DEGREE/PROGRAM CHANGE
FORM C
Form Number: C1864

Fields marked with * are required

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Associated Forms exist? No

Initiator's Title Graduate Programs Coordinator

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Branch

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Proposed effective term

Semester Fall Year 2016

Course Information

Select Appropriate Program Graduate Degree Program

Name of New or Existing Program MS Nanoscience & Microsystem Engineering

Select Category Degree Degree Type MS

Select Action Revision

Exact Title and Requirements as they should appear in the catalog. If there is a change, upload current and proposed requirements.
See current catalog for format within the respective college (upload a doc/pdf file)

NSME Degree Requirements 2016-2017.pdf

☐ **Does this change affect other departmental program/branch campuses? If yes, indicate below.**

Reason(s) for Request (enter text below or upload a doc/pdf file)
File uploaded

NSME Plan III Reason for Request 206-2017.pdf

Upload a document that inlcudes justification for the program, impact on long-range planning, detailed budget analysis and faculty workload implications.(upload a doc/pdf file)

NSME Justification-Impact-Workload Plan III 2016-2017.pdf

☐ **Are you proposing a new undergraduate degree or new undergraduate certificate? If yes, upload the following documents.**

Upload a two-page Executive Summary authorized by Associate Provost. (upload a doc/pdf file)

Upload memo from Associate Provost authorizing go-ahead to full proposal. (upload a doc/pdf file)

Nanoscience & Microsystems Engineering Graduate Degrees

NSME offers a Master's degree with either a Plan I (thesis), Plan II (non-thesis), or Plan III (coursework) option, as well as a PhD degree. General requirements for the degrees offered follow.

Core Courses (MS, PhD)

Students in the Nanoscience & Microsystems Engineering MS program are required to take the core courses listed below. Students admitted to the NSME doctoral program and not already possessing an MS degree are generally required to complete the core courses.

- NSMS510: Chemistry & Physics at the Nanoscale (3 credits)
- NSMS512: Characterization Methods of Nanostructures (3 credits)
- NSMS518: Synthesis of Nanostructures (3 credits)
- NSMS519: MEMS Transducer Devices & Technology (4 credits)
- NSMS550: Social & Ethical Implications of Nanotechnology (1 credit)
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MS, Plan I (Thesis option)

- 24 credits of course work, including core courses
- 6 credits thesis
- Significant milestones:
  - Thesis defense
  - Submission of completed thesis

MS, Plan II (Non-thesis option)

NOTE: The non-thesis option is available only with prior approval

- 32 credits coursework, including core courses, and maximum of 6 credits of NSMS599: Problems
- Completion of Master's project under the direction of a faculty member (typically be done as part of a Problems course)
- Significant milestones:
  - Master's Examination, consisting of an oral presentation and defense of the student's major project, as well as oral examination of the student's discipline principles

MS, Plan III (Coursework option)

- 30 credits of course work, including core courses

PhD

- A minimum of 48 credits of coursework beyond the bachelor's degree (excluding dissertation credits)
  - At least 24 credits of coursework applied to the degree must be

    - completed at UNM
    - At least 18 credits must be completed after formal admission to the doctoral program.
    - 24 credits maximum credit applied to a master's degree, which may include up to 6 credits of thesis credit
- 18 credits dissertation
- Significant milestones:
    - Qualifying Exam: The qualifying exam consists of a written and oral exam and is required for all students to proceed in the doctoral program. The Exam should be taken at the first opportunity after completing the required core courses.
    - Comprehensive Exam
    - Dissertation defense
    - Submission of completed dissertation

Nanoscience & Microsystems Engineering MS Plan III

Justification for the Change to the Program
The NSME Graduate Program is an interdisciplinary degree program rather than a single department. From its inception, the degree program was intended to have multiple emphasis areas that tailored the educational needs of students to the program, as well as the faculty participating in it. The addition of the MS Plan III will allow our faculty to streamline our degree path (and therefore faculty workload) for students enrolled in the program, as well as students in the Shared Credit Program.

Impact on Long-range Planning
Inclusion of the MS Plan III opens up the option of a potential online-only MS program, which could be used to recruit students from around our state and beyond. It will position our program to recruit blue-chip students from places like Los Alamos Nationals Laboratory to the program, enhancing our program's reputation within the University and State. Furthermore, increasing the vibrant educational and research environment will help the University to recruit new faculty members to our departments.

Detailed Budget Analysis
The addition o the MS Plan III is not expected to impact the NSME program's budget in any way.

Faculty Workload Implications:
The addition of the MS Plan III will reduce faculty workload. The Plan III is envisioned by our graduate program to be optimal for students who enroll in the Shared Credit Program, and in case of a future online-only degree in NSME. In either case, the Plan III will eliminate the need for an MS exit exam with committee. Eliminating the exit exam committees will reduce the workload of 3 faculty per exam by 2 hours each, or 9 credit hours per exam. As the program grows in popularity, the savings in faculty hours will also increase.

Impact on Other Departmental Programs
The impact on other NSME programs will be a positive one. We believe that the number of MS degrees awarded by our program will increase with the addition of this streamlined MS Plan III for two reasons:

- *Current* students pursuing the PhD in NSME will be able to apply for the MS Plan III at the conclusion of the coursework (at the Qualifying Exam stage rather than the Comprehensive Exam stage). By disengaging the MS from the Comprehensive Exam, student will understand that the degree is truly a "coursework only" MS, without the need for a stressful oral exit exam.
- *new* students looking for an advanced degree for promotion purposes (e.g., from the US Air Force, Sandia and Los Alamos National Laboratories), will see this option as more attractive to one that

requires independent study (“Problems” course) such as is currently required by our MS Plan II, or research with faculty (“Thesis” credits) such as is required by our MS Plan I.

Nanoscience & Microsystems Engineering Masters Degree Plan III

Reason for Request:

The main reason behind offering the coursework option is for those students who do not envision conducting research in their career. The NSME program does not require a final examination beyond successfully completing required coursework, hence this option is attractive for students who want to get a coursework masters and do not need to complete the project required for the MS Plan II.

There are no budgetary implications, as the Plan III is substantially similar to the Plan II currently offered. No additional faculty time will be required to administer this plan and the course offerings are already offered as part of our current graduate offerings.