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ABSTRACT

This manual is concerned with the process by which courses within curricula are planned and a schedule of courses developed; the procedure by which students then choose or are assigned to courses; and, finally, the means by which confirmation of such assignments through fee payment is accomplished. This process is a fundamental operational aspect of every college and university. Sections in the document cover planning, schedule preparation, space scheduling, and registration systems. Appendixes include class-size policy at Ohio State University and a suggested equation for evaluating the number of courses in a total master curriculum file for a department or college. A glossary is also included. (Author/PG)

Schedule Building And Student Registration

Universities

Management Improvement Program

Ohio Board of Regents

MIP

Prepared by a task force of university representatives with direction and staff assistance provided by the Ohio Board of Regents

July 1, 1973.

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Additional copies of the manual are available for $3.00 from the Ohio Board of Regents, 88 East Broad Street, Suite 700, Columbus, Ohio 43215.

This book represents one of five manuals prepared under the direction of the Ohio Board of Regents' Management Improvement Program which the Management Division has arranged to distribute. We feel that the recommendations and procedures contained in these manuals are of enough general interest and applicability to warrant sending them to persons outside the Ohio public universities.

The Management Improvement Program was established by the Ohio State Legislature in December 1971 to consider means of improving the management of the state-supported universities and junior colleges. Gerald L. Shawhan was the Director of the Program.

In addition to the five manuals which the Management Division is distributing, five others on the same subjects have been prepared covering the public two-year colleges.

Foreword

This manual is one of ten completed in the Management Improvement Program (MIP) during the 1971-73 biennium. In this project, Ohio's 34 public universities and colleges, in an effort directed and staffed by the Ohio Board of Regents, have developed manuals of management practices concerning institutional planning, program budgeting, personnel management, computer services, and schedule building and registration. The project is unique in at least two ways—the improvement of internal management processes is the objective of the program, and the method of undertaking it was mandated by the Ohio General Assembly to be participatory.

House Bill 475, the appropriation act passed by the 109th General Assembly in December, 1971, created the MIP, directing that it be conducted by and within the system of state assisted universities and colleges under the direction of the Ohio Board of Regents. This legislative action culminated more than four years of active interest by the legislators in improving the management practices of these schools.

In 1967, a joint House-Senate committee, called the Education Review Committee, was created by the General Assembly. Included in its charge was that of monitoring the management practices of the public universities in Ohio. This committee, in conjunction with the Department of Finance, hired a management consulting firm to perform a management study of the nonacademic areas of the 12 public universities and of the state system as a whole. The report of the consultants, published in December, 1969, made about 100 specific recommendations for management improvement. The Education Review Committee remained interested in appropriate follow-up of the study. With the aid of another individual consultant, language was introduced in the General Assembly which was included in the appropriation for the biennium. Some excerpts of the actual language are as follows:

> "The purpose—shall be to design, test, and install, in each such institution, the most efficient feasible internal organization, planning process, financial management, budget preparation and management, auxiliary services management, space management and plant operation, purchasing procedures and inventory control procedures, student data systems including admission procedures and student registration procedures, management reporting systems, data processing, personnel management, and library management.
>
> Each project is to be conducted in cooperation with a committee of representatives from state assisted colleges and universities.
>
> The director of each project is to be a staff specialist in the employ of the Board of Regents.

FOREWORD

For guidance in the conduct of each Management Improvement Project, the participants are to consult the findings as set forth in the 1969 Consultant's Report."

Primarily because the appropriation to carry out the program was not commensurate with the depth and breadth of the tasks spelled out in House Bill 475, the scope of the Management Improvement Program in this biennium was restricted to five central areas (Institutional Planning, Program Budgeting, Computer Services, Schedule Building and Registration, and Personnel Management). In addition, the original mandate of H.B. 475 was "to design, test and install the most efficient, feasible procedures" in each of the areas in each of the institutions. Because of the limited time, only 18 months, and the participatory method of undertaking the project prescribed in the bill, the immediate objective set forth in the past biennium was the generation of a manual of best practices in each of the five areas.

As stipulated by the legislature, task forces of institutional representatives were appointed and actively participated in the process. Ten such groups were formed—five for the universities and five for the community and technical colleges. Each task force consisted of representatives qualified in the particular subject matter under study. Each group had at least one member from every school. In total, more than 175 college and university personnel from all over the state were directly involved, as well as many others at each institution through formal and informal contact with the appointed members. Each task force met 8-10 times in the year and a half devoted to the project.

As specified in the legislative bill, the Ohio Board of Regents provided direction and staff for the project. Four professional management analysts, two secretaries, and limited part-time analytical and clerical help constituted the manpower to fulfill that charge.

Three major phases constituted the project:

1. **Inventory the current practices.**
   This phase involved compiling the existing practices and procedures in the five areas at each state-assisted school in Ohio. Approximately five months were devoted to this task.
2. **Determine the issues to be addressed in the manuals.**
   Three months were devoted to discussions about the specific issues to be covered.
3. **Write manuals.**
   Nine months were devoted to writing the manuals. This phase included extensive and detailed discussions by the task forces, much drafting and redrafting by the staff and task force members, and finally concurrence with the manual contents.

The Manuals are practical, informative and useful. For the most part, all of the manuals contain general guidelines, principles and broad recommendations for good management within the universities and colleges, rather than detailed and specific procedures. They also include recommendations which call for direct action by the Board of Regents. Basically, the recommendations seek more effective internal management and accountability, while recognizing the autonomy of each school.

Literally hundreds of people have been involved in this project. All members of the Ohio Board of Regents staff, especially former Chancellor John Millett, and Vice Chancellor William Coulter, have made significant contributions to the entire project. The Regents were particularly fortunate in gathering together the staff for the MIP. Dr. Ronald Lykins, Mr. Lawrence O'Brien, Mr. Douglas Smith, and Dr. Joseph Tucker brought with them considerable experience and knowledge from administrative and academic aspects of colleges and universities, as well as from private industry. Their perseverance and leadership in directing and staffing the task forces were superb. Special thanks must be given to Mrs. Betty Dials, the secretary for the program, who was an inspiration to all.

Many agencies in other states, including colleges, universities and state systems, were contacted and in some cases contributed helpful data to the program. Applicable professional organizations were also contacted and did help.

But more than any other, however, the contributions made by the individual task force members must be mentioned and expanded upon. The more than 175 personnel from the 34 colleges and universities who were the official representatives for their schools contributed long hours, data, ideas, constructive criticisms, changes, and encouragement. They not only worked collectively in the task forces, but also were required to spend considerable time on the respective campuses gathering data together and communicating with many campus constituencies to make sure that their schools were fairly and adequately represented.

The university schedule building and student registration task force members were:

John Adams, Assistant to the Registrar
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FOREWORD

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Ohio Board of Regents (Task Force Director)

Without their sincere participation, this manual would not exist.

Gerald L. Shawhan, Director
Management Improvement Program

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1. Introduction

Role of Student Registration and Schedule Building n Higher Education

This manual is concerned in general with the process by which courses within curricula are planned and a schedule of courses developed; the procedure by which students then choose or are assigned to courses; and, finally, the means by which confirmation of such assignment through fee payment is accomplished. This process is a fundamental operational aspect of every college and university. It is vital to the American system of higher education. Nearly all faculty members, all students, a large percentage of both academic and nonacademic administrators, and considerable support staff participate in this overall process. Many forms, much time, support from computers, and likewise many frustrations usually accompany the process. Literally thousands of individual decisions are made which affect in one way or another the entire faculty and student bodies. The process takes place in its entirety at least four times a year for public universities in Ohio (all schools follow the Quarter Calendar).

SRSB Process

The SRSB process as practiced on campuses across the country has nearly an infinite number of varieties and descriptions. Yet it is possible to group the events into a format that is valid for all schools.

1. Schedule Development

   The first major segment of SRSB involves the development of academic courses and the detailed schedule of those courses. This portion of the process primarily involves effort and decisions by the teaching colleges and departments at a university. Considerable help is supplied by others, however. Enrollment projections, the specific courses to be offered, numbers of sections, methods of teaching, faculty assignments, days and times to offer sections, and the classroom and laboratory assignments are all facets involved in this portion.

2. Registration Systems

   The second major segment of SRSB involves the matching up of students and their program needs with the schedule of courses developed as described above. This segment usually involves heavy input from the teaching colleges and departments at the start of the process, and considerable effort by the nonacademic offices such as

registrars, controllers and cashiers as the process continues. Involved are items such as student selection of specific courses, more often than not involving faculty or other academic advisers. The actual assignment of students to specific sections with feasible time schedules, and confirmation of these assignments through fee assessment and collections are also extremely important and vital parts of this process. Normally, this process can be further segmented by time parameters. Most schools have three systems or sets of procedures. One is called advance registration. This is the process that takes place weeks or months before the actual start of a school term. The second, open registration, is the process involving the same facets but with possibly different procedures. It occurs just prior to the first day of a term. Finally, late registration considers the procedures usually enforced for the process when it occurs after the start of a term.

3. Registration Changes

   The third major segment involves those procedures necessary to handle changes in completed registrations. The dropping and adding of courses, withdrawals from schools during a term, refunds, and changes in fees are some of the specific items of concern. Usually both the teaching faculty and then colleges and departments, as well as the nonacademic offices, are involved.

Purpose of the Manual of Best Practices

It is a clear intention that all public universities in Ohio will improve their individual SRSB management processes and raise their levels of accountability by using this manual. Thus the system of schools in Ohio can show measurable overall management improvement and help earn a greater public confidence and support. What is this manual then that it may be followed in such a manner? In a positive sense it contains the following four items:

1. A rational and objective delineation of all facets and ramifications of the SRSB process, and an indication of those items that should be considered and evaluated when making decisions concerning any part of or the whole SRSB process.
2. Recommended practices and procedures. For many topics, the manual contains alternative practices. In such cases, conditions or parameters favoring one over another are described.
3. Guidelines (as distinguished from procedures) for the improved management of SRSB. The nature of these guidelines is such that they are generally applicable to all schools or groups of schools.
4. Suggested standards or measures of performance against which actual management processes can be compared.

Some things are best described by indicating what they are not. In this sense, the Manual of Best Practices can be described by saying:

1. It is not a description in all cases of the one best practice or procedure.
2. It is not a push for uniformity, for uniformity's sake. In fact, in more cases than not, this manual recognizes real and significant differences

in emphasis, organization, tradition, environment, etc. which lead justifiably to different practices.

3. It is not the ultimate in recommended practices. We are not so naive as to think there is no room for improvement. Yet the manual does represent a consensus of the thoughtful, considered best judgment of the MIP staff and Task Force members who are themselves practitioners on the front lines of the operational battles.
4. It is not a wholly self-contained, complete step-by-step process of items which if copied verbatim results in an accomplished SRSB process. It is not a "cookbook."

SRSB in Relation to the Management Improvement Program

As described in the foreword, the Management Improvement Program received its charge from the Legislature of the State of Ohio. The actual language of the enacting bill describes not only the breadth of the project, but also its charge to do much more than just study:

> The purpose of this management improvement program shall be to design, test, and install in each institution, the most efficient feasible internal organization, planning process, financial management, budget preparation and management, auxiliary services management, space management and plant operation, purchasing procedures, student data systems including admissions procedures and student registration procedures, management reporting systems, data processing, personnel management, and library management.

Because of the staffing budget provided, only five key areas of management improvement have been worked on in the current biennium. These are institutional planning, program budgeting, personnel management, data processing, and student registration and schedule building. These five areas were carefully selected, and the systems described in these manuals are closely related to each other. The five are fundamental management processes necessary for the proper operation of higher education institutions.

Institutional planning deals with a planning **process** encompassing the instructional, research and public service objectives of institutions, as well as the resources required to carry out such objectives; faculty and staff resources, physical plant resources, auxiliary services, etc. The planning manual, as with all the manuals, concerns itself with sound **processes** of management.

Program budgeting defines budgeting processes that focus attention on programs which logically seek to carry out the goals and objectives of the institution. These processes have output expectations against which progress can be measured, and are logical activities to which resources can be dedicated and against which costs can be identified.

Personnel management is concerned with the effective management of the academic and nonacademic personnel resources of a university or college. This facet is of critical importance because, as in any service industry, the human resources overwhelm all other resources in productive potential and in operational cost. Faculty in particular are the core of an educational institution.

In the field of data processing, the computer services manual is concerned with processes that will assure the availability of adequate computer services.

These services must be provided to satisfy modern management practices as well as the growing demands of instruction and research.

Finally, this manual is concerned with SRSB. This encompasses the efficient registration of students for individual courses that meet their particular educational needs. It is also concerned with the scheduling of classes in a way which most effectively utilizes university resources. This phase is central to accomplishing the instructional objectives identified by an institution.

The five topical manuals then have been structured on one hand to avoid gross duplication, but on the other to form a cohesive, compatible set of recommended practices and guidelines which together encompass a major portion of higher education management. Where duplication exists, it exists to make any one of the five a compact, complete document. Even in such situations, however, readers will find a particular subject covered in detail in only one.

2. Planning

Insofar as the Management Improvement Program in an overall sense is concerned with all management practices in our public institutions of higher education, this chapter will concentrate on planning—described by many as a continuous dynamic process in which projections help guide actions whose results feed back revisions into the projections. Another equivalent, one sentence description calls planning "the coordination of resources for scheduled goal achievement within anticipated environmental conditions." This process, the foundation of effective management, is applicable to student registration and class scheduling as well as other functional areas in higher education.

Overview and Definitions of the Planning Process

The planning process is characterized in this manual by a systematic consideration of goals and objectives, identification of alternate series of activities (programs) to achieve the goals and objectives, analysis of alternatives, determination of best programs, allocation of resources to those best programs, and evaluation of results.

Planning is not the prediction of future events. It is only today's anticipations of that which is most likely to occur. The realization that all planning is largely an educated guessing game encourages preparation for contingencies, identification of alternatives and estimation of the probabilities of various possibilities.

The main purpose of planning is to help make the best possible decision about what to do right now. Planning in that sense is not the determination of future actions. No matter how far ahead one looks in his efforts to anticipate probable developments, the real reason for doing so is to help decide what is the best thing to do in the immediate future. Planning must therefore be a continuous activity, not a periodic one.

Thus each organizational unit in the course of its management must cyclically consider:

1. Goal Setting and Objectives
2. Defining Alternate Programs
3. Calculation of Resource Requirements
4. Selection from Among Alternate Programs
5. Allocation of Resources
6. Evaluation of Programs

Definitions for the key terms are summarized below to assist the reader in following the philosophy of the planning process as used herein:

Ordered	—Ranked by relative importance or priority assignments.
Goals	—The desired end result set—generally set for a long period of time. Goals and objectives are often used interchangeably but they differ in this manual in terms of time frame, sequence and measurability. Goals are long-run and the end result. Objectives are short-range, and are steps in the direction of attaining a goal.
Objectives	—The measurable attainments or desired results over a short period of time. Objectives are generally regarded as progressive steps toward a goal. Thus, a series of objectives should lead to one's goal. Objectives should be written and meet the following requirements: 1. Relate to a goal 2. Be measurable or observable 3. Specify the method of measurement and criteria for evaluation 4. State the time period for achievement
Programs	—A group of related activities used to achieve a goal or objective. Programs set forth the output to be realized and the resources to be consumed over a projected time period.
Alternate Programs	—Collection of different groups of activities (programs) to accomplish the same objective or goal.
Resources	—Personnel, space, operating support services and equipment which are converted into dollars and cents.
Selection	—Determination of best program (on a cost-benefit or cost-effectiveness basis) from those programs developed to achieve a specific goal or objective.
Evaluation	—Comparison of actual events with desired objectives.

The planning process results in plans that are the output of the process. Plans should be a documentation of the entire process. They should be formal, written documents that state the goals and objectives, the programs considered, the analysis and facts used, the conclusions regarding programs to be pursued and the allocations of resources for these programs.

THE PLANNING PROCESS FOR STUDENT REGISTRATION AND SCHEDULE BUILDING

Goals

The first and fundamental part of planning must include the determination of goals. As an educational support function, the schedule building and student registration process must help implement the institutional goals and objectives as determined for the instructional, and some parts of the public

service, components. The specific goals of the entire SRSB process have been delineated as follows (the goals are not necessarily mutually exclusive, all attainable, or all desirable in a specific institution):

1. Provide for **effective use** of the **school's resources**—space, personnel, dollars. For example, improved utilization of classrooms, more effective use of faculty talents, better cost-effectiveness in the SRSB process.
2. Provide **equitable scheduling** to both students and faculty. Both student and faculty desires should be considered when determining schedules of courses offered and scheduling students into classes. For example, a specific goal is that of maximizing the percentage of satisfied student schedule requests.
3. Enable **normal progress** toward degrees by students. Students should be able to achieve sufficient credits for graduation in a reasonable length of time. e.g. 4 years for B.A. degree barring failures and other such problems.
4. Produce **accurate** and **complete data** as needed for appropriate personnel—students, faculty, advisers, administrators and outside agencies. For example, confirmed registrations to students, number of students enrolled to administration, class lists to faculty, number of minorities enrolled to HEW.
5. Allow **sufficient time** to complete the process. There must be time enough for students, administrators and others who are involved in the process to accomplish that which is necessary for effective decision making and proper management.
6. Provide for **effective advising** to students.
7. Minimize the inconvenience to students, faculty, advisors and administrators. For example, fewer and shorter lines for students, less direct faculty involvement in registration mechanics, more orderly procedures for registrars, cashiers, etc.
8. Provide **personal attention** to students.
9. **Decrease** the number of registration **changes** and **errors.**

Whether one agrees with the relative ranking as indicated above is not important. What is necessary, however is that a particular school, when facing a particular problem or new proposal concerning the SRSB process, must set a priority sequence and in essence assign weights to each of the goals. Many activities formulated to achieve objectives will impact or affect a number of other goals and related objectives. A rationale should exist in order to take this coupling effect into account. This does not necessarily mean assigning a mathematical number to each one and performing a mathematical calculation. But it is important that the personnel involved in making decisions with regard to changes and proposals understand the effects on the nine goals, and also agree on the relative importance accorded to each.

Any facet, detail, or procedure involved in the SRSB process must be the result of an attempt to reach some combination or all of these nine goals.

But such goals, acceptable to those concerned, are not enough to lead directly to new systems design, etc. Goals usually specify no time frame for achievement, are seldom measurable, and may not specify a method of measurement or evaluation. Thus **objectives** are needed.

Objectives

The process of determining objectives is not necessarily a simple one. It is in many cases extremely difficult, time consuming, and perhaps even frustrating to set meaningful and measurable aspirations. Obviously, some are easier than others. But objectives can be determined.

The crucial and basic question which must be asked when attempting to set objectives is, "Can I measure its success?" If a statement is to qualify as a valid objective, it must generate a positive response to that question. For a detailed discussion of criteria for evaluating and the process for setting objectives, two references are cited. The Manual of Best Practices for Institutional Planning prepared concurrently with this manual, and the book entitled **"Goal Analysis"** by Robert F. Mager, are excellent references.*

As stated above, objectives are generally regarded as progressive steps toward a goal. Steps to be taken will be influenced by the environment in the individual universities. Examples of objectives are shown below. These are in no way meant to be prescriptive or even desirable. They are listed merely as examples of validly worded objectives which relate to the nine goals. Note they are measurable, indicate a time frame, and relate to the goals.

Goal	Sample Objectives
1 Effective use of resources	1a. Increase classroom seat utilization to x% in Autumn Quarter, 1973. 1b. Reduce registration expense per student by x% in Autumn Quarter, 1973. 1c. Reduce the number of classes with fewer than 10 students to x in the Autumn Quarter, 1973.
2. Equitable scheduling	2a. Permit x% of sophomores to schedule specific sections and/or times for multisection courses in the Winter Quarter, 1973. 2b. Enrollments in sections of a multisectional course may not vary by more than ±x% in a Quarter beginning with the Spring Quarter, 1973.
3. Normal progress toward degree	3a. Schedule seniors first, juniors second, etc. beginning with the Winter Quarter, 1973. 3b. Allow sufficient places in a required, nonprerequisite course for x% of freshman, y% of sophomores, etc. beginning with the 1972-73 year.

Goal	Sample Objectives
	3c. Send to each senior-to-be a resume of his completed credits by September 1, 1973.
4. Accurate and complete data	4a. Produce APER by scheduled due date with no more than x% errors in the Autumn Quarter, 1973. 4b. Provide all students who advance register with written confirmation of schedules by September 15, for next Autumn Quarter. 4c. Provide enrollment summary to president in broad categories by Friday of the first week of classes next Autumn Quarter. 4d. Provide initial class rosters to faculty by Tuesday of first week of classes with x% accuracy in the Winter Quarter, 1973. 4e. Increase student participation in demand analysis as follows: x% of students for Autumn Quarter, y% for Winter Quarter registration in the 73-74 year.
5. Sufficient time	5a. Allow each student x weeks in which to determine his schedule request after publication of initial Quarterly Schedule for the Winter Quarter, 1973. 5b. Allow x weeks for demand analysis for Autumn Quarter. Reduce to y weeks for Winter Quarter registration for the 73-74 year. 5c. Require all fee payments by end of x day of classes so that y% accurate enrollment count can be made by the beginning of the third week of classes in the Winter Quarter, 1973.
6. Effective advising	6a. Assign one adviser to each x students for the Spring Quarter, 1973. 6b. Generate for each adviser a printout of the student's earned credits, courses currently enrolled in, and credits needed to graduate, by the second week of the Spring Quarter in 1973.
7. Minimize inconvenience	7a. Permit no line to extend beyond its outer doors in the student financial aid office during registration beginning in the Autumn Quarter. 1973. 7b. Enable x% of the students to register without writing their names more than twice beginning in the Autumn Quarter, 1973.

Goal	Sample Objectives
	7c. Allow registration workers an x minute break at least every two hours beginning in the Winter Quarter.
8. Personal attention	8a. Allow x days in which students may see advisers in the registration process beginning in the Autumn Quarter.
9. Decrease changes and errors	9a. Reduce the number of drop/adds by x% in the Autumn Quarter, 1973, as compared to previous year. 9b. Eliminate keypunching of individual schedule requests for all students who preregister for the Autumn Quarter, 1973. 9c. Allow up to three alternate course requests per student during preregistration beginning with the Winter Quarter, 1974.

When managing the SRSB process, it is important for all parties directly involved in the design and operation to thoroughly understand the goals and objectives which have been set. For example, it is important that whether one is designing a very complex on-line registration system, or increasing the number of personnel staffing the class card files, all managers, employees, and perhaps even students understand what is being sought by the change or the system. Obviously, specific written, measurable objectives are necessary for such understanding to exist. Decisions concerning such systems or changes should not be made until and unless such goals and objectives are specified and accepted.

Remainder of the Planning Process

The remainder of the planning process after the specification of the goals and objectives involves what are described as five distinct, yet closely related steps. They are the determination of alternate programs, the calculation of resource requirements for each of those programs, the selection from among those alternate programs, the actual decision or allocation of resources, and finally evaluation of the programs. Though the language may sound complex and too organized, the steps described are simply those which most everyone uses to solve any problem, reach some objectives, or set up objectives. In this manual, detailed attention will not be given to those remaining general processes. Rather, in the course of discussing some of the actual operations in the actual SRSB process, many of the factors involved in the steps mentioned above will be discussed, particularly alternate programs and evaluation.

Generally speaking, the entire planning process involves much cycling within it before decision making and resource allocation are completed. For example, it is not unusual for objectives to be set and agreed upon, only to determine that resource requirements are too great for implementation. Thus, the process must recycle to consider either reduced objectives and/or finding additional programs.

ecommendation

Each organizational unit must specify goals and objectives as a first step in the overall management process. When evaluating a problem or proposal concerning the SRSB process, it will normally be necessary to assign priorities to each of the nine general SRSB goals. All parties involved in the design and operation of the process should thoroughly understand the specified goals and objectives.

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* Goal Analysis, by Robert F. Mager, Fearon Publishers, Belmont, California, 1972.

3. Schedule Preparation

Overview

This chapter is concerned with the Master Curriculum File and the Quarterly Schedule, the two documents that indicate the specific courses comprising the curriculum of all the instructional programs of a university. It is not concerned with the overall subject of curriculum development, but rather assumes instructional programs and course schedules now exist. Therefore, curriculum development will be discussed from a modification viewpoint, and not from an originating aspect.

In simplistic terms, the Master Curriculum File is an inventory of all courses that comprise curricula (degree credit, continuing education, and correspondence), while the Quarterly Schedule is an inventory of courses to be offered in a specific Quarter of an instructional calendar. The Master Curriculum File is normally prepared far in advance of actual offering. It contains more information, but is less detailed than the Quarterly Schedule. It is more a planning than operational document.

On the other hand, the Quarterly Schedule is usually prepared at a time much nearer to actual offering, contains very specific and more detailed information about actual courses and sections, and is much more of an operating tool than a planning tool. In one sense, the Quarterly Schedule is a subset of the Master Curriculum File, but greatly expanded in terms of the specific data concerning each course which shows on it. Thus, the two are very closely related.

The processes by which the two are developed are therefore closely intertwined. Faculty clearly have the responsibility and authority to design curricula and courses. Approval of such courses then follows from both academic and financial standpoints. This results in a Master Curriculum File. The Quarterly Schedule, as a subset of the Master Curriculum File, is also originated by the faculty and academic administration. More detailed decisions such as teaching technology, number of sections to be offered, time and location, etc. are made by both academic and central administration and a Quarterly Schedule results.

This chapter will evaluate individually the two documents, discussing for each its functions, content, process of development and evaluation.

Master Curriculum File Functions

The Master Curriculum File serves many separate and interrelated functions enumerated as follows, but with no implied ranking of importance:

1. Support the program budgeting process. The course data, with enrollment projections, faculty and personnel estimates, workload esti-

mates, etc. serves as data to assist in making resource allocation decisions.

2. Help department heads plan faculty assignments and projected need for faculty.
3. Assist program managers (deans and similar bodies) in structuring degree requirements. It serves as the focus of discussions concerning program requirements and course content. between program managers and operational department heads.
4. Assist students in planning their future enrollments. Students need it to map out a long-term plan to reach their degree plateau.
5. Assist student advisers in aiding and counseling students and prospective students with regard to their enrollments. The Master Curriculum File. in conjunction with students' programs and prior earned credits. constitute the primary data needed to advise on academic matters.
6. Provide information to prospective students concerning course content. objectives and scope of curricula. This is usually accomplished in the context of a printed bulletin or catalog. but the information contained therein is basically a subset of the Master Curriculum File.
7. Serve as the basis for the preparation of the Quarterly Schedule.
8. Assist faculty in preparing for teaching. The Master Curriculum File, because of its course descriptions and objectives, provides the necessary first guidelines to prepare outlines, establish texts. etc.
9. Serve as historical file of course offerings.

Master Curriculum File Content

The Master Curriculum File should contain a listing of all courses offered at the university over a five-year span: two years before the current year, the current year. and two years after the current year. The two past years give a semblance of historical data needed for planning, while two future years give both students working out schedules to graduation and the university sufficient information to predict financial commitments.

For each course. the following minimum information should be included:

1. College and department responsible for. or offering. the course
2. Course number
3. Course title
4. Course description
5. Course objectives
6. Credit hour range
7. Discipline codes (OBOR and HEGIS)
8. Financial codes
   (Special fees. OBOR level and subsidy codes)
9. Enrollment mix and limits. planned section sizes
10. Prerequisites and corequisites
11. Last time offered (Quarter. year)
12. Number of Quarters offered in previous two years
13. When to be offered (Quarters) in next two years
14. Degree requirements indicator (if desired)
15. Special facilities code (if desired)

Master Curriculum File Structure

The Master Curriculum File, as described above, contains a sizable amount of information. For example, a school with 3 thousand distinct courses might require nearly 10 million characters of data storage (whether hard copy or disc magnetic tape). It may therefore be unwise to consider the Master Curriculum File as one document, or even one computer file. It is suggested that it consist of two distinct files.

The first, called a **Master Catalogue**, should contain the course descriptions, course objectives and appropriate identifying data such as course numbers. This file would contain probably several million characters. Thus, computer storage would be difficult to justify unless printer output is used for catalogue copy.

The remaining items in the Master Curriculum File, encompassing up to 150 characters per course, should be placed in another file, called the **Master Inventory of Courses**. Because this portion of the Master Curriculum File is used more often in the planning and operational aspects of schedule building, and because the size of the file may only be measured in terms of hundreds of thousands of characters, it is much more practical to computerize.

Master Curriculum Files have been developed over the years in many ways to satisfy numerous pressures, interests and aspirations. The expansion of knowledge, special interests of faculty, societal and student needs, prestige, availability of funds, institutional uniqueness, accreditation requirements, and general curriculum revisions have been reasons for creating new programs and courses, and eliminating old ones. As previously mentioned, this manual will assume the existence of sets of courses constituting a curriculum. The study of and process for curriculum development in its broadest sense will not be addressed. Rather, we will treat the subject from the standpoint of making changes to an existing Master Curriculum File—generally adding or deleting specific courses, or combining courses thereby resulting in additions and deletions.

Program Budgeting and the Development of the Master Curriculum File

As described in the program budgeting manual, academic departments in the course of the budgeting process must develop or revise their Master Curriculum Files. These revisions or updatings are completed on the basis of data from program managers concerning course content needs, enrollment projections (at least in a rough sense through an induced course load matrix), curriculum revision pressures, and other such available information. Through this process, departments develop a Master Curriculum File, and have resource allocation commitments sufficient to handle the implications of the File for one year (through the Current Operating Budget). Normally, this should occur in the early Fall of the year prior to the budget year.

Although much communication between program managers and department heads has occurred in the initial process of program budgeting, it is important for departments to share the approved Master Curriculum File, and especially the estimates of the number of program students by course to be serviced by the courses, with all pertinent program managers. Only then can a program manager feel assured that his students will have schedules in the coming year. In this way, major changes in estimated numbers of students, or other major factors which could affect the schedule, can be resolved.

Changing the Master Curriculum File

Whether in the course of budgeting, or at any other time throughout the year, changes in the Master Curriculum File will be made. Additional courses, changed data describing courses, deleted courses, and combinations of the three constitute the kinds of changes. They may be major, such as the introduction of a revised curriculum, or minor, such as a revised course description, and obviously anywhere in between. The process by which such changes occur is extremely important and complex.

Clearly certain principles apply. The process must not only recognize, but also insure that the academic departments and their faculty have chief responsibility for and involvement in the process of change. Commitments to students must be considered and honored, and resources must be available and allocable — whether dollars, space, or faculty skills. All pertinent or affected groups or departments must be considered. Finally, proper notification of changes must be given. A suggested process therefore would include first a thorough and detailed analysis at the academic department level, followed with formal approval by an all-university body such as a faculty and/or university senate. Sufficient time for notification and study by interested parties must be allowed. There should be a central administrative office charged with the overall record-keeping maintenance for the process, as well as notification to other offices such as those responsible for admission, registration, financial and enrollment projections, and bulletins. The process should furnish answers to the following kinds of questions, especially if substantive changes such as new courses are being suggested.

1. How many students are expected and/or affected? What kinds of students (graduate, undergraduate, college, etc.)?
2. Are resources available? (Faculty, equipment, space, etc.) What are the estimated resource needs? What teaching technology is to be used (lecture, individual study, laboratory)? What are the fiscal constraints and effects? What is the effect on teaching loads in the department?
3. What is the relation of the new course to the rest of the program curriculum? What course or courses will this replace?
4. When is the course to be offered? (Quarter and year) How often?

Master Curriculum File Evaluation

For a number of reasons, Master Curriculum Files need to be reviewed and evaluated in an earnest, systematic fashion. Course proliferation, too many discrete courses, prerequisites of questionable pertinence, lack of vocational consideration, misleading college and program descriptions, lack of clearly defined course objectives, excessive costs, and other such judgments clearly indicate the need to evaluate the Master Curriculum File. Regular evaluation should take place from two vantage points; curricular and cost.

Curricular Evaluation

By curricular evaluation, questions such as the following must be addressed:

1. Are there too many specific and specialized courses? Can they be

condensed? Can some be eliminated? Should the program be more general or more specialized?

2. Are course content descriptions accurate? Does each course have clearly understood objectives?
3. Are prerequisites and corequisites clearly stated? Need they be changed? Is practice different from policy?
4. Are descriptors such as course level, discipline and credit hours valid?

These are clearly questions which can only be addressed knowledgeably by faculty in academic departments. Comparison with other universities and with curriculum guides in the professional discipline associations, study of the students' progress toward degrees, follow-up studies of graduates, and student evaluation of courses and programs are four of the most obvious methods of such self-evaluation. In addition, serious study on a course by course basis should be made of enrollment histories of those attaining degrees, to determine actual patterns of enrollment which may often differ from theoretically required patterns. However, pressure to seriously undergo such self-evaluation by faculty usually must be exerted from sources other than faculty. Budget reductions (especially if some of the savings can be retained) and student pressures for curriculum change are usually effective.

The process for such evaluation should be systematic and formalized. It is, however, time consuming and without quick or immediate results—and this is probably good. Major curriculum evaluation should be accomplished periodically, perhaps every three to four years, by each teaching department and program manager.

Cost Evaluation

The other major aspect of Master Curriculum File critique is concerned with evaluation from a cost standpoint. In this sense, cost refers not only to the specific expense of offering a particular course, but more broadly to the overall use of resources involved in staffing for the full schedule of courses. The process for such review should furnish answers to the following kinds of questions:

1. Are there too many low enrollment courses and/or sections offered? Can some be eliminated or condensed?
2. Can courses be offered less often? (For example, one quarter every two years, instead of four quarters every two years?)
3. What is the direct expense per student-credit hour taught for each course per quarter? (Such a figure ties together class size with expense.)

Answers to these questions require a management information system of some complexity. For example, an institution needs to have a cost accounting system (at least for direct expenses) which incorporates student and course data with personnel (faculty) and financial data. Such systems are usually not developed and implemented in a short time. However, schools in Ohio have already been collecting and assembling in one report the necessary raw data—the OBOR Faculty Service Report. Though only required in the Summer and Autumn Quarters, this report provides a major step forward in determining expense per student-credit hour per course information.

In a less complex manner, similar evaluations can be accomplished by studying enrollments in courses over a two-year period. All schools should establish guidelines for minimum class size to which actual enrollments could be compared. (Such minimum class size policies, once formulated, should themselves be reevaluated formally at least every four years.)

The present policy of The Ohio State University is a model to follow (See Appendix A). This policy reflects differences in level of the course and students, yet at the same time allows exceptions for sound academic considerations. This kind of evaluation, usually handled on a course by course basis, can also be accomplished on a total schedule of courses and used as a guide to determine if too many courses are being planned (See Appendix B).

Addressed thus far have only been the questions and data needed in the cost evaluation process. The actual course evaluation and curricular implications must be completed by faculty, but the initiative for action will probably need to come from some other source. If a management information system is in effect, as described above, the office responsible for it should probably initiate specific cost evaluation. In other cases, the office may be the registrar, controller, institutional research, academic vice president, planning, etc. depending on the school's organization. Clearly, however, some office or person should be responsible for such cost evaluation data and initiation.

Dropping Courses From Master Curriculum File

If, as a result of cost or curricular evaluation, courses are to be eliminated from the Master Curriculum File, two additional items need to be stressed. First, and rather obviously, student-program needs must be considered. For example, will dropping the course prevent some students from graduating on time? Are alternatives available to students who planned to take the course? Second, it is important the process require approval by, or at the least formal notification to, all program managers and other groups and offices which could be affected by such deleted courses—e.g. dean of another college, office responsible for enrollment projections, registrar, etc.

Master Curriculum File Responsibility for Maintenance

The Master Curriculum File, to be useful to faculty, students and administrators, must be kept up-to-date and accessible. The former requires that updating responsibility must rest within a single organization, for example, the registrar. To simplify accessibility and ease of change, data processing techniques, although not a necessity, can be productively utilized. For example, the Master Curriculum File can reside on a file in the data processing system or at least the Master Inventory of Courses portion. File updating techniques, possibly initiated via on-line terminals or remote job entry stations in the responsible office, can be utilized for additions or changes. Terminals with video displays, if available, could also be used in an inquiry mode to survey parts of the Master Curriculum File. Hard copies of subsets of the Master Curriculum File (for example, the Quarterly Schedule) could also be produced at the computer center by appropriate file management programs. If the resources could be made available for computerizing the storage and updating

of the Master Curriculum File, a number of additional benefits could result. Computer generation of university catalog, data bank for institutional research and decision-making, and up-to-date curriculum information to advisers.

ecommendation

Each school should have a Master Curriculum File (MCF), containing detailed descriptions of every course offered over a five-year period—two years previous, the current year, and two future years. The entire MCF, revised annually to support the budgeting process, should be shared with all academic program managers during the budgetary process. Faculty are responsible for changes in the file. The process of evaluating and changing the MCF must involve systematic consideration of the students affected, resources available, curriculum, and time and frequency of offering. Regular curricular and cost evaluation should take place. Cost evaluation requires at least a cost accounting system, the basis for which now exists in the Uniform Information System. Each school should develop a minimum class size policy. A central office should be responsible for record keeping, notification and maintenance of the MCF.

Quarterly Schedule Functions

Whereas the Master Curriculum File is primarily a planning instrument, the Quarterly Schedule is a very operational tool—a necessary ingredient of the registration process. Its functions can be enumerated as follows:

1. Assist students to actually register for a block of courses in a specific quarter.
2. Inform students' advisers of the specific courses to be offered in a given quarter.
3. Inform the office responsible for sectioning (scheduling) of the specific courses and sections and other information necessary to schedule students.
4. Record the detailed information necessary to support each course offered in a specific quarter, e.g. faculty assigned, days and times offered, number of sections, teaching technology, and space assigned.
5. Be an ongoing or current record of the actual registration for a specific quarter.
6. Be a basis for evaluating actual use of resources.

Quarterly Schedule Content

As will be discussed, the Quarterly Schedule may in fact consist of many documents, depending upon the particular philosophy and processes used in the overall registration process. In another sense, the Quarterly Schedule may be considered a document which becomes more specific with regard to its detailed content as one progresses through the registration process. But no matter the philosophy or process, the Schedule should assimilate the following data for each specific course and section of that course to be offered in a Quarter:

1. College and Department responsible for, or offering, the course
2. Course and section number
3. Course title

4. Credit hours assigned
5. Discipline codes (OBOR and HEGIS)
6. Financial codes (OBOR subsidy codes and special fee codes)
7. Enrollment limits
8. Space assignment
9. Days and times offered
10. Instructor's name and/or social security number
11. Number and mix of students enrolled
12. Type of instruction (OBOR)
13 Year and quarter

Additional data may be desired by individual schools. For example, the following information may be helpful for certain aspects:

1. Number of paid enrolled students
2. Number of auditors
3. Number of students added and dropped
4. Examination schedule

Development of Quarterly Schedule

The Quarterly Schedule is developed initially as a subset of the Master Curriculum File. (In point of fact, this should always be. No course should be offered or indicated on the Quarterly Schedule if it is not on the Master Curriculum File.) Indeed, many of the items comprising its content are taken directly from the Master Curriculum File; college and department, course number, course title, credit hours, discipline and financial codes, enrollment limits, and quarter and year. This initial version of the Quarterly Schedule may be originated by the academic departments and colleges, or by the administrative office designated to maintain the Master Curriculum File. This manual suggests the latter. It seems best in the interest of efficiency, avoiding duplication of effort, and accuracy, for that central officer to prepare this initial Quarterly Schedule. He should then transmit it to the academic colleges and departments so that:

1. the base information can be verified to insure it is accurate and up-to-date by the academic personnel and,
2. the additional items necessary for each course can be gathered—section numbers, specific credit hours, space assignment, days and times to be offered, faculty assignment, teaching technology, number enrolled.

Two fundamental questions must then be answered in order to describe further the Quarterly Schedule process:

—When are the additional specific data items entered into the Quarterly Schedule?

—Which offices have responsibility for which data items?

The Quarterly Schedule is in some respects a dynamic document throughout the process of registration. Though it must be originated prior to preregistration, some data may change as registration progresses and some data need not be entered until late in the process. For example, added or canceled courses and sections, expansion of enrollment limits, and changed space assignments

are not unusual in the course of registration. Thus a Quarterly Schedule is not really final until the registration process for that quarter, including late registration and registration changes, is completed.

With the foregoing in mind, it can be said that the Quarterly Schedule undergoes several major reviews by academic and central administration from its inception to its conclusion. The first occurs immediately after its generation when it is prepared for the advance registration process. Another may occur as a direct result of demand analysis, and still another occurs as a result of the actual sectioning—scheduling portion of the registration process.

In order to answer the two questions raised above, the following seven questions must be answered first. There are undoubtedly more, but these seem crucial to the development of the Quarterly Schedule.

Day and Time Assignments

1. Who has responsibility for assigning days and times offered for specific courses and sections? The academic departments offering the courses or a central administrative office? The designation of days and times for a specific section is dependent upon three aspects—availability of space such as a classroom or a laboratory in which to hold the section, availability of faculty to teach the section, and the availability of students to register for the section. All three aspects must be considered: It does little good, for example, to schedule a class at a time when a classroom and the faculty member assigned to it are available, if the students for whom the class is offered cannot attend because of another class or work conflict. Similarly, students and faculty must have a location in which to meet.

   First, it is desirable to develop specific time patterns for scheduling classes. All schools now have such guides, though some improvements are possible. For example, they could include a statement such as: single meeting courses of more than one hour must be offered at non-prime times

   Generally speaking, day and time assignment for specific courses and sections should rest with the academic departments. If left unconstrained, however, chances are good that a great majority of the classes will then be scheduled at prime hours during the week. Such a situation not only creates space inefficiency (by heavy use of facilities at some hours—very light use at others), but it also may increase the number of students unable to schedule a set of courses. For those reasons academic departments should follow guidelines or quotas established by a central administrative office, preferably the office responsible for space assignment. For example, each department may be assigned a limited number of prime times, e.g. five MWF 10-11:00 a.m. slots. Or quotas could be set such as only 55% of all classes being scheduled during the favored hours. Or all new sections and courses must be scheduled during unfavorable hours.

Space Assignment

2. Who has responsibility for assigning space to specific courses and sections? How is the assignment actually performed? Are certain rooms or blocks of rooms assigned to specific colleges and departments for their use only, or at the other extreme, are all space assignments made by some central

office? Obviously, special purpose rooms such as teaching laboratories must be scheduled by the host departments. But space which physically can be used by others such as classrooms and seminar rooms may be scheduled quite inefficiently if handled the same way.

Favored is the system whereby departments are encouraged to express preferences, but where final authority rests with the space schedulers. (See Chapter IV for a more complete discussion of space assignment.)

Can Students Request Specific Times?

3. Are students permitted to request and register for classes offered at specific times? If the answer is yes, then obviously day and time information must be available to the student before he preregisters. If the answer is no, the day and time data need not be entered until actual sectioning takes place.

Generally speaking, the information concerning days and times offered should be available to students before requesting courses. Many of the sectioning-scheduling problems can be resolved by students in the process of selecting course requests. Any serious problems such as the offering of two corequisite or required courses only at the same time can be determined and rectified early, rather than later.

This is not an indication that a student's choices of times must always be honored. (This point is covered more fully in Chapter V—Registration Systems.)

May Students Choose a Specific Section and/or Faculty Member?

4. Are students permitted to choose a specific section when more than one section is offered at the same time?

It is recommended that, as a general policy, students be allowed to indicate preferences for specific sections and faculty members. Though such a policy may result in section size disparities if not controlled, the more positive aspect of allowing students to have more of a voice in their schedules has a great deal to offer and may in the long-run help to reduce the number of later registration changes. Such a policy does mean therefore that section identifiers and faculty assignments must be added to the Quarterly Schedule before advance registration. This is generally feasible only for fulltime faculty members. It is usually unrealistic to assign individual part-time faculty and graduate assistants that early.

Must Students Know Space?

5. Are space assignments to specific courses and sections to be available to students prior to registration? As above, the answer dictates when the information must be added to the Quarterly Schedule.

As in the last two questions discussed, it is recommended that space assignments be made known to students before advance registration when feasible. This is especially true of campuses where physical distance between classes is likely to be a major problem for many students. Because of the lead time involved to do this, and the fact that numerous room changes occur before classes begin, it may be practical to indicate only buildings or general campus locations for advance registration. In any

event, it is usually necessary to issue, just prior to classes, an up-to-date room schedule which can notify students of room changes and/or provide them with the necessary space assignment data for the first time. Another suggested method of space assignment notification is to include the room assignments on the students' confirmed schedules if such are provided during the registration process.

Computerized Demand Analysis

6. Is computerized demand analysis used? Computerized demand analysis is a procedure by which a school analyzes student course requests received in the course of advance registration before actual sectioning takes place. The process tallies requests for every course, by time slot offered. It can also tally and indicate the disciplines and levels of the students requesting. These numbers are compared to preset enrollment limits, then in conjunction with other data, departments and colleges have a chance to study and make changes to the Quarterly Schedule. Other data normally needed are previous enrollment projections, withdrawal and attrition experience figures, and data which indicate the percentage of the total enrollment reflected in the demand analysis.

By having and analyzing such data prior to sectioning, some problems can be recognized and solved by changes such as: opening more sections, increasing allowable sizes, and/or canceling or condensing sections and courses. This should then result in more students' schedules being satisfied. Secondary benefits include a probable reduction in registration changes, early forecasting of schedule problems even if not resolved by Quarterly Schedule changes, and an accumulation of information very helpful to future budgeting, as well as schedule building in future Quarters.

Demand analysis is primarily helpful where students are permitted flexibility in curricula, and/or when course by course enrollment projections have proven inadequate. Demand analysis requires a significant amount of time during the registration process, a separation in time between course requesting and sectioning, and computer support. Changes in the Quarterly Schedule, which appear to be necessary as a result of demand analysis, may in many cases not be practical because of previous budgetary and personnel commitments.

Nevertheless, computerized demand analysis is recommended, especially if its installation expense can be held to a minimum.

Sectioning Method

7. Is computerized sectioning used? Simply defined, this tool consists of an algorithm (or set of rules) by which student requests for courses and sections are matched by computer with the Quarterly Schedule, and then actually scheduled (to the greatest degree possible). The process usually requires that student requests for specific sections and times of multi-section courses are not necessarily honored. Depending on the complexity of the algorithm used, the process may schedule students into specific classes by giving first preference to higher level students (e.g. seniors), special groups of students (working part-time, commuters, etc.), and

students having specific course requirements for degrees. It may schedule single section courses first, and then multi-time courses. It may allow for specific alternate sections and courses. In addition to the actual sectioning, it also keeps a running registration summary by course and section, and gives accurate data concerning not only the number of satisfied student schedules, but also and perhaps more importantly, the unsatisfied student schedules. Such data can be used to support last minute Quarterly Schedule changes.

If the sectioning process is not computerized, unsatisfied student schedule data are nearly impossible to acquire.

Regardless of whether the process is computerized, it is critically important to provide quick communication between the offices generating the data and the academic departments, and to make and receive action (change) decisions quickly so that the Quarterly Schedule can be so altered.

Other Data in Quarterly Schedule

Answers to the items above dictate to a great extent the actual process of developing a complete Quarterly Schedule. Aside from the specific data items mentioned above, it is clear that decisions concerning teaching technology, enrollment limits and faculty assignments are the responsibility of the academic departments. This does not indicate no one else is involved in such decisions, but certainly final decisions rest there. (For example, the space assigner may have a great deal of input to decisions concerning teaching technology and enrollment limits.)

Quarterly Schedule Evaluation

The Quarterly Schedule should be evaluated from at least three viewpoints:

1. Use of faculty and staff culminating in an evaluation based on expense.
2. Use of space as measured by utilization.
3. Ability of students to have satisfactory schedules leading to appropriate degree progress.

The first need not be described here because it is covered under the Master Curriculum File cost evaluation section of this manual. Though that topic was addressed to the Master Curriculum File, the methodology involves evaluating course by course expense for each quarter and/or studying class size data for actual courses and sections offered in a quarter. In effect, therefore, this amounts to evaluating the Quarterly Schedules.

The second kind of evaluation, concerning the effective use of space, will be covered in Chapter IV. Though concerned with all space used for instruction, evaluation primarily concerns classrooms and scheduled laboratories.

Evaluation Re: Students

The third type of evaluation is perhaps the most important in terms of the public mission of the university. It revolves around two related but not dependent questions, "How many students are receiving satisfactory (to them)

schedules of courses and sections?" and, "Are students able to graduate in a **normal** period of time, without undue delay because of a required course (or courses) not being open to them in some quarter?"

Both topics are affected, not only by the content of the Quarterly Schedules, but also by the registration process. Thus, evaluations of both must clarify the source of any problems. The Quarterly Schedule and/or the registration process may be the cause. For example, an upperclass student may be closed out of a required course because of a policy sectioning underclassmen before upperclassmen. The problem may be solved by changing the Quarterly Schedule (raising enrollment limits) and/or by changing the registration process (sectioning upperclassmen first).

Of the two questions raised, the second, dealing with degree progress time, is surely the most far reaching. It is concerned with meeting a school's basic commitment to an entering student. The other question, concerning satisfactory schedules, though probably not having long-range degree progress effects, usually affects more students. Thus, the clamor is more vocal, and more immediate.

Evaluation can take many forms. At least six specific items may be considered:

1. **Demand Analysis** — Already addressed in detail above, demand analysis is in essence a form of evaluation.
2. **Sectioning** — The process of sectioning, depending upon form, and attention paid to it, may in fact allow for immediate evaluation as described above. Computer sectioning, for example, if programmed properly, can provide detailed information concerning percentage of students satisfied, sections changed, etc.
3. **Program Managers** — Deans and others responsible for degree programs usually are aware of any long-term scheduling problems encountered by their students. Not only should they be expected to lead the charge in the subject of degree progress evaluation, but an evaluation process should be structured to encourage and extract data from them.
4. **The Students Themselves** — Though obvious to any program manager, adviser, or registrar, it needs to be stated that the students are an excellent source of scheduling problem information. This manual would only encourage that perhaps some formal process of gathering the information be established. This may be in the form of suggestion and/or problem boxes, polls, ombudsmen, etc.
5. **Registration Change Analysis** — A study of drops and adds may reveal patterns of dissatisfaction with schedules.
6. **Longitudinal Studies** — Studies of students' courses taken through their graduation may reveal patterns of attendance which could affect future schedules.

(These last two items probably require effort by a central office not involved in operational affairs. They are more long-term and probably should be undertaken only if data from the first four items warrant it.)

The actual process of Quarterly Schedule evaluation and review, as measured by student schedule satisfaction and particularly degree progress,

should focus on the program managers. With data supplied by themselves, the students, and central offices such as the registrar, program managers are in the best position to determine when changes are needed, and to initiate and request changes by teaching departments and/or in the registration process.

ecommendation

Each school should have a Quarterly Schedule, containing detailed information concerning each course and section offered in a particular quarter. Originated by a central office as a subset of the Master Curriculum File before advance registration, the Quarterly Schedule must be edited and verified by academic departments. Teaching methods, enrollment limits and faculty assignments should be determined by academic departments. Day and time assignments should also be set by academic departments, following quotas established by a central office. When feasible, data such as times, sections, space and faculty assignments should be placed on the Quarterly Schedule before advance registration.

As a dynamic document, the Quarterly Schedule should be changed if possible to reflect actual student requests for courses. This generally infers the use of computerized demand analysis and sectioning, and the need for quick and effective communications between registration process personnel and academic departments during registration.

Evaluation of the Quarterly Schedule should proceed regularly from three standpoints — faculty and dollar resources used, space utilization, and student satisfaction (with degree programs and course schedules). Such evaluation should be coordinated and led by students' program managers.

4. Space Scheduling

Overview

One of the major components of the SRSB process is that of providing physical space in which faculty members and students meet together to carry out the actual instructional process. In short, this means providing those rooms broadly called classrooms and teaching laboratories. (Such space accounts for about 17% of the Ohio Public Universities' total net square feet in 1972.) The manner in which such spaces are assigned to specific classes is affected by and directly affects both the schedule building process and the actual registration processes. This chapter will address this topic from four vantage points — responsibility for assignment, assignment procedures, timing and utilization.

Space Assignment Responsibility

Historically in universities, classrooms and teaching laboratories were controlled and scheduled by the academic departments and colleges. Blocks of classrooms and laboratories could be used only by the departments to which they were assigned. Normally such rooms were directly adjacent to or interspersed with the offices where the faculty were housed. When a classroom was needed by another department, its use was granted only through negotiation with and approval by the host department. The tremendous student growth at the universities caused a major change to take place in this process in the 1950's and 1960's however. Because of the generally low level of space utilization which resulted from the old way, and the heavy pressure for more space which accompanied the increasing numbers of students, responsibility for classroom assignment (not laboratory) was assigned to some central administrative office on each campus. In most cases the registrar was the person so charged. Utilization increased significantly on a university-wide basis.

This practice, which has evolved only in recent times, should be continued. Simply stated, responsibility for the assignment of any instructional space which physically can be used by more than one department or discipline, should be assigned to a central school-wide office such as a registrar, space officer, or similar title. In the context of the OBOR UIS, such general purpose rooms are classrooms (room type 110), lecture halls (room type 120), seminar rooms (room type 130), and perhaps a few scheduled teaching laboratories (room type 210) such as drawing or drafting rooms.

All other instructional space should be assigned by the host academic departments. Specifically included in this category are the bulk of the scheduled teaching laboratories (room type 210), the unscheduled teaching laboratories (room type 220), and the individual study laboratories (room type 230).

Space Assignment Processes

Though responsibility for space assignment can be easily stated, the actual processes for assigning space are more complex. The non-general purpose rooms, assigned by the using departments to themselves, present few problems. These departments are aware of their space limitations when designing the Quarterly Schedule, as well as the MCF, and thus schedule course sections and set enrollment limits which will insure the availability of laboratory space. Consultations with others about such space assignments are usually necessary only when they affect the use of related general purpose space.

But the general purpose rooms require more complex procedures. Obviously, if no controls are exercised or guidelines issued, each individual department could schedule its own courses and sections without regard to space availability. All of these course schedules could then be given to the space scheduler so that he could assign appropriate rooms to the sections. Such a process may be feasible if an unlimited number of classrooms with a full range of sizes were available. But such is not the case, nor should it be. Such a process usually leads to more classes than classrooms being offered at a particular time of a day. This means that the scheduler must then choose and require one or more departments to change the time(s) of certain courses. That choice function, by its nature, is subject to controversy and inequity. Furthermore, changing the time of a course or section after plans have been laid, may throw faculty and/or student schedules into conflict. For the above reasons, guidelines for course and section scheduling must be established prior to initial Quarterly Schedule planning by academic departments.

This manual recognizes three such methods by which guidelines are stated. They are numbered below in the order of preference based upon the objective of meeting space utilization standards.

1. **Time allotments** — In this technique the central space scheduler sets limits concerning the number of courses and sections which may be offered by each of the departments or colleges at specific day-time periods throughout the week of classes. (For example, the English department must offer no more than seven courses on Mondays at 10:00 A.M.) The limits could encompass all or only some subset of the day-time periods available in the schedule week. The degree of completeness depends on the school's particular utilization rate for each of the periods. This means, if a school is only using 50% of its classrooms at a particular time, it may not need to set limits for that time. On the other hand, if a utilization is in the range of 85-100%, then limits must probably be established for that particular day-time period.

2. **New course or section guides** — Assuming that an existing Quarterly Schedule implies that all classes are housed in suitable space, another type of guideline would require all sections or courses added in future Quarters be offered at times not now fully used. (A variation of this allows a department to switch an old course with a new one.) This has the advantage of being stated and followed rather easily. But it also accepts any inequities already in the schedule. Furthermore,

violators are difficult to find if suddenly the scheduler finds himself with more courses than rooms at a particular time.

3. **Space or room allotments** — This method involves assigning blocks of specific rooms to specific departments and/or colleges for their primary use. In other words, each department and/or college is allotted, quarterly or yearly, a block of specific rooms in which it can offer its courses. Such a system, one step removed from the traditional method, provides little flexibility insofar as class sizes and class time distribution pattern differences are concerned. Even the method of teaching could be hampered by such a system. On the other hand, once the allocations are made, the system is very easy to administer from the space scheduler's standpoint, because it eliminates his handling of specific course assignments. Not so easy, however, is the actual room allocation process.

Honoring Preferences

Although the space scheduler has the responsibility and authority to assign rooms to courses, regardless which of the guidelines is used as described above, it is important to allow departments and colleges to state specific room, building, or general location preferences. Furthermore, such preferences should be honored where feasible and where to do so would not encourage inequities.

Settling Disputes

Regardless of the system used to schedule classes, occasions arise where the space scheduler is called upon to pass judgment having profound academic influences. For example, if only one large lecture hall exists, and two departments wish to schedule large lectures at the same day-time period, someone must decide between the two. Such decisions, clearly requiring that academic concerns as well as spatial concerns be exercised, should usually be referred to the academic officer having jurisdiction over the two. Normally, this would be a dean or academic vice president. If such problems or questions become chronic, the vice president may wish to appoint a committee to decide in his behalf.

Computer Assignment

There is no doubt that computers could be used to assign rooms to classes. Though the algorithm necessary to do this must be fairly complicated, it is possible.

When Must Assignments Be Made

Because actual room assignments are a part of the Quarterly Schedule, the question of timing must be addressed in the context of its development. In Chapter III, brief mention was made of the fact that room assignments, if possible, should be on the Quarterly Schedule prior to advance registration. This supports the policy of providing students with as much information as possible prior to their actual submission of schedule requests in the registration process. But more must be said from the standpoint of space scheduling.

First, some specific space assignments need to be made while developing the Master Curriculum File, long before the actual development of the Quarterly Schedule. This is especially true of courses which require special purpose facilities such as a large lecture hall, laboratory facilities, special visual aids, etc. It makes no sense to place such courses on the MCF if their existence depends on special purpose space which is not available or scheduled to be available.

All other assignments should be made prior to advance registration, primarily for two reasons. The first is that of wanting to give the students as much information as possible. But the second is perhaps even more important. The Quarterly Schedule must include section size limits prior to advance registration. Such limits, in many cases, depend more on the size of the room than on purely pedagogical reasons. Thus to set an enrollment limit for a course at 75, when the room in which it will be held only holds 40, invites trouble in the form of registration changes, disgruntled students, and Quarterly Schedule changes after the fact.

Even if all assignments are made prior to advance registration, changes will inevitably occur. Added classes, over-enrollments, and changed enrollment limits which occur during the registration processes (both in advance registration and open registration) will cause room assignment changes to be made by the space scheduler.

Student and Faculty Notification

Although most room assignments are known before advance registration by students and faculty, enough changes and additions usually occur to warrant serious concern about making a final version known to all participants. Two methods, both feasible, are preferred. One calls for the publication of a separate room schedule just prior to the start of classes, and the posting of this schedule around the campus. Another involves printing the room assignments on the confirmation statements given to students after they have been sectioned.

Space Utilization

The concept of utilizing instructional space has received a great deal of attention by universities, state agencies, professional organizations and foundations. The purpose of this section of the manual is merely to place the topic in context within the SRSB process.

The utilization of instructional space usually refers specifically to a school's use of classrooms, lecture halls, seminar rooms and scheduled teaching laboratories. Such space in total accounts for only 10-15% of a university's total net square footage. The actual measurement most often refers to two specific items — the first is the percentage of available hours in which rooms are actually scheduled with classes, and the second is the percentage of available seats actually used by classes when scheduled in rooms. The base period of measurement usually varies anywhere from a five-day (8-4) 40-hour week to a six-day (all day) 55 or 70-hour week.

The concept of what is good or acceptable utilization is in reality a compromise between two opposing yet realistic goals. The first may be con-

sidered to be the "full use of space" ideal. It calls for all rooms to be occupied fully all of the time. The other — the academic or pedagogical one — maintains it is best to always have free rooms, as well as unused seats in rooms which are being used. This second goal enables students to find study space between classes, allows flexibility in scheduling, makes rooms available for special one-time meetings and classes, enables maintenance, and allows expansion of classes, comfort, and alternate seats when taking examinations.

The actual goal used by most schools lies between the two. Specifically, the OBOR has set, and most schools follow, a goal which calls for achieving 75% hours utilization and 67% seat utilization for classrooms, lecture halls, and seminar rooms, and 53% hours and 80% seat utilization for scheduled teaching laboratories. This goal is used not so much from an operational standpoint, as from a planning standpoint. In other words, building new instructional space might not be approved until a school reaches those utilization rates.

The actual room assignment process for a quarter does not really affect in any sizable manner the utilization statistics. Utilization depends more upon the number and sizes of rooms and courses, and not upon the method of assigning one to the other. Major changes in utilization may only occur through significant additions and deletions of classes and rooms. Given a reasonably stable enrollment and curriculum, utilization can only be affected by adding or deleting rooms and physically changing sizes of rooms. Thus it is recommended, for example, that the room assignment process assign classes to the largest available room (within reason), rather than the smallest room which will hold the class. (For example, if a 40 student class may be scheduled into a 45 seat room or a 60 seat room, assign the 60 seat room.) The seat utilization, though reduced by such a policy, nevertheless is not reduced enough to affect the overall university utilization.

Recommendation

General purpose instructional space (usually classrooms and some laboratories) must be assigned by a central campus-wide office. Departmental preferences should be honored whenever possible. A central academic administrator may need to arbitrate and decide some space questions.

Course schedules, including the MCF, which are determined by academic departments, must be constructed with limited numbers of classrooms and laboratories in mind. Three allocation techniques for accomplishing this are recognized — time allotments, new section guidelines and space allotments.

Generally, classroom assignments should be publicized before advance registration. Revised room schedules may need to be issued before the start of classes.

High space utilization figures should generally not be a goal of the space assignment process. Rather, such space utilization should influence the number and sizes of the classrooms available to assign.

5. Registration Systems

Overview

This chapter is concerned with the registration process — the process in which a student selects courses, is scheduled into those courses, and pays his fees. Integrated within this simply stated process are such necessary items as curricular and degree advising, possible financial aid, housing or locker assignment, identification card, book purchases, delinquent obligation check, and even admission or at the least verification of admission. Further compounding the process are the differing types of students, programs and organizations involved in registration on any university campus, as well as the literally thousands of individual decisions which must be made during registration for any one quarter or term. Furthermore, the process at most schools is handled in three different ways depending upon the time remaining before classes actually begin.

The specific registration processes and procedures differ from campus to campus more than for any other subject treated in this manual. Nowhere is it more evident that universities can and do give differing relative weights or degrees of importance to the nine goals mentioned in Chapter II in structuring their registration systems. Some put primary stress on personal contact, while others stress satisfying student schedule requests. Some emphasize the elimination of lines and other frustrations, while others stress the use of sophisticated data entry techniques.

This chapter for the most part, therefore, will stress general guidelines rather than specific practices. Highlighted first will be those features applicable to all phases of registration. Following that, in order, the manual covers selection of courses/advising, advance registration, open registration, late registration, registration changes, communications and aides to the registration process.

The following general guidelines are appropriate for all universities.

General Guidelines for Registration System

1. **Similar to current practice at most universities, this manual recognizes and encourages the use of three distinct registration periods at a school for each quarter — advance registration, open registration and late registration.** Each one is described in detail in later sections.
2. **Though a great many offices and faculty members may be involved in the process, there should be one individual designated the responsibility and authority to coordinate the entire process. The registrar (or similar person with perhaps a different title) should be assigned.**

3. As mentioned, many parties participate in the registration process — academic department heads, faculty, advisors, controller, cashier, student financial aid director, registrar, director of housing, bookstore manager, admissions and students themselves. **There should be a Registration System Advisory Committee, chaired by the registrar, with representatives from each of the segments mentioned above. This group should meet regularly, probably at least once a month, to plan, coordinate and evaluate the registration system. Such a group can also help improve communications, support budgetary proposals, and in general, improve the public relations aspects of registration.**
4. **The registrar, and other offices involved should be allocated sufficient funds and other resources to carry out the entire process.**
5. **Responsibilities for decisions which must be made during the process must be clearly delineated and made known to all parties. Furthermore, registration procedures must be designed to insure that such responsibilities are honored.** For example, the registrar usually has responsibility for fee assessment and residence determination, the cashier or controller for fee billing and collection, academic department heads for section size changes, etc.
6. **Because of the complexity of registration processes, much emphasis must be placed on making the system understandable to all parties involved. This implies clear directions, instructions and timely communications to students, faculty, administrative and especially staff personnel.**
7. **A separate registration for each quarter, the current practice at nearly all schools, is recommended.** A fully completed registration for a full year is not recommended.

Selection of Courses — Advising

The normal first step in any registration process requires the student to select those courses offered in the Quarterly Schedule in which he wishes to enroll in that particular quarter. (In a few curricula today, such as in some Engineering, Architecture, Medicine, and other professional schools, there is limited choice for the student. In such cases, this selection is not as important.) This selection process requires, in almost all cases, some additional information in the form of degree requirements, courses offered, prerequisites needed, student special interests, etc. To assist in this course selection process, advice, interpretation and counsel are usually offered the student through someone, often a faculty member, who has been designated as an adviser to him. It is, in many cases, this adviser who, through a one-to-one personal relationship with the student, must represent the university, interpret its curricular rules, and in effect be its official spokesman on matters of concern to the student. Because of this extremely important relationship, which clearly affects and is a part of registration, careful attention must be paid to it in this manual.

Conceptually, there are two opposing philosophies concerning curricular advising for registration purposes. One maintains the student himself is responsible for assessing progress toward his degree. Through publication of its degree requirements and clearly written instructions, and offering counsel

only when desired by the student, the university fulfills its responsibility toward the student in this regard. The opposite view assumes that the school must continually monitor and assess degree progress for each of its students, which then requires that every course enrollment, registration change, etc. be authorized by the adviser. The former places a major responsibility on the student, requires less "red tape", and perhaps is less expensive. On the other hand, the latter forces a heavy responsibility on the adviser, more work, and usually more procedural systems involvement in the registration process. One might then be tempted to say that the former is the preferred one. This is not necessarily the case.

Where degree requirements are fairly rigid and structured, with few or no options, the student-responsibility mode is more workable. Situations are few where there must be interpretations, "gray area" questions, and so forth. One either follows the set curriculum and graduates, or he does not follow it and doesn't graduate.

In today's university, however, more flexibility, course options, and freedom to choose are being added to curriculum degree requirements. Fewer course prerequisites are required. The highly structured, regular curriculum which students even in Liberal Arts would have taken a few years ago, is now no longer so. Thus, the number of options available to an individual student has risen significantly, and by the same token, the number of questions, interpretations, and judgments has also risen. On a campus today which practices the first method, it is quite possible for a fourth-year student to find himself in the position of having made a wrong interpretation or judgment in his course selection and thus not be eligible for his degree.

For the above reasons, **this manual recommends a middle-ground position in which the university recognizes its responsibility to assist the student toward graduation, yet does not require adviser approval of each and every registration and registration change. In substance, it is recommended that a student's curriculum requirements be made known to him at the time of his first registration.** This schedule of courses (which could include alternate courses) would encompass at least two years' work. Prepared jointly by an adviser and the student, **the schedule would be recorded, signed, and saved by both parties as well as the student's program manager** (dean or department head) if different from the adviser. **The student then need not consult the adviser at future registrations unless he changes the original agreement.** Furthermore, **the registration processes need not directly require adviser input in the form of signatures, etc.** under this system. The student would know that the only courses acceptable would be those agreed to in writing. **If he wishes to change, it is then his responsibility to initiate contact with his adviser and change the original schedule** — again in writing so that the decisions are recorded and saved.

It is necessary, therefore, that this acceptance of joint responsibility be made clear to both student and adviser.

Obviously, such a system places a great deal of responsibility on an adviser. He must thoroughly understand degree and program requirements and be able individually to structure curriculum schedules for his students. This implies that he must be well-briefed, trained and assisted through sample

curriculums, schedules, seminars, etc. He must also be physically available to students, especially during that part of advance and open registration when student choices are being made. At most universities, designated faculty members and/or academic administrators (department chairmen, assistant deans, etc.) serve as advisers. **Regardless of the group, it must be stressed to them that advising is an extremely important aspect of their workload and that therefore advising performance be included in items considered in evaluation along with teaching, research, administration, etc.**

Some schools have fulltime advisers, usually assigned to freshmen and sophomores. These professionals supplement the others.

Because they, in effect, represent students' program managers (deans and/or department heads), **advisers should be appointed by the program managers. However, because of their obvious role in registration, deans and/or department chairmen should influence their available hours in the registration schedules, and performance as advisers. This registrar-program manager-adviser relationship is very important and is an obvious subject for the Registration System Advisory Committee alluded to earlier.**

Advance Registration Overview

This is the registration process which takes place well in advance of the beginning of classes. For the Autumn Quarter, registration takes place during tne preceding spring and summer. For the Winter, Spring, and Summer Quarters registration usually takes place during the immediately preceding Quarter. (For cooperative work students, it may need to begin two quarters prior).

Though the final "outputs" of the advance registration system are the same as for open and late registration, some of the actual processes used can, and do, differ. For example, use of the U.S. mail, demand analysis, and computerized sectioning and billing can be undertaken because of the additional time available by doing it well in advance. As a result, line lengths can be eliminated or shortened, the process can be spread out over time, staff can handle it with less stress and fatigue, and students can complete the process largely within the confines of their residences. It is also advantageous because it enables a very large percentage of the students to register in advance and not be bothered with taking their chances upon open courses at open registration. It enables open registration to be used primarily by students with course problems such as failures or program transfers, registration changes, latecomers, or other reasons which make them unable to make use of advance registration. (Advance registration also "creates" business for open registration. Many students may need to make changes in their advance registrations because of failing grades received, etc. As described later in this chapter, the registration change system must be designed to handle a large number of such changes — not always an easy process).

There are two basically different methods of handling advance registration — continuous and batch. The continuous system means that an individual student may personally go through the process and be individually scheduled while he is present. Batch processing, on the other hand, implies that the student's schedule request is held up and then scheduled later with

a number of other students' requests in a batch. The former involves more personal student-school relations and usually immediate answers to schedule requests. The latter, however, enables use of computerized demand analysis and schedule modification prior to actual scheduling, provides for completion of the bulk of the process by the student using the U.S. or campus mail system, and also allows priority controls to operate. For the above reasons, nearly all schools use the batch process for handling advance registration.

Some special items of concern to advance registration are recommended below:

Advance Registration Special Items

1. **With either batch or continuous advance registration, schools may use computerized sectioning (scheduling).** If continuous, however, on-line data entry computer terminals must be available with some dedicated computer core capacity.
2. The handling of fee payments must be given thorough study. If separate billings and collections are not handled by the controller's/cashier's office, special preparations must be made. These may entail bonding of the registration staff (or those responsible for fee collection) as well as procedures for processing the money speedily to avoid cash flow income losses.
   As a general guideline, it is recommended that the billing and collection of fees be handled by the controller/cashier, and that it be completed after scheduling.
3. **Provisions must be made to handle those students who have been scheduled, but who have not paid their fees prior to open registration. Certainly, no courses should be reserved for such students past a designated cut-off date, and the internal data system must be able to monitor that fact and change the quarterly schedule data accordingly.**
4. In general, **the computerized sectioning algorithm** is not as flexible as hand sectioning (though it is faster and more equitable). **It should provide however for alternate choices of sections, times and courses. Even so, 100 percent satisfaction will never be achieved under any system. Thus, it must be prepared to handle the student who receives a partial schedule. It is recommended that such students be given appropriate and clear explanations of the reasons for the partial schedule, as well as instructions for changing if so desired.**
5. **The system must be prepared to handle communication problems.** Students in transit and on vacation, lost and slow mail, etc. will cause problems. These must be considered and dealt with equitably.

Open Registration Overview

Open registration is that process which occurs just prior to the beginning of classes. Taking anywhere from one day to several weeks, it allows a student to initiate and complete the registration process. It should be used primarily by students unable to advance register, or students forced to change their advance registration. Because there is not extended time to communicate by mail (except perhaps for fee payment, if allowed after classes begin), all con-

tacts must be made in person. Thus, this period is especially susceptible to long lines, and staff and student frustrations, as well as more staff-student personal contact. Computerized demand analysis is not practical, nor is computerized sectioning (unless on-line data entry terminals are available).

Some special items concerning open registration are recommended below:

Open Registration Special Items

1. **The process should allow for last minute changes in the Quarterly Schedule caused by student demands—in effect, manual demand analysis.** This requires well-oiled communications between the students, schedulers and registrar personnel.
2. **In order to spread out the student traffic over the available time, it is generally recommended that students register according to some predetermined schedule.**
3. **Administrative person(s) should be designated to troubleshoot the entire process while it is in progress.**

Late Registration

The third and smallest (measured by numbers of students) registration system is that which is allowed after open registration. The specific processes are usually exactly those of open registration, though perhaps more dispersed (not everyone is gathered in the fieldhouse for example). For obvious financial and pedagogical reasons, such registrations are to be discouraged, but not disallowed.

It appears reasonable to set both a standard allowable time, and a standard penalty for such registrations. The schools in Ohio now all differ in their treatment of those two standards.

The Task Force recommends that each school consider adopting the following policy:

1. **Late registration be allowed no later than through the first week of classes.**
2. **A late registration fee be assessed each student who registers and/or pays late. Courses will not be held for such students.**

Registration Changes

A major part of registration systems is that of handling changes in student registrations. After students complete registration in any one of the three periods described earlier, there are usually a great number of changes. For example, students may desire to add or drop courses, they may wish to change sections of a given course, they may change programs and therefore need to change their entire class schedule. Students may withdraw from the university, or they may be forced to make a change because of a cancellation of a course or because of failure in a prerequisite course.

It has been estimated that as many as one-third of all students in a given quarter are involved some way in a registration change of this nature (we will not consider in this section changes of name, addresses, status, etc.).

We will consider such changes from three standpoints — timing, procedures, and cost to the student.

Timing refers to an established period during which a registration change can be made. As mentioned before, because it occurs after a completed registration, a change can occur even before the start of a quarter — after advance registration. From then until some time during the ensuing quarter, changes are made. Usually the most pressing problem is that of a deadline for making such changes. **Ohio's universities should not permit course additions to student schedules after the first week of classes.** Withdrawals and/or drops from courses are usually allowed well into the quarter.

Because of the large volume of registration changes, the extended period of time over which they occur, and the general complexity of the registration systems, efficient procedures for handling such changes must be designed. Such procedures must address the following points:

1. Before late registration is completed, registration changes can affect class closeouts and section size limits.
2. Students often attempt to use the registration change procedures to enter previously closed classes.
3. Additions of courses to student schedules after classes have begun may need the individual approval of the professors involved.
4. Anyone who has a record of the initial registration must be notified of the change in registration.

Most schools charge the students for registration changes when they are initiated by the student. The cost varies from $1 to $5 for each form, added course, or student involved. Naturally, where fees are assessed on a credit hour basis, registration changes may also involve changes in tuition assessments. Withdrawals always involve questions concerning the refunding of fees. Each of the 12 universities in Ohio now has a different refund policy for withdrawals. The differences between institutions on this item appear difficult to justify. **We recommend that fees, charges, and refund policies be considered by the M.I.P. Task Force on Financial Management.**

mmunications in the Registration Process

Because registration is so complex, involves thousands of people and tens of thousands of individual decisions, the need for effective communications throughout the process must be stressed. The registration system on most campuses at one time or another is the source of anger, frustration, disappointments, misunderstandings and, in general, poor attitudes about the campus and students. Many of these are caused by, or helped along, by poor and ineffective communications.

One facet of communications is concerned with pure transmission of information — and changes in that information. Schools must consider all channels for such transmission and use them effectively. They include TV and radio, newspapers, special reports, schedules, booklets, newsletters, manuals, instructions, all forms, the U.S. mail, individual letters, telephones, computer printouts, and even meetings and committees. Each one of these items, if used at any time in the process of registration must be considered a subject for thorough study to insure that good communications are taking place.

A second facet of communications in the process concerns the need to define responsibilities and then make sure all people know who has responsibility for various facets of the process.

A third facet is the grievance and appeal process for students. At least six items involved in registration are subject to appeal by students — class closeouts, late registration, registration changes, fees, residency and academic status. It must be made clear to all students and perhaps even most importantly, to all staff at a university, how students may appeal decisions in any one of these six categories.

The fourth facet of communications is the need to have formal records of decisions made during the registration process. Such records usually include printed forms, individual letters and computer printout.

Aides to and Assistance for the Registration Process

Aids and assistance available for the registration process are numerous and for convenience can be categorized into at least four types:

- Data Entry Devices and Communication Methods
- Data Processing Equipment
- Systems Approach Advice and Help
- Application Systems Development

Data entry devices include optical scanners of mark sense codes, optical character recognition systems, embossed and holerith punched identification cards, teletypewriter, teleprinter or electric typewriter terminals, keyboard plus display terminals, optical scanning light pens, magnetic ink character recognition systems, holerith punched cards, punched paper tape, magnetic tape and written entries on hard copy. Communication methods include mail, telephone and remote terminals as well as traditional person-to-person contact.

Data processing equipment available at most campuses include central processing units for sorting and processing information, disk and tape units for temporary and permanent storage of information on files and line printers for preparing reports, schedules, form letters and billing information.

Currently no two universities in Ohio use the same set or combination of those items mentioned above though nearly all of them are used to some degree across the state in different facets of registration systems. To recommend one or more as being the best available, or even that it should be used at all, cannot be done for the universities. **We do recommend, however, that each university registrar share all of his registration system documents, descriptions and forms with all other registrars in the state. This could be completed annually under the auspices of the Council of Registrars of State Assisted Universities of Ohio.**

Certain principles do hold true when considering the use of such assistance in the registration process.

Properly designed and operated support devices and systems will help:

1. Reduce errors
2. Reduce duplication of entries
3. Reduce duplication of work

4. Handle large volumes of data speedily and accurately
5. Provide faster turnaround
6. Provide for automatic data edits
7. Provide for automatic data
8. Provide faster reports
9. Assist all parties to the process — students, faculty, advisers, administrators and staff.

Systems approach advice and help for the registration process is available on most campuses within what might be referred to as the data processing and systems department. Many campuses use different titles for the department (i.e. computer services, computer center) and some universities separate the systems personnel from the equipment and form a systems department or a management information system department. The systems talent available in departments such as these can be an asset to the registration process development.

The involvement of a systems group in assisting the structuring of a registration process should begin at the planning level. **The planning effort should involve one or more formal meetings with the director of the systems department or his designee after the registrar has decided upon the future objectives of the registration process.** The purposes of these meetings are to elicit advice from systems regarding the alternative approaches to meet the objectives that are postulated by the registrar as well as to make it possible for systems to make suggestions or recommendations regarding the present or planned process. In most cases the systems department will be capable of providing advice on the present and future capabilities of data processing equipment on campus, computer application being tried on other campuses, and information regarding the feasibility and costs of alternative approaches postulated by the registrar. However, more time and study of the present process may be required by the systems department if additional benefits are to be obtained. The amount of involvement of systems personnel in planning for the registration process should be related to the expectation of benefits achievable.

Discussions during the planning phase may indicate that an in-depth study of the registration process by the systems department is advisable. This has occurred at a number of the universities and those efforts can be termed successful. The outputs of such a study may include recommendations such as more advanced data gathering devices be utilized, that information collected be combined with other information for campus-wide use, that demand analysis and terminal inquiry and entry be implemented during open registration, etc.

Based upon the results of the meetings with systems personnel the organization responsible for registration should include a computer services component in its long-range plan just as it presently includes a personnel component. The component of the plan should reflect the requirements for equipment and application software which the registrar feels are required to satisfy his needs. It should also include cost benefit results that were derived based upon the discussions with the system personnel.

REGISTRATION SYSTEMS

In addition to advice and consultation provided by the systems department, data processing assists the registration process via development of application programs and systems that automate and simplify the process. Examples include programs developed in order to accept mark sense codes and create course request files, process demand analysis, generate student schedules and fee payment statements.

Appendix A

Class Size Policy—Ohio State University

33.13 Regulations for the Control of Course Offerings

Section 1. The regulations applicable to classes in the 000, 100, and 200 groups are:

a. A course offered only once during the three quarters of the regular academic year which has failed to secure an average enrollment of fifteen for the last two times it was given shall be withdrawn from the catalogue or limited to alternate years.

b. A course offered during two quarters of the regular academic year which failed during the preceding year to secure a total enrollment of 40 shall be offered during one quarter only.

c. A course offered during three quarters of the regular academic year which has failed during the preceding year to secure a total enrollment of 75 shall be withdrawn for one quarter, and, if the total enrollment is less than 40, it shall be withdrawn for two quarters.

d. If an elective course during a current quarter fails to secure an enrollment of 12, it shall be withdrawn for that quarter despite the fact that its record of enrollment during the preceding year permits its listing under a, b, or c of this Section 1.

Section 2. The regulations applicable to classes in the 300, 400, 500, 600, and 700 groups are:

a. A course offered only once during the three quarters of the regular academic year which has failed to secure an average enrollment of ten for the last two times that it was given shall be withdrawn from the catalogue or limited to alternate years.

b. A course offered during two quarters of the regular academic year which has failed during the preceding year to secure a total enrollment of 25 shall be offered during one quarter only.

c. A course offered during three quarters of the regular academic year which has failed during the preceding year to secure a total enrollment of 45 shall be withdrawn for one quarter, and if the total enrollment is less than 25 it shall be withdrawn for two quarters.

d. If an elective course during a current quarter fails to secure an enrollment of eight, it shall be withdrawn for that quarter despite the fact that its record of enrollment permits its listing under a, b, or c of this Section 2.

Section 3. A course withdrawn or suspended under these rules may be restored by following the procedure for introduction of new courses.

Section 4. These regulations do not apply to minor and major research problem courses, to honors courses, or to courses in which special types of instruction or equipment, or limited laboratory facilities, require that, without reference to expense, classes be smaller than those provided for by these regulations. All exceptions of these types must be authorized by the Council on Academic Affairs each year.

Section 5. Courses for which there is inherently a limited demand but which are essential to the university's program may be exempted from these regulations, in whole or in part, by the Council on Academic Affairs. Each such course shall be considered annually upon its individual merits.

Appendix B

Suggested Equation for Evaluating the Number of Courses in a Total Master Curriculum File For a Department or College*

This procedure relates number of students (expressed in terms of majors, by level, or students to be served), and credit hours taken by these students, to the number of distinct course offerings, credit hours of those course offerings, and a minimum class size policy. The formula is as follows:

$$C = \frac{N \times T}{S \times Y}, \text{ where}$$

C = number of course credits per year to be offered

N = number of student majors

T = number of credit hours required for degree

S = minimum class size standard

Y = years normally required to complete degree requirements

For example, assume that a department of mathematics has 50 undergraduate majors (including sophomores, juniors, and seniors) and 25 graduate majors. The department requires its undergraduates to take 72 credit hours of mathematics usually over a 3-year period, while its graduate students take 36 credits each in a 1 year period. Assume furthermore that the institution requires all undergraduate courses to enroll 15 or more students, and graduate courses to enroll 10 or more students. For purposes of completeness, it will be assumed that the department services a sizable number of non-majors by offering in the course of a year four distinct nine-credit courses. Then:

For undergraduate majors

$$c = \frac{50 \times 72}{15 \times 3} = 80$$ course credits per year to be offered at a maximum.

e.g. nine (9) nine-credit courses, or twenty-seven (27) three-credit courses, or some other equivalent.

For graduate majors

$$c = \frac{25 \times 36}{10 \times 1} = 90$$ course credits per year to be offered at a maximum.

e.g. ten (10) nine-credit courses, or thirty (30) three-credit courses, or some other equivalent.

Thus, in total, the department should not be offering more than 206 course credits per year (80 + 90 + 36 for service load).

The same technique may be used to estimate the number of course credits which should be offered in order to achieve a certain average class size. For example, if the same department of mathematics wished to have an average undergraduate class size of 25 (for its majors), and 15 for its graduate classes, then those numbers could be substituted for S in the equation.

APPENDIX B

For example:

Undergraduate majors

$$c \begin{matrix} 50 \times 72 \\ 25 \times 3 \end{matrix}$$ 48 course credits per year

Graduate majors

$$c \begin{matrix} 25 \times 36 \\ 15 \times 1 \end{matrix}$$ 60 course credits per year

Thus, in total, the department should be offering in the neighborhood of 144 course credits per year (48 + 60 + 36 service).

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* This procedure was described in more detail in an article entitled "Course Cutbacks: Better Late Than Never" by Duane Acker (p. 28, College Management, July 1972).

Glossary

COMPREHENSIVE GLOSSARY OF SCHEDULE BUILDING AND STUDENT REGISTRATION TERMS USED IN HIGHER EDUCATION

Academic year — The period of the regular session, generally extending from September to early June, usually divided into two semesters or three quarters. See calendar.

Advance registration — Same as preregistration.

Advisee — A student receiving advice, information, and assistance in planning and executing his education program.

Adviser — A member of the college staff (usually a member of the instructional faculty) assigned to assist a student with academic planning.

Advising — The process of assisting the student in clarifying his educational objectives, to plan his program, and to utilize his resources, with emphasis on meeting departmental and institutional requirements for graduation.

Blocked courses or schedule — A group of courses or a course reserved at a certain time for a selected group of students. Blocked courses are frequently associated with the student teaching program which allows students to take courses half the term and perform their student teaching during the other half of the term.

Calendar — The system by which the institution structures its school year. The three common types of calendars are the semester, the quarter, and the trimester. The semester calendar is generally composed of two semesters of about 17 weeks of classes each inclusive of final examinations, running from September to June, plus a summer session. The quarter calendar is composed of four terms usually with 11 weeks per term of instruction, including final examination. The summer quarter is sometimes subdivided into terms of shorter length. The trimester calendar is composed of three 15-week terms including final examinations. The third trimester may be subdivided. Some institutions do not offer instruction in the summer. See Academic year.

Catalog — The publication, usually issued annually or biennially, to present the information needed by students and prospective students, by the faculty and staff, by advisers, registrars, and admissions officers, and by others who require a view of the educational program of an institution. The catalog may be published as one publication or as a separate bulletin of information and additional bulletins of the colleges and schools of a university. It is considered the basic publication, the general reference for information and authority. It is sometimes referred to as "The Bulletin", "The Calendar", or "The Register".

Class — (1) A regularly scheduled meeting of a course or section of a course; (2) the series of regularly scheduled meetings in the course of a term; (3) a group of students assembled for instruction; (4) a group of students whose graduation date is the same, e.g., freshman, sophomore, junior, senior.

GLOSSARY

Class card — A document used in controlling the assignment of students to sections of courses. It may also be used as a ticket of admission or as a device to collect grades at the end of the term.

Clock hour — One hour of instruction given one student. Class periods of from fifty to sixty minutes are usually counted as one clock hour.

Course — Organized subject matter in which instruction is offered within a given period of time and for which credit toward graduation or certification is usually given.

Course number — A number assigned to identify a course in a systematic manner. It sometimes designates the department offering the course and usually designates the level of the course as well as the level of the students expected to enroll.

Cousre prerequisite — The preliminary requirement, usually another course, that must be met before a course can be taken.

Course title — The descriptive name of a course.

Credit — (1) The quantitative measurement assigned to a course generally stated in semester hours or quarter hours; (2) the recognition awarded for the successful completion of course work. See credit hour.

Credit hour — The unit by which an institution may measure its course work. The number of credit hours assigned to a course is usually defined by the number of hours per week in class and the number of weeks in the session. One credit hour is usually assigned to a class that meets 50 minutes a week over a period of a semester, quarter, or term; in laboratory, field work, drawing, music, practical arts, physical education or similar type of instruction, one credit hour is assigned for a session that meets 2 or 3 hours a week for a semester, quarter, or term. Quarter credit hours and semester credit hours are the two most common systems of measuring course work. Institutions on the trimester generally use the semester credit hour system. Courses offered in a calendar other than semester or quarter, including summer sessions, may be measured in term credit hours or stated in semester credit hours or quarter credit hours. See Credit; Credit hour, semester.

Credit hour, quarter — A credit hour based on the quarter calendar which is usually divided into terms of 11 weeks.

Credit hour, semester — A credit hour based on the semester calendar which is usually divided into terms of 17 weeks.

Curriculum — A program of courses fulfilling the requirements for a certificate, diploma, or degree in a particular field of study.

Degree requirements — The requirements prescribed by a college or university for completion of the program for the degree.

Degree requirements, contractual relationship — The agreement an institution is considered to have made with the student to award a degree upon completion of the requirements stated in the catalog in effect at the time of his matriculation.

Delayed registration — Same as open registration.

Department — The basic organizational unit in an institution of higher learning responsible for the academic functions in a field of study. The term "department" may also be applied to an administrative or service unit in an institution.

Discussion section The meeting of a class, usually a subdivision of a large class, for the purpose of allowing individual contribution in the form of discussion, question and answer, and other class participation techniques. The term "quiz section" is sometimes used synonymously.

Division (1) An administrative unit of an institution, usually consisting of more than one department, as the division of the humanities; (2) a unit of an institution based on the year-level of the students, as the junior or lower division, comprising the first two years. Courses are also designated as lower division and upper division courses for various purposes; (3) a branch of the institution, either instructional or noninstructional, separate from the program of resident instruction, as the extension division, the division of buildings and grounds, or the division of student personnel services.

Early registration Same as preregistration.

Elective A course in the curriculum in the choosing of which a student has a degree of freedom, as opposed to a required course. The term "unrestricted" or "free elective" denotes that the student has either complete freedom in the selection of a course or freedom of choice among courses in several different fields. A restricted elective is one limited to a certain discipline or group of disciplines, such as an English elective or a social science elective. Restricted electives are sometimes known as group electives.

Enrollment Same as registration.

nrollment projections Forecasts of future enrollments for an institution or group of institutions based upon past enrollment data and other factors.

Examination schedule A tabular form or listing of the days, times, and places of meetings for final examinations.

Faculty The persons in an educational institution who are engaged in instructional, research, service, or related administrative responsibilities.

Fee A charge for specific items or services such as application for admission, registration, matriculation, laboratory courses, activities, etc., not covered by, but often collected with, tuition. The term "fee" also designates the charges for general educational services, including instruction, at some institutions, as in registration fee and tuition fee.

Fee, tuition The fee for educational services that the institution assesses its students at each registration. The term "tuition fee" as generally used is synonomous with tuition. Tuition is the most widely used term to denote the amount of money charged by an educational institution for instruction. In such institutions the term "fee" refers to charges that may be assessed to all students for certain items not covered by tuition, or assessed students only under certain circumstances, e.g., when registering for a laboratory course or private music lessons or when registering late. In public institutions the tuition fee is often designated as incidental or registration fee.

Fee refund A return of all, or a portion of, fees according to a published schedule, to students who have complied with the regulations governing withdrawals.

Fee waiver An arrangement by which certain students are permitted to take all or part of their academic work free by having tuition or certain fees waived. The practice commonly applies to such groups as student assistants, faculty, and faculty dependents. The terms "tuition remission" or "fee remission" are sometimes used.

oldhouse registration Same as open registration.

Financial aid Financial assistance made available to a student who has financial need. The term covers grants-in-aid, scholarships, loans, and jobs. The term "student aid" is also used.

GLOSSARY

Fiscal year — A period of 1 year not necessarily corresponding with the school year or calendar year, for which the financial program is set up and at the end of which financial accounts are closed and reports made, usually July 1 to June 30, or January 1 to December 31.

Hour — See Credit hour; Unit.

Major — The student's field of primary academic emphasis. The field of concentration may fall within a single department of instruction, or may overlap several departments. In the latter case the major is described as a combination major. The term is generally synonymous with field of concentration or field of specialization.

Mail registration — A registration which involves the use of the U. S. mail by students to complete all or a portion of the process. Can be used with both preregistration and/or open registration.

Mass registration — Same as open registration.

Master catalog — A portion of the master curriculum file. It contains the course descriptions, course objectives and appropriate identifying data such as course numbers.

Master curriculum file — An inventory of all courses that comprise curricula (degree credit, continuing education, and correspondence). It contains a listing of all courses offered over a five-year span; two years before the current year, the current year, and two years after the current year. It is divided into two parts; a master catalog and a master inventory of courses.

Master inventory of courses — A portion of the master curriculum file. It contains the numerical data associated with all of the courses.

Open registration — The registration normally conducted just prior to the official opening date of the term.

Preenrollment — See registration.

Preregistration — The plan of registration by which students select courses for a succeeding term and are sectioned well in advance of the official opening date of the term.

Program — A group of related activities used to achieve a goal or objective. In this manual, a program is the group of courses comprising the curriculum either to receive a certificate, diploma, or degree in a particular field of study (i.e., a baccalaureate degree in education), or to satisfy a more general requirement (i.e., the general education portion of a B.A. degree).

Program manager — The individual or group responsible for determining program curricular requirements, coordinating the offering of courses to satisfy the curriculum, and evaluating the progress and results of the program. On most campuses, program managers are deans or college faculties.

Quarter — The designation for a term in the quarter-system calendar. Three quarters constitute the academic year. A school year may consist of four quarters. See calendar.

Quarter hour — See credit hour.

Quarter schedule — See schedule, quarterly.

Registration — The procedure by which students are assigned to class. It includes approval of courses to be taken by the student, organization of sections, and assessment and collection of fees. The term registration and enrollment are generally interchangeable. Preregistration is the plan by which students select courses for a succeeding term and are sectioned well in advance of the official opening date of the term.

Registration change — A change in a completed registration. It usually involves adding or dropping one or more courses, changing sections of a given course, and/or changing complete programs and course schedules.

Schedule, quarterly — A publication containing information on the courses and sections to be offered for a given term, including names of the instructors, days, hours, places of meeting, and credit designations.

Scheduling — Same as sectioning.

Section — A subdivision of a course enrollment into 1 or more groups to provide desired class size.

Sectioning — The assignment of students to specific sections. It is a portion of the registration process.

Semester — See calendar.

Term — (1) A calendar unit. (2) Division of the school year during which an educational institution is in session; it may designate the summer term or may be used as a synonym for quarter, school term, semester, or trimester. Historically, a term has been any one of the 2 or 3 major periods during which classes were in session, specifically referred to as the fall term, etc. See calendar.

Trimester — The designation for a term in the trimester system calendar. See calendar.

Tuition — The amount of money charged each term by an institution of higher education for its instructional services. See also fee, tuition.

Unit — A measure of educational credit. (1) At the secondary level a unit generally represents a school year of study in one subject in a class which meets five times a week for 40- or 50-minute recitation periods or the equivalent. In assigning secondary school units, two periods of laboratory, shop, drawing, typewriting, or practice periods not requiring additional study or preparation are regarded as the equivalent of one recitation period. The length of the school year is generally fixed at 36 to 40 weeks. (2) At the college level the measure is based on the term rather than the year, and the unit, a general designation, describes the credit hour in all types of calendars. See credit hour.

Withdrawal — The termination of a student's attendance in a class or in all classes before the end of the term. With prior approval of the proper official the termination becomes an official withdrawal and the student's academic performance to the point of termination is evaluated and recorded on his permanent record. Termination without prior approval normally requires that the student be held responsible for his continuing course assignments and consequently to receive failing grades.

Many of the definitions above are taken directly from a publication of the National Center for Educational Statistics, U. S. Office of Education. The 1965 booklet is titled, Definitions of Student Personnel Terms in Higher Education.

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