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

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

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

**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

- Systems Engineering Simulator
  - Rndz, Prox Ops, Robo
- Dynamic Skills Trainer
  - Robotics
- Virtual Reality Lab
  - Robo/EVA
- Space Station Training Facility (SSTF)
- Mockup Facilities (SVMF)
- NBL
  - EVA, Robo
- Flight Controller Part Task Trainers
- Single System Part Task Training
- Classroom, CBT

Cost to Operate

Fidelity

Objectives/Complexity/Training Team Size
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