4
Thermodynamics	3	3
Electrical Networks AC	3	3
Commercial and Labor Law	2	2
Introduction Differential Equations	3	3
Physical Education	-	-
		23

Second Semester

	Sem. Hrs	Cr.
Fluid Mechanics	2-2	3
Structural Design	3-4	4
Economics	3	3
Thermodynamics	3-3	4
Electrical Networks AC	3	3
Work Organization	2	2
Construction Technology	2	2
Technical English	2	2
Physical Education	-	-
		23

Senior Year

First Semester

		Sem. Hrs	Cr.
403	Heat Engines	3-4	4½
404	Machine Design	2-2	3
405	Foundry	3-8	6
406	Heat Treatment	2-2	3
407	Forging, Welding, and Molding	3-4	4½
418	Technical English	3	3
420	Professional Guidance	1	0
421	Physical Education	2	0
434	Refrigeration	2-0	2
	Elective Courses:		
431	Naval Architecture	4	
432	Power Plant	4	
435	Fuel Technology	3	
446	Computer Programming	2	
			31

Second Semester

400	Material Handling	3	3
401	Fluid Machinery	3	3
402	Steam Production and Utilization	3-2	4
403	Heat Engines	1	1
405	Foundry	0-2	1
407	Forging, Welding, Molding	0-4	1½
408	Accounting	3	3
421	Physical Education	2	0
434	Refrigeration	3	2
444	Electric Machinery	4	4
	Electives	3	2
	Special Design Project	4	4
			27½

First Semester

	Sem. Hrs	Cr.
Machine Design	3-4	4
Heat Transfer	3-3	4
Electric Machinery	3-3	4
Applied Thermodynamics	3	3
Technical English	3	3
Design Project	6	3
Professional Guidance		
Physical Education		
		31

Second Semester

	Sem. Hrs	Cr.
Material Handling	3	3
Fluid Machinery	3	3
Electronics	3-3	4
Accounting	2	2
Electives	6	6
Design Project	9	3
Physical Education		
		31

Source: Myrne R. Riley, Report on the School of Mechanical Engineering (Saigon, South Vietnam: National Technical Center, 1971), pp. 16-19, 22-25.

> The first year's curriculum compares favorably with that found in many well-known College of Agriculture [Table 2.18].
>
> The curriculum could very easily be divided into three majors on the strength of courses now being offered: Plant Science, Agricultural Economics, and Agricultural Engineering. Courses and expertise are unavailable for separate programs Soils, Plant Pathology and Entomology in the foreseeable future.
>
> The training program should place much more emphasis on laboratories and practice, and the use of library resources. The students get almost no training through experimentation or the consultation of references. They should be allowed more opportunity for the synthesis of new concepts, or the application of knowledge to new problems.[78]

In addition, the suggestions for course review and curriculum evaluation and planning were found relevant.

Proposals for the Preparatory Center at the University of Saigon (1969)

This research considered, with much significance for its objectives, the ideas and recommendations which were highlighted in Eagon's proposals.[79] The recommendations of this proposal were based on the reports of the Delegation of Rectors,[80] the decision of the Inter-University Seminar held at Nhatrang in 1968, and the approval of the University of Saigon Council. They were grouped thus: (1) the concept of the preparatory

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[78]University of Florida Team, Survey of Agricultural Education in South Vietnam (Gainesville, Fla.: University of Florida, 1967), pp. 42f.

[79]Eagon, op. cit.

[80]Đệ, op. cit.; Hộ, op. cit.

TABLE 2.18.--First year curriculum of the College of Agriculture in Saigon.

First Year				
Description of Course	Number of Hours per Week		Number of Weeks	Total Hours
	Lecture	Laboratory		
Mathematics	3	2	30	150
Physics	2½	2	30	135
Chemistry	3	2	30	150
Plant Biology	2½	2	30	135
Animal Biology	2½	2	30	135
General Economics	1½	0	30	45
English or French	2	0	30	60
Summer Supervised Practice (4 weeks x 24 per week)				96

Source: University of Florida Team, Survey of Agricultural Education in South-Vietnam, Chapter 3: "Recommendations for the College of Agriculture" (Gainesville, Fla.: University of Florida, 1967), p. 41.

education, (2) the preparation curriculum, and (3) recommendations for implementation. Eagon believed that one of the relevant reasons for building a two-year preparatory program was the "early specialization [of the secondary education] by section [which] create[d] a large discrepancy in background,"[81] when the high school graduate entered a university. This point has already been discussed in the report of Wisconsin State University, Stevens Point.[82] His second belief was that higher education in Vietnam could "educate and train more students than ever before [even], in the face of increased enrollments, scarcity of faculty and economic resources, as well as space and time limitations."[83] Thus, he believed that by doing so higher education in Vietnam would possess the type of college faculty members with adequate-to-superior preparation, personal perceptions typical of the middle and upper-lower class, and behavior and attitudes toward themselves, their students, their college, and the community of which they constituted a part.[84] "It is the

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[81]Eagon, op. cit., p. 7.

[82]Wisconsin State University report, op. cit., pp. 75f.

[83]Eagon, op. cit., p. 2.

[84]Blocker, Plummer, and Richardson, op. cit., p. 5.

idea," he concluded, "that the Preparatory Center would enroll all of the incoming university students who possessed the Baccalaureate II. It would provide a two-year basic course preparation for all students prior to their writing an entrance examination to one of the eight faculties."[85] It was also delimited that "each of the eight faculties (other than the Preparatory Center Faculty) will dedicate its program to the third and fourth year undergraduate student and graduate work." The proposed Preparatory Center program, which outlined minimum requirements (Table 2.19) for all first and second year students entering the University of Saigon, revealed the ideas as mentioned above. The courses described as minimal requirements set within the fields of Science, Mathematics, Human Science, and Languages were defined in the context of breadth rather than depth. A total of 40 to 44 semester credits by the end of the second year, including the required courses corresponding to each department (three departments to cover the four fields), affirmed this remark. Finally, the setting up of a separate Preparatory Center with its own three departments, as suggested (Figure 2.2), would leave unsolved some questions and problems pertaining to Falk's warnings

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[85]Eagon, op. cit., p. 5.

TABLE 2.19.--Suggested requirements for Preparatory Center Programs at the University of Saigon.

Minimal General Requirements

Science	1 year (1 course)
Mathematics	1 year (1 course)
First Language	2 years (1 course)
Human Science	2 years (2 separate courses)

Suggested Requirements for Two-Year Program[a]

Letters		Mathematics		Science	
First Year:		First Year:		First Year:	
Language 1st	3	Mathematics	6	Science	6
Language 2nd	3	Science	6	Mathematics	6
Human Science	3	Human Science	3	Human Science	3
Math or Science	3	Language 1st	3	Language 1st	3
Human Science, VN	4-6	Elective	2-3	Elective	2-3
	19-21		20-21		20-21
Second Year:		Second Year:		Second Year:	
Language 1st	3	Mathematics	12	Science	12
Language 2nd	3	Science	6	Mathematics	6
Human Science	3	Human Science	3	Human Science	2-3
Math or Science	3	Language 1st	3	Language 1st	3
Human Science	4-6				
	3				
	19-21		24		23-24

[a]Based on classroom hours per week.

Source: Burdette W. Eagon, Proposals for the Preparatory Center at The University of Saigon (Saigon: USAID/Education, 1967), pp. 10-12.

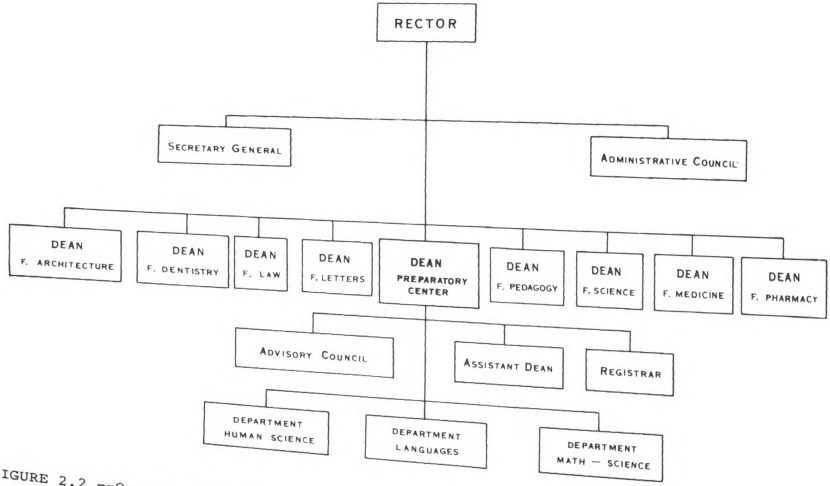

FIGURE 2.2.--Organization of the University of Saigon including the Preparatory Center.

Source: Burdette W. Eagon, Proposals for the Preparatory Center at the University of Saigon (Saigon: USAID/Education, 1967), p. 22.

about the administration and supervision of the Vietnamese university.[86]

Summary of the Chapter

In the search for an approach to the problem, this review of the literature helped to uncover: (1) the foundations and basic considerations in developing an undergraduate curriculum, (2) major trends in undergraduate curriculum concepts and practices, (3) issues and problems that higher education in Vietnam must face up to, and (4) some particular aspects of a core curriculum or basic studies program.

Moreover, it should be noted that the literature was predominantly informative and lacked empiricism. An exhaustive report on two- and four-year programs of college education in various countries selected as relevant to this study did enlighten the problem; however, this did not seem to imply similar practices. It was recognized that the absence of such normative parameters in the field would complicate conceptual comprehension and connotation of the core curriculum in higher education.

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[86]Falk, op. cit., p. 66c.

CHAPTER III

THE STATUS OF HIGHER EDUCATION IN VIETNAM

The purpose of this chapter is two-fold: (1) to review the background of education in Vietnam from which the present higher educational system developed and (2) to describe the status of higher education through its historical development, its organization and administration, and its current undergraduate curriculum, which provides information about academic governance and the national policy on higher education. The analysis of the undergraduate curriculum will determine the strength and/or weakness in undergraduate education and, hence, constitutes the major emphasis of the chapter.

The Background of Education in Vietnam

Education in Vietnam is closely related to the development of the nation. Generally, the development of the country consisted of the following characteristic periods:[1]

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[1]Trần Trọng Kim, Việtnam Sử-lược [Brief History of Vietnam] (5th ed.; Saigon: Tân-Việt, 1954), pp. 15ff;

1. The prehistoric period, dated from 289 B.C. to 258 B.C.;

2. The period of Chinese domination, from 111 B.C. to 939 A.D., interrupted by short periods of sovereignty and divided into:

   a. The first period of domination, 111 B.C. to 39 A.D.;

   b. The second period of domination, 43 A.D. to 544 A.D.;

   c. The third period of domination, 603 A.D. to 939 A.D.;

3. The period of sovereignty, 904 A.D. to 1802 A.D., much troubled with disputes over supremacy in the country and attempts to reinstall the domination by the Mongols' Nguyên and the Háns' Minh;

4. The period of 1802 A.D. to the present time, divided into:

   a. The Nguyễn empire, 1802-1862;

   b. The French colonization, 1862-1940;

   c. The last three decades.

Within the frame of the nation's development, education in Vietnam respected social changes and foreign influences. Briefly, it developed into four systems:

Phạm văn Sơn, Việt-Nam Tranh-Đấu Sử [History of Vietnam's Struggle] (2nd. ed.; Hànội: Nhà Xuất-bản Vũ-Hùng, 1951), pp. 10ff.

(1) the traditional education, (2) the Mandarin education, (3) the French colonial education, and (4) the present education. Except for the traditional education, none revealed a real national characteristic.

The Traditional Education

The traditional education in Vietnam, like that of Korea and Japan, was built on traditional spirit and national language and customs, but it was soon structured along the Chinese cultural patterns with essentially Confucian and Taoistic characteristics.[2] Its philosophy was based on human relationships: humanity, justice, rites, wisdom, and loyalty. Its objectives were to educate citizens to be loyal to their king, pious to their parents, and respectful to their teachers.[3] Its purpose was to prepare men for the mandarinate[4] and to teach women major virtues and obedience to their parents and husbands. This educational philosophy was considered stable and fundamental for the foundation of the family

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[2]Dương Quãng Hàm, Việt-Nam Văn-Hóa Sử-Yếu [An Outline of the Vietnamese Literary History] (2nd. ed.; Saigon: Bộ Quốc-gia Giáo-Dục, 1941), pp. 9ff; Đoàn văn An, "A Brief History of Vietnamese Literature," Asian Culture, III, No. 2 (1961), 31ff.

[3]Pike, op. cit., p. 80.

[4]Vũ Tam Ích, "A Historical Survey of Educational Developments in Vietnam," Bulletin of the Bureau of School Service, College of Education, University of Kentucky, XXXII, No. 2 (December, 1959), 28.

and society, as it reposed on traditional values which were basically morals and virtues. For centuries, parent-children obedience, husband-wife love, teacher-pupil respect,[5] master-servant sentiment, and sincere friendship all remained a great national heritage. This "family based on sincere love, society on morality, politics on virtue, [was] it not a shining tradition, a solid foundation for a model nation, worthy to be proud of with other countries in the world?"[6]

Since education in ancient Vietnam was patterned after the traditional oriental philosophy which reflected both Buddhism and Confucianism, morals and virtue were the results of religious philosophy and doctrine. However, the merit of the traditional values was the linkage of religion with society. "Life was never permanent." Buddhism summarized it in the idea of atman and Confucianism in the principle of change. To the traditional spirit, virtue and morals perpetuated as long as the nation survived. This concept, which reflected both the dynamic and static aspects of Nature as stated in Confucius' Book of Change [Kinh Dịch], became so popular that the Vietnamese people considered it their own idea. In the

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[5]Trần văn Trai, L'Enseignement traditionnel en Annam (Paris: P. La Pagesse, 1942), p. 36.

[6]Trần Quang Thuận, "Some Aspect of the Việtnamese Society," Asian Culture, II, Nos. 3-4 (July-December, 1960), 50.

society, that consideration was respected: the Court upheld titles and names, the villages upheld the intelligentsia, and the intelligentsia upheld virtue. Thus, at the basic level of social organization the Vietnamese "village councils name[d] their men according to their learning, and the intelligentsia according to their virtue, for virtue [was] the national foundation."[7]

The family in Vietnamese society was not only a group of grandparents, parents, and children living together according to their economic, educational, sentimental, and physiological needs; it was also a universe, a philosophy of life, a morality of union, a mysticism of love based on traditions and heritage, and, most important of all, a school of education.[8] It symbolized an eternal consolation; it helped its members in time of difficulty and it shared their joys with them in abundance. It was the foundation of happiness, a fountain of glory. It was the way of life of which all the social factors were comprised. In brief, it represented morals and virtue.

Thus, this traditional education did not have a complicated organization, as it usually involved a family or, in a community, small groups of children. It developed on the basis of ballads, folksongs, folklores,

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[7] Ibid.

[8] Ích, op. cit., pp. 41f.

riddles, etc., which stemmed from a dialect far different from the Chinese language and its many dialects. Oral instruction was the unique method of teaching, and memorizing and observation were strictly the way of learning.[9]

The Mandarin Education

Deeply rooted in the long period of the Chinese domination, this educational system developed in two major ways. (1) During the Chinese domination, Chinese governors stationed in Vietnam made every effort to disseminate Chinese customs and manners among the local people and to maintain governmental rules. (2) During the reign of the last five successive Vietnamese dynasties Đinh, Lê, Lý, Trần, and Nguyễn, from 923 A.D. to 1855 A.D. and before the coming of the European, the Vietnamese society was structured upon the Confucian patterns which required of the leaders and governors a high degree of learning in Confucianism, Taoism, and Buddhism. Thus, the recruitment of governors and mandarins was based strictly upon severe competitive mandarinal examinations. The mandarin educational system therefore served neither the majority of people nor the local region, but the whole kingdom as

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[9]For more details on the traditional education see: Louis Cury, "La Société Annamites, les Lettres, les Mandarins, le Peuple" (Thèse de Doctorat d'État Ès-Lettres, Université de Paris, 1910); Lê Thành Khôi, Le Vietnam--Histoire et Civilisation (Paris: Les Éditions du Minuit, 1955); Bửu Dưỡng, "The Confucian Tradition in the History of Vietnamese Education" (unpublished Ph.D. dissertation, Harvard University, 1958); Trai, op. cit.; Ich, op. cit.

conducted by the philosophy of Confucius and Buddhism. This education "was mainly in the hands of Buddhist monks, who trained and recommended candidates for the service of the state."[10]

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[10]Vũ Tam Ích, op. cit., p. 29; Phạm Quỳnh, "L'évolution intellectuelle et morale des Annamites depuis l'établissement du Protectorat français," Revue du Pacific, VI (Octobre, 1922), 26. This author wrote:

> . . . Et de fait, c'était un enseignement purement scholastique, comme le fut celui des peuples d'Occident du Moyen Age. Il consistait en des commentaires de vieux textes, en des gloses et des exégèses, en des amplifications littéraires sur des sujets déterminés, en des exercices de rhétorique et de mémoires. C'était subtil, c'était compliqué, c'était fastidieux. Aucune ouverture sur la vie et la réalité; du formalisme, du verbalisme, de la rhétorique, de la littérature. Et c'est cet enseignement qui a formé durant des siècles des centaines de générations d'hommes dans notre pays, de ces hommes qu'on appelle des "lettrés," des humanistes, et qui constituaient jusque dans ces derniers temps la seule élite intellectuelle annamite.
>
> La sanction de cet enseignement, ce sont les concours littéraires, ces fameux concours dont vous avez déjà entendu parler et qui sont tant vantés par les Auteurs Européens comme un des modes plus rationnels, les plus démocratiques pour choisir les hommes capables de remplir les fonctions publiques: le mode le plus rationnel, parce qu'il paraît exclure toute incompétence, tout favoritisme, et ne laisser entrer dans la carrière que des hommes instruits, c'est-à-dire capables; le mode le plus démocratique, parce que n'importe qui,à quelque condition sociale qu'il appartienne, s'il subit avec succès les concours, est admis à remplir les fonctions publiques et susceptible d'atteindre les plus hautes positions. En réalité, c'est une utilisation abusive, une exploitation au profit de l'autocratie des principes du confucianisme, c'est un puissant instrument de domination entre les mains des rois, et c'est, au point de vue intellectuel, le plus formidable asservissement de l'intelligence qu'on ait jamais connu dans l'histoire de l'Humanité. Car le confucianisme, ne content d'être une morale et une philosophie, veut être surtout une politique, la seule politique capable de rendre les hommes heureux sous un Gouvernement patriarcal et dans les cadres immuables d'une société fortement hiérarchisée.

Schools were well organized at the elementary educational level because a large student body attended advanced classes offered by unsuccessful aspirants for the mandarinal examinations.[11] This school organization was meant to respond to the needs of the people since education was widely recognized as a family and/or village responsibility:

> First, it was linked to the mandarinate, which meant emancipation from manual labor, a good livehood, and social distinction.
>
> Secondly, learning was highly esteemed, if not worshipped, by almost all of the Vietnamese people, who conceived the scholar as a man who had absorbed the wisdom and knowledge of the ancient sages or Holy Sage (Thánh-Hiền) . . . [12]

At the graduate level, education assumed the duty of selecting and preparing candidates for the mandarinal examinations,[13] the purpose of which was strictly to select from the elite group a few laureates for future imperial nominations.

Examinations were organized on four levels, according to the degree awarded:

1. The Provincial Examination (Thi khoa) was held every six months in the provinces and aimed "to

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[11] Bửu Dưỡng, op. cit., pp. 28f.

[12] Ích, op. cit., p. 31.

[13] Trai, op. cit., p. 71ff; Bửu Dưỡng, op. cit., pp. 37ff; Ích, op. cit., p. 36.

eliminate unprepared students from the list of candidates to the mandarinal examination."[14] No degree was granted to the candidate passing this examination, but he was exempted "from all military and corvée services for six months or one year, in accordance with the grades [he] received."[15]

2. The Regional Examination (Thi hương) was held in designated provinces every four years. It consisted of three or four progressive examining sessions, each session being itself an eliminatory examination. Candidates taking this examination were selected from among students who had passed the Provincial Examination.[16] Laureates of the Regional Examination were classified in order of merit into (1) cử-nhân (The Rising Man) or (2) tú-tài (The Blossomed Talent)[17] and might be appointed as junior mandarins-teachers, if they were awarded the degree of cử-nhân. The degrees of cử-nhân and tú-tài in the mandarinal system were not equivalent to the cử-nhân or

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[14] Ibid., p. 37.

[15] Ibid.

[16] Vũ Tam Ích noted that "as a rule, actors, shoemakers, dyers, and the like, were not allowed to compete for the mandarinate, since their occupations were regarded as degrading. This custom fell into disuetude toward the end of nineteenth century."

[17] Ibid., p. 38; Bửu-Dưỡng, op. cit., p. 22.

licence awarded by modern Vietnamese universities or to the tú-tài or baccalauréat, a degree for high school graduation. However, most Vietnamese authors often referred to the ancient titles as, respectively, Master's and Bachelor's degrees.[18]

3. The General Examination (Thi hội) was held in the capital the year following the Regional Examination, every four years. Candidates aspiring to this examination were required to hold the degree of cử-nhân. However, a few outstanding tú-tài and meritorious scholars presented by the National Academy (Hàn-lâm Học-viện) were also eligible to take this competitive examination.[19] The purpose of this General Examination was to recommend doctoral students whose names were listed in this examination's Main Tablet (Chánh-bảng) and to select qualified heads of prefectures or districts whose names were posted on the Supplementary Tablet (Phó-bảng).

4. The Court Examination (Thi Đình) was held in the Imperial Palace at irregular times. Its purpose was to choose from among the laureates of the General Examination the First Three Laureates (Tam-khôi) whose essays' merit made them top graduates or Doctors of the First

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[18] Ibid., p. 46; Ích, op. cit., p. 38.

[19] Ibid.

Grade (Tiến-sĩ Cập-đệ), as distinguished from Doctors of the Second Grade (Tiến-sĩ Xuất-thân) and Doctors of the Third Grade (Đồng Tiến-sĩ Xuất-thân).[20] The examination consisted of only one essay on a topic selected by the monarch, "who was also the final authority in the grading of examinees."[21]

The French Colonial Education

The national life in Vietnam began to westernize with the coming of the European. In 1856 Napoleonic troops invaded Vietnam, and the Vietnamese imperial government was forced to conclude the treaty of 1874 that provided for placing Vietnam under French control.[22]

Thus, education alone could not remain as it had been before. The rapid change in Vietnamese education from the mandarin system to the colonial pattern was understandable, since the new educational system apparently appeared much more liberal and updated. The possible major causes for change were:

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[20]For more information on the Mandarinal Examinations, see: Trần văn Giáp, Historique des Concours Triennaux des origines à 1918 (Hanoi: Imprimerie du Nord, 1941).

[21]Ích, op. cit., p. 39.

[22]Kim, op. cit., pp. 518f.

1. The awareness by the Vietnamese people of the western world's progress in technology and science, as symbolized by the French forces overcoming the old-fashioned Vietnamese imperial army;

2. The creation of the quốc-ngữ (the national language or the actual Vietnamese language), a latinized transcription of the Vietnamese writing, which appeared much easier to study than any other old "scholars' language,"[23] which relied too much on the Chinese language;[24]

3. The favoritism and encouragement by the French colonial government of the learning of the young Vietnamese people who were willing to serve the colonial regime.[25]

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[23]Ích, op. cit., p. 90.

[24]Bửu Dưỡng, op. cit., pp. 111f; Joanne Marie Coyle, "Indochinese Administration and Education: French Policy and Practice" (unpublished Ph.D. dissertation, Fletcher School of Law and Diplomacy, Tufts University, 1963), p. 517; Auguste Rivoalen, "L'oeuvre française d'Enseignement au Vietnam," France Asie, XIII, Nos. 125-126-127 (Décembre, 1956), 402; Đoàn văn An, op. cit., p. 38.

[25]Vũ Tam Ích, op. cit., p. 91; Edgar N. Pike, op. cit., p. 103; Đoàn văn An, op. cit., p. 40; René Fauchois, "L'enseignement au Cambodge, au Laos et au Sud-Vietnam," L'Afrique et L'Asie, Nos. 85-86 (1969), p. 53.

Thus, the development of colonial education under the French protectorate proceeded rapidly in the Southern region of Vietnam,[26] then considered as French overseas territory. A bill presented by Le Myre de Villers in 1880 promoted free public elementary education and creation of at least one primary school in each county or populated district.[27] The complete development of a modern educational system patterned after the western model was then referred to the General Governor Albert Sarraut, [28] whose educational work culminated in the establishment of a university in Indochina.[29]

An important shift in Vietnamese education was marked in secondary education with the opening of parallel French and French-Vietnamese high school systems. French high schools or lycées were originally designed for French children and other foreigners, such as Japanese and Filipinos, and a few pretentious Vietnamese.[30] Curricula in these secondary schools were of two types: the

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[26]Nguyễn Thành Giung, "Vietnam in Contact with French Culture," Asia, III, No. 9 (1953), 74.

[27]Fauchois, op. cit.

[28]Ibid.; Rivoalen, op. cit., p. 403.

[29]Ích, op. cit., p. 76; Coyle, op. cit., p. 78; Falk, op. cit., p. 1.

[30]Rivoalen, op. cit., pp. 404ff; Fauchois, op. cit., p. 53.

curriculum in French lycées designed for European pupils respected the program of study in France's high schools, while the curriculum adopted in French-Vietnamese collèges was adapted to local conditions and led to the Indochinese baccalauréat,[31] later recognized as equivalent to the French baccalauréat awarded to graduates from French lycées.

Examinations were as severe as in the old mandarin system.[32] Vũ Tam Ích reported that in 1937, in the whole Indochinese Union:[33]

- out of 18,288 candidates, only 7,822 were successful in the examination for the Certificate of Indochinese Primary Studies (Văn-bằng Tiểu-học Đông-dương);
- out of 2,660 candidates, only 646 passed the examination for the Diploma of Indochinese Higher Primary Studies (Văn-bằng Cao-đẳng Tiểu-học Đông-dương);
- and only 338 boys and 27 girls reached the final grade of secondary school education.

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[31] Ibid., p. 54; Rivoalen, op. cit., p. 405; Ích, op. cit., p. 75.

[32] Rivoalen, op. cit., p. 404.

[33] Ích, op. cit., p. 75.

This selectivism was endorsed by a series of competitive examinations spreading throughout the formal education leading to the licence (cử-nhân). To be qualified for the completion of elementary education, a pupil had to pass a written examination for which he was awarded a Certificate of Regional Elementary Education (Văn-bằng Sơ-học Yếu-lược) with French major.[34] To move up to the next cycle of studies, he had to pass a competitive entrance examination to the fourth grade, which consisted of two one-year levels: the first year intermediate grade (cours Moyen première année) and the second year intermediate grade (cours Moyen deuxième année). If the pupil was successful in the examination, he was admitted to the cours Moyen deuxième année; if he failed, he followed the cycle of primary studies for three years, whereas his lucky friend spent only two years before taking the examination for the Certificate of Indochinese Primary Studies. The pupil qualified for this certificate had to pass a series of eliminatory written and oral examinations.

To be admitted to the first cycle of secondary education, holders of the certificate of Indochinese Primary Studies competed in a sixth-grade entrance examination. If they failed, they were allowed to

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[34] P. Antoine, "L'Enseignement," Bull. des Amis du Vieux Huế, I, II (Partie IV, Janvier-Juin, 1931), 181.

repeat one year in the elementary school in an intermediate class between the fifth and sixth grades (lớp Tiếp-liên), where they were prepared for the next year's examination. Those who were unfortunate for a second time were asked to leave the school forever.

At the end of the ninth grade, which ended the first cycle of secondary studies, students ought to take the examination for the Diploma of Indochinese Higher Primary Studies (Văn-bằng Cao-đẳng Tiểu-học Đông-dương), which in 1955 was replaced by the Diploma of First Level of Secondary Education (Văn-bằng Trung-học Đệ-nhứt-cấp). Prior to 1940, holders of these diplomas were highly esteemed since the degree was recognized by the majority of Vietnamese as the hardest one to earn.[35] Hence, since there were not many students pursuing their formal education as far as the twelfth grade for the purpose of high school graduation, the Diploma might secure them an administrative appointment as well as admission to certain schools at the University of Hanoi.[36]

For those who sought higher education either in their country or in France, the First Baccalauréat (Tú-tài I) and the Second Baccalauréat (Tú-tài II) were required at the end of the eleventh and the twelfth

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[35]Ích, op. cit., p. 75.

[36]Antoine, op. cit., p. 84.

grades. Both the baccalauréat examinations consisted of a series of written and oral examinations, the written examination being an eliminatory one. Holders of the Second Baccalauréat were admitted into the university without any entrance examination, except for entrance into professional colleges, e.g., College of Medicine, College of Dentistry, College of Pharmacy, College of Education, College of Agriculture, College of Architecture.

Examinations and organization of public education in French-controlled Vietnam might be summarized in Figure 3.1.[37]

The Present Education

Today's education in Vietnam was characterized as being of a "two-tracked nature," planning to educate the people and to train leaders[38] and reflecting a somewhat

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[37]For further information on French colonial educational system, see: Thomas E. Ennis, French Policy and Developments in Indochina (Chicago: University of Chicago Press, 1936); Pierre de la Brosse, La Diffusion de l'Enseignement populaire en Indochine (1924-1925) (Hanoi: Imprimerie d'Extrême Orient, 1925); Abel Lahille, De l'Enseignement du Français en Indochine (Saigon: Imprimerie Nouvelle Albert Portail, 1919); H. Le Breton, Le Problème Scolaire en pays d'Annam (Huế: Imprimerie Độc-lập, 1932); M. Richome, "De l'Instruction publique en Indochine" (unpublished Thèse de Doctorat d'état en Droit, Faculté de Droit, Université de Paris, Paris: La Rose, 1905); E. Roucoules, Étude sur l'Instruction Publique en Cochinchine (Saigon: Imprimerie Rey et Curiol, 1889).

[38]Falk, op. cit., p. 1; Pike, op. cit., p. 84.

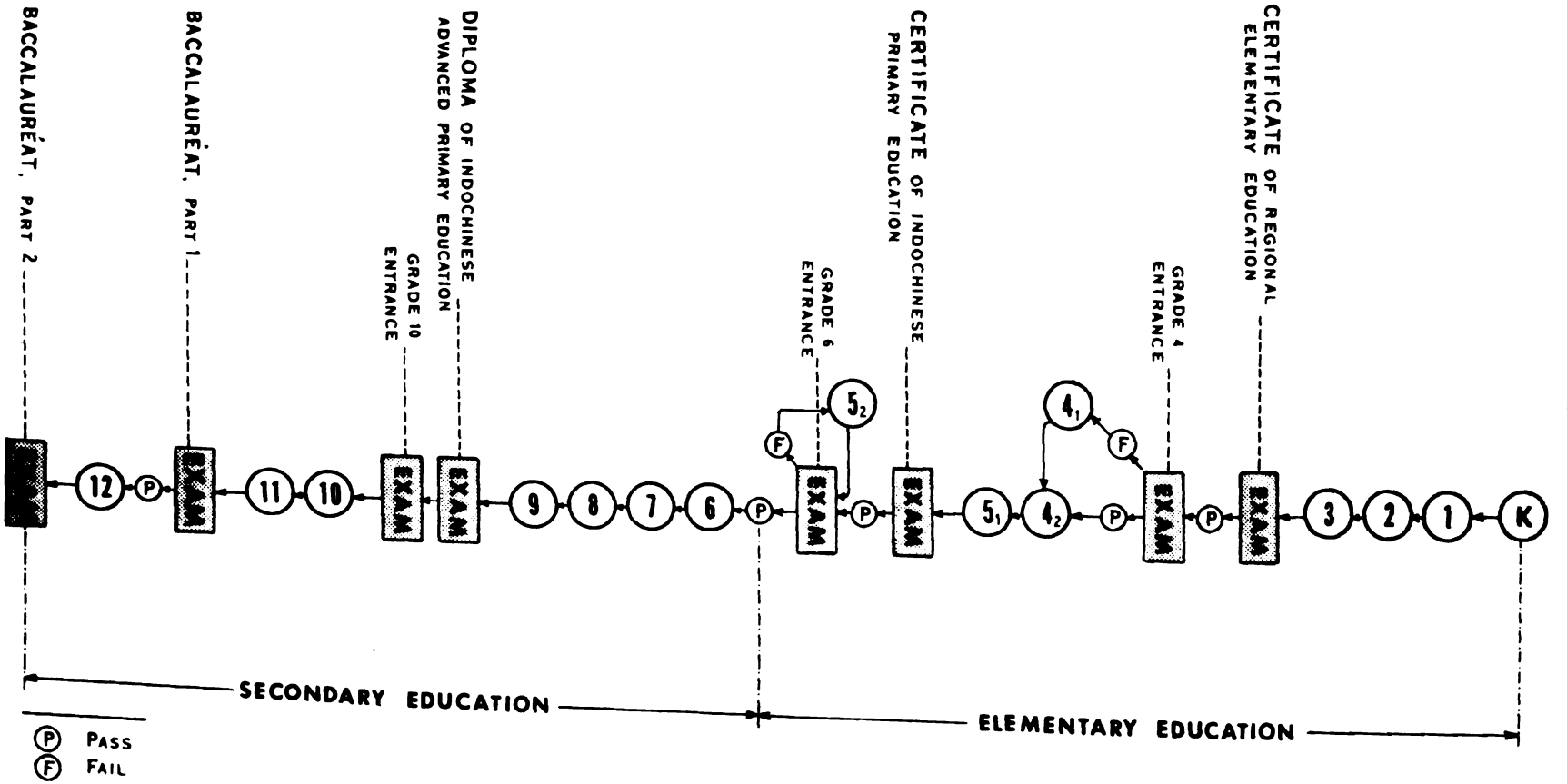

FIGURE 3.1.--Organization of public education and types of examinations (up to high school graduation) in French controlled Vietnam.

common opinion that considered education as "an effective weapon to serve the political aims of whoever was in power."[39]

From 1940 up to the present, general tendencies toward improvement of the Vietnamese educational system corresponded to five short periods in political activities: (1) 1940-1954, (2) 1954-1957, (3) 1957-1963, (4) 1963-1967, and (5) 1967-1971. The first period corresponded to the French reinstatement; the second followed the Geneva Conference; the third was known as Ngô Đình Diệm's regime; the fourth marked a period of political turmoil and troublesome economy; and the fifth designated an alternative at the crossroad.[40]

As general headings, the following topics regarding present education were worthy of consideration.

Educational objectives.--After the French were defeated at Điện-Biên-Phủ, and as a consequence of the Geneva Conference, Vietnam was divided into two parts. South Vietnam was facing up to the problem of education in relation to its development and according to its

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[39]Võ Hồng Phúc, "Education in Vietnam," Phi Delta Kappan, IXL (December, 1957), 134.

[40]For more information on the political and social conditions in Vietnam after World War II, see Vũ Tam Ích, op. cit., Chapter X, pp. 98-119.

needs. That problem was the national education objective. Would it be an education for the elite or a mass education?

During Ngô Đình Diệm's regime, the definition of educational objectives was based upon his own social concept, which consisted of three principles: (1) humanist, (2) national, and (3) open:[41]

1. To respect the sacred character of human being, regarding man as an end in himself, and aiming at his full development.
2. To respect the national values, assuring the continuity of man with his natural environment (his family, profession, and country) aiming at safeguarding the nation, its prosperity, and the collective promotion of its people.
3. To respect the scientific mind as a factor of progress, attempting to develop the social and democratic mind, and welcoming all the authentic cultural values of the world.

When Diệm's government was overthrown, his third principle of education was changed from "open" to "scientific," and the objectives of national education were redefined by the National Education Conference of 1964 as follows:

1. To create favorable environments and opportunities for every citizen to make progress according to his ability and aspirations.
2. To train cadres needed for every living branch of the nation.

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[41] Pike, op. cit., pp. 86f; Ministry of Education, Situation and Progress of Education in Vietnam during the School-Year 1958-1959 (Saigon: Ministry of Education, 1959).

These objectives, recently endorsed by the 1967 Constitution (Article 10), were reformulated on the basis of mass education in the following terms:

1. The State recognizes freedom of education.
2. Basic education is compulsory and free of charge.
3. Talented persons who do not have means shall be given aid and support to continue their studies.
4. The State encourages and supports research and creative work by citizens in the fields of sciences, letters and arts.

Apparently the present educational objectives were well defined. However, practically speaking, the educational organization and process and the curriculum at all levels--still structured on foreign patterns and mandarinal ideas--were really the obstacles to moving toward the national education.

Educational administration and organization.--Administration and organization were two major weaknesses which truly hindered the development of the national education. During the last two decades, all three levels of formal education suffered from the bureaucratic process in the Ministry of Education, while schools had to meet with the rapid growth of student enrollment. As commonly thought, the centralization of the educational system in Vietnam had more disadvantages than advantages,[42] because (1) no one alone could efficiently supervise or advise a nation-wide system of education, and anyone who

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[42]Phúc, op. cit., p. 134.

did try to undertake it himself would do but little, and that little ill,[43] and (2) private initiative at the local level, e.g., local boards of education, community schools, was discouraged while, due to lack of funds, the Ministry could not adequately satisfy the demands of all school levels (Table 3.1). Thus, the complexity of the present educational organization was a consequence of the lack of an educational philosophy.[44] The strength of an educational system should not be measured by the number of schools in villages and provinces, by student enrollment, by centralized organization, or by the powerful authority of the central agency but, rather, by its effectiveness in promoting the learning of the people and the intellectual growth of all citizens.

With huge expenses and the government's major efforts concentrated on the war, it was not easy for a country like Vietnam to identify the educational priorities at the moment, unless the nation's leaders really understood and recognized that development and reconstruction in Vietnam should be conceived not in a

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[43]Charles W. Eliot, "Inaugural Address," Harvard University, October 19, 1869, p. 39.

[44]Hoàng Gia Linh, "The Critical Stage of Education in Vietnam," The National Elementary Principal, XLIV, No. 4 (February, 1965), 50f; Nguyễn Quý Bổng, op. cit., pp. 87f.

TABLE 3.1.--National education budget.

Year	National Budget (in 1,000 piasters)	National Education Budget (in 1,000 piasters)	Percentage
1954	5,410,339.0	42,883.3	0.79
1955	5,112,084.0	102,542.9	2.01
1956	13,625,856.0	423,335.9	3.11
1957	14,159,990.0	533,497.3	3.77
1958	14,375,019.0	612,028.2	4.26
1959	15,276,000.0	811,434.0	5.31
1960	14,778,000.0	846,000.0	5.73
1961	14,985,000.0	932,487.0	6.22
1962	11,271,000.0	1,161,253.0	10.30
1963	15,000,000.0	1,326,392.0	8.85
1964	26,500,000.0	1,497,389.0	5.65
1965	51,270,000.0	2,547,091.0	4.97
1966	55,000,000.0	2,657,438.0	4.83
1967	75,000,000.0	4,050,000.0	5.40
1968	111,000,000.0	5,751,455.0	8.18
1969	145,534,224.0	6,703,399.0	4.60
1970	177,847,187.0	8,015,664.0	4.50
1971	235,000,000.0	11,254,099.0	4.78

Source: Official Data.

pacification program[45] but in a three-fold plan: education-social organization-economic.[46]

Thus, at the present time education in Vietnam should establish priorities among its problems to insure proper actions. Those problems are of paramount importance in determining the success of national development planning: (1) education and the development of rural life, (2) education and the development of the family budget and the community's economy (and hence the national economy), and (3) education and the intellectual growth of the youth, thus promoting better communication and understanding among Vietnamese people, so far disunited as a result of a colonial policy and a long struggle for ideological supremacy.

One high priority problem was the hamlet school program established in the fifties. Hamlets and villages, or in general terms the rural areas, were long neglected areas. As long as elementary schools were largely devoted to literacy goals and as long as educational effort in the village existed especially and completely for children, the hamlet school program remained an

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[45]Joint Development Group, op. cit., Vol. II.

[46]Lê Thành Khôi, "Éducation et Développement en Asie Orientale," in De l'Indépendance politique à la liberté économique et à l'égalité sociale en Asie du Sud-Est (Bruxelles: Université Libre de Bruxelles, Éditions de l'Institut de Sociologie, 1966), pp. 165-72.

obstacle to educational development. Thus, when fundamental rural problems such as health, sanitation, elementary agriculture, crop protection and production, and, most important of all, insecurity due to the fight for influence and supreme power--when these problems became pressing and urgent, the village and its needs certainly determined the goals of education, and not because education was to contribute substantially to the broadening of national goals. This revolutionary education would treat the villager's problems the way they actually existed in the village, and therefore the hamlet schools would become a true national service unit.[47]

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[47]For more information on the present education in Vietnam, see: Nguyễn Đình Hoan, "Education in Free Vietnam: An Informative Source for the Evaluation of Vietnamese Students' Credentials" (unpublished Ed.D. dissertation, Columbia University, 1963); Mai văn Tâm, "The Education of Teachers in Vietnam" (unpublished Ph.D. dissertation, The Catholic University of America, 1964); Bổng, op. cit.; Đoàn Hữu Khánh, "A Proposed Program for the Preparation of Elementary Teacher Educators in the Republic of Vietnam" (unpublished Ph.D. dissertation, University of New Mexico, 1968); Dương Thiệu Tống, "A Proposal for the Comprehensive Secondary School Curriculum in Vietnam" (unpublished Ed.D. dissertation, Columbia University, 1968); Lê Thanh Việt, "Education in Vietnam: Recent Development, Crucial Issues, and Suggested Reforms" (unpublished M.S. thesis, University of Tennessee, 1967); Nguyễn Đức Kiên, "A Design for the Evaluation of Student Progress in Vietnamese Secondary Schools" (unpublished Ph.D. dissertation, Syracuse University, 1969); Khê, op. cit.; Nguyễn văn Hai, Education in Vietnam: A Study in the Light of Objectives of Permanent Education (Huế, Vietnam: University of Huế, 1970).

The Development of Higher Education

In its early history, higher education in Vietnam was not more than an extended colonial secondary education. The ideas for creating an educational system "higher" than secondary education were worthy of mention among a few liberal French governors and administrators only after French colonial government was successful in establishing its educational system at the elementary and secondary levels. The ideas were endorsed by earlier valuable studies and significant reports: Dumoutier (1886),[48] Besancon (1889),[49] Roucoules (1889).[50] Hence, by 1898, the General Governor Paul Doumer permitted the creation of a medical school in Indochina. It was only in principle,[51] however, as the school did not come into being until 1902.[52] Thus, the years preceding the 1900's were marked by a vacillating administrative policy on the part of the French colonial Government regarding the inception of a university in Indochina.

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[48]Dumoutier, M. G., Les Débuts de l'Enseignement français au Tonkin (n.p.), 1886.

[49]Jules Besancon, Rapport sur l'enseignement en Indochine (Nevers, France: Imprimerie P. Begat, 1889).

[50]Roucoules, op. cit.

[51]Rivoalen, op. cit., p. 407.

[52]Ích, op. cit., p. 71; Pike, op. cit., p. 92.

The historical development of higher education in Vietnam generally consisted of five stages, each stage being influenced by both economic crises and political policy: (1) 1900-1917, (2) 1917-1930, (3) 1930-1945, (4) 1945-1957, and (5) 1957-today.

The Period 1900-1917

The idea of establishing higher education in Indochina was carefully reconsidered by Governor Paul Beau, since the French Indochinese General Government was awakened after the Japanese victory over the Russians in 1905 and since France was endangered by the rapid growth of Central Powers (Germany-Austria-Hungary, etc.).

In 1902, a School of Medicine was created in Hanoi and offered training for médecins auxiliaires or médecins indochinois (assistant physicians), a degree which was not fully entitled to the rank of M.D.[53] This embryonic Faculty of Medicine was a primitive clinical services center operating since 1900 at a provisional hospital on the boulevard Armand Rousseau in Hanoi.[54] In 1904, this Medical School, to which were

[53]Indochine Française, Direction Générale de l'Instruction Publique, Le Service de l'Instruction Publique en Indochine en 1930 (Hanoi: Imprimerie d'Extrême Orient, 1930), p. 106; Ích, op. cit., pp. 70f; Coyle, op. cit., p. 55.

[54]Falk, op. cit., p. 55.

added the sections of midwifery and veterinary science,[55] acquired from a French Catholic Mission a hospital for practical training. This hospital was originally named Hôpital du Protectorat and later changed its name to Hôpital Yersin.[56] The School of Medicine grew with the addition of the Ophtalmology Institute and the building of a new hospital designed for medical teaching and practices at Bạch-Mai (Hanoi's suburb) in 1917.[57]

Those initiatives which were much favored "to the demands of a small group of Vietnamese, eager for more advanced instruction in the western tradition than then available in the colony,"[58] concluded in an arrêté of the General Government of May 16, 1906, which provided for the opening of the Indochinese University with three sections--Letters, Sciences, and Laws--the School of Medicine not being incorporated into the University.[59]

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[55] Ích, op. cit., p. 71.

[56] In commemoration of Dr. Alexandre Yersin, discoverer of the plague baccillus, great French pioneer, scientist and educator, founder and first director of this Medical School.

[57] Rivoalen, op. cit., p. 407.

[58] Coyle, op. cit., p. 55.

[59] C. Mus, "La première université indochinoise, 1907," Bull. Gén. de l'Instruction Publique (Mai, 1927), pp. 66ff; René Fauchois, op. cit., p. 54.

> The University was inaugurated on November 10, 1907, with 74 students, a number which soon dropped to 68, 62 auditors, and 37 students in the Medical School. By the end of the only year of its existence, there were 41 students, including 19 school teachers, 17 government secretaries or interpreters, and three people privately employed. Sixteen of these studied sciences, 14 letters, and 11 law.[60]

The causes for the sudden opening and closing of the Université Indochinoise were self-explanatory:

> After the Russo-Japanese war, a number of Vietnamese youths went abroad to study. Japan particularly attracted them, since she had just risen as a great western-style power. In an effort to stop this exodus of students who might get revolutionary ideas and thus endanger the French position in Vietnam, the French administration created the Indochinese University at Hanoi in 1907. The following year was marked by many nationalistic agitations, which resulted in the shutting down of this embryonic institution of higher learning. Only the school of Medicine was retained, and in 1914 a section of pharmacy was added to it.[61]

Thus, the pretentious aim of spreading French culture and western science in the Far East and South East Asia through the French language,[62] was unsuccessful as

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[60]Coyle, op. cit., p. 56.

[61]Ch. Fourrier Vailly reported that Mr. Métin, a member of the Chamber of Deputies of the Third French Republic wrote in his report on local budgets in French Colonies in 1911 as follows: "The indigenous movement in 1908 resulted in a reaction against our attempts in 1906. Some indigenes revolted, as one may say, because we have educated them; so, we shall stop doing so." [Translated] "L'Enseignement Professionel en Indochine et notre politique indigène," L'Asie Française, CLIX (Juin, 1914), 241; Vũ Tam Ích, op. cit., p. 71.

[62]Abel Lahille, op. cit., p. 1; Ch. Fourrier Vailly, op. cit., p. 240.

World War I broke out, bringing to the French colonial government more urgent problems than that of higher education. Only the change in the Indochinese governorship in the fall of 1916 could fully restore the Indochinese University.

The Period 1917-1930

Upon his return to Indochina as General Governor, Albert Sarraut restudied the problem of the Indochinese University and then insisted upon its reopening. In his speech delivered at the opening session of the Government Council in Saigon, he underlined it in a clear-cut argument that concluded in the arrêté of July 8, 1917, providing for the opening of the University of Hanoi.[63] However, French administrative policy in Indochina did not change, since later in an administrative memorandum the Governor conceived of education as nothing more than a means to better exploit the potential productivity in the colony.[64] To this educational concept, French

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[63]Albert Sarraut, "L'Indochine en 1917" (discours prononcé à la séance d'ouverture de la session ordinaire du Conseil du Gouvernement à Saigon), Revue Indochinoise, XXVIII, Nos. 11-12 (Novembre-Décembre, 1917), 325.

[64]In an administrative memorandum dated from Paris, October 10, 1920, Albert Sarraut wrote: "L'instruction a d'abord pour effet d'améliorer largement la valeur de la production coloniale, en multipliant dans la foule des travailleurs coloniaux la qualité des intelligences et le nombre des capacités; elle doit, en outre, parmi la masse laborieuse, dégager et dresser les élites d'auxiliaires qui, comme agents techniques, contremaîtres, surveillants, employés ou commis de direction,

educators reacted favorably, as higher education was not much more to them than an extended high-school education or vocational training.[65] To many French leaders in Indochina, the University of Hanoi merely represented the center for diffusion of French ideas and culture among Vietnamese and the oriental as well:[66]

> In higher education, all preoccupations concerning disinterested scientific research, the advancement of human knowledge, were excluded [Translated].[67]

On April 28, 1918, a solemn inauguration presided over by both the General Governor Albert Sarraut and the Emperor of Annam marked the opening of the University of Hanoi.[68] The arrêté of July 8, 1917, which

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suppléeront à l'insuffisance numérique des Européens et satisferont à la demande croissante des entreprises agricoles, industrielles ou commerciales de colonisation." L'Asie Française, CIIXC (Janvier, 1921), 23-24.

[65]Abel Lahille, op. cit., p. 33, stated: "En principe, aux colonies, pas d'écoles trop supérieures, mais des écoles pratiques. Les élèves présentant des facultés vraiment remarquables iraient développer ces qualités dans les lycées de France, soit à leur frais, s'ils sont riches, soit aux frais de la colonie, s'ils sont pauvres. Bien entendu, on aurait le devoir de suivre ces élèves dans leur développement et leur donner, au retour, une situation en rapport avec leur intelligence, leur mérite et leur application.

[66]Edouard Marquis, "L'enseignement en Cochinchine," Revue du Pacifique, VII, VIII (Juillet-Août, 1935), 463.

[67]Edmond Chassigneux, "L'Université de Hanoi," L'Asie Française, CXCVI (Novembre, 1921), 407.

[68]Ibid., p. 408.

determined the creation of certain schools within the University of Hanoi, was added to by the arrêté of December 25, 1918, which stated the general organization of the university. Hence, the University included the following schools: School of Medicine (1902), which later acquired the section of Pharmacy and the Institute of Opthalmology and was renamed School of Medicine and Pharmacy (1914), School of Public Works (1902), School of Veterinary Science (1904), School of Law and Administration (1917), School of Agriculture and Forestry (1917), School of Pedagogy (1917), School of Commerce (1920), and School of Fine Arts (1920).[69]

> It must be noted, however, that in spite of its pretentious name, the Indochinese University was not the equivalent of the French universities, which did not recognize the diplomas granted.[70]

The reason was that most students admitted to the University did not complete their high school education, as they only came up to the ninth grade with one of the following diplomas: Diplôme d'Études Supérieures Indochinoises, Brevet Élémentaire, and Brevet d'Enseignement Primaire Supérieur. In certain schools, i.e., School of Public Works, School of Veterinary Science, the ninth

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[69]Coyle, op. cit., p. 83.

[70]Ích, op. cit., p. 72.

grade diploma was not required as students had only to pass a competitive entrance examination.[71]

Beginning in the academic year 1920-1921, it was noted, the University received more students than in the reopening of the institution of higher education in 1917.[72] The records were shown in Table 3.2. Students were coming from all parts of the Indochinese peninsula, among them a few "coeds" in the School of Pedagogy and a few Cambodian, Laotian, and Chinese--twenty Chinese students enrolled in the School of Medicine in 1920. The majority were Vietnamese students, but most of them were originally from the north and center of Vietnam. Hence, this institution of higher education might have been called Vietnamese University. It was recognized that Vietnamese students made remarkable progress in their studies, showing both their talent and their capability in pursuing higher education. French educators often affirmed that Vietnamese students were successful in competing with French students in any entrance examination into "Grandes écoles," including the École Polytechnique in France.[73]

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[71]Chassigneux, op. cit., p. 409.

[72]Jean B. Alberti, L'Indochine d'Autrefois et d'Aujourd'hui (Paris: Société d'Éditions Géographiques, maritimes et coloniales, 1934), pp. 696ff; Ennis, op. cit., pp. 162ff; Virginia Thompson, French Indochina (London: George Allen and Unwin, Ltd., 1937), pp. 284ff.

[73]Chassigneux, op. cit., p. 408.

TABLE 3.2.--Student enrollment in the University of Hanoi (1917).

School	Enrollment
School of Medicine:	
Medical section	104
Pharmacy section	14
School of Veterinary Science:	51
School of Public Works:	103
School of Law and Administration:	107
School of Pedagogy:	
Science section	17
Letters section	36
School of Agriculture and Forestry:	29
School of Commerce:	28

The University functioned normally until 1930 when the Revolution of Yên-Bái (in North Vietnam) broke out, and World War II as well. French General Government in Indochina again changed its policy in higher education, as the Vietnamese youth showed their interest in what was happening in Europe and particularly in France. The immediate consequence of that policy was that no graduate education would be given in most schools of the University, except the School of Medicine where the curriculum required seven years of study, including the preparatory year.[74] The licence was then considered as the highest

[74] In the early days of the opening of the School of Medicine, this preparatory year of medical studies consisted primarily of the program of studies of the P.C.N. certificate (Physics-Chemistry-Natural Sciences), which was later in 1940 renamed as the P.C.B. certificate (Physics-Chemistry-Biology). Students were required to pass this certificate for admission into the School of Medicine and Pharmacy.

diploma awarded by the University, because the "Vietnamese elite" were believed unable to reach or go beyond that degree.[75] The major reason remained the shortage of teaching staff,[76] however, and financial assistance to higher education was insufficient for the development of the University of Hanoi.

The Period 1930-1945

During this period, France was endangered by the expansion of the Axis' forces (Rome-Berlin-Tokyo) throughout Europe and South East Asia, as well. Evident repercussions in Indochina were severe as the world economic crisis spread over the entire colony.[77]

In education, the Thirties marked an important turn for the University of Hanoi. Two serious decisions were made in higher education, as indirect consequences of the foundation of the Indochinese Communist Party in 1930, led by Nguyễn Ái Quốc, later known as President

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[75]Marquis, op. cit., p. 462.

[76]Edmond Chassigneux, op. cit., p. 409 pointed it out as follows: "L'Université d'Hanoi n'a pas de professeurs titulaires, spécialisés dans des fonctions d'enseignement. Ses maîtres sont des chargés de cours, dont chacun fait un ou plusieurs cours par semaine dans l'une ou l'autre des Écoles supérieures. Ainsi, l'enseignement est en très grande partie donné par un personnel de techniciens et de spécialistes, dont le métier n'est pas d'enseigner."

[77]Coyle, op. cit., p. 81.

Hồ Chí Minh,[78] and of the Vietnamese Nationalist Party in 1927, directed by Nguyễn Thái Học.[79]

The first measure against the nationalist movement which was widely spreading through the Vietnamese youth, particularly the Vietnamese students in the University of Hanoi, was the abolition of most technical schools of the University. The second measure was the limitation of access to the University and requirement of the metropolitan baccalauréat for admission.[80]

However, these measures were excusable, since French General Directorate of Public Education wanted to upgrade higher education in Indochina. The action began with the strengthening of French high schools system in Indochina. The arrêté of February 11, 1930, determined a definitive and general status of all French lycées.[81] And the French baccalauréat of secondary education was taken as a standard requirement of all who wished to pursue education beyond high schools. Since then,

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[78]Jean Dorsenne, Faudra-t-il Évacuer l'Indochine (Paris: La Nouvelle Société d'Édition, 1932), pp. 56ff; Ich, op. cit., pp. 87ff.

[79]Ellen J. Hammer, The Struggle for Indochina (Stanford: Stanford University Press, 1954), pp. 82ff.

[80]Coyle, op. cit., p. 81.

[81]Rivoalen, op. cit., p. 406.

several schools of the University were renamed as faculties, as the curriculum was also reviewed and changed.

The first college to change its name was the Faculty of Law, inaugurated on February, 1933, as École Supérieure de Droit and placed under the academic control of the Faculty of Law in Paris. Later in 1939, a section of the senior year--the Section of Indochinese Juridictional Studies--was detached from the Faculty of Law and transformed into École Supérieure d'Administration. In 1941, when the Faculty was chartered to create the Graduate School with two sections in Civil Laws and in Economics and Politics and to award doctoral degrees, the name Faculty of Law was adopted and remained until the present day.

The second to change its name was the École Supérieure des Sciences. This school was created in 1942 merely to regularize the science section of the Indochinese University opened on November 10, 1907. The School was designed primarily to give instruction in biological and physical sciences to students who intended to enter the School of Medicine. However, at the end of World War II, the demand and awareness of scientific studies grew out of the development of the School itself as it was ready to reorganize to meet the needs of the Vietnamese youth. Unfortunately, the troubles in the early 1940's did not help the School to become the real Faculty of Science.

The third school worthy of mention was the École Supérieure d'Architecture. Founded in 1926 and then empowered in 1942, this School was finally recognized by the École Nationale des Beaux Arts in Paris in 1944. However, the School remained unchanged so its graduates might be allowed to continue their graduate work in France.

But, above all schools, the Faculty of Medicine stayed strong and systematically organized. In 1936, comprehensive examinations were organized to recruit agrégés professors for the Faculty.[82]

As a general repercussion of the events of March 1945, all Schools and Faculties of the University of Hanoi had to close their classrooms and laboratories. Higher education then underwent another period of tremendous activity and change.

The Period 1945-1957

Three major events influenced the turning of higher education in Vietnam during this period: (1) the surrender of Japan in August, 1945, followed by the solemn proclamation of independence of the Democratic Republic of Vietnam on September 2, 1945, (2) the disarming of Japanese forces south of the sixteenth parallel in the Indochinese peninsula by British troops which

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[82]Rivoalen, op. cit., p. 408.

favored the reinstatement of French power, completed in 1946, and (3) the defeat of the French fortress at Điện Biên Phủ on May 8, 1954, that concluded in the Geneva Conference, opened on April 26, 1954, and the appointment of Ngô Đình Diệm as Prime Minister on June 16, 1954.[83]

In general, the University of Hanoi did not make any progress during the decade, since, on the one side, Vietnam was tied up within the French Union by the agreements of March 6, 1946, and of March, 1949, and, on the other side, Vietnam was preoccupied with the fighting against the French expeditionary corps and its counterpart, the French-Vietnamese government headed by the ex-emperor Bảo-Đại. Several modifications were brought into the administration of the institution of higher learning, as the French-Vietnamese government considered it unsafe to rebuild a university in Hanoi. Hence, the idea of moving the University of Hanoi to Saigon was soon realized.

It was the Faculty of Science which first opened its few classrooms in Saigon in the Fall of 1946 as an

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[83]Bernard F. Fall, The Vietminh Regime: Government and Administration in the Democratic Republic of Vietnam (Ithaca, N.Y.: Southeast Asia Program, Department of Far Eastern Studies, Cornell University, 1954), pp. 1ff; Hammer, The Struggle for Indochina, pp. 271ff; Ellen J. Hammer, The Struggle for Indochina Continues--Geneva to Bandung (Stanford: Stanford University Press, 1955), pp. 4ff; Ich, op. cit., pp. 104ff.

annex of the École Supérieure des Sciences in Hanoi, which was temporarily closed from 1945 through 1948. In those early days, the School of Science shared both the facilities and faculty staff with the Faculty of Medicine, known as a Center for Medical Studies in Saigon, in a building of the Polyclinique Dejean de la Batie in Saigon. Until the academic year 1948-1949, the School had full activity, giving adequate instruction in the freshmen and sophomore years in biological, mathematical, and physical sciences. Foreign aid, mostly from France, was the main source for the development and growth of the laboratories of the School. The demands of the School for more instructional space caused it to outgrow the hospital building, and finally the annex of the Faculty of Science of the University of Hanoi moved into a section of the campus of Petrus Ky high school in Saigon.

The Center for Medical Studies still remained in the hospital Dejean de la Batie, serving as its administration office, but its classrooms and laboratories were in the hospitals Grall and Lalung-Bonnaire. The Center progressed rapidly and in 1954 became the Combined Faculty of Medicine and Pharmacy, the Odontology section being included in the Medical section.

The Faculty of Law, too, was soon moved to Saigon in 1947, but in Hanoi the Faculty of Law was re-established. These two Faculties functioned parallel to each

other until October, 1954, when the major section of the University of Hanoi completed its move to Saigon after the Geneva Conference.

Since 1949, a series of cultural conventions were held among French and Vietnamese authorities.[84] Finally, on October 12, 1953, the statute of the University of Hanoi was approved,[85] and the University then included these colleges:

(1) Faculty of Law

(2) Faculty of Science

(3) Combined Faculty of Medicine and Pharmacy

(4) Faculty of Letters

(5) School of Architecture

On May 11, 1955, the University of Hanoi, then known as the Combined French-Vietnamese University, was transferred to the Vietnamese government and its name was changed to the Vietnamese National University.

Two years later, the University of Hue, the second government-supported and controlled university, was created by Presidential order of March 1, 1957,

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[84]These Conventions were: (1) Conventions of March 8 and December 30, 1949, (2) Convention of May 30, 1950, and (3) Convention of January 8, 1951.

[85]For a partial translated text of this Statute, see Falk, op. cit., Appendix B, pp. 76ff.

and the Vietnamese National University adopted as its new name the University of Saigon.

The year of 1957 marked a turning point for higher education in Vietnam, as a private and church-related university--the University of Dalat--was approved October 25, 1957, to give instruction in the freshman year.

The Period 1957-Today

Higher education in the two recent decades undertook significant changes and improvements. The University of Saigon was strengthened with the addition and upgrading of Faculties. Up to the present days, it has the following Faculties:

(1) Faculty of Law
(2) Faculty of Medicine
(3) Faculty of Science
(4) Faculty of Letters
(5) Faculty of Pedagogy
(6) Faculty of Pharmacy
(7) Faculty of Dentistry
(8) Faculty of Architecture
(9) Institute of Oceanography (in Nha-Trang)

Its well-designed campus at Thủ-Đức (Saigon suburb) is not available yet, except the physical facilities for the Faculty of Pedagogy and the Faculty

of Science, so the eight Faculties are still sparsely spread throughout downtown Saigon and Cholon, in old buildings being planned for students' residence halls or military camps. In addition to lack of financial assistance (and, hence, tremendous demands on physical facilities and equipment), shortage of teaching staff, and failure to meet the needs of a modern society, the University of Saigon is finally confronting with the rapid growth of students' enrollment (Table 3.3).

Education at the university level in Saigon still remains undergraduate education, but graduate programs are recently attempted in a few faculties, i.e., Science, Law, Pharmacy, Pedagogy, and Letters. Doctoral programs exist occasionally on an individual basis, e.g., in the Faculty of Science only three doctor's degrees were awarded up to 1967.[86]

Apart from the University of Saigon, the University of Hue and the University of Cantho, which was inaugurated in 1966 following a widespread people's movement in the Mekong delta asking for the creation of a higher learning institution, were two state-financed universities that contributed much to the development of higher education in this country.

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[86]Viện Đại-Học Saigon, Chỉ-Nam Sinh-Viên Đại-Học Saigon [Saigon University Student Handbook] (Saigon: Viện Đại-học Saigon, 1970), p. 231; For more information on the University of Saigon, see: Joint United States Public Affairs Office (JUSPAO) Saigon, Field Message No. 52, August 23, 1969, 24p.

TABLE 3.3.--Enrollment in the University of Saigon.

Faculties		Academic Year													
		1957-1958	1958-11959	1959-1960	1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971
Faculty of Law	M	882	1288	1661	1925	2328	2484	3537	3424	4548	5927	6705	8057	9333	10733
	F	128	152	223	255	228	382	655	684	1033	1928	1650	2060	2868	3473
	T	1010	1330	1884	2180	2556	2866	4192	4108	5581	7955	8355	10117	12201	14106
Faculty of Medicine	M	561	660	776	832	911	1022	1046	1074	1025	1018	1040	1240	1184	1008
	F	56	70	83	88	106	114	114	120	127	139	139	216	221	235
	T	607	730	859	920	1017	1136	1160	1194	1152	1157	1179	1456	1405	1243
Faculty of Science	M	1071	1678	2203	3190	3044	3036	3517	3350	3523	3999	4147	4569	4500	5894
	F	99	180	279	362	339	352	447	516	693	831	903	1324	1400	2025
	T	1170	1858	2482	3552	3383	3388	3964	3866	4216	4830	5050	5893	5900	7919
Faculty of Pharmacy	M	161	162	204	419	743	945	972	1547	1362	1288	1253	1096	846	831
	F	157	170	237	405	538	888	1045	1373	1355	1307	1324	1168	1266	1006
	T	318	332	441	824	1281	1833	2017	2920	2717	2595	2577	2264	2112	1837
Faculty of Letters	M	595	891	1276	1890	2369	3117	2950	3873	4833	5337	5007	5404	5764	7847
	F	243	333	466	651	793	1233	1329	1603	2419	2545	2750	2778	5305	5458
	T	838	1224	1742	1541	3162	4350	4279	5476	7252	7882	7757	9182	11069	13305
Faculty of Pedagogy	M	99	374	482	468	522	529	645	651	539	584	485	420	491	592
	F	67	118	139	130	108	112	154	190	216	240	199	243	448	451
	T	166	492	621	598	630	641	799	841	755	824	684	663	939	1043
Faculty of Dentistry	M	69	95	87	121	149	80	69	69	127	110	123	124	106	121
	F	23	25	38	42	30	18	19	21	25	62	86	107	120	114
	T	92	110	125	163	179	98	88	90	152	172	209	231	226	235
Faculty of Architecture	M	112	206	239	352	396	435	445	503	741	1088	871	643	663	636
	F	2	6	7	13	12	14	20	34	53	53	48	27	27	27
	T	114	212	246	365	408	449	465	537	794	1141	919	670	690	663
Total		5315	6278	8400	10142	12616	14761	16964	19032	22619	26556	26730	30475	34542	40351

Key: M = Male students, F = Female students; T = Total enrollment.

Source: University of Saigon, Official data.

During the ten years that followed its inception in 1957, the University of Hue encountered many religious and political influences which did not favor its growth. The Revolution of November 1, 1963, overthrowing Ngô Đình Diệm's government, and his regime as well, and the 1968 Tết offensive brought to Hue both terrorism and discouragement that diminished the endeavour and will to build a good and strong community of scholars in the old imperial capital. Student enrollment at this university showed the effect of that unfortunate situation (Table 3.4). It was only under new leadership that the University of Hue could in the last two years show significant reforms in the university organization, e.g., registration and students' record keeping.

The University of Hue offered its courses through the following Faculties, each functioning quasi independently: Faculty of Letters, Faculty of Law, Faculty of Science, Faculty of Pedagogy, and Faculty of Medicine.

The University of Cantho, created under favorable conditions and situation, was known as the public institution of higher education that indicated radical changes in the university organization and administration, since "from the beginning, . . . its leadership has been strong, articulate, and innovative."[87] The University

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[87]Wisconsin State University Report, op. cit., p. 42.

TABLE 3.4.--Enrollment in the University of Hue.

	Academic Years												
	1957-1958	1958-1959	1959-1960	1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970
Faculty of Law	484	210	197	161	211	270	574	594	571	629	617	627	723
Faculty of Science	58	183	343	599	983	879	1110	1236	1009	1193	1042	1115	609
Faculty of Letters	67	179	310	365	679	845	976	1056	1076	1015	1068	944	885
Faculty of Pedagogy	61	180	254	204	210	239	300	316	244	259	432	407	438
Faculty of Medicine	-	-	-	-	47	96	118	104	199	218	226	226	242
Institute of Sinology	-	-	37	100	137	159	194	195	-	-	-	-	-
Total	670	752	1141	1429	2267	2488	3272	3561	3059	3314	3385	3319	2897

Source: University of Hue, Official data.

grew so rapidly beyond one's belief that its student enrollment during the first five years (Table 3.5) was appreciably higher than that in the University of Hue (Figure 3.2).

At present in Cantho, the following Faculties offer undergraduate courses: Faculty of Science, Faculty of Law and Social Sciences, Faculty of Letters, Faculty of Pedagogy, and Faculty of Agriculture. The Foreign Language Center was added to the University's organization in 1967, providing students with beginning and intermediate courses in French and English.

Trends in providing graduate programs indicate that in the very near future this institution will be most interested in the idea of in-country training, but the present objective of the university is to strengthen undergraduate education.

Besides the three state universities at Saigon, Hue, and Cantho, public higher education is offered at: (1) the National Institute of Administration, (2) the National Technical Center, (3) the National Agriculture Center, and (4) the Institute of Oceanography. All of these institutions offered undergraduate programs.

The National Institute of Administration was primarily the <u>École Nationale d'Administration</u> created

TABLE 3.5.--Enrollment in the University of Cantho.

Faculties		Academic Year				
		-1966-1967	1967-1968	1968-1969	1969-1970	1970-1971
Faculty of Letters	M	129	169	291	726	792
	F	97	92	200	402	461
	T	226	261	491	1128	1253
Faculty of Science	M	137	169	254	467	591
	F	32	36	77	180	210
	T	169	203	331	647	801
Faculty of Law & Social Sciences	M	310	478	622	630	861
	F	46	74	141	153	272
	T	356	552	763	783	1133
Faculty of Pedagogy	M	155	280	259	283	379
	F	69	108	121	157	218
	T	224	368	380	440	597
Faculty of Agriculture	M	--	--	41	85	138
	F	--	--	7	9	13
	T	--	--	48	94	151
Total		975	1404	2013	3092	3935

M = Male students; F = Female students; T = Total enrollment.

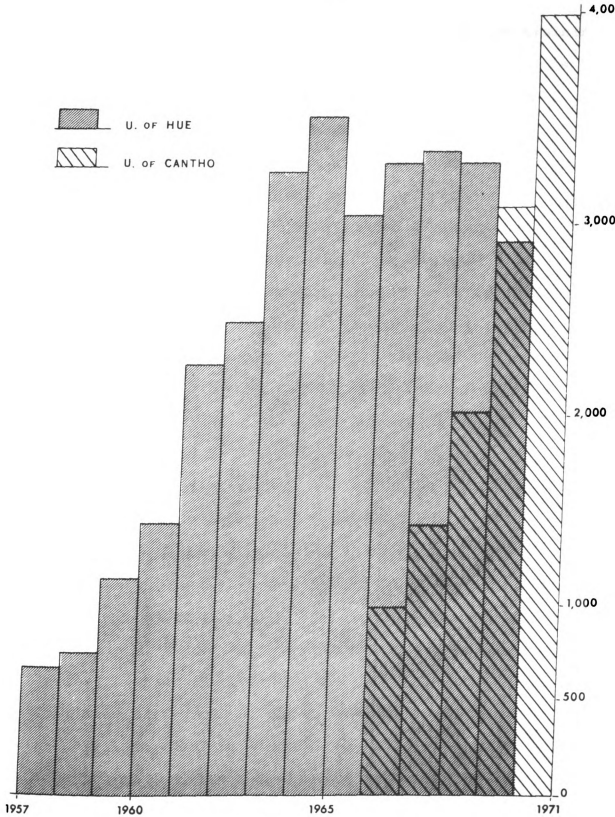

FIGURE 3.2.--Student enrollment in the University of Hue and University of Cantho.

in 1952 in Dalat, aiming to provide pre-service training for middle-level administrative officers in districts and provinces. The School, directly under the supervision of the Ministry of Education at its inception on January 3, 1953, was soon placed under the direction and governance of the Prime Minister. On October 16, 1954, following the recommendations of the Advisory Group from Michigan State University, the Prime Minister instituted in Saigon the present National Institute of Administration, substituting for the National School of Administration in Dalat (Decree of August 9, 1955). With the assistance of the Advisory Group in Public Administration of Michigan State University, the Institute developed rapidly, providing (1) training for administrators in civil services, and (2) in-service training for government employees with the purpose of improving the effectiveness of governmental administration in Vietnam.[88]

The present National Technical Center at Phú-Thọ that grew out of the Civil Engineering Higher School for Technicians, which was transferred from Hanoi to Saigon in 1947, was created on June 29, 1957. Primarily, it consisted of a group of Higher Schools of Technology: the Civil Engineering School, the Radio Electricity School, and the Marine Navigation School. The last two

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[88]National Institute of Administration, The Bulletin 1970-1971 (Saigon: The National Institute of Administration, 1971), p. 1.

schools were opened in January, 1949, and were designed to train technicians only. But, as soon as the National Technical Center was reorganized on February 1, 1961, with the creation of the Mechanical Engineering School in 1959 and the Chemical Engineering School in 1963, technical higher education was soon introduced to the Schools of the Center through various curricula in Civil Engineering, Electrical Engineering, and Mechanical Engineering. Up to the recent time, none of the five schools of the Technical Center had graduate programs, but only undergraduate curricula.[89]

The National Agriculture Center referred to the secondary school of agriculture at Blao (Bảo-lộc), which was upgraded to college level with the addition of a three-year program in agricultural science and moved to Saigon in 1962. On August 24, 1963, the curriculum of the National College of Agriculture was revised and a four-year program leading to a degree equivalent to the Bachelor of Science in Agriculture was definitely adopted. However, the College did not attract many students, as the record of student enrollment showed. The major reason was probably that the primary purpose of its curriculum was to train technicians and civil servants for the Department of Rural

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[89]Orr, et al., op. cit., p. 15; Riley, op. cit., pp. 15ff.

Affairs and the Department of Agriculture. The National Agriculture Center was placed under the governance of the Ministry of Education after 1963. Recent trends in agricultural education indicated that this Center would overcome all difficulties in financing and staffing to meet the country's needs in agricultural development, as did its counterpart, the new College of Agriculture at the University of Cantho.[90]

The Institute of Oceanography at Nha-Trang, founded by Dr. A. Krempf in 1922, had done little work in physical oceanography and marine biology, as its programs and activities only attracted a small number of students and faculty in natural science of the University of Saigon. However, due to lack of strong leadership in management since it was handed over to the Vietnamese authorities, the Institute did not provide the scientific community with either opportunity or facilities to advance the knowledge of marine biology in Vietnam. Physical facilities, equipment, and a library were badly needed to rejuvenate a higher learning institution which had direct relationship with higher education, particularly with the newly created Community Junior College at Nha-Trang. The large support from national (Ministry of Education) and international

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[90]Falk, op. cit., pp. 28ff; University of Florida Team, op. cit., pp. 34ff.

agencies (UNESCO, International Geophysics Programs, Scripps Institute, French Cultural Mission in Vietnam) would not help much to relieve the critical situation of the Institute if the management concerned itself only with the adequacy of funds to support its operation but discarded the efficient utilization of those funds in keeping with the objectives of the Institute.

In addition to three public universities and four national institutions of higher learning, limited undergraduate education (but not two full years) was given in two national military schools directly sponsored by the State Department of National Defense. They were the National Military Academy and the College of Political Warfare, both at Dalat. These colleges pretended to offer adequate undergraduate programs of basic studies in physical sciences and mathematics, and in social and political sciences as well. However, the degree awarded by these colleges was not recognized by the national universities, since academic programs were shorter in these military schools.

Opportunity for education beyond high school was not as difficult to find as it had been before 1957.

The creation of the church-related university at Dalat in 1957, followed in 1964 by the institution of the Buddhist university in Saigon (Vạn-Hạnh University), marked a tremendous step for higher education in Vietnam.

Besides basic programs in sciences and letters, these private institutions offered undergraduate courses in humanities, social sciences, and political science which attracted students, at least during a few years following their inception. However, the desired outcomes from studying these undergraduate curricula were not attained because in Vietnam jobs were not easily found in private corporations, in space industries, in hotels and restaurants, or even in private high schools. As a consequence, students rapidly shifted their studies to other fields that would provide them with both high social esteem and a secure position.

As Vietnam underwent its social turmoils and political disturbances, the demand for creation of more institutions of higher education often involved political pressure. Hence, the organization and development of a university was not carefully studied. The result was that private universities failed to meet liberal ideas in education because of their inadequacy in finance and staff and, above all, their failure to provide a sound undergraduate curriculum.

Presently, in addition to the University of Dalat and Vạn-Hạnh University, these are: (1) Hòa-Hảo University in An-Giang province, supported by Hòa-Hảo religious sect; (2) Cao-Đài University in Tây-Ninh, a two-year college supported by Cao-Đài religious sect;

and (3) Minh-Đức University, a four-year institution founded in Saigon by a small group of professors from the Faculty of Medicine and the Faculty of Science of the University of Saigon, and led by a Catholic priest.

It was only when the idea of the Community Junior College was introduced into Vietnam[91] that the development of higher education was more comprehensively and practically conceived. The enactment of a National Community Junior College System by Presidential Order (Appendix D) made apparent the endeavor to improve higher education in Vietnam and to meet the country's real needs. The first Community Junior Colleges were at Mỹ-Tho, in the upper Mekong delta, and at Nha-Trang, in the coastal Center of Vietnam.

Parallel with the universities, scientific institutions and organizations were created in Vietnam and the entire Indochinese peninsula as well.

The Pasteur Institute in Vietnam--organized in the large cities of Hanoi, Saigon, Nha-Trang--is the oldest scientific organization established in the country and has direct connection with higher education and scientific research.

The Cancer Institute, founded in 1926, provides more facilities and opportunities for medical science

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[91]Khê, op. cit., Chapter IV, pp. 166ff.

research and study in the field. It still functions under the auspices of the Ministry of Health and Welfare.

More directly related to applied science are the Rice Research and Rubber Research Institutes, founded within the period of World War II. These institutes own experimental stations, and their work in research and teaching is vast. Unfortunately, as a result of the destructive war activities in these institutes are nearly stopped.

The National Scientific Research Center, founded in 1963 as a high ranking state organization, aims to provide and to support scientific research and to encourage students and faculty to devote their time and effort to the advancement of knowledge and learning in science. But due to lack of policy and reckless management by an untrained staff, the Center was closed after two years of operation.

The Vietnamese Medical Society, a private organization, groups all M.D.'s in the country and provides the best professional communication among members of the society; it has an active and well-organized quarterly magazine, the Acta Vietnamica Medica.

The Vietnamese Biology Society, founded in 1961, pretends to follow the same pathway of the Vietnamese Medical Society, grouping all biological scientists as

well as M.D.'s and pharmacists; however, the Society does not have active programs and, hence, remains forgotten by the scientific community.

Organization and Governance in Public Universities in Vietnam

Up to 1967, all three public universities were organized and administered under the general scheme of the University of Hanoi, which has moved, in triplicate, to Saigon, Hue, and Cantho (Figures 3.3, 3.4, 3.5). These are the common characteristics:

1. The responsibility for the overall governance of the university is in the hands of the Rector, appointed by Presidential order and with the approval of the Senate. He is assisted by the University Council, the Deans of Faculty, and the Secretary-General. Hence, the university administration is shared by the Rectorate, which ensures the business administration, and the Faculties, which are charged with duties in academic affairs, each Faculty being itself a small university within the large university. However, that approach is not used at the University of Hue and the University of Cantho, as these institutions of higher education have devised a central governance that appears more cooperative and appropriate to the community of scholars.

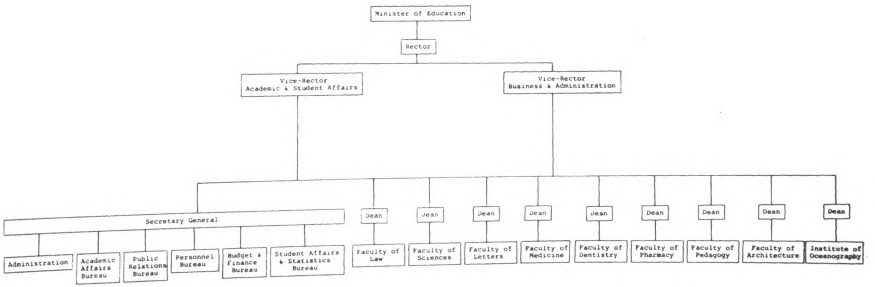

FIGURE J.3.--Organization of the University of Saigon.

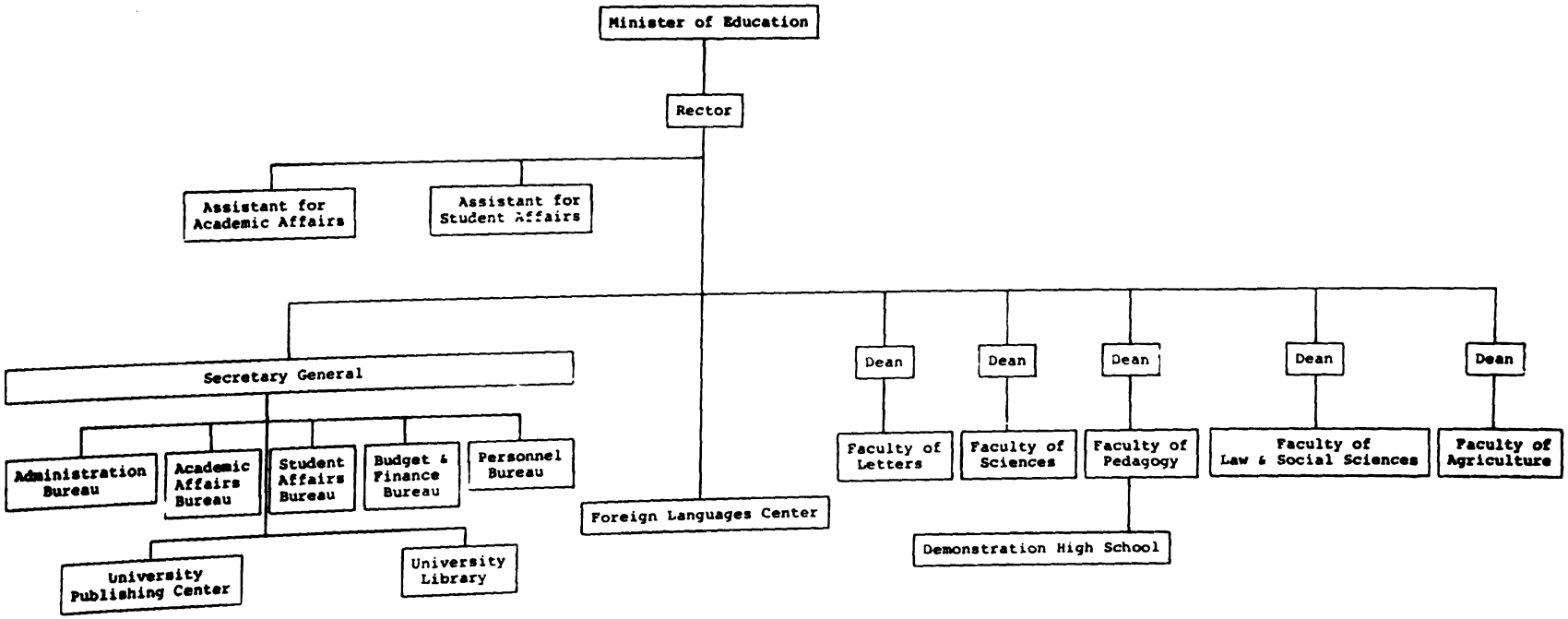

FIGURE 3.4.--Organization of the University of Cantho.

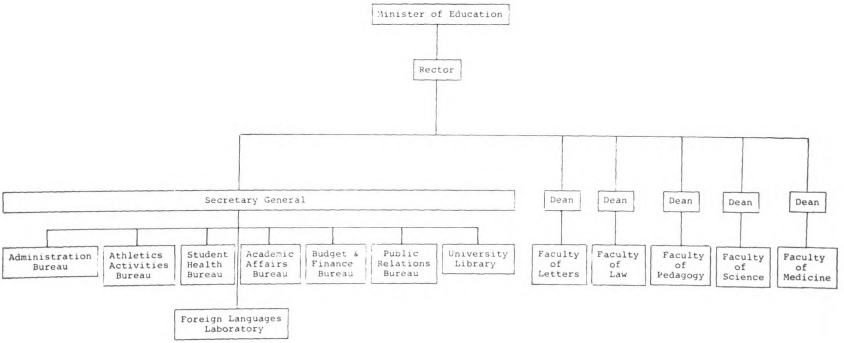

FIGURE 3.5.--Organization of the University of Hue.

2. The critical situation in university administration is the lack of a legal status. Each public university is established by President's Order, but to some extent it is understood that the institution lay partially within the University of Hanoi's statute of 1953, except for organization, appointment, and promotion of faculty and staff. Hence, each institution is under the jurisprudence of the Ministry of Education, which is the final authority over all universities in Vietnam. Recommendations from the Wisconsin State University, Stevens Point, Team for the charter of all publicly governed and financed institutions of higher education in Vietnam are highly considered.[92]

3. The administrative organization in a university create ambiguity in the four areas of college administration: academic affairs, student personnel services, business management, and institutional research and development. The lack of coordination and cooperation between the rector, deans, and department chairmen results in confusion concerning recommendations for faculty appointment, promotion, determination of departmental majors and minors, decisions on new courses, textbook approval, approval of teachers' assignments and teaching loads, making up schedules, determination

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[92]Wisconsin State University Report, op. cit., pp. 6ff.

of room space and space utilization, supervision and evaluation of instruction and curriculum.

Counseling and advising are very highly considered in Vietnamese universities, since such other problems as housing, student employment, student health, and student and faculty relationship, remains unsolved. Hence, the university fails to make appropriate plans for institutional extension and development, since it receives income only from state finance.

4. University administration, with its sociological and educational phases of operation, is unlike governmental administration and organization. Hence, the administrative processes are strongly influenced by features of the political systems concerned, such as: (1) invariably traditionalist academic norms, (2) inherent "rightness" of the political elite,[93] and (3) politicizing of both educational programs and organization by the regime.

5. As a result of such an institutional administration, the concept of developing a university campus has mistakenly led to the multiplication and duplication of physical facilities, e.g., chemistry laboratories, botany laboratores. This tendency is aggravated by a divisive

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[93]Guy H. Fox and Charles A. Joiner, "Perceptions of the Vietnamese Public Administrative System," Administrative Science Quarterly, VIII, No. 4 (March, 1964), 444.

consideration among departments and faculties, each developing at the expense of others.

6. The administration of academic affairs in a university, even in a faculty, is not the means of ensuring order and economy in that institution's educational activities. Duplication of programs of studies and physical facilities[94] are frequent in institutions of higher learning but do not much improve the student's credentials. Since the position of an Academic Dean or Provost is not a part of the university organization, the following functions remained undistributed in the academic administration: (1) editing the university catalogs, (2) drawing up the academic calendar, (3) determining the academic requirements, (4) coordinating course sequences, (5) studying the improvement of instruction, (6) supervising evening programs of continuing education, (7) organizing special sessions during summer, (8) studying the university extension.

7. Institutional management is another obstacle to promoting the growth of the university. Obviously, the national budget allocation for academic activities in a university does not meet the mammoth expenses of developing both the campus and the instructional programs.

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[94]Falk, op. cit., pp. 62ff; Wisconsin State University Report, op. cit., pp. 5ff.

Remarks concerning this most highly rationalized area of university administration fall into the following considerations: (a) absence of a philosophy of budgeting, (b) failure to provide cost analysis while requesting funds, (c) application of rigorous budgetary procedures restricting longstanding traditions in academic life, (d) administration of space in the light of limited resources, and (e) lack of rational decisions about the use of the university's resources and the direction of its development.[95]

8. The separation of bureaucrats, as a class, from the academic staff makes it impossible to convey ideas and innovations in institutional management among university administrators and their clerical staff. The diffusion of knowledge and experience in the governance of the institution is difficult because of the lack of communication between the top managers and the middle managers and between the middle managers and the junior executives.

In summary, higher education administration is highly centralized and influenced by a troublesome society that discouraged the university leaders, and faculty as well. Current attempts to reorganize college administration

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[95]Francis E. Rourke and Glenn E. Brooks, The Managerial Revolution in Higher Education (Baltimore, Md.: The Johns Hopkins Press, 1966), pp. 68ff.

are discarded because reforms and innovation in education are confronted with frustration and envy.

The Undergraduate Curriculum in Public Universities in Vietnam

The Undergraduate Curriculum in the University of Saigon

Through its eight Faculties, the University of Saigon offers various programs in undergraduate education, highly specialized rather than rationalized, even at the first two years level. The study of the curriculum of each Faculty focuses particularly on its: (1) breadth, (2) depth, (3) continuity and sequence, and (4) integrated learning and teaching, showing the following characteristics.

Breadth.--Dressel defined breadth as "a distribution of introductory interdisciplinary course requirement specifying minimal credits in each of several disciplines."[96] Hence, the undergraduate curriculum reveals both its strengths and weaknesses as follows.

First, it provides essential facts and concepts in the major areas of knowledge. The freshman- and sophomore-year programs in Law are examples of this type of approach, while the first two years of programs

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[96]Dressel, The Undergraduate Curriculum in Higher Education, pp. 33f; Dressel, College and University Curriculum, pp. 19f.

in the rest of the Faculties in Saigon only offers a "crumpled" program of instruction, i.e., the propeadeutic year program in Medical Science (known as A.P.M. Certificate),[97] the propeadeutic year in Letters, and the first-year courses in the Faculty of Pedagogy.

Second, understanding of the structure and basic concepts of various disciplines related to the major field of knowledge is not attainable because each curriculum narrows its objectives to its specific domain. Programs of study, for instance, in pharmacy, medicine, dentistry, and architecture merely concern themselves with professional interests, rather than shouldering social responsibility. In a similar way, courses in Science often keep students away from the awareness of social activities and community development. Thus, knowledge acquired from the present college education does not make the scholars into citizens responsible to other citizens and to society.[98]

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[97]"Année Préparatoire en Médecine" [Preparatory Year in Medical Science].

[98]A. V. Aslin, "Scientists as Public Responsibility," Physics Today, X (1957), 23-27; L. J. Haworth, "Scientists and Society," Physics Today, XVI (July, 1963), 19-22; A. J. Ihde, "Responsibility of the Scientist to Society," Science Monthly, LXXVII (November, 1953), 244-49; G. Piel, "Scientists and Other Citizens," Science Monthly, LXXVIII (March, 1954), 129-32; Bertrand Russell, "The Social Responsibilities of Scientists," Science, CXXXI (February, 1960), 391-92; J. R. Schenker, "The Scientist as a Citizen," Science, CXXI (February, 1955), 184-86;

Third, the undergraduate program does not make the learners cognizant of the interrelationship of disciplines. For instance, biological sciences do not require basic study in statistics, hence it is unacceptable as an ecological program without a biometrics course. Similarly, the curriculum in architecture ignores courses in public health. The medical science curriculum, as dictated by traditional concepts of teaching and learning in medicine, discards all programs related to humanities and jurisprudence.

Thus, current curricula in higher education in Vietnam attempt to broaden student's knowledge, but the breadth of a curriculum is restricted by specialization. And specialization is not responsive to the needs of the undergraduate student, at least in the present situation in Vietnam. Perhaps in the not too distant future, that specialization will be required i programs of post-war reconstruction and development, but only beyond the undergraduate level.

Depth.--One characteristic of the undergraduate curriculum in the University of Saigon is the high specialization with strict departmental concentration. Requirements for divisional major, i.e., in science

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A. Z. Zhmudsky, "The Scientist's Responsibility Towards Society," Impact Science and Technology, XIII, No. 1 (1963), 301-10.

(Table 3.6), indicate that disciplines are included as electives, however. On the contrary, that curriculum does not provide students with the understanding of "the language, culture, politics, economics, and geography,"[99] of Vietnam, or a region thereof. For example, in the programs of study in geography and history leading to the B.A. degree in the Faculty of Letters and Faculty of Pedagogy, only 27 per cent of the courses are related to Vietnam.

In the Faculty of Medicine--the only one school of higher learning in the country that still offers lectures in foreign languages--attempts to make the medical curriculum more practical are strongly criticized. Hence, programs of study in medicine, pharmacy, and dental surgery offer superficial professional learning, rather than a deeper and more detailed understanding of the discipline. The curriculum in pharmacy, for example, is a mere accumulation of uncorrelated courses in pharmacology.

Furthermore, as a general weakness, the undergraduate curriculum does not afford the learners the opportunity to master the methodology and techniques that will help them to engage in further independent study in a discipline. Programs of study in humanities and social sciences in the Faculty of Letters, for

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[99]Dressel, College and University Curriculum, p. 20.

TABLE 3.6.--Requirements for Bachelor Degree in the University of Saigon.

I. Bachelor Degree in Natural Sciences

	Track 1	Track 2	Track 3	Track 4
1.	Common to all tracks: Certificate of SPCN[a] or MPC[b]			
2.	Animal Physiology	Botany I	Geology I	Geology I
3.	Plant Physiology	Botany II	Geology II	Botany I
4.	Zoology I	Animal Physiology	Plant Physiology	Zoology I
5.	Zoology II	Geology I	Animal Physiology	Animal Physiology
6.	Botany I	Zoology I	Botany I	Biochemistry I
7.	Geology I	Zoology II	Zoology I	Biochemistry II

II. Bachelor Degree in Physical Sciences

1. Preparatory year: Certificate of MPC[b] or MP[c]
2. Optics
3. Electricity
4. Thermodynamics
5. Mathematics Physics
6. Theoretical Physics
7. Electives: Mathematics, Physics, Chemistry

III. Bachelor Degree in Mathematics

1. Preparatory year: Certificate of MP[c] or MPC[b]
2. Mathematics I
3. Mathematics II
4. Mechanics I
5. Mechanics II
6. Electives: Either two certificates in Physics, or one certificate in Advanced Mathematics I.

IV. Bachelor Degree in Physics and Chemistry

1. Preparatory year: Certificate of SPCN,[a] or MPC,[b] or MP[c]
2. Optics
3. Electricity
4. Thermodynamics or Physical Chemistry I
5. Inorganic Chemistry
6. Structural Organic Chemistry
7. One of these electives: Electronics, Geophysics, Biochemistry, Mathematical Physics, any certificate in Mathematics, Physics, or Chemistry

V. Bachelor Degree in Chemistry

1. Preparatory year: Certificate of MPC[b]
2. Physical Chemistry I
3. Structural Organic Chemistry
4. Inorganic Chemistry
5. Biochemistry I
6. Descriptive Organic Chemistry or Biochemistry II or Physical Chemistry II
7. One certificate in Physics or Chemistry

VI. Bachelor Degree in Biochemistry

1. Preparatory year: Certificate of SPCN[a] or MPC[b]
2. Biochemistry I
3. Biochemistry II
4. Physiology I
5. Physiology II
6. Structural Organic Chemistry or Zoology II or Botany I
7. Mathematical Physics or Physical Chemistry I or Physical Chemistry II

VII. Bachelor Degree in Geology

1. Preparatory year: Certificate in SPCN[a] or MPC[b]
2. Geology I
3. Geology II
4. Geophysics
5. Zoology I
6. Botany I
7. Zoology II or Botany II or Crystallo-geochemistry or Applied Geology

[a]SPCN = Physics, Chemistry, and Natural Sciences.

[b]MPC = Mathematics, Physics, and Chemistry.

[c]MP = Mathematics and Physics.

Source: Chỉ-Nam Sinh-Viên Đại-Học Saigon [Student Handbook, University of Saigon] (1970), pp. 213-15.

example, tangentially approached to statistical and laboratory analyses, just as the curriculum in the Faculty of Pedagogy completely ignores the instructional media, as a fundamental subject in modern training of teachers. It is not surprising, however, to see that most if not all graduates from the Faculty of Pedagogy repeat magistral courses in secondary schools. Attempts to improve, such as new methods of teaching in sciences, through the help of USAID's consultants in Teacher Education and with workshops and seminars are not radical and good solutions, since the curriculum both in secondary education and in teacher education continues to be defended.

Continuity and sequence.--In mathematics and sciences, terms, fundamental concepts, and ideas introduced in the preparatory or first-year continue to be used in the following years. In the humanities, e.g., the program in law, the preceding learning experiences are not related to the succeeding ones.[100] Courses in Methods in Social Studies introduced in the junior year (section of Public Laws)[101] do not require any basic knowledge in statistics, which is offered in the same

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[100] Ibid., p. 21.

[101] Viện Đại-Học Saigon [University of Saigon], Chỉ-Nam Sinh-Viên 1970 [Student Handbook] (Saigon: Viện Đại-học Saigon, 1970), p. 102.

year but in the section of economics. More often, the undergraduate curriculum emphasizes the acquisition of isolated knowledge narrowed in the strait of the discipline, rather than connecting the body of knowledge previously acquired to the experience which follows. In the Faculty of Architecture, it is irrational to offer courses in Introduction to History of Architecture in the second and the fourth years of the program, which should have been included in the first year courses.[102] In addition, basic courses in physical and natural sciences, physics, chemistry, geology, and soils mechanisms, are sparsely distributed in the third and the fifth year.

Integrated learning and teaching.--Instruction and curriculum frequently are integrated in the student's learning, combining his "thinking, feeling, acting, and expressing appropriately in relation to the demands of a confronted situation of need, desire, drive, or aspiration."[103]

This integration can be judged in terms of: (1) environmental relations, (2) process involved in learning and teaching, and (3) end products of the curriculum.

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[102] Ibid., pp. 400f.

[103] Orway Tead, College Teaching and Learning (New Haven: Yale University Press, 1949), p. 24.

Actually, the undergraduate curriculum in the University of Saigon does not provide students with access to instructional and library facilities. Magistral courses in law, medicine, and the sciences are typical of such weakness. Most students have a basic motivation toward self-improvement, but this motivation is not extended beyond the professor's lecture notes and the certificate requirement. Instructional media are not used, even in the programs for teacher education. The situation is irrational: on one side, general requirements for all students in the Faculty of Pedagogy in Saigon only include one course in educational media; but on the other side, the Ministry of Education has created the Instructional Media Center for emphasizing and training teachers in the use of educational media for instruction (Table 3.7).

In addition, the undergraduate curriculum is not related to social activities, which make it very difficult to design extracurricular cultural programs. The programs of studies in all Faculties of the University of Saigon are highly specialized along academic lines.

This does not help the living-learning conditions, since student activities are limited and controlled, and since students live in appallingly bad housing centers.[104]

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[104]Clevenger, op. cit., p. 26.

TABLE 3.7.--General and professional requirements to all students in the Faculty of Pedagogy in Saigon. [Three-year curriculum of first cycle teacher education, sections: English, Vietnamese, Physical Sciences, Natural Sciences, History, Geography]

Course Titles	Hours/Week
First Year	
Thought in Education	3
Introductory Methods of Teaching	3
Educational Psychology I	3
National Education and Pedagogy	3
Methods of Teaching	1
Practice in Teaching	3
Total:	16
Second Year	
Educational Psychology II	3
Child and Adolescent Psychology	3
Introductory Educational Guidance	3
International Education and Pedagogy	3
Methods of Teaching	1
Practice in Teaching	3
Total:	16
Third Year	
Administration in Education	3
Public Health Education	3
Introductory Audio-Visual Education	3
Child and Adolescent Psychology	3
Educational Guidance	3
Methods of Teaching	1
Practice in Teaching	3
Total:	19

Source: Official data.

Except for the programs in professional schools (medicine, dentistry, pharmacy, pedagogy, and architecture), the undergraduate programs in the Faculties of Science, Letters, and Law are viewed in terms of bodies of content rather than in terms of characteristics of human social relationships and behavior.

The first-year program in Natural Sciences (Certificate of Physics, Chemistry and Natural Sciences) is such a typical program. Second-year courses in zoology, botany, and geology which formulate the requirements for the major are concerned only with taxonomic and systematic studies of animals, plants, minerals, and rocks.

Concurrently, legal education has "concentrated on minutial and abstraction rather than on practice."[105] Hence, graduate students from the Law School in Saigon who wish to be qualified as lawyers have to spend one year in a lawyer's office and pass a qualifying examination offered by the State Court. This evaluation of student credentials has little concern for case analysis and commentary since curriculum in law is unanimously recognized as isolated from most other university disciplines. Yet legal-doctrine-directed programs cannot be applied to civil servant and client problems. Current trends in juridical education encourages proliferation of incoherent

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[105]Dressel, College and University Curriculum, p. 129.

courses in the legal curriculum. They should be connected to sociology, humanities, psychology, and natural sciences, rather than remain unconcerned.

The dilemma of legal education is similar to that of the programs for teacher education as mentioned above.

There are several major causes that explain the characteristics of the scene in which undergraduate education takes place.

First, the process of curriculum development does not arouse the interest of both faculty and students. For faculty, syllabi or course outlines, course review or evaluation, and planning committees are impractical due to the lack of strong academic leadership. As for students, the impact of undergraduate education in terms of a change in their behavior and attitudes is not important to curriculum makers. The first year courses in most faculties reveal the long neglected of that university objective.

Second, the curriculum is rigidly structured for professional convenience, which makes students unable to investigate practical problems or to explore various accesses to their future career. The emphasis on professional courses during the first two years of college education favors the production of a few professionals rather than more qualified citizens. Preparatory years in medicine, pharmacy, dentistry serve as a bottle-neck

to the rapid growth of student enrollment. The most symbolic of these types of programs is the curriculum in the preparatory year in medicine that does not differ much from the first-year curriculum in natural and physical sciences in the Faculty of Science, except for two courses in sociology and psychology. But probably the most irrational and illogical programs are the first-year courses in pharmacy (Table 3.8). The program eliminates many students as the school only can accommodate a very low percentage of students from the first year (Table 3.9). Student guidance and orientation remain deficient.

TABLE 3.8.--First-year program in the Faculty of Pharmacy University of Saigon.

Courses	Total Hours
Courses	
Organic Chemistry	40
Inorganic Chemistry and Introductory Mineralogy	40
Practice (in a pharmacy)	
Identification of drugs and plants	
Medicament preparation	
Instrumental methods in pharmacology	
Introductory pharmacology	

Source: Chỉ-Nam Sinh-Viên Đại-Học Saigon [Student Handbook, University of Saigon] (1970), p. 355.

TABLE 3.9.--Enrollment and result of examination in the freshman year at different faculties of the University of Saigon.

Faculties	Academic Year	Enrollment	Registration for Examination	Number of Passing Candidates	Percentage of Passing Candidates
Faculty of Law	1969-1970	8711[a]	5299	1249	23
Faculty of Medicine	1969-1970	3500[b]	236[c]	208	88
Faculty of Science	1969-1970	3412	2901	731	25
Faculty of Letters	1969-1970	4539	2374	1113	50
Faculty of Pedagogy	1969-1970	587	357	237	66
Faculty of Dentistry	1969-1970	64	61	61	100
Faculty of Pharmacy	1969-1970	407	306	213	52
	1970-1971	424	355	142	40
Faculty of Architecture	1969-1970	53	48	46	95
	1970-1971	59	49	44	88

[a]Including both sections A and B.

[b]Registration for the competitive entrance examination in the Propaedeutic Year in Medical Sciences (APM).

[c]Students earning the Certificate of Graduation from the Propaedeutic Year in Medical Sciences registered for the competitive entrance examination in the First Year of the Faculty of Medicine.

Source: Official data.

Finally, the process of learning and teaching follows the traditional method of lecture, memorization, and recitation that is favored by the year-round and certificate system. In a country where effort toward reconstruction and improvement is confronted with the menace of the war and its consequences, it is a waste of time, capital, and endeavour to carry on such an inefficient higher educational system that is built only on academic and literary considerations. The actual undergraduate curriculum of the University of Saigon expects nothing in the change of college students' attitudes, values, and critical thinking abilities.[106] It merely creates for the students--freshmen and sophomores--uneasiness and discouragement: to them, "fail" concurrently meant "be drafted" and "flunk out." In terms of the faculty, the undergraduate curriculum does not arouse any interest in improving teaching methods, in reviewing courses and departmental requirements, or in providing better academic leadership. Briefly, it does not encourage student changes and faculty achievement.

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[106]Paul L. Dressel, "Factors Involved in Changing the Values of College Students," Educational Record, XLVI (Spring, 1965), 104ff; Dressel and Lehmann, "The Impact of Higher Education on Student Attitudes, Values, and Critical Thinking Abilities," pp. 248ff.

The Undergraduate Curriculum in the University of Cantho

Except for the Faculty of Pedagogy, whose two-year program leads to a junior high school teaching certificate, and the Faculty of Letters, whose curriculum is organized in the certificate system, the remaining three Faculties--Science, Agriculture, Law and Social Sciences--offered four-year programs leading to B.S., B.S. in Agriculture, or LL.B. (Appendices E, F, G).

There is no need to enter into details as was the case with the curriculum at the University of Saigon, for the evaluation of the curriculum at the University of Cantho is summarized in the following remarks.

First, duplication of the programs of instruction in Law, Science, and Letters at the University of Saigon is evident in the undergraduate programs at Cantho, duplication having been made since its inception.[107] However, student transfer from Cantho to Saigon or vice versa is not usually admitted as no accreditation agreement has been made between these two universities.

Second, as a consequence of a critical shortage of teaching staff, the curriculum is made with pieces of courses depending upon the available professors. From its beginning, programs in science are organized year after year, rather than planned in long-range terms.

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[107] Wisconsin State University Report, op. cit., p. 14.

Hence, the body of knowledge in a special field is not viewed as a whole but a part, e.g., program of study in natural sciences.

Third, the courses in sequence do not lead to an orderly and systematic learning. The program in Applied Sciences is deepened into the study of electronics after the sophomore year, for electronics have no introductory or fundamental courses until the junior year.

Programs in Letters are built with an illogical sequence of courses. The only one course in Introductory Chinese (four hours) in the first year is required for majoring in Chinese studies that extended to other general courses in Sino-Vietnamese studies of the certificate program (Appendix H). The same irrational design in curriculum is repeated in the program of foreign languages (English, French).

Fourth, over a period of five years, the University of Cantho offered through its undergraduate curriculum 387 courses, distributed as follows:

Faculty of Agriculture	45 courses
Faculty of Science	108 courses
Faculty of Law and Social Sciences	61 courses
Faculty of Letters	63 courses
Faculty of Pedagogy	110 courses

Departments favor the addition of new courses, and resist to any attempt to eliminate the courses found

duplicating. Thus, in the case of the Faculty of Pedagogy, it is found (Appendix I) that thirty-five of these duplicate courses in science, twelve duplicate courses in letters, and four courses are repeated five times in five different sections.

These duplications within the university and departments have had a very negative impact on the efficient operation of the institution. Obviously, the existence of such courses is "certainly an indication of lack of adequate review and control of the curriculum."[108] Of these 387 courses, none is accredited toward graduate work.

Fifth, a conversion of the present certificate and year-long system into a credit system indicates a distribution of the percentage of courses by credits as follows:

	Number of Courses	Percentage of Course Distribution
- courses carried 1 credit	202	52.8 per cent
- courses carried 2 credits	120	31.0 per cent
- courses carried 3 credits	40	10.0 per cent
- courses carried 4 credits	16	4.0 per cent
- courses carried 5 credits	8	2.0 per cent
- courses carried 6 credits or more	1	0.2 per cent

Thus, courses in small credit packages (three credits or less) make up 93 per cent. These small credit

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[108]Dressel, "Specific Points of Attack in Curriculum and Course Revision," p. 311.

courses obtain fairly large enrollment as they constitute required courses. However, attempts to increase the number of low-credit courses (one credit) indicate that there is great resistance from the faculty to any course review or change.

Sixth, faculty members often try to keep their pet courses when the enrollment in the course grows rapidly and when the course itself becomes a major requirement for the field, e.g., Introductory Chinese, Civil Law. This tendency results in two mistakes: on one side, the teacher does not make any improvement in teaching; on the other side, he himself is unable to learn more. This is another factor that makes faculty members react against curriculum evaluation and change.

The courses of this type are numerous: Introductory Civil Laws, Introductory Economics (of the Faculty of Law and Social Sciences); Fundamentals of Chemistry 1: Organic Chemistry, Fundamentals of Chemistry 2: Inorganic Chemistry (Applied Sciences); General Animal Biology, General Plant Biology (Natural Sciences); Introductory Geography, General Geography (of the Faculty of Letters); Introductory Agriculture, Introductory Agronomy (of the Faculty of Agriculture).

Seventh, course requirements are no longer practical and logical since distribution of courses is nothing more than pieces of programs of instruction.

Examples of course requirements in various certificates are found in the Faculty of Letters' curriculum. There is a quick switch from one certificate with two courses (ten credits) to another certificate with ten courses (fifteen credits). This distribution of courses is undesirable as it does not promote students' learning.

Eighth, concerning the end products, curriculum in the Faculty of Letters is worthy of examination. There are five different sequences in Intermediate English and three in Advanced English, varying slightly in content. These courses do not provide a beneficial educational experience in English as the student moves into the literary domain.

Ninth, and finally, contact hour requirements connote another weakness of the curriculum if one expected both quality and efficiency of instruction.

Science courses, especially, require both class and laboratory attendance, but students commonly protested that much of the laboratory time is wasted as junior instructors attempt to repeat the lectures given by senior teachers. Hence, many laboratory hours are not really necessary in beginning science courses, i.e., plant biology and animal biology laboratory. Rather they should be included in the lecture sessions as demonstrations.

Courses in law, social sciences, and humanities count one hour of face-to-face contact with the instructor as one credit. However, in these one-credit courses, students do not meet for one hour a week, and four times a month, but for one four-hour session or two two-hour classes. This modal pattern is practical to most "suit-case professors," as the University of Cantho is no longer able to undertake either curriculum evaluation or course review.

Summary of the Chapter

The findings in Chapter III, resulting from an examination of: (1) the Background of Education in Vietnam, (2) the Development of its Higher Education, (3) the Organization and Governance in Public Universities in Vietnam, and (4) the present Undergraduate Curriculum, indicate an urgent need to remodel programs of instruction at the undergraduate level in universities and colleges in Vietnam. The task will certainly not call for a readaptation to the world's progress, but rather will be for the purpose of national reconstruction as Vietnam is facing up to post-war development and problems.

The findings also reveal that, due to the influence of traditional thinking and consideration and the social activity under the colonial regime, educators will both be frustrated by and react against any change

or attempt to change the current situation. Following the survey and interviews (Chapter IV), the analyses reaffirm this feeling.

CHAPTER IV

THE MODEL CORE CURRICULUM

The review of the development of higher education in Vietnam and its curriculum leads to the understanding of some current crucial problems in higher education. However, present trends in improvement and change in college education reveal tremendous effort to contribute to a more practical national system.

Hence, the design of the model core curriculum takes into consideration: (1) the current tendency in the present university education, (2) a brief survey of Vietnamese educators' attitude toward the improvement of higher education, and (3) an assessment of essential characteristics of an undergraduate education in Vietnam.

Current Tendency in Higher Education

Two major trends are noteworthy since the beginning of the Seventies and relevant to the development of the model core curriculum: (1) the proposal for a two-year general and basic studies curriculum at the

University of Saigon, and (2) the enactment of a national community junior college system in the country on August, 1971.

The Two-Year College Core Curriculum

As was mentioned in Chapter I, the Committee on the Planning and Development of a Two-Year General and Basic Studies Program, or "common trunk," came to the following conclusions:

1. That the two-year curriculum of General and Basic Studies would be adopted by six of the eight Faculties of the University of Saigon:

(1) Faculty of Science

(2) Faculty of Medicine

(3) Faculty of Dentistry

(4) Faculty of Pharmacy

(5) Faculty of Pedagogy

(6) Faculty of Architecture

The Faculty of Law and Faculty of Letters would not be included.

2. That a University College or Faculty of General and Basic Studies should be established for the purpose of this curriculum.

3. That the two-year curriculum of General and Basic Studies should offer preparation for entrance into professional faculties grouped into selected concentration areas as follows:

(1) Biological and Medical Sciences

(2) Physical Sciences

(3) Mathematics and Technology

4. That the two-year curriculum of General and Basic Studies should be flexible and consist of general education and professional education. The two-year curriculum should not be less than 50 per cent nor more than 55 per cent of the total requirements for four-year college curriculum. Regarding each of the professional faculties whose programs of study require five, six, or seven years, the two-year curriculum should be built within these proportions: $\frac{2}{5}$, $\frac{2}{6}$, or $\frac{2}{7}$.

5. That courses of study in the two-year curriculum of General and Basic Studies should be organized in packages of semester credits.

6. That a decree should be enacted to establish a two-year curriculum of General and Basic Studies for the University of Saigon.

Thus, after the ninth session, the Committee submitted to the Vice Prime Minister, concurrently Minister

of Education, the draft of the decree for its promulgation. The draft of this decree finally includes these major articles:

> Article 2. The college core curriculum shall be a two-year curriculum and shall aim to: (a) develop students' general and basic studies in higher education, (b) prepare and guide students, and (c) insure students' learning after the first two years of college education.
>
> Article 3. The college core curriculum shall lead to the Associate in General and Basic Studies Degree.

Unfortunately, the draft was turned down when presented to the Cabinet meeting, due to misunderstanding and misinterpretation.

The National Community Junior Colleges System

After the above experience, educators were more cautious in resubmitting a draft similar to that of the college core curriculum. Considering that the diffusion of a new concept in undergraduate education and junior colleges as well was a hard task, the attempts to introduce innovation in higher education were carefully studied.

The idea of establishing community junior colleges excited the people, particularly in three large cities, Mỹ-Tho, Nha-Trang, and Đà-Nẵng. Hence, plans for the establishment of a junior college in each city were warmly received by the Ministry of Education. However, the creation of community junior colleges should be planned within the national norm, as many people did not really

understand the governance and organization of an institution which functioned within the frame of a junior college. Thus, a series of speeches delivered by Dr. Đỗ-Bá-Khê at the meetings in the above mentioned cities conveyed more effectively the community junior college concept. The President's Order of August 15, 1971, establishing community junior colleges throughout the nation (Appendix D) is the result of a long effort to induce innovation to the present college education.

Four out of ten articles of the Order--specifically, articles two, three, four, and seven--are remarkable since the two-year curriculum is officially adopted not only for the community junior colleges but also for the universities. Most interesting is the last paragraph of article four, that defines "each community junior college as a center of general and basic studies in higher education." Thus, the first two-year undergraduate curriculum will be in effect in both the community junior colleges and the three national universities.

Attitudes of Vietnamese Educators Toward the Improvement of Higher Education

Identifying Information

Analyses of responses to the Survey Check List, Part 1, indicate from a total representative sample[1] of fifty-seven the following characteristics of the distributions:

1. Numerically, dominant groups are below forty years of age, while the age group ranging from forty-one to fifty represented only one-twentieth of the sample (Table 4.1A). The latter are in decision-making positions, i.e., vice rector, dean, department chairman; their attitudes are unfavorable to this study.

2. Interviewees are divided into those who have and those who have not experienced a third culture and/or education (Table 4.1B). Both show their interest in innovating college education and, hence, favor the introduction of a two-year curriculum (Tables 4.2B, 4.4, and 4.5).

3. Distinction is made between interviewees within and outside of the university according to their degrees earned (Table 4.1C).

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[1]Gilbert Sax, Empirical Foundations of Educational Research (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1968), p. 129.

TABLE 4.1A.--Sample distribution according to age groups.

Age Groups	Male		Female	
	No.	%	No.	%
21 - 30	22	38.5	8	14.0
31 - 40	15	26.3	9	15.7
41 - 50	2	3.5	1	2.0
over 50	0	0	0	0

TABLE 4.1B.--Sample distribution according to educational background.

Educational Background	Total of Sample		University of Saigon		University of Cantho	
	No.	%	No.	%	No.	%
Having Third Culture and/or Education Experiences	12	21.0	8	14.0	4	7.0
Not Having Third Culture and/or Education Experiences	45	79.0	25	44.0	20	35.0

TABLE 4.1C.--Sample distribution according to degree earned.

Degree Held	Interviewees Within the Universities		Interviewees Outside of the Universities	
	No.	%	No.	%
High School Diploma	11	19.3	1	2.0
Bachelor's Degree	22	38.5	8	14.0
Master's Degree	8	14.0	1	2.0
Doctor's Degree	6	10.2	0	0

TABLE 4.1D.--Sample distribution according to fields of specialties.

Disciplines	No.	%
Mathematics	1	2.0
Physical Sciences	9	15.7
Biological Sciences	20	35.1
Medical Sciences	5	8.4
Agricultural Sciences[1]	0	0.
Earth Sciences	1	2.0
Social Sciences[2]	0	0.
Arts and Humanities	4	7.0
Education	15	26.3
Engineering	2	3.5

[1]Interviewees were majoring in Biological Sciences and Natural Sciences.

[2]Interviewees were majoring in Arts and Humanities and Social Sciences.

4. Among the interviewees' fields of specialties, three dominant groups are: (1) Physical Sciences, (2) Biological Sciences, and (3) Education. This distribution provides for further observations made in Part 2 of the Survey Check List (Table 4.1D).

Opinion Information

Analyses of Part 2, Questions 1 and 2 of the Survey Check List permit the establishment of several comparative tables with their characteristics as follows:

1. As shown in Table 4.2A, concerning the basic requirements for undergraduate education, basic sciences rank first in the recommended subjects. This distribution will not be greatly modified even if data are gathered according to the interviewees' educational background as established in Table 4.1B. Basic Sciences, Mathematical Sciences, and Humanities and Arts are the first three disciplines that show up in the survey's analysis as indicated in Table 4.2B. For people who have no opportunity to study outside the country, agricultural studies and professional fields are believed to be the subject areas which should be required in a college core curriculum. In any case, requirements for basic sciences are deemed as necessary and fundamental for citizens'

TABLE 4.2A.--Basic requirements for undergraduate education as recommended by interviewees.

Disciplines	No.	%
Agricultural Sciences	20	12.4
Basic Sciences	28	17.2
Biological Sciences	14	8.0
Mathematical Sciences	24	14.8
Humanities and Arts	21	12.9
Political Sciences	16	10.0
Social Sciences	19	11.0
Professional Fields	20	12.4
Others	2	1.3

TABLE 4.2B.--Basic requirements for undergraduate education as conceived by two groups of interviewees according to their educational background.

Disciplines	Interviewees Not Having Third Culture/Education		Interviewees Having Third Culture/Education	
	No.	%	No.	%
Agricultural Sciences	18	14.0	20	12.4
Basic Sciences	22	17.0	28	17.2
Biological Sciences	8	6.3	14	8.0
Mathematical Sciences	18	14.0	24	14.8
Humanities and Arts	16	12.5	21	12.9
Political Sciences	13	10.0	16	10.0
Social Sciences	14	10.8	19	11.0
Professional Fields	19	14.7	20	12.4
Others	1	0.7	2	1.3

knowledge, as the percentage of opinion surveyed remains constant and high (17.0 per cent).

2. The analysis of interviewees' opinion brings forth other remarks as the sample is divided into fields of specialties, but only the first three dominant groups, i.e., biologists, secondary school teachers, and physicists, are considered (Table 4.3).

The biologists think more liberally in adopting courses in humanities and arts and mathematics; secondary school teachers seem interested in social science courses but find them less important than courses in professional fields; physicists deem that mathematical sciences remain fundamental in supporting courses in agriculture and basic sciences.

3. Data gathered for Table 4.4 indicate a firm opinion favorable to the introduction of Humanities and Social Sciences into the undergraduate curriculum of an efficient higher education responsive to the needs of the individual and nation.

The results, obviously, should not be interpreted as contradictory to those in Tables 4.2 and 4.3, since the questions are not similar.

TABLE 4.3.--Basic requirements for undergraduate education as conceived by interviewees in different fields of specialties.

Disciplines	Biologists		Sec. Sch. Teachers		Physicists	
	No.	%	No.	%	No.	%
Agricultural Sciences	6	10.6	6	14.0	5	15.2
Basic Sciences	8	14.2	6	14.0	5	15.2
Biological Sciences	5	8.8	1	2.3	4	12.1
Mathematical Sciences	10	17.8	4	9.3	7	21.2
Humanities and Arts	13	23.2	3	7.3	1	3.0
Political Sciences	6	10.6	3	7.3	4	12.1
Social Sciences	3	5.0	8	18.6	3	9.1
Professional Fields	4	6.8	11	25.5	4	12.1
Others	2	3.0	1	2.3	0	0.

4. A strong belief that vocational studies are relevant to the change in students is reported in Table 4.5, as Social Sciences foster fundamental knowledge in human relationship and purposeful behavioral change in the individual.

The answers to Question 3 are, in order of percentage of agreement, as follows:

1. strong professional preparation: 29.8 per cent
2. basic and general knowledge useful for personal life: 29.0 per cent
3. motivation for community participation: 25.0 per cent
4. full communication skills for better understanding: 15.3 per cent
5. others: social ethics: 0.9 per cent

TABLE 4.4.--Courses deemed as should be included into the undergraduate curriculum.

Sample Characteristics	Disciplines							
	Social Sciences		Mathematics		Science		Humanities	
	No.	%	No.	%	No.	%	No.	%
Total Sample	48	28.5	29	17.3	35	21.7	54	32.5
Interviewees Having No Third Culture and/or Education Experiences	37	29.3	20	15.8	27	21.4	42	33.5
Interviewees Having Third Culture and/or Education Experiences	11	27.5	8	20.0	9	22.5	12	30.0
Interviewees Majoring in Biological Sciences	17	28.3	9	15.0	14	23.4	20	33.3
Interviewees Majoring in Education	14	34.1	5	12.3	7	17.0	15	36.6
Interviewees Majoring in Physical Sciences	6	24.0	6	24.0	5	19.9	7	32.1

TABLE 4.5.--Courses deemed as should be included in the current undergraduate curriculum in allowing student change in attitudes and critical thinking abilities.

Sample Characteristics	Disciplines													
	Vocational Studies		Professional Studies		General Studies		Humanities Studies		Mathematical Studies		Social Studies		Others	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total Sample	39	31.0	29	23.0	13	10.3	7	5.5	7	5.5	28	22.5	3	2.5
Interviewees Having No Third Culture and/or Education Experiences	27	29.0	25	26.8	8	8.6	6	6.5	6	6.5	21	22.6	0	-
Interviewees Having Third Culture and/or Education Experiences	8	30.8	3	11.8	4	15.4	2	6.4	0	-	6	23.8	3	11.8
Interviewees Majoring in Biological Sciences	13	38.2	5	14.7	5	14.7	0	-	1	2.9	7	20.6	3	8.9
Interviewees Majoring in Education	11	28.9	8	21.0	4	10.5	4	10.5	1	2.8	10	26.3	0	-
Interviewees Majoring in Physical Sciences	6	33.4	4	22.2	0	-	2	11.1	2	11.1	4	22.2	0	-

These opinions support a previous agreement that Social Sciences and Humanities should be included in the present college curriculum (Tables 4.3 and 4.4).

In summary, the Survey Check List permits a statement of the opinion and attitude of Vietnamese educators toward the improvement and change in the college curriculum as follows:

Question One: The following findings appear to support a new curriculum in higher education:

1. Basic sciences should be the foundation of the student's knowledge;
2. Mathematical sciences should support the studies in basic sciences;
3. Courses in humanities and arts, in agricultural sciences, and in professional fields are relevant to the undergraduate curriculum.

Question Two: The evidence reveals that the present college curriculum does not meet the needs of students. Hence, courses in humanities and social sciences are believed relevant to individual's participation and cooperation in the community activities.

Question Three: It is suggested and hoped that the improved college curriculum should be designed for the student's interest and learning as well. Thus,

basic and general knowledge is deemed fundamental for further vocational or professional preparation.

Question Four: Courses that will be conducive to a change in the student's attitudes and to the development of critical thinking abilities are found, in order of importance, in: (1) vocational studies, (2) humanities, and (3) professional studies.

Essential Characteristics of a Proposed Undergraduate Education in Vietnam

The changes and intended changes described above involve much thought about the concepts of undergraduate education. However, it seems prudent to take some steps to determine the extent to which the planned core curriculum will be successfully implemented. The fact of rapid changes in our culture and society means that it is important for students to make judgments while learning and to adapt their knowledge to the changing order.

The changing of our culture seemingly calls for strength in fundamental disciplines with stress upon learning basic concepts and principles. Obviously, these concepts and principles in college education should not be developed without considering the actual environmental conditions. Among the environmental conditions, two are worthy of mention: (1) financing

higher education, and (2) student's failure at the end of the freshman year.

Financing Higher Education

University finance has been a world-wide difficulty, but in Vietnam it is an immediate consequence of the predominant occupation for the war. Data on financing higher education gathered in Table 3.1 support this remark. These data show, on the one side, an increase in the national education budget, but on the other side, a decrease of the percentage of the national education budget compared to the total national budget. This critical situation results from the heavy pressure of inflation and the huge expense of war (Figure 4.1).

Student's Failure at the End of the Freshman Year

Data obtained from the University of Saigon and the University of Cantho (Tables 3.9 and 4.6) indicate a very high percentage of students failed after the freshman year (50 to 70 per cent) in the fields of law, letters, and sciences. In professional schools such as Pedagogy, Architecture, Medicine, Dentistry, this percentage is considered as low. The Figures 4.2 and 4.3 give more details of the distribution of the percentage of passing candidates.

TABLE 4.6.--Enrollment and result of examination in the freshman year at different faculties of the University of Cantho.

Faculties	Academic Year	Enrollment	Registration for Examination	Number of Passing Candidates	Percentage of Passing Candidates
Faculty of Law and Social Sciences	1968-1969	618	337	47	13.94
	1969-1970	580	388	94	24.22
Faculty of Letters	1968-1969	345	221	94	42.53
	1969-1970	528	398	178	44.72
Faculty of Science	1968-1969	220	215	51	23.72
	1969-1970	350	279	81	29.03
Faculty of Pedagogy	1968-1969	235	220	163	74.04
	1969-1970	277	254	217	85.43
Faculty of Agriculture	1968-1969	48	48	35	72.91
	1969-1970	59	59	51	86.40

Source: Official data.

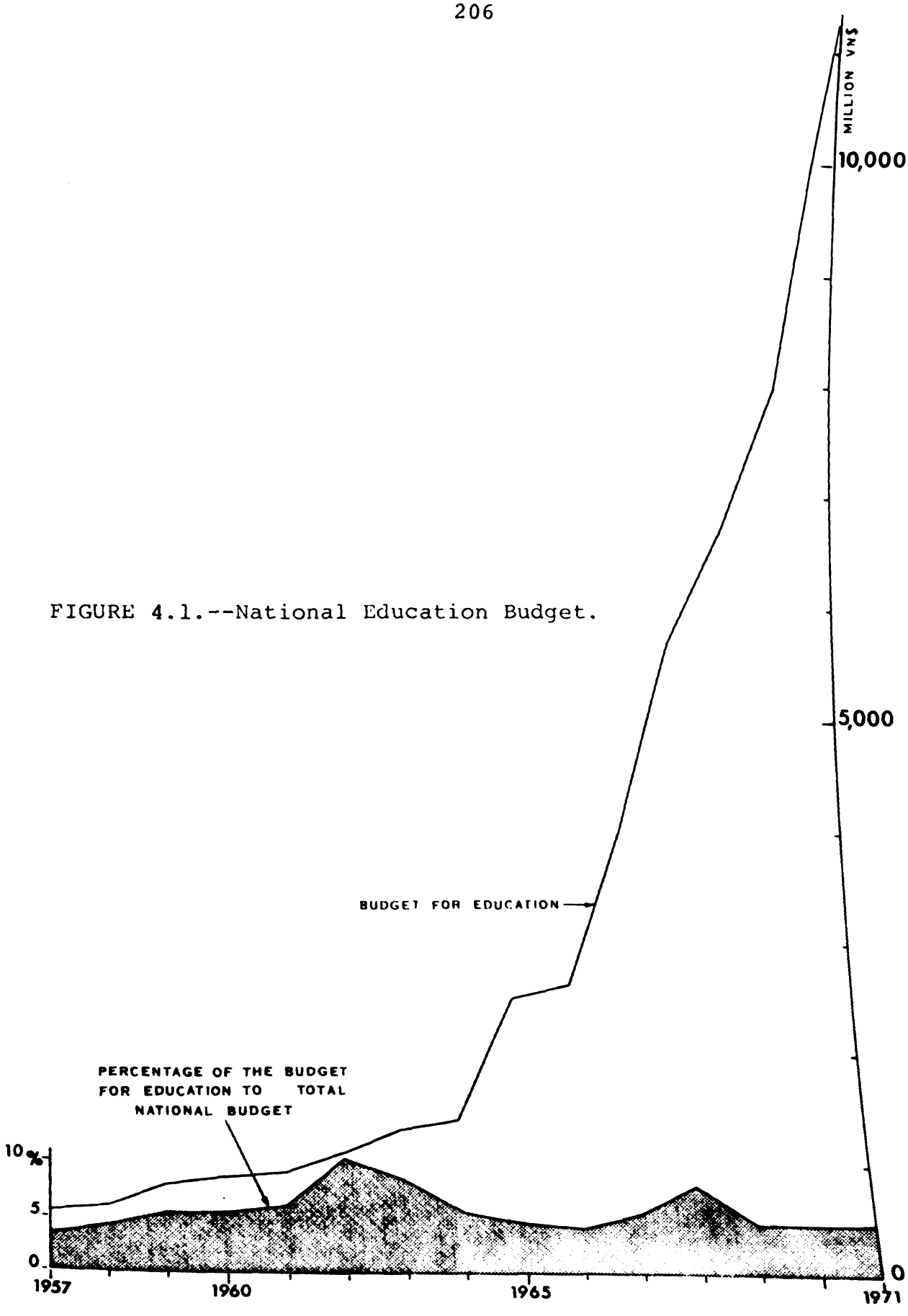

FIGURE 4.1.--National Education Budget.

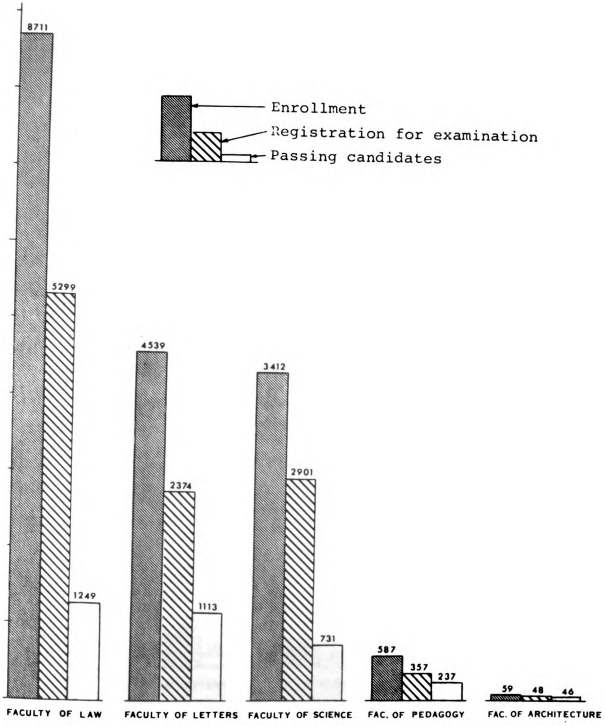

FIGURE 4.2.--Student enrollment and passing candidates in the first-year examination, academic year 1969-1970, University of Saigon (see Table 3.9 for details).

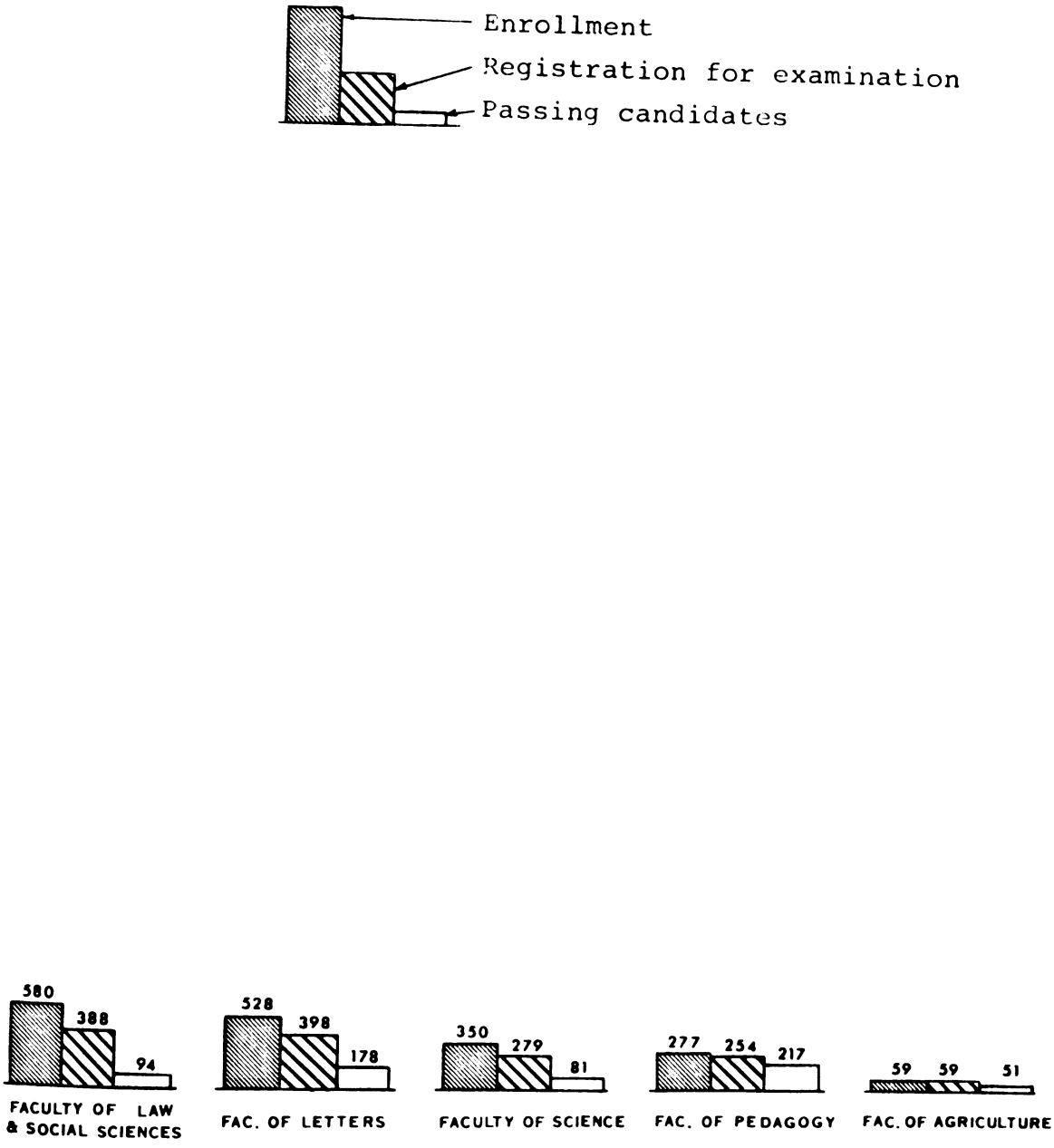

FIGURE 4.3.--Student enrollment and passing candidates in the first-year examination, academic year 1969-1970, University of Cantho (see Table 4.6 for details).

This problem of apparent failure is not as critical as it seems, for in many cases the fact is that the student simply does not take his examination.

It is recorded that, during the academic year 1969-1970 at the University of Saigon and the University of Cantho only 60 to 67 per cent students in Law, 50 to 74 per cent students in Letters, and 85 to 80 per cent students in Sciences have taken the examination. The major reasons are: (1) the unfortunate situation of certain civil servants and servicemen who, on the date of examinations, are not given leave by their superiors to attend these examinations, and (2) the cumulative registration in one or more faculties or universities that makes the students lose nothing but the registration fees, thus allowing them to choose at the year's end which discipline to be tested in, omitting their other examinations.

Characteristics of an Undergraduate Education

From what is described in previous chapters, one may arrive at Brembeck's concept of educational socialization as a foundation of an undergraduate education which is *sine qua non* invaluable everywhere.[2]

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[2]Cole S. Brembeck, *Social Foundations of Education: A Cross-Cultural Approach* (New York: John Wiley and Sons, Inc., 1966), p. 13.

The condition of an undergraduate education obviously does not involve both Lehrfreiheit, the freedom to teach, and Lernfreiheit, the freedom to learn.

Up to this point, the obligation of an undergraduate education is presented as follows:

1. College education should provide the student with sufficient basic knowledge that makes him conscious of himself and the environment in which he lives.

Thus, college education should afford a setting in which each student could improve his talents, become more concerned about his obligations to his fellow men, and recognize that knowledge serves to identify man's past achievements as well as provides the basis for further progress. It should help the student develop a respect and enthusiasm for learning, an appreciation for both continuity and change, and the recognition that the result of thought is frequently action. Hence, it is anticipated that the acquisition of basic knowledge should culminate in the development of a concern suitable for living in an age of accelerating change and in a progressed society. This anticipation requires the student to:

(a) Have an accurate and strong attachment to the traditional heritage that made him able

to critically appriase his own values and the values of society;

(b) Have a personal commitment to serve society and the community as well;

(c) Be aware of the rapidly changing nature of the world and the nation, and hence be capable of adjusting to changing demands.

2. College undergraduate education should promote and develop the Vietnamese student's skills of communication, thus making human interactions and relationships almost limitless.

Through interviews, it is recognized that the present college education does not help the student to improve his communication skills. In Vietnam, a degree conferred to the student often offers him access to the "ivory tower," hence turning him away from the mass' activities. From this viewpoint, it is suggested that college education should provide the student with at least sufficient competency in oral and written expression to accomplish human relations' objectives necessary for success in working with and influencing other persons.

The four facets of communication, reading, writing, speaking, and listening,[3] should be included in required courses for the freshman year.

3. College undergraduate education should provide the Vietnamese student with a total view of his college experience which will develop his broad competencies in and readiness for self-education and self-improvement.

Obviously, the end product of such an education will not be the degree, but rather the student's achievement and changes.[4] An efficient undergraduate education in Vietnam will never lead its graduates into the final stage of their career, but only the beginning. In this context, the future graduates--whether they will be called bachelors or licenciés--should be defined, as they were in the traditional education, in terms of the "rising man" (cử-nhân). They will then be able to learn new kinds of things which are not taught in colleges and, hence, be able to adapt to the environment. They should be aware of the development and progress in human knowledge, in science and

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[3]T. Benson Strandness, "Communication Skills: 1944-1958," in Curriculum Building in General Education, ed. by Edward N. Carlin and Edward B. Blackman (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1960), p. 11.

[4]Dressel, College and University Curriculum, p. 180.

technology. Such an awareness will be attained only when the college graduates are continuously interested in conducting their own learning for their cultural value either with or without regard to credit or completion of the degree requirements.

Thus, the future undergraduate education in the Vietnamese university will develop in the student a strong concern for significant and well-rounded education. To the student, the undergraduate education should not merely be a period of appropriate change from freshman to senior, or even to graduate; rather it should be an impact on student attitudes, values, and judging ability.[5] College experience should be regarded as factual knowledge, but not an accumulation of knowledge; that college experience includes both learning and teaching within the campus climate, in the classrooms, and in the residence halls as well.

4. College education in Vietnam should provide the student with complete professional preparation.

Professional preparation does not mean professional training, since college undergraduate education

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[5]Paul L. Dressel, "Development of Critical Thinking," in Current Issues in Higher Education, ed. by G. Kerry Smith (Washington, D.C.: Association for Higher Education, N.A.E., 1963); Dressel and Lehmann, "The Impact of Higher Education on Student Attitudes, Values, and Critical Thinking Abilities," pp. 248ff; Dressel, "Factors Involved in Changing the Values of College Students," pp. 104ff.

has always been considered as pre-professional training and basic preparation.[6] Rather, it should make it possible for students to begin their graduate work. Obviously, the undergraduate programs could not cover all the areas in detail; hence, the undergraduate student is not required to be well prepared in all fields of knowledge. However, he should be guided to a unified field involving a central core and a limited number of undergraduate specialties after the sophomore year.

5. College education in Vietnam should emphasize learning in basic sciences, social sciences, and humanities.

Basic science courses are concerned with and concentrate on: (1) the development of man's knowledge about his environment, (2) the understanding of the physical and biological aspects, structures, changes, and relationships of matter and life, and (3) the mastering of natural laws and factors that make man able to control his environment.[7]

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[6]Dressel, College and University Curriculum, pp. 118 and 123; Interim Report, Committee on Goals of Engineering Education, American Society for Engineering Education, E. A. Walker, chm. (Lafayette, Indiana: Purdue University, April, 1967), p. 42.

[7]John N. Moore, "Natural Science," in Curriculum Building in General Education, ed. by Edward N. Carlin and Edward B. Blackman (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1960), pp. 48f.

Social science courses consider "an appreciation of individual and group living as a problem of utilization of resources and adjustment to environment; a recognition of the function of the family in developing the attitudes that lead to effective living; an appreciation of the interdependence between rural and urban societies; and a willingness to accept responsibility for intelligent participation in family and community life."[8]

Finally, humanities courses should develop the student's appreciation and thinking abilities. Being aware of social change and technical and scientific development and progress, the highly educated and skilled undergraduate students in the immediate future should be stimulated and encouraged to think and to express themselves rationally, imaginatively, and responsibly as they learn to apprehend civilizing values and to identify persistent human problems.

In brief, basic sciences, social sciences, and humanities should remain the areas of concentration in the Vietnamese undergraduate curriculum, at least during the freshman and sophomore years.

[8]Douglas Dunham, "Social Sciences," in Curriculum Building in General Education, ed. by Edward N. Carlin and Edward B. Blackman (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1960), p. 76.

The Core Curriculum

The Objectives of the Core Curriculum

Focusing on the purpose of this study, the objectives of the first two-year university core curriculum are:

1. To provide opportunity for a search for general knowledge and for specialization primarily for development of intellectual capacities;

2. To help the Vietnamese student acquire (a) knowledge and understandings expected of a well-educated person, (b) familiarity with the value systems influencing behavior, and (c) aesthetic, moral, and intellectual appreciations;

3. To provide for pre-professional preparation and for specialization to qualify for admission to professional schools;

4. To provide for college transfer programs or terminal programs for basic college requirements in general education, in sciences and mathematics, in languages and arts of communications, and in other areas of learning of college education;

5. To provide for national standards of undergraduate education with reference to admission, orientation, placement, and selective retention.

The Pattern of the Core Curriculum

The major emphases in this curriculum are: (1) general and basic studies, (2) major concentration areas, and (3) guided electives.

Courses in basic and general studies focus on: (1) man's problems, e.g., man's physical environment and biological inheritance, man's social inheritance and responsibilities, man's insights and appreciations, and man's organization and communication of ideas, (2) mathematics, (3) physical sciences, and (4) foreign languages.

Courses concerned with the major concentration areas are grouped into the following disciplines: (1) Humanities, (2) Social Sciences, (3) Agricultural Sciences, (4) Sciences and Mathematics, (5) Medical Sciences, and (6) Engineering (Figure 4.4).

Elective courses are planned to develop the student's ability to understand and to communicate with people other than the Vietnamese, the student's health and physical capabilities, and the student's readiness in problem analysis.

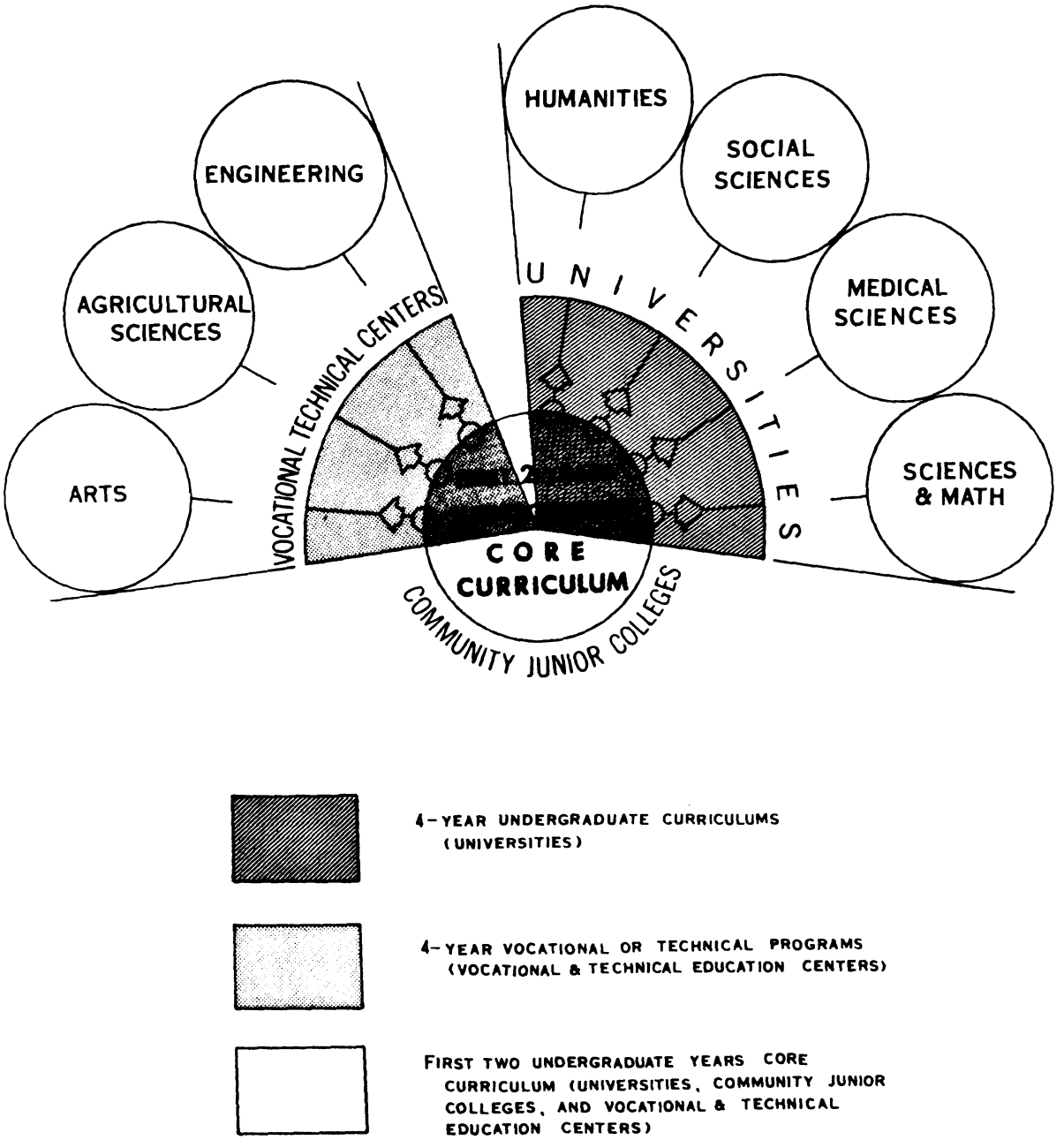

FIGURE 4.4.--Possible access to different programs in higher education in Vietnam beyond the first two undergraduate years' core curriculum.

The requirements for the program of the first two undergraduate years which lead to the associate arts degree may be from a minimum of 62 to 65 semester credits, making the total minimum requirements for the bachelor's degree from 130 to 140 semester hours. The distribution of the requirements is presented in Table 4.7.

The description of courses in Basic and General Studies of the Core curriculum appears in Appendix J, covering seven sections, each section being designed to deal with problems as listed above. These courses are planned to be independent of each other but equivalent in the context of basic and general knowledge. This will certainly be effective in the enrollment process, as there will be no course that received all freshmen at one time, as in the present situation.

Courses also are to be offered in small credit packages (3 to 5) that require the students to continue work and learning while carrying an appropriate academic load.

Evaluation of the Core Curriculum

In comparison with the present undergraduate curriculum and the senior high school curriculum (Table 4.8), the following remarks are made in favor of the core curriculum:

TABLE 4.7.--Requirements for the proposed core curriculum.

Basic and General Studies (BGS):		Credits
BGS1 Section 1:	Environmental Sciences	3-6
BGS2 Section 2:	Social Sciences	3-6
BGS3 Section 3:	Man's Insights and Appreciations	3-6
BGS4 Section 4:	Organization and Communication of Ideas	3-6
BGS5 Section 5:	Mathematics	4-8
BGS6 Section 6:	Physical Sciences	4-8
BGS7 Section 7:	Foreign Languages	5-10
	Minimum Requirements:	23
Major Concentration Areas (MCA):		
MCA-Hu	Humanities	
MCA-Ss	Social Sciences	Minimum Requirements: 24-27
MCA-Ag	Agricultural Sciences	
MCA-SM	Sciences and Mathematics	
MCA-Ms	Medical Sciences	
MCA-Eg	Engineering	
Guided Electives (GE):		
GE1	Languages	5-10
GE2	Physical Education	3-5
GE3	Art and Music	3-5
GE4	Logic	3-5
	Minimum Requirements:	15
	Total Minimum Requirement:	62-65

TABLE 4.8.--Curriculum in Vietnamese senior high schools.

Sections		Literature Foreign Languages			Literature and Classical Studies			Sciences and Mathematics			Experimental Sciences		
Fields of Study		Grade 10	11	12	Grade 10	11	12	Grade 10	11	12	Grade 10	11	12
Vietnamese		5	5	0	5	5	0	5	5	0	3	3	0
History and Geography		3	3	3	3	3	3	3	3	3	3	3	3
Civic Instruction		2	2	1	2	2	1	2	2	1	2	2	1
Philosophy		0	0	9	0	0	9	0	0	3	0	0	4
Foreign Language I		6	6	6	6	6	6	4	4	3	4	4	3
Foreign Language II		6	6	6	0	0	0	4	4	3	4	4	3
Classical Studies		0	0	0	6	6	6	0	0	0	0	0	0
Physics		-	-	-	-	-	-	3	3	5	3	3	5
Chemistry		1	1	1	1	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$1\frac{1}{2}$	$1\frac{1}{2}$	2
Mathematics		1	1	1	1	1	1	6	6	9	4	4	5
Natural Sciences		1	1	1	1	1	1	1	1	1	3	3	4
Total		25	25	28	25	25	28	$27\frac{1}{2}$	$27\frac{1}{2}$	30	$27\frac{1}{2}$	$27\frac{1}{2}$	30
Electives	M	3	3	3	3	3	3	3	3	3	3	3	3
	F	4	4	4	4	4	4	4	4	4	4	4	4
Total	M	28	28	31	28	28	31	$30\frac{1}{2}$	$30\frac{1}{2}$	33	$30\frac{1}{2}$	$30\frac{1}{2}$	33
	F	29	29	32	28	28	32	$31\frac{1}{2}$	$31\frac{1}{2}$	34	$31\frac{1}{2}$	$31\frac{1}{2}$	34

M = Male Student

F = Female Student

All fields of study are shown in number of hours per week.

Source: Official Publication

Breadth.--The set of courses in Basic and General Studies offers a wide distribution of introductory and interdisciplinary knowledge. Students would learn more in general education in areas in which they were ill-prepared in high school, e.g., sociology, speech, and writing. Courses in section 1 of Environmental Sciences, section 2 of Social Sciences, and section 3 of Man's Insights and Appreciations would expose the students to more problems and facts than do comparative courses given in the present curriculum in the Faculties of Science, Law, or Letters.

Depth.--Individual courses or groups of courses are not intended to deepen a field of knowledge as freshmen and sophomores are not yet ready to be prepared for professional studies. However, the requirements for major concentration areas would meet many of the same requirements for the second year curriculum as in the present university programs, e.g., in Science, in Medicine, in Letters. The major's concentration then gives the students full mastery of the methodology and technique of specialty that they intend to pursue beyond the associate degree.

Continuity and sequence.--Courses in basic and general studies and in major concentration areas, as

well, are organized in sequence to provide that student's progress from the simple to the complex. All courses in Basic and General Studies are designed to give the learner the foundation of knowledge, basic principles and laws, and fundamental concepts and viewpoints that can be used in further studies. Courses in section 1 (Environmental Sciences) as well as in section 6 (Physical Sciences) are related as knowledge in biology, physics, and chemistry is deemed necessary and fundamental.

Integrated learning and teaching.--The design of courses in Basic and General Studies--sections 1 through 4--is meant to provide more opportunity to improve both the learning process and way of teaching. It is intended to offer to students not only an academic program but a concern with action and reaction within a community of scholars. Hence, the environment would be the most important external factor that helps both the learner and the teacher achieve their educational goals. Library work as well as campus activities, scientific demonstrations as well as panel discussions, extracurricular activities as well as academic duties: all are the objectives of the core curriculum that deal with the integration in the student's learning.

These conclusions, which match the assumptions posed in Chapter I and the characteristics of a future undergraduate education in Vietnam as assumed in this Chapter IV, permits a positive answer to three questions which this study attempts to satisfy.

First, the program for the first two undergraduate years would fit into the functional framework of higher education in Vietnam. The design of the core curriculum is harmonious, not incongruous, with the present four-year university curriculum. It provides a link between high school and college programs. There would be no more narrowness of specialization at the beginning of undergraduate education, but more latitude in instruction and courses. The learning and teaching in the major concentration areas would be facilitated by a strong foundation built in the program of basic and general studies. Hence, guidance and counseling would become realistic, and orientation of sophomores would certainly be practical as students were moving up either toward their professional career or their terminal programs.

In addition, students would find in this core curriculum a greater degree of freedom in selecting their future studies, not because of the various number of introductory courses offered at the freshman level, but

because of the flexible design of the curriculum that allows students to achieve their academic goals through many different channels. The percentage of drop-out students after the first two years would then be reduced; hence, a considerable contribution to the development of manpower would be effective for post-war reconstruction.

Second, concerning an effective accommodation within the realities of the present conditions of university governance and academic leadership, the core curriculum will certainly receive a strong negative reaction from the faculty. However, it appeared that the core curriculum would first be adopted by community junior colleges and the University of Saigon as well, the former institutions being centers of general and basic studies in higher education and academically dependent upon a national university.

Finally, the core curriculum is neither an extended high school curriculum nor a duplicate of the present four-year college program. It is designed to prepare students for professional careers and citizenship as well. It does not intend to train "érudite" scholars, but responsible citizens, capable of understanding self-improvement.

Basic and general studies in physical sciences, in mathematics, or even in environmental sciences, for

example, are not merely the revision of notions and concepts already discussed in high school. The courses are planned to deepen the student's knowledge in the disciplines as related to man's life and action. For a similar reason, it does not need to give the same kind of instruction, e.g., lecture in General Chemistry for freshmen in science, in pedagogy, in medicine, in pharmacy, in dentistry, and in chemical engineering, during the first two years of undergraduate education.

In summary, the core curriculum would be considered as a basis for the foundation of the future undergraduate curriculum. Obviously, it should not be as rigid as one might expect it to be. Rather, it should be flexible to change, since the major objective of the core curriculum is to provide the learner as much as possible with common and basic knowledge, and general education as well.

Summary of the Chapter

In this chapter, the core curriculum is based upon current trends in higher education and assumption of the essential characteristics of a proposed undergraduate education in Vietnam.

The proposed core curriculum pursues five objectives through a pattern consisting of: (1) basic and general studies, (2) major concentration areas, and

(3) electives. The evaluation of this curriculum follows the path set in Chapter I and reveals that it could satisfy the questions raised in this study. Thus, implementation for the core curriculum will then be presented in the following chapter.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

The Purpose of the Study

This study proposes a model core curriculum for the first two years of undergraduate education. The model core curriculum is planned to provide students with the following: (1) preparation for citizenship under national standards of undergraduate education, and (2) basic and general studies common to all who pursue higher education as well as pre-professional preparation. It also intends to maintain the optimum distribution of resources within the university to insure effective and balanced instructional programs and other educational services.

The Method Used in the Study

The study is primarily descriptive and involves the following processes: (1) direct documentary analyses which consist of an analysis of the status of higher education and its current undergraduate curriculum, (2) assessment of a future undergraduate education that would

meet the needs of the students and nation, based upon an opinion survey, and (3) design of the proposed model core curriculum.

The Model Core Curriculum

The planning of the model core curriculum takes into account these considerations in Vietnam: (a) the historical development of higher education that leads to the comprehension of its present curriculum, teaching, and learning processes, and academic organization and governance, (b) the analyses of the current undergraduate curriculum, and (c) the actual trends and tendencies in higher education.

Attempts to review the outcome of the present undergraduate curriculum are approached through a brief written survey and personal interviews of teachers and students. The survey reflects a common opinion on the change in higher education as well as on the criteria of the future undergraduate education.

The major findings from this survey are as follows:

1. It was found that some type of core curriculum in higher education would be appropriate to the learning of anyone who attempts to pursue higher education. It is believed that basic learning in science, mathematics, humanities, social

sciences, is pertinent to Man's fundamental knowledge.

2. It was found that professional preparation and basic and general knowledge are deemed as useful and necessary for personal life, hence for the student's interest.

3. It was recommended that the undergraduate curriculum should be involved in the student's change of attitude and behavior, providing the student more opportunity to participate in the community activities. Thus, the development of communication skills should be included as a part of the core curriculum.

Considering the above opinions, it would appear that the future undergraduate education would present these criteria:

1. College education in Vietnam should provide the student with sufficient basic knowledge to make him conscious of himself and the environment in which he lives.

2. College undergraduate education should promote and develop the Vietnamese student's skills of communication, thus making human interactions and relationship almost limitless.

3. College undergraduate education would provide the Vietnamese student with a total view of his college experience which would help develop his broad competencies in and readiness for self-education and self-improvement.

4. College education in Vietnam would provide the student with full mastery in his professional preparation.

5. College education in Vietnam would emphasize learning in basic sciences, social sciences, and humanities.

These five criteria serve as a guide in the selection and clarification of objectives in planning the proposed model core curriculum. This core curriculum then includes the following components:

Components	Credits (Percentages)[1]
General core requirements	23 (35 per cent)
College or divisional specialization or major concentration requirements	24-27 (40 per cent)
Concentration electives or free electives	15 (25 per cent)

[1]Percentage of the total two-year curriculum requirements.

The evaluation of the core curriculum indicates that the requirements for the first two years of undergraduate programs are equal to, or greater than, the requirements for the propaedeutic and second years together, of the present university four-year curriculum.

Recommendations

Recommendations for Implementing the Proposed Model Core Curriculum

The proposed change in higher education in Vietnam implies a systematic process of adopting either new concepts in education and/or new organizational patterns in university administration. In fact, the proposed model core curriculum for the first two years of undergraduate education would not be considered as innovative, since the idea of establishing community junior colleges is already conceived and adopted as being relevant to Vietnam's post-war development and reconstruction.[2]

However, it seems to the author that the model core curriculum is pertinent to educational innovation if the following recommendations are carefully considered.

1. It is recommended that the core curriculum be adopted in state universities and community junior colleges as well. Each type of institution should identify its own educational

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[2]Khê, op. cit.

objectives in the planning of such a core curriculum. Whereas the community junior colleges will specify it only for transfer and/or terminal programs, the state universities will adopt it as university-wide core program.

2. It is recommended that the planning of the core curriculum be involved in the student's learning as a whole, covering extra-curricular activities as well as activities in the classroom, laboratory, and in other educational facilities. Curriculum objectives should stress the student's living-learning process and should be concerned with the learning outcome rather than the course or curriculum content.

3. It is recommended that the core curriculum be organized in a pattern consisting of three components: (1) courses in basic and general studies, (2) courses in school's major concentration, and (3) elective courses. Each course should be planned to carry small credit packages (3 to 5). To complement this, there should be established a National Accreditation Association which would be a function of the Ministry of Education, the state universities, and public community junior colleges.

4. It is recommended that the present university academic governance and organization be reorganized to meet new demands in higher education. Academic affairs might be redefined as responsible to such as: curriculum development and evaluation; testing and grading system; teaching evaluation; library development, etc.

5. It is recommended that courses in the core curriculum should be designed to have at least two of these requirements: discussion, reading assignment, term paper, library work, and use of textbooks. Hence, a college or university catalog or bulletin is desirable for student guidance and counseling.

6. It is recommended that the grading system should be reviewed. Grades might be adopted as they were in the traditional Vietnamese examination system, of the time before the French educational system became influential, as follows:

Grade	Numerical Grading	Vietnamese Grading
A	4.	Ưu
B	3.	Bình
C	2.	Trung
D	1.	Thứ
H	Ø.	Hỏng (Liệt)

7. It is recommended that the student's enrollment, registration, and records of standing should be scientifically reorganized, using IBM processes and other facilities for such a purpose.

8. It is recommended that both state universities and community junior colleges should have an institutional research and development office that is continuously responsible for curriculum review and evaluation, and institutional planning and development.

9. It is, finally, recommended that public higher education in Vietnam should be systematically reorganized as follows: (1) state universities, (2) state technical universities, and (3) community junior colleges. State universities are: The University of Saigon, the University of Hue, and the University of Cantho. State technical university would combine the present National Technical Center and the National Agricultural Center in Saigon. The National Institute of Administration should be included in the University of Saigon as the College of Public Administration. Hence, the terms "higher schools" of technical and vocational education (Trường Cao-Đẳng Chuyên-Nghiệp) could be deleted. This new higher educational setting would enhance the development of

the core curriculum as a common program for the first two years of undergraduate education.

Recommendations for Further Research

This study is only a descriptive research. Thus, further investigations are needed to improve this model core curriculum and to evaluate the effectiveness of such a curriculum in undergraduate education in Vietnam.

To complement this study, there should be more experimental studies in which the student's achievement and the impact of college education on student's change in behavior and attitude are in relation to the core curriculum. It can be said from this study that the core curriculum would be effective in student change, but to prove this, a resourceful analysis from a wide survey is recommended.

The introduction of the core curriculum would surely be confronted by faculty reaction. A follow-up study is desirable if an expected teaching-learning outcome is deemed as a fundamental goal of the university or college. The study will help curriculum makers in designing sound programs of instruction in higher education.

To another extent, it will be more meaningful to the development and evaluation of the core curriculum if surveys can be conducted in senior high schools (grades 10 through 12) to see what students need and expect to

receive from formal education beyond their high school graduation--the Baccalauréat II. This will be appropriate not only to the community junior colleges, but also to universities as well, in planning vocational curriculums.

Finally, the core curriculum, as a part of continuing education programs, will require further surveys of community needs. Hence, it is recommended that studies pertaining to the involvement of the graduate student in the activity and progress of his community could be conducted.

Conclusion

Higher education in Vietnam is undergoing tremendous changes. The beginning of this decade has witnessed not only a growth of unprecedented dimensions in higher education, in terms of enrollments and institutions of higher learning, but also the emergence of social demands facing up to postwar problems and reconstruction, and aspirations which result in new challenges to education. These aspirations are reflected in the urge for national reconstruction and development--an expression which requires not merely the hardware of economic renaissance and growth but also, and more important, social reorganization and change, development and effective use of manpower, and awareness of national identity and cultural heritage. These social demands urge that

colleges and universities should be an open-door to all citizens who can make good use of their education.

Higher education, then is confronted with the need for personal improvement and change. Its curriculum is relevant to the national progress when, in a democratic society, its graduates, as citizens, are aware of their responsibilities, rights, and obligations towards themselves and their fellow men as well.

Together with the war, modern science and technology have entered the Vietnamese village. Higher education, therefore, must contribute to the dissemination of basic scientific knowledge and the acquisition of the essential attitudes and skills in this area as well as it must build up relationships, foster inter-group, national and international understanding and emotional integration. These are the duties of a college or university in Vietnam.

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APPENDICES

APPENDIX A

AN ESSAY REVIEWING THE ROLE OF THE UNIVERSITY OF CANTHO IN THE VIETNAMESE SOCIETY

APPENDIX A

Thử xét lại vai-trò của Viện Đại-học Cầnthơ trong xã-hội Việt Nam.

Tác-giả bài « Thử xét lại vai-trò của Viện Đại Học Cầnthơ trong xã-hội Việt-Nam » là một nhân-viên giảng-huấn nhiều năm tại Đại-học. Ông lại là một trong những người đã tích-cực hoạt-động trong việc xây-dựng Viện Đại-Học Cầnthơ trong buổi ban đầu.

Nhân dịp kỷ-niệm năm năm thành lập Viện Đại-học Cầnthơ và trong chiều-hướng canh-tân kỹ-thuật và đường lối mỗi ngày mỗi tiến-tộ hơn của Đại-học, chúng tôi xin đăng bài « Thử xét lại vai-trò của Viện Đại-học Cầnthơ trong xã-hội Việt-Nam như một quan-điểm về việc đề-nghị cải-tiến để quý độc-giả cùng nhận định. *L.T.S.*

Đại-học thường là nơi để học hỏi và giảng-dạy. [1,2,3,4]

Hai nhiệm-vụ đó có hoàn-tất, mục-đích của đại-học mới đạt được. Giáo-dục đại-học tự nó không có gì quan-trọng hết ; chỉ có những người đã thụ-hưởng được giáo-dục đại-học làm cho giáo-dục đó trở nên có giá-trị, nhất là có giá-trị xây-dựng và cải-tiến đối với nhân-dân.

1.— Mục-đích của giáo-dục ở đại-học phải giúp cá-nhân định-hướng sự thay đổi ở nội-tâm.

Mạnh-tử viết rằng : « giáo-dục tất-nhiên phải tu-chỉnh.[5] Tu-chỉnh có thể là thay đổi từ cái sai ra cái đúng, từ cái xấu ra cái tốt, hay từ cái mù mờ ra cái sáng sủa. Quan-niệm giáo-dục đó bắt buộc chấp-nhận sự thay đổi, sự cần thiết phải thay-đổi khi con người được giáo-dục.[6] Muốn vậy, mục-tiêu của giáo-dục đại-học phải nhân-cách-hóa. Đó có nghĩa là, giáo-dục đại-học (1) ích-lợi cho cá-nhân của sinh-viên, (2) đáp-ứng nhu-cầu của cộng-đồng, và (3) thích-ứng với sự tiến-triển của quốc-gia và của thế-giới.

Tất-nhiên giáo-dục đại-học phải giúp sinh-viên phát-huy khả-năng trao đổi tư-tưởng, phát-triển ý muốn thay-đổi ở nội-tâm, giúp họ dễ-dàng trong việc hòa mình và đóng góp vào sự tiến-bộ của cộng-đồng, và nhất là bồi-bổ và tăng-cường sự học-hỏi của họ mãi.

Nhưng giáo-dục đại-học không thể coi như là một vấn-đề riêng biệt. Sự tương-quan giữa đại-học và xã-hội không phải chỉ là một hiện-tượng xã-hội thông thường. Đó phải là cả một sự chủ-tâm đúc-kết từ một quan-niệm giáo-dục và xã-hội nhằm vào sự liên-quan giữa : Cá-nhân — Cộng-đồng — Xã-hội.

Dù ở xã-hội tiến-hóa nào, đại-học vẫn có trách nhiệm nặng. Những trách-nhiệm đó quy vào sự tiêu-thụ, sản-xuất và sáng-tạo. Nhưng đại-học không bao giờ là nơi tiêu-thụ cả. Vì, nếu chỉ là nơi tiêu-thụ, thì đại-học chẳng hóa ra là một sự xa-hoa của một xã-hội phong-lưu, một món vật trưng bày của xã-hội đó, chớ không phải là một sự cập-nhật-hóa của sự tiến bộ của nhân loại.[7] Trong trường-hợp đó, đại-học chỉ là một cơ-quan tiêu-thụ ngân-quỹ quốc-gia và trợ-cấp tư-nhân.

Trái lại, nếu là nơi sản-xuất và sáng-tạo, đại-học trước nhất phải là nơi phát-huy tư-tưởng, sáng-kiến và kỹ-thuật mới. Tư-tưởng và sáng-kiến là nguyên-liệu của tiến-bộ ; kỹ-thuật là nồng-cốt của sự phát-triển. Đó là những căn bản của sự hiểu biết và văn-minh.

Như vậy, mục-tiêu của đại-học phải chú-trọng đến những căn-bản đó. Thực ra, càng học nhiều người ta càng hiểu biết rộng, và do đó người ta càng dễ thay-đổi để tiến-bộ. Tuy nhiên, khi những sự thay-đổi ở mỗi cá-nhân không còn có giá-trị và hợp-thời nữa, hay không còn là một sự bắt-buộc hay là một nhu-cầu thiết-yếu nữa, việc kiểm-điểm và cải-tiến các mục-đích của giáo-dục đại-học phải được nghiên-cứu kỹ-lưỡng lại. Đó chính là đặc-tính biến-chuyển của đại-học.

2.— Chương-trình ở đại-học phải nhắm vào việc phát-huy sự học-hỏi của cá-nhân sinh-viên.

Chương-trình giảng-huấn ở Viện Đại-Học Cần-thơ càng quan-trọng hơn vì đó là chương-trình sơ-cấp đại-học không thể được coi như một vấn đề thông-thường, bởi vì chương-trình giảng-huấn bao giờ cũng phải liên-quan đến : (1) người sinh - viên, và (2) xã-hội. Muốn cho đại-học hoàn-thành nhiệm-vụ truyền-bá tư-tưởng và phát-huy sáng-kiến, chương-trình đại-học phải đáp-ứng sự đòi hỏi của thời-đại. [8]

Thông thường, khi thảo ra chương-trình giảng-huấn, quyền-lợi của người thụ-huấn dường như bị quên lãng. Điểm quan-trọng không phải là chương-trình có được liên-tục trong 4 năm học hay không, mà là sau 4 năm học người sinh-viên tốt-nghiệp sẽ dùng được gì những điều mà họ học được ở Viện Đại-học Cần-thơ theo chương trình đã đề ra.

Quan-niệm thông thường hay cho rằng cứ đợi và chờ xem coi chương-trình giảng huấn đại-học sẽ tác-dụng thế nào đối với các biến-chuyển của xã-hội và của thời-đại, rồi sau đó sẽ tu-chỉnh lại. Nếu chương-trình đại-học chỉ chuyên chạy theo các biến-chuyển của xã-hội, thì đó chỉ là một sự tích-súc các kiến-thức, bởi vì chương-trình giảng-huấn chỉ đặt ra để thỏa-mãn một hệ-thống tổ-chức xã-hội đã sẵn có với các giá-trị riêng của nó kết-tinh sẵn trong phong-tục và thái-độ của xã-hội.

Ở đại-học, nghiên cứu và hoạch-định chương-trình giáo-dục là phải nhìn thấy trước những biến-chuyển của xã-hội như là kết-quả trực-tiếp của chương-trình đại-học. Chương-trình giáo-dục ở đại-học phải có một cơ-cấu vững chắc cả về phương-diện giảng-huấn lẫn học hỏi. Chương-trình đó phải đảm-bảo cho người sinh-viên về quyền-lợi cá-nhân của họ lẫn sự tham-gia của họ vào việc phát-triển cộng-đồng sau khi tốt-nghiệp. Tuy-nhiên, chương-trình giáo-dục ở đại-học không chịu trách-nhiệm về sự biến-hình của một sinh-viên năm thứ nhất thành một người tốt-nghiệp cử-nhân. Nhưng chương-trình đại-học lại hoàn-toàn chịu trách-nhiệm về phương-thức học-hỏi của sinh-viên, thí-dụ về luật, về y-khoa, về kỹ-thuật, v.v... và sự hữu-dụng của các ngành học đó sau khi người sinh-viên rời khỏi ngưỡng cửa đại-học. Như vậy, tùy theo khả-năng học tập và tài riêng của mỗi sinh-viên, chương-trình giáo-dục đại-học hoặc có thể giúp sinh-viên trở thành một chuyên-viên hay một cán-bộ trung-cấp thiện-nghệ. Nói một cách khác, chương-trình giảng-huấn ở đại-học không thể tạo ra nghề-nghiệp, mà chỉ đem lại cho sinh-viên những yếu-tố căn-bản để họ trở nên một người chuyên-nghiệp.

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"An Essay Reviewing the Role of the
University of Cantho in the
Vietnamese Society"
(Translation)

A university is a place of learning and teaching.[1,2,3,4] When these two functions are achieved, the objectives of higher education are then attainable. A college education in itself does not have any importance; only as those who have received college education make it valuable and available to other people does its value become apparent.

1. Objectives of Higher Education Should Provide Direction for Change in the Individual.

Mencius said: "Teaching necessarily involves correcting."[5] Correction means change from the wrong to the right, from the bad to the good, from the ambiguous to the lucid. This idea of teaching imposes an obligation to receive a modification, a necessity to have to change.[6] Thus, the objectives of college education must be personalized, i.e., (1) purposeful for the interest of the individual, (2) responsive to the need of the community, and (3) adaptive to nation- and world-wide progress.

In fact, a college education should help the student expand his communication ability, develop his flexibility and willingness to change, improve his human relations, facilitate his participation and contribution to the community progress, and expand his personal intellectual growth. But, a college education cannot be considered as an isolated problem. The relationship between the university and the society is not merely a sociological event. It must be a purposeful anticipation resulting in an educational and social concept which focuses on a three-fold relationship, Individual-Community-Society.

In any changing society, universities and colleges are mere functional responsibilities. These are responsibilities for consumption and responsibilities for production and creation. Higher education should not be

consumptive. But, if it is, the "university, therefore, is . . . an indulgent luxury of a rich society, . . . an ornament to embellish its culture, but [not] a day-to-day for the well-being of manking."[7] The university, in such a case, is an agency consuming public funds and private finances.

On the contrary, a college education should be productive and creative. A university is first of all a center for producing ideas and promoting new techniques. Ideas are the raw materials of progress; techniques are the essential elements of development. These are the foundations of knowledge and civilization.

Thus, objectives of higher education should undertake such foundations which are of paramount importance in the change of the individual. Positively, the more one learns, the better one knows, and the faster one may change. But it must be understood that, in certain measure or at a certain moment when the value of the changing order is not desirable, the change in the individual is no more a necessity or a responsibility. In this circumstance, reappraisal and improvement of the objectives of higher education should be carefully considered. This is the changing characteristic of higher education.

2. College Curriculum Should Promote the Learning of the Individual.

The college curriculum at the University of Cantho (and, with greater reason, the undergraduate curriculum) cannot be considered as an isolated issue, because curriculum must be first of all related to (1) the student and (2) the society. Given the task of providing both for transmission of knowledge and for production of new ideas for public use, every university curriculum must meet the challenge of the age.[8]

Too often, investigation of the curricular objectives, either for planning or for changing the curriculum, ignores the learner's interest. The important point is not that curriculum should be or should not be continuous for four years; it is, rather, that what the graduate from the University of Cantho could make good use of that which he has learned after four years of study as prescribed by the university curriculum.

Generally, people have a tendency to wait and see how the curriculum develops along with the changing order, and later a review could be possible, if needed. If the university curriculum merely follows the changing order

in the society, it would be only an accumulation of information, because one is making a program responding to a ready-made system with its own values crystallized in its processes and attitudes.

In higher education, curricular study and planning should foresee the changing social order as an outcome of the college curriculum. The college curriculum should provide a structure both for learning and instruction. It should assure the learners that the planning will include their personal interest and their involvement in the community progress, recalling that the university programs are not responsible for the metamorphosis of a college freshman to a Bachelor. But, a university curriculum is totally accountable for the learning process of the student, for example, in law, in medicine, in engineering, etc., and its use when the student leaves the university. Thus, depending upon the abilities and talents of each student, the university program may help him either becoming a specialist or a well-qualified foreman. In other words, this is to say that an educational program in college cannot make a professional but can only provide the student with the resources with which he may become one.

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[1]Michael J. Oakeshott, "The Definition of a University," Journal of Educational Thought, I, No. 3 (1967), 129.

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[3]Paul L. Dressel, College and University Curriculum (Berkeley, California: McCutchan Publishing Co., 1968), p. vii.

[4]B. G. Gallagher, "The Mission and Meaning of Higher Education," in Current Issues in Higher Education, ed. by G. Kerry Smith, et al. (Washington, D.C.: Association for Higher Education, N.E.A., 1955), p. 2.

[5]J. Legge, Life and Teaching of Confucius, Book I, Annalect 19 (Philadelphia: J. B. Lippincott and Co., 1867).

[6]Paul L. Dressel, "Factors Involved in Changing the Values of College Students," Educational Record, XLVI (1965), 104-13.

[7]Clark Kerr, op. cit., p. 269.

[8]John F. Kennedy, "Message to the Eighteenth National Conference on Higher Education," in Current Issues in Higher Education, ed. by G. Kerry Smith, et al. (Washington, D.C.: Association for Higher Education, N.E.A., 1963), p. i.

APPENDIX B

SURVEY CHECK LIST

APPENDIX B

Bản Tham-Khảo Ý-Kiến

Bản Tham-khảo Ý-kiến nầy được soạn ra với mục-đích giúp Đại-học cải-tiến chương trình học cùng lề-lối giảng-huấn hiện hữu ở Đại-học Việt-Nam,

Mong Giáo-sư/Bạn dành cho 5 phút để ghi vào các ô thích-ứng của Bản Tham-Khảo Ý-kiến nầy: 1 phút để ghi các khoản ở Phần 1, và 4 phút để trả lời các câu ở Phần 2.

Xin đa-tạ các ý-kiến xây-dựng và sự hợp-tác của Giáo-sư/Bạn.

Phần 1: Dữ-kiện

(Xin ghi ô thích-hợp)

1. Giáo-sư/Bạn thuộc lớp tuổi:
   - ☐ 21-30
   - ☐ 31-40
   - ☐ 41-50
   - ☐ trên 50

2. Giáo-sư/Bạn thuộc phái:
   - ☐ nam
   - ☐ nữ

3. Giáo-sư/Bạn đã đổ cấp-bằng cao nhứt là:
   - ☐ Tú-Tài II
   - ☐ Cử-Nhân
   - ☐ Tiến-sĩ Đệ-Tam Cấp
   - ☐ Tiến-sĩ Quốc-gia

4. Giáo-sư/Bạn đã hoàn-tất chương-trình học:

	Sơ-cấp Đại-học	Cao-cấp Đại-học
- ở nước nhà	☐	☐
- ở nước ngoài	☐	☐

5. Giáo-sư/Bạn đã chọn ngành chuyên-môn là:
   - ☐ Khoa-học Toán
   - ☐ Khoa-học Chính-xác
   - ☐ Khoa-học Sinh-học
   - ☐ Khoa Y-học
   - ☐ Khoa-học Nông-nghiệp
   - ☐ Khoa-học Địa-học
   - ☐ Khoa-học Xã-hội
   - ☐ Khoa-học Nhân-văn
   - ☐ Giáo-dục/Sư-phạm
   - ☐ Kỹ-thuật

6. Giáo-sư/Bạn hiện đang có những hoạt-động trực-tiếp/gián-tiếp với Viện:

	Toàn Thời Gian	Bán Thời Gian
Đại-học Saigon	☐	☐
Đại-học Huế	☐	☐
Đại-học Cầnthơ	☐	☐
Đại-học khác	☐	☐

Phần 2: Ý-kiến

(Xin ghi ô thích-hợp, một hay nhiều ô tùy bạn thấy là vấn-đề phải được như vậy.)

1. Theo như Giáo-sư/Bạn đã/sắp hoàn-tất sự học hỏi ở bậc sơ-cấp đại-học, Giáo-sư/Bạn tin-tưởng rằng những điều-kiện căn-bản bắt buộc của giáo-dục sơ-cấp đại-học ở Việt-Nam cần phải bao gồm những địa-hạt học hỏi sau đây để tăng-cường sự hiểu-biết căn-bản của bất-cứ ai nếu tiếp-tục sự học ở đại-học:

   - ☐ Khoa-học Chính-trị
   - ☐ Khoa-học Xã-hội
   - ☐ Khoa-học Nông-nghiệp
   - ☐ Khoa-học Căn-bản
   - ☐ Khoa-học Sinh-học
   - ☐ Khoa-học Toán
   - ☐ Khoa-học Nhân-văn
   - ☐ Chuyên-khoa
   - ☐ Địa-hạt khác
     (Xin ghi rõ: _____)

Phần 2: Ý-kiến

(Xin ghi ô thích-hợp, một hay nhiều ô tùy bạn thấy là vấn-đề phải được như vậy.)

2. Theo như Giáo-sư/Bạn đã/đang có kinh-nghiệm về các vấn-đề giáo-dục của Việt-Nam, Giáo-sư/Bạn nghĩ rằng một hay những ngành học liệt-kê dưới đây cần phải được đem vào chương-trình sơ-cấp đại-học để có thể hữu-hiệu-hóa giáo-dục đại-học theo nhu-cầu của cá-nhân và của xã-hội:

- ☐ Khoa-học Nông-nghiệp
- ☐ Đại-số-học
- ☐ Giải-tích-học
- ☐ Thiên-văn-học
- ☐ Tân-thương Nghệ-thuật
- ☐ Khoa-học Sinh-học
- ☐ Tính-số-học
- ☐ Hóa-học
- ☐ Việt-văn
- ☐ Khoa-học Địa-học
- ☐ Kinh-tế-học
- ☐ Địa-lý-học
- ☐ Giáo-dục
- ☐ Ngoại-ngữ
- ☐ Hình-học
- ☐ Sử-học
- ☐ Khoa-học Thần-văn
- ☐ Pháp- và Luật-học
- ☐ Văn-chương
- ☐ Luận-lý-học
- ☐ Quản-trị Tổ-chức
- ☐ Triết-học
- ☐ Vật-lý
- ☐ Thể-dục
- ☐ Khoa-học Chính-trị
- ☐ Tâm-lý-học
- ☐ Quản-trị Công-sở và Hành-chánh
- ☐ Y-tế Công-cộng
- ☐ Khoa-học Xã-hội
- ☐ Xã-hội-học
- ☐ Diễn-đạt và Giao-thiệp
- ☐ Thống-kê
- ☐ Ngành học khác (Xin ghi rõ: _____)

Phần 2: Ý-kiến

(Xin ghi ô thích-hợp, một hay nhiều ô tùy bạn thấy là vấn-đề phải được như vậy.)

3. Theo như Giáo-sư/Bạn đã/đang theo đuổi sự học ở đại-học, Giáo-sư/Bạn mong rằng giáo-dục sơ-cấp ở Đại-học Việt-Nam cần phải giúp sinh-viên có:

- ☐ một sự hiểu biết tổng-quát và căn-bản hữu-dụng cho đời sống của cá-nhân
- ☐ đầy đủ khả-năng giao-thiệp để dễ thông-cảm và hợp-tác với mọi người
- ☐ một động-lực để tham-gia vào các hoạt-động của cộng-đồng
- ☐ một sự chuẩn-bị vững chắc cho ngành chuyên-môn
- ☐ ý-kiến khác (Xin ghi rõ: _____)

Phần 2: Ý-kiến

(Xin ghi ô thích-hợp, một hay nhiều ô tùy bạn thấy là vấn-đề phải được như vậy.)

4. Theo kinh-nghiệm ở đại-học của Giáo-sư/Bạn, Giáo-sư/Bạn đã/đang ý-thức được những vấn-đề sau đây thích-đáng nhất đối với sự thay đổi tính-tình và khả-năng phán-đoán của Giáo-sư/Bạn: hòa-hợp với tất cả các hạng người, hợp-tác với các cá-tính khác biệt, phản-uất đối với tất cả các quy-tắc và luật-lệ của đại-học, v.v.

Trong các địa-hạt của những ngành học chính liệt-kê dưới đây, Giáo-sư/Bạn nghĩ rằng ngành/những ngành ghi sau đây cần phải được đem vào chương-trình sơ-cấp đại-học ở Việt-Nam để giúp sinh-viên có cơ-hội thay đổi chính ở bản-thân:

- ☐ Ngành học hướng-nghiệp
- ☐ Ngành học chuyên-nghiệp
- ☐ Ngành học tổng-quát
- ☐ Ngành học về Nhân-văn
- ☐ Ngành học về Toán
- ☐ Ngành khoa-học Xã-hội
- ☐ Ngành học khác
  (Xin ghi rõ: _____)

Xin thành-thật cảm-tạ Giáo-sư/Bạn

Survey Check List

This Survey Check List is prepared for the purpose of helping the University improving its current curriculum as well as its instructional processes.

We wish that you could spend five minutes checking the appropriate boxes in this Survey Check List: one minute to fill out Part 1, and four minutes to answer the questions of Part 2.

Thank you very much for your contributing suggestions and for your cooperation.

Part 1: Identifying Information

(Check an appropriate box)

1. Your age group is:
   - ☐ 21-30
   - ☐ 31-40
   - ☐ 41-50
   - ☐ over 50

2. Your sex is:
   - ☐ male
   - ☐ female

3. Your highest degree is:
   - ☐ High School Graduate
   - ☐ Bachelor
   - ☐ Master
   - ☐ Doctor

4. Your education was completed:

	Undergraduate	Graduate
in country	☐	☐
abroad	☐	☐

5. Your specialty is:
   - ☐ Mathematics
   - ☐ Physical Sciences
   - ☐ Biological Sciences
   - ☐ Medical Sciences
   - ☐ Agricultural Sciences
   - ☐ Earth Sciences
   - ☐ Social Sciences
   - ☐ Arts and Humanities
   - ☐ Education
   - ☐ Engineering

6. Your present activities in the following institutions are:

	Full Time	Part Time
University of Saigon	☐	☐
University of Hue	☐	☐
University of Cantho	☐	☐
Other Universities in Vietnam	☐	☐

   - ☐ Other than in a University

Part 2: Opinion Information

(Check as many boxes as the problem requires)

1. As you have completed/are going to complete your undergraduate work, you believe that the basic requirements for an undergraduate education in Vietnam should cover the following disciplines in order to strengthen the foundation of knowledge of anyone who pursues higher education:

   - ☐ Agricultural Sciences
   - ☐ Basic Sciences
   - ☐ Biological Sciences
   - ☐ Mathematical Sciences
   - ☐ Humanities and Arts
   - ☐ Political Sciences
   - ☐ Social Sciences
   - ☐ Professional Fields
   - ☐ Others (Specify:_____)

Part 2: Opinion Information

(Check as many boxes as the problem requires)

2. As you have experienced/are experiencing Vietnam's educational issues, which of the following fields[a] do you think should be included in the undergraduate curriculum of an efficient higher education system responsive to the needs of the individual and nation:

- ☐ Agricultural Sciences[b]
- ☐ Algebra
- ☐ Analysis
- ☐ Astronomy
- ☐ Arts Appreciation
- ☐ Biological Sciences[b]
- ☐ Calculus
- ☐ Chemistry
- ☐ Composition
- ☐ Earth Sciences[b]
- ☐ Economics
- ☐ Education
- ☐ Foreign Languages
- ☐ Geography
- ☐ Geometry
- ☐ History
- ☐ Humanities[b]
- ☐ Juriprudence
- ☐ Literature
- ☐ Logic
- ☐ Organization Management
- ☐ Philosophy
- ☐ Physics
- ☐ Physical Education
- ☐ Political Sciences
- ☐ Psychology
- ☐ Public Administration
- ☐ Public Health
- ☐ Social Sciences[b]
- ☐ Sociology
- ☐ Speech Communication
- ☐ Statistics
- ☐ Others (Specify:_____)

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[a]These specialties were established after the "Survey of Earned Doctorates Awarded in the United States, Specialties," NSF Form 9D, February 21, 1968.

[b]General

Part 2: Opinion Information

(Check as many boxes as the problem requires)

3. As you have pursued/are pursuing your higher education, you wish that the undergraduate education in Vietnam could provide the student with:

   - ☐ basic and general knowledge useful for personal life
   - ☐ full communication skills for better understanding and cooperation
   - ☐ motivation for community participation
   - ☐ strong professional preparation
   - ☐ others (Specify: _____)

Part 2: Opinion Information

(Check as many boxes as the problem requires)

4. Through your college education experience you found/are finding these problems most relevant to your changes in attitudes and critical thinking abilities: getting along with all types of people, association with differing personalities, resentment of any university rules and regulations, etc. Which of the following areas of studies do you think should be included in the current undergraduate curriculum in higher education in Vietnam in allowing a student such an opportunity for change?

- ☐ Vocational studies
- ☐ Professional studies
- ☐ General studies
- ☐ Humanities studies
- ☐ Mathematical studies
- ☐ Social studies
- ☐ Others (Specify:_____)

Thank you so much

APPENDIX C

COURSE DESCRIPTION AS LISTED AS BASIC REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN VARIOUS FIELDS IN THE FACULTY OF SCIENCE, CHIENG MAI UNIVERSITY

APPENDIX C

COURSE DESCRIPTION AS LISTED AS BASIC REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN VARIOUS FIELDS IN THE FACULTY OF SCIENCE, CHIENG MAI UNIVERSITY

1. Courses in Biology

Biology 103. General Principles of Biology 4 sem. hrs. (3-3)
Prerequisite: High School Biology
The study of general biological principles concerning plants and animals. Lecture and Laboratory topics include the modern cell concept; principles of classification and comparative aspects of anatomy and physiology; ecology; genetics and evolution. One discussion period per week is required for every student.

Biology 105. Survey of Biology 4 sem. hrs. (3-3)
Prerequisite: None
The study of general biological principles concerning plants and animals. Lecture topics are the same as Biology 103. Laboratory is demonstration-discussion type. This course is only for students who do not intend to continue on with other Biology courses.

Biology 111. Zoology 3 sem. hrs. (2-3)
Prerequisite: Biology 103
Detailed study of animals. Lectures and Laboratory exercises stress particularly comparative morphology and physiology of animals. One discussion period per week is required for every student.

Biology 112. Botany 3 sem. hrs. (2-3)
Prerequisite: Biology 103
Detailed study of plants. Lectures and Laboratory exercises stress particularly comparative animal morphology and physiology. One discussion period per week is required for every student.

Biology 222. Comparative Vertebrate Anatomy 5 sem. hrs. (4-3)
Prerequisite: Biology 111
The comparison of the organsystems in the important vertebrate groups. Practical work includes dissection to compare internal organs of sharks, turtles, birds, and rabbits.

Biology 223. Genetics 4 sem. hrs. (3-3)
Prerequisites: Biology 111 and 112, Chemistry 102 or 112, Mathematics 102 or 103.
The study of general genetic principles concerning heredity and common examples that are found in man, animals, plants and microorganisms.

Biology 317. Comparative Developmental Anatomy 4 sem. hrs. (3-3)
Prerequisites: Biology 111; and preferably also Biology 222.
The study of descriptive embryology of the echinoderm, amphibian, chick and mammals from the single-celled stage up to the early stages of organ formation. Anamial reproduction, growth and differentiation, gametogenesis, fertilization and abnormal development are also discussed.

2. Courses in Chemistry

Chemistry 101. General Chemistry 4 sem. hrs. (3-3)
Prerequisite: None
Basic atomic theory. Introduction to nuclear chemistry. Classification of elements and their electronic configuration. Periodic Table. The electronic theory of chemical bonding. Acid-base equilibria. Equilibria in oxidation-reduction. Atomic weight. Equivalents. Molecular weight determination. Kinetic theory of gases. Electrochemistry. Volumetric quantitative analysis.

Chemistry 102. General Chemistry 4 sem. hrs. (3-3)
Prerequisite: Chemistry 101
Some important metals and non-metals. Alkali and Alkaline earth metals. Transition elements. Chemistry of complex compounds. Hydrogen, oxygen, nitrogen, halogens and their compounds. Colloid chemistry. Introduction to organic chemistry. Qualitative analysis.

Chemistry 103. Scientific Technique 2 sem. hrs. (2-0)
Prerequisite: None
Importance of scientific investigation. Use of journals and other works of reference in the library. Form and method of writing a thesis and scientific reports. Important techniques used in observation, data collection, and interpretation of facts obtained from experiments.

Chemistry 111. General Chemistry for Non-science Students 4 sem. hrs. (3-3)
Prerequisite: None
The atomic theory and electronic structure of atoms. Chemical bonding. Ionic equilibria. Electrochemistry. Chemistry of the atomic nucleus. Molecular weights. Kinetic theory of gases.

Chemistry 112. General Chemistry for Non-Major Students 4 sem. hrs. (3-3)
Prerequisite: Chemistry 111
Elements and the Periodic Table. Chemistry of metals and non-metals. Chemistry of complex compounds. Colloid chemistry. Qualitative analysis.

Chemistry 201. Organic Chemistry 4 sem. hrs. (3-3)
Prerequisite: Chemistry 102
Homology, isomerism, and stereoisomerism of saturated and unsaturated aliphatic compounds. Types of organic reactions. Activity and mechanism of reactions. Preparation and properties of aliphatic compounds and their qualitative analysis. Applications of electronic valency theory to the physical properties of the compounds.

Chemistry 202. Organic Chemistry 4 sem. hrs. (3-3)
Prerequisite: Chemistry 201
Chemistry and isomerism of aromatic compounds. Some properties of aliphatic compounds in contrast with those of aromatic compounds. Preparation and properties of aromatic compounds, and their qualitative analysis.

Chemistry 203. Organic Chemistry 4 sem. hrs. (3-3)
Prerequisite: Chemistry 112
"Designed for nursing, agriculture, and some other students" a one-semester course in organic chemistry, being an abridgment of Chemistry 201 and Chemistry 202.

Chemistry 204. Quantitative Analysis 4 sem. hrs. (3-3)
Prerequisite: Chemistry 102 or 112
Application of volumetric and gravimetric methods to the determination of typical inorganic constituents and organic functional groups. Introduction to instrumental chemical analysis.

Chemistry 205. Inorganic and Analytical Chemistry 1 4 sem. hrs. (3-3)

Prerequisite: Chemistry 102

The scope of analytical chemistry. Some elementary concepts important to quantitative analysis. Evaluation of analytical data. Gravimetric analysis. Volumetric analysis. Solvent extraction methods in analysis.

Chemistry 206. Physical Chemistry 4 sem. hrs. (3-3)

Prerequisite: Chemistry 102

Physical states of matters. First and second laws of thermodynamics. Properties of gases and fundamental kinetic theory of gases. Properties of solutions and conductivity of electrolytic solutions. Practical experiments based upon physical and chemical properties of gases, liquids, and solids. Properties of single binary systems.

Chemistry 208. Bio-Physical Chemistry 3 sem. hrs. (2-3)

This course has been designed for pre-medical students.

Prerequisite: Chemistry 102

States of matters. Gases, liquids, solution. Electrochemistry. Chemical reaction and equilibrium, buffer action, catalysis. Colloids. Elementary polymer chemistry. Enzyme kinetics and thermodynamics of enzyme reactions. Theory and use of modern analytical instruments. Practical experiments based upon above topics.

Chemistry 331. Biochemistry 3 sem. hrs. (2-3)

Prerequisite: Chemistry 202

The chemistry and functions of constituents of living things. Carbohydrates, lipids, proteins, and nucleic acids. The role of nucleic acid in protein synthesis. Enzymes and enzyme kinetics.

Laboratory exercises to illustrate principles described above.

3. Courses in Mathematics

Mathematics 101. General Mathematics 3 sem. hrs. (3-0)

Prerequisite: High School graduation (Science)

The structure of mathematics. Elements of logic and methods of proof (to include induction). Sets. The number system. Permutations. Functions and relations. Cartesian coordinate geometry of the straight line and circle. Elementary calculus including derivatives of the logarithmic and exponential function, partial differentiation. Elements of integral calculus.

Mathematics 102. General Mathematics 3 sem. hrs. (3-0)

Prerequisite: Math. lol or equivalent

Elements of calculus (continued); integration (methods to include change of variable, integration by parts, use of partial fractions); the definite integral. Partial differentiation (continued) as far as

$$dZ = \frac{\delta Z}{\delta x} dx + \frac{\delta Z}{\delta y} dy$$

Cartesian geometry: The conics. Polar coordinates. Linear equations and determinants.

Mathematics 103. General Mathematics 4 sem. hrs. (4-0)

Prerequisite: High School Graduation (Science)

Elements of set theory. A brief discussion of the number system. Permutations and combinations, binomial theorem, basic probability. Elements of logic used in proofs (to include induction). Inequalities. Cartesian coordinate geometry of the straight line and circle. Polar coordinates. Solution of certain trig-equations. Elements of differential calculus: Functions, limits, continuity, differentiation to include differentiation of implicit

functions and functions in parametric form. The logarithmic and exponential functions. Partial differential notation. Curve sketching.

Mathematics 104. General Mathematics 4 sem. hrs. (4-0)

Prerequisite: Mathematics 103 or consent of instructor

Elements of integral calculus: integration as the limit of a sum, a means of calculating areas under curves, and as the reverse of differentiation. Methods of integration: change of variable, integration by parts, manipulations of the integral (including partial fractions). Partial differentiation (continued) as far as

$$dZ = \frac{\delta Z}{\delta x} dx + \frac{\delta Z}{\delta y} dy$$

and its generalization. Cartesian geometry (continued): Simple properties of the conics including parametric treatments. Complex numbers: Argand diagram, polar form, De Moivre's theorem. Systems of linear equations. Determinants.

Mathematics 111. General Mathematics 3 sem. hrs. (3-0)

Prerequisite: High School Graduation (Science)

The number system. Methods of proof to include induction. Permutations and combinations. The binomial theorem. Linear simultaneous equations. Cartesian coordinate geometry of the straight line and circle. Polar coordinates. Elementary calculus: differentiation.

Mathematics 201. General Mathematics 3 sem. hrs. (3-0)

Prerequisite: Mathematics 102 or equivalent

Applications of calculus: volume, surface area, area length. Ordinary differential equations: first order types, separable and linear; second order equations with constant coefficients and simple driving functions. Convergence and divergence of series; Taylor and MacLaurin series for simple functions and their ranges of validity. Vectors, scalar and vector products. Matrix algebra as far as inverses.

Mathematics 203. General Mathematics 4 sem. hrs. (4-0)

Prerequisite: Mathematics 104 or consent of the instructor

Vectors: scalar, vector and triple products. Three dimensions coordinate geometry of the straight line and plane using vectors. Simple surfaces. Convergence: sequences and series. Simple tests. Taylor series and discussion of their range of validity. Differential equations: first order of types, linear, variable, separable, homogeneous, exact; second order equations with constant coefficients and simple driving functions. Linear equations: matrix algebra as far as inverses. Statistics: methods of representing data, means, standard deviation. Binomial, Gaussian, and Poisson distributions.

Mathematics 206. Elementary Statistics 3 sem. hrs. (3-0)

Prerequisite: Mathematics 102 or 104 or 111 (only nurses)

Methods of statistics. Frequency distributions: measures of central tendency, measures of dispersion and coefficient of dispersion, moments, skewness and kurtosis, normal distribution. Elementary sampling theorems. Test of hypothesis and significance. Chi-square Test. Curve fitting. Correlation theory.

Mathematics 207. Solid Analytic Geometry 3 sem. hrs. (3-0)

Prerequisite: Mathematics 104 or consent of the instructor

Coordinates and lines, planes, surfaces and curves. Quadric surfaces. Theory of matrices. Rotation

of axes and applications. Spherical coordinates, cylindrical coordinates. Elements of projective geometry.

Mathematics 208. Vector Analysis 3 sem. hrs. (3-0)
Prerequisite: Mathematics 104 or consent of the instructor
Elementary operations involving vectors. Scalar and vector products. Differentiation of vectors; gradients; divergence and curl of a vector. Line and surface integrals; Stockes' theorem. The divergence theorem. Vortices, sources and sinks. General coordinates. Application to mechanics.

Mathematics 209. Introduction to Finite Mathematics 3 sem. hrs. (3-0)
Prerequisite: Mathematics 104 or consent of the instructor
Methods of proof, logical treatment. Set theory. Finite algebra; partition and counting. Stochastic processes. Matrox algebra. Theory of games and linear programming. Applications in behavioral science problems.

4. Courses in Physics

Physics 101. General Physics: Mechanics 4 sem. hrs. (3-3)
Prerequisites: High School physics and concurrent registration in Mathematics 101.
Quantities, scalar, vector, statics, kinematics of particles, dynamics, harmonic motion, hydrostatics, and Bernouilli's equation.

Physics 102. General Physics: Heat, Thermodynamics, and Sound 4 sem. hrs. (3-3)
Prerequisites: Physics 101 and Mathematics 101
Temperature, quantity of heat, heat transfer, thermal properties of matter. First and Second Laws of thermodynamics and their applications, heat engines, wave motion, and sound waves.

Physics 105. General Physics: Mechanics 4 sem. hrs. (3-3)
Prerequisites: High School physics and concurrent registration in Mathematics 103
Quantities, scalar, vector calculus, kinematics, elasticity, and surface tension.

Physics 106. General Physics: Heat, Thermodynamics, and Sound 4 sem. hrs. (3-3)
Prerequisites: Physics 105 and Mathematics 103
Temperature, quantity of heat, heat transfer, thermal properties of matter. First and Second Laws of thermodynamics and applications to musical sound.

Physics 111. General Physics 1 4 sem. hrs. (3-3)
Prerequisites: High School physics and mathematics
Mechanics, astronomy (historical approach), heat, thermodynamics, and sound are studied.

Physics 112. General Physics 2 4 sem. hrs. (3-3)
Prerequisite: Physics 111
A continuation of Physics 111. Electricity and magnetism, light, and fundamentals of modern physics.

Physics 201. General Physics: Electricity and Magnetism 4 sem. hrs. (3-3)
Prerequisites: Physics 102 and Mathematics 102
Fundamental concepts of electromagnetism. Coulomb's law, electric field and potential, Gauss' flux law, magnetic field and properties of matter, dielectrics, electromagnetic waves, oscillation and radiation, A.C. and D.C. circuit theories and measurements.

Physics 202. General Physics: Light and Introduction to Modern Physics 4 sem. hrs. (3-3)

Prerequisite: Physics 201

Geometrical optics, lenses, mirrors, physical optics, optical instruments, interference, diffraction, polarization, atomic structure, Bohr's atom, x-rays, radioactivity and applications in medicine, and health physics.

Physics 205. General Physics: Electricity and Magnetism 4 sem. hrs. (3-3)

Prerequisites: Physics 106 and Mathematics 104

Fundamental concepts of electromagnetism, Coulomb's law, electric field and potential, Gauss' flux law, magnetic field and properties of matter, dielectrics, electromagnetic waves, oscillation and radiation. Direct current circuit theory, vector and J operator treatment of alternating current and power. Basic electronics and semiconductor.

Physics 206. General Physics: Optics and Introduction to Modern Physics 4 sem. hrs. (3-3)

Prerequisites: Physics 205 and Mathematics 203

Geometrical optics, lenses, mirrors, physical optics, optical instruments, interference, diffraction, polarization, light and quantum physics, waves and particles, photoelectric effect, atomic structure, Bohr's atom, atomic spectra. X-rays, radioactivity and application. Einstein's special relativity.

5. Courses in English

English 101. Fundamental English 1 3 sem. hrs. (3-1)

English 102. Fundamental English 2 3 sem. hrs. (3-1)

English 291. English for Science Students 3 3 sem. hrs. (3-1)

English 292. English for Science Students 4 3 sem. hrs. (3-1)

6. Courses in Psychology

Psychology 103. General Psychology 3 sem. hrs. (3-0)

Psychology 204. Developmental Psychology 3 sem. hrs. (3-0)

7. Course in Pharmacy

Pharmacy 102. Pharmacy Orientation 1 sem. hr. (1-0)

8. Courses in Nursing

Nursing 101. Introduction to Nursing Profession 1 1 sem. hr. (1-0)

Nursing 201. Introduction to Nursing Profession 2 1 sem. hr. (1-0)

Nursing 204. Fundamental Nursing 1 4 sem. hrs. (4-x)

Prerequisites: Anatomy 201, Physiology 302, Psychology 103.

Anatomy 201. Anatomy 3 sem. hrs. (3-x)
Prerequisite: Biology 111
Course offered by Anatomy Department

Bio. Chemistry 202. Biochemistry 3 sem. hrs. (3-2)
Prerequisites: Chemistry 203, Biology 111, Physics 111
Course offered by Biochemistry Department

Microbiology 201. Microbiology 4 sem. hrs. (3-3)
Prerequisites: Biology 103
Course offered by Microbiology Department

Pathology 201. Pathology 2 sem. hrs. (2-x)
Prerequisites: Anatomy 201, Physiology 302

Parasitology 301. Parasitology 2 sem. hrs. (2-x)
Prerequisite: Biology 111

APPENDIX D

PRESIDENT'S ORDER ESTABLISHING A NATIONAL SYSTEM OF COMMUNITY JUNIOR COLLEGES IN VIETNAM

REPUBLIC OF VIETNAM

PRESIDENT'S OFFICE

No. 503-TT/SL

THE PRESIDENT OF THE REPUBLIC OF VIETNAM

In accordance with:

- The Constitution of April 1, 1967;

- The Decree No. 394-TT/SL of September 1, 1969, and subsequent decrees establishing the composition of the Government;

- The Statute of the combined university enacted on October 12, 1953, under the number 1475-A/SG/SR, and subsequent decrees establishing National Universities;

The recommendations of the Prime Minister

ORDERS THE FOLLOWING:

Article 1. The establishment of Community Junior Colleges throughout the nation will be as follows:

Article 2. Each Community Junior College shall aim to (1) develop general and basic studies in higher education with transfer programs of junior professional higher education and (2) develop vocational higher education with specialized programs to meet the present needs of the community which sponsors the Community Junior College.

Article 3. Each Community Junior College has the following responsibilities:

1. To train middle-level technicians to support the economic development of the community;

2. To prepare and guide students so that after two years of general and basic studies in higher education program they can transfer to a National University to continue on a professional program;

3. To help ex-servicemen, civil servants, and adults in the community to raise their educational levels;

4. To evaluate and guide students in selecting suitable fields of study for them in the future;

5. To promote cultural, educational and social activities to enrich the intellectual life of the people of the community;

6. To guide the mutual educational development of elementary, secondary and higher education in the provinces within the sphere of service of the Community Junior College.

Article 4. The establishment of a Community Junior College shall be made by a decree of the President of the Republic of Vietnam in those provinces and autonomous cities that will support and contribute to the operation as well as to the development of the College.

Each Community Junior College, as a Center of General and Basic Studies in Higher Education as stated in the above mentioned decree, shall be directly associated with and academically dependent upon an existing National University.

Article 5. Each Community Junior College will be administered by a Community Junior College Administrative Board. The Rector of the National University to which the Community Junior College is associated will represent the Ministry of Education and be the Chairman of this Board.

The composition, responsibilities and authorities of the Administrative Board shall be established by a decree of the Minister of Education.

Article 6. Each Community Junior College shall be directed by a President who will be appointed under the current procedures for Rectors of National Universities.

Article 7. Each Community Junior College shall organize only two schools:

- School of General and Basic Studies, and
- School of Vocational Higher Education.

Each of the above Faculties shall be headed by a Dean who shall be appointed by the Minister of Education upon the recommendation of the President of the Community Junior College and the nomination of the Community Junior College Administrative Board.

According to the needs of the community, the above mentioned schools shall establish one or more Professional Departments. Each Department shall be directed by a Director who shall be appointed by the Minister of Education upon the recommendation of the President of the Community Junior College. The Director of a professional department will be equal to the Director of a vocational higher school.

Article 8. Property and funds for construction, equipment, operation, and development of each Community Junior College are to be made up of:

1. The continuous contributions of people living in the community;

2. The fees and tuitions of students;

3. The financial assistance from the Government (from Central and Regional budgets) matching the people's contributions;

4. Grants, gifts, aids and financial assistances given by private parties, agencies or organizations, or by domestic and foreign governments.

Article 9. Details on the organization, operation and administration of academic, administrative, and student affairs and the development of Community Junior Colleges shall be stipulated by a decree of the Minister of Education.

Article 10. The Prime Minister, Vice Prime-Minister, Minister of State, Ministers, Secretaries of State, and Vice Ministers are charged, each according to his responsibility, with the execution of this order.

This order shall be published in the Official Journal of the Republic of Vietnam.

Saigon, August 15, 1971

APPENDIX E

FACULTY OF SCIENCES,

UNIVERSITY OF CANTHO

Appendix E.--University of Zaniho, Faculty of Sciences.

	Course Title	Hours/Week: Lecture	Tutorial	Laboratory	Credits
	Freshman Year Program[a] Major: Applied Sciences				
	Fundamentals of Chemistry I, II, III:				
1.	General Chemistry	1	1/2	-	1
	Organic Chemistry	1	1/2	2 1/2	2
	Inorganic Chemistry	1	1/2	-	1
	Fundamentals of Mathematics I: Algebra	1	1 1/2	-	1
5.	Fundamentals of Mathematics II: Analysis	1	1/2[b]	-	1[b]
	Fundamentals of Mathematics III: Geometry I	1[b]	1/2[b]	-	1[b]
	Fundamentals of Mathematics IV: Numerical Analysis[b]	-	-	2	1
	Fundamentals of Mathematics V: Laboratory Work	-	.75	-	1 1/2
	Fundamentals of Physics I: Mechanics and Heat	1 1/2	.75	-	1 1/2
10.	Fundamentals of Physics II: Electricity	1	1/2	2 1/2	1
	Fundamentals of Physics III: Optics	1	-	-	1
	Fundamentals of Physics IV: Laboratory Work	-	-	-	1
	Foreign Language[c]	1	-	-	1
	General History of Science[d]	1	-	-	1
15.	Introductory Sociology[e]	1	-	-	1
		15 1/2	4 1/2	4	19
	Sophomore Year Program[a] Major: Applied Sciences				
1.	General Electromagnetism	2	1	3	1
	Calculus II: Calculus of Variations	1	1/2	-	1
	Calculus III: Differential Equations	1	1/2	-	1
	Calculus IV: Differential Of Algebra and Analysis	1	1/2	-	1
5.	Calculus V: Statistics	1	1/2	-	1
	Calculus VI: Numerical Analysis II	1	1/2	-	1
	Fundamentals of Mathematics VI: Geometry II	1	1/2	-	1
	Calculus VI: Topology	1	-	-	1
	Calculus VI: Laboratory Work	1[b]	1[b]	3[b]	1[b]
10.	Organic Chemistry[b]	1[b]	1[b]	-	1[b]
	Electric Machinery and Industrial Electricity[b]	1[b]	-	-	1[b]
12.	Foreign Language[c]	1	-	-	1
		15	4 1/2	6	19
	Junior Year Program[a] Major: Electronics				
1.	Electronics I: Vacuum Tubes	1	1/2	-	1
	Electronics II: Circuit Applications	1	1/2	-	1
	Electronics III: Feedback Systems	1	1/2	-	1
	Electronics IV: Special Electronic Components	1	1/2	-	1
5.	Electronics V: Transistor Circuit I	1	1/2	-	1
	Electronics VI: Transistor Circuit 2	1	1/2	-	1
	Electronics VII: Circuit Analysis	1	1/2	-	1
	Electrical Electronics	1	1/2	-	1
	Advanced Mathematics	1	-	3	1
10.	Physics Laboratory I	-	-	3	1
	Physics Laboratory II	-	-	3	1
12.	Foreign Languages	1	-	-	1
		12	4 1/2	6	15
	Senior Year Program[a] Major: Electronics				
	Section 1: Television				
1.	Antenna Theory and Transmission Systems	1	1/2	-	1
	VHF and Video Circuits	1	1/2	-	1
3.	Audio and Sweep Circuits	1	1/2	-	1
	Section 2: Radio Transmissions				
4.	HF and IF Circuits	1	1/2	-	1
	FM and Stereo Circuits	1	1	-	1
	Industrial Electronics	1	1/2	-	1
7.	Computers	1	1/2	-	1
	Section 3: Laboratory Work				
	Electronics I	-	-	4	1
9.	Electronics 2	-	-	4	1
	Section 4: Thesis				
10.	Research Project and Thesis	15	4	-	3
	Section 5: Foreign Languages				
11.	Elementary English 4 or Elementary French 4	1[b]	-	-	1[b]
		19[b]	4	8	19[b]

Freshmen Year Program[f]
Major: Natural Sciences

1.	Fundamentals of Animal Biology 1	1	1/2	-	1
	Fundamentals of Animal Biology 2	1	1/2	-	1
	Fundamentals of Animal Biology 3: Laboratory Work	-	-	3	1
	Fundamentals of Plant Biology 1	1	1/2	-	1
5.	Fundamentals of Plant Biology 2	1	1/2	-	1
	Fundamentals of Plant Biology 3: Laboratory Work	-	-	3	1
	Fundamentals of Physics 1	2	1	-	2
	Fundamentals of Physics 2: Laboratory Work	-	-	2 1/2	1
	Fundamentals of General Chemistry and Inorganic Chemistry	1	1/2	-	1
10.	Fundamentals of Organic Chemistry	1	1/2	-	1
	Fundamentals of Chemistry Laboratory	-	-	2 1/2	1
	Fundamentals of Geology	2	1	3	3
	Introductory Calculus	1	1/2	-	1
	Foreign Language[c]	2	-	-	1
15.	General History of Science[b]	1[b]	-	-	1[b]
16.	Introductory Sociology[b]	1[b]	-	-	1[b]
		15	5 1/2	14	19

Sophomore Year Program[f]
Major: Natural Sciences

1.	Zoology Systematics 1	1	1/2	-	1
	Zoology Systematics 2	1	1/2	-	1
	Zoology Systematics 3	2	1	-	2
	Zoology Systematics 4	1	1/2	-	1
5.	Zoology Laboratory	-	-	4	1
	Plant Taxonomy 1	1	1/2	-	1
	Plant Taxonomy 2	1	1/2	-	1
	Plant Physiology 1	1	1/2	-	1
	Plant Physiology 2	1	1/2	-	1
10.	Plant Anatomy: Laboratory Work	-	-	4	1
	Fundamentals of Plant Ecology	1	1/2	-	1
	General Geology	2	1	-	2
	Geology Laboratory	-	-	3	1
	Foreign Language[d]	2	-	-	1
15.	General History of Science or Philosophy of Science[b]	1[b]	-	-	1[b]
16.	Introductory Sociology 2[b]	1[b]	-	-	1[b]
		16	6	17	18

Junior Year Program[f]
Major: Natural Sciences

1.	Zoology Systematics 5	1	1/2	-	1
	Zoology Systematics 6	1	1/2	-	1
	Animal Physiology 1	2	1	-	2
	Ichthyology	1	1/2	-	1
5.	Entomology	1	1/2	-	1
	Parasitology	1	1/2	-	1
	Paleontology	1	1/2	-	1
	Paleobotany	1	1/2	-	1
	Applied Geology 1	1	1/2	-	1
10.	Petrography	1	1/2	-	1
	Advanced Geology Laboratory 1	-	-	4	1 1/2
	Advanced Zoology Laboratory	-	-	4	1 1/2
13.	Foreign Language[e]	2	-	-	1
		13	5 1/2	8	15

Senior Year Program[f]
Major: Natural Sciences

1.	General Genetics	1	1/2	-	1
	Introductory Fresh-Water Biology	1	1/2	-	1
	General Embryology	1	1/2	3	1 1/2
	Animal Physiology 2	1	1/2	-	1
5.	Introductory Mycology	1	1/2	-	1
	Introductory Phycology	1	1/2	-	1
	Plant Physiology 3	1	1/2	-	1
	Applied Geology 2	1	1/2	-	1
	Geology of the Indochinese Peninsula: Historical	1	1/2	-	1
10.	Geology of the World: Historical	1	1/2	-	1
	Crystallography	1	1/2	-	1
	Chemistry of the Natural Compounds: Organic Chemistry	1	1/2	3	1 1/2
	General Biology: Laboratory Work	-	-	3	1/2
	Advanced Geology Laboratory 2	-	-	3	1/2
15.	Foreign Language[f]	1	-	-	1
16.	Research Project and Thesis	-	-	-	1
		13	6	12	16

[a]Program leading to B.Sc. in Applied Sciences.

[b]Electives courses.

[c]Student may choose either Elementary English 1 or Elementary French 1.

[d]Student may choose either Elementary English 2 or Elementary French 2.

[e]Student may choose either Elementary English 3 or Elementary French 3.

[f]Program leading to B.Sc. in Natural Sciences.

[g]Student may choose either Elementary English 4 or Elementary French 4.

APPENDIX F

FACULTY OF AGRICULTURE,

UNIVERSITY OF CANTHO

Appendix F.--University of Cantho, Faculty of Agriculture.

Course Title	Total Hours		Credits
	Lecture	Laboratory	
Freshman Year Program			
I. Basic Sciences			
1. General Plant Biology	60	75	3
General Animal Biology	60	75	3
Fundamentals of Physics	60	75	3
Fundamentals of Chemistry	30	75	3
5. Fundamentals of Mathematics	30	30	1
II. General Knowledge			
Foreign Language: Elementary English I	60	60	3
7. Introductory Agriculture	45	-	2
8. Farm Work	-	90	1
Field Trip	-	40	0
III. Field Study (summer work):			
Survey and Report	-	a	1
			20
Sophomore Year Program			
I. Applied Agronomy			
1. Introductory Agronomy[b]	30[b]	30[b]	1 1/2[b]
General Plant Physiology[b]	45[b]	90[b]	2 1/2[b]
Introductory Plant Taxonomy	30	30	1
General Plant Ecology	30	c	1
II. Basic Sciences			
5. Introductory Geology	30	30	1 1/2
General Entomology	30	60	1 1/2
Mechanical Engineering	20	30	1
Introductory Biochemistry	30	30	1 1/2
III. Applied Animal Husbandry			
9. General Animal Physiology[b]	40[b]	50[b]	2[b]
Introductory Animal Nutrition[b]	20[b]	25[b]	1[b]
IV. General Knowledge			
Introductory Climatology	15	15	1
Introductory Statistics	30	15	1
13. Foreign Language: Elementary English II	60	60	2 1/2
V. Field Study (summer work):			
Survey and Report	-	10 weeks	1
			19

Junior Year Program			
I. Applied Agronomy			
1. Plant Physiology III	45	60	2 1/2
Fundamentals of Soil Science[b]	60[b]	45[b]	2 1/2[b]
General Hydrology	45	30	2
Agricultural Mechanics	30	60	1 1/2
5. General Microbiology[b]	60[b]	60[b]	2 1/2[b]
6. Crops Protection	45	60	2
II. Agronomy			
7. Rice Plant:			
a. Botanical Study[b]	10[b]	15[b]	1[b]
b. Physiological Study[b]	20[b]	15[b]	1[b]
c. Production[b]	30[b]	45[b]	1 1/2[b]
III. Applied Husbandry			
8. Farming[b]	45[b]	60[b]	2[b]
IV. General Knowledge			
9. Laboratory Technics	20	15	1
10. Foreign Language: Intermediate English	40	-	1 1/2
Field Trips	-	30	-
Working Paper	60	-	1
			22
V. Field Study (summer work):			
Survey and Report		10 weeks	1
Senior Year Program			
I. Applied Agronomy			
1. Soil Science[b]	45[b]	30[b]	2[b]
Crops Protection II: Plant Pathology	20	30	1
Plant Nutrition: Rice Plant	30	30	1
General Genetics	30	45	1 1/2
II. Agronomy			
5. Vegetable Culture[b]	60[b]	60[b]	2 1/2[b]
Fruit Trees[d]	45[d]	60[d]	2[d]
7. Industrial Crops[d]	45[d]	60[d]	2[d]
III. Applied Husbandry			
8. Farming II[b]	45[b]	60[b]	2[b]
IV. General Knowledge			
9. Agricultural Economics and Farm Management[b]	60[b]	-	2[b]
Rural Sociology	45	-	1 1/2
Rural Architecture[d]	15[d]	30[d]	1[d]
General Topometry[d]	15[d]	30[d]	1[d]
13. Harvest Storage[d]	30[d]	-	1[d]
			21
V. Other Requirements			
Field Trips	-	35	
15. Seminar	30	-	
Research Project	90	-	1/2
VI. Field Study (summer work)			
Survey and Report			

[a]During the Summer vacation, students must practice at a University's farm for a period of 5 weeks.

[b]Required courses.

[c]Part of laboratory work consists of field trips.

[d]Elective courses.

APPENDIX G

FACULTY OF LAW AND SOCIAL SCIENCES,

UNIVERSITY OF CANTHO

Appendix G.--University of Cantho, Faculty of Law and Social Sciences.

	Course Title	Total Hours/Year	Credits
	Freshman Year Program[a]		
1.	Introductory Civil Laws	60 - 2 hr/week	2
	Fundamentals of International Institutions	60 - 2	2
	Introductory Constitutional Laws and Political Institutions	60 - 2	2
	General History of Laws	60 - 2	2
5.	Introductory Economics	30 - 1 1/2	1
	Basic Economics I	30 - 1 1/2	1
	Fundamentals of Sociology	30 - 1 1/2	1
	Fundamentals of Political Sciences	30 - 1 1/2	1
	Elementary French I: Legal Terminology	30 - 1 1/2	1
10.	Elementary French II: Economic Terminology	30 - 1 1/2	1
		17	
	Sophomore Year Program[a]		
1.	Civil Laws I	60	2
	General Administrative Laws	60	2
	General Financial Laws	60	2
5.	General Criminal Laws	60	2
	Basic Criminal Procedures	30	1
	Fundamentals of Social Structure and Organization	30	1
	Research Methods in Social Sciences	30	1
	Elementary Calculus[b]	30[b]	1[b]
10.	Elementary French III: Legal Terminology	30	1
11.	Elementary French IV: Economic Terminology	30	1
		15 hr/week	
	Junior Year Program[a]		
I.	Required Courses for all Sections		
1.	Fundamentals of Commercial Laws	60	2
	Economic Situation in Vietnam	60	2
II.	Section 1: Law		
	Civil Laws II	60	2
	History of Political Doctrines	60	2
5.	Basic Civil Procedures	30	1
	Basic Administrative Procedures	30	1
	Special Criminal Laws	30	1
	General Civil Rights	30	1
	Elementary French V: Legal and Political Science Terminology	60	2

III. Section 2: Economics

10.	Fundamentals of Accounting	30	1
	General Corporation Accounting	30	1
	General Macroeconomy	30	1
	General Microeconomy	30	1
	Basic Statistics	30	1
15.	Intermediate Calculus I	30	1
	Basic Banking Practices	30	1
	Fundamentals of Agricultural Economy	30	1
18.	Elementary English: Economic and Trading Terminology	60	2
		14 - 14 hr/week	

Senior Year Program[a]

I. Required Courses for all Sections

1.	General Labor and Social Security Laws	30	1
	General Taxes Laws	30	1
	General Insurance Laws	30	1
4.	General Administrative Science	30	1

II. Section 1: Law

5.	Civil Laws III	60	2
	International Private Laws	30	1
	General Maritime Laws	30	1
	General Aviation Laws	30	1
	Fundamentals of International Relations	30	1
10.	Administrative Processes	30	1
	Current International Political Problems	30	1
	Administrative Problems in Vietnam	30	1
13.	Comparative Laws	30	1

III. Section 2: Economics

	General International Economics	30	1
15.	General Industrial Accounting	30	1
	General Banking Accounting	30	1
	Fundamentals of Business Administration	30	1
	Economics and Finance	30	1
	General Economic Development	30	1
20.	Intermediate Calculus II	30	1
	Basic Econometry	30	1
22.	General Economic Regulations	30	1
		14 - 13 hr/week	

[a]Program leading to LL.B. degree.

[b]Elective course for student majoring in Economics.

APPENDIX H

FACULTY OF LETTERS,

UNIVERSITY OF CANTHO

Appendix H.--University of Cantho, Faculty of Letters.

Course Title	Hours/Week	Credits
First Year Certificate Program[a]		
Vietnamese Literature		
1. V.111 Introduction History of Vietnamese Literature	2	
V.112 Vietnamese Literature 1	2	
V.113 Vietnamese Literature 2	2	
V.114 Vietnamese Linguistics	2	
5. V.115 Vietnamese Composition	2	
Chinese Studies		
6. H.111 Introductory Chinese	4	
History		
7. S.111 Introduction to the History and Civilization of Man	2	
S.112 History of Vietnam 1	2	
9. S.113 History of Vietnam 2	2	
Geography		
10. D.111 Introductory Geography	2	
D.112 Introductory Geography: Laboratory	2	
12. D.113 General Geography	2	
	26	
French		
1. P.101 Elementary French	4	
P.111 Intermediate French 1	3	
P.112 Intermediate French 2: Readings	2	
P.113 Intermediate French 3: Grammar	2	
5. P.114 Intermediate French 4: Independent Readings	3	
English		
6. A.10: Elementary English	4	
A.11: Intermediate English 1	5	
A.112 Intermediate English 2	3	
A.113 Intermediate English 3	2	
10. A.114 Tutorial in English Composition	2	
	19	
Vietnamese Literature Certificate Program[a]		
1. Advanced Vietnamese Literature 1: Folklore	3	
Advanced Vietnamese Literature 2: Literature under the LÝ and TRẦN dynasties	2	
Advanced Vietnamese Literature 3: Literature under the LÊ dynasty	3	
Advanced Vietnamese Literature 4: Literature under the NGUYỄN dynasty	3	
Advanced Vietnamese Literature 5: Literature in the 20th Century	3	
6. Advanced Vietnamese Literature 6: Sino-Vietnamese Literature	3	
	17	
Sino-Vietnamese Studies Certificate Program[a]		
1. Old Sino-Vietnamese Literature	4	
Modern Sino-Vietnamese Literature	2	
Sino-Vietnamese Studies	2	
Chinese Literature: Introduction	1	
5. General Modern Chinese	2	
	11	

	French Studies Certificate Program[a]	
1.	Introductory French Literature 1	5
	Introductory French Literature 2	4
	French Grammar	3
4.	French Composition	2
		14
	Practical English Certificate Program[a]	
1.	Intermediate English 4: Conversation	5
2.	Intermediate English 5: Reading Comprehension and Composition	5
		10
	English Linguistics Certificate Program[a]	
1.	Advanced English 1: Conversation and Aural Comprehension	3
	Advanced English 2: Reading Comprehension	4
	Advanced English 3: Composition and Grammar	3
4.	Descriptive Linguistics	4
		14
	British and American Literature and Civilization Certificate 1 Program[a]	
1.	Surveys of British Literature 1: 18th and 19th Centuries	6
	Surveys of American Literature 1	4
	Survey of British History: 1688-1914	4
	Survey of American History 1	3
5.	Advanced English 4: Composition	2
		19
	British and American Literature and Civilization Certificate 2 Program[a]	
1.	Survey of Literature 2: 16th and 17th Centuries	4
	Survey of American Literature 2	3
	Survey of British History: 1066-1688	3
	Survey of American History 2	3
5.	Advanced English 5: Composition on Literary Subjects	2
		15
	Geography Certificate Program[a]	
1.	Geography of Vietnam 1: Physical Geography	1
	Geography of Vietnam 2: Land and Soils	1-2
	Geography of Vietnam 3: Economic Geography	1
	Geography of Vietnam 4: Rural Life	1
5.	Geography of South-East Asia	1
	Geography of China and Japan	2
	Geography of Africa	2
	Geography of America	2
	Geography of Europe	2
10.	Geography Laboratory: Regional Studies	2
		15

[a]Program leading to A.B. degree

APPENDIX I

FACULTY OF PEDAGOGY,

UNIVERSITY OF CANTHO

Appendix I.--University of Cantho, Faculty of Pedagogy:

Course Title	Hours/Week	Credits
Freshman Year Program[a] **Section: Letters**		
Vietnamese Literature		
1. V.111 Introduction to the History of Vietnamese Literature	2	
V.112 Literature I	2	
V.113 Literature II	2	
V.114 Vietnamese Linguistics	2	
5. V.115 Vietnamese Composition		
Chinese Studies		
6. S.111 Introductory Chinese	4	
History		
7. S.111 Introduction to the History and Civilization of Man	2	
8. S.112 History of Vietnam I	2	
9. S.113 History of Vietnam II		
Geography		
10. G.111 Introductory Geography	2	
G.112 Introductory Geography: Laboratory	2	
12. G.113 General Geography		
French		
13. F.101 Elementary French	4	
F.111 Intermediate French I	3	
F.112 Intermediate French II: Readings	2	
F.113 Intermediate French III: Grammar	2	
17. F.114 Intermediate French IV: Independent Readings	1	
English		
18. A.101 Elementary English	4	
A.111 Course in Spoken English	3	
A.112 Studies in Written English	3	
21. A.113 Composition	2	
	72	

Freshman Year Program[a] Section: Natural Sciences		
1. Introductory Animal Biology	2	2
Introductory Animal Biology: Laboratory	2	1
Fundamentals of Botany	1	1
Fundamentals of Botany: Laboratory	2	2
5. Fundamentals of Physics	2 1/2	1
Fundamentals of Physics: Laboratory	1	1
Fundamentals of Chemistry I: General and Inorganic Chemistry	1	1
Fundamentals of Chemistry II: Organic Chemistry	1 1/2	1
Fundamentals of Chemistry III: Laboratory	1	1
Fundamentals of Mathematics	2	2
10. Introductory Geology	3	1
Introductory Geology: Laboratory	2	
Foreign Language		
14. Electives:		
History of Science	1	1
16. Sociology	29	

Freshman Year Program[a] Section: Mathematical and Physical Sciences		
1. Fundamentals of Chemistry I: General Chemistry	1	1
Fundamentals of Chemistry II: Organic Chemistry	1	1
Fundamentals of Chemistry III: Laboratory Chemistry	1	1
Fundamentals of Mathematics I: Algebra	1	1
5. Fundamentals of Mathematics II: Analytical Geometry	1	1
Fundamentals of Mathematics III: Geometry	1	1
Fundamentals of Mathematics IV: Calculus	1	1
Fundamentals of Physics I: Laboratory Work	1 1/2	1 1/2
Fundamentals of Physics I: Mechanics and Thermodynamics	1 1/2	1 1/2
10. Fundamentals of Physics II: Electricity	1	1
Fundamentals of Physics III: Optics	1 1/2	1
Fundamentals of Physics IV: Laboratory	2 1/2	1
14. Foreign Language	4	
Electives:		
History of Science	1	1
16. Sociology	24	

Sophomore Year Program[a]
Section: History and Geography

1.	Educational Psychology	2
	General Education	2
	School Administration	1
	Methods of Teaching in History and Geography	3
5.	Civics Introduction	4
	Electives:[b]	
6.	History of Vietnam	
	History of the World	2
	Geography of Vietnam	2
9.	Geography of the World	3
		5
		24

Sophomore Year Program[a]
Section: English

1.	Educational Psychology	2
	General Education	2
	School Administration	1
	Methods of Teaching in English	3
5.	Intermediate English 1: Conversation: Aural Comprehension: Pronunciation, and Diction	3
	Intermediate English 2: Reading Comprehension, using Excerpts from British and American Authors	4
	Intermediate English 3: Composition and Grammar	3
8.	Intermediate English 4: Descriptive Linguistics Applied to the Study of English	4
		22

Sophomore Year Program[a]
Section: French

1.	Educational Psychology	2
	General Education	2
	School Administration	1
	Methods of Teaching in French	3
5.	Intermediate French 1: Introduction to French Literature	5
	Intermediate French 2: Conversation	3
	Intermediate French 3: Grammar	3
8.	Intermediate French 4: Modern French Phonetics	2
		21

Sophomore Year Program[a]
Section: Natural Sciences

1.	Educational Psychology	1
	General Education	1
	School Administration	1
	Science Education	2
5.	History and Philosophy of Science	2
	Methods of Teaching Natural Sciences	1/2
	Teaching of Physical Sciences	1 1/2
	Teaching of Natural Sciences	1 1/2
	Zoology for Secondary Education 1	2
10.	Zoology for Secondary Education 2: Laboratory	3
	Botany for Secondary Education 3	1
	Botany for Secondary Education 4: Laboratory	2
	Animal Physiology 1	2
	General Geology 1	2
15.	Geology Laboratory	3
	Electives:[c]	
	Animal Physiology 1	1
17.	Chemistry for Secondary Educat.	1
		27 1/2

Sophomore Year Program[a]
Section: Mathematical and Physical Sciences

1.	Educational Psychology	1
	General Education	1
	History and Philosophy of Science	2
	School Administration	1
5.	Science Education	2
	Methods of Teaching Mathematics	1/2
	Teaching Mathematics	1 1/2
	Teaching Physical Sciences	1 1/2
	Chemistry for Secondary Education	2
10.	Physics for Secondary Education	2
	Algebra for Secondary Education	2
	Geometry for Secondary Education	2
	Fundamentals of Mathematics[d]	3
	Laboratory Work in Mathematics[d]	2
15.	Laboratory Work in Physics[d]	3
		26 1/2

[a]Program leading to a Junior High School Teaching Certificate.

[b]Student may choose two from these four courses.

[c]Student may choose one course from these two.

[d]These courses were dropped when there was a change in the College administration.

APPENDIX J

DESCRIPTION OF COURSES IN BASIC AND GENERAL STUDIES (BGS) IN THE CORE CURRICULUM

APPENDIX J

DESCRIPTION OF COURSES IN BASIC AND GENERAL STUDIES (BGS) IN THE CORE CURRICULUM

Section 1: Environmental Sciences (BGS1)

Prerequisites to all courses of this section: High school biology, physics, and chemistry.

All courses consist of lectures, laboratory demonstrations, and discussions.

BGS1-101 Man and Life Science Hrs (2-1)[1]

Basic biological ideas and knowledge about man as an organism, and the relation of man to his environment as all organisms. The physical basis of life: development, heredity, and evolution; consideration of current biological problems confronting man.

BGS1-102 Man and the Universe Hrs (2-1)

A survey of the general elements of ecology: population, pollution, etc.

BGS1-103 Environmental and Human Biology Hrs (2-1)

Conditions for organic existence and suitability of terrestrial and extraterrestrial environments; ecological aspects of human and human aspects of environmental biology.

BGS1-104 Man's Biological Inheritance Hrs (2-1)

Basic biological concepts are explored at levels of integration ranging from molecular to ecosystem. Topics include genetic control of cell activity and function, genetic continuity of cells and the nature of populations, environmental factors affecting genetic expression, ecological, evolutionary developmental relationships between plants and animals.

BGS1-105 Environmental General Biology Hrs (2-1)

Concepts in life science as a part of general education. Emphasis on the scientific inquiry, and its relation to his physical and biological environment, social and philosophical implications of biology.

BGS1-106 Conservation of Natural Resources Hrs (3-3)

Broad aspect of natural resources conservation which includes the history of man in relation to his environment, the conservation movement, the land conservation in relation to resources, history of the conservation movement and present day conservation problems.

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[1] The first number indicates the number of credits; the number in the parentheses indicates, respectively, the number of class hours and laboratory hours.

Section 2: Social Sciences (BGS2)

Prerequisites: none

BGS2-101 The Individual and the Cultural Environment Hrs (3-0)

A study of human behavior in the light of cultural and psychological processes. (A) Introduction: An examination of the biological and cultural origins of human behavior; cultural and cultural origin behavior; characteristic diversity and universality of human behavior; the nature of tribal societies, including economy, social organization, language, and religion, and political organization in ancient and modern societies. (B) Psychology: Surveys modern psychological approaches to individual behavior; includes basic developmental processes such as learning as motivation.

BGS2-102 Sociology-Economics Hrs (3-0)

A systematic treatment of sociological ideas (A) introduction to sociology: concepts of structure, role behavior, and social institutions. B introduction to economic concepts, ideas and institutions; economic concepts, ideas and institutions; problems in Vietnam.

BGS2-103 Survey of Vietnamese Tradition Hrs (3-0)

Political, economic, and cultural history of Vietnam. Emphasis on the shaping trends and forces of change that have led to the present social structure.

BGS2-104 The Vietnamese Educational System Hrs (3-0)

A critical and comparative study of education as a social institution in Vietnam in the context of national development. The formative influences on the educational institution; the influence upon and mutual interaction. Different aims and components are explored through the disciplines contributing the institutional cultural foundation of education.

BGS2-105 The Vietnamese State and Legal Institutions Hrs (3-0)

(A) State: An examination of the role of the national system and the government. (B) Law: A survey of modern and ancient jurisprudence, the nature of law, the sources of law, functions, and problems of the processes, statutes, terms, and features in Vietnam.

BGS2-106 Geographical and Cultural Background Hrs (3-0)

(A) The relation of geography to the culture of Vietnam, with emphasis on the cultural and geographic factors in the development of Vietnam. (B) Cultural: A general survey of the cultural, social, and economic geographical background of Vietnam to enhance understanding of Vietnam's culture and its relationship to the economic life of our nation.

Section 3: Man's Insights and Appreciations

Prerequisites: None

BGS3-101 Philosophy of Science Hrs (3-0)

The logic of scientific explanation illustrated by analysis of physical concepts and theories. The logic of scientific inquiry in the natural and social sciences and their implications for the individual and society.

BGS3-102 Introduction to Ethics Hrs (3-0)

An examination of the structure of morality. Analysis of such basic concepts as right, wrong, good, ought, and choice. Survey of ethical theories and their treatment of principal ethical problems in a search for criteria for an adequate ethical system for the individual and for society.

BGS3-103 Ethics and Social Policy Hrs (3-0)

An examination of some basic ethical systems, an evaluation of fundamental issues exemplified by the following: Does man have free will? Are there absolute standards of right and wrong? Are ethical claims to be rationalized? Do we need a code of ethics related? How are ethics and religion related? Does the concept of "sin" have any individualism, community, or social foundation? Is there a "moral" law? Is man's life to be planned and controlled? Choosing his own life style.

BGS3-104 Social Problems in Vietnam Hrs (3-0)

Study of the nature and meaning of social problems in society, including crime, social disorganization, immorality, injustice, poverty, hunger, and others.

BGS3-105 Personality and Culture Hrs (3-0)

Origin and development of personality as a subjective aspect of culture; function of communication; human culture and the macro- personal life organization.

BGS3-106 Human Needs and Community Resources Hrs (3-0)

Cultural and historical study of organization and development of community in Vietnam. Organization of human and community resources for social action. Focus on improvement of family life.

BGS3-107 The Family Hrs (3-0)

Principles of community. Analysis of the community as a social system and factors underlying social change in the community.

Section 4: Organization and Communication of Ideas

Prerequisites: None

BGS4-101 Principles of Effective Speaking Hrs (3-0)

(A) Basic application of the basic principles of speech: application as they relate to communication. Discussion, and public speaking. (B) Preparation and presentation of speeches to inform and persuade speaker, with emphasis on the selection and organization of material. (C) Study of the nature and function of the speech communication theory of origin of speech, practice in formal and informal forms of debate and public discourse on current public questions.

BGS4-102 Rhetoric and Composition Hrs (3-0)

Elementary training and practice in the composition of written Vietnamese; dealing with the mechanics of composition, dealing with paragraphs and sentence structure.

BGS4-103 Introspection, Language, and Communication Hrs (3-0)

The study of the nature and function of oral reading. The understanding of speech mechanical. The understanding of speech acoustic and perceptive. The development of speech and language: the psychological and sociological basis of speech behavior.

BGS4-104 Speech Communication Hrs (3-0)

Fundamentals of oral communication with emphasis on the speaker and discussion. Theory and practice of oral communication special through preparation, presentation, and criticism of speaches.

Section 3: Mathematics

Prerequisite: High school mathematics

All courses in mathematics section are independent; students are not required to take them in sequence. Fundamental courses in mathematics are required for all majors in Physical Sciences and Engineering. In order that follow the curriculum and regulations, students ought to take a proficiency test in algebra and calculus. Students who do not qualify for Calculus (MGM1-181) will be required to take Fundamental Mathematics (MGM1-161) and qualify for College Algebra (MGM1-182), or College Algebra and Analytic Trigonometry (MGM1-183), or Calculus with Analytic Geometry (MGM1-184).

MGM1-161 Fundamental Mathematics Sem (3-2)

Basic notions of sets; number systems and their properties; operations on rational numbers; exponents; ordering of real numbers; inequalities, and absolute value; intuitive geometry; relations, variables, and functions.

MGM1-182 College Algebra Sem (4-1)

Review of fundamentals; complex numbers; analytic geometry; arithmetic, linear and quadratic equations; arithmetic, linear and harmonic series; functions and their graphs, permutations and combinations, binomial theorem; elementary theory of equations; complex numbers and their properties.

Prerequisites: High School mathematics
Not open to those taking College Algebra and Analytic Trigonometry
Not for Calculus with Analytic Geometry

MGM1-183 College Algebra and Analytic Trigonometry Sem (6-1)

Quadratics, variation, progressions, induction, binomial theorem; inequalities, complex numbers, theory of equations; analytic geometry; trigonometric equations and identities, functions of composite angles, radian measures, graphs, inverse functions.

Prerequisites: High School mathematics
Not open to those taking College Algebra and Calculus with Analytic Geometry.

MGM1-184 Calculus with Analytic Geometry Sem (4-1)

Calculus, analytic geometry and differential equations; limits, derivatives, and integrals; differentiation and integration, area, volume, transcendental functions, vector analysis; solid analytic geometry, differentiation, multiple integrals, infinite series, power series, differential equations.

Prerequisites: High School mathematics
Not open to those taking College Algebra and Analytic Trigonometry
Not for Calculus

MGM1-185 Elements of Statistics Sem (4-1)

A basic first course in probability and statistics: frequency distributions; averages and measures of variability; probability; random variables and sets of data; sampling; tests; appropriate to biomedical and general populations; correlation and regression, including confidence intervals and tests of significance for bivariate populations.

Prerequisites: High School Mathematics

Section 4: Physical Sciences

Prerequisite: High School physics and chemistry

It is recommended that students should have Fundamentals of Physical Sciences to qualify for Physics (MGM1-182) and General Chemistry (MGM1-184). Fundamentals of Physical Sciences is given to students during the first year of their society to determine those who have adequate background in physical sciences and those who need to take Fundamentals of Physical Sciences (MGM1-181).

MGM1-181 Fundamentals of Physical Sciences Sem (4-3)

Fundamental laws of physics and chemistry. Methods of science through demonstrations, simple experiments, and problem solving. Physical laws of motion, momentum, force and motion, work and energy, simple machines, properties of fluids, heat and temperature, gas laws, electricity and magnetism, atomic structure and properties of bonds, atomic energy, electrical energy, light and color, and wave characteristics and sounds.

Prerequisite: High School physics and chemistry

MGM1-182 General Physics Sem (3-3)

(A) Mechanics and Heat: Force, equilibrium, uniform and accelerated motion, work, power, and energy; properties of matter, heat, and temperature; (B) Electricity and Magnetism: Electric charges and currents, and fields, induced currents; wave motion, interference, diffraction, geometrical optics.

Prerequisites: High School physics and MGM1-181

MGM1-183 Elementary Nuclear Physics Sem (3-3)

Modern concepts and phenomena of physics. Relativity, quantum theory, properties and properties of nuclei, nuclear properties of particles, the nuclear atom, Bohr atom, quantum mechanics, atomic structure, the spectrum of hydrogen atom, electron spin and exclusion principle, molecules, solid state physics, nuclear properties, radioactivity, nuclear reaction, elementary particles.

Prerequisites: MGM1-182

MGM1-184 General Chemistry Sem (3-3)

(A) Principal laws and theories of chemistry; Atomic structure, periodic table, chemical bonds; (B) Inorganic: Atomic and molecular weights of the elements as a basis for methods of classification. (C) Physical Chemistry: Types of organic compounds, components, general principles of organic chemistry, the chemistry of hydrocarbons, with an introduction to functionalization, carbonyls, phenols, and aromatic compounds.

Prerequisites: High School chemistry and MGM1-181

MGM1-185 Analytical Chemistry Sem (2-6)

(A) Theory of analytical and general principles of analytical qualitative, and quantitative analysis. (B) Theory and application of modern instruments in the field of chemistry: laboratory experiments, (C) Principles and application of reagents, and instruments, including spectrophotometry, spectroscopy, polarometry, dialysis, chromatography, and distillation.

Prerequisites: MGM1-184

MGM1-186 Statistical Methods Sem (4-0)

Development of concepts and techniques appropriate to experimental research; methods for estimating parameters and testing hypotheses about them; linear correlation and regression. Introduction to analysis of variance.

Prerequisites: High School mathematics

Section 7: Foreign Languages

Students who have had two years or more in foreign languages (Bengali, French, Chinese, Japanese, or German) will be given a placement test in the language (Level) in the beginning Seminar (MGM1 -181) and placement test will be given by the department at the beginning of each semester on the basis of these results. A maximum of three credits may be awarded and the student will be said placed at intermediate level in the language he or she has studied

MGM7-191F Beginning French Sem (4-3)

(A) Study of the essentials of French syntax, vocabulary, and pronunciation in order to read, write, and speak French; (B) Practice in conversation; drill on pronunciation and sound patterns, dictation, and remedial; (C) Composition; grammar and composition.

MGM7-192F Intermediate French Sem (3-0)

Exercises in pronunciation, comprehension, and composition. Ample opportunity for oral-aural practice. Only for students qualified in placement test.

MGM7-193F Advanced French Sem (4-3)

An intensive study of the art of written expression, through frequent exercises in composition. Ample opportunity for conversation with oral work designed to assure fluency in the spoken language.

Required for graduation in all colleges or schools within the university.

MGM7-194F French as a Second Language Sem (4-3)

Basic vocabulary and grammatical structures with emphasis on the spoken language and reading skills.

MGM7-191G Beginning English Sem (4-3)

(A) Development of reading ability, with essentials of grammar; (B) Practice in writing; (C) Drill in sounds followed by reading in narrative and dialogue; (D) Practice in elementary expository writing; (E) Drill in pronunciation and sounds patterns, dictation, and remedial.

MGM7-192G Intermediate English Sem (3-0)

Practice in writing for all students who need to improve their composition skills. Only for students who are qualified in placement test.

MGM7-193G Advanced English Sem (4-3)

(A) Reading and composition: expository writing, (B) Practice in oral and written English, (C) Remedial composition. Required for graduation in all colleges or schools within the university.

MGM7-194G Practical Writing Sem (2-0)

Study and practice in writing business and personal letters, reports, minutes, news-letters, notices, and other kinds of non-literary material.

MGM7-195G Scientific Report Writing Sem (2-3)

Preparation of scientific report in physical sciences, biological sciences, agriculture, medicine, education, engineering, and other fields. Study of the problem, organization and submittal. Adaptation of written reports for oral presentation or for publication in professional journals.

MGM7-181C Beginning Chinese Sem (4-3)

Elements of Chinese Language, pronunciation, tones, rules of writing and word's structure; basic grammar, simple writing sound-sentences.

MGM7-182C Intermediate Chinese Sem (4-0)

Introduction to syntax and grammar of Chinese and the reading of basic selected materials. Structure of modern Chinese, reading of Chinese literature, and practice of the spoken language.

MGM7-183C Advanced Chinese Sem (4-3)

Extensive reading, vocabulary, increased knowledge of Chinese idiom, and practice in writing. Conversation and composition.