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# **AC 2011-90: ESTABLISHING A CONSTRUCTION MANAGEMENT TRACK WITHIN AN ARCHITECTURAL ENGINEERING TECHNOLOGY PRO- GRAM**

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# Establishing a Construction Management Track within an Architectural Engineering Technology Program

## Abstract

The current recession has had a dramatic impact on all aspects of the construction industry. According to many studies a great percentage of architects are currently unemployed or employed in a different capacity while the remaining ones have suffered pay cuts, reduced work weeks, and other hardships.

It is our opinion, that when the industry emerges from this recession it will look drastically different than it did before the recession. We feel that while the construction industry will require professionals with architectural educations, it will employ those people in less traditional and new capacities. The industry is employing fewer people in a conventional architectural office setting and more people in progressive owner representative, program manager and construction manager capacities. The current recession and new technologies have accelerated the shift in this direction.

We have outlined the following tasks as we embark on our effort to establish a Construction Management (CM) Track within our Architectural Engineering Technology (AET) Program.

CM Track: Research and develop a track for architecture students interested in pursuing a CM track and careers in a more construction related capacity.

CM Track Curriculum: Research and develop the curriculum for the CM track students without jeopardizing our ABET and NAAB accreditations.

CM Track Advisor: Advise undergraduate students on CM track. Help CM track students find employment and/or pursue graduate study in construction.

CM Track Clubs and Organizations: Encourage and coordinate student involvement in Construction related organizations and clubs, example: Construction Institute (CI) and American Institute of Architects (AIA). Invite professionals to campus to discuss the CM industry.

## Objective

We hope to develop three track options for our AET students within a program accredited by both the Accreditation Board for Engineering and Technology (ABET) and the National Architectural Accreditation Board (NAAB). The three tracks would include a General Studies (GS) Track, a Construction Management (CM) Track and an Architectural Design (AD) Track. Our approach has always been to prepare our students for all aspects of the construction industry. We plan to continue this, but add an emphasis on specific aspects of the construction industry to better prepare our graduates for a very competitive industry.

The CM track is an intensive track designed for students wishing to pursue a position with a construction related firm or graduate study in construction management and ultimately a

professional construction management license. The AD track is an intensive track designed for students wishing to pursue a position with an architectural firm or graduate study in a NAAB accredited architecture program and ultimately a professional architectural license. The GS track is an all-purpose track design for students wishing to pursue a position in design and construction but are not interested in pursuing a professional license in construction management or architecture.

All three tracks would provide our students with the design and technical skills necessary for working on construction projects, from beginning to end. Students would develop construction industry expertise with emphasis on team building. Career opportunities in construction are found throughout the world and include the following industries: construction companies, government agencies, architectural/engineering/environmental firms, industrial firms and manufacturing/materials suppliers.

## **Reason**

The current recession has had a dramatic impact on all aspects of the design and construction industry. “There are some very serious challenges facing the construction industry that are motivating new approaches to how we design, build, operate, and maintain buildings and infrastructure.” (Geoff Zeiss article) Beyond the recession, “new technologies are (being) designed to address challenges in the construction industry that are going to profoundly affect other sectors such as operations and maintenance, emergency planning, first response and urban planning.” (Geoff Zeiss article)

According to many studies a great percentage of architects are currently unemployed or employed in a different capacity while the remaining ones have suffered pay cuts, reduced work weeks, and other hardships. In our opinion, when the industry finally comes out from this devastating recession, the effects of the economy and the emerging new technologies will cause the industry to look drastically different than it did before the recession. The current recession has greatly accelerated the shift in this direction.

We feel that while the construction industry will require professionals with architectural educations, it will employ those people in a less traditional and new capacities. The industry is employing fewer people in a conventional architectural office setting and more people in owner representative, program manager and construction manager capacities.

## **Next Steps for CM Track**

CM Track: Research and develop a track for architecture students interested in pursuing a CM track and careers in a more construction related capacity. We have already started this process.

CM Track Curriculum: Research and develop the curriculum for the CM track students without jeopardizing our ABET and NAAB accreditations. We have already started this process.

CM Track Advisor: Advise undergraduate students on the CM track. Help CM track students find employment and/or pursue graduate study in construction. We are beginning this process now.

CM Track Research: Attend ASEE and/or construction industry conferences with CM related divisions and research other institutions that have CM tracks. We have already started this process, but need to increase the effort.

CM Track Clubs & Organizations: Encourage and coordinate student involvement in Construction related organizations and clubs, for example: Construction Institute (CI) and American Institute of Architects (AIA). Invite construction professionals to campus to discuss the CM industry. We have already started this process, but need to increase the effort.

CM Track LEED Opportunities: Research and explore options for working sustainability into the CM curriculum. We need to start this process very soon as sustainability has become an integral part of every industry but especially the design and construction industry.

## **Curriculum**

We have modified our existing AET Program track to create three tracks. The existing track has become the GS track. The CM and AD tracks have clustered electives and created new courses to deliver the necessary education for these more focused tracks. The decision of what track to take is made after the students complete their fourth semester, or second semester second year. Students apply for the CM and AD tracks by submitting an application form, essay, portfolio, reference letter and transcript. Students that are not accepted into their desired track will remain in the program on the GS track.

The first four semesters of study will be the same for all tracks. However we have made some minor modifications to these semesters and they are as follows:

### Starting the math sequence with MTH 122 instead of MTH 121

Our students are coming to us with improved math skills and are better prepared to start our math sequence at a higher level, but if students are not prepared for this course they could take a course during the summer or over a winter term.

### Moving EN 241, English II, to the fourth semester

This class would stress the importance of technical writing skills and help the students present themselves with their program track and graduate school applications.

### Creating a new introductory course, AET 112, about construction profession

This course is designed to present the array of different career path options within the construction industry. Professionals from different aspects of the industry will come to class to present their specialty and answer questions.

### Making AET 362 a required course and moving it to the third semester

Technology has had a significant impact on the construction industry, so this course is designed to introduce industry applications of computer and other technologies.

### Making AET 481 Architectural Profession a required class and moving it to the fourth semester

This class would be a professional practice class that would go into greater detail than AET 112 and help the students make their final decision on which track to pursue

### Making AET 473, Portfolio Development a required class and move it to the fourth semester

This course would prepare the students with creating their own portfolios, as portfolios are a part of all construction related professions and help the students present themselves with their program track and graduate school applications.

## General Studies Track: Curriculum



Department of Architecture  
ARCHITECTURAL ENGINEERING TECHNOLOGY (B.S. in AET)

Course Number Course Name	Credit Hour	Class Hour	Lab Hour	Contact Hour	Course Number Course Name	Credit Hour	Class Hour	Lab Hour	Contact Hour
<b>SEMESTER 1: Fall</b>					<b>SEMESTER 2: Spring</b>				
AET 110 Intro to the Architectural Process	4	2	6	8	AET 123 Arch Design 1 (Basic Design)	4	2	6	8
AET 155 Ancient - Renaissance Architecture	4	4	0	4	AET 156 19th & 20th Century Architecture	4	4	0	4
ET 111 Intro to Engineering Technology	1	1	0	1	<b>AET 112 Intro to Architecture</b>	1	1	0	1
EN 111 English I: Expository Comm	3	3	0	3	PHY 120 Algebra-Based Physics I	4	3	3	6
MTH 122 Precalculus for ET (Sem 2 >1)	3	3	0	3	MTH 232 Calculus I for ET (Sem 3>2)	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>15</b>	<b>13</b>	<b>6</b>	<b>19</b>	<b>SEMESTER TOTALS</b>	<b>16</b>	<b>13</b>	<b>9</b>	<b>22</b>
<b>SEMESTER 3: Fall</b>					<b>SEMESTER 4: Spring</b>				
AET 233 Arch Design 2 (Small Bldg)	4	2	6	8	AET 244 Arch Design 3 (Large Bldg)	4	2	6	8
AET 232 Matl/Meth of Const/Docum	4	2	6	8	AET 242 Construction Documents	4	2	6	8
<b>AET 302 Comp Applications in Arch (El&gt;Rq'd)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>AET 481 Intro to Arch Profession (El&gt;Rq'd)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
MTH 241 Calculus II for ET (Sem 4>3)	3	3	0	3	EN 241 English II: Tech Comm (Sem 6>4)	3	3	0	3
PHY 121 Algebra-Based Physics II	4	3	3	6	<b>AET 473 Arch Rend &amp; Port Dvmt (El&gt;Rq'd)</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>13</b>	<b>15</b>	<b>20</b>	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>14</b>	<b>12</b>	<b>18</b>
<b>PORTFOLIO REVIEW AND TRACK SELECTION AFTER SEMESTER 4 SPRING</b>									
Three AET Tracks: 1) Design, 2) Construction Technology, 3) General Studies									
<b>SEMESTER 5: Fall</b>					<b>SEMESTER 6: Spring</b>				
<b>Technical Specialty 1 (AET352&gt;El)</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>Technical Specialty 3 (AET367&gt;El)</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>
AET 355 Engrg Mechanics	4	3	3	6	AET 364 Eng Mech & Str Analysis	4	3	3	6
Technical Specialty 2	4	4	0	4	<b>AET 241 Mech/Elect/Plumb (Sem 4&gt;6)</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>Professional Elective 1 (Sem 7&gt;5)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>Professional Elective 2 (Sem 8&gt;6)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
All-University Curriculum 1	3	3	0	3	All-University Curriculum 2	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>17</b>	<b>3</b>	<b>20</b>	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>17</b>	<b>3</b>	<b>20</b>
<b>SEMESTER 5 1/2: Winter</b>					<b>SEMESTER 8: Spring</b>				
AET 486 Arch Mon: Study Abroad Travel (option, not required)					<b>AET 489 Sr Capstone Proj (Tech Sp&gt;Rq'd)</b>	<b>5</b>	<b>3</b>	<b>9</b>	<b>12</b>
<b>SEMESTER 7: Fall</b>					AET 484 Design Conc Struc	4	3	3	6
<b>Technical Specialty 4 (Sem 8&gt;7)</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>Human/Soc Science Elective (Sem 5&gt;8)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
AET 474 Design Steel Struc	4	3	3	6	Professional Elective 3	3	3	0	3
EN 481 Eng III: Advanced Tech Comm	3	3	0	3	All-University Curriculum 4	3	3	0	3
Lab Science Elective	4	3	3	6	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>15</b>	<b>12</b>	<b>27</b>
All-University Curriculum 3	3	3	0	3					
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>16</b>	<b>6</b>	<b>22</b>					
<b>PROGRAM TOTALS</b>	<b>139</b>	<b>118</b>	<b>66</b>	<b>168</b>					
<b>Existing Technical Specialty Electives</b>					<b>Proposed Technical Specialty Electives cross-listed from CE</b>				
AET 248 Intro to Architectural Model Building (3)					CE 250/AET 250 Intro Surv & Geographic Inform (3)				
<del>AET 343 Principles of Landscape Architecture (4)</del>					CE 300/AET 300 Engineering Economics (3)				
AET 352 Arch Design 4 (Complex Bldg) (4)					CE 340/AET 340 Construction Management (3)				
AET 353 Site Planning and Development (4)					CE 442/AET 442 Construction Planning & Schedule (3)				
<del>AET 364 Architectural Lighting Design and Acoustics (4)</del>					<b>Technical Specialty Courses Previously Added</b>				
AET 358 Arch Computer Modeling (4)					AET 356 Advanced Construction Documents (4)				
AET 367 Arch Design 5 (Green Arch) (4)					AET 366 Sustainable Design Studio (4)				
<del>AET 368 Developing Digital Presentations (4)</del>					<b>Courses No Longer Required</b>				
AET 371 Housing/Urban Design (4)					MTH 112 College Algebra for ET [start with MTH 122 Precal for ET]				
AET 373 Interior Architecture Studio (4)					<b>Key</b>				
AET 384 Issues in Preservation (4)					Convert STWs to Permanent Courses	BS 1p	BS 2p	Phase 1	
<del>AET 470 Architectural Programming (3)</del>					Civil Engrg Courses Cross Listed In AET	4	2	Phase 2	
<del>AET 471 Independent Studies (4)</del>					New Course	1	1	Phase 3	
<del>AET 482 Construction Estimating (4)</del>					Modified Course (Name and/or Content)	4	4	Phase 3	
AET 485 Seminar on Architecture Topics (3)					Deleted Courses	6	7	Phase 4	
AET 486 Arch Mon: Study Abroad (Prep/Travel) (4)					Total	10	7		

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Modifications to the GS track after the fourth semester include the following:

Making the previously required design classes after the fourth semester electives

Design courses AET 352 Design IV and AET 367 Design V would be elective choices.

Repositioning some of the technical specialties and professional electives

In order to balance the number of credits per semester and provide required courses in an appropriate sequence, we had to rearrange our technical and professional electives.

Making an elective thesis course a required capstone project course

Previously our thesis course was not required and only our graduate bound students would take it. It would now be required by all and renamed AET 489 Senior Capstone Project and help us with our ABET reviews.

Introducing an elective study abroad course

This would be a course that could be taken during the winter semester between the third and fourth year.

## Construction Management Track: Curriculum

College of Engineering, Technology, and Architecture

UNIVERSITY OF HARTFORD

Construction Track  
Pre-Construction Management

Department of Architecture

ARCHITECTURAL ENGINEERING TECHNOLOGY (B.S. in AET)

Course Number Course Name	Credit Hour	Class Hour	Lab Hour	Contact Hour	Course Number Course Name	Credit Hour	Class Hour	Lab Hour	Contact Hour
<b>SEMESTER 1: Fall</b>					<b>SEMESTER 2: Spring</b>				
AET 110 Intro to the Architectural Process	4	2	6	8	AET 123 Arch Design 1 (Basic Design)	4	2	6	8
AET 155 Ancient - Renaissance Architecture	4	4	0	4	AET 156 19th & 20th Century Architecture	4	4	0	4
ET 111 Intro to Engineering Technology	1	1	0	1	<b>AET 112 Intro to Architecture</b>	1	1	0	1
EN 111 English I: Expository Comm	3	3	0	3	PHY 120 Algebra-Based Physics I	4	3	3	6
MTH 122 Precalculus for ET	3	3	0	3	MTH 232 Calculus I for ET	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>15</b>	<b>13</b>	<b>6</b>	<b>19</b>	<b>SEMESTER TOTALS</b>	<b>16</b>	<b>13</b>	<b>9</b>	<b>22</b>
<b>SEMESTER 3: Fall</b>					<b>SEMESTER 4: Spring</b>				
AET 233 Arch Design 2 (Small Bldg)	4	2	6	8	AET 244 Arch Design 3 (Large Bldg)	4	2	6	8
AET 232 Matl/Meth of Const/Docum	4	2	6	8	AET 242 Construction Documents	4	2	6	8
<b>AET 302 Comp Applications in Arch</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>AET 481 Intro to Arch Profession</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
MTH 241 Calculus II for ET	3	3	0	3	EN 241 English II: Tech Comm	3	3	0	3
PHY 121 Algebra-Based Physics II	4	3	3	6	<b>AET 473 Arch Rend &amp; Port Dvmt</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>13</b>	<b>15</b>	<b>20</b>	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>14</b>	<b>12</b>	<b>18</b>
<b>PORTFOLIO REVIEW AND TRACK SELECTION AFTER SEMESTER 4 SPRING</b>									
Three AET Tracks: 1) Design, 2) Construction Technology, 3) General Studies									
<b>SEMESTER 5: Fall</b>					<b>SEMESTER 6: Spring</b>				
<b>Technical Specialty 1 (AET250)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>Technical Specialty 3 (AET340)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
AET 355 Engrg Mechanics	4	3	3	6	AET 364 Eng Mech & Str Analysis	4	3	3	6
Technical Specialty (AET300)	3	3	0	3	<b>AET 241 Mech/Elect/Plumb</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>Professional Elective 1</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>Professional Elective 2</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
All-University Curriculum 1	3	3	0	3	All-University Curriculum 2	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>16</b>	<b>15</b>	<b>3</b>	<b>18</b>	<b>SEMESTER TOTALS</b>	<b>17</b>	<b>16</b>	<b>3</b>	<b>19</b>
<b>SEMESTER 5 1/2: Winter</b>					<b>SEMESTER 6: Spring</b>				
AET 486 Arch Mon: Study Abroad Travel (option, not required)					<b>AET 489 Sr Capstone Proj</b>	<b>5</b>	<b>3</b>	<b>9</b>	<b>12</b>
<b>SEMESTER 7: Fall</b>					AET 484 Design Conc Struc	4	3	3	6
<b>Technical Specialty 4 (AET442)</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>Human/Soc Science Elective</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
AET 474 Design Steel Struc	4	3	3	6	<b>Professional Elective 3</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
EN 481 Eng III: Advanced Tech Comm	3	3	0	3	All-University Curriculum 4	3	3	0	3
Lab Science Elective	4	3	3	6	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>15</b>	<b>12</b>	<b>27</b>
All-University Curriculum 3	3	3	0	3					
<b>SEMESTER TOTALS</b>	<b>17</b>	<b>15</b>	<b>6</b>	<b>21</b>					
<b>PROGRAM TOTALS</b>	<b>135</b>	<b>114</b>	<b>66</b>	<b>164</b>					

**Existing Technical Specialty Electives**

AET 248 Intro to Architectural Model Building (3)  
~~AET 343 Principles of Landscape Architecture (4)~~  
 AET 352 Arch Design 4 (Complex Bldg) (4)  
 AET 353 Site Planning and Development (4)  
~~AET 364 Architectural Lighting Design and Association (4)~~  
 AET 358 Arch Computer Modeling (4)  
 AET 367 Arch Design 5 (Green Arch) (4)  
~~AET 368 Developing Digital Presentations (4)~~  
 AET 371 Housing/Urban Design (4)  
 AET 373 Interior Architecture Studio (4)  
 AET 384 Issues in Preservation (4)  
~~AET 470 Architectural Programming (3)~~  
~~AET 471 Independent Studies (4)~~  
~~AET 482 Construction Estimating (4)~~  
 AET 485 Seminar on Architecture Topics (3)  
 AET 486 Arch Mon: Study Abroad (Prep/Travel) (4)

**Proposed Technical Specialty Electives cross-listed from CE**

CE 250/AET 250 Intro Surv & Geographic Inform (3)  
 CE 300/AET 300 Engineering Economics (3)  
 CE 340/AET 340 Construction Management (3)  
 CE 442/AET 442 Construction Planning & Schedule (3)

**Technical Specialty Courses Previously Added**

AET 356 Advanced Construction Documents (4)  
 AET 366 Sustainable Design (4)

**Courses No Longer Required**

MTH 112 College Algebra for ET [start with MTH 122 Precal for ET]

**Key**

Convert STWs to Permanent Courses  
 Civil Engrg Courses Cross Listed In AET  
 New Course  
 Modified Course (Name and/or Content)  
 Deleted Courses

	BS 1p	BS 2p	Phase 1
4	2		Phase 2
1			Phase 3
4			Phase 4
6			
Total	10	7	

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Modifications to the CM track after the fourth semester include the following:

Making the previously required design classes into construction classes

Design courses AET 352 Design IV and AET 367 Design V would be replaced with CE/AET 250 Intro to Surveying & Geographic Information and CE/AET 300 Engineering Economics.

Creating two more required courses for CM students

Construction courses CE/AET 340 Construction Management and CE/AET 442 Construction Planning & Scheduling would be required.

## Repositioning some of the technical specialties and professional electives

In order to balance the number of credits per semester and provide required course in an appropriate sequence, we had to rearrange our technical and professional electives.

## Making an elective thesis course a required capstone project course

Previously our thesis course was not required and only our graduate bound students would take it. It would now be required by all and renamed as AET 489 Senior Capstone Project and help us with our ABET reviews.

## Introducing an elective study abroad course

This course that could be taken during the winter semester between the third and fourth year.

## Design Track: Curriculum

College of Engineering, Technology and Architecture

Design Track  
Pre-Architecture

UNIVERSITY OF HARTFORD

Department of Architecture

ARCHITECTURAL ENGINEERING TECHNOLOGY (B.S. in AET)

Course Number	Credit	Class	Lab	Contact	Course Number	Credit	Class	Lab	Contact
Course Name	Hour	Hour	Hour	Hour	Course Name	Hour	Hour	Hour	Hour
<b>SEMESTER 1: Fall</b>					<b>SEMESTER 2: Spring</b>				
AET 110 Intro to the Architectural Process	4	2	6	8	AET 123 Arch Design 1 (Basic Design)	4	2	6	8
AET 155 Ancient - Renaissance Architecture	4	4	0	4	AET 156 19th & 20th Century Architecture	4	4	0	4
ET 111 Intro to Engineering Technology	1	1	0	1	AET 112 Intro to Architecture	1	1	0	1
EN 111 English I: Expository Comm	3	3	0	3	PHY 120 Algebra-Based Physics I	4	3	3	6
MTH 122 Precalculus for ET	3	3	0	3	MTH 232 Calculus I for ET	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>15</b>	<b>13</b>	<b>6</b>	<b>19</b>	<b>SEMESTER TOTALS</b>	<b>16</b>	<b>13</b>	<b>9</b>	<b>22</b>
<b>SEMESTER 3: Fall</b>					<b>SEMESTER 4: Spring</b>				
AET 233 Arch Design 2 (Small Bldg)	4	2	6	8	AET 244 Arch Design 3 (Large Bldg)	4	2	6	8
AET 232 Mat/Meth of Const/Docum	4	2	6	8	AET 242 Construction Documents	4	2	6	8
AET 302 Comp Applications in Arch	3	3	0	3	AET 481 Intro to Arch Profession	3	3	0	3
MTH 241 Calculus II for ET	3	3	0	3	EN 241 English II: Tech Comm	3	3	0	3
PHY 121 Algebra-Based Physics II	4	3	3	6	AET 473 Arch Rend & Port Dvmt	4	4	0	4
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>13</b>	<b>15</b>	<b>20</b>	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>14</b>	<b>12</b>	<b>18</b>
<b>PORTFOLIO REVIEW AND TRACK SELECTION AFTER SEMESTER 4 SPRING</b>									
Three AET Tracks: 1) Design, 2) Construction Technology, 3) General Studies									
<b>SEMESTER 5: Fall</b>					<b>SEMESTER 6: Spring</b>				
Technical Specialty 1 (AET352)	4	4	0	4	Technical Specialty 3 (AET371)	4	4	0	4
AET 355 Engrg Mechanics	4	3	3	6	AET 364 Eng Mech & Str Analysis	4	3	3	6
Technical Specialty (AET486)	4	4	0	4	AET 241 Mech/Elect/Plumb	4	4	0	4
Professional Elective 1	3	3	0	3	Professional Elective 2	3	3	0	3
All-University Curriculum 1	3	3	0	3	All-University Curriculum 2	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>17</b>	<b>3</b>	<b>20</b>	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>17</b>	<b>3</b>	<b>20</b>
<b>SEMESTER 5 1/2: Winter</b>					<b>SEMESTER 8: Spring</b>				
AET 486 Arch Mon: Study Abroad Travel	(option, not required)								
<b>SEMESTER 7: Fall</b>					<b>SEMESTER 9: Spring</b>				
Technical Specialty 4 (AET367)	4	4	0	4	AET 480 Sr Capstone Proj	5	3	9	12
AET 474 Design Steel Struc	4	3	3	6	AET 484 Design Conc Struc	4	3	3	6
EN 481 Eng III: Advanced Tech Comm	3	3	0	3	Human/Soc Science Elective	3	3	0	3
Lab Science Elective	4	3	3	6	Professional Elective 3	3	3	0	3
All-University Curriculum 3	3	3	0	3	All-University Curriculum 4	3	3	0	3
<b>SEMESTER TOTALS</b>	<b>18</b>	<b>16</b>	<b>6</b>	<b>22</b>	<b>SEMESTER TOTALS</b>	<b>18</b>	<b>15</b>	<b>12</b>	<b>27</b>
<b>PROGRAM TOTALS</b>	<b>139</b>	<b>118</b>	<b>66</b>	<b>168</b>	<b>Proposed Technical Specialty Electives cross-listed from CE</b>				
<b>Existing Technical Specialty Electives</b>					CE 250/AET 250 Intro Surv & Geographic Inform (3)				
AET 248 Intro to Architectural Model Building (3)					CE 300/AET 300 Engineering Economics (3)				
<del>AET 343 Principles of Landscape Architecture (4)</del>					CE 340/AET 340 Construction Management (3)				
AET 352 Arch Design 4 (Complex Bldg) (4)					CE 442/AET 442 Construction Planning & Schedule (3)				
AET 353 Site Planning and Development (4)					<b>Technical Specialty Courses Previously Added</b>				
<del>AET 364 Architectural Lighting Design and Assoc (4)</del>					AET 356 Advanced Construction Documents (4)				
AET 358 Arch Computer Modeling (4)					AET 366 Sustainable Design (4)				
AET 367 Arch Design 5 (Green Arch) (4)					<b>Courses No Longer Required</b>				
<del>AET 368 Developing Digital Presentations (4)</del>					MTH 112 College Algebra for ET [start with MTH 122 Precal for ET]				
AET 371 Housing/Urban Design (4)					<b>Key</b>				
AET 373 Interior Architecture Studio (4)					BS 1p BS 2p				
AET 384 Issues in Preservation (4)					Convert STWs to Permanent Courses				
<del>AET 470 Architectural Programming (3)</del>					Civil Engrg Courses Cross Listed in AET				
<del>AET 471 Independent Studies (4)</del>					New Course				
<del>AET 482 Construction Estimating (4)</del>					Modified Course (Name and/or Content)				
AET 485 Seminar on Architecture Topics (3)					Deleted Courses				
AET 486 Arch Mon: Study Abroad (Prep/Travel) (4)					<b>Total</b>				

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Modifications to the AD track after the fourth semester include the following:

Keeping the previously required design classes after the fourth semester

Design courses AET 352 Design IV and AET 367 Design V would continue to be required courses.

Creating one more required courses for AD students

Design courses AET 371 Urban Design would be required.

Repositioning some of the technical specialties and professional electives

In order to balance the number of credits per semester and provide required course in an appropriate sequence, we had to rearrange our technical and professional electives.

Making an elective thesis course a required capstone project course

Previously our thesis course was not required and only our graduate bound students would take it. It would now be required by all and renamed as AET 489 Senior Capstone Project and help us with our ABET reviews.

Introducing a required study abroad course

This would be a course that could be taken during the winter semester between the third and fourth year and prepare students for their AET 371 Urban Design course.

## **Flexibility Still Exists**

As designed, our program will require our students to make an important decision at the end of their fourth semester. But this decision, while affecting a student's undergraduate education, is not a final decision. Even if a student decides to pursue our CM track it does not preclude their decision to pursue graduate study in architecture. It may require up to an additional year of architecture study on the graduate level to receive a NAAB accredited Master's degree in architecture. The same is true of a student who decides to pursue the AD track, as it will require some additional study on the graduate level to obtain an accredited Master's degree in construction.

## **Conclusion**

A greater incorporation of construction instruction into architectural education is not a new concept. In fact at its origins, architectural training included a far greater understanding of construction. Over the years we have wandered away from construction to an over emphasis of design education. Architecture is a multidisciplinary field of study that draws on many areas of study. While architectural education must successfully involve the integration of many disciplines, the time has come for some focused specialization within it to better prepare our students for their future.

## **References**

Zeiss, Geoff; *"Worldwide Challenges Facing the Construction Industry"*  
Wentworth Institute of Technology; Construction Management Program Information  
University of Hartford; Architecture Program Information  
Boyer, E., and Mitgang, L.; *"Building Community, A New Future for Architectural Education and Practice"*