

**Program Review Report
2008-2009**

Department Construction Management (CMSV)

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ALIGNMENT

Mission

The Construction Management (CMSV) program mission, vision and goals align with those outlined by the Minnesota State Colleges and University (MnSCU) system and Inver Hills Community College (IHCC). Specific overlapping components are outlined below.

MnSCU System Mission

The Minnesota State Colleges and Universities system of distinct and collaborative institutions offers higher education that meets the personal and career goals of a wide range of individual learners, enhances the quality of life for all Minnesotans and sustains vibrant economies throughout the state.

Inver Hills College Mission

Inver Hills is a comprehensive community college committed to continuously improving student understanding and capabilities that help students lead purposeful lives, contribute to a vital social and economic community, and pursue lifelong learning.

Construction Management Mission

This program is designed to introduce individuals to the Construction Management profession, to provide a better understanding of construction management fundamentals and to enhance the abilities of individuals currently involved within the construction industry.

Vision

MnSCU System Vision

The Minnesota State Colleges and Universities system will enable the people of Minnesota to succeed by providing the most accessible, highest value education in the nation.

Construction Management Vision Statement

Students in the Construction Management program will develop and apply an understanding of the concepts, theories, and principles of construction management, which will be developed through a comprehensive curriculum including a variety of technical, administrative, and interpersonal course offerings. Graduates may become employed by construction firms and other related industries.

Evidence of Mission/Vision Alignment

- The IHCC CMSV program is committed to introducing and enhancing the abilities of construction professionals so they may lead purposeful lives and contribute to the social and economic community. – Alignment with IHCC Mission.

Program & College Goals & Strategic Alignment

IHCC College Goals

Inver Hills will be recognized as outstanding, quality college and will pursue the following goals:

- Provide multiple opportunities to help students determine their educational and career goals.
- Help students persist to achieve their personal, academic, and career goals.
- Prepare students for success in specific careers.
- Provide students with an integrated perspective and appreciation of a liberal arts education.
- Provide the foundation for continued formal education and lifelong learning.
- Help students become responsible citizens in a diverse and global society.
- Improve student understanding and effective use of technology in learning and work.
- Help organizations improve effectiveness through employee education and training.
- Implement continuous evaluation and improvement strategies throughout the college.

CMSV Program Purpose/Goals

- This program will prepare students for supervisory and management positions in the construction industry. The curriculum combines basic fundamentals with key courses in applied management, engineering, design, and business that are required to manage complex construction projects. The Associate of Science in Construction Management is designed to articulate to the University of Minnesota's B.A.S. in Construction Management degree.

Evidence of Goal Alignment

- While the CMSV program goals align and reinforce many of the college's goals it specifically relates to the following three goals outlined by the college:
 - Provide multiple opportunities to help students determine their educational and career goals.
 - Prepare students for success in specific careers.
 - Help students become responsible citizens in a diverse and global society.

Furthermore, the CMSV program addresses multiple strategic directions outlined by the college. Below are the strategic directions for 2007-2012 the CMSV department specifically addresses:

- **Strategic Direction: Quality Academic Programming to Meet Student Needs**
 - Prepare students with innovative programming sensitive to cultural and societal trends, business needs, students' occupational goals, and new technologies
- **Strategic Direction: Collaboration and Partnership**
 - Increase collaborations with area businesses and professional and community organizations to meet emerging workforce needs.

CURRICULUM

Construction Management Program and Transfer Institutions

At present the IHCC CMSV program offers its students an opportunity to transfer to the University of Minnesota.

1. University of Minnesota Transfer Requirements

a.

Gen Education Requirements	IHCC Equivalent
English Composition	ENG1108
Public Speaking or Interpersonal	COMM 1100 or 1110
General Psychology or Sociology	PSYC1101 or SOC1100
Calculus	MATH1120 or 1133
Physics I and Lab	PHYS1041 or 1081
Building Construction Plan Reading	BIT1215
Financial Accounting	ACT2101
Intro to management	BUS1121
Intro to Construction Management	CMSV2870
Engineering Graphics	ENGR1200
Statics	ENGR2020
Technical Writing	ENG1111
Microeconomics	ECON1106
One – Arts/Humanities Course	Goal 6

Program Curriculum Map

Curriculum Map

Outcomes	Communication	Critical Thinking	Civic Engagement	Develop a basic understanding of building codes and regulation	Understanding of construction documents system and organization	Be able to prepare a construction project cost estimates	Be able to prepare construction project schedules	Apply the principles of the Critical Path Method (CPM)
List Of Required Program Courses BIT1215 BUS1121 ACCT2101 ENGR1200 CMSV2870 CMSV2880 CMSV2890	BIT1215 CMSV2870 CMSV2880	BIT1215 ENGR1200 CMSV2880 CMSV2890		BIT1215 CMSV2870 CMSV2890	BIT1215 ENGR1200 CMSV2870 CMSV2880 CMSV2890	ACCT2101 CMSV2870 CMSV2880	CMSV2870 CMSV2880	CMSV2880
List of Program Electives								
8 Credits to be chosen from: MATH; ENGR2020; BIT 1000,1100, 1410, 2100; INTS1125								
List of Liberal Arts required courses								
ENG 1108 ENG 1111 COMM 1100/1110 PSYC 1101 ART 2300 MATH 1133 PHYS 1081 INTS 1125								
List of Liberal Arts Electives								
World Lang (SPAN, GERM, FREN, CHIN) CRDV CIS INTS JOUR CJS1150, 1152, 1154, 1156, 1158 MUSC1105 STSK1101 THTR1161								

The CMSV curriculum map reflects the new program revisions the faculty passed through Academic Council during the 2008-2009 academic year. The program was designed to allow more options for our construction management students. The new program design allows for transfer to the University of Minnesota's Bachelors in Applied Science Construction Management degree as well as the ability to gain their AS degree and enter the workforce.

Previous Program Design	New Program Design
<p>Construction Management Curriculum (29 credits) BIT 1100 Field Inspection, 2cr BIT 1500 Soils Engineering, 2cr BIT 1215 Building Construction Plan Reading, 2cr BIT 1410 Mechanical Inspection, 4cr BIT 1420 Electrical Inspection, 2cr BIT 2100 Soils and Concrete Technology, 3cr BUS 1121 Principles of Management, 3cr ENGR 1200 Engineering Graphics, 3cr ENGR 2020 Statics, 3cr CMSV 2870 Construction Management, 3cr CMSV 2880 Construction Estimating and Critical Path Method, 4cr CMSV 2890 Building Organization and Technology, 3cr</p> <p>Liberal Arts Curriculum (31 credits) ENG 1108 Writing and Research Skills, 4cr ENG 1111 Research Writing in the Disciplines, 2cr COMM 1100 or 1110, 3cr PSYC 1101 General Psychology, 4cr ART 2300 Architectural History, 3cr MATH 1133 Calculus I, 5cr PHYS 1081 Calculus Based Physics I, 5cr INTS 1125 Creative Problem Solving, 3cr Electives, 2cr</p>	<p>Construction Management Curriculum (30 credits) BIT 1215 Building Construction Plan Reading, 2cr ENGR 1200 Engineering Graphics, 3cr CMSV 2870 Construction Management, 3cr CMSV 2880 Construction Estimating and Critical Path Method, 4cr CMSV 2890 Building Organization and Technology, 3cr ACCT 2101 Financial Accounting, 4cr BUS 1121 Principles of Management, 3cr (1)Electives, 8 cr Choose from: MATH; ENGR 2020; BIT 1000, 1100, 1410, 1420, 2100; or INTS 1125</p> <p>Liberal Arts Curriculum (30 credits) ENG 1108 Writing and Research Skills, 4cr ENG 1111 Research Writing in the Disciplines, 2cr COMM 1100 or 1110, 3cr PHYS 1041 Algebra and Trig Based Physics I or PHYS 1081 Calculus Based Physics I, 4-5cr MATH 1119 College Algebra II or MATH 1127 Pre-Calculus, 3-5cr PSYC 1101 General Psychology or SOC 1100 Intro to Sociology, 4cr Humanities/Fine Arts/ Literature, 3cr (See Goal 6, but recommend ART 2300 Architectural History) ECON 1106 Microeconomics, 3cr (2)Electives, 1-4cr</p> <hr/> <p>(1) It is recommended that students consult with a counselor about the best course selection options. Students intending on transfer to the University of MN for the B.A.S degree in Construction Management may be best served by choosing MATH courses to fulfill the electives. Students who do not plan to transfer may enhance their employability by selecting Building Inspection (BIT) courses. (2) Includes MnTC courses, world languages courses, CJS 1150, 1152, 1154, 1156, 1158, INTS 1000, 1101, MUSC 1105, STSK 1101 and THTR 1161.</p>

COURSE OUTLINES

The CMSV department reviewed their course outlines during 08-09 academic year to redesign the program to align itself with 60 credit degree cap. The program was changed to give students two informal tracks. One track is for those that are interested pursuing a career after obtaining their AS degree and the other track is for those students intending to transfer to the University of Minnesota. During the process of redesigning the program all the course outlines were reviewed.

COURSE SYLLABI

Course Syllabi:

- A syllabus should be an accurate reflection of the common course outline allowing for individual faculty discretion for teaching methods, class procedures, assignments, and grading policy. Review individual syllabi for each course.
- Does each section list the learning outcomes the same as on the course outline? Are the assessment methods consistent with the course outline? Are the MnTC competencies and college-wide outcomes listed on the syllabus as additional outcomes, if they are not already part of the course outcomes? Does the syllabus accurately reflect the course outline?
- How does the syllabus address the needs of diverse students?

ARTICULATION – Programs Only

Articulation Agreements

1. Bemidji State University – Bachelors of Science in Industrial Technology (2002)
 - a. For all other A.A.S degree, diploma, or certificate programs with at least 42 semester credits, twenty-six (26) technical credits will apply directly to the degree, 16 technical credits will transfer in as general electives, and general education credits will be reviewed on a course by course basis for transfer into our liberal education curriculum. If there are any general education credits except those determined to be developmental, that do not meet our liberal education requirements they will transfer in as general electives.

While the program currently has an articulation agreement with Bemidji State University the agreement stipulates that our faculty in construction management hold a master's degree in the discipline in order for the credits to be considered by Bemidji State University. Since Bemidji State will only accept credits that were taught by an instructor with a master's degree, which none of our faculty in the CMSV area currently possess, the CMSV faculty would like to remove Bemidji State as a transfer option as it does not actually represent a transfer opportunity for our students.

CMSV Course Sequencing

Construction Management Course Rotation			
IHCC Schedule		IHCC Schedule	
<i>Fall I</i>	<i>Fall II</i>	<i>Spring I</i>	<i>Spring II</i>
BIT 1215 Building Construction Plan	CMSV 2870 Construction	CMSV 2880 Construction Estimating and	CMSV 2890 Building Organization and

INTERNAL PARTNERSHIPS

CMSV Partnerships

Before redesigning the CMSV program to meet the 60 credit degree cap the program shared multiple courses with the BIT program. However, after the redesign the CMSV program only shares BIT 1215 (Building Construction Plan Reading) with the BIT department. This was done in order to allow students more options depending on their career/educational path. The CMSV department also shares courses with the Engineering, Accounting and Business Departments.

ENROLLMENT

CMSV Enrollment

<u>CMSV Enrollment</u>			2006	2007	2008
CMSV	2870	Constr Mgmt	12.	12.	11.
CMSV	2880	Constr Estim & Scheduling	9.	10.	
CMSV	2890	Bldg Org & Tech	24.	17.	7.

Enrollment in CMSV classes has averaged 10-15 students with the occasional class cancellation. Courses, starting fall 2009, will be offering in a consistent rotation. Construction Plan Reading (BIT1215) and Introduction to Construction Management (CMSV 2870) will be offered every fall. Building Organization and Technology (CMSV 2890) and Construction Estimating and Scheduling (CMSV 2880) will be held during the spring semesters. This rotation has also been worked into the BIT rotation as BIT 1215 is an elective for the BIT program.

COMPLETERS – Programs Only

Employment Stats & Trends/Concerns

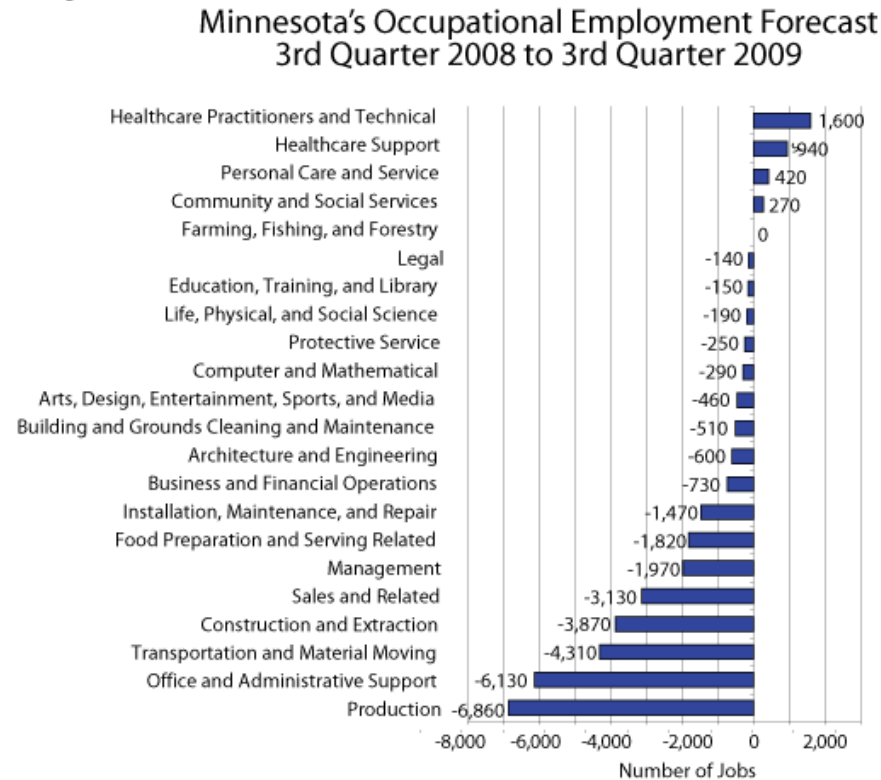
The 2007 employment placement rate for was one hundred percent, but the AS degree in Construction Management only had one graduate. The single graduate found full time related in employment.

The employment trends for Construction Management have declined since 2006. The Minnesota Department of Employment and Economic Development job outlook for third quarter 2008 to third quarter 2009 stated:

“Construction employment has been sliding since 2006 with little relief in sight. Home-building activity will continue to languish while commercial and industrial construction, which until recently has been holding up, is heading for a major slowdown. Construction job cutbacks over the next year will be only slightly smaller than the previous year.”

Figure 4 below also shows a decline of 3,8770 jobs within Construction and Extraction through the third quarter of 2009.

Figure 4



Source: Minnesota Department of Employment and Economic Development

**image taken from - <http://www.deed.state.mn.us/lmi/publications/review/1108/feature.htm>

STUDENT LEARNING

Student Learning

Aggregate grade/failure/withdrawal rates for the CMSV department are as follows:

GRADE	Successful	Unsuccessful	Withdrawal
A	66.09%		
B			
C			
D		16.74%	
F			
W/FN			17.17%

The rates above would indicate that approximately 66% of CMSV students are successful in their courses. Those students who are unsuccessful (approximately 16%) and those that withdraw (approximately 16%) comprise the remaining 32-33% of CMSV students.

	Overall Grade Distribution for IHCC		
GRADE	Successful	Unsuccessful	Withdrawal
A	74.06%		
B			
C			
D		14.35%	
F			
W/FN			11.59%

When compared to the overall college grade distribution (above) we find there are slightly more CMSV students who tend to be unsuccessful or withdraw from their courses. Additionally, the overall student success is lower. The following could be potential reasons for the disparity:

1. Different rates of withdrawal and success for online and classroom sections
2. Higher rates of part-time students with full time jobs not able to commit time to the program
3. Stringent math and statics requirements not relevant to the profession

STUDENT FEEDBACK ON TEACHING AND LEARNING

Possible explanations for areas identified as **strengths** by the Student Satisfaction Inventory (SSI).

1. CMSV faculty work at role modeling for the students what is expected of current building inspectors.
2. Many of the CMSV faculty members work as professionals in their field (in addition to their teaching responsibilities), which gives them an insider perspective on how the industry functions.
3. Many of the faculty members are able to connect students with meaningful projects/assignments that mimic real work situations for construction managers.

Areas Identified as Strengths by the Student Satisfaction Survey (SSI)

- Nearly all of the faculty members are knowledgeable in their fields.
- Faculty are usually available after class and during office hours.
- Program requirements are clear and reasonable.
- There is a good variety of courses provided on this campus.
- I am able to experience intellectual growth here.
- It is an enjoyable experience to be a student on this campus.
- Students are made to feel welcome on this campus.
- The quality of instruction I receive in most of my classes is excellent.

Possible explanations for areas identified as **challenges** by the Student Satisfaction Inventory (SSI).

1. All CMSV faculty members are employed on an adjunct basis.
2. CMSV faculty share office space at IHCC and many only have voicemail (rather than an active phone line for students to contact them)
3. Most CMSV faculty members are employed in their fields on a full time basis and teaching is something they do on top of their normal job responsibilities.

Areas Identified as Challenges by the Student Satisfaction Inventory (SSI)

- The college shows concern for students as individuals.
- My academic advisor is concerned about my success as an individual.
- Faculty are fair and unbiased in their treatment of individual students.
- Faculty are understanding of students' unique life circumstances.
- Faculty provide timely feedback about student progress in a course.
- Students are notified early in the term if they are doing poorly in a class.
- The college shows concern for students as individuals.

COST ANALYSIS

CMSV Cost Analysis

The CMSV program has a lower instructional cost than the MnSCU average. This lower instruction cost is the result of only hiring adjunct faculty to teach in the program. The vast majority of the CMSV instructors do not teach more than five credits in any given semester. The non-personnel costs for the department are also nominal as none of the faculty members have office spaces at Inver Hills.

FACULTY

CMSV Faculty

The CMSV department only employs adjunct faculty to teach their courses. Most of the faculty are professionals in their field and teach solely on a part time or adjunct basis. Faculty members hired to teach content specific courses such as electrical or plumbing inspection are recruited from those industries.

- Scott Holm
 - CMSV 2870
 - CMSV 2880
 - CMSV 2890

- Robert Yoursak
 - CMSV 2870
 - CMSV 2880
 - CMSV 2890

GOALS AND ACTION PLAN

S.W.O.T Analysis of the Construction Management Program

Strengths: The top three strengths of the program were identified as:

- Instructor knowledge
- Online course offerings
- Broad ranges of career opportunities require a construction background (Building Inspection, Engineers, Architects, etc.)

Weaknesses:

- Inconsistent offerings due to low enrollments
- Difficulty completing the 2 year degree in 2 years
- Weak job market for construction managers at present

Opportunities: Future opportunities

- Develop a certificate that will prepare construction students for 'green' employment, such as the LEED credential.
- Marketing to previously untapped populations

Threats: External threats to the CMSV Program

- Current job market for construction managers
- Credentialing standards developed by MnSCU could possibly prohibit a large number of our current instructors from teaching in the program

CMSV Work Plan 2009-2012

1. Program Sequencing/Counseling
 - Work with the counseling department to provide better information for CMSV students regarding their options for continuing their education or entering the job market.
2. Actively Market the CMSV Program.
 - Explore offering CMSV classes around "green" construction and other industry certifications.
 - Market all the careers that a potential student could gain access to by majoring in construction management.
 - Explore possibilities to offer a combined CMSV/BIT program instead of two separate career programs.
3. Course Offerings
 - Review course tallies for individual classes.
 - Continually update CMSV curriculum to include new developments within the field.
 - Explore the development of new certificates to address innovations within the CMSV field.