| Job Family | Engineering |
| Job Function | Aerospace Engineering |
| Category | Professional |

**Job Summary**

Involves engineering design and development of aerospace systems including scientific instruments for spacecraft and satellite command and control systems. Ensures the safe integration and testing of spacecraft to the launch vehicle and coordinates their operation in orbit.

<table>
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<tr>
<th>Job Level</th>
<th>Entry</th>
<th>Intermediate</th>
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<tbody>
<tr>
<td>Job Title</td>
<td>Aerospace Engineer 2</td>
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</table>

**Generic Scope**

Entry-level professional with limited prior experience; learns to use professional concepts to resolve problems of limited scope and complexity; works on assignments that are initially routine in nature, requiring limited judgment and decision making. Employees at this level are expected to acquire the skills and knowledge to perform more advanced work following an agreed upon time in position, through defined training and development planning.

Intermediate

Professional who applies acquired job skills, policies, and procedures to complete substantive assignments/projects/tasks of moderate scope and complexity; exercises judgment within defined guidelines and practices to determine appropriate action.

Experienced

Experienced professional who knows how to apply theory and put it into practice with in-depth understanding of the professional field; independently performs the full range of responsibilities within the function; possesses broad job knowledge; analyzes problems/issues of diverse scope and determines solutions.

Advanced

Technical leader with a high degree of knowledge in the overall field and recognized expertise in specific areas; problem-solving frequently requires analysis of unique issues/problems without precedent and/or structure. May manage programs that include formulating strategies and administering policies, processes, and resources; functions with a high degree of autonomy.

Expert

Recognized organization-wide expert. Has significant impact and influence on organizational policy and program development. Regularly leads projects of critical importance to the organization; these projects carry substantial consequences of success or failure. Directs programs with organization-wide impact (or may have impact beyond the University) that include formulating strategies and administering policies, processes, and resources. Significant barriers to entry exist at this level.

**Custom Scope**

Incumbents receive minimal guidance on routine work, but detailed instructions on new assignments. Work is performed in one of three engineering disciplines; aerospace systems, mechanical or electrical. Specialist in at least one engineering discipline.

Professional

Uses skills as a seasoned, experienced professional in a specialized engineering phase of a major development effort. Systems responsibility covering relevant engineering specialties (electronic, mechanical or electrical) engaged at the instrument level. Demonstrates good judgment in selecting methods and techniques for obtaining solutions.

Experienced

Uses advanced engineering systems concepts for integrating all components and engineering fields (electronic, mechanical or electrical). Represents the Principal Investigator at meetings and conferences. Key assistant to the Principal Investigator relative to research and design and project management. Liaison in work coordination among other research institutions and to NASA technical review teams. Exercises judgment in selecting methods, techniques and evaluation criteria for obtaining results.

Advanced

Having wide-ranging experience, recognized among other industry and NASA as experts in their field of engineering specialty. Independently performs top-level system architecture and detailed overall design for the most critical space-qualified instruments and spacecraft design. Involves significant industry-wide engineering projects and initiatives in terms of scope, impact, complexity and financial expenditure. Oversees all aspects of system development, ensuring project objectives and requirements are met. Strategic member of multiple national and international communities, providing significant expertise and exposure to the Campus on new
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<tr>
<td>Key Resp 01</td>
<td>Coordinates single component design, supporting analyses, construction planning, assembly oversight and testing.</td>
<td>Provides professional engineering information and advice to systems engineers and management in area of specialty.</td>
<td>Applies advanced theoretical and/or mathematical approaches in determining the feasibility of engineering designs.</td>
<td>Involves projects where the Campus is leading and incumbent has full accountability, or projects where the Campus plays a substantial role, but under the aegis of another institution or agency such as NASA.</td>
<td></td>
</tr>
<tr>
<td>Key Resp 02</td>
<td>Supervises or coordinates technicians and shop personnel involved in assembly and testing of component parts.</td>
<td>Plans, organizes and supervises lower level engineers and technical staff engaged in design, construction and testing of space flight instruments.</td>
<td>Plans, organizes and supervises lower level engineers and technical staff engaged in design, construction and testing of space flight instruments.</td>
<td>Designs instruments and spacecraft systems; analyzes failure modes to ensure maximum robustness of the spacecraft instruments and systems with severe weight, power, thermal and volume constraints.</td>
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<tr>
<td>Key Resp 03</td>
<td>Develops specifications for aerospace parts procurements.</td>
<td>Consults and collaborates with Principal Investigators (PIs), shop personnel, vendors and other component engineers.</td>
<td>Systems engineering responsibility to ensure the effective design and integration of all components and engineering fields such as mechanical, electrical and electronic.</td>
<td>Carries a high level of authority in engineering considerations; works closely with scientists, manufacturers, contractors and Campus staff to ensure design and construction of instruments and systems will provide for successful completion of the mission's scientific objectives.</td>
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<tr>
<td>Key Resp 04</td>
<td>Works with other research organizations in the development of the component.</td>
<td>Carries system engineering responsibility covering relevant engineering specialties engaged in the instrument level.</td>
<td>Develops specifications for aerospace component procurements.</td>
<td>Performs cutting edge design work, often in the role of lead design architect.</td>
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</tr>
<tr>
<td>Key Resp 05</td>
<td>Designs electrical, mechanical, electronic and/or optical instruments and of computer-associated systems and equipment.</td>
<td>May supervise or coordinates technicians and shop personnel involved in assembly and testing of component parts.</td>
<td>Integrates the activities of multiple sub-specialties of one of the Aerospace Engineering disciplines or covering several engineering specialties.</td>
<td>Oversees all aspects of system development, ensures project objectives and requirements are met.</td>
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<tr>
<td>Key Resp 06</td>
<td>Performs the recording and reduction of test data for instrument design and evaluation purposes.</td>
<td>Develops specifications for aerospace parts procurements; works with other research organizations in the development of the component.</td>
<td>Represents the PI at meetings and conferences to include Campus, University and extramural funding agencies in matters related to engineering design.</td>
<td>Publishes papers at completion of projects.</td>
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<tr>
<td>Key Resp 07</td>
<td>Gathers and analyzes information and prepare reports with respect to</td>
<td>Coordinates work at other research institutions and reports to NASA</td>
<td>Carries major responsibility for accomplishment of research objectives</td>
<td>Overall engineering responsibility for a system architecture design in a highly</td>
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Last Revised: 16 November 2016
Job Family | Engineering  
---|---  
Job Function | Aerospace Engineering  
Job Summary | Involves engineering design and development of aerospace systems including scientific instruments for spacecraft and satellite command and control systems. Ensures the safe integration and testing of spacecraft to the launch vehicle and coordinates their operation in orbit.  
Category | Professional  
Job Level | Entry  
---|---  
Intermediate | Experience  
---|---  
Advanced |  
Expert |  
**Key Resp 08**  
Provides supervision and guidance to engineering technician staff.  
feasibility, engineering design criteria and performance of their components.  
technical review teams.  
in relationships with investigators, contractors and Campus staff.  
specialized area of a large, complex spaceflight mission.  
**Key Resp 09**  
Performs the recording and reduction of test data for instrument design and evaluation purposes.  
Designs electrical, mechanical, electronic and / or optical instruments and of computer-associated systems and equipment.  
Works with spacecraft management in meeting technical requirements within schedule and budget; revises the design and verification as needed; provides all design and verification data to NASA for integration to the spacecraft.  
Directs the work of aerospace contractors or research institutions in area of expertise.  
**Key Resp 10**  
Gathers, analyzes and prepares information and prepare reports with respect to feasibility, engineering design criteria and performance of their components.  
May lead a team of lower level professional engineers and technicians.  
Interacts with management to ensure projects are within cost and on schedule.  
**Key Resp 11**  
Provides supervision and guidance to lower level professional engineers and technician staff.  
Presents report and makes recommendations to NASA or other government agency technical review teams.  
**Key Resp 12**  
Implements related business processes.  
May supervise the work of team as it enters the development phase of the project.  
**Key Resp 13**  
Guides the gathering of information during planning stages.  
**Key Resp 14**  
**Key Resp 15**  
Education 1 | Bachelor's degree in related area  
---|---  
Advanced degree in related area and / or equivalent experience / training.  
Advanced degree in related area and / or equivalent experience / training.  
Doctorate or advanced degree with significant post-graduate work in related field  
Education 2 | Post-graduate level course work in related area required.  
---|---  
Post-graduate level course work in related area required.  
Education 3  
Education 4  
License 1  
License 2  
License 3  
License 4  
Page 3 of 5  
Last Revised: 16 November 2016
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### KSA 01

Working skills in the design, development and construction of space systems, including one successful aerospace product.

Thorough skills in the design, development and construction of space systems, including one successful aerospace product.

Advanced skills in the planning, development and construction of space systems, including one successful complex space instrument from concept development through operation.

Specialist in the development of top-level system architecture for spaceflight applications of large programs.

### KSA 02

Specialist in at least one discipline (electrical, electronic or mechanical).

Specialist in at least one discipline (electrical, electronic or mechanical).

Knowledge and skills in systems engineering covering disciplines (electrical, electronic or mechanical) engaged at the instrument level.

Expert knowledge of highly specialized design work.

### KSA 03

Working systems knowledge of other engineering specialties involved in assignments.

Thorough systems knowledge of other engineering specialties in order to integrate at the instrument level.

Advanced systems knowledge to effectively integrate multiple engineering fields.

Expert skills in planning, development and construction of the most complex and significant engineering projects and initiatives.

### KSA 04

Skills in supervising engineering technician staff to ensure objectives are met in adherence to quality standards.

Thorough skills in supervising lower level professional engineering and technical staff to ensure objectives are met in adherence to quality standards.

Skills in project management to include organization, planning, quality assurance and scheduling.

In-depth expert level knowledge of the aerospace field and applies principles, practices and procedures within the discipline to complete the most difficult and complex assignments.

### KSA 05

Skills in supervising staff and establishing work objectives.

Skills in engineering architecture in two or more successful complex space instruments.

### KSA 06

Highly advanced skills as expert in the field and meeting accountability of research objectives.

### KSA 07

Strong skills in meeting deadlines and ensuring quality standards.

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<td>KSA 15</td>
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Environment
Laboratory, farm or research facility, research field stations or remote sites

Career Path 1
Aerospace Engineer 3
Aerospace Engineer 4
Aerospace Engineer 5
Engineering > Aerospace Engineering > Supervisory and Management

Career Path 2
Career Path 3
Career Path 4
Career Path 5
Career Path 6