Flight Operations Directorate

Flight Integration – Training Branch

JSC Crew Training Overview

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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

Dynamic Skills Trainer Robotics

Systems Engineering Simulator Rndz, Prox Ops, Robo

Space Station Training Facility (SSTF)

Mockup Facilities (SVMF)

Virtual Reality Lab Robo/EVA

NBL EVA, Robo

Flight Controller Part Task Trainers

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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
Ellington Airfield Operations