



**1. Proposal Summary**

In an effort to respond to student career goals, higher enrollment and retention within the AT program and to provide a comprehensive academic experience for the students, we wish to add a new architectural elective to the program: ARCH 246 - Twentieth Century Architecture. The course will provide students the opportunity to fulfill their required architectural elective and continue their study of architectural history for transfer to an accredited architectural design program. Each year the percentage of students who transfer to a baccalaureate architectural design program increases. The offering of this course will better prepare those students and provide added transfer opportunities. With the recent addition of Dane Johnson to the faculty group, along with his many years of teaching this subject at Lawrence Technological University, we believe the offering of this course will greatly benefit the students. During the spring semester of 2008 the course ran as an experimental course with great success.

During the fall of 2006, in response to Dr. Michael Harris' concern regarding programs that exceeded 64 credit hours, an approved curriculum submittal to reduce the credit and contact hours of two architectural electives was implemented. Since that time we have found these 2-credit hour (1+2) classes to be problematic in terms of transferability to other universities. In addition the reduction in time has impacted the quality of instruction and learning in the classroom. As such we are requesting that the classes be restored to their original configuration of 3 credit hours (2+2). The total number of credit hours for completion of the degree will increase from 64 to 65.

Additionally the content of ARCH 270 has been modified to embrace emerging technology within the architectural, facility management and construction management professions. Building Information Modeling is a major paradigm shift in the design of buildings. Utilizing the latest in virtual modeling software, ARCH 270 will integrate that shift and incorporate content, skills and knowledge in mass modeling and virtual construction of a building and site.

**2. Summary of All Course Action Required\***

**a. Newly Created Courses to FSU:**

Prefix	Number	Title
ARCH	246	Twentieth Century Architecture

**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
ARCH	270	CAD Modeling and Rendering in Architecture
ARCH	285	House: The American Evolution

**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
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\*Contact Senate Secretary or UCC Chair if spaces for additional courses are needed.

## FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. All returned forms should be included in the proposal. **FLITE must respond within 20 calendar days of receipt of this form to insure that the form is included in the final proposal.**

**FAILURE TO RESPOND IS CONSIDERED AS SUPPORT OF THE CHANGE.**

**RE: Proposal Title:** Minor Curriculum Clean-up – Architectural Technology

**Projected number of students per year affected by proposed change:** 40

**Initiator(s):** Diane Nagelkirk, Dept. Chair

**Proposal Contact:** Diane Nagelkirk, Dept. Chair Date Sent: 3-16-09

**Department:** Architectural Technology/Facility Management **Campus Address:** Swan 312  
(Please print)

**Liaison Librarian Signature:** Francesca Rosen **Date:** 3/16/09

**Dean of FLITE Signature:** Deborah M. Monaghan **Date Returned:** 3-17-09

Based upon our review on 3/16/09 (date), FLITE concludes that:

- Library resources to support the proposed curriculum change are currently available.
- Additional Library resources are needed but can be obtained from current funds.
- Support, but significant additional Library funds/resources are required in the amount of \$\_\_\_\_\_.
- Does not support the proposal for reasons listed below.

**Comment regarding the impact this proposal will have on library resources, collection development, programs, etc. Use additional pages if necessary.**

## NEW COURSE INFORMATION FORM

### Course Identification:

<b>Prefix:</b>	<b>Number</b>	<b>Title</b>
ARCH	246	Twentieth Century Architecture

### Course Description:

An investigation of the primary styles and movements in American and European architecture from the late 19<sup>th</sup> century to the late 20<sup>th</sup> century. The course will examine cultural and architectural changes wrought by the Industrial Revolution and responses to them through the Arts and Crafts Movement, the impact of the world wars, the International Style and Modernism, as well as the development of Post-Modern and Deconstructivist architectural theories.

### Course Outcomes and Assessment Plan:

1. Students will achieve an understanding of the political, technological and cultural forces that shaped architecture through the twentieth century.
2. Students will be able to identify major landmarks of modern architecture.
3. Students will demonstrate an ability to think critically about their environment and place modern buildings into an appropriate historical and architectural context.
4. Students will recall in writing the major philosophical and technological trends of twentieth century architecture.

### Course Outline including Time Allocation:

Units of Instruction:		Time Weight:
		Lecture
I.	Course Introduction	2
II.	Frank Lloyd Wright 1880-1915	3
III.	The Arts and Crafts Movement	3
IV.	Emerging Movements in Europe	3
V.	The Deutscher Werkbund	1
VI.	The Bauhaus	3
VII.	Mies van der Rohe 1900-1930	2
VIII.	Le Corbusier 1910-1930	2
IX.	Architecture of the Third Reich	2
X.	The International Style	2
XI.	Art Deco Architecture and Design	1
XII.	The American Skyscraper	2
XIII.	The Master Builders: Frank Lloyd Wright	2
XIV.	The Master Builders: Mies van der Rohe	1
XV.	The Master Builders: Le Corbusier	1
XVI.	Modernism	3
XVII.	Louis Kahn	2
XVIII.	Robert Venturi and the Emergence of Post-Modernism	2
XIX.	Post-Modernism in the Mainstream	3
XX.	The Emergence of Chaos	2
XXI.	Evaluation	3
<b>Total Hours:</b>		<b>45</b>



Associate of Applied Science Degree

# Architectural Technology

Program Academic Requirements

Student:						Code	Location	Crs
email:				ID:			Ferris	
Advisor:				Ph:			1	Transfer
<b>MAJOR</b>				Cr	Gr	Pts	S	Yr
ARCH	101	Architectural Graphics		3				
ARCH	102	Architectural Construction Documents 1 (ARCH 101, 109, 112)		4				
ARCH	109	Intro to Computer Graphics in Architecture		3				
ARCH	112	Structural Materials/Systems and Codes		4				
ARCH	115	Interior & Exterior Finishes & Systems (ARCH 112)		3				
ARCH	203	Architectural Construction Detailing (ARCH 102, 112, 115)		4				
ARCH	204	Architectural Construction Documents 2 (ARCH 203, 223 or permission)		4				
ARCH	216	Professional Practice (Sophomore Standing)		2				
ARCH	223	Statics and Structure (ARCH 112, MATH 116, PHYS 211)		3				
ARCH	241	Design Fundamentals (ARCH 244 or permission)		3				
ARCH	250	Systems Cost Estimating (ARCH 102, MATH 116 or permission)		3				
		Architectural Directed Elective - See list below		2				
<b>DIRECTED ELECTIVES - For Laddering into Facility Management</b>								
ARCH	270	Adv Usage of CAD in Arch (ARCH 109 or permission)		2				
ARCH	285	House-The American Evolution (ARCH 102, 241, 244)		2				
FMAN	321	Principles of Facility Management		3				
<b>DIRECTED ELECTIVES - For Laddering into Construction Management</b>								
CONM	122	Construction Surveying		3				
CONM	212	Soils and Foundations (ARCH 244)		3				
CONM	222	Construction Administration		3				
<b>TECHNICAL RELATED</b>								
HVAC	337	Mech. & Electrical Systems for Buildings (PHYS 211, MATH 116)		3				
<b>COMMUNICATIONS COMPETENCE</b>								
ENGL	150	English 1 (ACT 14 or ENGL 074)		3				
ENGL	250	English 2 (ENGL 150)		3				
COMM	105	Interpersonal Communication OR		3				
COMM	121	Fundamentals of Public Speaking						
<b>QUANTITATIVE</b>								
MATH	116	Intermediate Algebra & Numerical Trig (ACT 19 or C- in MATH 110)		4				
<b>SCIENTIFIC UNDERSTANDING</b>								
PHYS	211	Introductory Physics (MATH 116 or 120 or 26 ACT)		3				
<b>CULTURAL ENRICHMENT</b>								
ARCH	244	Historical Developmental of Western Architecture		3				
<b>SOCIAL AWARENESS</b>								
SOCY	121	Introductory Sociology		3				
<b>FRESHMEN SEMINAR</b>								
FSUS	100	Freshmen Seminar		1				
<b>Unofficial Statistics</b>								
Major: Total Crs / Earned Crs / Honor Points				38				
Degree: Total Crs / Earned Crs / Honor Points				64				
GPA Major:				-				
GPA Degree:				-				

**AAS Minimum General Education Requirements**

Cultural Enrichment (CE) -- 3 credits; Social Awareness (SA) - 3 credits; Communications - 6 credits; Scientific Understanding - 3/4 credits;

Reference: [http://www.ferris.edu/htmls/academics/gened/gen\\_edspecific.htm](http://www.ferris.edu/htmls/academics/gened/gen_edspecific.htm)

Contact the Architectural Technology and Facility Management Department for more information!

Phone: 231-591-3100

Email: [atfm@ferris.edu](mailto:atfm@ferris.edu)



Associate of Applied Science Degree

# Architectural Technology

Course Sequence Guide

Student:			
Email:		ID:	
Advisor:		Ph:	

YEAR 1 - FALL SEMESTER				Crs	Gr
ARCH	101	Architectural Graphics		3	
ARCH	109	Intro to Computer Graphics in Architecture		3	
ARCH	112	Structural Materials/Systems and Codes		4	
ENGL	150	English 1 (ACT 14 or ENGL 074)		3	
MATH	116	Intermediate Algebra & Numerical Trlg (ACT 19 or C- in MATH 110)		4	
FSUS	100	Freshmen Seminar		1	
				<b>Total</b>	<b>18</b>

YEAR 1 - SPRING SEMESTER				Crs	Gr
ARCH	102	Architectural Construction Documents 1 (ARCH 101, 109, 112)		4	
ARCH	115	Interior & Exterior Finishes & Systems (ARCH 112)		3	
ARCH	244	Historical Developmental of Western Architecture		3	
COMM	105	Interpersonal Communication (3cr) OR		3	
COMM	121	Fundamentals of Public Speaking (3cr)			
PHYS	211	Introductory Physics (MATH 116 or 120 or 26 ACT)		3	
				<b>Total</b>	<b>16</b>

YEAR 2 - FALL SEMESTER				Crs	Gr
ARCH	203	Architectural Construction Detailing (ARCH 102, 112, 115)		4	
ARCH	223	Statics and Structure (ARCH 112, MATH 116, PHYS 211)		3	
ARCH	241	Design Fundamentals (ARCH 244 or permission)		3	
HVAC	337	Mech. & Electrical Systems for Buildings (PHYS 211, MATH 116)		3	
ENGL	250	English 2 (ENGL 150)		3	
				<b>Total</b>	<b>16</b>

YEAR 2 - SPRING SEMESTER				Crs	Gr
ARCH	204	Architectural Construction Documents 2 (ARCH 203, 223 or permission))		4	
ARCH	216	Professional Practice (Sophomore Standing)		2	
ARCH	250	Systems Cost Estimating (ARCH 102, MATH 116 or permission)		3	
		Architectural Directed Elective - See list below		2	
SOCY	121	Introductory Sociology		3	
				<b>Total</b>	<b>14</b>

See Back of Sheet for Elective Options for BS Programs in Facility Management or Construction Management.  
Submit Application for Graduation.


Contact the Architectural Technology and Facility Management Department for more information!  
Phone: 231-591-3100  
Email: atfm@ferris.edu  
www.ferris.edu/atfm

**ASSOCIATE OF APPLIED SCIENCE IN ARCHITECTURAL TECHNOLOGY**  
**Proposed Curriculum Guide Sheet**  
**FALL 2009**  
**Total credits = 65**

**First Year – Fall Semester (17 semester hours)**

ARCH 101	Architectural Graphics	(2+4)	3
ARCH 109	Intro. to Computer Graphics in Architecture	(2+4)	3
ARCH 112	Structural Materials/Systems & Codes	(3+2)	4
ENGL 150	English 1	(3+0)	3
MATH 116	Intermediate Algebra/Numerical Trigonometry	(4+0)	4
FSUS 100	FSU Seminar		

**First Year – Winter Semester (17 semester hours)**

ARCH 102	Architectural Construction Doc. 1 (ARCH 101, 109, 112)	(2+6)	4
ARCH 115	Interior & Exterior Finishes & Systems (ARCH 112)	(3+0)	3
ARCH 244	Historical Development of Western Architecture	(3+0)	3
COMM 105	Interpersonal Communication <b>OR</b>		
COMM 121	Fundamentals of Public Speaking	(3+0)	3
PHYS 211	Introductory Physics 1 (MATH 116 or ACT 26)	(3+3)	4

**Second Year – Fall Semester (16 semester hours)**

ARCH 203	Architectural Construction Detailing (ARCH 102, 112, 115)	(2+6)	4
ARCH 223	Statics & Structures (ARCH 112, MATH 116, PHYS 211)	(3+0)	3
ARCH 241	Design Fundamentals (ARCH 244 or permission)	(2+2)	3
ENGL 250	English 2 (ENGL 150)	(3+0)	3
HVAC 337	Mechanical and Electrical Systems for Buildings	(3+0)	3

**Second Year – Winter Semester (15 semester hours)**

ARCH 204	Architectural Construction Doc. 2 (ARCH 203, 223)	(2+6)	4
ARCH 216	Professional Practice (sophomore standing)	(2+0)	2
ARCH 250	Systems Cost Estimating (ARCH 102, MATH 116 or permission)	(2+2)	3
	Architectural Elective		3
SOCY 121	Introduction to Sociology	(3+0)	3

**Architectural Electives:**

ARCH 246	Twentieth Century Architecture (ARCH 244)	(3+0)	3
ARCH 270	Building Information Modeling (ARCH 102, 112, 115)	(2+2)	3
ARCH 285	House: The American Evolution (ARCH 102, 241, 244)	(2+2)	3
CONM 122	Construction Surveying and Layout (MATH 116)	(2+3)	3
CONM 212	Soils and Foundations (MATH 116)	(2+3)	3
CONM 222	Construction Administration (MATH 116)	(3+0)	3

**CREATE NEW COURSE**  
Course Data Entry Form

**FORM F**

Create New Course  
Rev. 07/23/07

**I. ACTION TO BE TAKEN: CREATE A NEW COURSE**

Notes

1. Complete each item in Section I and Section II.
2. If this course is to be used as a prerequisite for other university courses, Form Fs that reflect the prerequisite change must be submitted for those courses as well.

Term Effective (6 digit code only): 200901 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. PROPOSED FOR NEW COURSE: Complete all sections a through r. See manual for clarification.**

a. Course Prefix

ARCH

b. Number

246

c. Enter Contact Hours per week in boxes.

LECTure 3

LAB

INDEpendent Study – Check (x)

Practicum:

Seminar:

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

e. College Code: TE

f. Department Code: ATFM

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

g. Type:  Variable  Fixed h. Minimum Credit Hours 3 i. Maximum Credit Hours 3

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. Does proposed new course replace an equivalent course? Check (x)  Yes  No

n. Equivalent course: Prefix  Number  See instructions on Replacement courses.

**o. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.**

An investigation of the primary styles and movements in American and European architecture from the late 19<sup>th</sup> century to the late 20<sup>th</sup> century. The course will examine cultural and architectural changes wrought by the Industrial Revolution and responses to them through the Arts and Crafts Movement, the impact of the world wars, the International Style and Modernism, as well as the development of Post-Modern and Deconstructivist architectural theories.

p. Term(s) Offered:  (See instructions for listing.) q. Max. Section Enrollment: 30

r. Prerequisites/Co-requisites/Restrictions: (If none, leave blank.) Limited to 100 spaces. Prerequisite:

ARCH 244.

UCC Chair Signature/Date:

 3/17/09

Academic Affairs Approval Signature/Date:

 4/12/09

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 \_\_\_

**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): Change credit and contact hours.

b. Term Effective (6 digit code only): 200901 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 285      c. Enter Contact Hours per week in boxes.  
LECTure 1      LAB 2      INDEpendent Study – Check (x)   
Practicum:       Seminar:

d. Course Title: CAD Modeling and Rendering in Architecture

**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 2      LAB 2      INDEpendent Study – Check (x)   
Practicum:       Seminar:

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

e. College Code: TE      f. Department Code: ATFM

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

g. Type:  Variable    X  Fixed    h. Maximum Credit Hours 3    i. Minimum Credit Hours 3.

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

k. Levels: Check (x)  Undergraduate     Graduate     Professional

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

**m. CATALOG DESCRIPTION –**

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:

[Signature]      3/17/09

Academic Affairs Approval Signature/Date:

[Signature]      4/13/09

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 \_\_

**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): Change course title,  
description, credit and contact hours and prerequisite.

b. Term Effective (6 digit code only): 200901 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 270 c. Enter Contact Hours per week in boxes.  
LECTure  LAB  INDEpendent Study – Check (x)   
Practicum:  Seminar:

d. Course Title: CAD Modeling and Rendering in Architecture

**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: Building Information Modeling (Limit to 30 characters/spaces.)

e. College Code: TE f. Department Code: ATFM

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

g. Type:  Variable X 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** – This course will explore the utilization of Building Information Modeling (BIM) to design, present and document buildings. The philosophical implications of BIM methodology will be examined and serve as the basis for the course. Construction documents, quantity and material take-offs, and cost estimates will be generated. Photo realistic presentations in both still and walk-through form will also be explored.

n. Term(s) Offered:  (See instructions for listing.) o. Max. Section Enrollment:  16

p. Prerequisites/Co-requisites/Restrictions: ARCH 102, ARCH 112, ARCH 115 Limited to 100 spaces.

UCS Chair Signature/Date

3/17/09

Academic Affairs Approval Signature/Date:

4/2/09

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 \_\_\_ SCARRS \_\_\_ SCAPREQ \_\_\_

**FERRIS STATE UNIVERSITY  
COLLEGE OF TECHNOLOGY  
ARCHITECTURAL TECHNOLOGY AND FACILITY MANAGEMENT DEPARTMENT  
COURSE OUTLINE**

**Course Title:** ARCH 246: Twentieth Century Architecture

**Credit Hours:** 3

**Contact Hours:** 3 + 0

**Course Description:** An investigation of the primary styles and movements in American and European architecture from the late 19<sup>th</sup> century to the late 20<sup>th</sup> century. The course will examine cultural and architectural changes wrought by the Industrial Revolution and responses to them through the Arts and Crafts Movement, the impact of the world wars, the International Style and Modernism, as well as the development of Post-Modern and Deconstructivist architectural theories.

**Course Prerequisite:** ARCH 244

**Student Learning Outcomes:**

1. Students will achieve an understanding of the political, technological and cultural forces that shaped architecture through the twentieth century.
2. Students will be able to identify major landmarks of modern architecture.
3. Students will demonstrate an ability to think critically about their environment and place modern buildings into an appropriate historical and architectural context.
4. Students will recall in writing the major philosophical and technological trends of twentieth century architecture.

**Units of Instruction:**

**Time Weight:**

	<b>Lecture</b>
I. Course Introduction	2
II. Frank Lloyd Wright 1880-1915	3
III. The Arts and Crafts Movement	3
IV. Emerging Movements in Europe	3
V. The Deutscher Werkbund	1
VI. The Bauhaus	3
VII. Mies van der Rohe 1900-1930	2
VIII. Le Corbusier 1910-1930	2
IX. Architecture of the Third Reich	2
X. The International Style	2
XI. Art Deco Architecture and Design	1
XII. The American Skyscraper	2
XIII. The Master Builders: Frank Lloyd Wright	2

XIV.	The Master Builders: Mies van der Rohe	1
XV.	The Master Builders: Le Corbusier	1
XVI.	Modernism	3
XVII.	Louis Kahn	2
XVIII.	Robert Venturi and the Emergence of Post-Modernism	2
XIX.	Post-Modernism in the Mainstream	3
XX.	The Emergence of Chaos	2
XXI.	Evaluation	3
<b>Total Hours:</b>		<b>45</b>

### **Learning Outcomes for each Unit of Instruction:**

Upon completion of each instructional unit, the learner will:

- I. Course Introduction
  - Understand course goals, requirements and student responsibilities
  - Recall the major works of late 19<sup>th</sup> century architecture
- II. Frank Lloyd Wright 1880-1910
  - Identify the landmark early works of Frank Lloyd Wright
  - Recall in writing the philosophical basis of Wright's early work
  - Recall in writing the major characteristics of the Prairie House
  - Recall in writing the relationship between Wright and the Arts and Crafts Movement
- III. The Arts and Crafts Movement
  - Recall in writing the Arts and Crafts Movement as a reaction against industrialization
  - Recall in writing the relationship between Arts and Crafts principles and social and cultural reform movements in England and the United States
  - Recall in writing the Arts and Crafts goals of unifying architecture with the decorative and applied arts
  - Identify landmark works of Arts and Crafts architecture and design
- IV. Emerging Movements in Europe
  - Recall in writing the cultural revolution that took shape in Europe in the years before World War I
  - Identify the major characteristics of the Art Nouveau, Secession, Futurist and De Stijl movements
  - Recall in writing the philosophical and technological principles of Auguste Perret and Adolf Loos
- V. The Deutscher Werkbund
  - Recall in writing the relationship between German industrialism and architecture
  - Identify the landmark buildings of the Deutscher Werkbund
  - Express the relationship between the Werkbund and the field of industrial design
  - Recall in writing the Werkbund principles in response to the cultural upheaval of World War I
  - Recall in writing the relationship between the Werkbund and German traditions of apprenticeship and guilds

- VI. The Bauhaus**
- Recall in writing the emergence of the Bauhaus as the culmination of artistic movements in Europe, including Art Nouveau, the Secession and the Werkbund
  - Recall in writing the impact of the Bauhaus on education in the arts in Europe and the United States
  - Identify major works created at the Bauhaus that remain influential
  - Express in writing the relationship between the rise of Nazism and the Bauhaus
- VII. Mies van der Rohe 1900-1930**
- Recall in writing the role Mies played in defining the minimal aesthetic of 20<sup>th</sup> century architecture
  - Define the Miesian principles of “Less is More” and “God is in the details”
  - Identify the landmark early buildings of Mies van der Rohe
- VIII. Le Corbusier 1910-1930**
- Recall in writing the Five Points of a New Architecture
  - Recall in writing the relationship between mechanization and housing
  - Identify the early works of Le Corbusier
- IX. Architecture of the Third Reich**
- Express in writing an understanding of the social and political context of the rise of Hitler
  - Recall in writing the relationship between the Third Reich, the international economic depression of the 1930s, and the rise of fascism in Spain and Italy
  - Explain Hitler’s use of architecture as propaganda
  - Recall in writing the moral complexities of Albert Speer’s work as Hitler’s chief architect
  - Identify the major architectural landmarks of the Third Reich
- X. The International Style**
- Recall in writing the relationship between World War I and artistic change in Europe
  - Explain in writing the new building technologies of the International Style
  - Recall in writing the aesthetic principles of the International Style as defined by Hitchcock and Johnson
  - Identify the landmark works of International Style architecture
- XI. Art Deco**
- Recall in writing the impact of industrial imagery on architecture and decorative arts
  - Recall in writing the impact of the 1925 International Exhibition of Decorative Arts
  - Identify landmark works of Art Deco architecture and design
- XII. The American Skyscraper**
- Recall in writing the technological and aesthetic developments in skyscraper construction since 1910
  - Identify the landmark American skyscrapers
  - Recall in writing the impact of the 1922 Chicago Tribune Tower competition and the 1916 New York City zoning ordinance
- XIII. The Master Builders: Frank Lloyd Wright**
- Recall in writing the events of Wright’s personal life after 1915
  - Recall in writing the emergence of Organic Architecture as a hallmark of Wright’s

- work
  - Identify landmark works Wright's career after 1915
- XIV. The Master Builders: Mies van der Rohe
  - Recall in writing the impact of Mies van der Rohe's work in Post-World War II America
  - Recall in writing the influence of Mies on American architectural firms
  - Identify landmark works from Mies' career after 1938
- XV. The Master Builders: Le Corbusier
  - Recall in writing the impact of World War II on the work of Le Corbusier
  - Recall in writing the international religious and cultural impact of Le Corbusier's late work
  - Identify landmark works from Le Corbusier's career after 1945
- XVI. Modernism
  - Recall in writing the impact of World War II on the American economy and the architectural response thereto
  - Recall in writing the dominance of the Glass Box and the transfer of the principles and aesthetics of commercial architecture to residential architecture
  - Identify landmark works of Modernism
  - Explain in writing the transfer of the principles and aesthetics of commercial architecture to residential architecture
- XVII. Louis Kahn
  - Recall in writing the philosophical and technological basis of Kahn's work
  - Recall in writing Kahn's fusion of modernist structure and materials with philosophical richness
  - Explain in writing the relationship between drawing and construction in Kahn's work
  - Identify landmark works by Louis Kahn
- XVIII Robert Venturi and the emergence of Post-Modernism
  - Explain in writing Venturi's role in developing the principles of Post-Modernism
  - Recall in writing the impact of Venturi's *Complexity and Contradiction in Architecture*
  - Identify landmark works by Robert Venturi
- XIX. Post-Modernism in the mainstream
  - Describe in writing the nature of Post-Modernism in terms of historical allusion, reliance on Modernist ideals, and emphasis on urbanism
  - Recall in writing the philosophical failings of Post-Modernism
  - Identify landmark works of Post-Modernism
- XX. The emergence of chaos
  - Recall in writing the factors that contributed to the decline of Post-Modernism
  - Recall in writing the multiplicity of influences that shaped architecture at the end of the twentieth century
  - Identify landmark works of Deconstructivism
- XXI. Evaluation

**FERRIS STATE UNIVERSITY  
COLLEGE OF TECHNOLOGY  
ARCHITECTURAL TECHNOLOGY AND FACILITY MANAGEMENT DEPARTMENT  
COURSE OUTLINE**

Course Title: ARCH 270: Building Information Modeling

Credit Hours: 3

Contact Hours: 2 lecture hours, 2 lab hours

Course Description: This course will explore the utilization of Building Information Modeling (BIM) to design, present and document buildings. The philosophical implications of BIM methodology will be examined and serve as the basis for the course. Construction documents, quantity and material take-offs, and cost estimates will be generated. Photo realistic presentations in both still and walk-through form will also be explored.

Course Prerequisite: ARCH 102, ARCH 112, ARCH 115

**Student Learning Outcomes:**

Students satisfactorily completing this course will achieve proficiency in:

1. Understanding the role of BIM relative to the paradigm shift in design.
2. Understanding the role of BIM in having the building model generate the construction documents rather than having the construction documents generate the building.
3. Understanding how to utilize BIM software.
4. Understanding the integration of intelligence such as cost and performance into the BIM model.
5. Understanding the interface between BIM and CAD.

**Units of Instruction:**

**Time Weight:**

		Lecture	Lab
I.	Introduction to BIM	1	2
II.	Orientation to BIM software	2	2
III.	Mass modeling	2	2
IV.	Basic building modeling	2	2
V.	Editing tools	2	2
VI.	Creating views of the model	2	2
VII.	Stairs, railings, ramps, curtain walls	2	2
VIII.	Development of custom components	2	2
IX.	Basic site modeling	2	2
X.	Development of construction documents from model	2	2
XI.	Sheets, printing, annotation	2	2
XII.	Detailing and interface with external programs	2	2
XIII.	Development of quantity take-offs and other schedules	2	2
XIV.	Development of photo realistic presentations	2	4
XV.	Evaluation	3	
<b>Total Hours:</b>		<b>30</b>	<b>30</b>
		<b>60</b>	

## **Learning Outcomes for each Unit of Instruction:**

Upon completion of each instructional unit, the learner will:

- I. Introduction to BIM
  - Understand the development of BIM
  - Be aware of the national organizations involved in the development of BIM
  - Be aware of the paradigm shift in BIM and the integration of all players in the design process
  - Be aware of the legal issues of BIM
  - Be aware of interoperability issues of BIM
  - Be aware of the differences between CAD and BIM
  
- II. Orientation to BIM software
  - Be aware of the major software programs for BIM
  - Understand the major components of the Revit program
  - Understand the sequence and timing decisions of material assemblies in BIM
  - Understand how to use and develop templates
  - Understand the relationship of views in BIM
  - Understand how to import and utilize information from cad into BIM
  
- III. Mass modeling
  - Understand the concepts of solid models and voids
  - Understand how to create solids using extrusions, blends, revolve and sweep
  - Understand how to use void forms
  - Understand how to revise solids to material assemblies
  
- IV. Basic building modeling
  - Understand the relationship between levels and wall assemblies
  - Understand how to create roofs
  - Understand how to add window and door components
  
- V. Editing tools
  - Understand the basic tools to:
    - Move and copy
    - Rotate and resize
    - Create arrays
    - Mirroring objects
    - Aligning objects
    - Splitting walls and lines
    - Offsetting objects
    - Trimming and extending
  
- VI. Creating views of the model
  - Understand how the model generates:
    - Plans
    - Sections
    - Callouts

- 3d views
  - How to set the scale of views
- VII. Stairs, railings, ramps, curtain walls
  - Understand how to create stairs
  - Understand how to add and modify railings
  - Understand how to create ramps
  - Understand how to create curtain walls
  - Understand how to add and modify curtain walls
  - Understand how to attach mullions to curtain grids
- VIII. Development of custom components
  - Understand how to modify standard assemblies
  - Understand how to manage assembly views
  - Understand to add intelligence to components
- IX. Basic site modeling
  - Understand the process of creating a virtual topographic model
  - Understand how to create building pads
  - Understand how to create grading of site
  - Understand how to add site components
- X. Development of construction documents from model
  - Understand how to add annotation
  - Understand how to develop schedules from model
  - Understand how to organize information
- XI. Sheets, printing, annotation
  - Understand how to use templates
  - Understand how to create custom templates
  - Understand how sheets numbering is done
  - Understand how to create both electronic and hard copies of sheets
- XII. Detailing and interface with external programs
  - Understand how to import AutoCAD elements into Revit
  - Understand how to export Revit models to AutoCAD
  - Understand how to use the web to import model components
- XIII. Development of quantity take-offs and other schedules
  - Understand how to create quantity take-offs directly from the model
  - Understand how to set phasing of elements
  - Understand how to export quantity take-offs to excel
- XIV. Development of photo realistic presentations
  - Understand how to assign materials to objects
  - Understand how to set up lighting

- Understand how to set up environment of the model
- Understand how to create a walk-through of the model

**XV. Evaluation**

**FERRIS STATE UNIVERSITY  
COLLEGE OF TECHNOLOGY  
ARCHITECTURAL TECHNOLOGY AND FACILITY MANAGEMENT DEPARTMENT  
COURSE OUTLINE**

**Course Title:** ARCH 285: House – An American Evolution

**Credit Hours:** 3

**Contact Hours:** 2 + 2

**Course Description:** A survey of the development of various housing styles in the USA and their relationship to each other as well as social and economic developments. Students study the essence of architectural elements common in successful residential design. Students will design a house following the design conventions of the style of their choice for a given program.

**Course Prerequisite:** ARCH 102, ARCH 241, ARCH 244

**Student Learning Outcomes:**

Students satisfactorily completing this course will achieve proficiency in:

1. Understanding the European Colonial roots of American architecture and the economic, technical, cultural, and social factors that contributed to the evolution of distinct American architectural styles.
2. Understanding the motivators that have traditionally shaped residential design and the changing trends that will shape future residential design.
3. Understanding the design process as related to housing: Based on a program, a design that accommodates functional and economic needs, a design that integrates the solutions to the various needs expressed in the program.
4. Understanding how the design solution must address the site and the climate.
5. Ability to utilize conceptual methods such as matrices, bubble diagrams, etc. to analyze building requirements.
6. Knowledge of standards for design such as standard sizes of components, standards for kitchen and bath design, etc.
7. Ability to conceptualize and develop a design for a residence based on a program.
8. Ability to effectively present design concepts and solutions.

**UNITS OF INSTRUCTION:**

		<b>TIME WEIGHT</b>	
		<b>Lecture</b>	<b>Lab</b>
I.	Introduction and Orientation	2	
II.	General Introduction to American Housing	2	
III.	Overview of the Design Process as Related to Housing	4	
IV.	Overview of American Housing Styles	4	
V.	Room Design	3	6
VI.	Kitchen Design	2	6
VII.	Site Design	2	2
VIII.	The Building Program and Design	1	

IX.	Bubble Diagrams	1	2
X.	Preliminary Design	3	5
XI.	Revisions to Design	3	5
XII.	Final Development and Presentation	3	4
<b>Total Hours:</b>		<b>30</b>	<b>30</b>
		<b>60 Total</b>	

### Learning Outcomes for each Unit of Instruction:

Upon completion of each instructional unit, the learner will:

- I. Introduction and Orientation.
  - A. Understand course format and objectives.
  - B. Understand grading and attendance policy.
  - C. Understand course expectations.
  - D. Know what materials and tools will be needed for projects.
- II. General Introduction to American Housing.
  - A. Know precedents in American housing.
  - B. Understand types of housing.
  - C. Consider and discuss needs of owners at various times in American history.
  - D. Know major developments in American housing.
  - E. Understand the role of government, society, technical advancements, etc. in shaping the current housing stock.
- III. Overview of the Design Process as Related to Housing.
  - A. Understand the role of the key players: owner, contractor, and designer.
  - B. Understand how and why housing is often designed for generic users (markets) for housing.
  - C. Know the design-construction process.
  - D. Be able to compare American tastes in housing vs. other countries.
- IV. Overview of American Housing Styles.
  - A. Know roots of American housing styles.
  - B. Know attributes of and be able to identify Colonial Styles: Georgian, Adam (Federal), Classic Revival
  - C. Know attributes of and be able to identify Romantic Styles: Greek Revival, Gothic Revival, misc. revivals.
  - D. Know attributes of and be able to identify Victorian: Stick, Queen Anne, Shingle, Richardsonian Romanesque.
  - E. Know attributes of and be able to identify Eclectic: Revival styles.
  - F. Know attributes of and be able to identify 20<sup>th</sup> Century: Prairie, Craftsman, Arts and Crafts, Art Deco, International, Modern, Post-Modern.
- V. Room Design.
  - A. Know normal room dimensions and dimensions of typical parts of rooms; doors, windows, ceilings, closets, etc.
  - B. Understand the importance of furniture sizes and spacing in room design.
  - C. Understand the importance of appliance sizes and arrangements.
  - D. Be aware of room design and its impact on communication and user function.

- E. Be able to design a stair.
- F. Students will develop a number of “ideal” room and stair arrangements.
- VI. Kitchen Design.
  - A. Understand major concepts of kitchen design.
  - B. Know systems used for appliance and cabinetry dimensions and sizes.
  - C. Students will design and present an “ideal” kitchen design.
- VII. Site Design.
  - A. Know main concepts of site design.
  - B. Be aware of general dimensions of driveways, walkways, etc.
  - C. Understand the impact of zoning, site restrictions, setbacks, side lots, back lots, easements, variances, etc. and be able to design within the parameters set by them.
  - D. Know how to properly use landscaping materials to minimize negative site impacts and create outdoor spaces.
  - E. Be aware of the theory of modifying site elevations to provide appropriate grades for drives, walks, the building, etc.
  - F. Students will “develop” a site to respond to their building design.
- VIII. The Building Program and Design.
  - A. Understand the role of the program and how it is developed.
  - B. Be able to prepare a space adjacency matrix.
  - C. Students will design a residence that complies with the parameters set in the program.
- IX. Bubble Diagrams.
  - A. Understand the “Bubble Diagram” technique for preliminary space relationship planning.
  - B. Students will develop a Bubble Diagram based on the building program and adjacency matrix prior to beginning the design of the residence.
- X. Preliminary Design.
  - A. Students will design a house that conforms to their style and the given program.
  - B. Students will present their design concept in a simple presentation format.
- XI. Revisions to Design.
  - A. Preliminary design will be reviewed and critiqued and students will revise and further develop the conceptual designs from previous item.
- XII. Final Development and Presentation.
  - A. Students will develop presentations of the house design integrating all enhancements and improvements.



Leonard Johnson/FSU

03/18/2009 11:56 AM

To Diane Nagelkirk/FSU@FERRIS  
Sandra L Alspach/FSU@FERRIS, Leonard  
cc Johnson/FSU@Ferris, Andrew L Purvis/FSU@FERRIS,  
Barbara A Ross/FSU@Ferris, Gregory  
bcc  
Subject Architectural Program Changes

Hi Diane

The UCC met yesterday and approved the proposal you submitted to make minor changes in the Architectural Program, and to add a new course. The proposal was approved pending receipt of a Form D which shows the "proposed" checksheet, including the new course.

It is also approved with the understanding that these changes cannot go into effect until the Spring Semester, 2010.

Please send me a copy of the new checksheet at your earliest convenience and contact Hal Palmer or me should you have any questions.

Thanks.

Leonard

Leonard R. Johnson, Ph.D  
Professor of Education and Chair,  
University Curriculum Committee  
Ferris State University  
1349 Cramer Circle  
Big Rapids, Michigan 49307  
(231) 591-2134  
<http://www.ferris.edu/education/education>



Leonard Johnson/FSU  
03/18/2009 01:36 PM

To Diane Nagelkirk/FSU@FERRIS  
Sandra L Alspach/FSU@FERRIS, Leonard  
cc Johnson/FSU@Ferris, Andrew L Purvis/FSU@FERRIS,  
Barbara A Ross/FSU@Ferris, Gregory  
bcc  
Subject Re: Architectural Program Changes

Hi Diane  
Thanks for your quick reply.  
Yes. The increase in credits from 2 to 3 for 270 and 285 will also be effective Spring 2010.  
Leonard

Leonard R. Johnson, Ph.D  
Professor of Education and Chair,  
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Diane Nagelkirk/FSU



Diane Nagelkirk/FSU  
03/18/2009 12:39 PM

To Leonard Johnson/FSU@Ferris  
cc  
Subject Re: Architectural Program Changes

Hi Leonard,

Thanks for the update. I have attached Form D - the proposed checksheet.

Just want to confirm that the changes also included the increase from 2 to 3 credit hours for both ARCH 270 and ARCH 285.

Once I receive Form C from Fran Rosen will forward that as well.

Thank you!



FORM\_D\_ATCurriculumGuideSheet.doc

Diane L. Nagelkirk  
Department Chair, Associate Professor  
Architectural Technology/Facility Management  
College of Technology - Ferris State University  
915 Campus Drive, Swan312  
Big Rapids, MI 49307-2291

231-591-2630  
Leonard Johnson/FSU



Leonard Johnson/FSU

03/18/2009 11:56 AM

To Diane Nagelkirk/FSU@FERRIS

cc Sandra L Alspach/FSU@FERRIS, Leonard Johnson/FSU@Ferris, Andrew L Purvis/FSU@FERRIS, Barbara A Ross/FSU@Ferris, Gregory Wellman/FSU@FERRIS, Joanne Gerst/FSU@FERRIS, Paula L Hadley-Kennedy/FSU@Ferris, Donald Flickinger/FSU@FERRIS, Patricia Russell/FSU@Ferris, Harold G Palmer/FSU@Ferris, Daniel L Burcham/FSU@Ferris, Terrence J Doyle/FSU@FERRIS, Ronald A Mehringer/FSU@FERRIS, Kristen L Motz/FSU@FERRIS

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Leonard

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