Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person	Email Address
James A. Rodger	jrodger@iup.edu
Proposing Department/Unit	Phone
MIS and Decision Sciences	357-5944

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

____New Course	____Course Prefix Change	____Course Deletion
__X__Course Revision	__X__Course Number and/or Title Change	__X__Catalog Description Change

IFMG 350 Business Systems Technology

IFMG 250 Business Systems Technology

Current Course prefix, number and full title

Proposed course prefix, number and full title, if changing

2. Additional Course Designations: check if appropriate

_____ This course is also proposed as a Liberal Studies Course.   _____ Other: (e.g., Women's Studies,
_____ This course is also proposed as an Honors College Course.   Pan-African)

3. Program Proposals

_____Catalog Description Change	_____Program Revision
____New Degree Program _____Program Title Change	_____Other
____New Minor Program _____New Track	

Current program name

Proposed program name, if changing

4. Approvals

		Date
Department Curriculum Committee Chair(s)	*[signature]*	4/8/03
	Elizabeth M. Pierce	4/8/03
Department Chair(s)	Louise B. Burky	4/8/03
College Curriculum Committee Chair	*[signature]*	9ay03
College Dean	R Camp	4/9/03
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate:		
(include title)		
UWUCC Co-Chairs	Gail Sechrist	4/22/03

* where applicable

33
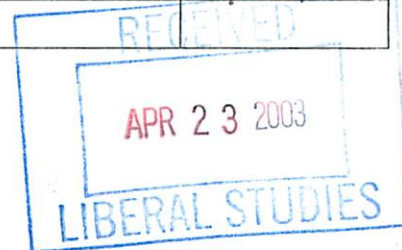
I.   **Catalog Description**

IFMG 250 Business Systems Technology   3 class hours
                                                              0 lab hours
Prerequisites: IFMG 210 or COSC 110   3 credit hours

                                                              (3c-01-3cr)

Presents a functional review of computing equipment and the organization of components and devices into architectural configurations. Students also learn the principles of system software and build an understanding of combinations of hardware and software within architectural designs.

II.   **Course Objectives**

Students will be able to:

- Converse knowledgeably with system support personnel.
- Describe the functions of the hardware components of a computer configuration.
- Discuss how selection of particular hardware can impact information system design.
- Discuss operating system design and components.

III. **Detailed Course Outline**

1.	Review of Computing History	(3 hours)
2.	Number Theory and Computer Codes	(3 hours)
3.	Manipulating Numbers Concepts	(3 hours)
	A. Binary	
	B. Octal	
	C. Hexadecimal	
	D. Converting One Base to Another	
4.	Computer Classifications	(3 hours)
	A. By Type	
	B. By Applications	
	C. By Size	
5.	CPU Concepts	(3 hours)
	A. Overview of Simple CPU and Relationship with Components	
	B. Microprocessor	
	C. CPU Operating Cycle, Including Cycle Timing and the Role of Registers	
	D. Program Counter, Status Register, Instruction Register, Accumulator, Storage Register, General Purpose Registers	
	E. Von Neumann Processing	
	F. I/O Processing Relationship With CPU	
6.	Midterm I and Evaluation Testing	(1.5 hours)

7.	Main Storage	(3 hours)
	A. Bits, Bytes, Words	
	B. Addressing	
	C. Need for Program Relocation and its Impact on Addressing	

8.	Program Translation Concepts	(3 hours)
	A. Instructions	
	B. Instruction Set	
	C. Reduced Instruction Set Computers	
	D. Compilation of High—Level Languages	
	E. Role of Linkage Editor and Loader	

9.	Operating System Concepts	(3 hours)
	A. Functions of an Operating System	
	B. Parts of an Operating System	
	C. Operating System Options	

10.	Magnetic Tape Concepts	(3 hours)
11.	Direct Access Storage Device Concepts	(3 hours)
12.	Midterm II and Evaluation Testing	(1.5 hours)
13.	Output Devices	(3 hours)
14.	Data Entry Devices	(3 hours)
15.	Data Communication Concepts	(3 hours)
16.	Final Examination	(2 hours)

IV.   Evaluation Methods

20%   Homework assignments and Research paper. These will be based on material discussed in class and on aspects of the project.

45%   Examinations. Two in-class exams and a final exam. The three equally-weighted exams will consist of short-answer, analysis, and what-if questions.

35%   Project. The project is to install Apache Tomcat on a server and then install and configure a homepage. The student will have to demonstrate that the completed project is functional.

Grading Scale: A: $\geq$90% B: 80-89% C: 70-79% D: 60-69% F: <60%

V.   Course Attendance Policy

In accordance with University policy, individual faculty will denote an attendance policy on specific course syllabi.

VI. Required Textbook(s), Supplementary Books and Readings

Burd, Stephen, <u>System Architecture</u>, Course Technology, New York, NY 2001.

Several handouts will be given to provide students with guidance with the projects. The professor has other related material that will be placed on reserve for students' use during the progress of the course.

VII. Special Resource Requirements

No special resource requirements.

VIII. Bibliography

Andrews, J. <u>Managing and Maintaining Your PC</u>, Course Technology, Cambridge, MA, 2000.

Badgett, et al. <u>A Guide to Operating Systems</u>, Course Technology, Cambridge, MA, 2001.

Morrison, M. <u>Wireless Java with J2ME</u>, SAMS, Indianapolis, IN, 2001.

Murdocca, M. & Heuring, V. <u>Principles of Computer Architecture</u>, Prentice Hall, Upper Saddle River, NJ, 2000.

Norton, P & Goodman, J. <u>Inside the PC</u>, 8th Edition, SAMS Publishing, Indianapolis, IN, 1999.

Stallings, W. <u>Computer Organization and Architecture</u>, 5th Edition, Prentice Hall, Upper Saddle River, NJ, 2000.

Stallings, W. <u>Data and Computer Communications</u>, 6th Edition, Prentice Hall, Upper Saddle River, NJ, 2000.

Stallings, W. <u>Local and Metropolitan Area Networks</u>, 4th Edition, Prentice Hall, Upper Saddle River, NJ, 2000.

Tannenbaum, A. <u>Structured Computer</u> Organization, 4th Edition, Prentice Hall, Upper Saddle River, NJ, 1999.

White, R. <u>How Computers Work</u>, Millennium Edition, Que, Indianapolis, IN, 1999.

COURSE ANALYSIS QUESTIONNAIRE

Section A: Details of the Course

A1   How does this course fit into the programs of the department? For what students is the course designed? (majors, students in other majors, liberal studies). Explain why this content cannot be incorporated into an existing course.

System architecture principles are necessary for students to grasp fundamental and advanced concepts of computer hardware, as well as procedures for evaluation and acquisition of computer software. An introduction is provided to the knowledge of computer system architecture, computer hardware, computer software, data representation, process technology, data store technology, system integration and performance, data and network communication technology, networks and distributed systems, input/output technology, applications development, operating systems, mass storage access and management, operating system input/output, and system administration. The course is designed with MIS and technology support (office systems) majors in mind, but any student with the necessary background will be accepted.

A2   Does this course require changes in the content of existing courses or requirements for a program? If catalog descriptions of other courses or department programs must be changed as a result of the adoption of this course, please submit as separate proposals all other changes in courses and/or program requirements.

The course does not require major changes in the contents of any of our existing courses.

A3   Has this course ever been offered at IUP on a trial basis (e.g. as a special topic)? If so, explain the details of the offering (semester/year and number of students).

The MIS-DS Department has offered this as a required course.

A4   Is this course to be a dual-level course? If so, please note that the graduate approval occurs after the undergraduate.

The course is not intended to be listed as dual level.

A5   If this course may be taken for variable credit, what criteria will be used to relate the credits to the learning experience of each student? Who will make this determination and by what procedures?

The course may not be taken for variable credit.

A6   Do other higher education institutions currently offer this course? If so, please list examples (institution, course title).

Penn State: MIS 120 Microcomputer Operating Systems and User Interfaces (3). Prerequisite: MIS 103. Management of microcomputer hardware and software, including systems software, user interfaces, file management, security features, and applications software installation.

Duquesne University: QSMIS 385 Computer Systems (Credits: 3)
Description: A detailed survey of current issues and technologies in business organizations. Covers technical aspects of operating systems, multi-media, Internet interface development, telecommunications and other emergent technologies. Prerequisites: QSMIS 183.

Marshall University: MIS 333 Business Telecommunication Systems (3 hrs, I, II).
To understand the applications, concepts and management of telecommunications. Students will be exposed to network components and network operations. Emphasis will be on strategic business applications of telecommunication systems. (PR: ACC 216, MGT 218, MTH 203).

A7   Is the content, or are the skills, of the proposed course recommended or required by a professional society, accrediting authority, law or other external agency? If so, please provide documentation.

The Association for Computing Machinery (ACM), the Association for Information Systems (AIS) and the Association for Information Technology Professionals (AITP) all recommend this course.

Section B: Interdisciplinary Implications

B1   Will this course be taught by instructors from more than one department? If so, explain the teaching plan, its rationale, and how the team will adhere to the syllabus of record.

The course is designed to be taught by one MIS instructor per semester.

B2   What is the relationship between the content of this course and the content of courses offered by other departments? Summarize your discussions (with other departments) concerning the proposed changes and indicate how any conflicts have been resolved. Please attach relevant memoranda from these departments that clarify their attitudes toward the proposed change(s).

This course is proposed by the MIS-DS Department and will not be cross listed. The course does not overlap with any other courses at this University. Although other departments may offer courses with similar topics, this course is specifically designed for the needs, interests, and context required for our MIS majors. This course already exists. The update of the syllabus of record is mostly an updating of the tools and methods used to implement the content of the course. The basic nature and purpose of this course has not been changed.

B3   Will this course be cross-listed with other departments? If so, please summarize the department representatives' discussions concerning the course and indicate how consistency will be maintained across departments.

This course will not be cross listed

B4   Will seats in this course be made available to students in the School of Continuing Education?

Seats will be made available to Continuing Education students meeting the prerequisites.

Section C: Implementation

C1   Are faculty resources adequate? If you are not requesting or have not been authorized to hire additional faculty, demonstrate how this course will fit into the schedule(s) of current faculty. What will be taught less frequently or in fewer sections to make this possible? Please specify how preparation and equated workload will be assigned for this course.

Faculty resources are currently adequate.

C2 What other resources will be needed to teach this course and how adequate are the current resources? If not adequate, what plans exist for achieving adequacy? Reply in terms of the following:

Space: Classroom space is adequate. The Eberly networking lab is adequately equipped for this course.

Equipment: The Eberly networking laboratory is adequately equipped for this course; however, wireless technologies must be added.

Laboratory Supplies and other Consumable Goods: The MIS-DS Department has a licensed copy of operating systems and some applications software for projects. However, periodic updates will be required to keep up with the technology.

Library Materials: There is an adequate source of reading material in Stapleton Library.

Travel Funds: No travel funds are needed.

C3 Are any of the resources for this course funded by a grant? If so, what provisions have been made to continue support for this course once the grant has expired? (Attach letters of support from Dean, Provost, etc.)

No resource for this course is funded by a grant.

C4 How frequently do you expect this course to be offered? Is this course particularly designed for or restricted to certain seasonal semesters?

Once a semester.

C5 How many sections of this course do you anticipate offering in any single semester?

At least one section.

C6 How many students do you plan to accommodate in a section of this course? What is the justification for this planned number of students?

Approximately 30 students will be accommodated in a section of the course.

C7 Does any professional society recommend enrollment limits or parameters for a course of this nature? If they do, please quote from the appropriate documents.

No professional society recommends enrollment limits or parameters for this course.

C8 If this course is a distance education course, see the Implementation of Distance Education Agreement and the Undergraduate Distance Education Review Form in Appendix D and respond to the questions listed.

Presently, this course is not a distance education course.

Section D: Miscellaneous

Include any additional information valuable to those reviewing this new course proposal.

1. **Summary of Proposed Revisions**

    This course presents a functional review of computing equipment and the organization of components and devices into architectural configurations. Students also learn the principles of system software and build an understanding of combinations of hardware and software within architectural designs. The number change reflects the fact that under our new streamlined program students can now take this course as sophomores in order to graduate in 120 credits and 4 years.

2. **Justification/Rationale for the Revision**

    IFMG 250 provides an introduction to the knowledge of computer system architecture, computer hardware, computer software, data representation, process technology, data store technology, system integration and performance, data and network communication technology, networks and distributed systems, input/output technology, applications development, operating systems, mass storage access and management, operating system input/output, and system administration. Most of our students go to companies to function in one of these areas. The department Corporate Advisory Board has suggested the need for extensive exposure of the students to these areas. This course will fit into the programs of the department by meeting this need.

3. **Old Syllabus of Record**

    This course is so old that we could not locate an old syllabus of record – the current one is below:

IFMG 350 Business System Technology	**Fall Semester 2002**
Instructor: Dr. James A. Rodger	**Pre-Requisites: AG 201, IM300, or CO220**
Office: ECB 207M	
Phone: (724) 357-5944	**Required Text:** <u>Systems Architecture: Hardware and</u>
Fax: (724) 357-4785	<u>Software in Business Information Systems</u>, (Stephen Burd,
Hours: 1:00-3:00;TR &5:00-6:00 M	2001) **Course Technology**
Home Phone: (814) 798-2177	

Catalog Description

The student is taught fundamental and advanced concepts of computer hardware. In addition, the student is taught procedures for evaluation and acquisition of computer hardware.

Course Objectives

There are several course objectives. These objectives include an introduction to the knowledge of computer system architecture, computer hardware, computer software, data representation, process technology, data store technology, system integration and performance, data and network communication technology, networks and distributed systems, input/output technology, applications development, operating systems, mass storage access and management, operating system input/output, and system administration

Course Methodology

Lectures and hands-on microcomputer lab assignments are utilized to develop student skills in understanding computer operations and applications. Students can expect readings from articles, books on computer technology and websites. The teaching style will include lectures, whiteboard diagrams, overhead transparencies, videos, laboratory demonstrations and computer simulations.

Prerequisites: Beginning with the Summer 2000 term, there will be absolute enforcement of every prerequisite requirement for the coursework offered by the Eberly College of Business & Information Technology. This means that students cannot postpone prerequisites and take them after the course in question.

The dean's office is responsible for monitoring course prerequisites. Students who manage to register for coursework in spite of the fact that they do not have the appropriate prerequisite will be subject to unilateral withdrawal after the course has commenced. At that time, no appeal will be accepted and adding a class after the official registration period will not be approved.

Organization and Format

The organization of this course is a combination of several approaches. There will be four tests. You will be asked to perform a series of research reports. You may be asked to make an individual presentation of your findings to the entire class. The course is structured around the basic building blocks of systems architecture and computer technology, which is no coincidence, because the final project will be the development and presentation of an integrated, professional-quality 20 page document on the systems architecture subject of your choice. The topic of your paper must be substantiated by the instructor and will be performed as a group project.

The format of most class sessions will involve the following approaches. There will be an emphasis on lectures, computer exercises, student presentations, and discussion. There will basically be two types of sessions: the first will begin with a brief lecture reviewing the key topic to be discussed that day, followed by an exercise related to that topic, during which you may be called upon randomly to provide your answer to the questions raised; the second type of session will consist of a series of student presentations on hardware and software applications and tools followed by question and answer periods and discussion of the points of view presented.

GRADING POLICY

Your grade will be based upon three of the same criteria that will be used to measure your performance in "the real world": analytical skill, teamwork, and the ability to effectively communicate your ideas. Analytical and communication skills will be evaluated by your performance in analyzing and presenting a case study and final group project. You will be required to recognize the integration of system nodes and measure the reliability, availability and cost effectiveness of system logs A five page paper, worth 180 points, will be required to demonstrate your knowledge of these systes. In addition, you will be asked to analyze a case study of a systems architecture topic, and orally present this case to the class. All final projects will cover "real world" individual and organizational issues, and feature applications of system architecture. In most cases, however, extra research will be required at the IUP library, computer lab, or on the Internet. Grading works as follows:
   1) You will be graded on 1 group final project, to be validated by the instructor.
   2) The final project will account for 150 possible points, evaluated by the instructor.

Individual work will be evaluated by four tests, each worth 75 points. Make up exams may be given at the discretion of the instructor. Missed exams may be essay in nature. The nature of the tests will be both objective and subjective in nature. Questions will include multiple choice, true/false, and essay. Further, we may review the discussion questions at the end of each chapter. You may randomly be asked to answer one or more of these questions. In addition, you are responsible for adding value to the class. Class attendance is essential and required. Accordingly, I hold in my hand 50 participation points which you may earn by attending class and participating in discussions. You may lose as many as 10 points per class and/or two letter grades if you have more than 2 unexcused absences.

Team work will be evaluated by your performance in working with a group of 3-4 other students to develop and present 1) a case study and 2) an integrated systems architecture final project. The project will address a "real world" organizational issue. It will be presented during the final exam time period. The hand-in for the integrated final project will be strictly *limited to 20 pages* and account for 150 possible points. Your team Power Point presentation will be required in order to satisfy the requirements of the final project. In order to maintain these points, you and your team will be randomly asked to explain your current progress on the final project. You may seek consultation from the instructor. Finally, as a safeguard against "slacking" in groups, each team will have the option of "firing" teammates who are not contributing a fair share effort. This decision will be made one week prior to the final presentation, via secret ballot. It will entail a splitting of the team, and may occur prior to the one week deadline in extreme cases. Team members will also have the opportunity, at the time of the final presentation, to rate each teammate on their contribution, again via secret ballot, on a 1-10 scale. Here's how the system works:

Evaluated Projects	Source of Evaluation	Possible Grade Points	
1) *Final Project* - Hand-in/ Presentation	Instructor/Group	20 page Paper/PowerPoint	200
2) Software Investigation	Instructor		100
3) Four Tests	Instructor	4@ 75 points each	300
4) Class Participation	Instructor		100
5) Case Study	Instructor		100
6) Exercises	Instructor	10 @ 10 points each	100
7) Tomcat Installation	Instructor		100
Total			**1000 points**

Grade Conversion Scale

To determine your final letter grade for the course, simply add up the points you earn from the above projects and compare them with the grade conversion scale below:

| A | 90-100 | B | 80-89 | C | 70-79 | D | 60-69 | F | 0-59 |

Extra Credit

Extra credit in this course is at the discretion of the instructor. At no time, however, will extra credit work exceed more than 5% of your total course grade. Further, the maximum grade achievable with extra credit is a B.

Study Assistance

During the course of this semester, if you feel you are falling behind your classmates, please don't panic. Let me know your concerns; perhaps we can work together to help you make it through the semester.

SOME SPECIFIC RESULTS

*   IDENTIFY COMPUTER COMPONENTS
*   CONDUCT SYSTEM ANALYSIS AND DESIGN
*   DISTINGUISH BETWEEN CATEGORIES OF COMPUTER HARDWARE
*   DESCRIBE CONNECTIVITY
*   EXPLAIN THE CHARACTERISTICS OF PERFORMANCE MEASUREMENT
*   DESCRIBE THE ADVANTAGES AND ECONOMICS OF SOFTWARE DEVELOPMENT
*   IDENTIFY THE DIFFERENCE BETWEEN PROGRAMMING LANGUAGES
*   DISCUSS INPUT DEVICES
*   DIAGRAM DATA RELATIONSHIPS
*   DIFFERENTIATE BETWEEN COMMUNICATION PROTOCOLS
*   DISCUSS THE INTERNET
*   DEFINE OPERATING SYSTEMS
*   DISCUSS DATA MANAGEMENT DATA REPRESENTATION AND DATABASES
*   DESCRIBE TYPES OF IPROCESSORS
*   EXPLAIN DATA STORAGE TECHNOLOGY
*   ANALYZE STORAGE ALTERNATIVES
*   DISCUSS SYSTEM INTEGRATION AND PERFORMANCE
*   DESCRIBE DEVICE CONTROLLERS
*   DISCUSS THE WORLD WIDE WEB AND THE INTERNET
*   DISCUSS NETWORKS AND DISTRIBUTED SYSTEMS
*   EXPLAIN THE USES INPUT/OUTPUT TECHNOLOGY
*   EXPLORE SOPERATING SYSTEMS
*   COMPARE AND CONTRAST MIS AND COMPUTER SCIENCE

Important note:

This is a lecture-based course utilizing overhead projector, handouts, and online resources. Participation in class discussion (questions, answers, and other activities) which enable students to develop concepts learned in class are encouraged.

1. Quizzes, Cases, Exams, and Paper will be announced in class. A total of 12quizzes, 1 case presentation, 4 exams, 1 software investigation, 1 Tomcat installation and 1 term paper will be administered.
2. Turn in all assignments on time. No late submissions will be accepted.
3. There will be no make ups for lecture, quizzes, class-works, cases, and paper presentations.
4. Exams can be made up under special circumstances and only if cleared with the instructor prior to the exam. Written medical or personal documentation is required. You will be given two weeks to make up that exam. Otherwise a zero will be recorded. It is your responsibility to make the appointment to do so.
5. Your presence is required and desired. It is only this way that you can benefit maximally from the course. Excuses for class are not needed. You are either there or not there. Lectures will not be repeated in my office or on an individual basis. 100 points of your grade will be tied to attendance (participating). Three absences are permitted, but penalized. Over three will sacrifice the entire 100 points. Arriving late or leaving the class without notice will be considered missing the class.

Research Tips:

1. Research topic has to be related to a chapter in the textbook.
2. Each student must have a different topic. Since there are only 18 chapters in the textbook, only two to three students will be permitted to select a topic from each chapter.
3. A paper consists of at least an abstract, introduction, discussion of finding or feedback, and summary.
4. An abstract states the basic idea of the purpose of the paper.
5. An introduction discusses the related information from references.
6. The discussion combines the related information such as pro/cons and advantages/disadvantages of the findings, relationship between one study to another, what needs to be studied in the future, feedback to be offered, etc.
7. The summary provides the conclusion of the discussion.
8. At least ten references must be listed for the paper. You may collect references from the Internet.
9. The length of the paper must be between ten to 15 pages (Font: Times New Roman, Size: 12, Line Spacing: 1.5 lines).