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

**BASIC FUNCTION:**

In support of CIS missions, a Principal Engineer is responsible for providing a high level of technical engineering expertise for CIS activities associated with new program initiatives, and new and on-going engineering development activities. Identification of possible concepts, contribution to system trade studies, engineering studies of selected concepts, creation of proposals, evaluation of proposed designs, generation and negotiations of contract technical details, and/or modification of systems under construction. Provide technical direction and mentoring 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 technical knowledge of major subsystems in specific area of engineering expertise and fluent knowledge of the scientific application of those systems.
- Expert knowledge of engineering design and development, integration and test, and process and mission planning.
- Fluent knowledge of engineering programmatic aspects (cost, testing, and schedule).
- Working knowledge of software and computer systems.
- Expert knowledge of engineering design, analysis, and development tools.
- Excellent verbal and written communication skills.
- Expert mentoring and/or teaching ability.
- Proven ability to work in a team and to establish and maintain effective professional working relationships, including with peers across disciplines.
- Acknowledged technical leadership.

**Education**

- Advanced University Degree (masters or PhD preferred) in Engineering, Computer Science, Physics, Math, Engineering, technical management or another technically related and appropriate field *(suitable experience and accomplishments can be substituted, as appropriate)*

**Experience**

- Minimum of 10 years experience in engineering systems development and design projects.

**Duties and Responsibilities**

* See annual performance goals and objectives for complete list

A **Principal 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:

- Provide engineering expertise for any new and ongoing activities, within CIS.
- Address all engineering system related issues and their interface with one another.
• Interface with manufactures or vendors as well as university, government and industrial customers in the development and definition of engineering concepts.
• Develop cost and schedule project plans for engineering development projects.
• Lead and participate in engineering development projects.
• Develop detailed conceptual design of engineering systems and perform tradeoff studies.
• Perform analysis including requirements definition, partitioning and allocation for engineering development.
• Lead and/or support proposal generation and other new business efforts.
• Document work in requirements documents, design specifications, white papers, and proposals.
• Organize and lead CIS wide senior engineering teams, to perform in house reviews of proposals, concepts and detailed design.
• Guide and mentor junior engineers, including students, to promote skill growth.
• Participate as a member in appropriate professional society or organization.

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.