

SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs

AGENDA ITEM: 3 – C (3)

DATE: May 11-12, 2016

SUBJECT: Program Modifications – SDSM&T

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

Existing Program: Substantive Program Modification

- Atmospheric and Environmental Sciences (M.S.) – *request to change: Other – The proposed option for the program would enable an accelerated MS via counting some 400/500/600 classes taken as an undergrad to also be counted toward a MS degree*
- Construction Management (Certificate) – *request to change the program name and the CIP Code for the program*

DRAFT MOTION 20160511_3-C(3): I move to approve SDSM&T’s program modifications for its M.S. in Atmospheric and Environmental Sciences; and Certificate in Construction Management programs.

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: **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> </u> Existing specialization
<u> </u> total credits of elective course work	<u> </u> Addition of specialization
<u> </u> total credits required for program	<u> X </u> Other (explain)

The proposed option for the program would enable an accelerated MS via counting some 400/500/600 classes taken as an undergrad to also be counted toward a MS degree.

4. LEVEL:

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

5. CATEGORY:

 Minor
 X Major
 Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2016

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: AES	Proposed Program Name: AES
<u>Program requirements for MS Atmospheric and Environmental Science</u>	<u>Program requirements for MS Atmospheric and Environmental Science</u>
<p><u>Requirements for the M.S. degree in Atmospheric and Environmental Sciences</u> <i>General requirements (both specializations)</i></p> <ul style="list-style-type: none"> • 30 credit hours of course work and thesis research as approved by the student’s graduate advisory committee. <ul style="list-style-type: none"> ○ Fifteen credit hours of coursework in atmospheric and environmental sciences (AES prefix) at the 500-level or above. ○ Six to nine additional credit hours of non-atmospheric and environmental sciences electives at the 400-level or above (300-level non-atmospheric sciences courses can be accepted if approved by the Council on Graduate Education), or atmospheric and environmental sciences electives at the 500-level. (Please note undergraduate credit limitations given under “Advanced Degree Grade Requirements” heading on the Graduate Policies for master of science degrees.) ○ Thesis research — 6-9 credit hours. • Selection of a graduate committee and completion of a Program of Study by mid-term of the second semester at SDSM&T. • Registration in AES 690 Seminar each spring semester. • Completion of a master’s thesis. The thesis must adhere to the format and content guidelines as set forth by the graduate school, and be approved by the student’s graduate advisory committee and the Dean of Graduate Education. <p><i>Specific requirements for the Meteorology Specialization</i> All students are required to complete a course focused on computer applications for research. This includes one of 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.</p> <p>Students entering the program with a bachelor’s degree in fields outside of atmospheric sciences or meteorology must take the following courses: AES 450 Synoptic Meteorology I (not for graduate credit), AES 501 Atmospheric Physics, AES 555 Synoptic Meteorology II, and AES 560 Atmospheric Dynamics. Additional coursework may be determined by the student’s graduate advisory committee.</p> <p><i>Specific requirements for the Environmental Science Specialization</i></p>	<p><u>Requirements for the M.S. degree in Atmospheric and Environmental Sciences</u> <i>Thesis Option requirements (both Meteorology and Environmental Science specializations)</i></p> <ul style="list-style-type: none"> • 32 credit hours of course work and thesis research as approved by the student’s graduate advisory committee. <ul style="list-style-type: none"> ○ Fifteen credit hours of coursework in atmospheric and environmental sciences (AES prefix) at the 500-level or above. ○ Registration in 2 credits of AES 690 Seminar (offered in the spring semester only). ○ Six to nine additional credit hours of non-atmospheric and environmental sciences electives at the 400-level or above (300-level non-atmospheric sciences courses can be accepted if approved by the Council on Graduate Education), or atmospheric and environmental sciences electives at the 500-level. (Please note undergraduate credit limitations given under “Advanced Degree Grade Requirements” heading on the Graduate Policies for master of science degrees.) ○ Thesis research — 6-9 credit hours. • Selection of a graduate committee and completion of a Program of Study by mid-term of the second semester at SDSM&T. • Completion of a master’s thesis. The thesis must adhere to the format and content guidelines as set forth by the graduate school, and be approved by the student’s graduate advisory committee and the Dean of Graduate Education. <p>• <i>Specific requirements for the Meteorology Specialization</i> All students are required to complete AES 506 Global and Environmental Change and a course focused on computer applications for research. This includes one of AES 519 Computing Methods in Atmospheric Sciences, or another appropriate course involving computer applications as approved by the student’s graduate advisory committee.</p> <p>Students entering the program with a bachelor’s degree in fields outside of atmospheric sciences or meteorology must take the following courses: AES 450 Synoptic Meteorology I (not for graduate credit), AES 501 Atmospheric Physics, AES 555 Synoptic Meteorology</p>

All students are required to complete AES 506 Global Environmental Change. Additional coursework will be decided by the student's graduate advisory committee and outlined in the student's program of study.

II, and AES 560 Atmospheric Dynamics. Additional coursework may be determined by the student's graduate advisory committee.

- *Specific requirements for the Environmental Science Specialization*

All students are required to complete AES 506 Global Environmental Change. Additional coursework will be decided by the student's graduate advisory committee and outlined in the student's program of study.

Non-thesis MS option (both Meteorology and Environmental Science specializations):

- 1. Up to 3 credits may be counted for research related activities.**
- 2. 2 Credit Hours Applied to AES 690 Seminar**
- 3. A scholarly paper will be required for the non-thesis option**
- 4. For the Meteorology Specialization, the following courses are required: AES 501, AES 506, AES 519, AES 530, AES 555, and AES 560.**
- 5. For the Environmental Science Specialization, the following courses are required AES 503, AES 506, AES 775.**

Accelerated MS option (both Meteorology Environmental Sciences specializations)

- 1. Students admitted to the "accelerated" program may apply up to 9 credits of approved 400/500/600 level AES course work taken as undergraduate or approved electives for the B.S. degree requirements to the M.S.**
- 2. All elective courses must be approved in advance of registration by major professor or program coordinator.**

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
Current Program Name: AES				Proposed Program Name: AES [Thesis Option]			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
M.S. in AES (Thesis Option: Meteorology)				M.S. in AES (Thesis Option: Meteorology)			
AES	519 or 520	Computing Methods in Atmospheric Sciences or Remote Sensing for Research	3	AES	506	Global Environmental Change	3
AES	690	Seminar	2	AES	519 or 520	Computing Methods in Atmospheric Sciences Or Remote Sensing for Research	3
AES	798	Thesis research	6-9	AES	690	Seminar	2
*	*	AES Meteorology Specialization Courses or Approved Electives (See above program description)	18-21	AES	798	Thesis research	6-9
		Total:	32	*	*	AES Meteorology Specialization Courses or Approved Electives (See above program description)	15-18
						Total:	32
M.S. in AES (Thesis Option: Environmental Sciences)				M.S. in AES (Thesis Option: Environmental Sciences)			
AES	506	Global Environmental Change	3	AES	506	Global Environmental Change	3
AES	690	Seminar	2	AES	690	Seminar	2
AES	798	Thesis research	6-9	AES	798	Thesis research	6-9
		AES Environmental Science Specialization Courses or Approved Electives (See above program description)	18-21			AES Environmental Science Specialization Courses or Approved Electives (See above program description)	18-21
		Total:	32			Total:	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

Existing Curriculum				Proposed Curriculum (Highlight Changes)			
				Proposed Program Name: AES [Non-Thesis]			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
Currently no AES Non-Thesis Option				M.S. in AES (Meteorology: Non-Thesis)			
				AES	501	Atmospheric Physics	3
				AES	506	Global Environmental Change	3
				AES	519	Computing Methods in Atmospheric Sciences	3
				AES	530	Radar Meteorology	3
				AES	555	Synoptic Meteorology II	3
				AES	560	Atmospheric Dynamics	3
				AES	690	Seminar	2
				AES	788	Master's Research Project	3
				*	*	AES Approved Electives	9
						Total:	32
				M.S. in AES (Environmental Sciences: Non-Thesis)			
				AES	503	Biogeochemistry	3
				AES	506	Global Environmental Change	3
				AES	690	Seminar	2
				AES	775	Applied Freshwater Science	3
				AES	788	Master's Research Project	3
				*	*	AES Approved Electives	18
						Total:	32

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

Total number of hours required for degree

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

Total number of hours required for degree

SOUTH DAKOTA SCHOOL OF MINES & TECHNOLOGY
Affected Departments Form

1. Affected Departments

Which departments will the requested change affect? Does the requested change affect the delivery of another course or the requirements of another degree program? Please specify.

CABS, CEE, GEOL

2. Number of Students Affected

Approximately how many students will be affected annually by the requested change? How was this number determined?

Approximately 5-10. We envision an increase in students taking the non-thesis option to be at least ½ of our current enrollment, but it will hopefully increase through time.

3. Notification

Please notify all affected department heads and program coordinators, and attach all relevant correspondence and related documents.

CABS, CEE, and GEOL will potentially see an increase in students taking their environmentally related courses. The department heads have been contacted. See attached.

From: Anderson, Laurie C.
Sent: Monday, January 25, 2016 8:16 AM
To: Kunza, Lisa A.
Subject: Re: Affected departments form

I don't remember if I emailed you yet but the GGE department was fine with the changes.

L
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Laurie C. Anderson
 Head and Professor, Geology & Geological Engineering
 Director, Museum of Geology
 South Dakota School of Mines and Technology
 501 E. St. Joseph
 Rapid City, SD 57701
 605-394-1290 (department office)

605-394-1212 (museum office)

Laurie.Anderson@sdsmt.edu

From: "Kunza, Lisa A." <Lisa.Kunza@sdsmt.edu>
Date: Friday, January 22, 2016 at 9:14 AM
To: "Sinden, Richard R." <Richard.Sinden@sdsmt.edu>, Laurie Anderson
 <Laurie.Anderson@sdsmt.edu>, "Kenner, Scott J." <Scott.Kenner@sdsmt.edu>
Cc: "Capehart, William J" <William.Capehart@sdsmt.edu>
Subject: RE: Affected departments form

See attached form. It will be discussed at CGE today, I believe. -Lisa

From: Sinden, Richard R.
Sent: Friday, January 22, 2016 7:34 AM
To: Kunza, Lisa A.; Anderson, Laurie C.; Kenner, Scott J.
Cc: Capehart, William J
Subject: RE: Affected departments form

I am sure I will be fine with this, but I would like to see the completed program modification to see the specifics.

Richard R Sinden, Ph.D.
 Professor and Head
 Director, Biomedical Engineering Graduate Program
 Department of Chemistry and Applied Biological Sciences
 South Dakota School of Mines and Technology

From: Kunza, Lisa A.
Sent: Thursday, January 21, 2016 5:16 PM
To: Anderson, Laurie C.; Sinden, Richard R.; Kenner, Scott J.
Cc: Capehart, William J
Subject: Affected departments form

Hello everyone,

I'm e-mailing you because AES is submitting a substantive program modification and I'm filling out the affected departments form required by the SDSMT curriculum committee and I need to document our correspondence.

AES is proposing to incorporate non-thesis and accelerated MS avenues for our students.

Ways I see this potentially influencing your departments:
 GEOL-we may be sending more students your way for classes like GIS, oceanography, etc. I've talked with Dr. Price & Belanger about these potential increases in students.

CABS-the accelerated MS with environmental specialization will be an option for ABS students. This was approved by ABS faculty during our faculty meetings last semester.

CEE-we may also be sending more students your way for classes. I'm pretty sure Capehart & Kenner have discussed this.

Please let us know if you have any thoughts/concerns.

Thank you!

-Lisa

Dr. Lisa Kunza
Assistant Professor
Department of Chemistry and Applied Biological Sciences
Atmospheric and Environmental Sciences Program
South Dakota School of Mines and Technology
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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: **Certificate in Construction Management**

3. THIS PROPOSAL DEALS WITH A CHANGE IN:

Distribution of Credits

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

4. LEVEL:

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

5. CATEGORY:

_____ Minor
 X Major
 _____ Specialization

6. EFFECTIVE DATE OF CHANGE: Fall 2016

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

 X 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: Construction Management				Proposed Program Name: Construction Engineering and Management			
Pre	Num	Title	Cr Hrs	Pre	Num	Title	Cr Hrs
		No Changes				No Changes	

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

Total number of hours required for degree 12

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

Total number of hours required for degree 12

9. EXPLANATION OF THE CHANGE: CIP Code Change

The South Dakota School of Mines and Technology Construction Management program was developed to meet a growing need in the construction industry for engineering professionals with construction management skills. To ensure that the construction degree remained relevant to engineering stakeholders the program name and CIP code for the MS degree was changed to more accurately reflect the appropriate engineering discipline. By placing an increased emphasis on the engineering aspects of existing courses, the curriculum has evolved to the point that it now aligns with numerous CEM programs around the country and the construction engineering and management designation is appropriate.

This proposal seeks a revision of the program name and the CIP for the Certificate to acknowledge that alignment and appropriately identify the MSCEM program among its peers. The renamed program will more easily integrate with and capitalize on both the MSCEM offerings and other MSCEE offerings and contribute to both programs.

The proposed program CIP of 14.3301 is construction engineering. To differentiate from the existing CM code which is a non-engineering discipline, the South Dakota School of Mines and Technology is also asking that the CIP of 14.3301 be approved.

Dr. Demitris Kouris
Institutional Authorization (President or Designee)

10/22/2015
Date Submitted

SOUTH DAKOTA SCHOOL OF MINES & TECHNOLOGY
Affected Departments Form

1. Affected Departments

Which departments will the requested change affect? Does the requested change affect the delivery of another course or the requirements of another degree program? Please specify.

The requested change will only affect the Department of Civil and Environmental Engineering. The change will not affect course or requirements of other degree programs. The change will reflect the recent name and CIP change for the MSCM to MSCEM.

2. Number of Students Affected

Approximately how many students will be affected annually by the requested change? How was this number determined?

The change is expected to affect 2-4 students annually. This estimate is based on current students seeking a certificate and projected program growth.

3. Notification

Please notify all affected department heads and program coordinators, and attach all relevant correspondence and related documents.

This change is being submitted by the Department of Civil and Environmental Engineering and there are no other departments affected.