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

**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

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**Generic**

**Flight Specific**

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**BASIC**

**ADVANCED**

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

Cost to Operate vs. Objectives/Complexity/Training Team Size vs. Fidelity

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Online Training Library

E-LESSONS
MOD eLearning Module
Node 1 Depress Scenario

ALL CREW COMPLEMENTS
1.7 USOS AFT LEAK PINPOINT
Ingress USOS
Review Crew Roles & Responsibilities

WARNING
After each Hatch closure, if T tim < 10 minutes, evacuate US Segment, account for crew, and close #G8 TA-PAH 1 Hatch.

MCC-H: To terminate utilization of USOS atmosphere, perform step 17.

1. USOS INGRESS
Open Node 1 Aft Hatch (if required).
Retrieve PBA’s for each crewmember, if required.
Ingress USOS and report to MCC-H.

FOD Online Training Lessons

Lessons currently only support Internet Explorer

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Online Training Library
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