

Campus and Distance Learning Enhancement in OSH

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Abstract

North Carolina Agricultural & Technical State University (NCA&TSU), located in Greensboro, NC, was established in 1891 and was designated as one of two land grant institutions in the state. It has an enrollment of over 10,500 students and is the largest of the Historically Black Colleges and Universities (HBCU) in the State of North Carolina. It is the eighth largest in the nation's 114 HBCUs.

The B.S. Degree in Occupational Safety and Health (OSH) Program is in the Department of Construction Management & Occupational Safety and Health in the School of Technology. The OSH Program was started in 1979, with some NIOSH funding, with a very small enrollment with the objective of preparing students for jobs in the field of Occupational Safety and Health. The program is over 30 years old and now has approximately 70 students on campus and another 30-40 on-line (distance) students (mainly Go-Army Ed Program). NCA&TSU is the only B.S. in OSH in North Carolina and one of only a few institutions in the Southeast offering such a program. The University also offers three Masters of Science in Industrial Technology (MSIT) Degrees with the following Concentrations: Occupational Safety & Health (MSIT/OSH), Environmental Safety & Health (MSIT/EOSH), and Disaster Management (MSIT/DM).

The Bachelor of Science Degree in OSH is conferred on students after the completion of the following: 126 semester hours of course work which includes 35 semester hours in OSH, 8 semester hours Biology, 15 semester hours Chemistry, 8 hours Mathematics, 8 semester hours of Physics, 6 semester hours of Management Courses, 3 semester hours Internship Course, 43 semester hours of English, Humanities, and other courses.

Goals and objectives of the B.S. Degree in OSH Program:

1. Prepare well educated and trained minority, disadvantaged, and other graduates to assume assertive leadership roles in the field of occupational safety, health, and industrial hygiene to protect the safety and health of employees and citizens of the community.
2. Prepare students to pursue graduate studies in order to conduct research and provide training in the field of Occupational Safety and Health & Industrial Hygiene.
3. Provide financial assistance in terms of tuition and fees to sophomore, junior and senior student majors who maintain high academic achievement in their course work.
4. Develop student recruiting strategies to attract more minority students to major in OSH and build the program to the level of 100-120 (on campus) majors by June 2009.
5. Expose students to professional activities by providing funds to attend local, regional and national meetings of ASSE, AIH/ACGIH, NSC and other such meetings and conferences.

Highlights/Significant Results

1. Prepare well educated and trained minority, disadvantaged, and other graduates to assume assertive leadership roles in the field to protect the safety and health of employees and citizens of the community. The OSH Program has graduated over 94 students from years 2005-2009.
2. Prepare students to pursue graduate studies in order to conduct research and provide training in the field of Occupational Safety and Health & Industrial Hygiene. The OSH Program graduated one student from the MSIT (OSH Concentration) Degree Program who is presently pursuing a Ph.D. and one student who has applied to enter a Ph.D. program in the fall 2010. The OSH Program also graduated 25 students who went on to receive a Masters Degree in Industrial Technology (OSH Concentration) from NC A&T State University.
3. Provide financial assistance in terms of tuition and fees to sophomore, junior and senior student majors who maintain high academic achievement in their course work. 10 students per year were awarded scholarships. A total of 40 students received financial assistance from fall 2005 to spring 2009 with the average monetary award per student per academic year of \$1,486.00.
4. Develop student recruiting strategies to attract more minority students to major in OSH and build the program to the level of 100-120 (on campus) majors by June 2009. Although the faculty and staff recruited along with NCA&TSU Recruiters at high schools throughout the country, this goal is shy of its mark. The university may have met its goal, but the OSH Program did not. We would have to count on-line distance Army students to come close to our goal. Some of our OSH students have also been on local recruiting trips.
5. Expose students to professional activities by providing funds to attend local, regional and national meetings of ASSE, AIH/ACGIH, NSC and other professional safety, health, and industrial hygiene meetings. Students in the OSH Program attended the following and more: NAIT Conference, Cleveland, Ohio; Statewide Safety Conference, Greensboro, NC; National Safety Conference & Expo, Chicago, IL and Orlando, FL; Carolinas AIHA Regional Conference in Myrtle Beach, SC, Greenville, SC, Rockhill, SC, Raleigh, NC. Our students have also attended the Local Emergency Planning Committee and ASSE Conferences in Greensboro, NC.

Outcomes/Relevance/Impact

The relevance of the Occupational Safety & Health Program can be exemplified by the number of graduates who are now gainfully employed in the field of safety and health. Of the 94 graduates, approximately 60% now work within their chosen field of study, and another 20% entered into graduate studies. Further, one of these graduates is now pursuing a Ph.D. degree in Industrial Engineering, Occupational Safety & Health from Auburn University, Montgomery, AL. Of those graduates, who are working in the field, some are employed with the federal government (EPA, NASA, Smithsonian, Etc.). Others work with state government agencies, private businesses, and industry. Some are as follows: Walt Disney, Michelin, Toyota, GE, BMW, International Paper, Marathon/Ashland, Department of Labor-GA, Department of Labor-CT, Department of Labor-NC, Cargill, District of Columbia Metro, University of NC-Greensboro, NCA&TSU, Winston-Salem State University, University of NC-Charlotte, Chubb Insurance and The Hartford Group. The field of construction has likewise been a source of employment for these graduates. One graduate works for Clarke Construction and one with Hansel Phelps.

Prior to graduation, many of these students participated in internships. Some of those companies offering internships were:

Michelin	Toyota	Honda	BMW
Caterpillar	Gilbarco	GE	Cummings
Clarke Construction		Hansel Phelps	Boeing
Marathon/Ashland		Exxon/Mobil	Cargill

Technical Report

Background

North Carolina A&T State University (NCA&TSU) is located in Greensboro, NC, was established in 1891 under the Morrill Act of 1980 and was designated as one of two land grant institutions in the state. NCA&TSU has an enrollment of over 10,500 students and is the largest of the Historically Black Colleges and Universities (HBCU) in the State of North Carolina. It is the eighth largest of the nation's 114 HBCUs.

The B.S. Degree in Occupational Safety and Health (OSH) Program is in the Department of Construction Management & Occupational Safety and Health in the School of Technology. The OSH Program was started in 1979, with some NIOSH funding, with a very small enrollment with the objective of preparing students for jobs in the field of Occupational Safety and Health. The program is over 30 years old and now has approximately 70 students on campus and another 30-40 on-line (distance) students (mainly Go-Army Ed Program). NCA&TSU is the only B.S. in OSH in North Carolina and one of only a few institutions in the Southeast offering such a program. The University also offers three Masters of Science in Industrial Technology (MSIT) Degrees with the following Concentrations: Occupational Safety & Health, Environmental Safety & Health, and Disaster Management.

The Bachelor of Science Degree in OSH is conferred on students after the completion of 126 semester hours of course work, including 35 semester hours in OSH, 8 semester hours Biology, 15 semester hours Chemistry, 8 hours mathematics, 8 semester hours of physics, 6 semester hours of Management Courses, 3 semester hours Internship Course, 43 semester hours of English, Humanities, and other courses.

Occupational Safety and Health Program Course Descriptions	Semester Hours
OSH 201. Introduction to Occupational Safety and Health	3
Osh 210. Industrial Accident Prevention	3
OSH 230. Transportation of Hazardous Materials	3
OSH 312. Accident Investigation Analysis and Records	3
OSH 411. Hazardous Materials for the Safety Professional	3
OSH 413. Industrial Hygiene I	4
OSH 414. Principles of Fire Prevention and Prevention	3

Course Title	Semester Hours
OSH 415. Standards and Regulations in Occupational Safety and Health	3
OSH 416. Industrial Hygiene II	4
OSH 513. Human Factors	3
OSH 515. Evaluation for Occupational Safety and Health	3
OSH 516. Occupational Safety and Health Management	3
OSH 517. Materials Handling for the Safety Professional	3
OSH 555. Health Physics	3
OSH 614. Industrial Relations	3
OSH 632. Design of Hazard Controls	3
OSH 637. Machine and Welding Safety	3
OSH 642. Electrical Safety	3
OSH 672. Systems Safety and Other Analytical Methods	3
OSH 678. Experiential Education I	3
OSH 679. Experiential Education II	3
Other Required Courses Descriptions	
English 100. Ideals and Expressions I	3
English 101. Ideas and Expressions II	3
Humanities Electives: Two of several electives available are:	
English 200. Survey of Humanities I	3
English 201 Survey of Humanities II	3
Math Requirements:	
Math 111. College Algebra and Trigonometry	4
Math 112. Calculus for Non-Mathematics Majors	4

Social Sciences Electives:

History 100. History of World Civilization Part I 3

History 101. History of World Civilization Part II 3

Chemistry Courses:

Chemistry 106. General Chemistry VI 3

Chemistry 116. General Chemistry VI Laboratory 1

Chemistry 107. General Chemistry VII 3

Chemistry 117. General Chemistry VII Laboratory 1

Chemistry 221. Organic Chemistry 3

Chemistry 223. Organic Chemistry I Laboratory 1

Other Required Courses:

Construction Management 292. Technical Communications 3

TECH 133. Introduction to Drafting Technology 3

Manufacturing 191. Introduction to Manufacturing Processes 3

BUAD 422. Introduction to Management 3

BUAD 461. Legal Environment of Business 3

Psychology 445. Industrial Psychology 3

Sociology 302. Social Statistics I 3

Speech 250. Speech Fundamentals 3

Goals and Objectives of the B.S. Degree in OSH Program:

1. Prepare well educated and trained minority, disadvantaged, and other graduates to assume assertive leadership roles in the field of occupational safety, health, and industrial hygiene to protect the safety and health of employees and citizens of the community. Approximately 94 students have graduated from the OSH Program with 84 being minority students. Approximately 60% now work within the field of Occupational Safety & Health.

2. Prepare students to pursue graduate studies in order to conduct research and provide training in the field of Occupational Safety and Health & Industrial Hygiene. Of the 94 graduates of the OSH Program, approximately 20% entered into graduate studies (one Ph.D. student at Auburn University-AL) in Industrial Engineering/OSH.
3. Provide financial assistance in terms of tuition and fees to sophomore, junior and senior student majors who maintain high academic achievement in their course work. This goal was accomplished with 10 students per academic year each receiving \$1,486.00 from the NIOSH Grant, 2004-2009.
4. Develop student recruiting strategies to attract more minority students to major in OSH and build the program to the level of 100-120 (on campus) majors by June 2009. The NIOSH Grant allowed the OSH Program to purchase promotional materials which were used on-campus and off-campus recruiting. The goal of reaching 100-120 students was only accomplished by using the on-line distance students in the OSH student count.
5. Expose students to professional activities by providing funds to attend local, regional and national meetings of ASSE, AIH/ACGIH, NSC and other such meetings and conferences. NIOSH Grant funds allowed the OSH Program to complete this objective in an excellent manner. Students were exposed and offered internships, job opportunities, and offers to attend graduate school at other universities.

Final Remarks and Conclusions

The B.S. Degree Program in Occupational Safety and Health at North Carolina A&T State University has provided quality education and has produced a sizable number of graduates in the field of Occupational Safety and Health (OSH) and a few in Industrial Hygiene (2 are Certified Industrial Hygienist) . The OSH Program has grown significantly since its inception 30 years ago, from an initial enrollment of less than 12 students to a present enrollment of 70 on-campus and 30-40 on-line distance students. The OSH Program in the beginning of the program had only one instructor and now has four fulltime and several part time instructors. NIOSH Grants have greatly assisted the program by providing tuition, fees and travel funds for faculty and students to attend workshops and conferences. Many of the OSH Program graduates are gainfully employed in the field or have entered into graduate school for advanced study with one graduate in a Ph.D. program and one making an initial Ph.D. application.

The OSH Program has grown to a point where it now has 27 students in its Master of Science in Industrial Technology (MSIT), Occupational Safety & Health Concentration. The program also has a B.S. Degree in Safety Management, MSIT Environmental Occupational Safety & Health, and a MSIT Disaster Management.