Documentation: Curriculum Matrix, Coursework and “Closing the Assessment Loop”

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Roger Williams University
This presentation will provide a strategy on how, with your faculty, to properly document curriculum matrix coverage, course content, and “closing the loop” on program assessment.

Presentation Outline

1. Curriculum Matrix
2. Course Content
3. Program Assessment
Curriculum Matrix

Visiting team must verify that every EEI (topical content) is covered in the program

Steps:
• Develop Matrix with faculty
• Set up notebooks to organize EEI content
• All faculty receive “course sort” memos
• All “evidence” submitted with cover letter
### Courses on Horizontal Axis

Subject Area or Topical Content on Vertical Axis

<table>
<thead>
<tr>
<th>5 Construction (20 Semesters / 30 Quarters) 300 Inst. Hrs.</th>
<th>Multi &amp; Science</th>
<th>Business &amp; Management</th>
<th>Construction and Construction Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Construction Estimating (5 Semesters / 7 Quarters) 45 Inst. Hrs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1.1 Types of Estimates &amp; Uses</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5.1.2 Pricing &amp; Price Data Bases</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5.1.3 Bid Proposals &amp; Submissions</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.1.4 Computer Applications</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.2 Planning &amp; Scheduling (5 Semesters / 6 Quarters) 45 Inst. Hrs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.1 Parameters Affecting Project Planning</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5.2.2 Schedule Information Presentation</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5.2.3 Network Diagramming &amp; Calculation with CPM</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.2.4 Resource Allocation &amp; Management</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.2.5 Impact of Changes</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5.3 Construction Accounting &amp; Finance (5 Semester / 1.5 Quarters) 35 Inst. Hrs.</td>
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<td></td>
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<tr>
<td>5.3.1 Cost Accounting &amp; Industry Formats</td>
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<td>X</td>
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<tr>
<td>5.3.2 Fixed &amp; Variable Cost: Insurance, Bonding, Marketing, General, and Administrative Expenses</td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>5.3.3 Building &amp; Procurement Practices</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.3.4 Record &amp; Report Practices</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.3.5 Capital Expansion, Expansion, &amp; Engineering</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.3.6 Forecasting Cash, Cost Flow Requirements</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5.3.7 Payment Provision &amp; Time Value of Money</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Matrix as developed by faculty
<table>
<thead>
<tr>
<th>Note-</th>
<th>Number</th>
<th>Title</th>
<th>Sub-number</th>
<th>Subtitle</th>
<th>Contributing Courses (CNST unless noted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.1</td>
<td>Communications (oral and written)</td>
<td>4.21</td>
<td>Civil</td>
<td>100, 445, 450, 475, 480</td>
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<tr>
<td>2</td>
<td>1.2</td>
<td>Ethics</td>
<td>4.22</td>
<td>Electrical</td>
<td>100, 321, 445, 475, 480, PLS 436</td>
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<tr>
<td>3</td>
<td>4.1</td>
<td>Design Theory (Structural)</td>
<td>4.23</td>
<td>Mechanical</td>
<td>200, 201, 304, 455, ENGR 210</td>
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<tr>
<td>4</td>
<td>4.2</td>
<td>Analysis and Design of Construction Systems</td>
<td>4.24</td>
<td>Structural</td>
<td>200, 201, 304, ENGR 210</td>
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<tr>
<td>5</td>
<td>4.3</td>
<td>Construction Graphics</td>
<td>4.31</td>
<td>Basic sketching and drawing</td>
<td>201, 304, ENGR 210</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.32</td>
<td>Graphic vocabulary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.33</td>
<td>Detail hierarchies, scale and content</td>
<td>116, 130</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.34</td>
<td>Notes and specifications, reference conventions</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.35</td>
<td>Computer applications</td>
<td>116</td>
</tr>
<tr>
<td>6</td>
<td>4.4</td>
<td>Construction Surveying</td>
<td>4.41</td>
<td>Survey, layout and alignment control</td>
<td>116, 302</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>4.42</td>
<td>Site organization and development</td>
<td>130, 302</td>
</tr>
<tr>
<td>7</td>
<td>4.5</td>
<td>Construction Methods and Materials</td>
<td>4.51</td>
<td>Composition and properties</td>
<td>200, 201, 250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.52</td>
<td>Terminology and units of measure</td>
<td>200, 201, 250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.53</td>
<td>Standard designations, sizes and graduations</td>
<td>200, 201, 250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.54</td>
<td>Conformance references and testing techniques</td>
<td>200, 201, 250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.55</td>
<td>Products, systems and interface issues</td>
<td>200, 201, 250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.56</td>
<td>Equipment applications and utilization</td>
<td>201, 250</td>
</tr>
</tbody>
</table>
CNST 321
Advanced Building Estimating
Professor xxxxx

Course Requirements:
• General Requirements
  • Ethics
• Construction
  • Types of Estimates & Uses
  • Quantity Takeoff
  • Labor & Equipment Productivity Factors
  • Pricing & Price Data Bases
  • Job Direct & Indirect Cost
  • Bid Preparation & Submission
  • Computer Application for Estimating

Each faculty member received for each course
Cover letter for faculty submitted EEI Examples

Topical Content Course Reporting Form

Course:

Type of Assignment:

Test  [ ]
Syllabus Notation  [ ]
Paper  [ ]
Project  [ ]
Homework  [ ]
Other (Explain)  [ ]

Briefly explain the nature of the assignment and how it addresses the topical content:
Course Documentation

Important for visiting team to evaluate the content for each course with an eye to currency, appropriateness, and rigor.

2 Notebooks per course to include:

**Notebook 1**
- Course Administrative Instructions
- Course Syllabus
- Course Assessment Report
- Exams
- Quizzes
- Final Grades

**Notebook 2**
- Graded Homework
- Technical/Lab Reports (if appropriate)
- Oral/Written Reports (If appropriate)

All graded work includes:
- Assignment
- Instructor Solution
- Outstanding student example
- Good student example
- Poor student example
Assessment Plan

Visiting team needs to see evidence of continuous improvement – closing the loop in a systematic manner. Assessment needs to be institutionalized.

School (Prepared by Dean)
- Terminology
- RWU Mission
- School of Engineering, Computing, and Construction Management (SECCM) Mission
- SECCM Objectives
- Constituencies
- SECCM Change Process
- Assessment Instruments

Program (Prepared by Coordinator)
- Curriculum
- Program Objectives
- Program Outcomes
- Outcomes “mapped” to Objectives
- Metrics “mapped” to Outcomes
Assessment Instruments Used

Course Binders
AC Exam
Club Reports
Alumni Survey
Senior Exit Interviews
Graduate Employer Interviews
Advisory Board
Student Competitions
Job Placement Surveys
Capstone Project
Faculty course assessment reports
### Outcome c: an ability to plan, organize and control a construction project

<table>
<thead>
<tr>
<th>Metrics Associated with Outcome c:</th>
<th>Where Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 100% of Construction students participate in a Capstone Project Class that involves a semester long industry sponsored project that demonstrates their ability to successfully plan, organize and control a project.</td>
<td>Capstone Project Juror Evaluations and/or Transcript Review</td>
</tr>
<tr>
<td>2. Employment Interviewers rate applicants proficient for internship and permanent placement in the applicant’s ability to plan, organize and control a construction project. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.</td>
<td>Employer Interview Survey</td>
</tr>
<tr>
<td>3. Employers rate proficient RWU Construction Management hires in their ability to plan, organize and control a construction project. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.</td>
<td>Employer Survey</td>
</tr>
</tbody>
</table>
Need strong faculty support – I rely on the following faculty reports:

CM Club report
AC Exam report
Internship/Externship report
Capstone Project report
Senior Exit Survey Report
Alumni Report
### Outcome d:
an ability to lead and/or function as a member of a team

<table>
<thead>
<tr>
<th>Metrics Associated with Outcome d:</th>
<th>Where Measured</th>
<th>Met</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 100% of students participate as a team member as they complete their Capstone project. Each team member brings different construction experiences to the project.</td>
<td>Transcripts Capstone Project juror evaluations Course Assessment Report</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2. 100% of all Construction students will participate in the university CORE sequence and University Senior Integrative Experience.</td>
<td>Transcripts</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3. At least 50% of construction courses will give students the opportunity to work on collaborative team projects.</td>
<td>Course Binders Course Assessment Report</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>4. At least two student-led teams will participate in the Associated Schools of Construction Region 1 student competition</td>
<td>Student Competitions</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5. At least 75% of construction management students will have held a construction related summer position, internship or co-op, or construction management work study related position by the time of graduation.</td>
<td>Senior Exit Survey</td>
<td>No</td>
<td>Only 46% per this year’s senior exit survey.</td>
</tr>
</tbody>
</table>
Program Assessment (Annual)

Dean Prepares

- Executive Summary
- Organization Leadership
- Accreditation Actions
- Faculty and Staff
- Students
- Budget
- Facilities & Equipment
- Section Enrollment Data
- Student Course Survey Results
- Planning and Assessment

CM Coordinator Prepares

- Executive Summary
- Introduction
- Analysis of Evaluation Instruments Data
- Program Assessment
- Assessment of Previously Implemented Program Changes
- Discussion of Recommended Program Changes
- Revised Program Outcomes and Metrics

Assessment process can be viewed as a “living” history
Final Thoughts

Full faculty participation and support is necessary

A lot of work to set up, but once learned and “operationalized” the process has become easier

Upper Administration leadership and support is very important

Questions?