

# Systems Engineering

## Systems Engineering

Our Systems Engineering Team offers a robust capability portfolio that meets a wide array of needs throughout the program lifecycle. ZIN has experience applying SE principles for numerous space-rated products.

Management tool, large and complex specifications and requirements documents are managed by small teams of Systems Engineers leveraging in-depth training and lessons learned.

### TOOLS:

- NPR 7123.1B
- INCOSE SE Handbook
- SE Project Metrics
- Functional Decomposition
- Model Based Systems Engineering
- DOORS (Primary tool for requirement management)
- Matlab/Simulink, IDL,
- MathCAD, Mathematica
- SIGHT, ModelCenter
- TK, POST, SORT, MANE
- DAC, DACFREE, Gridgen, VIPER, TDK
- MicroStripes, CST, HFSS, NEC4, Ensemble, Sonnet EM, X-Patch, RTS, ADS, FMM
- FARADAY
- MS Project
- Agile, Subversion,
- Microsoft Access
- MODTRAN
- IRIS
- The Sky X

SE	Action
SDP	Manages the requirements definition process: identifying, base-lining, and decomposing requirements toward a design solution.
TMP	Provides technical planning, process control (requirements, interface, risk, configuration, and technical data management), assessment, and manages the technical decision (KDP/KPP) process
PRP	Provides the evaluation process, including product verification and validation, and product implementation and integration.

ZIN offers a knowledgeable and efficient Systems Engineering (SE) team well suited to support NASA and commercial industry projects. The team applies a proven Systems Engineering methodology to optimize efficiency and ensure project success. The three main elements include: using common technical processes, standardizing tools and methods, and commissioning a well-trained and skilled workforce. Common technical processes are applied throughout the all phases of the project lifecycle including: flight projects, development projects, ground support activities, and required verification procedures. Standardized tools and methods enable the efficient and effective completion of the technical processes. Methods such as Functional Decomposition and Design Structure Matrices improve early life cycle products, while established SE metrics keep the project on time and on budget. Model Based Systems Engineering tools are used to enhance project performance.

ZIN designed, built, tested, and delivered the ISS Fluids Integrated Rack and Combustion Integrated Rack with over 22,000 individual requirements and continues to provide support and develop new payloads for the ISS.

- The SE workforce is a group of industry professionals with decades of experience in the successful use of SE techniques.
- Expertise for early program support includes mission and architecture design, trade and feasibility studies, system analysis, and requirements development.
- During program execution, SE can contribute to system design, system analysis, risk analysis and management, modeling and simulation, pricing, and scheduling.
- Integration and test, verification and validation, and mission operations are key end of life cycle capabilities that SE maintains.
- Strong execution SE in these areas has led to a long and distinguished track record of highly successful programs.

