REQUEST FOR PROGRAM CHANGE(S)

University of Central Oklahoma

Please note: All information contained in this form will be reviewed by persons outside of your college. Please use clear and concise language when completing this form.

Name of program-major or minor to be changed: (maximum of 30 spaces)
Existing Name: Electrical Engineering - Electrical Engineering

Proposed Name: (if changing)(maximum of 30 spaces)
*Remember when abbreviating names, this is how they will appear on student's transcripts.

Proposed Name: (full name of program/major if longer than 30 spaces)

Is this a: X Program X Major ___ Minor ___ Sequence of Courses

Proposed change:
___ Name Change X Curriculum Change
___ Degree Designation ___ GPA Requirement
___ Admission Requirement ___ Other: BS/PSM BS/MS

Is this program: X Undergraduate ___ Graduate

Is this a teacher preparation program? (All courses required for any teacher preparation program must have approval from the Council on Teacher Education (CTE) before approval from AACC or Graduate Council.)
Yes X No If yes, send copy of proposal to the Director of Teacher Education, Dr. Bryan Duke.
CTE Approval (Stamp or initial)

Engineering and Physics
Department submitting the proposal

Evan Lemley elemley@uco.edu 5473
Person to contact with questions email address Ext. number

Approved by:

Department Chair College Curriculum Committee Chair
Date Date (Please notify department chair when proposal is forwarded to dean.)

G.A. 9/24/2020
College Dean
Date (Please notify department chair when proposal is forwarded to AA.)

Effective term for this program change
(Assigned by Academic Affairs)

Office of Academic Affairs Date

Academic Affairs Form
May, 2014

Functional review CF 9/30/20
(undergraduate proposals only)
1. Does this program change affect other programs or departments?
X Yes ___ No

If yes, provide name(s) of department chair(s) contacted, date(s), and results of discussion(s).

The proposed accelerated degree program pipelines undergraduate students in a program in the Engineering and Physics Department into a master’s program under CREIC (Computational Research and Education in Interdisciplinary Computation). The Director of CREIC, Evan Lemley, and the Chair of Engineering and Physics, Charles Hughes, discussed this proposal on multiple occasions, the last of which was 08/28/2020, and they agreed to the contents of this proposal.

2. Proposed curriculum change(s):
(Please include entire major/minor as it exists and as it is proposed. Italicize and bold changes.)

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Existing Catalog Requirements)</td>
<td>(Proposed Catalog Requirements)</td>
</tr>
<tr>
<td>Minimum Required Hours</td>
<td>Minimum Required Hours</td>
</tr>
<tr>
<td>Support Courses</td>
<td>Support Courses</td>
</tr>
<tr>
<td>PHIL 112</td>
<td>Contemporary Moral Problems</td>
</tr>
<tr>
<td>ECON 1103</td>
<td>Introduction to Economics</td>
</tr>
<tr>
<td>FMKT 2323</td>
<td>Global Protocol and Diversity (or Foreign Language)</td>
</tr>
<tr>
<td>*MATH 1533</td>
<td>Precalculus-Algebra OR</td>
</tr>
<tr>
<td>MATH 1513</td>
<td>College Algebra OR Placement Score AND</td>
</tr>
<tr>
<td>*MATH 1593</td>
<td>Plane Trigonometry OR Placement Score</td>
</tr>
<tr>
<td>A grade of ‘C’ or better is required for either MATH 1513 or MATH 1533 and MATH 1593 to take MATH 2313.</td>
<td></td>
</tr>
</tbody>
</table>

Students majoring in the Electrical Engineering program are encouraged to complete the following course in high school.

One year of high school physics OR

PHY 1003 Introduction to Physics

Major Requirements

<table>
<thead>
<tr>
<th>Electrical Engineering</th>
<th>92-97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>14</td>
</tr>
<tr>
<td>Required courses:</td>
<td></td>
</tr>
<tr>
<td>PHY 2014</td>
<td>Physics for Science and Engineering I and Lab</td>
</tr>
<tr>
<td>PHY 2114</td>
<td>Physics for Science and Engineering II and Lab</td>
</tr>
<tr>
<td>PHY 3103</td>
<td>Modern Physics</td>
</tr>
<tr>
<td>PHY 3883</td>
<td>Mathematical Physics I</td>
</tr>
</tbody>
</table>

| Engineering | 55 |
| Required courses: |
| ENGR 1112 | Introduction to Engineering and Laboratory |
| ENGR 1213 | Engineering Computing and Laboratory |
| ENGR 2033 | Statics |
| ENGR 2303 | Electrical Science |
| ENGR 2311 | Electrical Science Laboratory |
| #ENGR 3183 | Electromagnetic Fields I |
| ENGR 3223 | Digital Logic Design and Laboratory |
| ENGR 3303 | Engineering Probability & Statistics |
| #ENGR 3323 | Signals and Systems |
| ENGR 3331 | Signals and Systems Laboratory |
| ENGR 3403 | Analog Electronics |
| ENGR 3421 | Analog Electronics Laboratory |
| #ENGR 3413 | Materials Science |
| ENGR 3613 | Microprocessors and Laboratory |
| ENGR 3703 | Computational Methods in Engineering |
Admission into Engineering and Physics Upper Division is required.

Minimum Hours required........................................125*

*Total hours required for this major may exceed the minimum 124 credit hour institutional requirement and will vary according to course selection. It is recommended students complete high school algebra II, trigonometry, physics and two years of a second language in high school.

Minimum Grade Requirements
1. Average in (a) all college course work, and (b) course work at UCO ............................................. 2.00
2. A minimum grade of "C" must be earned in all courses in the major to count toward meeting degree requirements.

For other regulations pertaining to graduation, see pages 66-67 of the 2019-2020 catalog.

Minimum Hours required........................................125*

*Total hours required for this major may exceed the minimum 124 credit hour institutional requirement and will vary according to course selection. It is recommended students complete high school algebra II, trigonometry, physics and two years of a second language in high school.

Minimum Grade Requirements
1. Average in (a) all college course work, and (b) course work at UCO ............................................. 2.00
2. A minimum grade of "C" must be earned in all courses in the major to count toward meeting degree requirements. For other regulations pertaining to graduation, see pages of the 2021-2022 catalog.

Accelerated BS/MS

The Department of Engineering and Physics offers a M.S. Engineering Physics – Electrical Engineering major. Students in the B.S. Electrical Engineering program are eligible to pursue, with approval, the M.S. Engineering Physics – Electrical Engineering degree.
beginning in their senior year. Approved B.S.
Electrical Engineering students may take up to
10 credit hours of 5000-level ENGR courses
during their senior year of the BS program.
These courses will count toward both the B.S.
and M.S. degrees. A formal application to the M.S.
Engineering Physics program and an approval from
the Department of Engineering and Physics are
required. Requirements are located in the UCO
Graduate Catalog under Engineering Physics-
Electrical Engineering.

Up to 10 credit hours of the following courses can
be used to satisfy both the B.S. Electrical
Engineering and the M.S. Engineering Physics-
Electrical Engineering programs:

ENGR 5323 Digital and Analog Communication
ENGR 5333 Digital Signal Processing
ENGR 5311 Digital Signal Processing Laboratory
ENGR 5803 Mechatronics & Laboratory
ENGR 5083 Electromagnetic Fields II
ENGR 5613 Photonics
ENGR 5633 Solid State Devices

Accelerated BS/PSM

UCO’s PSM (Professional Science Master’s) in
Computational Science has partnered with the BS in
Electrical Engineering so that approved students
may take up to 10 credit hours of 5000-level ENGR
courses during their senior year of the BS program.
These courses will count toward both the BS and
PSM degrees. A formal application to the PSM
Computational Science program and an approval
from the Department of Engineering and Physics are
required. Requirements are located in the UCO
Graduate Catalog under Computational Science-
Computational Engineering, P.S.M.

Up to 10 credit hours of the following courses can
be used to satisfy both the B.S. Electrical
Engineering and the P.S.M. Computational
Science – Computational Engineering

ENGR 5023 Heat Transfer
ENGR 5103 Finite Element Analysis
ENGR 5333 Digital Signal Processing
ENGR 5311 Digital Signal Processing Laboratory
ENGR 5803 Mechatronics & Laboratory
BME 5223 Biomedical Imaging

3. Degree Designation: (Example, B.A. to B.F.A.)
   Existing Designation: NA To:

4. Change(s) in Minimum GPA Requirements:
   FROM (Existing Catalog Requirements) TO (Proposed Catalog Requirements)
   NA

5. Change(s) in Admission Requirements for the Program/Major:

Functional review CF
(undergraduate proposals only)
FROM (Existing Catalog Requirements) TO (Proposed Catalog Requirements) NA

6. Other requested action: NA

7. Will requested change require additional funds? Yes X No
   If yes, please specify the amount of the additional costs, the source of the funds, and how they will be expended over the next three years, including new or re-allocated full or part time faculty/staff.

<table>
<thead>
<tr>
<th>Additional Funds</th>
<th>20</th>
<th>20</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of additional costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of funds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How funds will be expended</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

8. Please provide a summary of the requested changes. (This is a listing of the changes requested) (This information will be submitted to the OSRHE)
   These changes will enable students admitted to the proposed accelerated BS/PSM program in this undergraduate major, to take up to 10 hours of graduate coursework while seniors. These courses will be used to satisfy the requirements of both this undergraduate program and the PSM program.

   In addition, these changes will enable students admitted into the accelerated BS/MS program in Engineering Physics – Electrical Engineering to take up to 10 hours of graduate coursework while seniors. These courses may be used to satisfy the requirements of both this undergraduate program and the MS program in Engineering Physics – Electrical Engineering.

9. The reason(s) for this change are based on which of the following: (Check all that apply; explain and document in Question #10)
   _ Specialized Accreditation
   _ SSCI (Self Study for Continuous Improvement)
   _ Benchmark (e.g. comparison to peer institutions)
   _ Assessment Data
   _ Faculty Knowledge/Discipline Expertise
   _ Advisory Board/Outside Professional Group
   X Other

10. For all items checked in Question #9, please provide a concise, yet comprehensive, statement that explains the reasons for requesting the change including any necessary documentation. (The information provided here will be submitted to the OSRHE)
   Discussions with senior UCO students have shown their interest in the proposed accelerated BS/PSM program. In open house and career fairs in which the PSM director has marketed the PSM program, this is the most common question from UCO students.

   The proposed changes would clearly ease the pathway to obtaining a master’s degree and doing it in less time for UCO students in this undergraduate major.
Thank you for your desire to have an Accelerated Degree Program approved through the Graduate College curriculum review process, which involves a recommendation from the Graduate Council's Curriculum Committee.

Given that Accelerated Degree Programs permit an undergraduate student to enroll in graduate courses and to count the completed graduate courses toward their undergraduate degree, these curriculum proposals are approved through both undergraduate (Academic Affairs Curriculum Committee) and graduate (Graduate Council) curricular processes. The Academic Affairs Curriculum Committee reviews Accelerated Degree Program proposals and makes recommendations to the Graduate Council.

In order for the Graduate Council to review the proposal submitted, this form should be completed and submitted with the undergraduate curriculum proposal. If approved, the information provided below will be used by the Graduate College to develop the Accelerated Degree Program paragraph in the Graduate Catalog degree sheet; a sample Degree Sheet paragraph is provided below.

Undergraduate Degree Faculty Contact:
Nesreen Alebou

Undergraduate Degree Department:
Engineering and Physics

Name of the Undergraduate Degree in the Accelerated Degree Program:
Electrical Engineering

Name of the Graduate Degree in the Accelerated Degree Program:
Engineering Physics – Electrical Engineering

Name of the Graduate Program Advisor for the ADP Graduate Degree:
Weldon Wilson, Ph.D.
Specific Graduate Courses to Be Counted Toward the Undergraduate and Graduate Degrees:

<table>
<thead>
<tr>
<th>Graduate Course Prefix</th>
<th>Graduate Course No.</th>
<th>Graduate Course Credit Hour</th>
<th>Graduate Course Title</th>
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<td>Electromagnetic Fields II</td>
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<tr>
<td>ENGR</td>
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<td>3</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td>ENGR</td>
<td>5311</td>
<td>1</td>
<td>Digital Signal Processing Laboratory</td>
</tr>
<tr>
<td>ENGR</td>
<td>5803</td>
<td>3</td>
<td>Mechatronics and Laboratory</td>
</tr>
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**Please Note:** No more than ten hours of graduate coursework in an Accelerated Degree Program may be double-counted for both a graduate and undergraduate degree. No undergraduate coursework may be counted toward a graduate degree. All students are required to apply to the Graduate College for ADP admission and are subject to Graduate College policies upon graduate admittance.

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C.A.  
signature of Undergraduate Degree Department Chair  
9/30/2020  
Date

Evan Lemley  
signature of Graduate Degree Program Advisor  
9/30/2020  
Date
Accelerated Degree Program

Students who are accepted to the undergraduate degree in Electrical Engineering may apply to take up to a maximum of ten hours during their senior year of the bachelor’s degree. These courses will count toward both the B.S. Electrical Engineering and M.S Engineering Physics – Electrical Engineering. The approved graduate courses are: ENGR 5323 Digital and Analog Communication, ENGR 5333 Digital Signal Processing, ENGR 5311 Digital Signal Processing Laboratory, ENGR 5803 Mechatronics & Laboratory, ENGR 5083 Electromagnetic Fields II, ENGR 5613 Photonics, ENGR 5633 Solid State Devices. These courses are specified on the degree sheet. During the last semester of their junior year or within 30 hours of graduation, an undergraduate student with a 3.0 overall GPA may apply for admission to the Accelerated Degree Program.
Thank you for your desire to have an Accelerated Degree Program approved through the Graduate College curriculum review process, which involves a recommendation from the Graduate Council’s Curriculum Committee.

Given that Accelerated Degree Programs permit an undergraduate student to enroll in graduate courses and to count the completed graduate courses toward their undergraduate degree, these curriculum proposals are approved through both undergraduate (Academic Affairs Curriculum Committee) and graduate (Graduate Council) curricular processes. The Academic Affairs Curriculum Committee reviews Accelerated Degree Program proposals and makes recommendations to the Graduate Council.

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Nesreen Alsbou

Undergraduate Degree Department:
Engineering and Physics

Name of the Undergraduate Degree in the Accelerated Degree Program:
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Name of the Graduate Degree in the Accelerated Degree Program:
Computational Science-Computational Engineering

Name of the Graduate Program Advisor for the ADP Graduate Degree:
Evan Lemley

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<td>BME</td>
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Sample Accelerated Degree Program Graduate Catalog Degree Sheet Paragraph

Accelerated Degree Program
Students who are accepted to the undergraduate degree in Electrical Engineering may apply to take up to a maximum of 10 hours during their senior year of the bachelor’s degree. These courses will count toward both the B.S. Electrical Engineering and P.S.M. Computational Science – Computational Engineering. The approved graduate courses are: ENGR 5023 Heat Transfer, ENGR 5103 Finite Element Analysis, ENGR 5333 Digital Signal Processing, ENGR 5311 Digital Signal Processing Laboratory, ENGR 5803 Mechatronics & Laboratory, BME 5223 Biomedical Imaging. These courses are specified on the degree sheet. During the last semester of their junior year or within 30 hours of graduation, an undergraduate student with a 3.0 overall GPA may apply for admission to the Accelerated Degree Program.