



Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Establish a Graduate Concentration in Computational Science and Engineering

SPONSORING UNIT: Professor Narayan Aluru, Director, Computational Science and Engineering and Kritzer Professor in Mechanical Engineering, 217-333-1180, aluru@illinois.edu

COLLEGE CONTACT: William Buttlar, Associate Dean, Office of Graduate, Professional and Online Programs, College of Engineering, 265-4561, buttlar@illinois.edu

BRIEF DESCRIPTION:

This proposal requests the establishment of a graduate concentration in Computational Science and Engineering (CSE) in the College of Engineering. The proposed graduate concentration will replace the existing non-transcriptable interdisciplinary CSE PhD Graduate Certificate (i.e., graduate specialization in CSE). This specialization has been very successful and is designed to provide graduate students with a solid foundation in problem-solving using computation as a major tool for modeling complicated problems in science and engineering and is available to students enrolled in participating departments. As such, there should be no added overhead or changes in class size, enrollment, teaching loads, and student-faculty ratio as a consequence of this proposal.

The CSE graduate concentration is comprised of 16 graduate credit hours. The curriculum consists of a) 8 hours of core coursework in topics relevant to scientific computing drawn from a menu of courses; and b) 8 hours of application coursework from available list of approved courses. In addition, the student's graduate thesis must have a significant computational component, and the thesis committee must include at least one CSE-affiliated faculty member. Non-thesis master's students are required to complete a 4-hour independent study/capstone project with CSE-affiliated faculty. The independent study project must focus on computational work.

JUSTIFICATION:

Computation is widely considered as the "third pillar" of science, alongside theory and experiment. The field of Computational Science and Engineering is inherently interdisciplinary, requiring expertise in advance computing technology as well as in one or more applied disciplines. The CSE program at the University of Illinois has been offering graduate specialization (CSE Graduate Certificate) for almost two decades. The purpose of the CSE graduate specialization is to foster interdisciplinary, computationally oriented research among all fields of science and engineering, and to prepare students to work effectively in such

environments. There are over 66 peer institutions (including MIT, Stanford, Cornell, UT Austin, Michigan and Purdue) that offer such graduate specialization in the form of an MS, graduate minor, and certificates. MIT, for example, has recently moved to a transcribed specialization that shows up both in the student diploma and transcript.

The move to a transcribed concentration is very compelling to graduate students and has been requested numerous of times by students to have this concentration on their transcript. In addition, as a service unit, the transition to a graduate concentration will provide us with a program code that will allow us to properly track students' progress, provide them with guidance, and efficiently generate relevant statistics related to our graduate specialization. Currently, this is very challenging with the existing non-transcriptable certificate structure and lack of formal tracking in banner. In terms of expected enrollments, we anticipate that the current departments participating in the graduate certificate program (Table 1) will all opt-in to the graduate concentration proposed here, since the only difference lies in how the students will be honored upon completing the program requirement (i.e., certificate vs. transcribed recognition on their transcript). Once this proposal is approved to allow the concentration to be transcribed, CSE will discontinue the non-transcriptable certificate option.

Table 1. Departments participating in the current, non-transcriptable graduate certificate program.

Aerospace Engineering	Computer Science
Agricultural and Biological Engineering	Electrical and Computer Engineering
Astronomy	Industrial and Enterprise Systems Engineering
Atmospheric Sciences	Materials Science and Engineering
Bioengineering	Mathematics
Biophysics and Computational Biology	Mechanical Science and Engineering
Chemical and Biomolecular Engineering	Nuclear, Plasma and Radiological Engineering
Chemistry	Physics
Financial Engineering	Geography & GIS
Civil and Environmental Engineering	Statistics

BUDGETARY AND STAFF IMPLICATIONS: *(Please respond to each of the following questions.)*

1) Resources

- a. How does the unit intend to financially support this proposal?

No additional support is needed. The proposed curriculum for the CSE graduate concentration will replace the existing non-transcriptable certificate program, which has been in place for about 2 decades. No new courses are being proposed to support this curriculum.

- b. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity?

Not applicable. As stated earlier, the proposed graduate concentration aims at replacing our existing, non-transcriptable certificate program, which has been in place for about 2 decades.

- c. Will the unit need to seek campus or other external resources? If so, please provide a summary of the sources and an indication of the approved support.

No.

- d. Please provide a letter of acknowledgment from the college that outlines the financial arrangements for the proposed program.

NA.

2) Resource Implications

- a. Please address the impact on faculty resources including the changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

No changes in this area as CSE already offers this concentration as a non-transcriptable certificate program to on-campus students.

- b. Please address the impact on course enrollment in other units and provide an explanation of discussions with representatives of those units.

Students enrolled in the CSE graduate concentration will enroll in preexisting courses offered by our affiliated departments and focusing on scientific computing and its application. We anticipate the enrollment to the program will be consistent with the trends currently existing in the certificate program and hence we do not expect there to be any significant change in class size, teaching load, or faculty-student ratios.

- c. Please address the impact on the University Library, computer use, laboratory use, equipment, etc. (A letter of estimated impact from the University Librarian must be included for all new program proposals. If the impact is above and beyond normal library business practices, describe provisions for how this will be resourced.)

Those admitted to this concentration will be current University of Illinois graduate students. Therefore, there would be no additional impact beyond what is already accounted for in the typical graduate student population.

Proposed Effective Date: Fall 2015

Statement for the Programs of Study: See Appendix A

CLEARANCES: *(Clearances should include signatures and dates of approval. These signatures must appear on a separate sheet. If multiple departments or colleges are sponsoring the proposal, please add the appropriate signature lines below.)*

Signatures:

Narayan A. AL
Unit Representative:

4/14/15
Date:

College Representative:

Date:

Graduate College Representative:

Date:

Council on Teacher Education Representative:

Date:

APPENDIX A: Graduate Concentration Curriculum

1. **Core Courses (8 hours):** Complete two courses from the list below. *A complete list of CSE core courses is found here: <https://cse.illinois.edu/courses/>*

- CSE 401 | CS 450 | ECE 491 | MATH 450 – Numerical Analysis
- CSE 402 | CS 420 | ECE 492 – Parallel Programming
- CSE 408 | ECE 408 | CS 483 – Applied Parallel Programming
- CSE 510 | CS 555 | MATH 552 – Numerical Methods for PDEs
- CSE 527 | CS 519 – Scientific Visualization

2. **Application Coursework (8 hours):** Complete two courses from the list below. The application coursework must be distinct from the core courses (no double counting is allowed). A complete list of CSE application courses is found here: <https://cse.illinois.edu/courses/>

NUMERICAL COMPUTING

CSE 401 | CS 450 | ECE 491 | MATH 450 – Numerical Analysis
CSE 414 | CS 473 | MATH 473 – Fundamental Algorithms
CSE 441 | ECE 490 – Introduction to Optimization
CSE 510 | CS 555 | MATH 552 – Numerical Methods for PDEs
CSE 511 | CS 556 – Iterative and Multigrid Solvers
CSE 512 | CS 554 – Parallel Numerical Algorithms
CSE 513 | CS 558 – Topics in Numerical Analysis
CSE 515 | CS 573 – Algorithms
CSE 517 | TAM 574 – Advanced Finite Element Methods

POWER SYSTEMS, CONTROL, AND SIGNAL AND IMAGE PROCESSING

CSE 441 | ECE 490 – Introduction to Optimization
CSE 543 | ECE 547 – Topics in Image Processing
ECE 513 – Vector Space Signal Processing
ECE 558 – Digital Imaging

COMPUTER SOFTWARE, HARDWARE, AND GRAPHICS

CSE 402 | CS 420 | ECE 492 – Parallel Programming
CSE 422 | CS 433 – Computer System Organization
CSE 423 | CS 423 – Operating Systems Design
CSE 426 | CS 427 – Software Engineering I
CSE 427 | CS 418 – Interactive Computer Graphics
CSE 429 | CS 428 – Software Engineering II
CSE 521 | ECE 511 – Computer Architecture
CSE 522 | CS 533 – Parallel Computer Architecture
CSE 527 | CS 519 – Scientific Visualization

SOLID MECHANICS

CSE 450 | TAM 470 – Computational Mechanics
CSE 451 | ME 471 | AE 420 – Finite Element Analysis
CSE 517 | TAM 574 – Advanced Finite Element Methods
CSE 551 | CEE 570 – Finite Element Methods
CSE 552 | CEE 576 – Nonlinear Finite Elements
ME 570 – Nonlinear Solid Mechanics Design

TAM 598 – Computational Nonlinear Dynamics

FLUID MECHANICS

CSE 450 | TAM 470 – Computational Mechanics
CSE 461 | AE 410 – Computational Aerodynamics
CSE 560 | TAM 570 – Computational Fluid Mechanics
CSE 561 | ME 554 – Computational Process Modeling
CSE 566 | ATMS 502 – Numerical Fluid Dynamics
CSE 412 | ME 412 – Numerical Thermo-Fluid Mechanics

PHYSICS AND MATERIALS SCIENCE

CSE 485 | MSE 485 | PHYS 466 – Atomic Scale Simulations
MSE 498AF – Computational Material Science & Engineering
AE 598MMM – Mult-scale Modeling of Materials

ELECTRONICS AND ELECTROMAGNETICS

CSE 530 | ECE 540 – Computational Electromagnetics
CSE 532 | ECE 552 – Numerical Circuit Analysis

BIOLOGICAL, CHEMICAL, AND ATMOSPHERIC SCIENCES

CHEM 470 – Computational Chemical Biology
CSE 564 | CEE 534 – Surface Water Quality Modeling
CSE 565 | CEE 557 – Groundwater Modeling
CSE 566 | ATMS 502 | CS 505 – Numerical Fluid Dynamics
CSE 568 | ATMS 530 – Global Atmospheric Modeling

OTHER RELATED FIELDS

CSE 428 | STAT 428 Statistical Computing
CSE 440 | STAT 440 Statistical Data Management
CSE 448 | STAT 448 | Advanced Data Analysis
CSE 525 | STAT 525 Computational Statistics
CSE 531 | STAT 530 Bioinformatics
CSE 542 | STAT 542 Statistical Learning
Stat 430 S1G: Big Data Analysis Foundation
CEE 598 SDO – Structural Design Optimization
CEE 528 – Construction Data Modeling

Appendix B: Statement for the Programs of Study

Computational Science and Engineering Concentration

The heart of Computational Science and Engineering is to develop innovative ways of solving engineering and scientific problem using computation as a tool. This new form of science compresses the development process in engineering and engenders knowledge discovery with a new paradigm in many areas because it enables “virtual experiments” and helps focus physical experiments to reduce or eliminate trial-and-error laboratory-based approaches. Further, it teaches students to solve complex problems with prevailing computer technology.

The CSE graduate concentration is designed to provide graduate students with a solid base in problem-solving using computation as a major tool for modeling complicated problems in science and engineering. This concentration requires students to complete 16 graduate credit hours, which is outlined below. Courses taken toward this concentration will count towards the student’s graduate degree.

Hours	Required Courses
8	<p>Core Course Work: Complete two courses (4-hours each) from the list below.</p> <ul style="list-style-type: none"> ▪ CSE 401 CS 450 ECE 491 MATH 450 – Numerical Analysis ▪ CSE 402 CS 420 ECE 492 – Parallel Programming ▪ CSE 408 ECE 408 CS 483 – Applied Parallel Programming ▪ CSE 510 CS 555 MATH 552 – Numerical Methods for PDEs ▪ CSE 527 CS 519 – Scientific Visualization
8	<p>Computing Elective (CSE Application Courses): Complete two courses (4-hours each) from the approved list. The application coursework must be distinct from the core courses (no double counting is allowed).</p>
16	<p>Total Hours</p>
	<p>Additional Requirement</p> <p>MS and PhD Thesis Requirement: The graduate thesis must have a significant computational component, and the thesis committee must include at least one CSE-affiliated faculty.</p> <p>MS, Non-thesis Requirement: Must complete a 4- hour independent study/Capstone Project course, where the project is supervised by a CSE-affiliated faculty. The independent study project must comprise sufficient computational work, to be designed in consultation with the faculty supervisor overseeing the independent study.</p>

For more information regarding the Computational Science and Engineering (CSE) Graduate Concentration, visit the Computational Science and Engineering website, or contact the CSE Office at 217-333-3247 or cse@cse.illinois.edu.

Applicants will follow the established university procedures for indicating their interest in this concentration. The student's home department will jointly review with CSE their application and background and provide students with details on the concentration's courses and requirements. Graduate students are responsible for ensuring that they have the appropriate background for any courses in which they enroll. The CSE program coordinators will be available to discuss courses and prerequisites with students considering this concentration. At the conclusion of the student's degree, the CSE office will work with the student's home department to review concentration course progress and certify that the requirements for this concentration have been met.

Name of existing Illinois (UIUC) degree: _____

Name of non-Illinois partnering institution: _____

Location of non-Illinois partnering institution:

State of Illinois US State: _____ Foreign country: _____

- B. Proposal to create a new academic unit (college, school, department, program or other academic unit):

Name of proposed new unit: _____

- C. Proposal to rename an existing academic unit (college, school, department, or other academic unit):

Current name of unit: _____

Proposed new name of unit: _____

- D. Proposal to reorganize existing units (colleges, schools, departments, or program):

1. Proposal to change the status of an existing and approved unit (e.g. change from a program to department)

Name of current unit including status: _____

2. Proposal to transfer an existing unit:

Current unit's name and home: _____

Proposed new home for the unit: _____

3. Proposal to merge two or more existing units (e.g., merge department A with department B):

Name and college of unit one to be merged: _____

Name and college of unit two to be merged: _____

Proposed name and college of new (merged) unit: _____

4. Proposal to terminate an existing unit:

Current unit's name and status: _____

- E. **Other educational policy proposals** (e.g., academic calendar, grading policies, etc.)

Nature of the proposal: _____

Revised 10/2012

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Materials Science and Engineering

College of Engineering
1304 West Green Street
Urbana, IL 61801 USA



David G. Cahill
Willett Professor and Head

Phone: (217) 333-6753
Email: d-cahill@illinois.edu

March 26, 2015

Professor Narayana Aluru, Director
Computational Science & Engineering
2270 DCL
MC-278

Dear Narayana,

Our department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Cahill'.

David G. Cahill
Willett Professor and Head

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

MS in Financial Engineering Program

Department of Finance
Department of Industrial and Enterprise Systems Engineering
3252 Digital Computer Laboratory, MC-273
1304 West Springfield Avenue
Urbana, IL 61801-2910



April 14, 2015

Dear Narayana,

Our program supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in cursive script that reads "Emily Ziegler".

Emily Ziegler
Assistant Director
Master of Science in Financial Engineering
University of Illinois

3252 Digital Computer Lab, MC-273
1304 W. Springfield Ave.
Urbana, IL 61801
P 217.300.5603 | F 217.333.1486 | ekrickl@illinois.edu | www.msfe.illinois.edu

MS Financial Engineering
[Facebook](#) | [Twitter](#) | [LinkedIn](#) | [I-Link](#)

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Aerospace Engineering

College of Engineering
306 Talbot Laboratory, MC-236
104 South Wright Street
Urbana, IL 61801-2935 USA



April 3, 2015

Professor Narayana Aluru
Director of Computational Science & Engineering
3265 Beckman Institute, MC-251

Dear Narayana,

Our department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Philippe Geubelle'.

Philippe Geubelle
Bliss Professor and Head

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Physics

Loomis Laboratory of Physics
1110 West Green Street
Urbana, IL 61801-3080



March 31, 2015

Prof. Narayana Aluru
Dept. of Mechanical Science and Engineering
University of Illinois, Urbana-Champaign

Dear Narayana,

The Dept. of Physics supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink that reads 'S. Lance Cooper'.

S. Lance Cooper
Associate Head for Graduate Programs
Professor of Physics
Department of Physics
University of Illinois, Urbana-Champaign
(217) 333-2589

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Chemistry
109 Noyes Laboratory, MC-712
505 South Mathews Avenue
Urbana, IL 61801



M. Mohamad
%Computational Science and Engineering
2270 Digital Computer Laboratory, MC-278
University of Illinois at Urbana-Champaign
1304 West Springfield Avenue
Urbana, IL 61801

April 10, 2015

Dear Mohamed,

Our department supports Computational Science and Engineering moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Gregory S. Girolami".

Gregory S. Girolami
Chemistry Department Head

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Atmospheric Sciences

105 South Gregory Street, MC-223
Urbana, IL 61801-3070
USA



March 19, 2014

Dear Narayana,

The Atmospheric Sciences department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rauber'.

Robert M. Rauber
Professor and Head

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Bioengineering

College of Engineering
1270 Digital Computer Laboratory, MC-278
1304 West Springfield Avenue
Urbana, IL 61801



April 6, 2015

Professor Narayana Aluru
Director, Computational Science and Engineering
Kritzler Professor of Mechanical Engineering
3265 Beckman Institute
MC – 251

Dear Narayana,

Our department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rashid Bashir'.

Rashid Bashir
Head, Bioengineering
Abel Bliss Professor of Engineering

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN



Center for Biophysics & Computational Biology

179 Loomis, MC-704
1110 W. Green Street
Urbana, IL 61801

April 14, 2015

Dear Professor Aluru,

The Center for Biophysics and Computational Biology supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink that reads "Taekjip Ha". The signature is written in a cursive style with a long, sweeping line extending from the end of the name.

Taekjip Ha, Director
Center for Biophysics and Computational Biology

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN



Department of Astronomy

College of Liberal Arts and Sciences
103 Astronomy Building, MC-221
1002 West Green Street
Urbana, IL 61801 USA

Professor Brian D. Fields

216 Astronomy Building
Phone: (217) 333-5529
Fax: (217) 244-7638
E-mail: bdfields@illinois.edu

April 7, 2015

Prof. Narayana Aluru
Director, Computational Science and Engineering
University of Illinois

Dear Narayana,

The Astronomy department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in blue ink, appearing to read 'B. D. Fields'.

Brian D. Fields,
Professor and Chair of Astronomy

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Industrial
and Enterprise Systems Engineering
College of Engineering
117 Transportation Building
104 South Mathews Avenue
Urbana, IL 61801-2996



April 14, 2015

Dear Narayana,

Our department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ramavarapu Sreenivas', with a long horizontal flourish extending to the right.

Ramavarapu Sreenivas
Associate Head for Graduate Studies

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Chemical & Biomolecular Engineering

114 Roger Adams Laboratory, Box C-3
600 South Mathews Avenue
Urbana, IL 61801-3602 USA



April 7, 2015

Dear Narayana,

Our department supports Computer Science and Engineering moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Kenis', with a long horizontal line extending to the right.

Paul J.A. Kenis

William H. and Janet G. Lycan Professor and Head

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Geography and
Geographic Information Science

255 Computing Applications Building, MC-150
605 East Springfield Avenue
Champaign, IL 61820-6371



April 14, 2015

Dear Professor Aluru,

The Department of Geography and Geographic Information Science (GGIS) supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to future GGIS students who complete this concentration.

Sincerely yours,

A handwritten signature in black ink that reads "Sara McLafferty".

Sara McLafferty
Professor and Department Head



ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Department of Computer Science
201 North Goodwin Avenue
Urbana, Illinois 61801-2987
USA

phone: (217) 333-4428
fax: (217) 244-6073
e-mail: academic@cs.illinois.edu
http: [//www.cs.illinois.edu](http://www.cs.illinois.edu)

April 04, 2015

Professor Narayana Aluru
Director
Computational Science and Engineering

Dear Professor Aluru:

The Department of Computer Science supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

Chandra Chekuri, Professor
Director of CS Graduate Programs

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Mathematics
273 Altgeld Hall, MC-382
1409 West Green Street
Urbana, IL 61801



March 31, 2014

Dear Narayana,

The Department of Mathematics supports the proposal for CSE to move their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. Mathematics PhD students are increasingly seeking employment in positions which involve significant computation and data analytics, and the CSE certificate will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Matthew Ando', written in a cursive style.

Matthew Ando
Professor and Chair

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Statistics
101 Illini Hall
725 South Wright Street
Champaign, IL 61820
USA



April 3, 2015

Professor Narayan Aluru
Director, Computational Science and Engineering
and Kritzer Professor in Mechanical Engineering

Dear Professor Aluru,

The Department of Statistics supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Sincerely,

A handwritten signature in cursive script that reads "Douglas G. Simpson".

Douglas G. Simpson
Professor and Chair

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Electrical and Computer Engineering
Electrical and Computer Engineering Building
306 North Wright Street
Urbana, IL 61801



March 27, 2015

Narayana Aluru, Professor
Director, Computational Science and Engineering

Dear Narayana,

The ECE department supports CSE's intent to change the existing Graduate Certificate Option in Computational Science and Engineering to a Graduate Concentration with transcript recognition. We expect that transcript recognition will make the CSE program more attractive to our students and that this will result in more students electing to participate in the CSE program.

Sincerely,

A handwritten signature in black ink that reads 'S Franke'. The signature is written in a cursive, flowing style.

Steven Franke, Professor
Associate Head for Graduate Affairs
Department of Electrical and Computer Engineering
s-franke@illinois.edu



ILLINOIS

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

JEFFERY R. ROESLER

Rm. 1110 Newmark, MC-250
205 N. Mathews Avenue,
Urbana, IL 61801

email: jroesler@illinois.edu

phone: [217] 265-0218

fax: [217] 333-1924

March 30, 2015

Dear Dr. Aluru,

Our department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a great benefit to our CEE students who complete this concentration. Please feel free to contact me if you have any additional questions.

Sincerely,

Professor Jeffery Roesler, Ph.D., P.E.
Department of Civil and Environmental Engineering
Associate Head and Director of Graduate Studies and Research

Subject: Fwd: CSE program

Date: Thursday, April 9, 2015 at 3:57:28 PM Central Daylight Time

From: Mohamed Mohamed (sent by mohamed.mohamed33@gmail.com
<mohamed.mohamed33@gmail.com>)

To: McElroy, Rhonda Kay

----- Forwarded message -----

From: "Uddin, Rizwan" <rizwan@illinois.edu>

Date: Apr 9, 2015 3:46 PM

Subject: CSE program

To: "Aluru, Narayana R" <aluru@illinois.edu>

Cc: "Mohamed, Mohamed Y" <mohamed@illinois.edu>, "Stubbins, James F" <jstubbin@illinois.edu>, "Singer, Clifford E" <csinger@illinois.edu>

April 9, 2015

Dear Narayan,

Regarding recent CSE effort to change the CSE certificate program, NPRE department supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on student's transcript. This will be a benefit to our students who complete this concentration.

Regards

Rizwan Uddin
Associate Head of Academic Programs
NPRE

Subject: Fwd: RE: Replacing CSE non-transcriptable Certificate with transcriptable Concentration (Agricultural and Biological Engineering Certificate)

Date: Thursday, March 26, 2015 at 3:02:27 PM Central Daylight Time

From: Mohamed

To: McElroy, Rhonda Kay

----- Forwarded message -----

From: "Ting, Kuan Chong" <kcting@illinois.edu>

Date: Mar 25, 2015 3:55 PM

Subject: RE: Replacing CSE non-transcriptable Certificate with transcriptable Concentration (Agricultural and Biological Engineering Certificate)

To: "Aluru, Narayana R" <aluru@illinois.edu>

Cc: "mohamed.mohamed33@gmail.com" <mohamed.mohamed33@gmail.com>, "Zhang, Yuanhui" <yzhang1@illinois.edu>

Dear Narayana,

The department of Agricultural and Biological Engineering supports Computational Science and Engineering (CSE) moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This will be a benefit to our students who complete this concentration.

Regards,

K.C. Ting

K.C. Ting, Ph.D., P.E.

Professor and Head

Department of Agricultural and Biological Engineering

University of Illinois at Urbana-Champaign

338 Agricultural Engineering Sciences Building, MC-644

1304 West Pennsylvania Avenue

Urbana, Illinois 61801

Phone: [217-333-3570](tel:217-333-3570)

Fax: [217-244-0323](tel:217-244-0323)

email: kcting@illinois.edu

Website: abe.illinois.edu

"Empower with Knowledge and Wisdom (kW) for Life"

From: mohamed.mohamed33@gmail.com [mailto:mohamed.mohamed33@gmail.com] **On Behalf Of**
Mohamed Mohamed
Sent: Wednesday, March 25, 2015 3:44 PM
To: Ting, Kuan Chong
Cc: Zhang, Yuanhui; Aluru, Narayana R
Subject: Fwd: Replacing CSE non-transcriptable Certificate with transcriptable Concentration (Agricultural and Biological Engineering Certificate)

Dear K.C Ting,

The Computational Science and Engineering (CSE) unit

intends to change the existing non-transcriptable Graduate Certificate Option to a transcriptable concentration that will appear on student's transcript. We have submitted a proposal to the CoE to move the existing CSE graduate specialization to transcriptable concentration. We were asked to supply letters (or emails) from each department that is eligible to offer this concentration to their students. I have attached a simple template letter that you can use. We will discontinue the non-transcriptable Graduate Certificate Option once this proposal is approved and participating departments opt-in.

Kind regards,

M

ohamed

Mohamed

, PhD

"Our greatest fear should not be of failure but
of succeeding at things that don't really matter"

— *Francis Chan*

"Simplicity is the ultimate sophistication"

— *Leonardo da Vinci*

Subject: Fwd: Replacing CSE non-transcriptable Certificate with transcriptable Concentration (MechSE)
Date: Tuesday, March 31, 2015 at 10:36:38 AM Central Daylight Time
From: Mohamed Mohamed (sent by mohamed.mohamed33@gmail.com <mohamed.mohamed33@gmail.com>)
To: McElroy, Rhonda Kay

----- Forwarded message -----

From: Jacobi, Anthony M <a-jacobi@illinois.edu>
Date: Tue, Mar 31, 2015 at 8:40 AM
Subject: RE: Replacing CSE non-transcriptable Certificate with transcriptable Concentration (MechSE)
To: "Mohamed, Mohamed Y" <mohamed@illinois.edu>, "Aluru, Narayana R" <aluru@illinois.edu>

Dear Narayana,

MechSE supports CSE moving their non-transcriptable certificate program to a transcriptable concentration that will appear on a student's transcript. This change will benefit our students working in CSE.

Sincerely,

Anthony M. Jacobi, Interim Associate Head of Graduate Programs & Research
Kritzer Distinguished Professor, Mechanical Science & Engineering
Co-Director ACRC -- An NSF-funded research center
University of Illinois [217/333-4108](tel:2173334108) office
1206 West Green Street [217/244-6534](tel:2172446534) fax
Urbana, IL 61801 USA [217/649-3162](tel:2176493162) mobile

I may make you feel, but I can't make you think. –Ian Anderson