
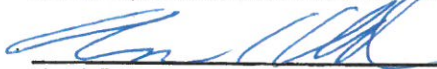


**Engineering Education PhD Request to Plan  
North Carolina State University**

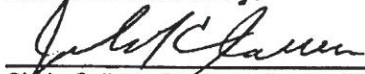
This request has been reviewed and approved by the appropriate campus committees and authorities.

**Endorsed By:**

 Laura Bottomley 4-19-17  
\_\_\_\_\_  
Head, Department/Director of Graduate Program, Engineering (Printed Name and Signature) Date


 Aaron C. Clark 8/3/17  
\_\_\_\_\_  
Head, Department/Director of Graduate Program, Education (Printed Name and Signature) Date

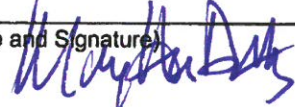
**Recommended By:**

 John I. Classen 6/21/2017  
\_\_\_\_\_  
Chair, College Graduate Studies Committee (Printed Name and Signature) Date

**Endorsed By:**

 Douglas S. Reeves 4-21-2017  
\_\_\_\_\_  
College Dean, Engineering (Printed Name and Signature) Date

 Lee V. Stiff 8/3/17  
\_\_\_\_\_  
College Dean, Education (Printed Name and Signature) Date

MARY ANN DANOWITZ  4/18/18  
\_\_\_\_\_  
Recommended By: (Printed Name and Signature) Date

\_\_\_\_\_  
Vice Provost, DELTA (if DE degree) (Printed Name and Signature) Date

**Approved By:**

\_\_\_\_\_  
Dean of the Graduate School (Printed Name and Signature) Date

**Recommended By:**

\_\_\_\_\_  
Dean's Council (Printed Name and Signature) Date

**Approved By:**

\_\_\_\_\_  
Provost (Printed Name and Signature) Date

**Approved By:**

\_\_\_\_\_  
Chancellor (Printed Name and Signature) Date



## Letter of Intent to Develop New Academic Degree Program

The following approvals must be obtained prior to sending the Letter of Intent to Develop a New Academic Degree Program to the UNC System Office.

**Institution** North Carolina State University

**Degree Program Title (e.g. M.A. in Biology)\_PhD in Engineering Education**

**Reviewed and Approved By (Name and title only. No signature required in this section.)**

**Check box to indicate participation in review. (Provost is required.)**

- Provost:**
- Faculty Senate Chair (as appropriate):**
- Graduate Council (as appropriate):**
- Undergraduate or Graduate Dean (as appropriate):**
- Academic College Dean:**
- Department Chair:**
- Program Director/Coordinator: Dr. Laura Bottomley**

### **New Academic Proposal Process**

New academic programs are initiated and developed by the faculty members. Approval of the Letter of Intent to Develop a New Academic Degree Program must be obtained from department chairs and college deans or equivalent administrators before submission to the UNC System Office review.

Directions: Please provide a succinct, yet thorough response to each section. Obtain the Provost's signature and submit the proposal via the PREP system to the UNC System Vice President for Academic Programs, Faculty, and Research, for review and approval by the UNC System Office. Once the Letter of Intent to Develop is approved, the institution can begin work on the formal Request to Establish a New Degree Program.

## Letter of Intent to Develop a New Academic Degree Program

Institution	North Carolina State University
Joint Degree Program (Yes or No)? If so, list partner campus.	No
Degree Program Title (e.g. M.A. in Biology)	Ph D in Engineering Education
CIP Code and CIP Title (May be found at <a href="#">National Center for Education Statistics</a> )	14.9999
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	No
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	campus
Proposed Term to Enroll First Students (e.g. Spring 2019)	Fall 2019
List other programs in the UNC System (may be found at UNC System <a href="#">website</a> )	N/A

**SACSCOC Liaison Statement:** *(Provide a brief statement from the University SACSCOC liaison regarding whether the new program is or is not a substantive change.)*

(We understand that the determination about whether a program is a substantive change is made by the Substantive Change Review Team, which the SACSCOC liaison chairs, and that, after the proposal is submitted to the Graduate School, they will bring it to the SCRT. )

**Program Summary:** *(Briefly describe the proposed program and summarize the overall rationale.)*  
Maximum of 1,000 words.

Include the following in your narrative:

- Ways in which the proposed program is distinct from others already offered in the UNC System (use

the 4-digit CIP as a guide). Information on other programs may be found on the UNC System [website](#).

- How this program supports specific university and UNC System [missions](#).
- Collaborative opportunities with other UNC institutions as appropriate.

The Ph.D. in Engineering Education will bring two colleges together to administer a joint degree program. Students who have at least one degree<sup>1</sup> (or equivalent hours of coursework) in engineering (or related fields) are expected to enroll in the program, which will equip them to engage in a variety of roles: regular engineering departmental faculty, research or teaching faculty in engineering programs, faculty in engineering education programs world-wide, a center/institute director, engineering higher education administrator, community college instructor, engineering departmental teaching specialist or departmental education researcher, engineering outreach services director, and entrepreneurship.

The College of Education at NC State currently has a program area of study under their STEM Education Department in the area of Engineering and Technology Education, one of the options for the PhD in Learning and Teaching in STEM. The PhD program area in Engineering and Technology Education is focusing on teaching and learning issues of K-12 students, including informal settings. The focus is to prepare scholars and teacher educators that will work in teacher preparation programs to prepare K-12 teachers in engineering and technology design principles and curricula. In addition, these doctoral students study the teaching and learning of technology and engineering design principles in order to build theories and scholarly contributions about K-12 and informal settings for K-12 students. Most likely those doctoral students would take positions in a College of Education or STEM or Engineering department where they focus on K-12 teaching and learning issues or teacher preparation. The new degree is distinct and non-overlapping with this area of study in STEM Education, as it is aimed at students who seek to obtain a PhD in Engineering Education that will qualify them to teach at the post-secondary level, specifically in Colleges of Engineering. There are several universities in the US that offer PhDs in Engineering Education, but none of those degrees is administered jointly by a College of Engineering and a College of Education. This would be the first such degree.

This degree is unlikely to draw from the current population of PhD in STEM Education students, as its focus is distinct. It is possible a very small number of Engineering PhD students would elect to switch to this Engineering Education degree, but with a population of 1200 PhD students in Engineering, the effect would be minimal.

The Ph.D. in Engineering Education aligns with several of the goals of the NC State strategic plan:

Goal 1: Educational Innovation—A jointly administered degree will lead to a high level of interdisciplinary work. The cooperation between two colleges to offer this degree will be the first such collaboration that we have been able to identify in the nation. Although Engineering

---

<sup>1</sup> This does not include Associates (two-year) degrees.

Education Ph.D. degrees are offered at a number of our peer institutions, these degrees sit exclusively in the colleges of engineering. Creating a degree that accesses the expertise in the cognitive-social and cultural dimensions of teaching and learning from the College of Education while accessing domain knowledge and knowledge of the development and formation of engineers from the College of Engineering will make us a leader in the nation.

Goal 2: Enhance scholarship and research by investing in faculty and infrastructure—There are currently over 30 faculty in the colleges of Engineering and Education who do research related to engineering education. This new degree will center our work and allow us to delve deeper into issues of engineering education and leverage the strengths that NC State has in both education and engineering.

Goal 3: Enhance interdisciplinary scholarship to address the grand challenges of society—This will be a central goal of this Ph.D. in Engineering Education program. Scholarship in this area involves not only researchers in engineering and education, but also sociology, psychology, mathematics, various sciences, statistics, and many other areas. The College of Engineering has centered its strategic mission around the Engineering Grand Challenges and a large portion of the proposed program will also be centered there by building on the idea of interdisciplinary and problem-based pedagogy and research. There is evidence for a national increased emphasis on interdisciplinary work of this nature in the requirements for engineering education grants, which now frequently require a social science partner. For example, the request for proposals for the IUSE / Professional Formation of Engineers: REvolutionizing engineering and computer science Departments (IUSE/PFE: RED) grants lists the following requirements for the proposal team: “...There must be a RED team that includes (at a minimum) an expert in engineering education or computer science education research who can ground the research plan in the literature, and a social science expert who can advise on strategies for developing a culture of change...”

Goals 4 (pursue organizational excellence) and 5 (engage locally and globally) Cooperation between the two Colleges will certainly benefit from the strength of both programs. Expanding the pipeline of individuals with knowledge of teaching engineering will help meet an important need of our state and our nation.

**Student Demand:** *(Provide evidence of student demand. Discuss the extent to which students will be drawn from a pool of students not previously served by the institution. Maximum length 1,000 words.)*

The student demand for the Ph.D. degree in Engineering Education can be documented by the number of other institutions nationwide and internationally that have similar programs. There is NO institution in North Carolina currently meeting this demand. Students from our own institutions are leaving our state to pursue degrees in engineering education in Virginia or Indiana.

The most closely associated programs to the proposed NC State Ph.D. are at Virginia Tech and Purdue universities. It should be noted that the Ph.D. in Engineering Education at each of these locations resides solely in the College of Engineering, while the proposed degree would be multidisciplinary, jointly administered between Engineering and Education. The program at Virginia Tech began in 2005 and granted its first Ph.D. in 2010. They receive approximately 20 applications per year. Approximately 28 students have since graduated. These graduates are employed as 12 tenure-track faculty and two teaching faculty, six post-docs, two academic administrators and four traditional industry engineering and education (instructional coordinator-type) positions.

The program at Purdue was established in 2004 and granted its first Ph.D. in 2006. They receive between 30 and 50 applications per year, and have graduated 62 from the program. Their graduates hold positions very similar to those of Virginia Tech. Of the 62, nine are engineering education tenure-track faculty, five are higher education administrators, 26 are tenure-track engineering department faculty, one is a museum educator, nine are non-tenure track faculty, four are non-academic administrators, seven are in industry, and nine are in post-doc positions.

In addition to these two programs, there are approximately 20 other Ph.D. programs around the world and an additional half-dozen degrees in disciplinary engineering with a focus on engineering education. This includes programs at Clemson University and an engineering education program housed in a new institute at the University of Georgia.

**Societal Demand:** *(Provide evidence of societal demand and employability of graduates from each of the following source types. Maximum length 1,000 words)*

- Labor market information (projections, job posting analyses, and wages)
  - Specific to North Carolina (such as [ncworks.gov](http://ncworks.gov), [nctower.com](http://nctower.com), or outside vendors such as [Burning Glass](#))
  - Available from national occupational and industry projections (such as the [U.S. Bureau of Labor Statistics](#))
- Projections from professional associations or industry reports
- Other (alumni surveys, insights from existing programs, etc.)

Societal demand for more engineering graduates is well documented. Publications such as “The Engineer of 2020,” from the National Academy of Engineering also point to the need for new approaches to educating those new graduates: “To enhance the nation's economic productivity and improve the quality of life worldwide, engineering education in the United States must anticipate and adapt to the dramatic changes of engineering practice. The Engineer of 2020 urges the engineering profession to recognize what engineers can build for the future through a wide range of leadership roles in industry, government, and academia—not just through technical jobs. Engineering schools should attract the best and brightest students and be open to new teaching and training approaches. With the appropriate education and training, the

engineer of the future will be called upon to become a leader not only in business but also in nonprofit and government sectors”.

In addition, President Obama called for innovation in the way we educate children in K-12 education to increase STEM literacy and the number of STEM graduates:

<https://www.whitehouse.gov/the-press-office/president-obama-expands-educate-innovate-campaign-excellence-science-technology-eng>

In addition to post-secondary engineering education, K-12 education is increasingly incorporating engineering content and practices into classrooms. Teachers for these classrooms need training from higher education faculty with advanced training in engineering education. This is also true for instructors working in contexts such as informal STEM education outreach centers. In combination, these types of publications signal a strong need for improving the education of engineering educators.

In light of these paradigm shifts and increasing demand, engineering is still being taught, in many cases, as it has been for the last hundred years. While the amount of knowledge in these fast-changing, highly technological fields is ever increasing, departments struggle to add more information to already tightly scheduled degree plans. Additionally, engineering remains a field occupied largely by white, male participants. This, too, is a compelling problem that engineering education needs to address. Teaching and learning engineering can differ greatly from more basic sciences or mathematics, due to the highly integrated types of problems addressed (witness the Engineering Grand Challenges highlighted by the National Academy of Engineering, which involve mathematics, physics, biology, chemistry, politics, economics, sociology, psychology and other academic subjects).

In the late 1990's, the field of engineering education began to emerge as an important research area. Topics include how students learn to do design, how are classrooms best administered to scaffold learning for all types of students, what are the issues with recruitment and retention of a diverse student body in engineering, how does one teach spatial visualization skills, can innovative teaching techniques (such as flipped classrooms, online learning, and others) be used to enhance traditional classroom instruction effectively, and many more. A new National Science Foundation grant program, IUSE/Professional Formation of Engineers: REvolutionizing engineering and computer science Departments (IUSE/PFE: RED), was introduced in 2015. There is a need for researchers and educators who are trained in this specialized area of teaching and learning.

Potential positions for graduates from the Engineering Education program include the following:

- Tenure track and teaching faculty in Colleges of Engineering (see employment of Virginia Tech and Purdue graduates above)
- Engineering diversity director
- Faculty in engineering education programs (research in early undergraduate, diversity, or department specialist)

- Engineering higher education administrator, community college instructor
- Engineering education research associates and program managers for the federal government
- Engineering outreach services director (companies, museums, other informal education contexts, consultancies)
- Industry trainers

A sampling of the American Society of Engineering Education classified ads for academic positions shows two to four new openings for Ph.D.'s in engineering education with a second degree in engineering (a requirement of this proposed degree) per month. A review of posted faculty searches in Fall 2016 related to engineering education showed position openings at Arizona State, Virginia Tech, Ohio State, Purdue, Queen's University, and the universities of Georgia and Michigan.

The categories that the Bureau of Labor Statistics Occupational outlook handbook lists are tabulated below together with their predicted rate of growth over the next seven years.

OOH Category	Job title	Predicted rate of growth
Post-secondary engineering teachers	Departmental engineering faculty, community college instructors, engineering education professors, disciplinary engineering teaching faculty	+13%
Post-secondary educational administrators	Center or institute director, engineering outreach director, engineering diversity director, higher education administrator	+7%
Instructional coordinator for engineering (industry)	Instructor, trainer	+12%
Outreach services director	Entrepreneur, museum educator, professional developer	+10%

**For Doctoral Programs Only:**

Describe the following (maximum length 2,000 words):

- The research and scholarly infrastructure in place (including faculty) to support the proposed



program.

- Method of financing the proposed new program (including extramural research funding and other sources) and indicate the extent to which additional state funding may be required.
- State the number, amount, and source of proposed graduate student stipends and related tuition benefits that will be required to initiate the program.

NC State has a number of strengths that make us leaders in engineering education. Over the past 10 years, faculty from the colleges of Engineering and Education have obtained joint funding directly related to engineering education from competitive sources that exceed \$17,277,494. These funded grants have included 61 different researchers from the College of Education and 46 from the College of Engineering. The College of Engineering currently has six Fellows in the American Society of Engineering Education.

Many collaborations between researchers in the two Colleges have resulted in publications in journals such as *IEEE Transactions in Education*, *Computers and Education*, *The Journal of Nano Education*, *The Journal of Engineering Education*, *The Journal of Research in Science Teaching*, *The Journal of Virtual Reality*, *Journal of Science Education and Technology Education*, *Journal of Technology Education*, *Advances in Engineering Education*, *The Journal of Technological Studies*, *Teacher Education and Practice*, *World Journal on Educational Technology*, *Proceedings of the American Society for Engineering Education*, *Advances in Engineering Education (AEE)*, *Computer Science Education*, *Design Studies*, *Engineering Education (Higher Education Academy Engineering)*, *Engineering Education Letters*, *Engineering Studies*, *European Journal of Engineering Education (EJEE)*, *Global Journal of Engineering Education (GJEE)*, *International Journal of Engineering Education (IJEE)*, *International Journal of Engineering Research and General Science (IJERGS)*, *International Journal of Service Learning in Engineering (IJSLE)*, *International Journal of STEM Education*, *Journal of Engineering Education (JEE, American Society for Engineering Education)*, *Journal of Pre-College Engineering Education Research (J-PEER)*, and *Research in Engineering Design*.

There are also hundreds of Proceedings articles published in engineering and technology publications. A minimum of 200 peer reviewed publications have been published by researchers in the area of engineering education across the two Colleges.

Dean Louis Martin-Vega of the College of Engineering is serving his third year as President of the American Society of Engineering Education, the largest professional society in this field.

NC State faculty in engineering and education have received extramural funding for research related to engineering education from NSF, NIH, U.S. Department of Education, NASA, NCDPI, and many other agencies. A search of RADAR for Engineering Education related projects revealed 10 current and 11 recently completed projects with education faculty as PIs or co-PIs. Many more projects are likely funded in Engineering and other colleges.

However, there are considerable grant opportunities being passed by due to lack of current faculty capacity and/or lack of competitive ideas. These are issues that a new interdisciplinary program focusing on engineering education can address by hiring faculty who specialize in this

field, and by recruiting students who wish to do research in this subject. A quick search of the NSF web site returned twenty-seven open calls for proposals. This list represents multiple millions of dollars of potential funding from this one agency alone.

There are additional programs available from other federal and state funding sources, including NASA, the Department of Education, and NIH.

Students enrolled in this degree will also be required to teach at least one course, which could include E101 (Introduction to Engineering and Problem Solving) and E102 (Engineering in the 21st Century). This will provide valuable training and funding for their education.

The colleges will each need to provide 2 teaching assistantships per year for first year students, and an equal number for second year students. Tuition benefits for teaching assistants are paid by the Provost from currently available funds.

Assistantships for an equal or greater number of third and fourth year students will be funded from research grants.

Each College has agreed to hire two faculty who will teach in the program.

A joint curriculum committee across the two colleges will review and approve all new course proposals and curriculum changes once the degree is established.

**Contact:** (List the names, titles, e-mail addresses and telephone numbers of the person(s) responsible for planning the proposed program.)

Position Title	Name	E-mail Address	Telephone
Director and Teaching Associate Professor Engineering and Education	Dr. Laura Bottomley	<a href="mailto:laurab@ncsu.edu">laurab@ncsu.edu</a>	919-515-3263
Professor, STEM Education	Dr. Eric Wiebe	<a href="mailto:Eric_wiebe@ncsu.edu">Eric_wiebe@ncsu.edu</a>	919-515-1753
Associate Professor, STEM Education	Dr. Karen Keene	<a href="mailto:karen_keene@ncsu.edu">karen_keene@ncsu.edu</a>	919-513-3374

<b>Professor, STEM Education</b>	Dr. Hollylynne Lee	<a href="mailto:hollylynne@ncsu.edu">hollylynne@ncsu.edu</a>	919-513-3544
<b>Professor, STEM Education</b>	Dr. Aaron Clark	<a href="mailto:aaron_clark@ncsu.edu">aaron_clark@ncsu.edu</a>	919-515-1771
<b>Teaching Assistant Professor, Engineering and Education</b>	Dr. Tameshia Ballard Baldwin	<a href="mailto:tsballar@ncsu.edu">tsballar@ncsu.edu</a>	919-515-3263
<b>Associate Professor, Engineering</b>	Dr. Wendy Krause	<a href="mailto:wekrause@ncsu.edu">wekrause@ncsu.edu</a>	919-515-6560
<b>Alumni Distinguished Undergraduate Professor, the Director of Undergraduate Programs and Associate Department Head</b>	Dr. Russell Gorga	<a href="mailto:russell_gorga@ncsu.edu">russell_gorga@ncsu.edu</a>	919-515-6553
<b>Director of Undergraduate Programs and Teaching Assistant Professor, Engineering</b>	Dr. Cheryl Cass	<a href="mailto:cheryl_cass@ncsu.edu">cheryl_cass@ncsu.edu</a>	919-515-2479

This Letter of Intent to Plan a New Program has been reviewed and approved by the appropriate campus authorities.

<b>Position Title</b>	<b>Signature</b>	<b>Date</b>
<b>Provost</b>		
<b>Provost (Joint Partner Campus)</b>		

**Degree Name**

*Internal use only*

**STUDENT CREDIT-HOUR (SCH) PRODUCTION OVER FOUR YEARS\***

Ref. <http://oirp.ncsu.edu/ir/fin>

In-state %

year	full-time	credits	SCH	part-time	credits	SCH	total SCH each year	Category #_L_	This is based on
1	5	18	90	6	12	72	162	\$ 933.00	
								\$ 151,146.00	
<b>2</b>									
first-yr	6	18	108	6	12	72			
second-yr	5	18	90	6	12	72			
<b>total</b>	<b>11</b>		<b>198</b>	<b>12</b>		<b>144</b>	<b>342</b>	<b>\$ 319,086.00</b>	
<b>3</b>									
first-yr	7	18	126	7	12	84			
second-yr	6	18	108	6	12	72			
third-yr	5	18	90	6	12	72			
<b>total</b>	<b>18</b>		<b>324</b>	<b>19</b>		<b>228</b>	<b>552</b>	<b>\$ 515,016.00</b>	
<b>4</b>									
first-yr	8	18	144	8	12	96			
second-yr	7	18	126	7	12	84			
third-yr	6	18	108	6	12	72			
fourth-yr	5	18	90	6	12	72			
<b>totals</b>	<b>26</b>		<b>468</b>	<b>27</b>		<b>324</b>	<b>792</b>	<b>\$ 738,936.00</b>	
<b>Total</b>							<b>1848</b>	<b>\$ 1,724,184.00</b>	

*\*assumes no attrition*

**SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM**

INSTITUTION	NC State University	Date:	Oct. 1, 2017
Program (CIP, Name Level)			
Degree(s) to be Granted		Program Year	Year 1 (2019-2020)
Projected annual FTE students	9		
Differential tuition requested per student per academic yr	\$0		
Projected annual differential tuition	\$0		
Projected annual differential tuition for financial aid	\$0		
Differential tuition remainder	\$0		

**Assumptions**

1. Enrollment	admissions	continuing	Student Credit Hours
full-time	5	na	90
part-time	6	na	72
<b>TOTAL new SCH</b>			<b>162</b>
Enrollment increase funds Purpose 101			\$ 151,146
			\$ 37,787
2. Student support			
TA ships	4		
Out of state admissions	3		

**YEAR 1**

Cost Description	Number	Source of Funds				Total
		Reallocation from College	Enrollment Increase *	Contracts & Grants	Other (DELTA)	
<b>12XX SPA salary</b>						
	1.000	\$40,000.00			\$0.00	
	0.000					
<b>TOTAL 12XX</b>	<b>0.000</b>	<b>\$40,000.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$40,000.00</b>
<b>13XX EPA salaries</b>						
Professor	1.000	100,000		12,000	-	112,000
Associate Professor	1.000	80,000		9,600	-	89,600
Associate Professor	1.000	80,000		9,600	-	89,600
Assistant Professor	1.000	72,000		-	-	72,000
Graduate Student Assistants @ \$20K	5.000	81,000	19,000	-	-	100,000
<b>TOTAL 13XX</b>	<b>9.000</b>	<b>\$413,000.00</b>	<b>\$19,000.00</b>	<b>\$31,200.00</b>	<b>\$0.00</b>	<b>\$463,200.00</b>
<b>18XX Fringes</b>						
Faculty/Staff @ 27%		100,440	-	8,424	-	108,864
Graduate Student Assistants @ 9.5%		7,695	1,805	-	-	9,500
<b>TOTAL 18XX</b>		<b>\$108,135.00</b>	<b>\$1,805.00</b>	<b>\$8,424.00</b>	<b>\$0.00</b>	<b>\$118,364.00</b>
<b>2-5XX Operating</b>						
Copying/Postage/Office Supplies			5,000		-	5,000
Travel		10,000			-	10,000
Equipment			10,000			10,000
Other						-
<b>TOTAL 2-5XX</b>		<b>\$10,000.00</b>	<b>\$15,000.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$25,000.00</b>
<b>6XX Graduate Student Support Plan (GSSP)</b>						
RA/TA Health Insurance		9,688		-	-	9,688
In-State Tuition		38,115		-	-	38,115
Tuition Remission - matching, TA	2	27,376				27,376
Tuition Remission Matching @ 25%, TA	2					
Tuition Remission - matching, RA	1	10,266				10,266
Tuition Remission Matching @ 25%, RA	1			3,422		
<b>TOTAL 6XX</b>		<b>\$75,179.20</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$75,179.20</b>
<b>TOTAL COSTS</b>		<b>\$646,314.20</b>	<b>\$35,805.00</b>	<b>\$39,624.00</b>	<b>\$0.00</b>	<b>\$721,743.20</b>

\* Cannot exceed Total New SCH Value  
Percentage returned from Provost or DELTA to be negotiated

Assumptions	Rate	Link
RA/TA Health Insurance @	\$1,938	<a href="http://www.ncsu.edu/grad/support-plan/rates.html">http://www.ncsu.edu/grad/support-plan/rates.html</a>
In-State Tuition @	\$7,623	<a href="http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp">http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp</a>
Tuition Remission @ (diff)	\$13,688	<a href="http://www.ncsu.edu/grad/support-plan/who-pays.html">http://www.ncsu.edu/grad/support-plan/who-pays.html</a>
Tuition Remission Matching @ 25% of TR	\$3,422	

**SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM**

INSTITUTION	NC State University	Date:	Oct. 1, 2018
Program (CIP, Name Level)			
Degree(s) to be Granted		Program Year	Year 2 (201X-201X)
Projected annual FTE students	19		
Differential tuition requested per student per academic yr	\$0		
Projected annual differential tuition	\$0		
Projected annual differential tuition for financial aid	\$0		
Differential tuition remainder	\$0		

**Assumptions**

1. Enrollment	admissions	continuing	Student Credit Hours
full-time	6	5	198
part-time	6	6	144
<b>TOTAL new SCH</b>			<b>342</b>
Enrollment increase funds Purpose 101			<b>\$319,086</b>
			<b>\$79,772</b>
2. Student support			totals
TA ships	4	2	6
Out of state admissions	3	3	6

Cost Description	Number	YEAR 2 Source of Funds					Total New This Year
		Reallocation from College	Enrollment Increase *	Contracts Grants	& Other (DELTA)	Total	
<b>12XX SPA salary</b>							
	1.000	40,000				40,000	
<b>TOTAL 12XX</b>	<b>1.000</b>	<b>40,000</b>				<b>40,000</b>	
<b>13XX EPA salaries</b>							
Professor	1.000	80,752	10,000	23,488	-	114,240	
Associate Professor	1.000	55,560	10,000	16,040	-	81,600	
Associate Professor	1.000	55,560	10,000	16,040	-	81,600	
Assistant Professor	1.000	53,379	10,000	10,061	-	73,440	
Graduate Student Assistants @ \$20K	6.000	35,000	10,000	75,000	-	120,000	
<b>TOTAL 13XX</b>	<b>10.000</b>	<b>280,251</b>	<b>50,000</b>	<b>140,629</b>		<b>470,880</b>	<b>7,680</b>
<b>18XX Fringes</b>							
Faculty/Staff @ 27%		38,728	9,770	17,720	-	66,218	
Graduate Student Assistants @ 9.5%		4,275		7,125	-	11,400	
<b>TOTAL 18XX</b>		<b>43,003</b>	<b>9,770</b>	<b>24,845</b>		<b>77,618</b>	<b>(40,746)</b>
<b>2-5XXX Operating</b>							
Copying/Postage/Office Supplies		5,000	-		-	5,000	
Travel			10,000			10,000	
Current Services			10,000			10,000	
Other							
<b>TOTAL 2-5XX</b>		<b>5,000</b>	<b>20,000</b>			<b>25,000</b>	
<b>6XX Graduate Student Support Plan (GSSP)</b>							
RA/TA Health Insurance	4				7,751	7,751	
In-State Tuition	4				30,492	30,492	
Tuition Remission	2				24,096	27,376	
Tuition Remission Matching @ 25%							
<b>TOTAL 6XX</b>					<b>62,339</b>	<b>65,619</b>	<b>(9,561)</b>
<b>TOTAL COSTS</b>		<b>368,254</b>	<b>79,770</b>	<b>165,474</b>	<b>62,339</b>	<b>679,116</b>	<b>(42,627)</b>

\*\*While it is rea

\*\*Note that I've

\* Cannot exceed Total New SCH Value  
Percentage returned from Provost or DELTA to be negotiated

Assumptions	Rate	Link
RA/TA Health Insurance @	\$1,938	<a href="http://www.ncsu.edu/grad/support-plan/rates.html">http://www.ncsu.edu/grad/support-plan/rates.html</a>
In-State Tuition @	\$7,623	<a href="http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp">http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp</a>
Tuition Remission @ (diff)	\$13,688	<a href="http://www.ncsu.edu/grad/support-plan/who-pays.html">http://www.ncsu.edu/grad/support-plan/who-pays.html</a>
Tuition Remission Matching @ 25% of TR	\$3,422	

**SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM**

INSTITUTION	NC State University	Date:	Oct. 1, 2019
Program (CIP, Name Level)	_____		
Degree(s) to be Granted	_____	Program Year	Year 3 (201X-201X)
Projected annual FTE students	31		
Differential tuition requested per student per academic yr	\$0		
Projected annual differential tuition	\$0		
Projected annual differential tuition for financial aid	\$0		
Differential tuition remainder	\$0		

**Assumptions**

1. Enrollment	admissions	continuing	Student Credit Hours
full-time	7	11	324
part-time	7	12	228
<b>TOTAL new SCH</b>			<b>552</b>
Enrollment increase funds Purpose 101			\$ 515,016
			\$ 128,754
2. Student support			totals
TA ships	5	2	7
Out of state admissions	4	6	10

Cost Description	Number	Source of Funds				Total New This Year
		Reallocation from College	Enrollment Increase *	Contracts & Grants	Other (DELTA)	
<b>YEAR 3</b>						
<b>12XX SPA salary</b>						
	1.000	40,000				40,000
<b>TOTAL 12XX</b>	<b>1.000</b>	<b>40,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>40,000</b>
<b>13XX EPA salaries</b>						
Professor	1.000	51,949	20,000	44,576	-	116,525
Associate Professor	1.000	33,552	20,000	29,680	-	83,232
Associate Professor	1.000	43,392	20,000	19,840	-	83,232
Assistant Professor	1.000	41,048	20,000	13,861	-	74,909
Graduate Student Assistants @ \$20K	7.000	20,000	20,000	100,000	-	140,000
<b>TOTAL 13XX</b>	<b>11.000</b>	<b>189,941</b>	<b>100,000</b>	<b>207,957</b>	<b>-</b>	<b>497,898</b>
<b>18XX Fringes</b>						
Faculty/Staff @ 27%		(11,264)	28,000	29,148	-	45,884
Graduate Student Assistants @ 9.5%		3,800		9,500	-	13,300
<b>TOTAL 18XX</b>		<b>(7,464)</b>	<b>28,000</b>	<b>38,648</b>	<b>-</b>	<b>59,184</b>
<b>2-5XXX Operating</b>						
Copying/Postage/Office Supplies				5,000	-	5,000
Travel				10,000	-	10,000
Current Services				10,000	-	10,000
Other				-	-	-
<b>TOTAL 2-5XX</b>		<b>-</b>	<b>-</b>	<b>25,000</b>	<b>-</b>	<b>25,000</b>
<b>6XX Graduate Student Support Plan (GSSP)</b>						
RA/TA Health Insurance	4				7,751	7,751
In-State Tuition	4				30,492	30,492
Tuition Remission	2				24,096	24,096
Tuition Remission Matching @ 25%						
<b>TOTAL 6XX</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>62,339</b>	<b>62,339</b>
<b>TOTAL COSTS</b>		<b>222,476</b>	<b>128,000</b>	<b>271,605</b>	<b>62,339</b>	<b>684,420</b>
						<b>5,304</b>

\* Cannot exceed Total New SCH Value  
 Percentage returned from Provost or DELTA to be negotiated

Assumptions	Rate	Link
RA/TA Health Insurance @	\$1,938	<a href="http://www.ncsu.edu/grad/support-plan/rates.html">http://www.ncsu.edu/grad/support-plan/rates.html</a>
In-State Tuition @	\$7,623	<a href="http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp">http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp</a>
Tuition Remission @ (diff)	\$13,688	<a href="http://www.ncsu.edu/grad/support-plan/who-pays.html">http://www.ncsu.edu/grad/support-plan/who-pays.html</a>
Tuition Remission Matching @ 25% of TR	\$3,422	

**SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM**

INSTITUTION	NC State University	Date:	Oct. 1, 2020
Program (CIP, Name Level)			
Degree(s) to be Granted	Program Year	Year 4 (201X-201X)	
Projected annual FTE students	44		
Differential tuition requested per student per academic yr	\$0		
Projected annual differential tuition	\$0		
Projected annual differential tuition for financial aid	\$0		
Differential tuition remainder	\$0		

**Assumptions**

1. Enrollment	admissions	continuing	Student Credit Hours
full-time	8	18	468
part-time	8	19	324
<b>TOTAL new SCH</b>			<b>792</b>
Enrollment increase funds Purpose 101			<b>\$ 738,936</b>
			<b>\$ 184,734</b>
2. Student support	total		
TA ships	6	3	9
Out of state admissions	5	10	15

Cost Description	Number	Source of Funds				Total	Total New This Year
		Reallocation from College	Enrollment Increase *	Contracts Grants	& Other (DELTA)		
<b>12XX SPA salary</b>							
	1.000	28,733	11,267			40,000	
<b>TOTAL 12XX</b>	1.000	28,733	11,267	-	-	40,000	-
<b>13XX EPA salaries</b>							
Professor	1.000	0	67,733	51,122		118,855	
Associate Professor	2.000	118,321	35,000	16,472		169,793	
Assistant Professor	1.000	15,189	45,000	24,708		84,897	
Graduate Student Assistants @ \$20K	8.000	-	10,000	150,000		160,000	
<b>TOTAL 13XX</b>	12.000	133,510	157,733	242,302	-	533,545	35,648
<b>18XX Fringes</b>							
Faculty/Staff @ 27%		(3,874)	15,000	24,922	-	36,048	
Graduate Student Assistants @ 9.5%				15,200		15,200	
						-	
						-	
<b>TOTAL 18XX</b>		(3,874)	15,000	40,122	-	51,248	(7,936)
<b>2-5XXX Operating</b>							
Copying/Postage/Office Supplies				5,000		5,000	
Travel				10,000		10,000	
Current Services				10,000		10,000	
Other						-	
<b>TOTAL 2-5XX</b>		-	-	25,000	-	25,000	-
<b>6XX Graduate Student Support Plan (GSSP)</b>							
RA/TA Health Insurance	8			15,501		15,501	
In-State Tuition	4			30,492		30,492	
Tuition Remission	4			48,192		48,192	
Tuition Remission Matching @ 25%							
<b>TOTAL 6XX</b>		-	-	-	94,185	94,185	31,847
<b>TOTAL COSTS</b>		<b>158,369</b>	<b>184,000</b>	<b>307,424</b>	<b>94,185</b>	<b>743,978</b>	<b>59,558</b>

\* Cannot exceed Total New SCH Value  
 Percentage returned from Provost or DELTA to be negotiated

Assumptions	Rate	Link
RA/TA Health Insurance @	\$1,938	<a href="http://www.ncsu.edu/grad/support-plan/rates.html">http://www.ncsu.edu/grad/support-plan/rates.html</a>
In-State Tuition @	\$7,623	<a href="http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp">http://www7.acs.ncsu.edu/cashier/tuition/gradtuition.asp</a>
Tuition Remission @ (diff)	\$13,688	<a href="http://www.ncsu.edu/grad/support-plan/who_pays.html">http://www.ncsu.edu/grad/support-plan/who_pays.html</a>
Tuition Remission Matching @ 25% of TR	\$3,422	



Degree Name  
Summary of Costs

*Internal use only*

**SUMMARY OF TOTAL COSTS EACH YEAR**

Period	Source of Funds					Cumulative Totals	Total New Each Year
	Reallocation from College	Enrollment Increase - PERMANENT	Contracts & Grants	Other Support Needed			
Year 1	\$ 646,314	\$ 35,805	\$ 39,624	\$ -	\$ 721,743	\$ 721,743	
Year 2	\$ 368,254	\$ 79,770	\$ 165,474	\$ 62,339	\$ 675,836	\$ (45,907)	
Year 3	\$ 222,476	\$ 128,000	\$ 271,605	\$ 62,339	\$ 684,420	\$ 8,584	
Year 4	\$ 158,369	\$ 184,000	\$ 307,424	\$ 94,185	\$ 743,978	\$ 59,558	

**SUMMARY OF NEW COSTS EACH YEAR**

Period	Source of Funds					Total New Each Year
	Reallocation from College	Enrollment Increase - PERMANENT	Contracts & Grants	Other Support Needed		
Year 1	\$ 646,314	\$ 35,805	\$ 39,624	\$ -	\$ 721,743	
Year 2	\$ (278,060)	\$ 43,965	\$ 125,850	\$ 62,339	\$ (45,907)	
Year 3	\$ (145,778)	\$ 48,230	\$ 106,132	\$ -	\$ 8,584	
Year 4	\$ (64,107)	\$ 56,000	\$ 35,818	\$ 31,847	\$ 59,558	
Grand Total	\$ 158,369	\$ 184,000	\$ 307,424	\$ 94,185	\$ 743,978	

**PERMANENT FUNDS REQUESTED OVER 4-YEAR PERIOD**

Reallocation from College	\$ 158,369
Other Support Needed	94,185
Contracts & Grants	307,424
Enrollment Increase Funds	184,000
<b>TOTAL</b>	<b>\$ 743,978</b>

**SUMMARY OF ENROLLMENT INCREASE FUNDS**

Period	Enrollment Increase - PERMANENT	Total New Each Year
Year 1	\$ 151,146	\$ 151,146
Year 2	\$ 319,086	\$ 167,940
Year 3	\$ 515,016	\$ 195,930
Year 4	\$ 738,936	\$ 223,920
Grand Total	\$ 1,724,184	\$ 738,936

Grad Program Gain (Loss) **\$ (5,042)**

Degree Name

Internal use only

Table 1: Estimated Annual Budget for the Program

Internal Review Only

	year 1	year 2	year 3	year 4	Percentage (Academic Cost / Purpose 101 Funding)	
					101%	Comments
Academic Costs (see description in proposal Appendix G section 8)	\$721,743	\$679,116	\$684,420	\$743,978		1) typical range 40% to 60% by YR 4
Library Costs (estimated @ 11.485% of purpose 101 funds)	\$17,359	\$36,647	\$59,150	\$84,867		2) can not exceed 80% for DELTA
General Institutional Support (estimated @ 54.050% of purpose 101 funds)	\$81,694	\$172,466	\$278,366	\$399,395		
DELTA specific instructional support (estimated @ 20% pf purpose 101 funds)	\$30,229	\$63,817	\$103,003	\$147,787		
<b>ESTIMATED ANNUAL TOTAL COST</b>	<b>\$851,026</b>	<b>\$952,047</b>	<b>\$1,124,939</b>	<b>\$1,376,027</b>		

Table 2: Projected Annual Requirements

	year 1	year 2	year 3	year 4	Purpose 101 Funding Difference (State Appropriation - Academic cost)	
					- Academic cost)	Comments
Number of Category I Master's SCH generated	162	342	552	792		
State Appropriations Estimate to Campus Library (11.485% of purpose 101 funds)	\$17,359	\$36,647	\$59,150	\$84,867		
State Appropriations Estimate to Campus Institutional Support (54.050% of purpose 101 funds)	\$81,694	\$172,466	\$278,366	\$399,395		
State Appropriations Estimate to Campus for Category I Master's Purpose 101 (@\$804.84 per SCH)	\$151,146	\$319,086	\$515,016	\$738,936	-\$152,829	1) must be + by YR 4 2) available to university for program development funding 3)
<b>ESTIMATED TOTAL ANNUAL REQUIREMENTS</b>	<b>\$250,200</b>	<b>\$528,199</b>	<b>\$852,532</b>	<b>\$1,223,198</b>		

Tuition receipts based on graduate program FY 13 resident rates \$374 per SCH for DE	\$0	\$0	\$0	\$0
Estimated Total State Appropriation (annual requirements - tuition receipts)	\$250,200	\$528,199	\$852,532	\$1,223,198

last revised Sept. 2, 2014

Assumptions

- full time rate based on 9+ credit hours per semester for resident \$/SCH
- part time rate based on 3 credit hours per semester for resident \$/SCH
- full time rate based on 9+ credit hours per semester for non resident \$/SCH
- part time rate based on 3 credit hours per semester for non resident \$/SCH

## 2015)

### *Internal use only*

Suggest developing a preliminary budget as a supplement to Appendix A and F

Appendix C Section XI Budget: Insert worksheets labeled Year, 1, 2, 3, and 4 into the budget section. Add a

Appendix G Section 8 Financial Support Insert worksheets yr 1, yr 2, yr 2, yr 4, and UNC GA summary

Hide sections in yellow before pasting into Appendix C and G

The template is not locked. Add/delete rows/columns as needed. Modify formulas as needed.

See comments associated with individual cells in worksheets

The complete Excel Budget Template is routed within NCSU for reviews.

### **SCH Production over four years worksheet**

This worksheet shows the SCH generated which is then used to calculate revenue based on formula funding. Only include NEW students. Do not include students who are in off-model programs.

Category: refer to the web site for the enrollment category of courses (for example engineering courses are typically Category IV)

Total SCH each Year: refer to the website for \$ value of purpose 101 funding Table 2 column 2.

· If your program is significantly divided among several programs add extra rows to represent other categories and corresponding SCH. Alternatively, develop a weighted \$/SCH value for budget purposes.

Based on the student credit hours reported in Appendix C Section II.C, for Year 1 record:

number of full time students each year (only include NEW students not students who are moving from an existing

typical credit hours per year for full time students (18 credit hours for graduate programs)

number of part time students each year (only include NEW students not students who are moving from an existing

typical credit hours per year for part time students (9 credit hours for graduate programs)

For years 2, 3, and 4 record similar data.

First -year represents new students

Second, third, fourth-year represents continuing students

In most graduate programs full time students would complete the program in 2 years.

Assume no attrition from the program

### **Year 1 Budget worksheet.**

Assumption 1: Enrollment is automatically calculated from SCH worksheet.

Assumption 2: Student support: Include TA/RA or other support

SPA Salary: List position title, not personnel names

EPA Salaries: List position title, not personnel names

Fringes: Rates based on SPARCS Contracts & Grants. <http://www.ncsu.edu/sparcs/budgeting/fringe.php>

2-5XX Operating: Add rows as need describing costs to operate the program. This may include items such as:

GSSP: Rates based on Cashier's office. <http://www.fis.ncsu.edu/cashier/tuition/gradtuition.asp>

· GSSP provides funding for health insurance and tuition for eligible students (depends on funding source and appointment type). See: <http://www.ncsu.edu/grad/support-plan/index.php>

Source of Funds: years 1, 2, and 3 are initial development of program and year 4 should represent steady state

Reallocation from College: indicate expenses to be covered by college

Enrollment Increase: purpose 101 formula funding. Percentage allocated to program to be negotiated.

Contracts & Grants: indicate the source(s) of funds

Other: Other possible sources of funds include DE (distance education), CITI (campus initiated tuition increase) and

GSSP. Add columns to the spreadsheet as needed.

### **Years 2, 3, and 4 worksheets**

Assume no inflation.

### **Summary worksheet**

This worksheet is automatically generated from the previous worksheets. (If you have modified the previous worksheets then this worksheet may also need modifying)

### **UNC-GA Summary Worksheet**

This worksheet is automatically generated. (If you have modified the previous worksheets then this worksheet may  
Tuition receipts are based on an average \$/SCH for full time and part time NC resident students. This can be  
modified with either an estimate of all out of state tuition or a weighted value based a proportion of in-state to out-  
Estimated Total Appropriation is the difference between the Estimated Total Requirements and the Tuition Receipts.  
Campus Initiated Tuition is not calculated. This would need to be added for approved program.