Request for Authorization to <u>Establish</u>
Master (M) of Applied Professional Studies
CIP 30.0000
University of North Carolina at Chapel Hill

I.   Program Highlights

- The University of North Carolina at Chapel Hill (UNC-Chapel Hill) proposes the establishment of a Master of Applied Professional Studies (MAPS).
- UNC-Chapel Hill values and prioritizes interdisciplinary, multidisciplinary, and multi-professional studies. This proposed program builds upon the existing academic strengths of the university, creating a highly customizable program that emphasizes leadership, communication, project management, and business fundamentals.
- The program would be based academically in the graduate school, serving a broad range of student audiences, including but not limited to, current UNC-Chapel Hill and UNC System employees, veterans and military-affiliated individuals, local entrepreneurs, and self-employed professionals.

II.   Academic Program Planning Criteria (Section Policy 400.1 of the UNC Policy Manual)

1. **Existing Programs (Number, Location, Mode of Delivery).** There are no other programs within the University of North Carolina System offered at the graduate level in the CIP Code 30.0000 (Multi-/Interdisciplinary Studies). East Carolina University and Elizabeth City State University offer baccalaureate programs in this area. Several institutions, including North Carolina State University, University of North Carolina at Asheville, University of North Carolina at Charlotte, The University of North Carolina at Greensboro, and University of North Carolina Wilmington currently offer a related master's degree in liberal arts/liberal studies/applied arts and sciences in on-campus and online environments.

2. **Relation to Campus Distinctiveness and Mission.** The MAPS program is well-connected to the unique mission and positioning of UNC-Chapel Hill. The program advances the institution's goal of advancing an academically rigorous interdisciplinary education. The program will leverage the significant breadth and depth of expertise that currently exists at the university in existing academic programs, providing students with a robust yet highly personalized educational experience.

3. **Student Demand.** The MAPS program is poised to attract significant interest from prospective students, particularly from current UNC-Chapel Hill and UNC System employees, veterans and military-affiliated individuals, and local professionals interested in advancing their professional skillset. As UNC System employees will be able to use their

tuition waiver for courses in this program, it is anticipated that it will enhance affordable access to a high-quality graduate education.

4. **Potential for Unnecessary Duplication.** This program will be the first graduate degree in inter-/multidisciplinary studies offered within the UNC System. It differs from existing liberal studies programs with a professionally oriented and workforce development focus. Job placement trends show increased attention to aligning graduate program curricula and learning outcomes with tangible professional opportunities. The proposed MAPS program will allow prospective students to design a program of study that matches with their professional objectives.

5. **Employment Opportunities for Graduates.** The MAPS program will provide students with a rigorous grounding in some of the most in-demand skills. The local and regional workforce is actively working for well-rounded employees to serve in a variety of occupations and industries who have a background and training in leadership, management, public speaking, customer service, and research. Students will be able to personalize their MAPS curriculum around the specific areas of expertise they need for personal and professional advancement.

6. **Faculty Quality and Number.** As a multidisciplinary program that builds upon the existing breadth and depth of faculty expertise at UNC-Chapel Hill, no new faculty will be required, beyond the program director. Faculty from across campus will be involved in the program and course offerings as needed, depending on students' interests in courses and capstone projects.

7. **Availability of Campus Resources (library, space, etc.)** UNC-Chapel Hill has adequate library resources to support the proposed MAPS program. Current library policies enable inter-library loans and resources, which may be useful for the MAPS students depending on their proposed course of study and expertise that may be offered at other nearby universities.

   UNC-Chapel Hill also has adequate informational technology resources to support the program and associated technology needs. No special facilities are required for this program based upon the proposed instructional design and mix.

8. **Relevant Lower-level and Cognate Programs.** This program builds upon the existing expertise found at the graduate level across the UNC-Chapel Hill campus. Faculty from a number of associated academic departments will lend their knowledge and expertise to this program.

9. **Impact on Access and Affordability.** The proposed MAPS program is intended to broaden access to a professionally relevant, rigorous, and customizable graduate education. With a focus on UNC-Chapel Hill and UNC System staff, military and veteran affiliated students,

and professionals looking to advance their career, the program will expand the programmatic reach of UNC-Chapel Hill and the UNC System.

No changes to the approved graduate tuition and fees are requested. No tuition differential or program specific fees are requested. Tuition and fees for 2021-22 academic year for a full-time (9+ credit hour) graduate student are as follows:

Full-Time 2021-22 Graduate Tuition and Fees per Year (In Dollars)

Category	Resident	Non-Resident
Tuition	10,552.00	28,844.00
Tuition Differential	--	--
Mandatory Fees (Student Activities, Health Services, Education & Technology, Campus Safety, Debt Service, ASG)	1750.48	1750.48
Special Fees	--	--
Application Fee	95.00	95.00

10. **Expected Quality.** The proposed MAPS program will be based out of the UNC-Chapel Hill Graduate School, an academic and administrative unit on campus that supports most graduate programs and students on campus from admissions through graduation. A program director, housed in the Graduate School, will have responsibility for oversight of the program, including admissions, advising, and student success.

A program governance board will be established from key academic stakeholders, primarily drawn from the faculty from across campus, to provide academic oversight of the program. This group will help provide guidance on advising, curriculum development, and program evaluation.

All graduates of the program will be required to complete a culminating capstone course and capstone project experience. Students will use this as an opportunity to apply what they have learned in the program to address a real-world challenge relevant to their professional development objectives. Students will work with their faculty advisor and a three-person committee to ensure project viability, rigor, and alignment with the Graduate School's Core Competency Framework.

11. **Feasibility of Collaborative Program.** This program will leverage the existing collaborative academic arrangements that exist between UNC-Chapel Hill and other institutions. Inter-institutional registration agreements exist with Duke University, North Carolina Central University, UNC Charlotte, and UNC Greensboro. UNC Online also represents a potential area for collaborative academic enrollments.

12. **Other Considerations.** None.

III.   Summary of Review Processes

1. **Campus Review Process and Feedback.** The proposal was reviewed by UNC-Chapel Hill's faculty, graduate council, graduate school, CFO, provost, and chancellor. Approval and support were provided at all levels.

2. **UNC System Office Review Process and Feedback.** Throughout the review process, UNC-Chapel Hill provided relevant information pertaining to program requirements and resources. The institution submitted appropriate documentation and research to support the statements made.

IV.   Recommendation

It is recommended that the Board of Governors approve the University of North Carolina at Chapel Hill's request to establish the Master of Applied Professional Studies (CIP 30.0000) effective spring 2022.

Request for Authorization to <u>Establish</u>
Master of Public Policy (MPP)
CIP 44.0501
University of North Carolina at Chapel Hill

I.   Program Highlights

- The University of North Carolina at Chapel Hill (UNC-Chapel Hill) proposes the establishment of a Master of Public Policy (MPP).
- The program would be the first MPP program in the University of North Carolina System, building upon the existing strengths of UNC-Chapel Hill, which currently offers both a baccalaureate and a Ph.D. in Public Policy
- The program will initially launch in an accelerated 4+1 format, in which current undergraduate public policy students will be able to complete the MPP degree in one year. The program will then expand to include a full-time stand-alone program track.

II.   Academic Program Planning Criteria (Section 400.1 of the UNC Policy Manual)

1. **Existing Programs (Number, Location, Mode of Delivery).** There are no existing MPP programs within the UNC System. UNC Charlotte also offers the Ph.D. in Public Policy under CIP Code 44.0501 (Public Policy Analysis, General). The related Master of Public Administration (MPA) degree is currently offered by UNC-Chapel Hill, as well as Appalachian State University, East Carolina University, North Carolina State University, North Carolina Central University, University of North Carolina at Charlotte, The University of North Carolina at Greensboro, The University of North Carolina at Pembroke, University of North Carolina Wilmington, and Western Carolina University. Across the UNC System the program is offered in-person and online.

2. **Relation to Campus Distinctiveness and Mission.** The UNC-Chapel Hill Department of Public Policy's mission is to "empower Carolina students with the knowledge, skills, & experiences to improve the lives of others." The MPP degree's multi-dimensional features align with this mission, as well as with those of the UNC System and UNC-Chapel Hill. An MPP program would further the UNC System's mission by helping train a new generation of students to "contribute to the solution of societal problems and enrich the quality of life in the State."

   The UNC-Chapel Hill MPP degree would provide students with the theoretical perspective, analytical skills, and substantive knowledge needed to address domestic and global policy challenges. MPP students would work with quantitative and qualitative data to develop and evaluate alternative approaches to emerging public challenges both locally and around the globe. The core curriculum would include exposure to multiple disciplinary fields, including economics, history, political science, policy analysis, philosophy, research methods, and statistics. An MPP would require a summer work

experience as well as a client-centered consulting project. A major appeal of an MPP degree is its flexible application for careers in the non-profit, public, and private sector.

3. **Student Demand.** UNC-Chapel Hill is the only UNC System school offering an undergraduate (BA) degree in public policy. The program has recorded a dramatic growth in undergraduate public policy majors (93 percent increase) and minors (172 percent increase) over the last seven years (AY 2011-19). The introductory course, (*Making Public Policy*) attracts approximately 400 students annually. Moreover, UNC-Chapel Hill has observed a dramatic increase in enrollment in core and elective public policy courses (79 percent increase in credit hours).[16]

   UNC-Chapel Hill is a national leader in conferring undergraduate degrees in public policy. In the most recent completion data, UNC-Chapel Hill awarded the second-highest number of bachelor's degrees in public policy nationwide, with 115 completions in 2017, a 21.1 percent increase in public policy completions year over year. Due to the rapid growth in students interested in public policy courses, as well as already-declared public policy majors, an attentive internal audience would be interested in the MPP program.

   UNC-Chapel Hill plans to leverage this existing interest by first launching a 4+1 accelerated BA/MPP program. The program will then be expanded to include a traditional full-time program for graduates of other programs.

4. **Potential for Unnecessary Duplication.** This program will be the first MPP degree offered within the UNC System. It differs from existing MPA programs offered at UNC-Chapel Hill and other UNC System institutions with a heavier focus on systematic analysis of public policy issues and decision processes, including instruction in economic and political factors in public decision making and policy formulation. MPA programs typically prepare individuals to serve as managers and executives in local, state, and federal government, with a focus on the systematic study of executive organization and management.

5. **Employment Opportunities for Graduates.** A graduate education in public policy aims to empower students with the knowledge, skills, and experience for success in the labor market. MPP graduates from other existing programs work in a range of professional sectors. A 2015 professional report indicated that 12 percent worked in the private sector; 43 percent worked in the public sector (17 percent in local government, 15 percent in state government, 11 percent in federal government); and 23 percent worked in the nonprofit sector.

   There are six occupations most likely obtained by MPPP graduates. These occupations are projected to grow 11 percent over the next decade, greater than the 6.5 percent national projected growth rate among all occupations. Additionally, the median annual earnings for these six occupations is $111,710, higher than the national median for the same occupations, and nearly 2.5 times higher than the national median across all occupations statewide ($47,431).

6. **Faculty Quality and Number.** UNC-Chapel Hill offers nationally recognized programs in public policy at the undergraduate and doctoral level. Existing faculty will serve as the core of the proposed MPP program. In the initial period, Public Policy will offer admission only into the accelerated BA/MPP degree (years 1-3). This will require additional fixed-term faculty and a quarter time (BA/MPP) Coordinator. When admission to a stand-alone MPP degree is offered and depending on the size of the cohort (years 4-6), additional tenured/tenure-track faculty will be needed.

7. **Availability of Campus Resources (library, space, etc.)** UNC-Chapel Hill has adequate library resources to support the proposed MPP program. The UNC-Chapel Hill University Libraries consist of twelve campus libraries with over seven million items in their catalog. The U.S. Federal government collection contains materials back to 1789, and UNC-Chapel Hill has been a Federal Depository Library since 1884 and a Federal Regional Depository Library since 1962. While there is not a Library of Congress Classification for public policy more broadly, UNC-Chapel Hill has strong coverage in the research areas of public policy, for example: environmental policy (13,542 items), health policy (8,637 items), government policy (54,964 items), social policy (18,075 items) and entrepreneurship: (5,260 items). The collections are not only extensive but have significant retrospective strengths. Moreover, because campus libraries support graduate programs in dozens of social and health science fields, materials on related subjects of potential interest to public policy faculty and students are also available in campus libraries.

   Existing information technology services are sufficient to support the proposed program. Current physical space is sufficient to house the initial accelerated BA/MPP program, but additional space will be required to achieve full enrollment growth.

8. **Relevant Lower-level and Cognate Programs.** This program builds upon the existing expertise found in Public Policy at UNC-Chapel Hill. The UNC-Chapel Hill Curriculum in Public Policy Analysis was initiated as an interdisciplinary undergraduate major in the College of Arts & Sciences in 1979, adding an interdisciplinary doctoral program in 1991 and achieving departmental status in 2001. UNC-Chapel Hill has a distinguished tradition in public policy as a charter institutional member of the Association for Public Policy Analysis and Management.

9. **Impact on Access and Affordability.** The proposed MPP program will offer an in-state cost-of-attendance that is lower than UNC-Chapel Hill peers, such as Duke University, the University of Michigan, the University of Virginia, and the College of William and Mary. The accelerated (4+1) degree a more affordable and efficient structure than a two-year MPP degree. Many UNC-Chapel Hill Public Policy baccalaureate graduates have pursued a two-year MPP at private or public (at out-of-state tuition rates) at a total tuition over $100,000. The accelerated degree will offer the MPP at roughly $19,000 for in-state students.

No changes to the approved graduate tuition and fees are requested. An $8,500 per year graduate tuition differential is requested for the program. Tuition and fees for 2021-22 academic year for a full-time (9+ credit hour) graduate student are as follows:

Full-Time 2021-22 Graduate Tuition and Fees per Year (In Dollars)

Category	Resident	Non-Resident
Tuition	10,552.00	28,844.00
Tuition Differential	8,500.00	8,500.00
Mandatory Fees (Student Activities, Health Services, Education & Technology, Campus Safety, Debt Service, ASG)	1750.48	1750.48
Special Fees	--	--
Application Fee	95.00	95.00

10. **Expected Quality.** The proposed MPP will build upon the strong academic rigor found in existing UNC-Chapel Hill Public Policy programs and will require 48 credits for completion. The core curriculum includes exposure to multiple disciplinary fields, including economics, history, political science, policy analysis, philosophy, research methods, and statistics. The program will require a summer externship and a thesis/final capstone policy project, in which students will apply the analytical and professional skills they have gained through the program.

11. **Feasibility of Collaborative Program.** The MPP degree will enable new collaboration within the College of Arts and Sciences, UNC-Chapel Hill professional schools, and across other UNC System schools. First, there are potential synergies with current UNC-Chapel Hill master's degrees, including Global Studies and City and Regional Planning. Second, public policy graduate students would have access to UNC-Chapel Hill professional school courses, and UNC-Chapel Hill professional school students would have access to new public policy graduate offerings. For example, in collaboration with the School of Government, The Curriculum in Global Studies, and the Department of City and Regional Planning, several courses would include students from multiple programs. An MPP dual degree potentially could be offered with other professional schools such as public health, social work, and law. Currently, UNC-Chapel Hill Law students who are interested in a joint degree must complete their MPP at Duke. Third, Public Policy aims to collaborate with social science related academic departments at other UNC System schools in an effort to prepare their students to complete an MPP at UNC-Chapel Hill. In time, a foundational MPP program will strengthen the pipeline between problem-focused undergraduates at all UNC System schools and provide additional opportunities for graduate public policy education in North Carolina.

12. **Other Considerations.** None.

III.   Summary of Review Processes

1. **Campus Review Process and Feedback.** The proposal was reviewed by UNC-Chapel Hill's faculty, department chair, graduate council, academic dean, graduate school dean, CFO, provost, and chancellor. Approval and support were provided at all levels.

2. **UNC System Office Review Process and Feedback.** Throughout the review process, UNC-Chapel Hill provided relevant information pertaining to program requirements and resources. The institution submitted appropriate documentation and research to support the statements made.

IV.   Recommendation

It is recommended that the Board of Governors approve the University of North Carolina at Chapel Hill's request to establish the Master of Public Policy (CIP 44.0501) effective spring 2022.

Request for Authorization to <u>Establish</u>
Master of Science (MS) in Medical Science
CIP 44.0501
University of North Carolina at Chapel Hill

I.   Program Highlights

- The University of North Carolina at Chapel Hill (UNC-Chapel Hill) proposes the establishment of a Master of Science (MS) in Medical Science.
- The UNC-Chapel Hill School of Medicine offers the MD, and would be responsible for the proposed MS.
- This program requires no new courses or faculty, as it will be offered to students who have completed the first two years of coursework in the MD program but are not continuing into clinical training.

II.   Academic Program Planning Criteria (Section 400.1 of the UNC Policy Manual)

1. **Existing Programs (Number, Location, Mode of Delivery).** There are no existing master's degree programs within the University of North Carolina System under CIP Code 51.1201 (Medicine). Both UNC-Chapel Hill and East Carolina University offer the MD in that CIP Code.

2. **Relation to Campus Distinctiveness and Mission.** The UNC-Chapel Hill School of Medicine is nationally recognized. This program would only be occasional students who, after the initial two years of the program, are considered unable to move forward into clinical training or who choose to pursue other opportunities. The School of Medicine admits 190 students per year, and the Student Progress Committee expects that only one student every two years would need to exercise this option.

   Nationally, it is common practice to offer students a master's degree in the rare event they cannot complete the MD. Across the United States, the following medical schools have begun to offer exit master's degrees: Harvard University, Temple University, Tulane University, University of Michigan, University of Southern California, Wayne State University, and several others.

3. **Student Demand.** Students will not be directly admitted into this program, as it is only open to current MD students. It is expected that only one student every two years would pursue this option.

4. **Potential for Unnecessary Duplication.** This program will be unique within the UNC System, and thus presents no programmatic duplication.

5. **Employment Opportunities for Graduates.** During the pursuit of a medical degree, some students recognize that their skills and passions are not necessarily aligned with serving as a physician in the evolving and complex health care system. Rather, they learn that would prefer to serve in allied health (e.g., physician's assistant, physical therapist), research, or teaching roles. Students make these decisions as they learn both about themselves and about the health care system itself, and in some cases, they have personal or family circumstances that cause them to pursue training programs that are shorter and therefore less expensive. The MS in Medical Sciences will allow students and the School of Medicine to mutually agree on this change of pathway.

6. **Faculty Quality and Number.** The MS degree will be administered under the UNC-Chapel Hill School of Medicine Office of Medical Education. There will be no impact on faculty or teaching loads, as this program will only be offered to a small number of existing MD students who decide not to proceed with clinical training. A capstone course will be created for students exercising this option to ensure a seamless transition to subsequent pursuits.

7. **Availability of Campus Resources (library, space, etc.)** This program will not require any campus resources beyond current operations.

8. **Relevant Lower-level and Cognate Programs.** Not Applicable.

9. **Impact on Access and Affordability.** The proposed MS program will provide the small number of students who depart the UNC-Chapel Hill MD program with a valuable credential. This will assist them in pursuing employment opportunities that provide a positive financial return.

   No changes to the approved School of Medicine tuition and fees are requested. Tuition and fees for 2021-22 academic year for a full-time medical student are as follows:

   Full-Time 2021-22 Medical School Tuition and Fees per Year (In Dollars)

Category	Resident	Non-Resident
Tuition	32,746.00	60,706.00
Tuition Differential	--	--
Mandatory Fees (Student Activities, Health Services, Education & Technology, Campus Safety, Debt Service, ASG)	1750.48	1750.48
Special Fees	509.00	509.00
Application Fee	--	--

10. **Expected Quality.** A student in this program would be required, through past and current coursework in the MD program, including remediation, to have earned 63 hours of credit

with the MCAT serving as the equivalent of the GRE. The final requirement will be registration in a 992-level equivalent course (MTEC 400). This course will include a capstone project or series of experiences, which will be under the direction of the Associate Dean for Curriculum or a designated appropriate faculty mentor and will allow the student to integrate disciplines taught as separate organ systems (e.g., cardiovascular system, respiratory system), to investigate careers, to network appropriately, and to be propelled toward their new career goals.

11. **Feasibility of Collaborative Program.** Not applicable.

12. **Other Considerations.** None.

III.   **Summary of Review Processes**

1. **Campus Review Process and Feedback.** The proposal was reviewed by UNC-Chapel Hill's faculty, graduate council, academic dean, graduate school dean, CFO, provost, and chancellor. Approval and support were provided at all levels.

2. **UNC System Office Review Process and Feedback.** Throughout the review process, UNC-Chapel Hill provided relevant information pertaining to program requirements and resources. The institution submitted appropriate documentation and research to support the statements made.

IV.   **Recommendation**

It is recommended that the Board of Governors approve the University of North Carolina at Chapel Hill's request to establish the Master of Science in Medical Science (CIP 51.1201) effective fall 2021.

Request for Authorization to <u>Establish</u>
Bachelor of Science in Engineering (BSE) in Intelligent Systems Engineering
CIP 14.0999
University of North Carolina Wilmington

I.   Program Highlights

- The University of North Carolina Wilmington (UNCW) proposes the establishment of a Bachelor of Science in Engineering (BSE) in Intelligent Systems Engineering.
- The proposed interdisciplinary program brings together computing and engineering disciplines, along with the liberal arts, to prepare students to succeed in an area that is becoming increasingly important for industry, government, and society.
- The program would prepare students for work in the era of "smart things" and connected devices, which continue to grow in prominence and importance.

II.   Academic Program Planning Criteria (Section 400.1 of the UNC Policy Manual)

1. **Existing Programs (Number, Location, Mode of Delivery).** There are no existing programs within the University of North Carolina System under CIP Code 14.0999 (Computer Engineering, other) or in the field of intelligent systems engineering.

2. **Relation to Campus Distinctiveness and Mission.** The proposed program supports UNCW's mission of "…creative inquiry, critical thinking…in areas of expertise that serve state needs." It also aligns with the UNCW strategic priority to "…enhance learning experiences and educational programs." The program would leverage existing strengths in computer science and the arts and sciences at UNCW, in support of a program that addresses a fast-growing societal and employment need.

3. **Student Demand.** UNCW expects strong enrollment demand from current students as well as potential new students. The university commissioned a market analysis from Hanover Research that indicated a growing student demand for programs in intelligent systems engineering. Indiana University offers a program in intelligent systems engineering that has seen enrollment exceed initial estimates and expectations.

4. **Potential for Unnecessary Duplication.** This program would represent a unique structure for addressing the burgeoning field of smart and connected devices that is not found anywhere else within the UNC System. The primary reason there are no other programs is that this is a relatively new discipline nationally.

5. **Employment Opportunities for Graduates.** There is strong evidence of labor market demand and high-paying incomes for graduates of the proposed program. Engineering

graduates continue to enjoy growth in positions and wages, per Bureau of Labor Statistics projections. Glassdoor, one of the world's largest job and recruiting sites, reports that the average annual base salary for an intelligent systems engineer is $90,898.

6. **Faculty Quality and Number.** The program will be delivered with a combination of new and existing courses. The existing courses will be shared with the BS in computer science program. The program is expected to enroll 25 students per year of net new growth and will ultimately require the addition of four new faculty members. New and existing faculty who will support this program will teach a slate of courses commensurate with workload expectations for their college and UNCW.

7. **Availability of Campus Resources (library, space, etc.)** The UNCW library adequately supports the existing programs within Computer Science, spending 14 percent of the total materials budget on resources in the discipline. The library also subscribes to large multidisciplinary journal packages and databases which include resources applicable to intelligent systems engineering. The primary need for students engaged in intelligent systems engineering are scholarly journals in machine learning, data science, artificial intelligence, and cybersecurity. The library will pursue avenues to ensure access to these materials for faculty and students.

   The proposed program will require new offices and affiliated research space for the new faculty members who will be hired to support the program. Existing spaces are relatively new and should not require any other significant retrofitting or renovations to launch the program. Future enrollment growth will require either the reallocation of existing spaces or identification of new spaces.

8. **Relevant Lower-level and Cognate Programs.** The primary support for this program will come from existing undergraduate courses in Computer Science, Mathematics and Statistics, and Physics and Physical Oceanography. This will form the critical base and foundation of the program, that will then move into upper-division engineering courses.

9. **Impact on Access and Affordability.** The proposed BSE program would advance UNCW's goal of providing high-quality academic programs to students.

   No changes to the approved undergraduate tuition and fees are requested. No tuition differential or program specific fees are requested are requested. Tuition and fees for 2021-22 academic year for a full-time (12+ credit hour) undergraduate student are as follows:

Full-Time 2021-22 Undergraduate Tuition and Fees per Year (In Dollars)

Category	Resident	Non-Resident
Tuition	4,443.00	18,508.00
Tuition Differential	--	--

Mandatory Fees (Student Activities, Health Services, Education & Technology, Campus Safety, Debt Service, ASG)	2,691.51	2,691.51
Special Fees	--	--
Application Fee	80.00	80.00

10. **Expected Quality.** The proposed program would be a four-year interdisciplinary program involving both the engineering and computing domains. In addition to the successful completion of university studies requirements, the BSE would require math and science foundations, engineering core courses, and an area of concentration (machine learning and artificial intelligence, cybersecurity, cyber-physical systems). The program will be supported by existing computer science faculty with strengths in many of these areas, complemented by new faculty hires commensurate with enrollment growth.

11. **Feasibility of Collaborative Program.** The proposed program will leverage and partner with existing academic disciplines at UNCW. As the program grows, UNCW will explore outreach and partnership opportunities with other UNC System institutions and programs.

12. **Other Considerations.** None.

III. Summary of Review Processes

1. **Campus Review Process and Feedback.** The proposal was reviewed by UNCW's faculty, program director, department chair, academic dean, undergraduate dean, CFO, provost, and chancellor. Approval and support were provided at all levels.

2. **UNC System Office Review Process and Feedback.** Throughout the review process, UNCW provided relevant information pertaining to program requirements and resources. The institution submitted appropriate documentation and research to support the statements made.

IV. Recommendation

It is recommended that the Board of Governors approve the University of North Carolina at Wilmington's request to establish the Bachelor of Science in Engineering in Intelligent Systems Engineering (CIP 14.9999) effective spring 2022.

Request for Authorization to <u>Establish</u>
Bachelor of Science (BS) in Cybersecurity
CIP 14.0999
University of North Carolina Wilmington

I.   Program Highlights

- The University of North Carolina Wilmington (UNCW) proposes the establishment of a Bachelor of Science (BSE) in Cybersecurity.
- The proposed interdisciplinary program brings together computing and engineering disciplines, along with business analytics and information systems, to prepare students to succeed in an area that is becoming increasingly important for industry, government, and society.
- UNCW has expertise in this area, having been designated by the National Security Agency (NSA) and the Department of Homeland Security (DHS) as a Center for Academic Excellence in Cyber Defense Education through 2023.
- There is a significant need for increasing our public and private workforce in the area of cybersecurity. Cyberattacks on computing systems continue to threaten our personal security, professional activities, and governmental operations.
- This degree will help fill a significant workforce gap and provide North Carolina with a source of employment talent.

II.   Academic Program Planning Criteria (Section 400.1 of the UNC Policy Manual)

1. **Existing Programs (Number, Location, Mode of Delivery).** There are no existing baccalaureate programs within the University of North Carolina System under CIP Code 11.1003 (Computer and Information Systems Security). East Carolina University, Fayetteville State University, University of North Carolina at Charlotte, and The University of North at Greensboro offer certificate programs in this field, and University of North Carolina Charlotte offers a master's degree in this field.

2. **Relation to Campus Distinctiveness and Mission.** The proposed complements several existing academic degree programs at UNCW, including management information systems, computer science, information technology, business analytics, and data science. This will facilitate the efficient sharing of faculty, space, and equipment resources, and will support UNCW's growth in this area.

3. **Student Demand.** UNCW expects strong enrollment demand from current students as well as potential new students. A 2018 Gartner study noted that the global cybersecurity market is expected to reach $170.4 billion by 2022. To develop the required talent needed by both the private and public sectors, academic departments are working to establish cybersecurity programs and tracks. Based off of an analysis of similar programs at other

institutions, UNCW projects a total full-time enrollment of 160 students by the fifth year of the program's operation.

4. **Potential for Unnecessary Duplication.** This program does not represent unnecessary duplication as it is the first stand-alone baccalaureate program in cybersecurity within the UNC System.

5. **Employment Opportunities for Graduates.** There is strong evidence of labor market demand and high-paying incomes for graduates of the proposed program. An EMSI Analyst report was generated for this program, expecting a 14.9 percent increase in jobs between 2019 and 2029, with expected median earnings of $88,800 per year. Unique job postings for related positions have more than doubled in North Carolina between 2016 and 2021, demonstrating substantial employer demand for program graduates.

6. **Faculty Quality and Number.** The program will be delivered with a combination of new and existing courses. The existing courses will be shared with the cybersecurity minor and the current security concentration offered in computer science. UNCW expects the program to largely attract new students, and not impact enrollment levels of existing programs. The program is expected to ultimately offer 27 new courses and require the addition of six new faculty members. New and existing faculty who will support this program will teach a slate of courses commensurate with workload expectations for their college and UNCW.

7. **Availability of Campus Resources (library, space, etc.)** The UNCW library adequately supports the existing programs within Computer Science, spending 14 percent of the total materials budget on resources in the discipline. The library also subscribes to large multidisciplinary journal packages and databases which include resources applicable to cybersecurity. Additional journals focused on cryptologia, computer security, cyber policy, and business analytics will be pursued in support of the program.

   The proposed program will require new offices and affiliated research space for the new faculty members who will be hired to support the program. Existing spaces are relatively new and should not require any other significant retrofitting or renovations to launch the program. Future enrollment growth will require either the reallocation of existing spaces or identification of new spaces. New dedicated servers and software packages that directly address cybersecurity will also be required.

8. **Relevant Lower-level and Cognate Programs.** The primary support for this program will come from existing undergraduate courses in Computer Science, Mathematics and Statistics, and Physics and Physical Oceanography. This will form the critical base and foundation of the program, that will then move into upper-division engineering courses.

9. **Impact on Access and Affordability.** The proposed cybersecurity program will improve student access and support the UNC System Strategic plan by aligning with both the local community college (Cape Fear) and industry needs.

   No changes to the approved undergraduate tuition and fees are requested. No tuition differential or program specific fees are requested are requested. Tuition and fees for 2021-22 academic year for a full-time (12+ credit hour) undergraduate student are as follows:

   Full-Time 2021-22 Undergraduate Tuition and Fees per Year (In Dollars)

Category	Resident	Non-Resident
Tuition	4,443.00	18,508.00
Tuition Differential	--	--
Mandatory Fees (Student Activities, Health Services, Education & Technology, Campus Safety, Debt Service, ASG)	2,691.51	2,691.51
Special Fees	--	--
Application Fee	80.00	80.00

10. **Expected Quality.** Cybersecurity refers to a set of techniques used to protect the integrity of an organization's security architecture and safeguard its data against attack, damage, or unauthorized access. It is the convergence of people, processes, and technology that come together to protect against digital attacks.

    The proposed program in cybersecurity will build of the existing expertise and experience that UNCW has in the field, as well as the related disciplines of computer science, business and analytics, and information systems. Each graduate of the cybersecurity program will have experience that includes a computing-based foundation, crosscutting concepts that are broadly applicable across a range of specializations, a direct connection between their body of knowledge and in-demand workforce domains, and a strong emphasis on ethical conduct and professional responsibilities. UNCW will request that the new program be given the same Center for Academic Excellence in Cyber Defense Education designation from the National Security Agency and the Department of Homeland Security that the existing cybersecurity minor has received.

11. **Feasibility of Collaborative Program.** The proposed program will leverage and partner with existing academic disciplines at UNCW. As the program grows, UNCW will explore outreach and partnership opportunities with other UNC System institutions and programs.

12. **Other Considerations.** None.

III.   Summary of Review Processes

1. **Campus Review Process and Feedback.** The proposal was reviewed by UNCW's faculty, program director, department chair, academic dean, undergraduate dean, CFO, provost, and chancellor. Approval and support were provided at all levels.

2. **UNC System Office Review Process and Feedback.** Throughout the review process, UNCW provided relevant information pertaining to program requirements and resources. The institution submitted appropriate documentation and research to support the statements made.

IV.   Recommendation

It is recommended that the Board of Governors approve the University of North Carolina at Wilmington's request to establish the Bachelor of Science in Cybersecurity (CIP 11.1003) effective fall 2021.