

SOUTH DAKOTA BOARD OF REGENTS

Committee on Academic and Student Affairs

AGENDA ITEM: II – D (2)

DATE: June 10-11, 2015

SUBJECT: Program Modifications – SDSM&T

South Dakota School of Mines & Technology has submitted the following program modification proposal. These requests have been reviewed by the system Vice President for Academic Affairs and the Executive Director recommends approval.

Existing Program – Substantive Program Modifications

- Atmospheric and Environmental Sciences (M.S.) – *request total credits of elective coursework required for the program and change in existing specialization*
- Chemical Engineering (Accelerated Option) (M.S.) – *request change in total credits of dual counted BS and MS credits for the program*
- Chemical and Biological Engineering (Ph.D.) – *request change in total credits required within the discipline, total credits of elective coursework, and total credits required for the program*
- Civil and Environmental Engineering (Ph.D.) – *request change in total credits of elective coursework and total credits required for the program*
- Mechanical Engineering (Ph.D.) – *request change in total credits required for the program and change in existing specialization*

(Continued)

RECOMMENDED ACTION OF THE EXECUTIVE DIRECTOR

Approve SDSM&T's program modification requests for its M.S. in Atmospheric and Environmental Sciences; M.S. in Chemical Engineering (Accelerated Option); Ph.D. in Chemical and Biological Engineering; Ph.D. in Civil and Environmental Engineering; Ph.D. in Mechanical Engineering; B.S. in Chemistry; B.S. in Computer Science; Minor in Materials Science, Metals; M.S. in Mining Engineering; and Ph.D. in Materials Engineering and Science programs.

- Chemistry (B.S.) – *request change to total credits required within the discipline and the total credits of elective coursework in the program*
- Computer Science (B.S.) – *request change to total credits required within the discipline and the total credits of elective coursework in the program*
- Materials Science, Metals (Minor) – *request change to total credits required within the discipline and the total credits of elective coursework in the program*
- Mining Engineering (M.S.) – *request change to the program name*
- Materials Engineering and Science (Ph.D.) – *request change to the total credits required for the program*

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **SDSM&T**

2. CURRENT PROGRAM NAME: **M.S. in Atmospheric and Environmental Sciences**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<u> </u> total credits required within the discipline	<u> </u> Program name
<u> </u> total credits of supportive course work	<u> X </u> Existing specialization
<u> X </u> total credits of elective course work	<u> </u> Addition of specialization
<u> </u> total credits required for program	<u> </u> Other (explain)

4. LEVEL:

 Certificate
 Associate Degree
 Bachelor's Degree
 X Master's Degree
 Doctoral Degree

5. CATEGORY:

 Minor
 X Major
 X Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

 on the effective date for all students

 on the effective date for students new to the program
(enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name: Atmospheric and Environmental Sciences				Proposed Program Name: Atmospheric and Environmental Sciences			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
		Electives	9			Electives	6-9
		Thesis Research	6			Thesis Research	6-9
				AES	690	Seminar	2
AES	603	Atmosphere Biosphere Interactions (earth system science specialization)	3	AES	506	Global Environmental Change (environmental science specialization)	3
		Remote Sensing course (earth system science specialization)	3			Computer Applications (meteorology specialization)	3

Total number of hours required for major, minor, or specialization

Total number of hours required for degree

30

Total number of hours required for major, minor, or specialization

Total number of hours required for degree

30

9. EXPLANATION OF THE CHANGE:

We propose to allow the graduate advisory committees for the graduate students in the AES program to allow flexibility in the elective courses and thesis research needed by allowing a range of credits for each category. For the Meteorology specialization, we would like to require a computer applications course; acceptable courses are AES 519 (Computing Methods in Atmospheric Sciences), AES 520 (Remote Sensing for Research) or another appropriate course involving computer applications as approved by the student's graduate advisory committee. The Earth System Specialization will be renamed as Environmental Science Specialization to better reflect the program name. For the Environmental Science specialization, we would like to require AES 506 Global Environmental Change instead of the AES 603 Atmosphere Biosphere Interactions. 2 credits of AES 690 Seminar will be required, or equivalent as determined by the program.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

02/02/2015

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: SDSM&T

2. CURRENT PROGRAM NAME: M.S. in Chemical Engineering (Accelerated Option)

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<p>_____ total credits required within the discipline</p> <p>_____ total credits of supportive course work</p> <p>_____ total credits of elective course work</p> <p>_____ total credits required for program</p>	<p>_____ Program name</p> <p>_____ Existing specialization</p> <p>_____ Addition of specialization</p> <p>Other (explain): Total credits of dual counted BS and MS credits. <input checked="" type="checkbox"/> _____</p>
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4. LEVEL:

_____ Certificate

_____ Associate Degree

_____ Bachelor's Degree

_____ Master's Degree

_____ Doctoral Degree

5. CATEGORY:

_____ Minor

_____ Major

_____ Specialization

6. EFFECTIVE DATE OF CHANGE: Summer 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

_____ on the effective date for all students

_____ on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
M.S. in Chemical Engineering (Accelerated Non-Thesis)				M.S. in Chemical Engineering (Accelerated Non-Thesis)			
CBE	450/550	Systems Analysis Applied to Chemical Engineering	2-3	CBE	450/550	Systems Analysis Applied to Chemical Engineering	2-3
CBE	612	Transport Phenomena: Momentum	3	CBE	612	Transport Phenomena: Momentum	3
CBE	613	Transport Phenomena: Heat	3	CBE	613	Transport Phenomena: Heat	3
CBE	621	Advanced Chemical Engineering Thermodynamics I	3	CBE	621	Advanced Chemical Engineering Thermodynamics I	3
		Kinetics Elective Credits	3			Kinetics Elective Credits	3
		Applied Computation Elective Credits	3			Applied Computation Elective Credits	3
CBE	790	Seminar	0.5	CBE	790	Seminar	0.5
		Non-Thesis Research	2			Non-Thesis Research	2
CBE	788	Master's Research Problems/Project	TBA	CBE	788	Master's Research Problems/Project	TBA
		Chemical Engineering Approved Electives	8			Chemical Engineering Approved Electives	8
		Dual Counted BS/MS Credits	9			Dual Counted BS/MS Credits	12
		Total:	32			Total:	32
M.S. in Chemical Engineering (Accelerated Thesis)				M.S. in Chemical Engineering (Accelerated Thesis)			
CBE	450/550	Systems Analysis Applied to Chemical Engineering	2-3	CBE	450/550	Systems Analysis Applied to Chemical Engineering	2-3
CBE	612	Transport Phenomena: Momentum	3	CBE	612	Transport Phenomena: Momentum	3
CBE	613	Transport Phenomena: Heat	3	CBE	613	Transport Phenomena: Heat	3
CBE	621	Advanced Chemical Engineering Thermodynamics I	3	CBE	621	Advanced Chemical Engineering Thermodynamics I	3
		Kinetics Elective Credits	3			Kinetics Elective Credits	3
		Applied Computation Elective Credits	3			Applied Computation Elective Credits	3
CBE	790	Seminar	0.5	CBE	790	Seminar	0.5
		Thesis Research	6			Thesis Research	6
CBE	798	Thesis	TBA	CBE	798	Thesis	TBA
		Chemical Engineering Approved Electives	5			Chemical Engineering Approved Electives	5
		Dual Counted BS/MS Credits	9			Dual Counted BS/MS Credits	12
		Total:	30			Total:	30

Total number of hours required for major, minor, or specialization	30 or 32
Total number of hours required for degree	30 or 32

Total number of hours required for major, minor, or specialization	30 or 32
Total number of hours required for degree	30 or 32

9. EXPLANATION OF THE CHANGE:

The Department of CBE has elected to allow up to 12 credits of courses taken within the B.S. ChE degree to count toward the accelerated M.S. ChE degree (currently only 9 credits can be double counted). All requirements regarding allowance of classes for dual counting not changed, and the total number of required credits to earn the M.S. ChE has not changed (still 30 for thesis option and 32 for non-thesis option).

Dr. Richard Sinden

Institutional Authorization (President or Designee)

10/25/2014

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **SDSM&T**

2. CURRENT PROGRAM NAME: **Ph.D. in Chemical and Biological Engineering**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<u> X </u> total credits required within the discipline	<u> </u> Program name
<u> </u> total credits of supportive course work	<u> </u> Existing specialization
<u> X </u> total credits of elective course work	<u> </u> Addition of specialization
<u> X </u> total credits required for program	<u> </u> Other (explain)

4. LEVEL:

 Certificate
 Associate Degree
 Bachelor's Degree
 Master's Degree
 X Doctoral Degree

5. CATEGORY:

 Minor
 X Major
 Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

 on the effective date for all students
 on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
CBE	890	Seminar	2	CBE	890	Seminar	4
		Required courses (minimum 6 cr hr from Chemical Engineering and 6 cr hr from Biological Engineering)	24			Required courses (minimum 6 cr hr from Chemical Engineering and 6 cr hr from Biological Engineering)	24
CBE	898D	Research credits (minimum required)	34	CBE	898D	Minimum credit hours of research credits	32
		Elective courses (minimum required)	0			Minimum credit hours of elective courses	12

Total number of hours required for major, minor, or specialization 72

Total number of hours required for degree 72

Total number of hours required for major, minor, or specialization 72

Total number of hours required for degree 72

9. EXPLANATION OF THE CHANGE:

The Council on Graduate Education voted on January 23, 2014 to create new minimum course credit distributions for PhD degrees from 80 total/50 coursework to 72 total/36 coursework. The CBE Department concurs with this change. In addition, per the BOR mandate to eliminate 0.5 credit courses, we have elected to increase the number of required seminar credits from 2 to 4. A related minor course modification changing CBE 890 from 0.5 to 1.0 credits is also proposed at this time, to keep the number of student seminar experiences at 4 semesters for the PhD program.

Dr. Richard Sinden

 Institutional Authorization (President or Designee)

02/17/2015

 Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **SDSM&T**

2. CURRENT PROGRAM NAME: **Ph.D. in Civil and Environmental Engineering**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

_____ total credits required within the discipline	_____ Program name
_____ total credits of supportive course work	_____ Existing specialization
<u> X </u> total credits of elective course work	_____ Addition of specialization
<u> X </u> total credits required for program	_____ Other (explain)

4. LEVEL:

_____ Certificate
 _____ Associate Degree
 _____ Bachelor's Degree
 _____ Master's Degree
 X Doctoral Degree

5. CATEGORY:

_____ Minor
 X Major
 _____ Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

_____ on the effective date for all students

_____ on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
CEE	790	Seminar	3	GEOL/ GEOE/ AES/ MES/ CEE	790	Seminar	3
MATH	547	Design of experiments	3	MATH	547	Design of experiments	3
GEOL	808	Fundamental Problems in Engineering and Science	3	GEOL/ AES/ CEE	808	Fundamental Problems in Engineering and Science	3
		Coursework credits (recommended and elective courses)	39-51			Coursework credits (recommended and elective courses)	30-42
		Research credits	30-42			Research credits (minimum)	21-33

Total number of hours required for major, minor, or specialization

90

Total number of hours required for degree

90

Total number of hours required for major, minor, or specialization

72

Total number of hours required for degree

72

9. EXPLANATION OF THE CHANGE:

The Council on Graduate Education voted on January 23, 2014 to create new minimum course credit distributions for PhD degrees from 80 total/50 coursework to 72 total/36 coursework. The CEE Department concurs with this change.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

01/22/2015

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **SDSM&T**

2. CURRENT PROGRAM NAME: **Ph.D. in Mechanical Engineering**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

_____ total credits required within the discipline	_____ Program name
_____ total credits of supportive course work	<u> X </u> Existing specialization
_____ total credits of elective course work	_____ Addition of specialization
<u> X </u> total credits required for program	_____ Other (explain)

4. LEVEL:

_____ Certificate
 _____ Associate Degree
 _____ Bachelor's Degree
 _____ Master's Degree
 X Doctoral Degree

5. CATEGORY:

_____ Minor
 X Major
 _____ Specialization

6. EFFECTIVE DATE OF CHANGE: Summer 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

_____ on the effective date for all students

_____ on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
		Total Required Coursework and Research	80			Total Required Coursework and Research	72
		Minimum Required Coursework	50			Minimum Required Coursework	36
		Minimum Required Dissertation (ME 898D)	30			Minimum Required Dissertation (ME 898D)	20

Total number of hours required for major, minor, or specialization

Total number of hours required for degree

80

80

Total number of hours required for major, minor, or specialization

Total number of hours required for degree

72

72

9. EXPLANATION OF THE CHANGE:

To be consistent with the CGE total credit requirement for Ph.D. program.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

11/10/2014

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **South Dakota School of Mines and Technology**

2. CURRENT PROGRAM NAME: **B.S. in Chemistry**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<u> X </u> total credits required within the discipline	_____ Program name
_____ total credits of supportive course work	_____ Existing specialization
<u> X </u> total credits of elective course work	_____ Addition of specialization
_____ total credits required for program	_____ Other (explain)

4. LEVEL:

_____ Certificate
 _____ Associate Degree
 X Bachelor's Degree
 _____ Master's Degree
 _____ Doctoral Degree

5. CATEGORY:

_____ Minor
 X Major
 _____ Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

_____ on the effective date for all students

_____ on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
CHEM	111	Introduction to Chemistry and Applied Biological Sciences	1	CHEM	111	Introduction to Chemistry and Applied Biological Sciences	1
CHEM	112	General Chemistry I	3	CHEM	112	General Chemistry I	3
CHEM	112L	General Chemistry I Lab	1	CHEM	112L	General Chemistry I Lab	1
CHEM	114	General Chemistry II	3	CHEM	114	General Chemistry II	3
CHEM	114L	General Chemistry II Lab	1	CHEM	114L	General Chemistry II Lab	1
CHEM	290	Seminar	2	CHEM	326	Organic Chemistry I	3
CHEM	326	Organic Chemistry I	3	CHEM	326L	Organic I Lab	2
CHEM	326L	Organic I Lab	2	CHEM	328	Organic Chemistry II	3
CHEM	328	Organic Chemistry II	3	CHEM	328L	Organic II Lab	2
CHEM	328L	Organic II Lab	2	CHEM	332	Analytical Chemistry	3
CHEM	332	Analytical Chemistry	3	CHEM	332L	Analytical Chemistry Lab	1
CHEM	332L	Analytical Chemistry Lab	1	CHEM	342	Physical Chemistry I	3
CHEM	342	Physical Chemistry I	3	CHEM	342L	Physical Chemistry I Lab	1
CHEM	342L	Physical Chemistry I Lab	1	CHEM	344	Physical Chemistry II	3
CHEM	344	Physical Chemistry II	3	CHEM	344L	Physical Chemistry II Lab	1
CHEM	344L	Physical Chemistry II Lab	1	CHEM	352	Systematic Inorganic Chemistry	3
CHEM	352	Systematic Inorganic Chemistry	3	CHEM	370	Chemical Literature	1
CHEM	370	Chemical Literature	1	CHEM	464	Biochemistry I	3
CHEM	464	Biochemistry I	3	CHEM	434	Instrumental Analysis	3
CHEM	434	Instrumental Analysis	3	CHEM	434L	Instrumental Analysis Lab	2
CHEM	434L	Instrumental Analysis Lab	2	CHEM	452	Inorganic Chemistry	3
CHEM	452	Inorganic Chemistry	3	CHEM	452L	Inorganic Lab	1
CHEM	452L	Inorganic Lab	1	CHEM	482	Environmental Chemistry	3
CHEM	482	Environmental Chemistry	3			Advanced Chemistry Electives	3
CHEM	490	Seminar	2	ENGL	101	Composition I	3
		Advanced Chemistry Electives	3	ENGL	279	Technical Communications I	3
ENGL	101	Composition I	3	ENGL	289	Technical Communications II	3
ENGL	279	Technical Communications I	3	PHYS	211	Physics I	3
ENGL	289	Technical Communications II	3	PHYS	213	Physics II	3
PHYS	211	Physics I	3	PHYS	213L	Physics II Lab	1
PHYS	213	Physics II	3	MATH	123	Calculus I	4
PHYS	213L	Physics II Lab	1	MATH	125	Calculus II	4
MATH	123	Calculus I	4	MATH	321	Differential Equations	3
MATH	125	Calculus II	4			Goal 3 Electives	6
MATH	321	Differential Equations	3			Goal 4 Electives	6
		Goal 3 Electives	6			Free Electives	28
		Goal 4 Electives	6				
		Free Electives	24				

Total number of hours required for major, minor, or specialization	120
Total number of hours required for degree	120

Total number of hours required for major, minor, or specialization	120
Total number of hours required for degree	120

9. EXPLANATION OF THE CHANGE:

Chem 290 and 490 are currently not being offered. We therefore removed those credits and added 4 elective credits to maintain 120 credits.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

03/10/2015

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **SDSM&T**

2. CURRENT PROGRAM NAME: **B.S. in Computer Science**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<u> X </u> total credits required within the discipline	_____ Program name
_____ total credits of supportive course work	_____ Existing specialization
<u> X </u> total credits of elective course work	_____ Addition of specialization
_____ total credits required for program	_____ Other (explain)

4. LEVEL:

_____ Certificate
 _____ Associate Degree
 X Bachelor's Degree
 _____ Master's Degree
 _____ Doctoral Degree

5. CATEGORY:

_____ Minor
 _____ Major
 X Specialization

6. EFFECTIVE DATE OF CHANGE: August 1, 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

_____ on the effective date for all students

 X on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name: B.S. Computer Science				Proposed Program Name: B.S. Computer Science			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
CSC	110	Survey of Computer Science & Mathematics	1	CSC	110	Survey of Computer Science & Mathematics	1
CSC	150	Computer Science 1	3	CSC	150	Computer Science 1	3
CSC	250	Computer Science 2	4	CSC	250	Computer Science 2	4
CSC	251	Finite Structures	4	CSC	251	Finite Structures	4
CSC	300	Data Structures	4	CSC	300	Data Structures	4
CSC	314	Assembly Language	3	CSC	314	Assembly Language	3
CSC	317	Computer Org & Arch	3	CSC	317	Computer Org & Arch	3
CSC	372	Analysis of Algorithms	3	CSC	372	Analysis of Algorithms	3
CSC	421	Graphical User Interfaces	3	CSC	421	Graphical User Interfaces	3
CSC	456	Operating Systems	4	CSC	456	Operating Systems	4
CSC	464	Senior Design I	2	CSC	464	Senior Design I	2
CSC	465	Senior Design II	2	CSC	465	Senior Design II	2
CSC	470	Software Engineering	3	CSC	470	Software Engineering	3
CSC	484	Database Management	3	CSC	484	Database Management	3
CSC		Upper Level CSC Elective Complete up to 12 credits from the following list: CSC 410, CSC 412, CSC 414, CSC 415, CSC 426, CSC 433, CSC 441, CSC 442, CSC 445, CSC 447, CSC 449, CSC 476/476L and CENG 444. Completion of a 3 credit CP 497 can be used at most once for this requirement	12	CSC		Upper Level CSC Elective Complete up to 12 credits from the following list: CSC 410, CSC 412, CSC 414, CSC 415, CSC 426, CSC 433, CSC 441, CSC 442, CSC 445, CSC 447, CSC 449, CSC 476/476L and CENG 444. Completion of a 3 credit CP 497 can be used at most once for this requirement	12
PHYS	211	University Physics I	3	PHYS	211	University Physics I	3
		Science Requirement	6			Science Requirement	6
		Science Lab	2			Science Lab	2
MATH	123	Calculus 1	4	MATH	123	Calculus 1	4
MATH	125	Calculus 2	4	MATH	125	Calculus 2	4
MATH	225	Calculus 3	4	MATH	225	Calculus 3	4
MATH	315	Linear Algebra	3	MATH	315	Linear Algebra	3
MATH	381	Intro to Prob & Stats	3	MATH	381	Intro to Prob & Stats	3
MATH		Math Elective Must complete at least 3 credits from the following list: Math 321, Math 382, Math 353, Math 413, Math 421, or Math 443	3	MATH		Math Elective Must complete at least 3 credits from the following list: Math 321, Math 382, Math 353, Math 413, Math 421, or Math 443	3
ENGL	101	Composition I	3	ENGL	101	Composition I	3
ENGL	279	Tech Comm I	3	ENGL	279	Tech Comm I	3
ENGL	289	Tech Comm II	3	ENGL	289	Tech Comm II	3
		Social Sciences	6			Social Sciences	6
		Arts / Hum	6			Arts / Hum	6

		Additional Hum/SS course	3			Additional Hum/SS course	3
CSC	461	Programming Languages	3	CSC	461	Programming Languages	4
CSC	421	Graphical User Interfaces and Object Oriented Programming	3	CSC	462	Graphical User Interface Programming	3
Free Electives			7	Free Electives			6

Total number of hours required for major, minor, or specialization

113

Total number of hours required for degree

120

Total number of hours required for major, minor, or specialization

114

Total number of hours required for degree

120

9. EXPLANATION OF THE CHANGE:

Moving the object oriented programming into CSC 461 is a natural match for the course and will better align the curriculum to needs of industry. The change from CSC 421 to CSC 462 will enable students to study graphical user interfaces at a higher level since this new course will feature a programming languages prerequisite. This high proficiency in graphical user interfaces does align with the progression of the industry.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

03/30/2015

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: **SDSM&T**

2. CURRENT PROGRAM NAME: **Minor in Materials Science- Metals**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<u> X </u> total credits required within the discipline	<u> </u> Program name
<u> </u> total credits of supportive course work	<u> </u> Existing specialization
<u> X </u> total credits of elective course work	<u> </u> Addition of specialization
<u> </u> total credits required for program	<u> </u> Other (explain)

4. LEVEL:

 Certificate
 Associate Degree
 X Bachelor's Degree
 Master's Degree
 Doctoral Degree

5. CATEGORY:

 X Minor
 Major
 Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

 on the effective date for all students
 on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
Required Courses in the Minor			12	Required Courses in the Minor			9
MET	232	Properties of Materials	3	MET	232	Properties of Materials	3
MET	330	Physics of Metals	3	MET	330	Physics of Metals	3
MET	332	Thermomechanical Processing	3	MET	332	Thermomechanical Processing	3
MET	443	Composite Materials	3				
Elective Courses in the Minor:			6	Elective Courses in the Minor:			9
MET	430/430L	Welding Engineering and Design of Welded Structures/Lab	3	MET	430/430L	Welding Engineering and Design of Welded Structures/Lab	3
MET	440/540	Mechanical Metallurgy	3	MET	440/540	Mechanical Metallurgy	3
MET	445/545	Oxidation and Corrosion of Metals	3	MET	445/545	Oxidation and Corrosion of Metals	3
				MET	426/526	Steelmaking	3
				MET	450/550	Forensic Engineering	3
				MET	432/532	Advanced Materials and Processes	3

Total number of hours required for major, minor, or specialization

18

Total number of hours required for degree

Total number of hours required for major, minor, or specialization

18

Total number of hours required for degree

9. EXPLANATION OF THE CHANGE:

MET 443 is rarely taught anymore, so is being removed as a required course. Several courses are being added to the list of electives to broaden the appeal of the Minor.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

03/13/2015

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: South Dakota School of Mines and Technology

2. CURRENT PROGRAM NAME: Mining Engineering

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

_____ total credits required within the discipline	<input checked="" type="checkbox"/> Program name
_____ total credits of supportive course work	_____ Existing specialization
_____ total credits of elective course work	_____ Addition of specialization
_____ total credits required for program	_____ Other (explain)

4. LEVEL:

_____ Certificate
 _____ Associate Degree
 _____ Bachelor's Degree
 Master's Degree
 _____ Doctoral Degree

5. CATEGORY:

_____ Minor
 Major
 _____ Specialization

6. EFFECTIVE DATE OF CHANGE: August 1, 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

on the effective date for all students

_____ on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name: Mining Engineering				Proposed Program Name: Mining Engineering and Management			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
		Mining Engineering Non-thesis option	32			Mining Engineering and Management Non-thesis Option:	
		MEM 525 or 550	3			MEM 525 or 550	3
		MEM 510	3			MEM 510	3
		MEM 580	3			MEM 580	3
		MEM 610	3			MEM 610	3
		Electives	18			Electives	18
		MEM 788	2			MEM 788	2
		Total Non-thesis credits	32			Total Non-thesis credits	32

Total number of hours required for major, minor, or specialization

Total number of hours required for degree

32

Total number of hours required for major, minor, or specialization

Total number of hours required for degree

32

No other changes to the curriculum will be required.

9. EXPLANATION OF THE CHANGE: This change in the Mining Engineering MS program is needed to accommodate those potential MS students who do not have a BS degree in Mining Engineering but do hold an earned BS degree in another engineering field, or who do not have an engineering BS degree but do have significant experience with a mining company. Overall, the approved non-thesis MS program in Mining Engineering will not change in terms of the core courses required and permitted electives.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

03/20/2015

Date Submitted

South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION

This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION: South Dakota School of Mines and Technology

2. CURRENT PROGRAM NAME: Materials Engineering and Science, Ph.D.

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

<u> </u> total credits required within the discipline	<u> </u> Program name
<u> </u> total credits of supportive course work	<u> </u> Existing specialization
<u> </u> total credits of elective course work	<u> </u> Addition of specialization
<u> X </u> total credits required for program	<u> </u> Other (explain)

4. LEVEL:

 Certificate
 Associate Degree
 Bachelor's Degree
 Master's Degree
 X Doctoral Degree

5. CATEGORY:

 Minor
 Major
 Specialization

6. EFFECTIVE DATE OF CHANGE: September 1, 2015

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:

 on the effective date for all students
 on the effective date for students new to the program
 (enrolled students will graduate from existing program)

8. PRIMARY ASPECTS OF THE MODIFICATION:

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name:				Proposed Program Name:			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
MES	898D	Dissertation	20-30	MES	898D	Dissertation	22
		Program Major Emphasis	44-54			Program Major Emphasis	44
		Analytical Mathematics	3			Analytical Mathematics	3
		Numerical Mathematics	3			Numerical Mathematics	3

Total number of hours required for major, minor, or specialization

80

Total number of hours required for major, minor, or specialization

72

Total number of hours required for degree

80

Total number of hours required for degree

72

9. EXPLANATION OF THE CHANGE:

The MES Program has elected to reduce the total number of required credits for the PhD degree from 80 to 72. As part of this, the number of Program Major Emphasis credits, which is currently variable between 44-54 required credits, has been defined at 44 credits. At the same time, the number of required research credits which was variable between 20-30 credits in the form of MES 898D (Dissertation), has been defined at 22 credits.

Dr. Richard Sinden

Institutional Authorization (President or Designee)

03/27/2015

Date Submitted