

Global Engineering & Science Certificate

Applicable for ALL SD Mines majors

Program coordinated by Ivanhoe International Center Review committee will consist of student's departmental faculty representative and two (2) faculty/staff from outside the department	Office: Surbeck Lower Level Phone: (605) 394-6884 E-mail: international@sdsmt.edu
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Many engineers and scientists encounter projects in unfamiliar cultures and work on multinational/multicultural teams. In a survey of employers recruiting on campus, more than 75% said that competence in cultural and global inclusion and other Mines Advantage skills were important for career success in their organizations. The Certificate in Global Engineering and Science provides cross cultural insight and experience that will increase the ability of engineers and scientists to work successfully on projects and teams in other countries and cultures. Students learn intercultural communication and teaming skills, and then complete a cross cultural design, research, or capstone project while working on multinational/multicultural teams, or by working on a project in a different country or culture, including Native American communities. This certificate will more fully prepare graduates as global professionals and provide evidence to employers of the ability to understand client expectations and unspoken priorities and select appropriate and indigenous technology.

Students from any engineering or science discipline at the SD Mines may pursue a certificate in global engineering by completing **9 credit hours** of coursework as described below.

Students must complete the [Notification of Intent to Seek a Minor](#) form, with appropriate signatures and turn it into the Registrar's Office by the beginning of the first semester of the senior year.

Core Course for Design/Research Activity/Study Abroad Experience

Students will be required to complete **2 credit hours** of cross-cultural engineering design/research activity or science research/capstone project (e.g., an approved design project, co-op, engineering design course, science research or capstone project in a foreign culture or country) selected from the list below. This design activity, science research or capstone project **in a foreign country or culture, including Native American reservations**, can take the form of (1) an approved design project, (2) a co-op or engineering design course, or (3) a research or capstone project.

The design activity, research or capstone project/study abroad experience must be approved in writing IN ADVANCE by your technical advisor and the review committee.

Course #	Description	Credits	Completed / # Credits
Institutional Design/Research Courses*			
EXCH 289/ 389/489	Student Exchange; short term, semester, or academic year	0-18	
EXPL 285/385/485	Study Abroad Experiences (Experiential Learning)	1-3	
CP 297/ 397/497	Cooperative Education	1-3	
XXX 464/465	Capstone Design I and II	1-4	
XXX 491	Independent Study	1-3	
XXX 498	Undergraduate Research/Scholarship	3-12	
Department-Specific Design/Research Courses*			
GEOL 410	Field Geology	6	
PHYS 412/414	Advanced Design Projects I and II	3/4	
MEM 464	Mine Design and Feasibility Study	4	
CBE 463/466/467	Capstone Design, Process/Product Design	2-6	
ME 477/479	Mechanical Engineering Design I and II	2/4	
CBE 487	Global and Contemporary Issues in Chemical Engineering **	1	
CEE 489	Capstone Design	3	

Briefly describe your cross-cultural engineering design/research activity or science research project including the dates, location, type of activity, and your final product (attach a separate sheet if needed). This can include an approved design/research project, co-op, engineering design course, science research or capstone project in a foreign culture or country, including American Indian reservations.

DRAFT

(Technical Advisor's Signature)

(Date)

(Certificate Coordinator's Signature)

(Date)

Elective Courses for Cross-Cultural Teamwork and Project Management

Students will be required to select **3 credit hours** from the list below to expand their understanding of leadership skills, project management, cross-cultural teamwork, decision making, and the use of appropriate sustainable technology. Teamwork and project management are incorporated into many SD Mines courses. Additional courses will be considered on an individual basis and may be included IF teamwork or project management is officially and substantively included in the course syllabus. Two or more different prefixes are required.

Course #	Description	Credits	Completed/ # Credits
CBE 485/585	Renewable and Sustainable Energy	3	
CBE 485/585L	Renewable and Sustainable Energy Lab	1	
CEE 325	Introduction to Sustainable Design	3	
CEE 425/525	Sustainable Engineering	3	
CEE 474/574	Construction Engineering & Management	3	
IENG 241L	Introduction to Quality Methods and Teams	2	
IENG 352	Creativity and Innovation	1	
IENG 366	Engineering Management	3	
MSL 201	Innovative Team Leadership	1	
PSYC 319	Teams and Teaming	1	
PSYC 331	Industrial and Organizational Psychology	3	

Elective Courses for Cross-Cultural Understanding and Communication

Students will be required to select **6 credit hours** from the list below that expand the understanding of human nature, social systems, cross cultural communication, or engineering and science practices in a global context.** Two or more different prefixes are required.

Course #	Description	Credits	Completed/ # Credits
ANTH 210	Cultural Anthropology	3	
ARTH 211	History of World Art	3	
ARTH 321	Modern and Contemporary Art	3	
CBE 487	Global and Contemporary Issues in Chemical Engineering **	1	
ENGL 212	World Literature II	3	
ENGL 221	British Literature I	3	
ENGL 222	British Literature II	3	
ENGL 241	American Literature I	3	
ENGL 242	American Literature II	3	
ENGL 330	Shakespeare	3	
ENGL 360	Studies in European Literature	3	
ENGL 374	Studies in American Literature	1-3	
EXCH 287/289, 387/389, 487/489	Student Exchange	0-18	
EXPL 285/385/485	Study Abroad Experiences (Experiential Learning)	1-3	
GEOG 101	Introduction to Geography	3	
GEOG 210	World Regional Geography	3	
GEOG 212	Geography of North America	3	
GEOG 400	Cultural Geography	3	
HIST 121	Western Civilization I	3	

HIST 122	Western Civilization II	3	
HUM 100	Introduction to Humanities	3	
HUM 200	Connections: Humanities and Technology	3	
Languages XXX 101/102 ***	Introductory Language I and II	4	
PHIL 100	Introduction to Philosophy	3	
PHIL 220	Introduction to Ethics	3	
PHIL 233	Philosophy and Literature	3	
POLS 250	World Politics	3	
POLS 350	International Relations	3	
POLS 407	Environmental Law and Policy	3	
PSYC 461	Theories of Personality	3	
SOC 100	Introduction to Sociology	3	
SOC 150	Social Problems	3	

* Course numbers may be subject to change and will match departmental courses for design, research, and capstone courses.

** Specialized courses being developed in conjunction with efforts to create study-abroad pathways within all undergraduate programs of study will be considered for inclusion as electives as they are developed (i.e., CBE 487, Global and Contemporary Issues in Chemical Engineering). These courses are examples and others may be approved by the committee, including courses taken at other universities.

***Intermediate or advanced language courses or language courses taken while studying abroad may be substituted for introductory language courses with approval of the program coordinator.