Position Title: **Senior Engineer**
Organizational Unit: Center for Imaging Science, College of Science
FLSA Status: Exempt

**BASIC FUNCTION:**

In support of CIS missions, a Senior Engineer provides expert engineering support. A senior engineer combines a solid engineering expertise with a comprehensive understanding of the projects and missions to ensure that engineering support and development are valid and efficiently managed. A senior engineer may perform work assignments associated with design or development of specific engineering components and sub-systems. A senior engineer provides planning, direction, and technical direction for engineering projects, and provides mentorship to more junior engineers, including students.

**MINIMUM QUALIFICATIONS**

* Substitution of relevant education or experience for stated qualifications may be considered.

**Knowledge, Skills, and Abilities:**

- Expert knowledge of engineering development techniques.
- Fluent technical knowledge of the major CIS operational subsystems in specific area of engineering expertise and working knowledge of the scientific application of those systems.
- Fluent ability to operate and design appropriate engineering hardware equipment.
- Fluent knowledge of engineering drawing, design, analysis, and development software tools.
- Fluent knowledge of engineering design and development programmatic aspects (cost, integration and testing, and schedule, resource estimation and project planning).
- Working knowledge of software and computer systems.
- Basic proficiency in finite analysis, as needed in area of discipline.
- Excellent verbal and written communication skills.
- Fluent mentoring and/or teaching ability.
- Demonstrated ability to establish and maintain effective working relationships with users, vendors, and outside contracts.
- Demonstrated ability to work in a team and to establish and maintain effective professional working relationships, including with peers across disciplines.
- Proven technical leadership in engineering development activities.
- Expert knowledge in a specific engineering discipline.
- Working knowledge of any physical science (e.g., physics, imaging science, chemistry, color science, mathematics, computer science, etc.)

**Education**

* One of the following (suitable experience and accomplishments can be substituted, as appropriate):
  - University Degree in an Engineering Discipline or a related technical field such as Computer Science, Physics, Math, or technical management (masters degree preferred).
  - Completion of an advanced engineering development license program.

**Experience**

- 6-8 years experience in engineering systems development and design projects, sufficient to demonstrate proficiency in the work. Experience coordinating work of peers.

**Duties and Responsibilities**

* See annual performance goals and objectives for complete list

A **Senior Engineer** will propose, design, develop, deploy and make modifications and enhancements to large and technically complex engineering systems. To support this effort, the Engineer will:
- Design, fabricate, and test engineering components.
- Determine the effort and time that will be required to resolve engineering tasks.
- Lead the design or participate in the design of engineering subsystems and systems, including new system development, and modification and enhancement of existing systems. This includes usage of good design practices, documentation, and presentation of design reviews.
- Complete assigned tasks in an accurate, robust, well document and well tested manner according to the defined schedule.
- Keep the project or mission lead appraised of any problems or schedule slips as soon as they are apparent.
- Follow all defined guidelines for engineering development/maintenance and delivery.
- Provide technical leadership in the pursuit, design, fabrication and test of engineering components and systems.
- Interact with customers to ascertain specifications and performance standards of desired systems and create a proposal to meet the customers engineering leads.
- Develop specifications, perform engineering tests and order parts, tools, and material for engineering projects.
- Safely and efficiently maintain engineering equipment and materials for engineering development and operation needs.
- Maintain state-of-the-art knowledge in engineering expertise area.
- Investigate, analyze and share knowledge of new and/or pertinent engineering methodologies and tools.
- Assist with development of proposals and acquisition of new business.
- Develop and present new technical concepts to mission leaders.
- Identify requirements, perform feasibility studies and conduct vendor surveys for team engineering software and hardware needs.
- Attend staff meetings as required and perform other related duties.
- Document work through design specifications, drawings, and engineering reports, and as appropriate, through published journal and proceeding papers.
- Manage or lead small teams of engineers and technicians.
- Guide and mentor junior engineers, including students, to promote skill growth.
- Participate as a member in professional society or organization, as appropriate, (e.g., SPIE, OSA).

Division Approval:
HR Approval:
Effective Date:
Revised Date(s):

Definitions:
A **basic** level of expertise can be accomplished through the successful completion of a course in a specific area or a curriculum in a general field. This level would be assigned to someone who understands the basic topics, principles or practices within an area but has not practiced these principles in a non-class environment.

A **working** level of expertise can be accomplished through the successful completion of a curriculum in an area. This level would be assigned to someone who understands complex topics, principles or practices within an area but has not practiced these principles in a non-class environment.

A **fluent** level of expertise would be assigned to someone who understands the complex topics, principles or practices of an area and has demonstrated their competency through the completion of a small number (e.g. 3-4) of medium-sized to large-sized projects in a formal software development environment.

An **expert** level would be assigned to someone who has a thorough understanding of topics, principles or practices in an area and has demonstrated their competency through the completion of a number (e.g. 8-10) of medium-sized to large-sized projects in a formal software development environment.
A **demonstrated** skill indicates that a person has successfully completed this skill but there is some risk that the same result will not occur for the next opportunity.

A **proven** skill indicates that a person has successfully completed this skill often or with sufficient quality that it is expected that the same successful result will occur for the next opportunity.