This Curriculum Guide will help you plan your learning journey through STEP Levels 2, 3 and 4. It provides a detailed listing of all the courses and activities that comprise the curriculum for the STEP discipline you've chosen. For each STEP level there are three elements you must complete: Core and Discipline training courses, On-the-Job Training (OJT), and Qualification.

**CORE COMPETENCIES**

<table>
<thead>
<tr>
<th>BUSINESS OF NASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgets, Contracting Principles, Governance Models and Legal, Risk Management, and Decision Analysis</td>
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<table>
<thead>
<tr>
<th>FOUNDATIONS OF MISSION SUCCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Principles, Requirements, Root Cause, Mishap Investigation, Corrective Actions, and Lessons Learned</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERSONAL EFFECTIVENESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence, Influence, Change Management, Leadership, Negotiations, Oral and Written Communications, Self-Awareness, Biases and Team Dynamics</td>
</tr>
</tbody>
</table>

**DISCIPLINE COMPETENCIES**

<table>
<thead>
<tr>
<th>LEADING CHANGE</th>
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<tbody>
<tr>
<td>Creativity &amp; Innovation, Strategic Planning, Partnering, Vision &amp; Goal Setting, External Awareness</td>
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<table>
<thead>
<tr>
<th>LEADING PEOPLE</th>
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<tbody>
<tr>
<td>Team Building, Developing Others, Internal Awareness, Conflict Management, Workplace Diversity</td>
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<table>
<thead>
<tr>
<th>RESULTS DRIVEN</th>
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<tbody>
<tr>
<td>Advanced Communications, Influencing &amp; Negotiation, Decision Making &amp; Problem Solving, Business Management, Political Savvy</td>
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<table>
<thead>
<tr>
<th>TECHNICAL EXCELLENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Safety, Software Assurance, Quality Engineering, Reliability and Maintainability, Systems Safety, Mission Assurance</td>
</tr>
</tbody>
</table>

**ENROLL AND FIND OUT MORE INFORMATION**

STEP website: nsc.nasa.gov/STEP

**TECHNICAL DISCIPLINE TEAM LEAD (TDTL)**

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**NASA SAFETY CENTER HELP DESK**

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LEVEL 2

LEARNING OUTCOMES

• Describe budget and contracting processes and NASA’s governance model.
• Explain the mishap investigation process, SMA products in the lifecycle, and lessons learned processes.
• Identify Operational and System Safety practices that recognize, control, and mitigate hazards.
• Pinpoint differing quality audit approaches for configuration control, workmanship, manufacturing/facility readiness, acceptance criteria, and corrective action.
• Improve skills to create a Software Assurance plan that includes assuring quality, safety, and reliability throughout the software development lifecycle.
• Distinguish the importance of Reliability and Maintainability (R&M) impact on the design system or equipment.
• Understand the role and responsibilities of Chief Safety Officer (CSO).

CORE COURSES*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>002-08</td>
<td>Mishap Investigation Roles and Responsibilities</td>
</tr>
<tr>
<td>002-09</td>
<td>Completing the Investigation and Mishap Report</td>
</tr>
<tr>
<td>002-10</td>
<td>Introduction to Root Cause Analysis</td>
</tr>
<tr>
<td>038-01</td>
<td>NASA Safety Reporting System</td>
</tr>
<tr>
<td>CORE-CONT</td>
<td>Types of Contracts</td>
</tr>
<tr>
<td>CORE-DA</td>
<td>Decision Analysis for STEP</td>
</tr>
<tr>
<td>CORE-FAR</td>
<td>Federal Acquisition Regulation (FAR) Overview</td>
</tr>
<tr>
<td>CORE-IPM</td>
<td>Introduction to Project Management for SMA</td>
</tr>
<tr>
<td>CORE-NBO</td>
<td>NASA Budget Overview for SMA</td>
</tr>
<tr>
<td>CORE-NGO</td>
<td>NASA Governance Overview for SMA</td>
</tr>
<tr>
<td>CORE-NLO</td>
<td>NASA Legal Overview for SMA</td>
</tr>
<tr>
<td>CORE-RFS</td>
<td>Requirements Development and Tailoring</td>
</tr>
<tr>
<td>CORE-RM</td>
<td>Risk Management for STEP</td>
</tr>
<tr>
<td>CORE-SPL</td>
<td>SMA Products in the Program/Project Lifecycle</td>
</tr>
<tr>
<td>QE-215</td>
<td>Overview of NASA Lessons Learned Information Systems</td>
</tr>
<tr>
<td>QE-261</td>
<td>Corrective Action and Problem Reporting Systems Overview</td>
</tr>
<tr>
<td>SSFT</td>
<td>Building Personal Power through Influence</td>
</tr>
<tr>
<td>SSFT</td>
<td>Confronting Workplace Conflict</td>
</tr>
<tr>
<td>SSFT</td>
<td>Navigating Other People's Emotions</td>
</tr>
<tr>
<td>SSFT</td>
<td>Navigating Your Own Emotions</td>
</tr>
<tr>
<td>SSFT</td>
<td>Organizations Change So Get Ready</td>
</tr>
<tr>
<td>SSFT</td>
<td>Take a Deep Breath and Manage Your Stress</td>
</tr>
</tbody>
</table>

CORE ON-THE-JOB TRAINING*

• Discuss the challenges, responsibilities, and lessons learned with the following roles: ex-officio, investigator, chair, mishap POC.
• Identify and review the Federal Acquisition Register clauses relating to Occupational Health and Public Safety.
• Identify systems your SMA office or procurement office uses to track the types of contracts at the center.
• Identify your center’s governance model and how it interacts with the Agency’s governance model and NASA Strategic Plan.
• Observe a project or Institutional Risk Board.
• Observe interactions between team members in meetings or on a project.
• Review a recent mishap investigation report.
• Become familiar with the NASA Lessons Learned Information System, select a topic of your choice, and analyze lessons learned.
• Review the report of the Columbia Accident Investigation Board.
• Review the requirements definition and requirements traceability documentation for a project.
• Review, support, or observe a developed project management plan.
• Review, support, or observe the process and products for a program cost estimate (Mission Directorate SMA Support or SMA organization).
• Trace a mishap corrective action plan.

* You only need to take Core once per level if pursuing multiple disciplines at same level.
### DISCIPLINE COURSES

- STL-201 Chief Safety Officer (CSO) 101
- OS-210 Introduction to the Occupational Safety and Health Administration
- OS-215 Confined Space
- OS-220 Energy Control Program: Lockout/Tagout
- OS-221 Personal Protective Equipment
- OS-222 Introduction to Federal Safety Program
- OS-270 OSHA Recordkeeping Basics
- OS-271 Fall Protection in Construction
- OSX-241 Radiation Safety Concepts
- QE-204 Parts Assurance
- QE-205 Overview of Supply Chain Risk Management
- QE-211 Quality Management Overview
- QE-213 Program Quality Integration Overview
- QE-214 Quality Assurance Plans
- QE-221 Design Inputs and Reviews Overview
- QE-231 Procurement Quality Overview
- QE-241 Manufacturing Processes Overview
- QE-249 Materials Assurance
- QE-257 Certification of Flight Readiness (COFR) Overview
- RM-241 Reliability, Availability and Maintainability (RAM) for Programs and Projects
- SA-206 Introduction to Software Engineering
- SS-211 System Safety for Practitioners
- SS-213 Hazards Analysis for Practitioners

### DISCIPLINE ON-THE-JOB TRAINING

- Accompany two different SMA task leaders, supervisors, or managers for one day each.
- Select Center project example(s) of an R&M task. Identify how they are used in the design stages of the program.
- Investigate an incident at your Center, in accordance with established Center procedures for mishap investigation.
- Observe a failure investigation to determine cause and corrective action in support of a project or program.
- Observe a Material Review Board in support of a project or program.
- Observe a team creating a fault tree in support of a project or program.
- Observe Supply Chain Management activities at your Center or another Center.
- Observe/support a design review in support of a technical project or program in any phase of the program/project lifecycle.
- Observe/support a software peer review or formal inspection.
- Observe a software design review.
- Observe a software requirements review.
- Observe/support the development of reliability plan of a specific project.
- Provide input into a Quality Assurance plan or update.
- Read a mishap investigation report of a Type A or B incident.
- Review the latest Audit Data Analysis on the NSC website for the Institutional, Facility, Operational Safety Audit (IFOSA) program.
- Shadow a Senior Chief Safety Officer (CSO).
- Review a contract statement of work (quality section) in support of a project/program.
- Observe/support Certificate of Flight Readiness (CoFR) process.
- Observe/support conduct of hazard analysis in support of a technical project or program.
- Shadow a Senior Chief Safety Officer through the Safety and Mission Success Review (SMSR) process.

Continued on next page.
Watch the following videos and write short paper discussing central themes and how these video impact you as the learner:

- What It Takes to Be a CSO
- Agency Loss of Crew (LOC) Thresholds/Goals Implementation
- Are You Ready to Respond?
- Do Deliberate Leadership Values Matter?
- How to Get to the Moon
- Leaders in Safety
- Risk-Based Safety and Mission Assurance in Action
- Risky Business: Learning from NASA’s Past Accidents
- Space Systems Development: Lessons Learned
- The “Yes, If” Process
- What Role Does NASA Leadership Play in NASA Safety?
- Safety and Mission Success Review (SMSR)

Read the Article: “7 Steps for Building a Risk-Based Supplier Oversight Program”.

To qualify at Level 2:
1. Complete STEP Level 1 and all Level 2 core and discipline training outlined by each curriculum.
2. Your supervisor and SMA Technical Discipline Team Lead (TDTL) must approve the qualification package.
**LEARNING OUTCOMES**

- Use contracting and cost estimating for programs and projects.
- Apply appropriate negotiations and oral and written communication skills.
- Build upon various areas of technical discipline knowledge for mission assurance success, including Orbital Debris and Planetary Protection.
- Define and implement open and integrated communication approaches within and between teams to improve the interaction of the team members, increase buy-in, and enhance performance.
- Identify how to optimize performance in advanced negotiation processes by understanding personal conflict styles.
- Employ effective leadership techniques when considering complex project trade-off decisions.
- Create and sustain trust among group members in an environment that promotes innovative ideas.
- In-depth insight into the duties of a Chief Safety Officer (CSO) and the working relationship with Technical Authorities.

**CORE COURSES***

- CORE-ACE Advocating for and Cost Estimating for SMA Support
- CORE-ILT-CC Crucial Conversations
- CORE-NFS Negotiations for SMA
- CORE-NSE NASA Systems Engineering Overview
- SS-0023 Safety & Mission Assurance in the Acquisition Process
- SSFT Building Your Presentation
- SSFT Ensuring Successful Presentation Delivery
- SSFT Improving Your Technical Writing Skills
- SSFT Planning an Effective Presentation

**CORE ON-THE-JOB TRAINING***

- Develop a Safety and Mission Assurance Plan (SMAP) for a program/project.
- Develop and lead a case study or lessons learned discussion with your organization, program or project using the Lessons Learned Information System, NASA Mishap Information System or audit data.
- Develop qualification board presentation and conduct a dry run with your TDTL.
- Participate in an activity that requires using the negotiation skills discussed in your coursework.
- Support the development of a cost estimate for a program (Mission Directorate SMA Support or SMA organization).

*You only need to take Core once per level if pursuing multiple disciplines at same level.*
LEVEL 3

**DISCIPLINE COURSES**

- HQ-200 Orbital Debris
- HQ-224 Corrective Action Request (CAR)
- OS-239 Job Hazard Analysis
- OS-240 Hazard Identification And Control
- OS-250 Overview Of Nasa Occupational Health Program
- QE-361 Corrective Action And Problem Reporting Systems
- RM-361 FMEA/CIL and FMECA
- RM-X-221 Design For Reliability
- SA-201 Intermediate Software Assurance
- SA-306 Software Safety For Practitioners
- SS-0009 Basic Fault Tree Analysis I
- SS-0013 Risk Informed Decision Making (RIDM)
- SS-400 System Safety Analysis Relationships With Single Point Of Failure Analysis
- STL-300 Planetary Protection Overview
- STL-301 Chief Safety And Mission Assurance Officer (CSO)-201
- STL-302 Technical Authorities Working Together
- STL-303 Creatively Innovating Outside The Box
- STL-304 Strategic Thinking For SMA
- STL-305 Successful Team Leadership
- STL-306 Team Facilitation For SMA
- STL-307 Leading Virtual Teams
- STL-308 Advanced Negotiations For SMA
- STL-309 Communicating Challenges
- STL-310 Navigating Communication Styles
- STL-311 When You Are The Decision Maker
- STL-312 Dynamic Leadership Of Complex Projects
- STL-313 Recovery Of Troubled Projects For SMA

**DISCIPLINE ON-THE-JOB TRAINING**

- Accompany two different Safety and Mission Assurance (SMA) task leaders, supervisors, or managers during a period when they are actively engaged in leading a project, meeting, or review activity.
- Assist in definition, collection, and assessment of Operational Safety metrics data for a project, area, or program.
- Assist in the planning, serve as an auditor, and assist in the closure of an Operational Safety audit.
- Conduct or observe at least two separate quality surveillance activities.
- Create and present a process improvement strategy.
- Demonstrate in depth understanding of a fault tree and the relationship to a hazard analysis.
- Identify a project that was not meeting milestones; meet with the manager and discuss how she/he was able to recover the project for mission success.
- Identify, interview, and explore the Chief Safety Officer role in industry.
- Interview three senior executives on leadership qualities and skills that have been particularly effective for her/him in achieving mission and professional objectives.
- Lead a team or group from within your organization on a specific project or task.
- Observe a facilitation event (i.e., Lean Six Sigma, strategic alignment, or Human Resources retreat type event).
- Observe a peer review or formal inspection.
- Observe a program board during which a formal dissent and/or a non-conformance is discussed.
- Observe assurance of testing activities at any level.
- Observe documenting, tracking, and closure of non-conformances.
- Observe software assurance activities related to a Hazard Analysis.
- Observe/participate in SMA senior staff and division staff meetings within your organization.
- Observe/support the completion of a FMEA/CIL in support of a project/program.
- Observe/support the completion of R&M deliverables in support of a project or program.
- Participate as a protégé in either a formal or informal mentor relationship.

*Continued on next page.*
SMA TECHNICAL LEADERSHIP

DISCIPLINE ON-THE-JOB TRAINING

• Participate in a Safety and Mission Assurance (SMA), technical, or operational acquisition solicitation activity.
• Perform a Job Hazard Analysis (Job Safety Analysis) for a particular task related to your area of expertise.
• Perform an inspection of an employee work area or perform a facility safety inspection.
• Poll your coworkers on Safety and Mission Assurance (SMA) or other technical topics of interest they would like to discuss at a staff meeting or other group venue.
• Research (i.e., internet, TED Talk, books) or benchmark industries, other than government, regarding best practices on leading and managing change.
• Review a Facility System Safety Program Plan or assist in reviewing or writing a Facility Safety Management Plan.
• Serve as an acting director, or division, branch, or team lead depending on your current role.
• Watch the webinar “Mentoring Early Career Hires: Jason Fowler, SAFT”.
• Work with the Contracting Officer’s Representative (COR) regarding specific elements of an Safety and Mission Assurance (SMA) support contract.
• Write or assist a group in writing a corrective action plan/abatement plan.

QUALIFICATION

For more information regarding qualification go to the STEP Qualification Guidelines located on the STEP website.

To qualify at Level 3:
1. Complete STEP Level 2 in declared discipline and Level 3 core and discipline training outlined by each curriculum.
2. Pass a 60 question Level 3 Comprehensive Exam with a score of at least 70%.
3. Your supervisor and SMA Technical Discipline Team Lead (TDTL) must approve the qualification package.
4. Present to the Level 3 Qualification Board using the NASA Safety Center (NSC) Level 3 Qualification Board Template.
LEVEL 4

LEARNING OUTCOMES

• Evaluate team dynamics and biases.
• Create a leadership development and mentoring plan.
• Additional discipline learning outcomes are currently in development.

CORE COURSES*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE-LMTD</td>
<td>NASA Leaders Making Tough Decisions</td>
</tr>
<tr>
<td>CORE-TDS</td>
<td>Team Dynamics for SMA</td>
</tr>
<tr>
<td>Books 24x7</td>
<td>9 Powerful Practices of Really Great Mentors: How to Inspire and Motivate Anyone By: Stephen E. Kohn, Vincent D. O’Connell</td>
</tr>
<tr>
<td>SS-212</td>
<td>The Space Shuttle: Thirty Years of Flight, Thirty Years of Lessons Learned</td>
</tr>
<tr>
<td>SSFT</td>
<td>Building a Leadership Development Plan</td>
</tr>
<tr>
<td>SSFT</td>
<td>Building the Foundation for an Effective Team</td>
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<tr>
<td>SSFT</td>
<td>Developing a Successful Team</td>
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<td>SSFT</td>
<td>Encouraging Team Communication and Collaboration</td>
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<tr>
<td>SSFT</td>
<td>Gauging Your Leadership Performance</td>
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<tr>
<td>SSFT</td>
<td>Handling Team Conflict</td>
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<tr>
<td>SSFT</td>
<td>Leading a Cross-functional Team</td>
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<tr>
<td>SSFT</td>
<td>Leading Your Team Through Change</td>
</tr>
<tr>
<td>SSFT</td>
<td>Overcoming Unconscious Bias in the Workplace</td>
</tr>
<tr>
<td>SSFT</td>
<td>Overcoming Your Own Unconscious Biases</td>
</tr>
<tr>
<td>SSFT</td>
<td>Understanding Unconscious Bias</td>
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</tbody>
</table>

CORE ON-THE-JOB TRAINING*

• Analyze your team’s trust level. Identify ways that you can improve trust in your team.
• Create a personal leadership vision and development plan.
• Develop and deliver a technical presentation, course, webinar, or guest lecture relative to your discipline.
• Identify your personal and team’s unconscious biases.
• Serve as a mentor in your technical discipline for an individual or serve as a group mentor.
• Serve on a Source Evaluation Board as an evaluator or serve as a team member developing the technical requirements for a request for proposals.

* You only need to take Core once per level if pursuing multiple disciplines at same level.
To qualify at Level 4:

* You will able to qualify at this level when discipline courses and on-the-job training are available and completed.

1. Complete STEP Level 3 in declared discipline and Level 4 core and discipline training outlined by each curriculum.
2. Your supervisor and SMA Technical Discipline Team Lead (TDTL) must approve the qualification package.
3. Pass a Peer Review Panel (PRP) before scheduling the Level 4 Qualification Board.
4. Present to the Level 4 Qualification Board using the NSC Level 4 Qualification Board Template.