



Senior Systems Engineer

Position: Senior Systems Engineer

Reports to: Director of Engineering

Location: Webster, Texas (We're right by Johnson Space Center!)

About NanoRacks:

NanoRacks is an entrepreneurial aerospace company focusing on providing commercial access to space, currently on the International Space Station (ISS), suborbital vehicles, India's Polar Satellite Launch Vehicle, and more! The company, which was once tagged as the "UPS of Space", has sent nearly 1,000 payloads to the Space Station. NanoRacks kickstarted the CubeSat deployment revolution and has deployed over 250 to date.

Since 2009, NanoRacks has created and expanded new in-space markets and has been the world leader for ushering in a new era of in-space services. Currently, NanoRacks is working to build commercial space stations ("Outposts") from the spent upper stages of launch vehicles in orbit. This technology will enable spent upper stages to be used as crewed and un-crewed space stations for various purposes and customers—both civil and commercial.

NanoRacks will provide and facilitate an ecosystem of interoperable technologies and distributed free flying space stations. The commercial approach to this effort is described in NanoRacks' LEO Commercialization Study, available online here:

<http://nanoracks.com/nanoracks-leocom-study-release/>

NanoRacks prides itself on being the first commercial space station company with customers – customers that come from 30+ nations around the world.

Description:

As a Senior Systems Engineer, you will define the capabilities of a myriad of private space stations. These stations can be as large as multi-module free flying systems of systems or as small as short lived non-separating technology demonstration platforms. Sometimes, you will define space stations which will be designed to satisfy strategic needs or take advantage of the competencies and technologies of NanoRacks partners and/or customers. Other times, you will

define space stations which will be designed to take advantage of new and untapped business opportunities.

You will communicate tactfully, proactively, respectfully, thoughtfully, and intelligently with various internal and external stakeholders of varying levels of technical sophistication and domain knowledge, and access to confidential information. You will not be shy, but courageous in tackling difficult problems with diverse teams both inside and outside of NanoRacks.

As a Systems Engineer, your work will often occur at the beginning of a project's development cycle in order to ensure that subsequent phases in the lifecycle, such as design and operations, are correctly directed. You should have had experience across lifecycle phases, engineering domains, and space applications. Your past experience in supporting these later lifecycle phases will inform and enable your ability to plan (at the project's onset) for those later phases.

You will author *Systems Engineering Management Plans* for NanoRacks space station development programs and, as needed, other projects and programs at NanoRacks. You will identify and clearly document milestones for development as well as entry and exit criteria for completing those milestones. You will lead the execution of reviews, verifications, and certifications of designs and hardware as it is developed.

You will tailor existing systems engineering approaches and standards such as is described in §3.11 of NASA SP-2016-6105 Rev2 "NASA Systems Engineering Handbook." and leverage your knowledge of concepts described in NPR 7123.1 "Expanded Guidance for NASA Systems Engineering."

You will be conversant and "speak the same language" as government customers and established government contractors as it pertains to documentation and levels of engineering rigor. At the same time, you also will be flexible and adaptable to engage with smaller partners and inexperienced customers with vastly different priorities, expectations, and needs for cost and schedules than those typically associated with established government programs.

You will define and document templates, which could be tailored from existing industry standards, including but not limited to:

- Systems Engineering Management Plans
- Data Requirement Descriptions
- System and Component Specification Documents
- Interface Control Documents and Interface Requirements Documents

You will also manage the production of specific instances of these documents for some programs, and guide others in producing instances of these document for other programs. Beyond your work specific to NanoRacks Space Station Outposts, you will coach, train, advise, and mentor other non-systems engineers on how to support the systems engineering processes

which you establish, and which they may emulate for projects on which you are not directly involved.

You will support the Quality Management organization by generating and evaluating documentation and procedures with the buildup of space flight hardware.

You will support proposal production for Space Station Outpost development contracts, which activity may include authoring verbiage used in technical approach sections, work breakdown structures, and statements of work.

You will author requirements, including rationale, verification method, and assignment of responsibility. You will create verification matrices for requirements provided by customers and suppliers, as well as for requirements which you yourself write and negotiate internally. You will have the experience and consideration to write requirements to optimize cost, design difficulty, verifiability or testability, producibility, source-ability, maintainability, adaptability, extensibility, etc.

You will define and describe the functions, attributes, and capabilities of free-flying space stations, in written and verbal form, to diverse audiences, which can include technicians, conference attendees, high-profile potential customers, upper management, peers, media, vendors, etc.

In concert or consultation with others on your team, you may source and select vendors and partners which can provide components, services, hardware, etc. to support program development. You will build and maintain professional and technical relationships with potential and active customers, suppliers, and partners for developing manned and unmanned space stations.

You will perform trade studies on differing approaches, vendors, and technologies to support the performance and operational requirements of NanoRacks Outpost Space Stations. You will solicit and incorporate feedback from groups such as quality control, mission operations, sales, domain engineering, project management, safety management, and other stakeholders as you define and develop engineering documentation and plans.

You will define and negotiate interfaces between hardware elements. This negotiation may involve the assignment and agreement of work scope between stakeholders which could have multiple acceptable pathways forward, however you will establish and achieve buy-in for one agreed pathway forward. You will have to negotiate these interfaces while considering the contracted scope of work as well as resource constraints of developers to product hardware that satisfies those interfaces.

You will generate and manage engineering budgets which could include power budgets, mass budgets, and RF link budgets.

You will review and support the writing and execution of ground and in-flight procedures for NanoRacks hardware assembly, test, and operation.

You will provide support for the preparation and real-time execution of:

- Design reviews
- Verification tests
- Ground integration and launch processing operations
- Flight operations

Required qualifications:

Bachelor's Degree in Systems Engineering, Aerospace Engineering, or other relevant field.
Experience in the operations of the International Space Station or other human spaceflight programs

Experience in Requirements Management, including decomposition, allocation, authoring, etc.
This should include direct experience using requirements management software tools such as:

- Doors
- Core
- Valispace
- Jira
- Confluence
- Systems Engineering Markup Language (SysML)
- or other requirements management software

Leadership of both multi-disciplinary, and inter- or intra-organizational projects.

Experience and familiarity with implementing relevant NASA human spaceflight standards.

- You must be Self-motivated and proactive
- You must have 7+ years of industry experience, be professional, responsible, helpful, and courteous
- You must be a US citizen
- You must have the ability to attain a government security clearance

Desired experience and qualifications:

- Graduate Degree in Systems Engineering, Aerospace Engineering, or other relevant field and two years of industry experience
- INCOSE CSEP or ESEP certification
- Experience and familiarity with DoD Systems Engineering standards and processes
- STK or GMAT trajectory familiarity
- CAD modeling (SolidWorks, CREO, CATIA)
- Experience supporting or managing the Risk Management process
- Direct leadership of people
- 15+ years of industry experience
- Experience with Safety Engineering or supporting the NASA or DoD safety management process
- Active Top Secret / SCI level security clearance

Compensation:

Competitive with industry standard.

What we're looking for:

Smart, talented, critical thinkers with an ability to handle responsibility in a dynamic and ever-changing landscape. You will own your projects and be results oriented. NanoRacks is a small company (60+ awesome people), but we interface with leaders from all over the world, including NASA, universities and government centers both foreign and domestic, and commercial companies. You will need to be able to work in small and large groups as well as simultaneously execute an entire project on time.

We're fast, fun, passionate, and love sending things to space.

To apply, please send a cover letter and resume to jobs@nanoracks.com.