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DATE: November 11, 2009
TO: College of Engineering Technology Curriculum Committee
COPY: School of Built Environment Curriculum Committee
SUBJECT: Minor Curriculum Clean-Up of 1 ARCH class and 3 FMAN classes



The School of Built Environment's Curriculum Committee has been canvassed for their review and comments regarding the subject proposal. Included below is a summary of their review as well as comments from me, as the School Director.

School of Built Environment Curriculum Committee Summary

Four members "support" the proposal (two from the originating program) and two members "support with concerns".

Concerns:

1. All of the course conversions from all lecture to lecture/laboratory are missing laboratory outcomes, assuming that studio hours are essentially laboratory hours.
2. The title in Units of instruction in FMAN 431 does not match the title in Learning Outcomes for each Unit of Instruction for Section XII (Adjacencies/Standards... vs. Standards).
3. Concern that the program might be taking a class that should be a four credit hour class, keeping it three credit hours and arranging it as a 2+2. This could be unfair to the university, the staff, and the student who might be expected to complete a workload equivalent to a four credit hour class and receive only three credit hours.

School of Built Environment Director's Comments:

The previously stated concerns of the members of the committee are echoed. Two major points must be emphasized.

1. While Architecture prefers to use the term "Studio" as opposed to "Lab", they should more clearly define the goals, objectives, learning outcomes, activities, for each of the studio meetings identified in their Units of Instruction.
2. More importantly, in an attempt to reduce hours to reach the BS in a previous effort a few years ago, many programs condensed 4-credit courses down to 3-credit courses. The corresponding reduction in contact hours proved to be insufficient to cover the desired content. This is clearly the concern that the proposal is trying to address. Some programs have tried to correct this inadequacy and expand time in class by changing the course allocation from a 3+0 to a 2+2 format—as this proposal suggests. The resulting content is not really lab time (or Studio in this case) and effectively becomes expanded lecture time in which delivery of course material is executed. The definitions of the terms lecture and lab need to be clarified. What this move has done in other programs has been, in some ways, unfair to the students, faculty, and university while also providing some benefits to the students and the university.
 - a. Penalties:
 - i. Students have more contact hours than they are given credit.
 - ii. Faculty have increased contact hours without recognition in load by classifying additional hours as lab.
 - iii. University is providing space and talent to provide the course content without receiving appropriate compensation in tuition charges.
 - b. Benefits:
 - i. Students pay less for 4-credits of content.
 - ii. University touts a lower credit-hour threshold for a degree.

We need to ask ourselves, would it be possible to combine two or more sections' "lecture" hours while separating out the individual "lab" (or "studio") hours? If that answer is, "Yes," then perhaps it is truly a lecture/lab combination. If the answer is, "No," then perhaps this is truly a four credit course.

1. Proposal Summary

- The course description and course content for ARCH 101, Architectural Graphics, has been revised and enhanced to respond to the creation of the new B.S. in Architecture & Sustainability degree. Content will focus on developing the student's ability to effectively sketch and conceptualize architectural design graphics. Increased emphasis will be placed on developing the student's ability to craft hand-made models; and students will be introduced to digital presentation techniques.
- Prior to 2005 FMAN 331, FMAN 431, and FMAN 432 were taught as a lecture/lab configuration. During the academic year of 2005/2006 the FM program was revised to reduce the credit hours from 68 to 64. At that time we modified these courses to a 3+0 format, believing this would be an adequate configuration for students to learn the content. It has become increasingly apparent that this is not the case. Since these are design courses taught through a critique method, they require extensive time for interaction between student and instructor which is not feasible in the 3+0 format. We wish to revert to the original configuration of lecture/lab and change these courses from a 3+0 to a 2+2 configuration.

2. Summary of All Course Action Required*

a. Newly Created Courses to FSU:

Prefix	Number	Title
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b. Courses to be Deleted From FSU Catalog:

Prefix	Number	Title
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c. Existing Course(s) to be Modified:

Prefix	Number	Title
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ARCH	101	Architectural Graphics
FMAN	331	Facility Programming & Design Process
FMAN	431	Principles of Space Planning
FMAN	432	Principles of Interior Architecture

d. Addition of existing FSU courses to program

Prefix	Number	Title
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e. Removal of existing FSU courses from program

Prefix	Number	Title
--------	--------	-------

3. Summary of All Consultations

Form Sent (B or C) Date Sent Responding Dept. Date Received & by Whom

4. Will External Accreditation be Sought? (For new programs or certificates only)

_____ **Yes** _____ **No**

If yes, name the organization involved with accreditation for this program.

5. Program Checksheets affected by this proposal.

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: MODIFY AN EXISTING COURSE

Notes:

1. Complete all parts of Sections I and II; complete only those items in Section III that represent changes.
2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made (See Proposed Changes a through p below):

b. Term Effective (6 digit code only): Examples: 200801(Spring), 200805(Summer), 200808(Fall)
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix b. Number c. Enter Contact Hours per week in boxes.
LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title:

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix b. Number c. Enter Contact Hours per week in boxes.
LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title: (Limit to 30 characters/spaces.)

e. College Code: f. Department Code:

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: Variable Fixed h. Maximum Credit Hours i. Minimum Credit Hours

j. May Be Repeated for Added Credit: Check (x) Yes No

k. Levels: Check (x) Undergraduate Graduate Professional


l. Grade Method: Check (x) Normal Grading Credit/No Credit only (Pass/Fail)

m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.

n. Term(s) Offered: (See instructions for listing.) o. Max. Section Enrollment:

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces.

UCC Chair Signature/Date:

 2/1/10

Academic Affairs Approval Signature/Date:

 5/13/10

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code

Basic Skill (BS) General Education (GE) Occupational Education (OC) G.E. Codes

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**FERRIS STATE UNIVERSITY
COLLEGE OF ENGINEERING TECHNOLOGY
ARCHITECTURE AND FACILITY MANAGEMENT
COURSE OUTLINE: FMAN 432**

Course Title:	Principles of Interior Architecture
Course Description:	Overview of the elements of interior design and their application. Students apply the principles of interior design with regard to program requirements, context, environment, ergonomics, code and regulatory issues. The visual effects and physical attributes of various components of the interior space are studied.
Credit Hours:	3
Contact Hours:	2 lecture hours + 2 studio hours
Course Prerequisite:	FMAN 431

Student Learning Outcomes:

Students satisfactorily completing this course will achieve proficiency in:

1. Understanding the theories, approaches and processes of interior design.
2. Developing solutions and supporting documentation for design problems within the context of interior environments.
3. Identifying and utilizing evaluation criteria in the selection of interior finishes, systems and furniture.
4. Performing research involving materials, furniture and systems utilized in building interiors.
5. Demonstrating effective communication in the following areas: writing, speaking, presentations, and small group interaction.

Units Of Instruction:		Time Weight:	
		Lecture	Studio
I.	Course Introduction	1	
II.	Origins of Interior Design	2	
III.	Basic Theories of Composition	2	2
IV.	Color in Interior Design	2	4
V.	Design as a Process	2	2
VI.	Environmental Concerns, Codes and Regulations of Interior Design	3	2
VII.	Interior Environmental Controls	2	
VIII.	Lighting for Interiors	2	2
IX.	Interior Materials and Components	2	2
X.	Architectural Systems and Interior Finishes	4	8

XI.	Furniture, Furnishings and Equipment	4	8
XII.	Current Trends and Topics	2	
XIII.	Evaluation	2	
Subtotals:		30	30
Total Hours:		60	

Learning Outcomes for each Unit of Instruction:	
Upon completion of each instructional unit, the learner will:	
I.	<p>Course Introduction</p> <ul style="list-style-type: none"> Understand course format, grading format methods, and class procedures. Understand the role of the facility manager, introduction to interior design, and interior design as a profession.
II.	<p>Origins of Interior Design</p> <ul style="list-style-type: none"> Summarize the history of interior design. Demonstrate a variety of presentation and rendering techniques.
III.	<p>Basic Theories of Composition</p> <ul style="list-style-type: none"> Apply the underlying principles and guiding forces of a design theory. Define and describe commonly used design approaches. Apply and evaluate design elements and principles to meet client and program needs.
IV.	<p>Color in Interior Design</p> <ul style="list-style-type: none"> Define and create the 12-part color system. Understand and apply the theories of arranging colors into practical color schemes. Utilize the theories of perception and use of color and its resulting effects on human behavior. Demonstrate ability to apply color appropriately to a specific interior environment.
V.	<p>Design as a Process</p> <ul style="list-style-type: none"> Demonstrate the distinct application of analysis and synthesis processes of design. Identify and apply the sequence of design steps to a design problem.
VI.	<p>Environmental Concerns, Codes and Regulations of Interior Design</p> <ul style="list-style-type: none"> Identify the physical features of the site and evaluate their relationship to building interiors. Identify building codes applicable to interior spaces and use. Apply building code guidelines to required aspects of the building interior. Identify and apply barrier free code requirements to specified areas.
VII.	<p>Interior Environmental Controls</p> <ul style="list-style-type: none"> Be able to define the human comfort zone and identify systems utilized in the control of the interior environment. Be able to describe a variety of sources of energy used to control thermal

	<p>microclimates.</p> <ul style="list-style-type: none"> • Be able to compare and evaluate energy consumption criteria of both building performance and interior control systems. • Describe the distribution of water, electricity, and fire protection in a building.
VIII.	<p>Lighting for Interiors</p> <ul style="list-style-type: none"> • Know common terms and performance criteria utilized in lighting selection. • Determine appropriate lighting levels required for a variety of tasks. • Analyze the lighting requirements of the user in the selection of an appropriate fixture and lamp. • Describe a variety of light sources and fixture types. • Produce varying degrees of lighting levels and effects through the selection of fixtures and lamps.
IX.	<p>Interior Materials and Components</p> <ul style="list-style-type: none"> • Summarize the performance characteristics, maintenance issues, and sustainability of ceramics, glass, metals, plastics, textiles, window treatments and paints. • Describe how selection of materials contributes to indoor air quality, flamespread and smoke ratings. • Evaluate the impact of material selection on acoustical performance.
X.	<p>Architectural Systems and Interior Finishes</p> <ul style="list-style-type: none"> • Be able to identify a variety of Floor systems, Wall systems, and Ceiling systems. • Utilize standard selection criteria related to these systems in terms of fire protection, acoustical performance and changeability in material selection. • Describe the parameters associated with existing construction and the preservation of historic features.
XI.	<p>Furniture, Furnishings and Equipment</p> <ul style="list-style-type: none"> • Apply the differing ergonomic and psychological considerations involved in furniture selection. • Be able to identify a variety of common furniture types. • Evaluate and select furniture systems utilizing standard selection criteria. • Identify and integrate into overall design, additional items to enhance and personalize space; accessories, artwork, plants, corporate signage.
XII.	Current Trends and Topics
XIII.	Evaluation

<p>Learning Outcomes for Each Studio: <i>(Note: Roman Numerals correspond with those in Units of Instruction Section)</i> Students will participate in the following studio activities:</p>	
III.	<p>Basic Theories of Composition</p> <ul style="list-style-type: none"> • Define and describe commonly used design approaches. • Select and apply a design approach to a specific program need. • Evaluate design elements and principles to meet client and program needs.

IV.	Color in Interior Design <ul style="list-style-type: none"> • Create a 12-part color system. • Apply the theories of arranging colors into practical color schemes. • Demonstrate ability to apply color appropriately to a specific interior environment.
V.	Design as a Process <ul style="list-style-type: none"> • Identify and apply the sequence of design steps to a design problem.
VI.	Environmental Concerns, Codes and Regulations of Interior Design <ul style="list-style-type: none"> • Identify and catalog the physical features of the site and evaluate their relationship to building interiors. • Apply building code guidelines to required aspects of the building interior. • Identify and apply barrier free code requirements to specified areas.
VIII.	Lighting for Interiors <ul style="list-style-type: none"> • Select appropriate fixtures and/or lamps based on design criteria and task. • Determine appropriate lighting levels required for a variety of tasks. • Analyze the lighting requirements of the user in the selection of an appropriate fixture and lamp. • Illustrate varying degrees of lighting levels and effects through the selections of fixtures and lamps.
IX.	Interior Materials and Components <ul style="list-style-type: none"> • Compare the performance characteristics, maintenance issues, and sustainability of ceramics, glass, metals, plastics, textiles, window treatments and paints. • Analyze how the selection of materials contributes to indoor air quality, flamespread and smoke ratings. • Evaluate the impact of material selection on acoustical performance. • Construct a professional quality design presentation board.
X.	Architectural Systems and Interior Finishes <ul style="list-style-type: none"> • Compare the performance characteristics related to these systems in terms of fire protection, acoustical qualities, maintenance and changeability.
XI.	Furniture, Furnishings and Equipment <ul style="list-style-type: none"> • Apply the differing ergonomic and psychological considerations involved in furniture selection. • Be able to identify a variety of common furniture types. • Evaluate and select furniture systems utilizing standard selection criteria • Construct a professional quality design presentation board.

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

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2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made (See Proposed Changes a through p below):

b. Term Effective (6 digit code only): Examples: 200801(Spring), 200805(Summer), 200808(Fall)
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix b. Number c. Enter Contact Hours per week in boxes.
LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title:

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix b. Number c. Enter Contact Hours per week in boxes.
LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title: (Limit to 30 characters/spaces.)

e. College Code: f. Department Code:

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: Variable Fixed h. Maximum Credit Hours i. Minimum Credit Hours

j. May Be Repeated for Added Credit: Check (x) Yes No

k. Levels: Check (x) Undergraduate Graduate Professional

l. Grade Method: Check (x) Normal Grading Credit/No Credit only (Pass/Fail)

m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.

n. Term(s) Offered: (See instructions for listing.) o. Max. Section Enrollment:

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces.

UCC Chair Signature/Date:

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Academic Affairs Approval Signature/Date:

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To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code

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**FERRIS STATE UNIVERSITY
COLLEGE OF ENGINEERING TECHNOLOGY
ARCHITECTURE AND FACILITY MANAGEMENT
COURSE OUTLINE: FMAN 431**

Course Title:	FMAN 431: Principles of Space Planning
Course Description:	Introduction to space planning concepts; office layouts and furniture systems. Space development and furniture systems will be examined in terms of how they serve the business goals of organizations, including growth and contraction forecasting. The course will include an historical overview of office facilities; development of architectural programs; and teamwork exercises to expose students to multiple roles in the facility development team.
Credit Hours:	3
Contact Hours:	2 lecture hours + 2 studio hours
Course Prerequisite:	Enrollment in program

Student Learning Outcomes:

Students satisfactorily completing this course will achieve proficiency in:

1. Describing the history and current trends of the American office environment.
2. Identification of employee working styles.
3. Defining, analyzing and planning office projects using varied methodologies
4. Differentiating between space inventories, space forecasting, adjacencies and programming.
5. Using furniture systems to serve complex functional needs
6. Demonstrating effective communication in the following areas: writing, speaking, presentations, and small group interactions.

Units Of Instruction:		Time Weight:	
		Lecture	Studio
I.	Course Introduction	1	
II.	Review of Facility Management Principles with Regard to Space Planning	1	
III.	Overview of Pprinciples of Space Management	2	
IV.	Review of the history of the American office environment	3	
V.	Understanding Working Styles	2	2
VI.	Planning Methodologies: Definition, Analysis, Interpretation	3	4
VII.	Overview of Space Inventory	2	
VIII.	Overview of Space Forecasting	2	

IX.	Overview of Strategic Planning	2	
X.	Programming	2	4
XI.	Relationship of Space Planning to Design	2	
XII.	Standards	1	
XIII.	Adjacencies / Blocking / Stacking	2	8
XIV.	Furniture Systems	3	
XV.	Presentations		8
XVI.	Field Trips		4
XVII.	Evaluation	2	
Subtotals:		30	30
Total Hours		60	

Learning Outcomes for each Unit of Instruction:	
Upon completion of each instructional unit, the learner will:	
I.	<p>Course Introduction</p> <ul style="list-style-type: none"> Understand course format, course objectives, instructor expectations and student responsibilities.
II.	<p>Review of Facility Management Principles with regard to Space Planning</p> <ul style="list-style-type: none"> Summarize the role of the facility manager in planning processes. Demonstrate how facility planning process fits into the overall facility management process. Identify major facility planning functions.
III.	<p>Overview of Principles of Space Management</p> <ul style="list-style-type: none"> Summarize change in the workplace. Recall trends in buildings in past 25 years. Describe parameters of a facility database. Illustrate the principles of strategic planning. Describe space management tactics.
IV.	<p>Review of the History of the American Office Environment</p> <ul style="list-style-type: none"> Describe the development of work environments, equipment and corporate culture. Explain the relationship between physical environment and work culture through history. Explore changing trends in space planning.
V.	<p>Understanding Working Styles</p> <ul style="list-style-type: none"> Administer the Myers-Briggs Type Indicator Interpret the Myers-Briggs Type Indicator to understand working styles and the complexity of corporate culture and team structure.
VI.	<p>Planning Methodologies: Definition, Analysis, Interpretation</p> <ul style="list-style-type: none"> Identify problems and project requirements. Demonstrate quantitative and qualitative analysis of information.

	<ul style="list-style-type: none"> Analyze and interpret data.
VII.	Overview of Space Inventory <ul style="list-style-type: none"> Describe the benefits and reasons for inventory. Demonstrate the use of a facility database for inventory purposes. Identify furniture inventory databases.
VIII.	Overview of Space Forecasting <ul style="list-style-type: none"> Analyze space requirements. Identify forecasting methods. Summarize forecasting principles. Describe strategic space management.
IX.	Overview of Strategic Planning <ul style="list-style-type: none"> Examine existing space configuration of a real-world client Develop a strategic plan
X.	Programming <ul style="list-style-type: none"> Apply interviewing and observation processes. Develop space planning program.
XI.	Relationship of Space Planning to Design <ul style="list-style-type: none"> Explore the relationship of the space plan to design. Demonstrate an understanding of the relationship of the space planning process to the design process. Describe the interconnectedness of space planning and design responsibilities.
XII.	Standards <ul style="list-style-type: none"> Differentiate between corporate standards and industry standards. Describe how to develop standards, the purpose of standards, and how to document standards.
XIII.	Adjacencies / Blocking / Stacking <ul style="list-style-type: none"> Apply principles of functional adjacencies Interpret adjacencies in horizontal and vertical relationships Depict graphically blocking and stacking relationships
XIV.	Furniture Systems <ul style="list-style-type: none"> Integrate a diversity of furniture systems into space plans. Visualize the component structure of furniture systems. Analyze furniture quality vs. cost to demonstrate the value of quality furniture systems to the facility manager. Explain the relationship between furniture systems and inventories. Develop furniture layouts using manufacturer websites and CAD files
XV.	Presentations <ul style="list-style-type: none"> Develop graphic and verbal presentation skills. Develop appropriate presentations for various groups: management, users, designers, peers. Demonstrate use/non-use of jargon. Explain importance of documentation for later use.

XVI.	Field Trips
XVII.	Evaluation

Learning Outcomes for Each Studio: <i>(Note: Roman Numerals correspond with those in Units of Instruction Section)</i> Students will participate in the following studio activities:	
V.	Understanding Working Styles <ul style="list-style-type: none"> • Interact with classmates demonstrating different work styles • Demonstrate problem-solving skills among groups with disparate working styles.
VI.	Planning Methodologies: Definition, Analysis, Interpretation <ul style="list-style-type: none"> • Create a model corporate identity • Interview classmate/clients to understand their model corporate identities • Assist classmate/clients in defining corporate culture of corporate identities • Interview classmate/clients to define proposed space planning projects and ascertain needs • Develop space plans to serve needs of classmate/clients • Present space plans demonstrating professional graphic and oral presentation techniques
X.	Programming <ul style="list-style-type: none"> • Develop a design program based on classmate/client needs for a model corporate identity that integrates space requirements, furniture requirements and additional amenities • Communicate student/client needs for a model corporate identity to a classmate/designer explaining space requirements, furniture requirements and additional amenities • Document programmatic requirements of client/classmates in written form
XIII.	Adjacencies / Blocking / Stacking <ul style="list-style-type: none"> • Evaluate space adjacencies in a real-world building • Create space adjacencies to meet changing needs in a real-world building • Create blocking relationships that comply with client requirements • Create stacking relationships that comply with client requirements
XV.	Presentations <ul style="list-style-type: none"> • Produce professional quality graphic presentations the demonstrate understanding of space planning conventions • Present space planning projects orally, demonstrating knowledge of project complexity and standards of professional behavior
XVI.	Field Trips <ul style="list-style-type: none"> • Visit furniture manufacturers to retain awareness of current products • Evaluate diverse product lines to determine potential applications • Examine products in detail to understand quality assessment, material use and design options

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b. Term Effective (6 digit code only): Examples: 200801(Spring), 200805(Summer), 200808(Fall)
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix b. Number c. Enter Contact Hours per week in boxes.
LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title:

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

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LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title: (Limit to 30 characters/spaces.)

e. College Code: f. Department Code:

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: Variable Fixed h. Maximum Credit Hours i. Minimum Credit Hours

j. May Be Repeated for Added Credit: Check (x) Yes No

k. Levels: Check (x) Undergraduate Graduate Professional

l. Grade Method: Check (x) Normal Grading Credit/No Credit only (Pass/Fail)

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n. Term(s) Offered: (See instructions for listing.) o. Max. Section Enrollment:

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces.

UCS Chair Signature/Date:

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**FERRIS STATE UNIVERSITY
COLLEGE OF ENGINEERING TECHNOLOGY
ARCHITECTURE AND FACILITY MANAGEMENT
COURSE OUTLINE: FMAN 331**

Course Title:	Facility Programming and the Design Process
Course Description:	Course will enable students to understand the role of the facility manager in working with organizations and the users of space to identify facility related needs and present them to design professionals. Students will also learn the facility manager's role in strategic planning, facilitating the organization's business plan, and working with outside consultants to develop facilities.
Credit Hours:	3
Contact Hours:	2 lecture hours + 2 studio hours
Prerequisite:	FMAN 321 or instructor permission

Student Learning Outcomes:

Students satisfactorily completing this course will achieve proficiency in:

1. Understanding the purpose of facility programming, how it differs from architectural programming, and its role in enabling the development of successful spaces.
2. Understanding how facility programming supports the organization's business goals.
3. Performing the research and data collection necessary to identify the issues and goals necessary for successful space development.
4. Organizing the facility program into a cohesive and operational design tool.
5. Utilizing the facility and architectural programs to evaluate design options as well as functioning spaces.
6. Demonstrating effective communication in the following areas: writing, speaking, presentations, and small group interaction.

Units of Instruction:		Time Weight:	
		Lecture	Studio
I.	Course Introduction	1	
II.	Facility Management Principles & Relationship to Programming and Design Management	1	
III.	Facility Programming and its Relationship to the Organization's Business Goals	1	
IV.	The Facility Programming Process	1	
V.	Facility Programming Goals	1	2
VI.	Human-Environment Relationships	2	2

VII.	Research Principles	3	2
VIII.	Data Sources	2	2
IX.	Data Collection Methodologies	4	4
X.	Post-Occupancy Evaluation	1	
XI.	Statistics	1	2
XII.	Graphic Methodologies	1	2
XIII.	Writing the Facility Program	2	4
XIV.	Presentation	1	2
XV.	Architectural Programming Process	1	
XVI.	Architectural Programming Goals	1	2
XVII.	Writing the Architectural Program	1	6
XVIII.	Site Selection	1	
XIX.	Evaluation of Site Plan	1	
XX.	Evaluation of Architectural Design	1	
XXI.	Evaluation	2	
Subtotals:		30	30
Total Hours:		60	

Learning Outcomes for each Unit of Instruction:	
Upon completion of each instructional unit, the learner will:	
I.	<p>Course Introduction</p> <ul style="list-style-type: none"> Understand course format, grading criteria and methods, class procedures, etc. Understand purpose of programming process.
II.	<p>Facility Management Principles & Relationship to Programming and Design Management</p> <ul style="list-style-type: none"> Explain role of facility manager in planning process. Explain how facility planning process fits into the overall facility management process. Summarize major facility planning functions.
III.	<p>Facility Programming and its Relationship to the Organization's Business Goals</p> <ul style="list-style-type: none"> Explain the role of the facility manager in providing facilities which meet the needs of an organization. Summarize how facility programming relates to general business goals.
IV.	<p>The Facility Programming Process</p> <ul style="list-style-type: none"> Explain the purpose of the facility program: problem identification. Explain the relationship between the facility program and the mission statement, the business plan, and the master plan. Form a facility programming team. Explain the difference between facility programming and architectural programming. Summarize the design process and how the facility programming process relates to it. Explain the relationship and difference between facility programming and

	<p>design.</p> <ul style="list-style-type: none"> • Explain the relationship between facility programming and post-occupancy evaluation.
V.	<p>Facility Programming Goals</p> <ul style="list-style-type: none"> • Summarize the purpose of the facility programming process: defining the design problem . . . describing the optimal design solution . . . satisfying the needs of client and users. • Analyze the physical needs of the organization and understand the relationship between these needs and budgetary considerations and time constraints faced by the organization. • Organize and communicate information orally and verbally to the design team as well as the organization’s management. • Identify sustainability goals at the programming level to ensure an environmentally sensitive facility.
VI.	<p>Human/Environment Relationships</p> <ul style="list-style-type: none"> • Explain how man’s environment affects behavior. • Summarize the various aspects of the environment: wants and needs, human factors, perceived vs. actual conditions, territoriality, personalization, proximity, cultural context of space. • Observe and document human/environment relationships.
VII.	<p>Research Principles</p> <ul style="list-style-type: none"> • Apply and adapt research methodology and apply to facility programming. • Explain the difference between hypotheses, theses, and theories. • Understand the purpose and methods of empirical testing and demonstrate its appropriate use. • Know the “players” in environmental research: subject, setting, behavior, and researcher; and design research to solicit input from these groups.
VIII.	<p>Data Sources</p> <ul style="list-style-type: none"> • Understand the difference between hard and soft data and design research to utilize appropriate methodologies to collect such data. <ul style="list-style-type: none"> ○ Hard Data = Measurable: temperature, cost, etc. Business data, location data, facility data ○ Soft Data = Non-measurable: preferences, feelings, etc. Use of space, human factors. • Be able to identify required data and sources of data (existing, pre-existing sample groups).
IX.	<p>Data Collection Methodologies</p> <ul style="list-style-type: none"> • Summarize the various data collection methodologies: observation, interviews, questionnaires, archives, graphics, and simulation. • Explain the advantages and disadvantages of the various methodologies. • Apply these methodologies to a practical space analysis problem.
X.	<p>Post-Occupancy Evaluation</p> <ul style="list-style-type: none"> • Explain the theory of POE.

	<ul style="list-style-type: none"> • Explain the relationship between POE and facility programming.
XI.	Statistics <ul style="list-style-type: none"> • Use basic statistical concepts: mean, median, mode, sample, range, probability, confidence, correlation; and use them to summarize the results of research. • Use statistics to document aspects of the facility program.
XII.	Graphic Methodologies <ul style="list-style-type: none"> • Use graphic methods to communicate facility programming information. • Demonstrate an understanding of the importance of graphic methods such as charts, graphs, and matrices when communicating with designers as well as management,
XIII.	Writing the Facility Program <ul style="list-style-type: none"> • Explain and demonstrate the use of Project Mission Statement, Issues, Goals, Performance Requirements, and Concepts as related to the Facility Program. • Integrate skills developed throughout course to document the needs of an organization and present those needs in a concise manner as a design problem.
XIV.	Presentation <ul style="list-style-type: none"> • Develop professional graphic and verbal presentation skills. • Adapt presentation to provide appropriate content for various groups: management, users, designers, peers. • Demonstrate proper use/non-use of jargon. • Demonstrate methodical program documentation.
XV.	Architectural Programming Process <ul style="list-style-type: none"> • Explain the relationship of architectural programming to facility programming. • Summarize the importance of working closely with designers to insure the architectural program addresses the issues identified in the facility program.
XVI.	Architectural Programming Goals <ul style="list-style-type: none"> • Address the goals of the designer in the architectural programming process: attributes of materials and systems, adjacencies, configurations, etc. which will facilitate achieving the goals set forth in the facility program.
XVII.	Writing the Architectural Program <ul style="list-style-type: none"> • Demonstrate collaborative skills in writing the architectural program. • Integrate skills developed throughout course to document possible design solutions which satisfy the needs of an organization.
XVIII.	Site Selection <ul style="list-style-type: none"> • Explain the basic considerations in site selection: location, utilities, transportation, size, future use development, government and environmental regulations, zoning, building codes, education levels of workers, salaries, geology, geography, investment value, etc. • Summarize of the economics of site selection: own or lease, financial considerations.
XIX.	Evaluation of Site Plan <ul style="list-style-type: none"> • Explain and apply considerations for evaluating site development plans: sensitivity to geographic and climatic features, logical and orderly circulation,

	views from site, master plan of site, future expansion.
XX.	<p>Evaluation of Architectural Design</p> <ul style="list-style-type: none"> • Develop ability to “read” the drawings and specifications to insure that the design is consistent with the facility and architectural programs. • Analyze implications of various design options such as materials and systems on maintenance and lifetime costs. • Evaluate aesthetic options, especially as related to the appropriateness of various designs in relationship to corporate image. • Explain limitations in personally evaluating aesthetics.
XXI.	Evaluation

Learning Outcomes for Each Studio:	
<i>(Note: Roman Numerals correspond with those in Units of Instruction Section)</i>	
Students will participate in the following studio activities:	
V.	<p>Facility Programming Goals</p> <ul style="list-style-type: none"> • Students will demonstrate understanding of the purpose of the Facility Programming process by designing a programming process that solicits user input. • Students will demonstrate understanding of the purpose of the Facility Program by developing a Facility Program that communicates user needs at a performance level. • Students will select an appropriate Facility Programming model and apply it to the development of a program.
VI.	<p>Human-Environment Relationships</p> <ul style="list-style-type: none"> • Students will know the human factors and base research on them. • Students will develop an understanding of how the Human and Built Environment interact and apply this knowledge in their collection and interpretation of user input. • Students will use appropriate data collection methodologies (IE. Literature search, Observation, Survey, Interview) to explore how people interact in a specific environment.
VII.	<p>Research Principles</p> <ul style="list-style-type: none"> • Students will develop a hypothesis around which to design research methodologies to better understand human/environment interaction in a specific environment. • Students will design a research plan that utilizes appropriate methods to collect the data necessary to define the spatial needs of facility users. • Students will identify data as objective or subjective.
VIII.	<p>Data Sources</p> <ul style="list-style-type: none"> • Students will identify sources of data relevant and necessary to developing a program for a specific space. Sources may include journals, books, websites, comparable facilities, people, etc. • Students will identify appropriate methodologies for the collection of each type

	of data.
IX.	Data Collection Methodologies <ul style="list-style-type: none"> • Students will develop tools (surveys, focused interviews, behavioral maps) to collect required data from each identified source. • Students will utilize multiple methods to collect subjective data.
XI.	Statistics <ul style="list-style-type: none"> • Students will use appropriate statistical methodologies to present the results of their research. • Students will use statistics to analyze and interpret research results.
XII.	Graphic Methodologies <ul style="list-style-type: none"> • Students will recognize the importance of Graphic Methodologies as communication tools and demonstrate their effective use within the program. • Students will utilize graphic methodologies (charts, graphs, schedules, etc) to communicate the results of their research. • Students will utilize graphic methodologies (plans, elevations, schedules, photos, etc) to document the environment which is the focus of their study.
XIII.	Writing the Program <ul style="list-style-type: none"> • Students will develop a Mission Statement to guide the programming and development of a specific facility at a performance level. • Students will analyze collected data and identify Program Issues based on collected data. • Students will develop Programming Goals based on the analysis of data collected during research of the spatial needs of users of a specific facility. • Students will develop Programming Goals that address organization values such as sustainability, maintainability, etc. • Students will develop Performance Requirements for Goal Statements.
XIV.	Presentation <ul style="list-style-type: none"> • Students will organize and present: documentation of space studied, research methodology, research results, and programming information into a cohesive work.
XVI.	Architectural Program Goals <ul style="list-style-type: none"> • Students will know the purpose of the Architectural Program and be able to translate performance based user needs from the Facility Program to Architectural Attributes of a design solution. IE to identify the square footage required for a classroom, vs. the number of classroom users.
XVII.	Writing Architectural Program <ul style="list-style-type: none"> • Students will demonstrate the ability to develop an Architectural Program from a Facility Program. • Students will organize program into a cohesive, attractive graphic work.

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: MODIFY AN EXISTING COURSE

Notes:

1. Complete all parts of Sections I and II; complete only those items in Section III that represent changes.
2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made (See Proposed Changes a through p below): M, O, P

b. Term Effective (6 digit code only): 201008 Examples: 200801(Spring), 200805(Summer), 200808(Fall)
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix ARCH b. Number 101 c. Enter Contact Hours per week in boxes.
LECTure 2 LAB 4 INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title: Architectural Graphics

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix b. Number c. Enter Contact Hours per week in boxes.
LECTure LAB INDEpendent Study – Check (x)
Practicum: Seminar:

d. Course Title: (Limit to 30 characters/spaces.)

e. College Code: f. Department Code:

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: Variable Fixed h. Maximum Credit Hours i. Minimum Credit Hours

j. May Be Repeated for Added Credit: Check (x) Yes No

k. Levels: Check (x) Undergraduate Graduate Professional

l. Grade Method: Check (x) Normal Grading Credit/No Credit only (Pass/Fail)

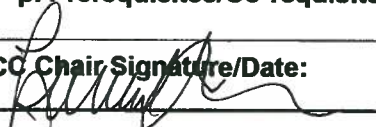
m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.

A foundation in the graphic methods used to plan and present buildings. Hard line and sketching techniques will be used to develop orthographic, axonometric, pictorial, and modeled representations of buildings. Emphasis will be placed on drawing layout, graphic communication, and visual enhancement.

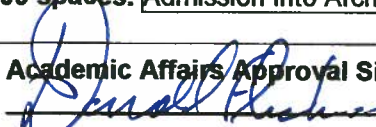
n. Term(s) Offered: Fall (See instructions for listing.) o. Max. Section Enrollment: 20

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces. Admission into Architecture program.

UCC Chair Signature/Date:

 3/1/10

Academic Affairs Approval Signature/Date:

 3/3/10

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code

Basic Skill (BS) General Education (GE) Occupational Education (OC) G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ___ Date Completed: ___ Entered: SCACRSE ___ SCADETL ___ SCARRES ___ SCAPREQ ___

**FERRIS STATE UNIVERSITY
COLLEGE OF ENGINEERING TECHNOLOGY
ARCHITECTURE AND FACILITY MANAGEMENT
COURSE OUTLINE: ARCH 101**

Course Outline:	Architectural Graphics
Course Description:	A foundation in the graphic methods used to plan and present buildings. Hard line and sketching techniques will be used to develop orthographic, axonometric, pictorial, and modeled representations of buildings. Emphasis will be placed on drawing layout, graphic communication, and visual enhancement.
Credit Hours:	3
Contact Hours:	2 lecture hours + 4 studio hours
Prerequisite:	Admission into architecture program

Student Learning Outcomes:

Students satisfactorily completing this course will be able to:

1. Demonstrate and apply freehand techniques of visual communication.
2. Demonstrate and apply hard line techniques of visual communication.
3. Construct precise architectural models.
4. Create and visually communicate effective use of color and entourage in presentation graphics.
5. Demonstrate understanding of and apply basic digital presentation techniques.
6. Create an architectural presentation demonstrating effective visual communication graphics.

Units of Instruction:		Time Weight:	
		Lecture	Studio
I.	Introduction	1	0
II.	Equipment Use	2	2
III.	Lettering	2	2
IV.	Graphic Theory and Techniques	2	4
V.	Orthographic Projection	2	8
VI.	Axonometric	2	6
VII.	Pictorial/Perspective	2	6
VIII.	Model Making	2	6

IX.	Color Studies	2	4
X.	Entourage	2	4
XI.	Architectural Sketching	2	6
XII.	Presentation Drawing Theory and Techniques	2	2
XIII.	Digital Presentation Theory and Techniques	5	10
XIV.	Evaluation	2	0
Subtotals:		30	60
Totals:		90	

Learning Outcomes for each Instructional Unit:	
Upon completion of each instructional unit, the learner will be able to satisfactorily:	
I.	<p>Introduction</p> <p>A. State course format, course objectives, instructor expectations and student responsibilities.</p> <p>B. Identify relationship of course content with concurrent and future coursework.</p> <p>C. Describe the role of architect within the integrated building team.</p>
II.	<p>Equipment Use</p> <p>A. Demonstrate the proper use of drawing equipment.</p> <p>B. Demonstrate the use of architectural scale.</p>
III.	<p>Lettering</p> <p>A. Identify acceptable "architectural lettering" principles.</p> <p>B. Demonstrate proper use of lettering: size, weight, style, and spacing.</p> <p>C. Develop an acceptable architectural lettering style.</p>
IV.	<p>Graphic Theory and Techniques</p> <p>A. Organize and compose drawings.</p> <p>B. Draw lines of appropriate weight, tone, and of a consistent thickness.</p> <p>C. Poche' drawings appropriately.</p> <p>D. Label drawings appropriately.</p> <p>E. Define the theory related to sheet and set organization.</p> <p>F. Describe the various types of drawings and their strengths and weaknesses as architectural communication tools: orthographic projection, axonometric, and perspectives.</p> <p>G. Explain the difference between presentation and working drawings and the purpose of each.</p>

V.	<p>Orthographic Projection</p> <p>A. Describe orthographic projection: true size, true shape, and true proportion.</p> <p>B. Utilize the principles of projection in developing plans, elevations, and sections of objects presented in 3-dimensional views.</p> <p>C. Visualize and draw 3-dimensional architectural objects.</p>
VI.	<p>Axonometric</p> <p>A. Describe the techniques of isometric drawing: angular setup, true scale preserved, distortion.</p> <p>B. Draw oblique drawings.</p> <p>C. Draw isometric drawings from multi-view drawings.</p> <p>D. Visualize and draw 3-dimensional architectural objects.</p>
VII.	<p>Pictorial/Perspective</p> <p>A. Describe the steps required to set up a one point perspective.</p> <p>B. Describe the steps required to set up a two point perspective.</p> <p>C. Develop a sketch utilizing the principles of one point perspective.</p> <p>D. Develop a sketch utilizing the principles of two point perspective.</p>
VIII.	<p>Model Making</p> <p>A. Demonstrate proper use of tools.</p> <p>B. Create mass models.</p> <p>C. Create simple finish models.</p>
IX.	<p>Color Studies</p> <p>A. Define the theory and use of color in presentation drawings.</p> <p>B. Demonstrate the use of color in presentation drawings.</p>
X.	<p>Entourage</p> <p>A. Define the theory of entourage in presentation drawings.</p> <p>B. Produce and draw effective entourage.</p> <p>C. Develop presentation drawings using entourage.</p>
XI.	<p>Architectural Sketching</p> <p>A. Define the purpose of sketching relative to architectural drawing.</p> <p>B. Demonstrate the use of sketching to organize drawings and communicate architectural concepts.</p> <p>C. Demonstrate the use of construction sketching in the field.</p> <p>D. Explain the role of perspective sketching as an architectural graphic tool.</p> <p>E. Define the theory of one and two point perspective and demonstrate these methods in sketch format.</p> <p>F. Describe the various terms used in perspective drawing: vanishing point, picture plane, horizon line, ground line, etc.</p>
XII.	<p>Presentation Drawing Theory and Techniques</p> <p>A. Integrate entourage, poche' techniques, and color in orthographic and</p>

	<p>axonometric drawings.</p> <p>B. Produce a professional quality presentation.</p>
XIII.	<p>Digital Presentation Theory and Techniques</p> <p>A. Utilize a variety of 3D software.</p> <p>B. Produce digital models.</p> <p>C. Develop digital presentations.</p> <p>D. Produce a professional quality architectural presentation.</p>
XIV.	Evaluation

<p>Learning Outcomes for Each Studio: <i>(Note: Roman Numerals correspond with those in Units of Instruction Section)</i> Students will participate in the following studio activities:</p>	
II.	<p>Equipment use</p> <p>A. Demonstrate the proper use of drawing equipment.</p> <p>B. Demonstrate the use of architectural scale.</p>
III.	<p>Lettering</p> <p>A. Demonstrate proper use of lettering: size, weight, style, and spacing.</p> <p>B. Develop an acceptable architectural lettering style.</p>
IV.	<p>Graphic Theory and Techniques</p> <p>A. Organize and compose drawings.</p> <p>B. Draw lines of appropriate weight, tone, and of a consistent thickness.</p> <p>C. Apply appropriate Poche to drawings.</p> <p>D. Label drawings appropriately.</p>
V.	<p>Orthographic Projection</p> <p>A. Utilize the principles of projection in developing plans, elevations, and sections of objects presented in 3-dimensional views.</p> <p>B. Visualize and draw 3-dimensional architectural objects.</p>
VI.	<p>Axonometric</p> <p>A. Draw oblique drawings.</p> <p>B. Draw isometric drawings from multi-view drawings.</p> <p>C. Visualize and draw 3-dimensional architectural objects.</p>
VII.	<p>Pictorial/Perspective</p> <p>A. Develop a sketch utilizing the principles of one point perspective.</p> <p>B. Develop a sketch utilizing the principles of two point perspective.</p>
VIII.	<p>Model Making</p> <p>A. Create mass models.</p> <p>B. Create simple finish models.</p>

IX.	Color Studies A. Demonstrate the use of color in presentation drawings.
X.	Entourage A. Produce and draw effective entourage. B. Develop presentation drawings using entourage.
XI.	Architectural Sketching A. Demonstrate the use of sketching to organize drawings and communicate architectural concepts. B. Demonstrate the use of construction sketching in the field.
XII.	Presentation Drawing Theory and Techniques A. Produce a professional quality presentation.
XIII.	Digital Presentation Theory and Techniques A. Utilize a variety of 3D software. B. Produce digital models. C. Develop digital presentations. D. Produce a professional quality architectural presentation.