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| For Academic Affairs and Research Use Only |
| Proposal Number |  |
| CIP Code:  |  |
| Degree Code: |  |

**Reconfiguration of Existing Degree Program Proposal Form**

(Also requires Arkansas Department of Higher Education (ADHE) approval)

**[ ] Undergraduate Curriculum Council**

**[✔] Graduate Council**

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

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**Department Curriculum Committee Chair** |

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**COPE Chair (if applicable)** |
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**Department Chair** |

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**Head of Unit (if applicable)**   |
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| **Director of Assessment** |  |

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**Undergraduate Curriculum Council Chair** |
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**College Curriculum Committee Chair** |

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**Graduate Curriculum Committee Chair** |
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**College Dean** |

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| Alan Utter | 10/26/2022 |

**Vice Chancellor for Academic Affairs** |
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**General Education Committee Chair (if applicable)**   |  |

1. **Contact Person** (Name, Email Address, Phone Number)

Brandon Kemp, bkemp@astate.edu, 870.972.2088

1. **Title(s) of degree programs to be consolidated/reconfigured:**

Master of Science in Engineering, Emphasis in Electrical Engineering

1. **Proposed title of consolidated/reconfigured program:**

Master of Science in Electrical Engineering (MSEE)

1. **Proposed Effective Date:** Fall 2023
2. **Reason for proposed program consolidation/reconfiguration:**

*(Indicate student need/demand (projected enrollment) for the proposed program and document that the program meets employer needs using the ADFA Workforce Analysis Form)*

Potential students, current students, and alumni of the Master of Science in Engineering program have expressed concerns about the uncommon name of the MSEngr program in regard to employment opportunities. The concern is that an MSEngr degree is not as marketable as an equivalent, discipline specific MSCE, MSEE, or MSME. Also, the external consultant report in the recent ADHE program review of the MSEngr program suggested discipline specific MSCE, MSEE, and MSME degrees.

1. **Provide current and proposed curriculum outline by semester.**

The proposal is to rename and rebrand the current Master of Science in Engineering program with EE emphasis as a Master of Science in Electrical Engineering. The proposed curriculum for the MSEE program will be identical to the current MSEngr program with emphasis in Electrical Engineering (EE).

Current and Proposed

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| --- | --- | --- | --- |
|   | **Fall** | **Spring**  | **Summer** |
| **Year 1** | ENGR 6023 Advanced Engineering Math | EE Elective | ENGR 6693 Engineering Research |
| EE Elective  | EE Elective |   |
|   | Approved Elective |   |
| **Year 2** | ENGR 6043 Applied Probability and Estimation | Approved Elective |   |
| ENGR 689 V Thesis  | ENGR 689 V Thesis |   |

1. **Will the proposed degree be offered:**
	1. **Traditional/Face-to-face** Yes
	2. **Distance/Online** No
		1. **If yes, indicate mode of distance delivery, and the percentage of courses offered via this modality (<50%, 50-99%, or 100%).**

Enter text...

* + 1. **If online, will it be offered through Global Initiatives/Academic Partnerships (AP)?**

Enter text...

1. **Will the proposed degree be offered off-campus?** No
	1. **If yes, identify the off-campus location**

 Enter text...

1. **Provide documentation that proposed program has received full approval by licensure/certification entity, if required.**

 *(A program offered for teacher/education administrator licensure must be reviewed/approved by the Arkansas Department of Education prior to consideration by the Coordinating Board; therefore, the Education Protocol Form also must be submitted to ADHE along with the Letter of Notification).*

 Engineering program at Arkansas State University are accredited by ABET at the undergraduate level only, which is consistent with the national norm. Graduate programs are not typically accredited unless the institution does not offer accredited undergraduate programs.

1. **List institutions offering similar program and identify the institutions used as a model to develop the proposed program.**

Many state and private universities in the United States offer MSEE degree. This program was most closely models the program at Texas State University Master of Science, major in Electrical Engineering (Thesis Option).

1. **Provide scheduled program review or specialized accreditation initial review date (within 10 years of program implementation).**

The current MSEngr program completed an ADHE program review during the 2021-2022 academic year. An outcome of that program review was the recommendation to split the program into discipline specific degrees (i.e. BSCE, BSEE, BSME). It is proposed that the discipline specific degrees complete a program review ten years after the last review, which would be during the 2031-32 academic year.

1. **Is there differential tuition requested?** *If yes, please fill out the New Program/Tuition and Fees Change Form.*

Yes. Will follow the College of Engineering and Computer Science Differential Tuition.

1. **Graduate programs only: Will this program require a comprehensive exam?**

No. The program requires the presentation and oral defense of an original research thesis.

**Student Learning Outcomes**

Provide outcomes that students will accomplish during or at completion of this reconfigured degree. Fill out the following table to develop a continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

**University Outcomes**

Please indicate the university-level student learning outcomes for which this new program will contribute. Please complete the table by adding program level outcomes (PLO) to the first column, and indicating the alignment with the university learning outcomes (ULO). If you need more information about the ULOs, go to the [University Level Outcomes Website](http://www.astate.edu/a/assessment/student-learning-outcomes/files/ULOs%20for%20Website2.pdf).

Graduates of the program will have:

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|  | **ULO 1: Creative & Critical Thinking** | **ULO 2: Effective Communication** | **ULO 3: Civic & Social Responsibility** | **ULO 4: Globalization & Diversity** |
| **PLO 1:** A good understanding of statistical concepts and an ability to apply this knowledge to achieve engineering solutions that most efficiently use information and resources | **X** |  |  |  |
| **PLO 2:** An ability to apply advanced mathematical concepts to model physical systems and engineering processes to drive knowledge-based design | **X** |  |  |  |
| **PLO 3:** An advanced, cross‐disciplinary understanding of engineering sciences, and an ability to relate physical concepts from multiple engineering disciplines |  |  |  | **X** |
| **PLO 4:** An ability to identify critical issues, formulate realistic solutions, evaluate alternatives, and carry out independent research to provide novel solutions to technical problems; | **X** |  |  |  |
| **PLO 5:** A demonstrated ability to make novel, significant contributions to the scientific and engineering body of knowledge |  | **X** | **X** |  |

***Note: Best practices suggest 4-7 outcomes per program; minors would have 1 to 4 outcomes.***

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| **Outcome 1** | Program graduates will have a good understanding of statistical concepts and an ability to apply this knowledge to achieve engineering solutions that most efficiently use information and resources. |
| Assessment Procedure Criterion | Direct Assessment Learning Activity: Students will impliment an estimator into a computer code for efficiently estimating parameters from noisy/random data.Direct Assement Tool: The student codes will be evaluated against a test data set and overal performance specifications evaluated with a rubric.Indirect Assement Tool: Graduate survey  |
| Which courses are responsible for this outcome? | ENGR 6043 Applied Probability and Estimation |
| Assessment Timetable | Assessment will be reported every second (even) year. |
| Who is responsible for assessing and reporting on the results? | ENGR 6043 Instructor and program director |

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| **Outcome 2** | Program graduates will have an ability to apply advanced mathematical concepts to model physical systems and engineering processes to drive knowledge-based design |
| Assessment Procedure Criterion | Direct Learning Activity: Students will write computer codes to model a physical or engineering system.Direct Assessment: The codes will be run against known test cases to evaluate the actual performance using a rubric.Indirect Assessment Tool: Graduate survey |
| Which courses are responsible for this outcome? | ENGR 6023 Advanced Engineering Math |
| Assessment Timetable | Assessment will be reported every second (odd) year.  |
| Who is responsible for assessing and reporting on the results? | ENGR 6023 Instructor and program director |

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| **Outcome 3** | Program graduates will have an advanced, cross‐disciplinary understanding of engineering sciences, and an ability to relate physical concepts from multiple engineering disciplines |
| Assessment Procedure Criterion | Direct Learning Activity: Students will endure an oral thesis examination which includes topics relating research to the broader impacts of engineering, technology, and society. Direct Assessment: Student performance will be assessed by the thesis examination committee using a rubric. Indirect Assessment Tool: Graduate survey |
| Which courses are responsible for this outcome? | ENGR 689V Thesis |
| Assessment Timetable | Assessment will be reported every second (odd) year. |
| Who is responsible for assessing and reporting on the results? | Thesis committee chair and program director. |

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| **Outcome 4** | Program graduates will have an ability to identify critical issues, formulate realistic solutions, evaluate alternatives, and carry out independent research to provide novel solutions to technical problems |
| Assessment Procedure Criterion | Direct Learning Activity: Students will engage in independent research and present research in written and oral presentation. Direct assessment: A rubric will be used to evaluate students abilityIndirect Assessment Tool: Graduate survey |
| Which courses are responsible for this outcome? | ENGR 6693 Engineering Research |
| Assessment Timetable | Assessment will be reported every second (even) year. |
| Who is responsible for assessing and reporting on the results? | ENGR 6693 Instructor and program director. |

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| **Outcome 5** | Program graduates will have a demonstrated ability to make novel, significant contributions to the scientific and engineering body of knowledge |
| Assessment Procedure Criterion | Direct Learning Activity: Students will present and defend an independent research project. Direct assessment: A rubric will be used to evaluate student abilityIndirect Assessment Tool: Graduate survey |
| Which courses are responsible for this outcome? | ENGR 689 V Thesis |
| Assessment Timetable | Assessment will be reported every second (odd) year. |
| Who is responsible for assessing and reporting on the results? | Thesis committee chair and program director.  |

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| **Cycle** | **Report** | **Outcome 1** | **Outcome 2** | **Outcome 3** | **Outcome 4** | **Outcome 5** |
| 2023-24 | 2020 | X |   |   | X |   |
| 2024-25 | 2021 |   | X | X |   | X |
| 2025-26 | 2022 | X |   |   | X |   |
| 2026-27 | 2023 |   | X | X |   | X |

*Table: Assessment reporting schedule*

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  |

Additions in blue.

Deletions in ~~red.~~

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| **Program Page:**

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| ~~Engineering, Emphasis in Electrical Engineering, MSE~~ **Master of Science in Electrical Engineering, MSEE** |
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Return to {$returnto_text} Return to: [Programs by College](https://catalog.astate.edu/content.php?catoid=4&navoid=113)The Master of Science in ~~Engineering (MSEngr)~~ Electrical Engineering program provides an educational experience focusing on the integration of research and technology development that allows graduates to be successful in deriving solutions to society’s most challenging technical problems. To achieve this goal, the program’s objectives are to discover new scientific principles, apply novel engineering solutions, and develop cutting-edge technology toward achieving efficient and sustainable use of resources; to integrate cross-disciplinary research and teaching that produces electrical engineering professionals equipped to take on the more complex problems that face our state and country; and to establish and grow industry-university partnerships that drive toward and prepare the region for a diverse, knowledge-based economy.Specific program outcomes are listed below. ~~MSEngr~~ MSEE program graduates will have:* A good understanding of statistical concepts and an ability to apply this knowledge to achieve engineering solutions that most efficiently use information and resources;
* ~~A practical knowledge of fabrication and manufacturing techniques;~~
* An ability to apply advanced mathematical concepts to model physical systems and engineering processes to drive knowledge based design;
* An advanced, cross-disciplinary understanding of engineering sciences, and an ability to relate physical concepts from multiple engineering disciplines;
* An ability to identify critical issues, formulate realistic solutions, evaluate alternatives, and carry out independent research to provide novel solutions to technical problems; and
* A demonstrated ability to make novel, significant contributions to the scientific and engineering body of knowledge.

~~MSENGR~~ MSEE ADMISSION REQUIREMENTSEach applicant must have an undergraduate GPA of at least 2.75 on a 4.00 scale and a bachelor’s degree in engineering. Applicants that do not have a bachelor’s degree in engineering, for example those having a bachelor’s degree in physics, or those having an undergraduate GPA below 2.75, will be considered on a case-by-case basis and must show equivalent experience and training and have completed the required pre-requisites for the courses. Applicants must present Graduate Record Examination (GRE) scores for the Verbal, Quantitative, and Analytical tests. The minimum combined Verbal and Quantitative reasoning scores must be 300 for the revised GRE test or equivalent scores for general GRE. Applicant not having completed GRE scores may be admitted conditionally, but must complete this requirement prior to finishing the first semester of course work. Applications submitted throughout the year for the following semester and in accordance to Graduate Admissions deadlines will be considered based on qualification and space availability. All application materials must be received by the College of Engineering and Computer Science during the semester prior to the student’s official enrollment in A-State courses. Official transcripts, two letters of recommendation, a resume, and a statement of purpose not exceeding three pages are also required for admission. International students require additional proof of English proficiency to meet the admission requirements of Graduate Programs.ACCELERATED MASTERS PROGRAMUndergraduate students seeking admission into the Accelerated Master of Science in Electrical Engineering program must meet the admission requirements of Graduate Admissions. In addition, applicants must be enrolled in one of the following undergraduate engineering degrees: Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, or Bachelor of Science in Mechanical Engineering.~~MSENGR~~ MSEE APPLICATION DEADLINESApplication deadline is April 1st each year to begin study in the Fall semester and October 1st each year to begin study in the Spring semester. Applications are not accepted for Summer admissions.~~MSENGR~~ MSEE DEGREE REQUIREMENTSThe number of semester credit hours for the ~~M.S.E~~. MSEE degree is 30. Students are required to complete two core courses ([ENGR 6023](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113#tt1809), [ENGR 6043](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113#tt4802)) for 6 semester credit hours, a minimum of three 6000 level graduate engineering elective courses for 9 credit hours, two additional approved graduate elective courses for 6 credit hours, one research course ([ENGR 6693](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113#tt8300)) for 3 credit hours, and two semesters of thesis research for 6 credit hours. The ~~MSE~~ MSEE curriculum is structured as a two-year program (four semesters). |
| UNIVERSITY REQUIREMENTS:See [Graduate Degree Policies](https://catalog.astate.edu/content.php?catoid=4&navoid=104#master-s-degree-policies) for additional informationPROGRAM REQUIREMENTS:* [ENGR 6023 - Advanced Engineering Math](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113) **Sem. Hrs:** **3**
* [ENGR 6043 - Applied Probability and Estimation](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113) **Sem. Hrs:** **3**
* [ENGR 6693 - Engineering Research](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113) **Sem. Hrs:** **3**
* [ENGR 689V - Thesis](https://catalog.astate.edu/preview_program.php?catoid=4&poid=1057&returnto=113) **Sem. Hrs:** **Variable**
* 6000-Level Engineering Electives**Sem. Hrs:** **6**

Sub-total: 21ELECTIVES:* Approved-6000 Level ~~Civil~~ Electrical Engineering Electives**Sem. Hrs:** **3**
* Approved ~~Civil~~ Electrical Engineering Electives**Sem. Hrs:** **6**

Sub-total: 9TOTAL REQUIRED HOURS: 30 |

 Return to: [Programs by College](https://catalog.astate.edu/content.php?catoid=4&navoid=113)

**Admission Page:**

## ADMISSION AS AN UNDERGRADUATE INTO AN ACCELERATED MASTERS PROGRAM

The accelerated master’s degree option provides a transition that enables outstanding A-State undergraduate students to begin taking graduate course work in their junior or senior year by combining components of the undergraduate and graduate curriculum. Students admitted into an approved accelerated master’s degree program may have a limited number of graduate level courses counted toward both the undergraduate and graduate degree. Students must apply and be admitted to the accelerated master’s program by the department before enrolling for any courses to apply to the graduate degree. A-State graduate programs offering an accelerated option are listed below:

* Accounting (M.Acc.)
* Agriculture (M.S.A.) - All Concentrations
* Chemistry (M.S.)
* Computer Science (M.S.)
* Disaster Preparedness and Emergency Management (M.S.)
* Master of Science in Electrical Engineering (MSEE)
* Engineering (M.S.Engr.)
* Engineering Management (M.E.M.)
* History (M.A.)
* Mathematics (M.S.)
* Political Science (M.A.)
* Public Administration (M.P.A.)
* Special Education - Instructional Specialist Grades K-12 (M.S.E.)

Depending on the program, up to 12 hours of graduate credits will apply toward completion of the undergraduate degree requirements. Under the accelerated master’s degree option, a student will be fully-admitted to the graduate program upon completion of the baccalaureate degree. This dual counting of a course for both undergraduate and graduate credit will occur only after the student completes the baccalaureate degree. Only courses with grades B or better will be eligible to count toward graduate credit. Undergraduate students interested in the accelerated master’s opportunity should contact their department or the Office of the Registrar for admission information.