



Agenda Item VI G (CAHE)
Meeting Date: 04-17-18

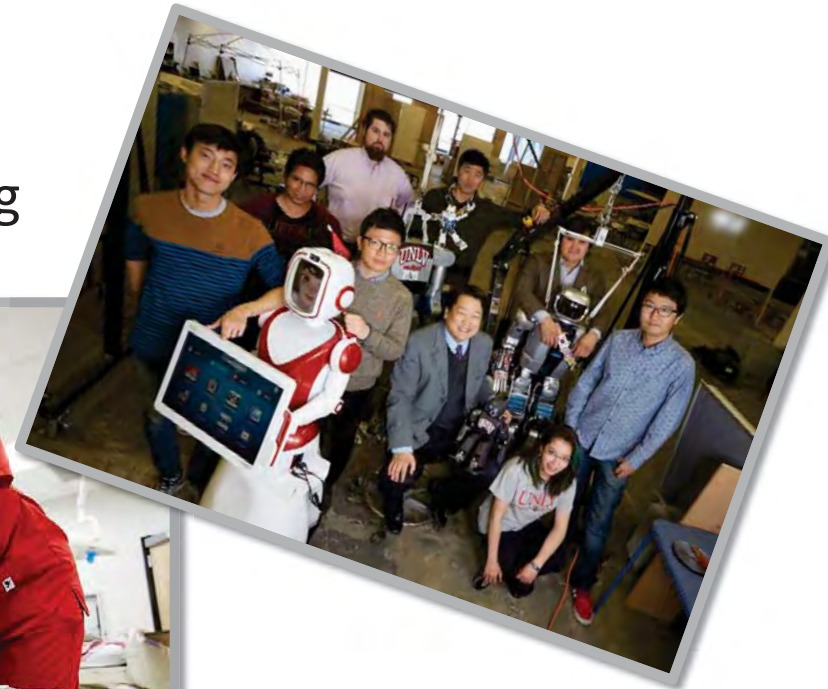
LVGEA Southern Nevada Workforce Blueprint

TOP OCCUPATIONS FOR FOUR-YEAR PROGRAMS IN SOUTHERN NEVADA					
SOC	DESCRIPTION	PRIORITY RANKING	ANNUAL OPENINGS WITH DETR GROWTH	ANNUAL OPENINGS WITH ASPIRATIONAL DEMAND	TYPICAL ENTRY-LEVEL EDUCATION
11-9199	MANAGERS, ALL OTHER	1	218	269	BACHELOR'S DEGREE
					<ul style="list-style-type: none"> • HEALTH AND MEDICAL ADMINISTRATIVE SERVICES • HISTORY • SOCIAL SCIENCES, GENERAL • ANTHROPOLOGY • PSYCHOLOGY, GENERAL • ARTS, ENTERTAINMENT, AND MEDIA MANAGEMENT • ENTREPRENEURIAL AND SMALL BUSINESS OPERATIONS • COMPUTER/INFORMATION TECHNOLOGY ADMINISTRATION AND MANAGEMENT • POLITICAL SCIENCE AND GOVERNMENT • FIRE PROTECTION • HOMELAND SECURITY • CRIMINAL JUSTICE AND CORRECTIONS • ECONOMICS • CLINICAL, COUNSELING AND APPLIED PSYCHOLOGY • HOSPITALITY ADMINISTRATION/MANAGEMENT • BUSINESS/COMMERCE, GENERAL • BUSINESS ADMINISTRATION, MANAGEMENT AND OPERATIONS • PUBLIC ADMINISTRATION • SOCIOLOGY

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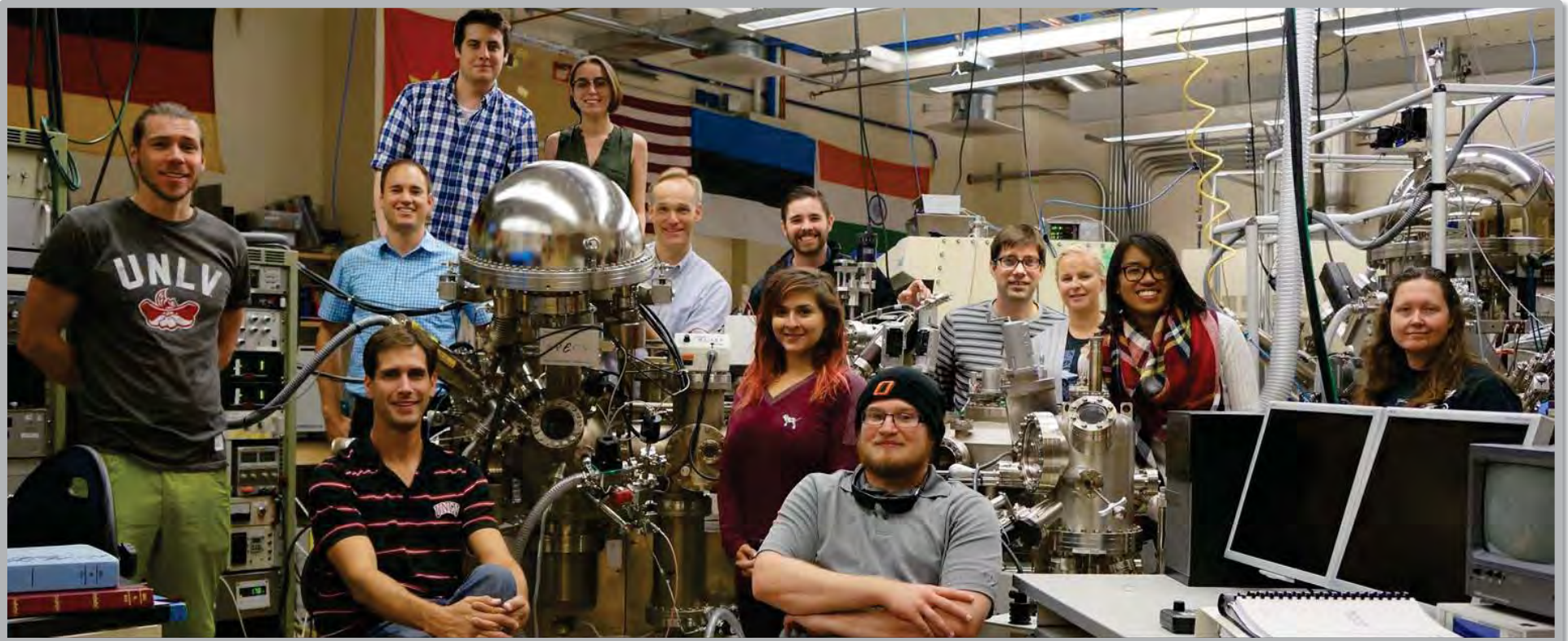
NSHE Workforce Programs Selected

- Software Development
- Nursing
- Mechanical Engineering



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Software Development



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Addressing the Labor Shortage for Software Developers

- Three UNLV Howard R. Hughes College of Engineering programs produce graduates who become **software developers**:
- BS Computer Engineering
- BA Computer Science
- BS Computer Science



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Software Development Programs

- **Computer Science** bachelor's degree programs teach students how to develop algorithms to solve problems using appropriate programming languages and computer systems.
- **Computer Engineering** bachelor's degree programs teach students to use scientific and mathematical principles to design and analyze computer system components such as hardware, software, and operating systems.
- Graduates from both programs are often employed as software developers.

Software Development Coursework

All coursework includes basic science, mathematics, physics, and engineering.

Software Development:

- Programming fundamentals in multiple languages;
- Advanced applications for data structures/databases/data management;
- Operating systems, network systems;
- Cybersecurity;
- Image processing, graphics;
- Big data;
- Artificial intelligence

Software Development Coursework

Computer Design:

- Digital logic;
- System architecture;
- Programmable devices;
- Embedded computer systems



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Software Development Recruitment Efforts

- AEOP (Army Education Outreach Program) 6 weeks: May 25th – July 7, 2017
 - Designed to spark student interest in STEM programs
 - 20 high-school students received Department of Defense scholarships
 - Planned for every summer
- Girls Who Code
 - Encourages female students to major in computer science



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Software Development

Degrees Conferred	2014-2015	2015-2016	2016-2017
Computer Engineering BSEG	25	10	20
Computer Science BA	6	12	9
Computer Science BS	33	71	61

Fall 2017 Full-Time Instructional Faculty	
Computer Engineering BSEG	17
Computer Science BA & BS	20

Software Development-Related Job Placement

	Job Postings	Job Placement
Fall 2017 CS	56	37*
Fall 2017 CpE	48	35*
Fall 2017 ME	47	32*
Spring 2018 CS	19	<i>in-progress</i>
Spring 2018 CpE	24	<i>in-progress</i>
Spring 2018 ME	18	<i>in-progress</i>

**Engineering Job Board placement is tracked manually. Placement numbers are averaged.
<https://www.unlv.edu/engineering/jobs>*

Software Development Local Hiring & Placement

- **NV Energy**—Estimated annual hires of UNLV Engineering students: 10 to 12
- **Southwest Gas**—Estimated annual hires of UNLV Engineering students: 6 to 9
- **MSTS** (formerly NSTec)—Estimated annual hires of UNLV Engineering students: 3 to 5
- **San Diego Gas & Electric**—Estimated annual hires of UNLV Engineering students: 2 to 3
- **MGM Resorts International**:—Estimated annual hires of UNLV Engineering students: 2 to 3

Software Development Program Funding

- State Funding Formula
- Student Tuition
- Differential Fees



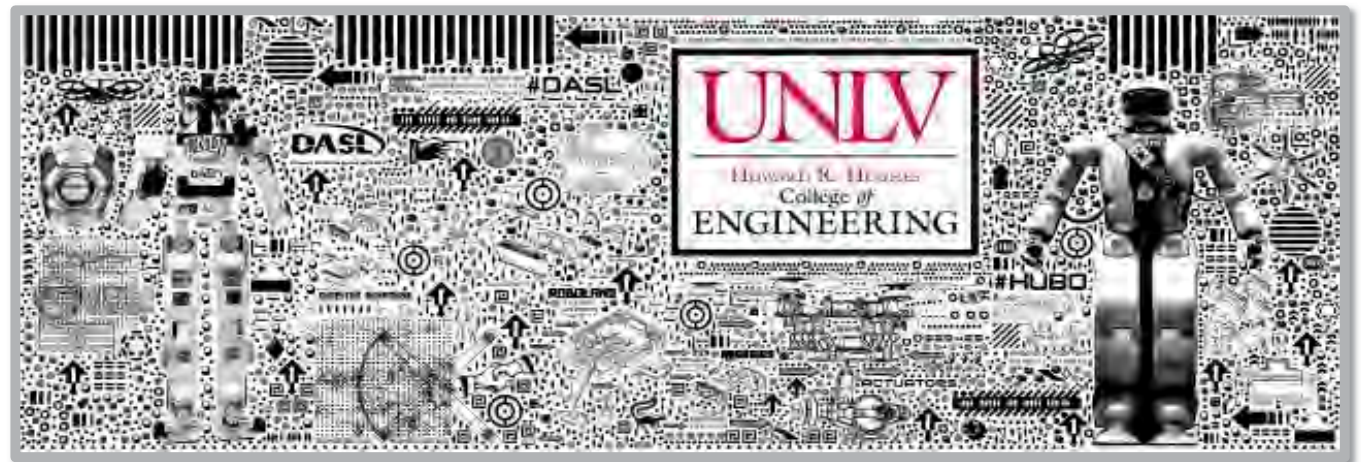
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Software Development Community and Industry Partnerships

- Annual TechConnect Day – March 2018
 - Student-employer event to promote careers in technology
 - Participating industry leaders: 33
 - Participating students: 360
 - Scholarship money raised: \$32,000
- Computer Science Industrial Advisory Board
 - Meets once every semester and in summer
 - Participating Members: 23
 - Provides guidance on technical manpower need for local industry

Software Development Challenges

- Rapid enrollment growth
- Insufficient faculty numbers
- GTA positions
- Faculty space
- Laboratory space



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Software Development Moving Forward

- Offer courses in high demand areas
 - Data science
 - Big Data
 - Cybersecurity
 - Machine Learning



- Recruit and retain qualified faculty to support high-demand areas
- Increase lab space and professional offices for high-demand areas

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Nursing



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Nursing Program

Bachelor of Science in Nursing (BSN) prepares nurses for practice with patients, including individuals, families, communities, and populations across the lifespan and across a continuum of healthcare environments.

- BSN receives double the applicants it can accommodate per year (typically 48 acceptances), and therefore recruits actively only for its graduate programs.
- Most BSN students find jobs within two months of graduation.
- 89.9 percent of BSN graduates stay in Nevada.

Nursing Coursework

All nursing students take courses in science, clinical nursing and professional nursing.

Science:

- Anatomy
- Physiology
- Chemistry
- Microbiology
- Pharmacology
- Pathophysiology
- Physical Assessment

Clinical Nursing:

- Adult and pediatric medical surgical patients
- Women
- Childbearing families
- Pediatrics
- Older adults
- Public health
- Mental health

Professional:

- Leadership
- Evidence-based practice
- Research

Nursing

Degrees Conferred	2014-2015	2015-2016	2016-2017
Nursing BSN	119	129	123

Fall 2017 Full-Time Instructional Faculty	
Nursing	35

Nursing Program Funding

- State Funding Formula
- Student Tuition
- Differential Fees



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Nursing Community and Industry Partnerships

- 10 Local Hospitals

Desert Parkway Behavioral Healthcare Hospital

Desert Springs Hospital

Mountain View Hospital

Nathan Adelson Hospice (in-patient only)

Seven Hills Behavioral Health Hospital

Spring Valley Hospital

Summerlin Hospital

Sunrise Hospital

University Medical Center

Valley Hospital

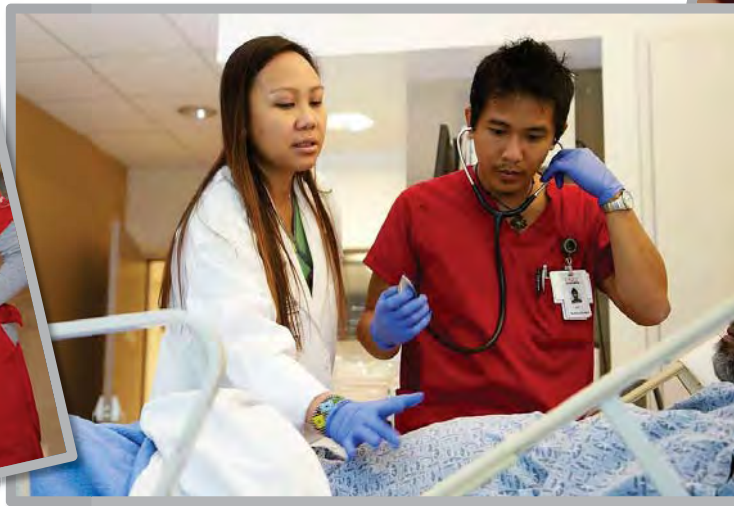


- 24 Community Based Clinical Experiences

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Nursing Challenges

- Lack of capacity to meet the growing demand
- State law requires a 1:8 faculty/student ratio in clinical rotations
- Clinical placements in specialty areas such as pediatrics, labor and delivery, and psychiatric care are limited



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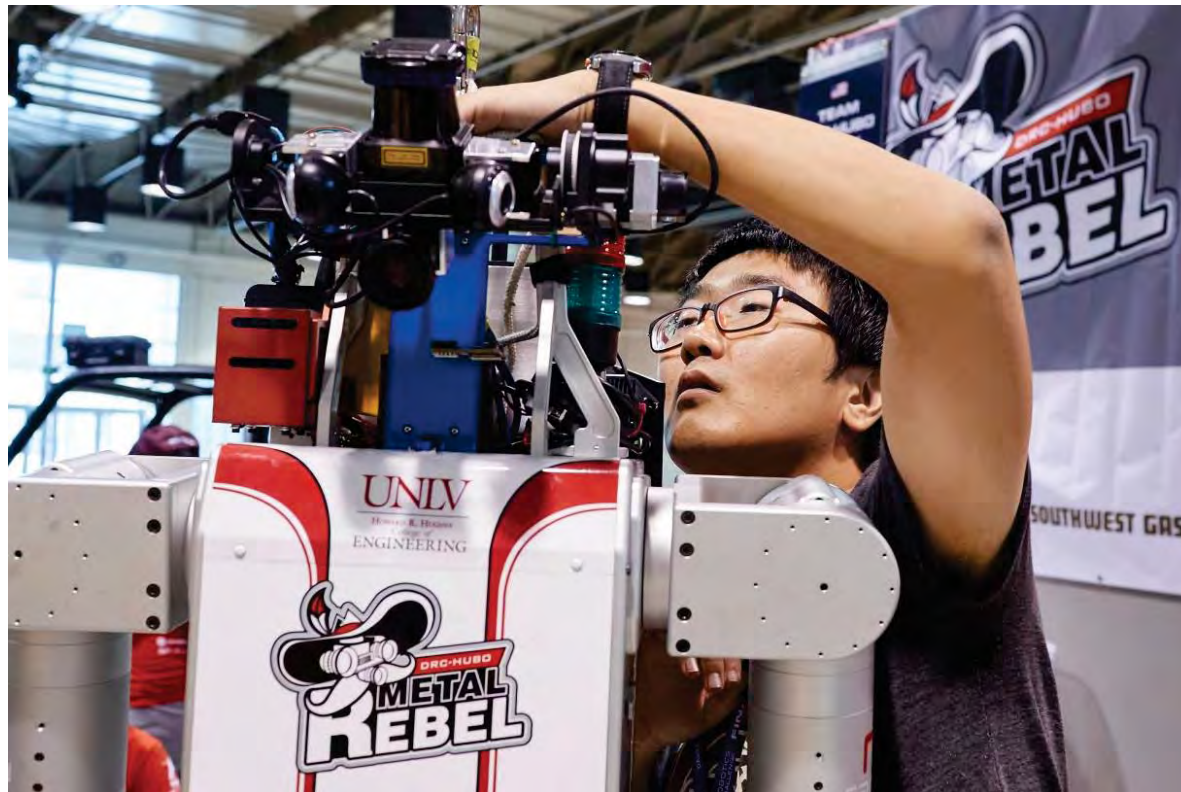
Nursing Moving Forward

- Increase annual enrollments by eight
- Increase instructional capacity
- Cultivate new clinical partnerships
- RN to BSN or MSN completion program for ASN nursing students
- Accelerated program for students with BA/BS in another field



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Mechanical Engineering



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Mechanical Engineering Program

Mechanical Engineering is a diverse and flexible engineering discipline.

Mechanical engineers work in a number of fields, including design of machinery, controls, vibrations and acoustics, power generation, renewable energy, energy conservation, fluid flow and heat transfer applications, and air-conditioning.

The program prepares students for the lifelong practice of mechanical engineering, and for immediate entry to positions in the industry or further studies in graduate schools.

Mechanical Engineering Coursework

Mechanical Engineering synthesizes math, science, engineering science, and engineering design.

The program provides electives in several general areas, including thermal-sciences, mechanical design and manufacturing, robotics and automation, mechanical and environmental systems, nuclear engineering, aerospace engineering, and bioengineering.

Students begin the practice of design in their freshman year and integrate it throughout their programs, which culminate in a team-oriented capstone design project in the senior year.

Mechanical Engineering Recruitment

- The American Nuclear Society students and faculty advisor hold events.
- The Smart Materials Laboratory holds community tours.
- Student organizations (ASME, SAE, AIAA) participate in K-12 events and activities on and off campus.
- The Drones and Autonomy Systems Lab research group hosted the Robert O. Gibson Middle School robotics team, which won the regional robotics competition and is now competing nationally.

Mechanical Engineering

Degrees Conferred	2014-2015	2015-2016	2016-2017
Mechanical Engineering BSEG	58	67	59

Fall 2017 Full-Time Instructional Faculty	
Mechanical Engineering	18

Mechanical Engineering Job Placement

- The Howard Hughes College of Engineering has an Intern and Career Placement director.
- The director verifies contacts and job postings for the student online job board.
- The college also distributes a weekly newsletter to mechanical engineering students that includes new job listings.
- Job opportunities come to the college from professional organizations, department advisory board members, department alumni, and corporate partners.

2016 ME Alumni Survey Question: What company do you work for?



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Mechanical Engineering Program Funding

- State Funding Formula
- Student Tuition
- Differential Fees



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Mechanical Engineering Community and Industry Partnerships



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Mechanical Engineering Challenges

- Enrollment growth
- Lab space management
- Research admin processes
- Undergraduate progression



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Mechanical Engineering Moving Forward

- Increase admission requirements
- Acquire more lab space
- Eliminate outdated requirements
- Bioengineering BS
- Aerospace Engineering BS



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