

THE UNIVERSITY OF NORTH CAROLINA AT ASHEVILLE
FACULTY SENATE

Senate Document Number 10516S
Date of Senate Approval 05/05/16

Statement of Faculty Senate Action:

APC Document 88 (JEM)

Change JEM Program Description and Objectives

Effective Date: Fall 2016

1. Delete: On page 57, under **Joint Bachelor of Science in Engineering Degree with a Concentration in Mechatronics from North Carolina State University and UNC Asheville:**

The University of North Carolina at Asheville and North Carolina State University offer a joint Bachelor of Science in Engineering degree with a concentration in Mechatronics. The Mechatronics degree is offered entirely on the UNC Asheville campus. Mechatronics is a unique, multidisciplinary field of study which integrates electrical engineering, mechanical engineering, computer and control engineering and information technology. Mechatronics incorporates a contemporary engineering design methodology which involves integrating microelectronics and information technologies into mechanical and electromechanical systems.

The joint degree program gives students the benefits of a strong foundation in the liberal arts combined with rigorous studies in engineering disciplines and allows students to complete an engineering degree while living and working in the Asheville area. It is designed to be accessible to students employed in local industries as well as to traditional students.

Add: On page 57, in place of deleted entry:

The University of North Carolina at Asheville and North Carolina State University offer a joint Bachelor of Science in Engineering degree with a concentration in Mechatronics. The Mechatronics degree is offered entirely on the UNC Asheville campus. Mechatronics is a unique, multidisciplinary field of study integrating electrical engineering, mechanical engineering, and computer and control engineering. Mechatronics engineering focuses on the precision control of mechanical and machine systems. In today's engineering systems, control is achieved electronically through sensors, actuators and microprocessors. The marriage of control systems with mechanical devices is key to the design and development of high performance engineering systems.

The joint degree program gives students the benefits of a strong foundation in the liberal arts combined with rigorous studies in engineering disciplines and allows students to complete an engineering degree while living in the Asheville area.

2. Delete: On page 135, under **Joint NCSU-UNC Asheville Bachelor of Science in Engineering Degree with a Concentration in Mechatronics**, the next to last sentence in first paragraph:

The Joint NCSU–UNC Asheville Bachelor of Science in Engineering degree with a concentration in Mechatronics gives students the benefit of a strong foundation in the liberal arts combined with rigorous studies in engineering disciplines, allowing students to complete an engineering degree while living and working in the Asheville area. Approximately half the courses in the degree are taught by UNC Asheville and the remaining half are taught by NCSU faculty. The degree is designed to be accessible to students employed in local industries as well

as to traditional students. Students graduate with a Bachelor of Science in Engineering–Mechatronics Concentration degree from NCSU and UNC Asheville.

The Mechatronics concentration prepares graduates to achieve the following career and professional accomplishments:

- Apply mechanical engineering and electrical engineering knowledge and skills to problems and challenges in the areas of mechatronics engineering.
- Integrate and use systems or devices incorporating modern microelectronics, information technologies and modern engineering tools for product design, development and manufacturing.
- Demonstrate professional interaction, communicate effectively with team members and work effectively on multi-disciplinary teams to achieve design and project objectives.
- Engage in lifelong learning in their profession and practice professional and ethical responsibility.

Add: On page 135, in place of deleted entry:

The Joint NCSU–UNC Asheville Bachelor of Science in Engineering degree with a concentration in Mechatronics gives students the benefit of a strong foundation in the liberal arts combined with rigorous studies in engineering disciplines, allowing students to complete an engineering degree while living and working in the Asheville area. Approximately half the courses in the degree are taught by UNC Asheville and the remaining half are taught by NCSU faculty. Students graduate with a Bachelor of Science in Engineering degree with a Mechatronics Concentration from NCSU and UNC Asheville.

The Mechatronics concentration prepares alumni to achieve the following career and professional accomplishments within a few years of graduation:

- Attain productive professional careers in mechatronics engineering or related fields
- Function in the workplace with appropriate professional and ethical responsibilities
- Make decisions with accountability for the social and environmental impact of their engineering practices
- Interact effectively with a diversity of individuals while viewing their own work in a broader context of our global society
- Attain technical excellence by engaging in life-long learning.

Impact: There will be no impact on the resources and staffing of the Engineering Program at UNCA as a result of these changes.

Rationale: The JEM (Joint Engineering with a Mechatronics concentration) program description is updated to be consistent with the program’s current mission, and the program’s current ABET accreditation documentation. Because it is not possible for non-traditional students to complete required course work in the evenings, the sentence, "It is designed to be accessible to students employed in local industries as well as to traditional students." is being removed.