

**LETTER OF INTENT
FOR TWO-PLUS-TWO ARTICULATION AGREEMENT
BETWEEN ITASCA COMMUNITY COLLEGE
AND THE COLLEGE OF SCIENCE AND ENGINEERING
AT THE UNIVERSITY OF MINNESOTA DULUTH**

Context

The College of Science and Engineering (CSE) at the University of Minnesota Duluth (UMD) offers the following degree programs: Chemical Engineering, Electrical and Computer Engineering, Industrial Engineering, Biology, Cell Biology, Biochemistry and Molecular Biology, Chemistry, Computer Science, Geology, Mathematics, and Physics, and Applied Physics. In the fall of 1999 the University of Minnesota will be switching to the semester system, joining the community colleges that began the semester system on or before the fall of 1998.

The Agreements

Two-Plus-Two articulation agreements will be jointly developed by Itasca Community College and UMD for degree programs at Itasca Community College for which UMD has a Bachelor's degree program. Two-Plus-Two articulation agreements will consist of a schedule of courses for students to take during their two years at Itasca Community College and the succeeding two years at UMD. This will result in the completion of a specific baccalaureate degree program in CSE. CSE and Itasca Community College will work jointly on the development of these articulation agreements, completing them by **December 1, 1998**. Students participating in the program will need to follow the formal application procedure to UMD for advanced standing students, but will be guaranteed admission to the program if requirements are met.

Students participating in the program will be subject to UMD's high school preparation requirements, liberal education requirements, and all-UMD requirements for the granting of degrees. Students must maintain good academic standing and in some programs may be subject to licensure or other GPA requirements. These requirements are identical to those to which students matriculating at UMD as new high school students are held. Students electing to participate in the program, whether or not they have filed formal application, may elect to have the benefit of additional advising from CSE during the time they are enrolled at Itasca Community College.

____ Signature Present _____ 7 Oct 1998
Kathryn A. Martin, Chancellor
University of Minnesota Duluth

____ Signature Present _____
Joseph Sertich, President
Itasca Community College

____ Signature Present _____
Sabra S. Anderson, Dean
College of Science and Engineering
University of Minnesota Duluth

2+2 Program in Chemical Engineering

Listed below are the courses offered at Itasca Community College that apply to the Bachelor of Science degree in Chemical Engineering at the University of Minnesota Duluth. After successful completion of the listed Itasca courses and the Minnesota Transfer Curriculum, students may complete the B. S. in Chemical Engineering with an additional two years of full-time study at UMD.

Itasca Community College Courses to Complete	cr.	UMD Requirements Satisfied by Itasca Courses	cr.
Engl 1101 Expository Writing	4	Comp 1120 College Writing	3
CSci 1211 Fundamentals of Comp. Sci. I	3	CS 1135 Intro to Prog. In FORTRAN	2
Chem 1201 General Chemistry I	5	Chem 1151 General Chemistry I	5
Chem 1202 General Chemistry II	5	Chem 1152 General Chemistry II	5
Chem 2201 Organic Chemistry I	5	Chem 2521 Organic Chemistry I	4
Chem 2202 Organic Chemistry II	5	Adv. Chem Elective (Chem 2522)	4
Engr 2101 Static Mechanics	3	Engr 2015 Statics	2
Math 1122 Calculus I	5	Math 1296 Calculus I	5
Math 1123 Calculus II	5	Math 1297 Calculus II	5
Phys 1201 General Physics I	5	Phys 1201 Mechanics	4
Phys 1202 General Physics II	4	Phys 1202 Heat and Electricity	4
Liberal Ed. Electives (MN Transfer Curriculum)*			

*ChE program requires one elective each from Categories 6, 7, & 8, two courses from Category 9

Courses to Complete at UMD

ChE 1011 Intro to Chemical Engineering	3	ChE 3211 Chemical Engineering Lab I	2
ChE 2011 Design of Eng. Experiments	3	ChE 3231 Prop. of Engineering Material	3
ChE 2111 Material and Energy Balances	3	ChE 4111 Separations	3
ChE 2121 Chem. Eng. Thermodynamics	3	ChE 4211 Chemical Engineering Lab II	2
Chem 2222 Quantitative Analysis	4	ChE 4301 Chem. Reaction Engineering	3
Comp 3130 Advanced Writing: Engineering	3	ChE 4401 Process Control	3
Engr 2016 Mechanics of Materials	3	ChE 4501 Chem. Engineering Design I	4
Engr 3201 Electrical Power	3	ChE 4502 Chem Engineering Design II	4
Math 3280 Diff. Equat. w/ Linear Algebra	4	ChE electives I & II	6
ChE 3111 Fluid Mechanics	3	Chem 4641 Physical Chemistry I	4
ChE 3112 Heat and Mass Transfer	3	Adv. Lib. Ed. (Approved by Chem Eng. Dept.)	

Bachelor of Science in Chemical Engineering

Chemical engineers develop new methods for the commercial production and control of such vital products as chemicals, minerals, and fossil fuels as well as the control of polluting and toxic substances. These professionals use their knowledge of materials, chemical reactions, and industrial processes to develop industrial and consumer products. Chemical engineers are experts on separation processes such as distillation, absorption evaporation and filtration. Chemical engineers build rewarding careers in industries, government agencies, and universities.

CHEMICAL ENGINEERING

Itasca Community College/
University of Minnesota, Duluth

Chemical Engineering (ChE) is an ABET-accredited four-year baccalaureate degree program at the University of Minnesota, Duluth that emphasizes the development of the student's ability to analyze and design chemical processing systems. By the end of the program, the student must demonstrate the ability to solve engineering problems, a sensitivity to the social and environmental impacts of the engineering profession, and the ability to maintain a high level of competency.

Graduates from the ChE program are qualified for employment in diverse industries, ranging from the manufacture of inorganic chemicals, petrochemicals, plastics, synthetic fibers, paper and pulp, and pharmaceuticals to the processing of hazardous and nuclear wastes. Graduates are qualified for assignments that may include plant operations, process development, process control, project engineering or sales, and may frequently include engineering management later, in their careers. They are also well qualified to continue with additional professional or graduate education.

The ChE curriculum is based on the fundamental sciences such as physics, chemistry and mathematics; engineering sciences such as statics and deformable body mechanics; traditional chemical engineering sciences such as stoichiometry; transport phenomena, and thermodynamics; and chemical engineering design courses with a capstone plant design course during the senior year. The program emphasizes hazardous waste processing engineering, communication skills, safety, ethics, and the use of computers. Students in the ChE program have a unique opportunity to become involved in research, either in the Undergraduate Research Opportunities Program or in the departmental Honors program.

The curriculum plan shown below is designed for students desiring to transfer to the ChE program at UMD. Students must work with an ICC counselor when planning their program to assure smooth transition to UMD.

Two-year Pre-Engineering Program at Itasca: The following schedule is intended for the student who has taken the full schedule of high school math and science courses including precalculus, chemistry and physics. Students lacking this preparation should consider taking the two and one-half year program. If you are uncertain, see a counselor.

FRESHMAN

<u>Fall</u>			<u>Spring</u>		
1 Chem 1201	Gen Inorg Chem	5	Chem 1202	Gen Inorg Chem	5
			Engl 1101	Expos Writing	4
Engr 1101	Intro to Engr	2	Engr 2101	Statics	3
Math 1122	Calc I	5	Math 1123	Calc II	5
2 Phys 1201	Gen Phys I	5	Phys 1202	Gen Phys II	4

SOPHOMORE

<u>Fall</u>			<u>Spring</u>		
Chem 2201	Org Chem I	5	Chem 2202	Org Chem II	5
Csci	Fund Csci I	3 (ITV)			
Engr 2103	Mech of Mat	3			
Engr 2106	Circuits I	4			
Math 2101	Diff Q	4			

Note: To complete an Associate in Science (A.S.) degree, a student must complete 30 credits of general education courses from at least six of the ten goal areas of the Minnesota Transfer Curriculum (MNTC). For a list of eligible courses, see Rick in the counseling office.

1. Students who did not take high school chemistry or did not do well when they took it should take Chem 101 in the summer of their freshman year. This course transfers, but does not satisfy ChE requirements.
2. Requires Math 122 (Calculus) or concurrent enrollment. Students who did not take physics in high school or did not do well when they took it, need to take Phys 104 fall quarter of their freshman year. This will add one year to the A.S. program at Itasca. This course transfers, but does not satisfy engineering requirements.

NOTE: Thermodynamics and Fluid Mechanics must be taken at UMD.

In addition to the above courses, students are strongly recommended to take additional courses listed below which are part of UMD's liberal education requirements. (You are NOT expected to complete all these courses at ICC):

1. 3.credits from: Anth 1102; Econ 2101,2102; PolS 101,1121; Psysc 1101;
Soc 1101, 1201
2. 3 credits from: Anth 1101; Hist 1101,1102, 1111, 1112, 1131, 1132, 1142;
MCS 1101; Phil 1111
3. 3 credits from: Econ 1101; Jour 1101; NSci 1101
4. 9 credits from: Art 1101m 1111, 1112; Engl 1113, 2102, 2102, 2111, 2112, 2131, 2132, 2133,
2134, 2135, 2136, 2135; Musc 1111

ChE degree candidates must meet both UMD graduation requirements and Accreditation Board for Engineering and Technology (ABET) requirements. ABET requires some electives in humanities or social sciences at an advanced level, but does not count performance and skills courses toward the degree requirement. The Associate in Arts will satisfy ChE liberal education requirements at UMD ONLY if the A.A. contains at least 24 credits from the above four categories.

Degree: Bachelor of Chemical Engineering 132-134 credits.

Admission: Students must attain a minimum cumulative GPA of 2.5 in the above-mentioned courses to be considered for admission to the upper division ChE program at UMD. Only courses with a minimum grade of C will be counted towards the Chemical Engineering degree at UMD except for a D in a sequence course, which will be counted if a C is earned in the following course. A minimum cumulative GPA of 2.00 in all courses taken in the ChE program is required for graduation. However, students must have a 2.5 GPA in all Math, Physics and Chemistry courses at ICC.

Application: Fill out and send the UMD admissions application form to UMD along with a \$25 fee. Make sure you indicate Chemical Engineering as your proposed field of study in the College of Science and Engineering.

For more information, contact Rick Mikesch at Itasca Community College, Grand Rapids, MN 55744, Phone: 1-218-327-4467 or toll free 1-800-996-6422; or contact the Department of Chemical Engineering at the University of Minnesota, Duluth, MN 55812, Phone: 1-218-726-7126 or toll free 1-800-232-1339.

Visit UMD on the world wide web at: <http://www.d.umn.edu>

Transfer Program in Electrical & Computer Engineering

Listed below are the courses offered at Itasca Community College that apply to the Bachelor of Science degree in Electrical & Computer Engineering at the University of Minnesota Duluth. After successful completion of the listed Itasca courses students may complete the B. S. in E. C. E. with additional full-time study at UMD.

Itasca Community College Courses to Complete	cr.	UMD Requirements Satisfied by Itasca Courses	cr.
Engl 1101 Expository Writing	4	Comp 1120 College Writing	4
Chem 1201 General Chemistry I*	5	Chem 2172 General Chemistry*	4
Chem 1202 General Chemistry II*	5		
CSci 1211 Fund. of Comput. Sci. I	3	CS 1511 Computer Science I	5
CSci 1212 Fund. of & Comput. Sci II	4	CS 1521 Computer Science II	5
Econ 2102 Microeconomics	3	Econ 1023 Princ. of Economics: Micro	3
Engr 2106 Circuits I	4	ECE 2006 Electrical Circuit Analysis	4
Engr 2111 Digital Logic	3	ECE 1315 Digital System Design	4
Math 1122 Calculus I	5	Math 1296 Calculus I	5
Math 1123 Calculus II	5	Math 1297 Calculus II	5
Math 2102 Multivariable Calculus	4	Math 3298 Calculus III	4
Phys 1201 General Physics I	5	Phys 1201 Mechanics	4
Phys 1202 General Physics II	4	Phys 1204 Elec., Magnet, and Optics	5
Liberal Education Electives	4		

Courses to Complete at UND

Courses to Complete at UMD

ECE 1011 Introduction to ECE	2	ECE 3341 Digital Computer Circuits	4
ECE 2325 Microcomputers System Design	4	ECE 3445 Electromagnetic Fields	3
ECE 3611 Intro to Solid State Semicon.	3	ECE 4305 Computer Architecture	4
Comp 3130 Adv. Writing: Engineering	3	ECE 4899 Senior Project I	1
CS 2111 Intro to Programming in C++	3	ECE 4999 Senior Project II	3
CS 2511 Software Development	4	ECE Technical Electives	6
CS 5631 Operating Systems	4	Stat 3611 Introduction to Statistics	4
Math 3280 Differential Eq. W/ Linear Alg.	4	<i>ECE majors must complete 16 credits in liberal education categories 6-9.</i>	
ECE 2107 Circuits II	4	Remaining Liberal Education	
ECE 2111 Linear Systems & Signal Anal.	4		
ECE 2212 Electronics I	4		
ECE 3151 Control Systems	3		
ECE 3235 Electronics II	4	*Students may prefer to take the one-semester Chem 2172 course at UMD	

Bachelor of Science in Electrical & Computer Engineering

This program of study combines topics from traditional electrical engineering with current topics that focus on computer design and analysis. Electrical and Computer Engineering is concerned with the theory, design and application of electrical phenomena and digital computers, including electronic circuits, signal analysis, system design and computer architecture. Minors in both mathematics and computer science are automatically satisfied with this major.

ELECTRICAL AND COMPUTER ENGINEERING

Itasca Community College/
University of Minnesota, Duluth

The Department of Electrical and Computer Engineering offers a program that combines topics from traditional electrical engineering with current topics that focus on computer design and analysis, leading to the bachelor of electrical and computer engineering (B.E.C.E.) degree. Electrical and computer engineering is concerned with the theory, design, and application of electrical phenomena and digital computers, including electronic circuits, signal analysis, system design, and computer architecture. The department displays strengths in such diverse areas as electronics, signal processing, electromagnetics, digital computer systems, communications, and controls. Individual faculty members specialize in topics such as VLSI design, microprocessor systems, image processing, robust control, solid state devices, neural networks, and fuzzy logic. The major (194 credits) balances theoretical and practical experience in electrical and computer engineering through analysis, synthesis, and experimentation, using facilities that include seven major instructional laboratories and three research & laboratories.

Two-year Pre-Engineering Program at Itasca- The following schedule is intended for the student who has taken the full schedule of high school math and science courses, including pre-calculus, chemistry and physics. Students lacking this preparation should consider taking the two and one-half year program, If you are uncertain, see a counselor.

FRESHMAN

<u>Fall</u>			<u>Spring</u>		
Csci	Fund Csci I	3	Csci	Fund Csci II	3-4
Engl 1101	Expos Writing	4			
Engr 1101	Intro to Engr	3	1 Engr 2101	Statics	3
Math 1122	Calc I	5	Math 1123	Calc II	5
Phys 1201	Gen Phys I	5	Phys 1202	Gen Phys II	4

SOPHOMORE

<u>Fall</u>			<u>Spring</u>		
Chem 1201	Gen Chem I	5	Econ 2102	Micro Econ	3
1 Engr 2102	Dynamics	3			
Engr 2106	Circuits I	4	Engr 2107	Circuits II	4
			Engr 2111	Digital Logic	3
Math 2101	Diff Q	4	Math 2102	Multi Var Calc	4

1. Engr 2101, Statics, and Engr 2102, Dynamics, takes the place of UMD's EE 4135, Robotics.

Note: To complete an Associate in Science (A.S.) degree, a student must complete 30 credits of general education courses from at least six of the ten goal areas of the Minnesota Transfer Curriculum (MNTC). For a list of eligible courses, see Rick in the counseling office.

Students who did not take high school chemistry or did not do well when they took it should take Chem 101 in the summer between their freshman and sophomore years.

Students must also take English 1101 and Econ 2102, as well as the courses listed below which are part of UMD's liberal education requirements. Students need to take an additional elective course in humanities or social sciences (performance and skill courses excluded). You are not expected to complete all these courses at ICC.

1. 4 credits from: Anth 1101; Hist 1101, 1102, 1111, 1112, 1131, 1132; MCS 1101; Phil 1111

2. 8 credits from: Art 1101, 1111, 1112; Engl 1113, 2131, 2136; 2101,2102, 2111,2112; Musc 1111.

Career Outlook

Currently in the midst of dynamic expansion and rapid development during the past quarter century, Electrical and Computer Engineering has emerged as a front-runner in developing high technology. Equipment utilizing advanced electronics and the latest computer applications have touched the lives of virtually all individuals in modern society and have revolutionized the ways in which systems are implemented. Thus individuals completing the Electrical and Computer Engineering program will find many employment opportunities with industrial organizations, government agencies, utilities, consulting firms and educational institutions.

ECE degree candidates must meet both UMD graduation requirements and Accreditation Board for Engineering and Technology (ABET) requirements. ABET requires some electives in humanities or social sciences at an advanced level but does not count performance and skills courses toward the degree requirement. Students who have earned the A.A. degree do not fulfill the elective requirements for the ECE program. Consult an ICC counselor for details.

Degree: Bachelor of Electrical and Computer (B.E.C.E.); 130 credits.

Admission: Students must attain a minimum cumulative GPA of 2.5 in the above-mentioned courses to be considered for admission to the upper division ECE program at UMD. Only courses with a minimum grade of C will be counted towards the Computer Engineering degree at UMD except for a D in a sequence course, which will be counted if a C is earned in the following course. A minimum cumulative GPA of 2.00 in all courses taken in the CpE - program is required for graduation.

Application: Fill out and send the UMD admissions application form to UMD along with a \$25 fee. Make sure you indicate **Electrical and Computer Engineering** as your proposed field of study in the College of Science and Engineering.

For more information, contact Rick Mikesh at Itasca Community College, Grand Rapids, MN 55744, phone: 1-218-327-4467 or 1-800-996-6422; or contact the Department of Computer Engineering at the University of Minnesota, Duluth, MN 55812, phone: 1-218-726-6147 or toll free 1-800-232-1339.

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Fall 1998

2+2 Program in Industrial Engineering

Listed below are the courses offered at Itasca Community College that apply to the Bachelor of Science degree in Industrial Engineering at the University of Minnesota Duluth. After successful completion of the listed Itasca courses students may complete the B. S. in Industrial Engineering with an additional two years of full-time study at UMD.

Itasca Community College Courses to Complete	cr.	UMD Requirements Satisfied by Itasca Courses	cr.
Engl 1101 Expository Writing	4	Comp 1120 College Writing	3
Chem 1201 General Chemistry I	5	Chem 2172 General Chemistry	4
CSci 1211 Fundamentals of Comput. Sci. I	3	CS 1511 Computer Science I	5
Econ 2102 Microeconomics	3	Econ 1023 Prin. of Economics: Micro	3
or Econ 2101 Macroeconomics	3	or Econ 1022 Princ. of Economics: Macro	3
Engr 2101 Static Mechanics	3	Engr 2015 Statics	2
Engr 2103 Mechanics of Materials	3	Engr 2016 Mechanics of Materials	.3
Engr 2102 Dynamics	3	Engr 2026 Dynamics	3
Engr 1120 Engineering Graphics	3	IE 1105 Intro to Engineering Design	3
Math 1122 Calculus I	5	Math 1296 Calculus I	5
Math 1123 Calculus II	5	Math 1297 Calculus II	5
Phys 1201 General Physics I	5	Phys 1201 Mechanics	4
Phys 1202 General Physics II	4	Phys 1202 Heat and Electricity	4
Liberal Education Electives	11		

Courses to Complete at UMD

Engr 3201 Electrical Power	3	IE 3265 Production & Operations Mgt.	4
IE 1205 Intro to Manufacturing Engr.	3	IE 3245 Manufacturing Processes II	4
IE 2105 Intro to Mat. Science for Engineers	3	IE 3255 Statistical Quality Control	3
Comp 3130 Adv. Writing: Engineering	3	IE 4115 Facility Planning & Simulation	4
or Comp 3150 Adv. Writing: Science	3	IE 4135 Automation & Robotics	3
Math 3280 Differential Eq. w/ Linear Alg.	4	IE 4145 CAD/CAM	4
Stat 3611 Intro to Prob. & Stat.	4	IE 4175 Machine Design	3
IE 3105 Human Factors	4	IE 4255 Design of Industrial Systems	3
IE 3115 Operations Research	4	IE 5010 Manufacturing Systems Integr.	4
IE 3125 Engineering Economic Analysis	3	IE Approved Technical Electives	2 or 3
IE 3135 Manufacturing Processes I	4	<i>IE requires one Liberal Education course each from</i>	
IE 3205 Project Management	3	<i>Cat. 7, 8 & two courses from Cat. 9</i>	
		Minor Field Courses & Remaining Liberal Education	

Bachelor of Science in Industrial Engineering Industrial Engineering is concerned with the engineering of a product from its original conception through its design, manufacture, delivery, service, and support. Industrial engineers consider the economic, technical, and human factors in production and address the production issues of operations, management, safety, and quality control. Career fields are wide and varied, ranging from design engineers to hospital administration.

INDUSTRIAL ENGINEERING

Itasca Community College/
University of Minnesota, Duluth

Industrial Engineering (IE) is an ABET accredited four year baccalaureate degree program at the University of Minnesota, Duluth. It has a significant manufacturing and computer emphasis in addition to traditional industrial engineering topics in order to prepare graduates for operations in modern automated manufacturing industry. Because of improvements in electronics, manufacturing in the developed world is undergoing fundamental changes resulting in the establishment of manufacturing facilities that are heavily dependent on computers and robots for their operation. It is increasingly clear that such changes are essential if competitive production is to be maintained. Therefore, modern automated manufacturing requires a work force capable of functioning efficiently in machine-intensive situation, rather than the labor-intensive environment that came from the earlier series and batch production methods.

The IE program augments the traditional skills and techniques of earlier industrial engineering degrees with material directly related to this modern environment by including a strong content in robotics and automation, computer-aided design/computer-aided manufacturing (CAD/CAM), and numerically-controlled (NC) equipment. The IE curriculum provides skills in the mathematical, physical, and social sciences and in English and the humanities along with engineering science, design and management topics.

The curriculum plan shown below is designed for students desiring to transfer to the IE program, at UMD. Students must work with an ICC counselor when planning their programs to assure smooth transition to UMD. It is also possible for students following the traditional pre-mechanical engineering program to transfer to the IE program with the addition of some make-up courses that are determined by consultation with the IE department.

Two-year Pre-Engineering Program at Itasca: The following schedule is intended for the student who has taken the full schedule of high school math and science courses including pre-calculus, chemistry and physics. Students lacking this preparation should consider taking the two and one-half year program. If you are uncertain, see a counselor.

FRESHMAN

<u>Fall</u>			<u>Spring</u>		
Engl 1101	Expos Writing	4	Engl 1105	Tech Writing	3
Engr 1101	Intro to Engr	2	Engr 2101	Static Mech	3
Math 1122	Calc I	5	Math 1123	Calc II	5
Phys 1201	Gen Phys I	5	Phys 1202	Gen.Phys II	4

SOPHOMORE

<u>Fall</u>			<u>Spring</u>		
Chem 1201	Gen Chem 1	5			
Engr 1120	Engr-Graphics	3	Econ 2102	MicroEcon	3
Engr 2102	Dynamics	3			
Engr 2103	Mech of Mat	3	Engr 2104	Fluid Mech	3
Engr 2106	Circuits I	4	Math 2102	Multi Var Calc	4

Students who do not have a strong high school background in chemistry should take Chem 1101 (4 cr.) the summer between their Freshman and Sophomore years.

Note: To complete an Associate in Science (A.S.) degree, a student must complete 30 credits of general education courses from at least six of the ten goal areas of the Minnesota Transfer Curriculum (MNTC). For a list of eligible courses, see Rick in the counseling office.

In addition to the above courses; students are strongly recommended to take additional courses listed below which are part of UMD's liberal education requirements. You are not expected to complete all these courses at ICC.

3 credits from: Anth,1101; Hist 1101, 1102, 1111, 1112, 1131, 1132, 1142; Phil 1111

6 credits from: Art 1101, 1111,1112; Engl 1113, 2101, 2102, 2131, 2132, 2133, 2134, 21359 2136; Musc 1111

IE degree candidates must meet both UMD graduation requirements and Accreditation Board for Engineering and Technology (ABET) requirements. ABET requires some electives in humanities or social sciences at an advanced level, but does not count performance and skills courses toward the degree requirement. Students who have earned the A.A degree do not automatically fulfill the elective requirements for the IE program. Consult an ICC counselor for details.

Degree: Bachelor of Industrial Engineering, 130-132 semester credits.

Admission: Students must attain a minimum cumulative GPA of 2.0 in the above mentioned courses to be considered for admission to the upper division IE program at UMD. Only courses with a minimum grade of C will be counted towards the Industrial Engineering degree at UMD except for a D in a sequence course, which will be counted if a C is earned in the following course. Itasca Community College and the College of Science and Engineering at UMD have a joint eligibility for this program. Consult an ICC counselor for more information. A minimum cumulative GPA of 2.00 in all courses taken in the IE program is required for graduation.

Application: Fill out and send the UMD admissions application to UMD along with a \$25 fee. Make sure that you indicate Industrial Engineering as your proposed field of study in the College of Science and Engineering.

For more information, contact Rick Mikesh at Itasca Community College, Grand Rapids, MN 55744, phone: 1-218-327-4467 or 1-800-996-6422; or contact the Department of Industrial Engineering at the University of Minnesota, Duluth, MN 55812, phone: 1-218-726-6161 or toll free 1-800-232-1339.

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Fall. 1998