Flight Operations Directorate

Flight Integration – Training Branch

JSC Crew Training Overview

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October 2017

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3 Phase Spaceflight Training Concept

Flight Controller & Astronaut Training Curriculum

**Generic**
- Content:
  - Vehicle systems
  - Displays & Controls
  - Operational Concepts
  - Basic procedures
- Media:
  - Classroom lessons
  - Training manuals
  - Computer and Web Based Training
  - Part-task training

**Basic**
- Content:
  - Skills-based Training
  - Nominal Operations
  - Malfunctions
  - System Interaction
- Media:
  - Part-task training
  - Full fidelity simulation training
  - Standalone Simulations
  - Mockups

**Advanced**
- Content:
  - Team Training
  - Flight specific training
  - Nominal and malfunctions
  - Media:
  - Full fidelity simulation training
  - Standalone Simulations
  - Integrated simulations
  - Mockups

**Flight Specific**
- 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

Objectives/Complexity/Training Team Size

Fidelity

Classroom, CBT

Single System Part Task Training

Flight Controller Part Task Trainers

Virtual Reality Lab
Robo/EVA

Mockup Facilities (SVMF)

NBL
EVA, Robo

Space Station Training Facility (SSTF)

Dynamic Skills Trainer
Robotics

Systems Engineering Simulator
Rndz, Prox Ops, Robo

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NASA Johnson Space Center
10/2017
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