Flight Operations Directorate

Flight Integration – Training Branch

JSC Crew Training Overview

CK2/Kathryn Bolt
CB/Reid Wiseman
October 2017

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3 Phase Spaceflight Training Concept

Flight Controller & Astronaut Training Curriculum

**Content**
- Vehicle systems
- Displays & Controls
- Operational Concepts
- Basic procedures

**Media**
- Classroom lessons
- Training manuals
- Computer and Web Based Training
- Part-task training

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**Content**
- Skills-based Training
- Nominal Operations
- Malfunctions
- System Interaction

**Media**
- Part-task training
- Full fidelity simulation training
- Standalone Simulations
- Mockups

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**Content**
- Team Training
- Flight specific training
- Nominal and malfunctions

**Media**
- Full fidelity simulation training
- Standalone Simulations
- Integrated simulations
- Mockups
Crew Training Approach

• The amount and depth of the Crew training is based on their assigned qualification level
  • User
    – Utilize systems to safely live on ISS
  • Operator
    – Nominal and maintenance tasks
    – Off-nominal with immediate safing
    – All User tasks
  • Specialist
    – Off-nominal tasks with ground help
    – All Operator tasks
Training Facility Selection

Cost to Operate

Fidelity

Objectives/Complexity/Training Team Size

Classroom, CBT

Single System Part Task Training

Flight Controller Part Task Trainers

Virtual Reality Lab
Robo/EVA

Dynamic Skills Trainer
Robotics

Systems Engineering Simulator
Rndz, Prox Ops, Robo

Space Station Training Facility (SSTF)

Mockup Facilities (SVMF)

NBL
EVA, Robo

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Online Training Library

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Part Task Trainers

- PTT – Part Task Trainer
  - Single System nominal and off nominal instruction
  - Procedure execution and display navigation skills
- FCPTT – Flight Controller Part Task Trainer
  - Multi-system, Integrated scenario training
  - Team coordination and communication in ‘mini-flight control room’
Space Station Training Facility

- Full scale, multi-system integrated scenarios
- Simulated crew and crew station mockups
- Full team coordination and communication in training Flight Control Rooms (FCRs)
Space Vehicle Mockup Facility

• Full scale ISS mockups
• Routine Ops / Day in the Life training
• Emergency response scenarios
• Payload racks and hardware training
Neutral Buoyancy Lab

- Full scale ISS mockups / Truss segments
- Extra-vehicular Activity (EVA) Training
- Commercial Crew / Orion recovery
Medical / Physical Training