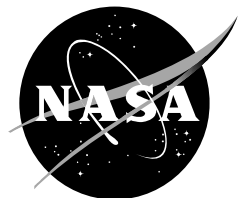


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International Space Station Human Behavior & Performance Competency Model

Volume II

**Mission Operations Directorate
ITCB HBP Training Working Group**

March 2008

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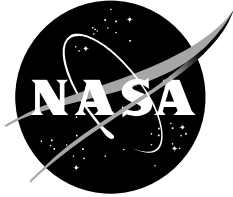
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Preface

This document is a companion to the “Human Behavior and Performance Competency Model” Vol. I. These documents were developed in response to action items assigned by the Multilateral Crew Operations Panel (MCOP) to the International Training Control Board (ITCB) and Multilateral Medical Operations Panel Spaceflight Human Behavior and Performance Working Group (MMOP SHBPWG). The membership of the International Training Control Board, Human Behavior and Performance Training Working Group (HBPT WG) consists of representatives from all the international partner agencies, including astronauts/cosmonauts, Human Behavior and Performance specialists, and training specialists.

1.0 INTRODUCTION

1.1 PURPOSE

This document further defines the behavioral markers identified in the document “Human Behavior and Performance Competency Model” Vol. I. The Human Behavior and Performance (HBP) competencies were recommended as requirements to participate in international long duration missions, and form the basis for determining the HBP training curriculum for long duration crewmembers. This document provides details, examples, knowledge areas, and affective skills to support the use of the HBP competencies in training and evaluation.

1.2 SCOPE

This document lists examples and details specific to HBP competencies required of astronauts/cosmonauts who participate in ISS expedition and other international long-duration missions. Please note that this model does not encompass all competencies required. While technical competencies are critical for crewmembers, they are beyond the scope of this document. Additionally, the competencies in this model (and subsequent objectives) are not intended to limit the internal activities or training programs of any international partner.

1.3 RELATED DOCUMENTATION AND REFERENCES

This document was created to support the parent document, “Human Behavior and Performance Competency Model’ Vol. I.

The following references were consulted during the development of this document: The HBP training requirements as they were outlined in the earlier document “Human Behavior and Performance Competencies and Behaviors” (AVAILABLE FROM THE NASA/JSC SCIENTIFIC AND TECHNICAL INFORMATION CENTER.).

Bloom, B. S. (1984). *Taxonomy of Educational Objectives*. Allyn and Bacon, Pearson Education; Boston.

Recommendations to ISS MCOP regarding ISS Behavioral and Performance Training, September 2004

In addition, the following documents are suggested for reading:

Dismukes, K., Jobe, K., and McDonnell, L., (1997). *LOFT debriefings: an analysis of instructor techniques and crew participation*. NASA Technical Memorandum 1104442 (DOT/ FAA/ AR-96/122).

Holland, A., Hysong, S. and Galarza, L. (2007). *A review of training methods and instructional techniques: Implications for behavioral skills training in U.S. Astronauts*. NASA Technical Publication (NASA/TP-2007-21372).

McDonnell, L., Jobe, K. and Dismukes, K. (1997). *Facilitating LOS debriefings: a training manual*. NASA Technical Memorandum 112192 (DOT/ FAA/ AR-97/6).

2.0 BEHAVIORAL MARKERS DETAILS, EXAMPLES, KNOWLEDGE, AND ATTITUDES TABLES

The following tables expand upon the multilaterally agreed upon competencies and behavioral markers listed in the HBP Competency Model Vol. I, by providing further information required by HBP and training specialists in the design and development of training for International Space Station (ISS) crewmembers.

The information provided in the “Details” column further describes each behavioral marker, and the suggested “Examples” describe how an astronaut may exhibit these behaviors during the course of an ISS mission. Cognitive and affective teaching points associated with each behavioral marker are listed in the “Knowledge” and “Attitudes” columns, respectively, and include the levels of learning (identified in brackets) that training should aim to address when covering these teaching points, in accordance with Bloom’s (1994) taxonomy.

The behavioral markers represent the performance or observable actions required of the learner at the end of training. Note that psychomotor skills are not the focus of HBP training and cognitive skills are included in the “Knowledge” column.

There is an inter-relationship among the competencies listed in the tables below. Behavioral markers from one competency often facilitate the learning of behavioral markers from other competencies. Thus, HBP training specialists must consider inter-relationships between behavioral markers from different competencies or categories even in lessons designed to focus on one particular competency or category.

2.1 SELF-CARE SELF MANAGEMENT

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Refine accuracy of self image	SCSM1	Identifies personal tendencies and their influence on own behavior	<ul style="list-style-type: none"> - Identifies and reflects upon own personality structure, personal values, motivators and habits; understands how they influence own behavior - Reflects on own character and tendencies of behavior - Can pinpoint the positive and negative sides of own style for coping with change and stress - Recognizes own biases, tendencies, and emotions that may compromise objectivity - Recognizes the positive and negative sides of own style for coping with change and stress 	<ul style="list-style-type: none"> - Reviews and reflects on own actions of the day - Identifies potential for personal improvement 	<ul style="list-style-type: none"> - Self-reflection techniques [using exercises/tools/inventories /etc.] [Apply] - Awareness of own behaviors and personality [from others and video] [Analyze] 	<ul style="list-style-type: none"> - Openness to self-analysis [Respond] - Willingness to apply best effort to reflective tasks [Respond]
	SCSM2	Identifies factors for personal successes or failures	<ul style="list-style-type: none"> - Evaluates the outcomes of behavior based on success criteria through self-examination and by seeking suggestions from others - Is able to attribute successes and failures correctly to personal or situational factors - Avoids getting frustrated by failures resulting from factors that are not within one's own control 	<ul style="list-style-type: none"> - In training debriefings, judges whether failures of tasks are caused by own lack of skill or by other factors, and gathers information such as: <ol style="list-style-type: none"> 1.Behavior that causes failure 2.Behavior that contributes to success 	<ul style="list-style-type: none"> - Self-evaluation techniques, tools, and criteria [Apply] - Awareness of how own behaviors contribute to success and failure [Analyze] 	<ul style="list-style-type: none"> - Openness to self-evaluation [Value] - Sense of self-efficacy/control over own performance [Organize] - Willingness to apply best effort to reflective tasks [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SCSM3	Seeks formal and informal feedback to understand impact of own behavior on others	<ul style="list-style-type: none"> - Develops an accurate sense of how others perceive own behavior - Seeks and uses debriefings and feedback as a method to realize impact of own behavior on others - In order to avoid possible conflict related to own behavior, confirms that own behavior does not make team members uncomfortable - Clarifies if any discrepancies exist between others' perceptions and one's own understanding of self - Monitors and evaluates reactions of others in order to understand how different behavior influences various individuals - Is flexible when making plans and decisions 	<ul style="list-style-type: none"> - Actively gathers information from family, friends, colleagues, psychologists, trainers and team members to obtain a more accurate understanding of self - Verbally and non-verbally indicates openness for feedback to team members - Welcomes feedback without defending or justifying own actions 	<ul style="list-style-type: none"> - How, where and when to solicit feedback [Apply] - How to receive feedback [Apply] 	<ul style="list-style-type: none"> - Openness to critique and suggestions for improvement [regardless of role and rank] [Value] - Acceptance of feedback [value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SCSM4	Assesses own skills knowledge and abilities against task requirements	<ul style="list-style-type: none"> - Assesses own skills and knowledge with respect to assigned task - In order to achieve goal, confirms own skills for each assigned task, with respect to required skill level - Maintains realistic view of skill level 	<ul style="list-style-type: none"> - For new task not previously trained, determines whether skills and knowledge can be easily transferred to new task, or whether On Board Training is required - For tasks previously trained, determines whether skills and knowledge are current or whether refresher training is required 	<ul style="list-style-type: none"> - Consequences of over/underestimating abilities [Comprehend] - Techniques for pre-testing or status-testing skills and abilities against task requirements [e.g., Sims, self-quizzes, visualization, etc.]. [Apply] - Methods of measuring/ comparing skills and abilities to past performance on same or similar tasks. [Apply] - Currency and degradation of performance proficiency for various tasks [Comprehend] 	<ul style="list-style-type: none"> - Importance of safety and mission success above personal pride [Value] - Acceptance that own proficiency decreases in the absence of practice [Value] - Importance of keeping up with technological advances or developments related a given task [Value]
Manage stress	SCSM5	Identifies symptoms and causes of personal stress	<ul style="list-style-type: none"> - Is aware of the adverse influences of stress such as physiological changes and sleep issues on own condition and identifies the causes of stress - Pays attention to the changes in physiological and psychological status and emotions, and identifies their causes - Determines sources of current stress 	<ul style="list-style-type: none"> - Asks self “Why am I so irritable?” and recognizes “the reason I am so irritable today, is that I am overworked.” 	<ul style="list-style-type: none"> - Stress symptomology [physiological and emotional] [Comprehend] - Awareness of personal stress symptoms and triggers [Apply] 	<ul style="list-style-type: none"> - Recognition that symptoms of stress are not evidence of weakness or inadequacy [Value] - Interest in seeking root sources of and contributors to own stress [Value] - Acknowledgement that stress impacts performance [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SCSM6	Takes action to prevent and mitigate stress, negative mood or low morale	<ul style="list-style-type: none"> - Is aware of own physical and physiological status before performing tasks and does not allow own feelings to adversely impact tasks - Is aware of causes of own bad feelings or reduced motivation, and seeks opinions from others if necessary - Checks the available resources, examines possible coping means, takes appropriate coping actions and uses countermeasures to relieve stress - Keeps in mind how one copes with stresses in daily life and in training - Monitors own performance, emotions, mood and morale; modifies if necessary - Among the stressors that may reduce performance, is familiar with those involved in spaceflight missions - Recognizes and uses strategies and countermeasures to deal with unique stressors [e.g.,boredom, confinement, isolation] involved in spaceflight missions 	<ul style="list-style-type: none"> - Uses personal diary and feedback to monitor own status - If experiencing tiredness from lack of good quality sleep, takes sleeping tablets or asks scheduler to reduce workload - Determines that irritability is due to lack of sleep, therefore mitigates by asking scheduler to reduce workload or consulting crew surgeon - Uses relaxation techniques such as Progressive Muscle Relaxation, Autosuggestion, exercise, etc. - Makes others aware of own status and asks them to be attentive for one's own lapses - Seeks support of other team members - Participates in behavior and performance training and discusses with experienced crewmembers to learn strategies and countermeasures - Uses recreational facilities, works on hobbies, interests, requests support from ground, improves mood and morale 	<ul style="list-style-type: none"> - Stress management techniques [Apply] - Factors that impact mood and morale [Comprehend] - Available resources/contacts [Know] - Which stressors are related to negative performance and health [Comprehend] - Examination of personal symptoms of boredom, fatigue, irritability, confinement anxiety, feelings of isolation, etc. [Analyze] - Countermeasures for preventing and strategies for relieving symptoms [Apply] 	<ul style="list-style-type: none"> - Open to self-assessment [Value] - Recognition that positive outlook influences health and performance [Value] - Willingness to share emotional state and express needs with others [Respond] - Commitment to personal health and performance [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SCSM7	Uses calm and flexible approach in dealing with unfamiliar situations	<ul style="list-style-type: none"> - Reacts calmly and demonstrates confidence in dealing with situations that are unfamiliar and stressful - Adapts to unfamiliar situations - Uses own experience and skills acquired during training to adapt to an unfamiliar situation 	<ul style="list-style-type: none"> - Even in an unexpected event such as an off-nominal situation, tries to keep calm in order to maintain normal judgment, executive ability, and self-confidence so that other team members and supporting staff members do not panic - In stressful situations uses all available resources in a structured manner, does not get distracted by irrelevant information, and is able to maintain control of the situation 	<ul style="list-style-type: none"> - Off-nominal, contingency, emergency response skills [Comprehend] - Strategies for critical thinking [decision-making/problem-solving/situational leadership etc.] [Comprehend] - Physiological responses to anxiety and how to control them [Apply] - Relationship between anxiety and performance [Comprehend] 	<ul style="list-style-type: none"> - Willingness to adapt one's approach to a situation [Value] - Willingness to apply critical thinking techniques [Value]
Care for oneself	SCSM8	Uses mistakes as learning opportunities	<ul style="list-style-type: none"> - Individual does not get upset over own mistakes - Treats adversities and failures as growth opportunities and lessons learned and uses them for improvement - Focuses on positive aspects of negative situations - Analyzes mistakes of others as an opportunity for learning 	<ul style="list-style-type: none"> - Individual makes mistake during training, discusses with instructors, and takes action to learn missing skills 	<ul style="list-style-type: none"> - Self-evaluation techniques, tools and criteria [Apply] - How, when and where to obtain feedback on performance [Apply] - Fundamentals of changing behavior [principles of learning] [Comprehend] 	<ul style="list-style-type: none"> - Continuous improvement [Value] - Willingness to admit faults/ mistakes and seek alternatives [Value] - Sense of self-efficacy/control over own performance [Organize]
	SCSM9	Maintains social relationships	<ul style="list-style-type: none"> - Makes time for social activities - Spends time interacting with family and/or friends 	<ul style="list-style-type: none"> - Individual makes an effort to stay in contact with family/friends in spite of limited means available 	<ul style="list-style-type: none"> - Impact of social relationships [with team members, friends and family] on health and performance [Comprehend] - How to create, strengthen, and maintain professional and social networks [Apply] 	<ul style="list-style-type: none"> - Empathy [Characterize] - Importance of social support [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SCSM10	Maintains personal goals in order to feel satisfied and motivated and maximize performance	<ul style="list-style-type: none"> - Identifies what is needed to maintain personal motivation, satisfaction and effectiveness over time - Maintains predefined optimal level of performance - Reflects on situation and identifies motivational needs over time - Rewards oneself for achievement 	<ul style="list-style-type: none"> - Develops and maintains a routine that meets personal needs” [e.g., maintains adequate nutrition, maintains physical fitness] - Takes reasonable vacations at training intervals for refreshment and relaxation - Uses free time to maintain and increase knowledge of subjects of interest 	<ul style="list-style-type: none"> - Impact of personal goals on satisfaction, motivation and performance [Comprehend] - Goal-setting practices [Apply] - Impact of personal reward and recognition/reinforcement [Comprehend] - Personal reward and recognition/reinforcement tactics [Comprehend] 	<ul style="list-style-type: none"> - Continuous improvement [Value] - Recognition of importance of personal reward [Value]
	SCSM11	Maintains balance of work, personal time and rest	<ul style="list-style-type: none"> - Is aware of consequences of not observing a balance of work, personal time and rest - Uses effective time-management techniques Maintains an adequate balance of work and rest in order to prevent lack of sleep and overload that may increase human errors - Maintains own psychological and physiological fitness to maximize own performance 	<ul style="list-style-type: none"> - Develops and maintains a routine that meets personal and professional needs - Despite being excited about looking out the window during first days on board, recognizes being tired and having busy schedule ahead, and gets required rest 	<ul style="list-style-type: none"> - Work-life balance issues, fatigue factors and burnout symptoms, and associated consequences [Comprehend] - Work-life balance techniques [Apply] 	<ul style="list-style-type: none"> - Recognition of correlation between work-life balance and performance/health [Respond] - Commitment to personal health and performance [Value]
Maintain efficiency	SCSM12	Sets challenging and attainable goals	<ul style="list-style-type: none"> - Sets challenging, realistic and measurable professional and personal goals 	<ul style="list-style-type: none"> - Sets challenging goals prior to each training session in order to maximize own performance and to upgrade own skills 	<ul style="list-style-type: none"> - Goal-setting practices and tactics [e.g., SMART goals] [Apply] 	<ul style="list-style-type: none"> - Continuous improvement and development [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SCSM13	Uses time efficiently	<ul style="list-style-type: none"> - Uses effective time-management techniques - Completes tasks in most efficient way - Organizes own tasks according to urgency and importance - Is well organized, resourceful and practical - Avoids continuous interruptions - Makes a plan before taking action, in order to achieve tasks in most efficient way 	<ul style="list-style-type: none"> - Performs all housekeeping tasks that take place in one area of station before moving on to another area - Uses idle time while waiting for experiment to set up next task 	<ul style="list-style-type: none"> - Time management techniques and strategies [Apply] 	<ul style="list-style-type: none"> - Impact of time management techniques [Value]
	SCSM14	Keeps items organized	<ul style="list-style-type: none"> - Keeps work and personal place organized, keeps track of items [e.g.,by inventory] for task efficiency and prevention of human error 	<ul style="list-style-type: none"> - After using tools, returns them to where they originally stored - Puts items in their place according to Inventory Management System - Realizes that common area is disorganized and takes initiative to improve for common use, in agreement with crewmates 	<ul style="list-style-type: none"> - Consequences of not keeping items and work areas organized on long-duration missions [Comprehend] - Relationship between neat and ordered workspaces and performance and safety [Comprehend] 	<ul style="list-style-type: none"> - Concern for helping teammates have ready access to shared tools/items [Value] - Appreciation of impact on safety and mission success [Value]

2.2 COMMUNICATION

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Optimize communication	COM1	Communicates information clearly and concisely	<ul style="list-style-type: none"> - Uses common/ understandable words and phrases to transfer the message - Uses the most precise and fewest words needed to communicate [as required by the situation] - Includes all pertinent information in the first message [vs. sharing incomplete information that requires follow-up questions], unless protocol specifies otherwise - When talking with someone from a different profession, eliminates unnecessary technical detail - Avoids using slang, idioms, saying, and cultural references when communicating with non-native speakers - Uses language appropriate to audience - Refreshes specialized terminology as required before complex operation to make communication more precise and avoid misunderstandings 	<ul style="list-style-type: none"> - Follows communication protocols on Air to Ground loop e.g., "When communicating with the ground, says "copy" vs. "I understood what you just said," to avoid tying up the loop [when a lot of information needs to be exchanged]" - Uses phonetic alphabet - Before solar panel reconfiguration EVA, reviews with EV and IV crewmember the briefing on solar arrays to refresh nomenclature 	<ul style="list-style-type: none"> - Communication procedures [Apply] - Protocols [forms, structure] [Comprehend] - Terminology ex: radio [as related to job and not trained elsewhere] [Comprehend] - Sources of misunderstanding [Comprehend] - Barriers to communication [Comprehend] 	<ul style="list-style-type: none"> - Willingness to take responsibility for communication [Value] - Willingness to adapt communication to ensure clarity [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	COM2	Shares information	<ul style="list-style-type: none"> - Communicates relevant information that others may not have - Asks questions to determine what information people need 	<ul style="list-style-type: none"> - Informs the team that a piece of equipment had to be moved to a new storage location to clear space for a task - Informs others when encountering a problem with a tool, equipment, etc. 	<ul style="list-style-type: none"> - Consequences of not sharing information [Comprehend] - How, when, and what information to share [Comprehend] 	<ul style="list-style-type: none"> - Willingness to share information [Value] - Responsibility for team outcomes due to lack of information [Value]
	COM3	Communicates intentions before taking action	<ul style="list-style-type: none"> - Unless in a contingency situation, informs others of actions planned before acting. Allows others to prepare and react/help if required. It also allows others to raise concerns and anticipate problems - Describes what is going to happen next; verifies that this does not conflict with others' plans 	<ul style="list-style-type: none"> - States "I am going to power the system off" before powering off the system 	<ul style="list-style-type: none"> - Consequences of not communicating intentions [Comprehend] - How, when, and what information to verbalize [Comprehend] 	<ul style="list-style-type: none"> - Willingness to communicating intentions [Value] - Responsibility for team outcomes due to lack of information [Value]
	COM4	Communicates task status and completion	<ul style="list-style-type: none"> - Confirms completion of checklist items - Informs others about progress on tasks that impact them 	<ul style="list-style-type: none"> - Keeps team informed of status of the procedure being executed, when it affects them 	<ul style="list-style-type: none"> - Impact of not communicating task status and completion [Comprehend] - Rationale [including where, when, protocols] for communicating task status and completion [Comprehend] - Relevance for situational awareness of team members [Value] 	<ul style="list-style-type: none"> - Acceptance of importance for safety and mission success [Value] - Willingness to verbalize [Respond]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	COM5	Provides constructive feedback	<ul style="list-style-type: none"> - Points out both positive and negative impacts of others' behaviors and ideas in a tactful way - Checks to see if other person is open to feedback - Communicates in a respectful manner - Makes suggestions for improvement - Identifies positive aspects in others 	<ul style="list-style-type: none"> - Comments "The task could be completed using the approach you suggest, however your approach requires 3 tools, there is a way to complete the same task with only 1 tool, which is ..." 	<ul style="list-style-type: none"> - How, where and when to provide feedback [Comprehend] - Techniques for providing and receiving feedback [Apply] - Constructive feedback vs. criticism [Comprehend] 	<ul style="list-style-type: none"> - Commitment to providing constructive feedback [Value] - Willingness to exchange feedback [Value] - Intention to help/aid people and team [rather than assign blame or establish superior role] [Value]
	COM6	Adjusts time and/or style of communication to fit the situation	<ul style="list-style-type: none"> - Asks if another person would like to hear suggestions before making them - Delivers constructive criticism in private - Delivers messages in a diplomatic manner - Does not deliver criticism when it is not likely to improve results - Confirms that the concepts are understood correctly - Uses different words to explain an idea that is not understood vs. simply repeating same phrase - Exercises judgment on when and when not to speak up 	<ul style="list-style-type: none"> - Says "Some information was miscommunicated..." vs. "John didn't bother to tell anyone what he was doing" - When agreement on an idea is reached, does not bring up a minor point that would require a new discussion - When talking with someone with a different native language, speaks more slowly and simply 	<ul style="list-style-type: none"> - How, when, and where to communicate [Apply] - Communication models and styles [Comprehend] - Consequences of mismatch between communication style and situation [Comprehend] - Own communication styles [verbal/non-verbal] and how they affect others [Comprehend] - Ways to adjust communication styles to situation [Apply] 	<ul style="list-style-type: none"> - Appreciation for the importance of how in addition to what is said [Value] - Consideration for the other team members and their situation [Value] - Willingness to adjust your timing and/or style of communication [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	COM7	Communicates concerns; persists until acknowledged	<ul style="list-style-type: none"> - Communicates concerns in a way that team members can understand; verifies understanding - Assertively states concerns when they have impact on safety. Is not discouraged by hierarchy 	<ul style="list-style-type: none"> - For potential safety risks, speaks out even when recipient has discouraged input in the past - "If it is not safe, say so" 	<ul style="list-style-type: none"> - Consequences of not communicating concerns and persisting until acknowledged [Comprehend] - Techniques for communicating concerns to a peer or superior [Apply] - Barriers to communicating concerns [Comprehend] - Importance of communicating concerns [Comprehend] 	<ul style="list-style-type: none"> - Commitment to enforcing safety issues even in positions where authority figure or situation makes it difficult [Value] - Willingness to persist until acknowledged [Value]
	COM8	Establishes atmosphere for open and constructive communication	<ul style="list-style-type: none"> - Encourages frank communication, friendly debate and discussion - Thanks people for their participation and input - Encourages inputs, and questions; asks other person's opinion, feedback, suggestions, points of view - Treats opinions, feedback and suggestions with respect - Maintains composure in interpersonal conflicts - Demonstrates willingness to compromise 	<ul style="list-style-type: none"> - Listens attentively to team member inputs and thanks people for speaking up - Plans discussion time during meetings. At regular intervals, asks whether anyone has a comment or question - Asks quiet members about their thoughts and reactions during discussions - Avoids excessive displays of emotion and overreacting 	<ul style="list-style-type: none"> - Consequences of not establishing atmosphere for open and constructive communication [Comprehend] - Techniques for establishing and maintaining open communications [Apply] 	<ul style="list-style-type: none"> - Appreciation of the importance of open communication for safety, team building, decision-making, etc. [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	COM9	Briefs and debriefs behavioral and technical issues with team members	<ul style="list-style-type: none"> - Initiates and actively participates in behavioral and technical briefings and debriefings - Discusses lessons learned from successes and mistakes in order to eliminate possible future problems 	<ul style="list-style-type: none"> - When the Commander says, "Let's debrief that last event," all crewmembers actively participate 	<ul style="list-style-type: none"> - Characteristics of and differences between feedback and debriefing [Comprehend] - Briefing and debriefing techniques [Apply] - How to address and integrate behavioral competencies with technical task debriefings [Apply] 	<ul style="list-style-type: none"> - Appreciation of the importance of briefings and debriefings to improve team and individual task performance [Value] - Appreciation for the impact of behavior on technical performance [Value]
Ensure Understanding	COM10	Listens "actively"	<ul style="list-style-type: none"> - Restates what others have said individually or in a group - Attends to non-verbal cues - During important conversations, maintains attentive posture, eye contact, paraphrases what is heard, clarifies phrases, and summarizes - Waits until other person has finished talking before responding (i.e., does not interrupt) 	<ul style="list-style-type: none"> - When a colleague is talking about something complex, maintains eye contact, uses phrases such as, "yes," "mm...hm." 	<ul style="list-style-type: none"> - The impact of active listening techniques [Comprehend] - Interpretation of non-verbal behaviors [Comprehend] - Techniques for active listening [summarizing, questioning, etc.] [Apply] 	<ul style="list-style-type: none"> - Appreciation for the importance of non-verbal communication and active listening skills [Value] - Willingness to adopt active listening behaviors [Value]
	COM11	Addresses barriers to communication	<ul style="list-style-type: none"> - Considers how to manage issues such as language differences, noise, fatigue, stress, cultural background, readiness of listener, technical problems, individual communication styles, etc. - Individual communication style includes non-verbal cues, signals, and gestures (e.g., 	<ul style="list-style-type: none"> - Before raising a complex issue, asks whether it is a good time for the other party to talk - Asks for clarification of information or messages (if it is unusual or unclear) - During a conversation, the other person is not looking into the eyes of the talking person. The speaker asks if the listener is busy or preoccupied 	<ul style="list-style-type: none"> - Barriers to communication and their potential effects [Comprehend] - Techniques for removing or working around communication barriers [Apply] 	<ul style="list-style-type: none"> - Appreciation for the consequences of unaddressed barriers to communication [Value] - Commitment to overcome barriers [Value] - Consideration for impact of emotional states on communication [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
			<p>handshakes, facial movements, eye contact); and b) verbal communication styles (e.g., directness vs. indirectness, tone of voice, formal vs. informal)</p> <ul style="list-style-type: none"> - Takes actions to deal with barriers that may cause misunderstanding - Anticipates sources of error and confusion by considering receiver's situation - Recognizes, interprets and clarifies differences and similarities between the typical communication styles of self and others, including non-verbal communication 	with something else		
	COM12	Seeks answers in proactive manner	<ul style="list-style-type: none"> - Asks questions before the need for the information is urgent, for situational awareness, to anticipate problems, etc. 	<ul style="list-style-type: none"> - When one cannot solve a problem, seeks advice from team members - When preparing for the execution of a task, asks team members for missing information 	<ul style="list-style-type: none"> - Impact of missing information [Comprehend] - How, when, and where to obtain missing information [Comprehend] - Barriers to seeking information [Comprehend] 	<ul style="list-style-type: none"> - Responsibility for success of mission in addition to their immediate responsibilities [Value] - Commitment to seeking information [Value]
	COM13	Verifies information	<ul style="list-style-type: none"> - Reads back information in order to verify accuracy - Records complex information 	<ul style="list-style-type: none"> - When verifying information, repeats exact words used vs. replies "copy" 	<ul style="list-style-type: none"> - Impact of not verifying information [Comprehend] - How and when to verify information [Comprehend] 	<ul style="list-style-type: none"> - Responsibility for success of mission in addition to their immediate responsibilities [Value] - Commitment to determining accuracy of information [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	COM14	Acknowledges confusion or misunderstanding	<ul style="list-style-type: none"> - Receiver communicates to sender of information own confusion or lack of understanding - Admits when a message has not been understood - Calls attention to the ambiguity by asking questions to clarify meaning of the message, including non-verbal behavior 	<ul style="list-style-type: none"> - When unsure about which interpretation of a word to use, asks speaker to clarify or rephrase, or use different words 	<ul style="list-style-type: none"> - Impact of confusion or misunderstanding [Comprehend] - Barriers to communication [Comprehend] - Barriers to admitting confusion or misunderstanding [Comprehend] 	<ul style="list-style-type: none"> - Willingness to put aside personal pride to ensure understanding [Value]
	COM15	Resolves discrepancies, confusions and misunderstandings	<ul style="list-style-type: none"> - Confirms that the concepts are understood correctly - Makes appropriate adjustments as needed to ensure that intended message has been understood correctly - Verifies that message was understood as intended; takes action to clarify when necessary - Does not assume understanding beyond what has been confirmed - Notifies when response obtained is inconsistent with information transmitted 	<ul style="list-style-type: none"> - Observes receiver for reactions to determine level of understanding - Requests a read-back or rephrase in critical situations 	<ul style="list-style-type: none"> - Techniques for clarifying misunderstandings [Apply] 	<ul style="list-style-type: none"> - Respect for other party when they are confused or make an error [Value] - Responsibility for communication [Value] - Commitment to implementing solutions [Value]

2.3 CROSS CULTURAL

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Demonstrate respect towards other cultures [national, organizational, professional]	CC1	Demonstrates respect and appreciation for team members' culture[s] and viewpoints	<ul style="list-style-type: none"> - Does not consider one's own cultural view as the only view - Seeks out the contributions that other cultures can bring to their personal life and to their work - Appreciates and considers other points of view - Respects other ways of doing and seeing things - Recognizes the value of diversity between cultures and the contributions each offers - Words of appreciation and behavior are congruent - Does not consider one's own culture superior - Ensures that diversity within the multicultural team is a source of strength rather than weakness 	<ul style="list-style-type: none"> - Takes into consideration and appreciates the habits and preferences of fellow team members from different cultures pertaining to meals and meal times - Can give examples of the enrichment their own culture has received from other cultures - Appreciates different traditions regarding holidays as well shows consideration for holidays or occasions [e.g.,mission milestones] not celebrated by one's own culture - Enjoys sharing and exchanging important items from own culture [books, films, special celebrations] - Provides examples of how their own life [outlook/behavior] has been enriched by other cultures 	<ul style="list-style-type: none"> - Methods of inquiry about culture [Apply] - Importance of [Comprehend] <ul style="list-style-type: none"> -- National culture[s] [comprehend] --- customs/norms --- language[s] --- expectations --- history --- traditions --- holidays/celebrations --- biases -- Organizational culture [comprehend] <ul style="list-style-type: none"> --- international partner organizations [knowledge] --- management practices --- organizational structure --- organizational expectations --- history --- rules/regulations --- values and ethics --- expectations -- Professional culture [comprehend] <ul style="list-style-type: none"> --- education --- characteristics --- political processes 	<ul style="list-style-type: none"> - Respectfulness for different perspectives [Value] - Appreciation and consideration for representatives from multiple cultures [Value] - Open-mindedness to cultural differences [Value] - Willingness to learn about team members' cultures [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CC2	Respects differences in gender role expectations, behaviors, and attitudes	<ul style="list-style-type: none"> - Acknowledges that every culture has its own gender conventions - Identifies differences in gender role expectations, behavior, and attitudes within a given culture - Determines and uses an approach which takes into account the different gender expectations - Develops strategies to temper their own personal values in order to manage conflicts which might erupt [e.g., strong values pertaining to gender behavior] 	<ul style="list-style-type: none"> - Is aware that not favoring females as commanders does not imply that female astronauts are not respected as astronauts 	<ul style="list-style-type: none"> - Culturally specific gender roles [Comprehend] -- expectations -- conventions -- behavior -- attitudes 	<ul style="list-style-type: none"> - Respectfulness and sensitivity to gender role expectations [Value] - Open-mindedness to differences in gender roles [Value]
Understand culture and cultural differences [national, organizational and professional]	CC3	Uses understanding of cultural factors and circumstances to interpret team members' behaviors	<ul style="list-style-type: none"> - Understands the concept of culture [national, organizational and professional] - Identifies how the values and practices of two or more organizations might be a source of both conflict and creativity - Describes how some values of their own culture and beliefs [including religious beliefs] could cause interpersonal misunderstandings and problems in living and working as a member of a multicultural crew - Recognizes and explains to fellow crewmembers that own work behavior may be affected by the 	<ul style="list-style-type: none"> - Appreciates common meal times on board ISS as occasions for increasing crew cohesion and communication even if not one's own cultural tendency to do so - Cites examples of how a colleague's work behavior may be the result of their professional culture as much as their national culture - Cites examples of the influence of culture in such areas as the nature of social and economic institutions, management processes, concepts of power, relationships, leadership, and to technology and change, 	<ul style="list-style-type: none"> - Definition of culture [Comprehension] - Interpretation of the effect of cultural factors on behavior [Apply] 	<ul style="list-style-type: none"> - Respectfulness for different perspectives [Value] - Appreciation and consideration for representatives from multiple cultures [Value] - Open-mindedness to cultural diversity [Value] - Willingness to expose self to others' cultures [Value] - Willingness to share own culture with others [Value] - Appreciation for advantages of alternative solutions/approaches of other cultures [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
			<p>demands imposed by home organization; respects that the same may be true of fellow crewmembers</p> <ul style="list-style-type: none"> - Shares one's own culture - Understands similarities and differences in approaches to leadership, followership, teamwork, group-living, self-care, communication, etc. - Recognizes similarities between self and team members of different cultures - Acknowledges the influence of culture, values and beliefs on one's own and others' behavior and work 	etc.		
	CC4	Acknowledges the impact of cultural dominance on crew interaction	<ul style="list-style-type: none"> - Recognizes when a culture becomes dominant by representation - Identifies the impact of cultural dominance on group interaction - Acknowledges that the dominant culture does not render invalid the other cultural views - Does not consider one's own culture superior 	<ul style="list-style-type: none"> - A crewmember from a dominant culture recognizes that own culture takes for granted that others must adapt to that culture's ways of doing things, and takes it into account in crew interaction - Recognizes, e.g., when training in Russia or the US, that the training is done according to local plans and methods, and that non locals may not be familiar or fully comfortable with these methods 	<ul style="list-style-type: none"> - Definition of culture [Comprehension] - Identification/Recognition of cultural dominance [Apply] - Influence of cultural representation (number of crewmembers of the same culture) on group interaction [Comprehension] 	<ul style="list-style-type: none"> - Willingness to acknowledge the impact of cultural dominance on team interaction [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CC5	Mitigates the impact of cultural stereotypes and prejudices on group interaction	<ul style="list-style-type: none"> - Identifies and understands cultural stereotypes and prejudices and how they develop, and does not allow them to impact interaction with people of any culture - Recognizes one's own culture's stereotypes and biases of people in other cultures and vice versa - Avoids using stereotypes to explain team members' behaviors - Recognizes similarities between self and crewmembers of different cultures 	<ul style="list-style-type: none"> - Does not justify that a representative of another culture is arriving late for a meeting due to that person's concept of time, rather it may be for reasons of personal habit or circumstances 	<ul style="list-style-type: none"> - How and why cultural stereotypes and prejudices develop [comprehension] - Impact of cultural stereotypes and prejudices on group interaction [Analyze] - Strategies to avoid cultural stereotypes and prejudices [Apply] - Strategies to lessen impact of cultural stereotypes and prejudices [Apply] 	<ul style="list-style-type: none"> - Commitment to adopt strategies to avoid and mitigate/reduce the impact of cultural stereotypes and prejudices on group interaction [Organize within crew, Value for crew to ground]
Build and maintain social and working relationships	CC6	Demonstrates tolerance of cultural differences and ambiguities	<ul style="list-style-type: none"> - Recognizes and tolerates different ways of doing and seeing things - Demonstrates willingness to learn about other cultures and how to be integrated within a multicultural group - Demonstrates patience and willingness to compromise - Integrates within a multi-cultural team without compromising core sense of "self" - Participates in social and cultural activities with team members and other individuals from other cultures - Recognizes cultural similarities and differences 	<ul style="list-style-type: none"> - Refrains from reacting negatively to cultural ambiguities –seeks understanding - Shows interest in other crewmembers' cultures and areas of interest, e.g.,by reading information up-linked by other crewmembers' agencies to the joint Webpage, or by participating in videoconferences organized with crewmembers' former universities 	<ul style="list-style-type: none"> - The effect of cultural factors, values, and beliefs on behavior [Comprehend] - Interpretation of the effect of cultural factors on behavior [Apply] - Impact of cultural differences on group interaction [Analyze] 	<ul style="list-style-type: none"> - Respectfulness for different perspectives [Value] - Appreciation and consideration for representatives from multiple cultures [Value] - Open-mindedness to cultural diversity [Value] - Willingness to expose self to others' cultures [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
			<p>in social norms [e.g.,greetings, addressing friends vs. strangers]</p> <ul style="list-style-type: none"> - Communicates and connects with people from other cultural backgrounds - Can identify ways in which they have changed, personally and/or professionally, as a result of their experiences working in a multicultural team 			
	CC7	Develops strategies to clarify ambiguities created by own behavior	- Recognizes and explains own behaviors that can lead to misinterpretations/ misunderstandings	- Recognizes that talking loudly on the phone may be perceived as "fighting" to people of some cultures and explains to others that in own culture talking loudly is not necessarily a sign of disagreement	<ul style="list-style-type: none"> - Awareness of how own behavior can cause misinterpretations and misunderstandings in multicultural team settings [Comprehend] - How to adjust behavior to avoid and correct misinterpretations and misunderstandings in multicultural team settings [Apply] 	- Willingness to adjust own behavior to avoid and correct misinterpretations and misunderstandings [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Intercultural communication and language skills	CC8	Communicates respectfully with people from different cultural and linguistic backgrounds	<ul style="list-style-type: none"> - Can identify the main differences and similarities between the typical verbal and non-verbal communication styles of own and other cultures - Recognizes that “accent” does not mean lack of command of language - Refrains from correcting an individual's pronunciation or grammatical errors unless asked to by the individual - Simplifies language only if necessary - Adjusts communication style to be more easily understood - Works to identify and clarify words that may be interpreted differently by people from different cultures 	<ul style="list-style-type: none"> - Nodding your head does not mean agreement in all the cultures - In some cultures it is common to introduce a topic very directly, whilst for others it is not - When communicating with someone who speaks own language as a second language, respects the effort and does not point out mistakes unless requested to do so - Speaks slower to be understood and intentionally selects simpler words/phrases - Recognizes that a team member that has problems during training has language issues, allows for time for translation, and in addition helps with clarifications using common experience - Makes an effort to learn which words and gestures are considered offensive to other cultures and avoids using them 	<ul style="list-style-type: none"> - Behaviors that may be misinterpreted as disrespectful by members of other cultures [Comprehend] - How to communicate with non-native speakers [Apply] - Social norms and styles of communication for team member's cultures [Comprehend] - How to communicate respectfully with individuals of different cultures [Apply] - How to avoid miscommunication/ misinterpretations with individuals from different cultures [Apply] 	<ul style="list-style-type: none"> - Patience when communicating with members of different cultures [Value] - Tolerance for culture/language-induced communication difficulties [Value] - Respect for team members [Value]
	CC9	Makes an effort to learn and use the languages of colleagues	<ul style="list-style-type: none"> - Learns and speaks the languages of team member's if operationally relevant - Makes an effort to learn and use basic sentences from crewmembers' languages 	<ul style="list-style-type: none"> - Makes an effort to learn a basic level of other crewmember[s] language[s], even though English is the main language of ISS 	<ul style="list-style-type: none"> - Benefits of learning and using languages of team members [Comprehend] 	<ul style="list-style-type: none"> - Willingness to learn and use languages of colleagues [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Commitment to multicultural work	CC10	Puts a common “space faring culture” ahead of one’s own national organizational and professional cultures	<ul style="list-style-type: none"> - Places mission/operational goals ahead of conflicting organizational goals - Uses opportunities to work and connect with multicultural teams - Maintains focus and commitment to overcome obstacles originating from cultural differences - Persists in attempting to solve problems or overcome cultural challenges - Shows respect for flight conduct rules 	- Creates a “culture” that is unique to ISS crews, and puts it ahead of own culture	<ul style="list-style-type: none"> - How to promote space-faring culture over personal and cultural differences [Apply] - How to encourage and reinforce a space-faring culture within the team [Apply] 	- Willingness to put a common “space faring culture” ahead of one’s own national organizational and professional cultures [Value]

2.4 TEAMWORK AND GROUP LIVING

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Active team participation	TW1	Acts cooperatively rather than competitively	<ul style="list-style-type: none"> - Does not compete with others, other than for entertainment, or when it fosters team spirit and increases motivation or team performance 	<ul style="list-style-type: none"> - Participates in competitions related to physical fitness, or in games that increase team activities onboard but does not compete with others on a professional level, and never uses competition to discredit crewmembers 	<ul style="list-style-type: none"> - Consequences of acting competitively [Comprehend] - Benefits of acting cooperatively [Comprehend] - Collaboration strategies [Apply] 	<ul style="list-style-type: none"> - Importance of team success/mission success over personal glory [Value]
	TW2	Takes responsibility for own actions and mistakes	<ul style="list-style-type: none"> - Shares success with the team, admits own failures - Does not attribute own failures to team members - Accepts own share of responsibility in a team mistake - Reports omissions 	<ul style="list-style-type: none"> - Uses "I" versus "us" when referring to own failures - Admits to have used the equipment last (if true), when a failure in the equipment is identified 	<ul style="list-style-type: none"> - Impact of not admitting/reporting mistakes on safety, mission success, team cohesion and morale [Comprehend] - How, when, and to whom to admit a mistake [Apply] - How to deal with teammates' reactions without becoming defensive [both ways] [Apply] 	<ul style="list-style-type: none"> - Importance of team success over personal pride [Value] - Appreciation for the idea that errors are inevitable even for competent, trained professionals [Value] - Treatment of mistakes as learning experiences [Value]
	TW3	Puts common goals above individual needs	<ul style="list-style-type: none"> - Gives priority to mission goals as compared to individual wish for personal credit or professional achievement - Takes care of communal task before leisure activities 	<ul style="list-style-type: none"> - When power on station is low agrees to limit own scientific activities - Thinks of mission success before personal goals 	<ul style="list-style-type: none"> - How to promote team and mission goals over personal needs [Apply] 	<ul style="list-style-type: none"> - Importance of team success over personal needs [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	TW4	Works with teammates to ensure safety and efficiency	- Helps other team members deal with demanding situations	- Uses 4 eyes approach in demanding situation	- Benefits of team over individual efforts [Comprehend] - Two-person approach [Comprehend] - How to effectively distribute and accomplish work according to skills and abilities in a group [Apply]	- Appreciation for the value of teamwork over individual effort [Value]
	TW5	Respects team member's roles, responsibilities, and task allocation	- Is aware of and respects team roles - Avoids infringing upon other team member's responsibilities and task allocations	- Does not comment on the way a crewmember performs an assigned task, despite having own idea on how to perform it - Does not act as a "back seat driver"	- Importance of respecting roles and responsibilities [Comprehend] - Consequences of infringing on other's roles, responsibilities and tasks [Comprehend] - Awareness that safety and mission success may require reallocation of roles, responsibilities and tasks [Comprehend]	- Appreciation for the value of task distribution within a team [Value] - Respect for others' roles, responsibilities and tasks [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Interpersonal relationships	TW6	Demonstrates patience, respect and appreciation for crewmembers	<ul style="list-style-type: none"> - Takes culture and personalities of other crewmembers into account - Understands strengths and weaknesses of self and fellow team members - Understands and is tolerant of different ways of working - Gives others “permission” to be different; respects and appreciates their differences without trying to change them - Tolerates difficulties arising from crewmembers differences 	<ul style="list-style-type: none"> - Adjust use of humor when realizing that own jokes are not understood - Allows introverted crewmember to have own time off from the team - Allows other crewmembers to take the time to satisfy their own needs, even when those needs are difficult to comprehend 	<ul style="list-style-type: none"> - Advantages of demonstrating patience, respect, and appreciation of others on teamwork, task success and team cohesion [Comprehend] - Consequences of demonstrating impatience, disrespect, and unappreciation of others on teamwork and task success [Comprehend] - Awareness of own behaviors that may be interpreted as impatience, disrespect, and unappreciation [Comprehend] - How to demonstrate patience, respect, and appreciation [Apply] 	<ul style="list-style-type: none"> - Empathy and respect for team members [Value] - Willingness to express appreciation [Value]
	TW7	Provides emotional support to crewmembers	<ul style="list-style-type: none"> - Helps other crewmembers deal with demanding situations - Offers support when crewmembers are overwhelmed, upset, etc. 	<ul style="list-style-type: none"> - Provides support to a crewmember that is missing family, home, feels lonely, etc. - Helps crewmember who lost a family member - Offers words of encouragement, small tokens of support, such as taking on less pleasant tasks 	<ul style="list-style-type: none"> - Impact of emotional support on individual and team well-being [Comprehend] - Impact of personal well-being on the team [Comprehend] - When and how to provide emotional support [Apply] 	<ul style="list-style-type: none"> - Effect of emotions on individual and group wellbeing and performance [Value] - Acceptance of existence of emotions [Respond] - Recognition of emotions as a potential source of strength rather than a weakness [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	TW8	Encourages participation in team activities	<ul style="list-style-type: none"> - Involves other team members in interesting activities for which (s)he is the responsible or technical lead - Encourages participation of crewmembers in social gatherings - Invites colleagues to join team activities, especially when they are shy to participate - Makes crewmembers feel accepted as a team member 	<ul style="list-style-type: none"> - Involves a rookie in preparation of their EVA - Takes time to explain to a rookie earth features during observation out of the window - During a social event after a meal, realizes a crewmember is not there, looks for them, and informs them that an event is going on, and invites them to join 	<ul style="list-style-type: none"> - Benefits of team activities on teamwork and individual morale [Comprehend] - How to encourage the participation of team members [Apply] - Activities that foster team building [Know] 	<ul style="list-style-type: none"> - Importance of participation in group activities for individual and group wellbeing and performance [Value] - Consideration for impact of emotional states [Value]
	TW9	Develops positive relationships with team members	<ul style="list-style-type: none"> - Spends leisure time with crewmembers to get to know them out of the professional environment - Reliably provides what is asked, is honest and open, therefore acquires trust of crewmates - Develops trust and maintains positive relationships with own crewmembers, visiting crewmembers, and ground personnel 	<ul style="list-style-type: none"> - Other crewmates trust that when (s)he makes a commitment to do something, the job will get done - Invites team members and family for social events at home - Participates in leisure activities, team games, sports, etc. with crew members 	<ul style="list-style-type: none"> - Consequences of poor relationships with team members [Comprehend] - Awareness of team members' perceptions of relationships within the team [Comprehend] - How to improve relationships within a team [Apply] 	<ul style="list-style-type: none"> - Commitment to building and maintaining relationships with team members [Value] - Importance of positive relationships with team members for teamwork and wellbeing of individual and group [Value]
Group living	TW10	Adapts living and working habits to improve team cohesion	<ul style="list-style-type: none"> - Is aware of and adjusts to fellow team members living and working habits and preferences - Is attentive to informal feedback from crewmembers on own habits, and makes an effort to adjust 	<ul style="list-style-type: none"> - While working on LAB, listens to music on loudspeaker or uses headset, depending on preferences of crewmembers - Swaps sleeping areas with crewmembers according to preferences 	<ul style="list-style-type: none"> - Awareness of own living and working habits [Comprehend] - Impact of own living and working habits on other team members [Comprehend] - How to adjust living and working habits to promote team cohesion [Apply] 	<ul style="list-style-type: none"> - Commitment to maintain team cohesion [Value] - Willingness to modify personal habits [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	TW11	Volunteers for routine and unpleasant tasks	<ul style="list-style-type: none"> - Volunteers for housekeeping and repetitive or unrewarding but necessary tasks 	<ul style="list-style-type: none"> - Volunteers to clean-up after dinner or to vacuum clean - Prepares meal for crew - Prepares station for a PR event 	<ul style="list-style-type: none"> - Necessity of volunteering for routine and unpleasant tasks [Comprehend] - How to encourage participation in routine and unpleasant tasks [Apply] - How to deal with situations in which your helping behavior is abused instead of reciprocated [Apply] 	<ul style="list-style-type: none"> - Importance of team cohesion over personal preferences [Value] - Responsibility for group living and routine tasks [Value] - Willingness to share routine and unpleasant tasks [Value]
	TW12	Offers and provides assistance if accepted	<ul style="list-style-type: none"> - Helps other crewmembers in demanding situations - Offers support when crewmates have difficulty completing a task or are overloaded - Provides assistance only if individual is ready to accept - When crewmembers are overwhelmed, upset, etc. offers support 	<ul style="list-style-type: none"> - When vehicle requires maintenance and crewmembers are overloaded, offers support, despite having own less critical tasks to complete 	<ul style="list-style-type: none"> - How to offer assistance [without embarrassing team member, showing disrespect or lack of confidence, or infringing on their role] [Apply] - Consequences of providing unwanted assistance [Comprehend] - Consequences of not providing assistance to other team members when they need it [Comprehend] 	<ul style="list-style-type: none"> - Willingness to provide assistance [Value] - Respect of team members' roles and responsibilities [Value] - Respect refusal of assistance [Value]
	TW13	Balances own needs with those of crewmembers	<ul style="list-style-type: none"> - Remains observant of and responsive to the needs and feelings of their crew mates prior to and during flight - Recognizes others' needs and the motivation behind their behavior - Expresses personal needs; does not say yes when should say no - Expresses own requests to satisfy personal needs, considering the situation 	<ul style="list-style-type: none"> - When vehicle requires maintenance and crewmembers are overloaded, offers support versus enjoying free time - Expresses own needs to schedulers and trainers when feeling overloaded or needing to do private but important things 	<ul style="list-style-type: none"> - Consequences of imbalance of needs [Comprehend] - How to determine team members' needs [Apply] - How to balance own needs with needs of team members [Apply] 	<ul style="list-style-type: none"> - Importance of team cohesion and mission needs over personal preferences [Value] - Concern for team members needs, preferences, and emotional state [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	TW14	Shares attention and credit for achievements with teammates	<ul style="list-style-type: none"> - Does not give the impression of feeling self important and superior; demonstrates personal humility by not always drawing all attention to self or taking all the credit for achievements - Voices team achievements 	<ul style="list-style-type: none"> - Uses “us” versus “I” when discussing successes or work completed - Says: “We made it!” as a result of a job completed - During PR event, shares spotlight 	<ul style="list-style-type: none"> - Impact of reward/recognition, or lack thereof, on team [Comprehend] - When, why and how to share attention and credit for achievements [Apply] 	<ul style="list-style-type: none"> - Importance of team cohesion and mission success over individual recognition [Value] - Willingness to share credit and attention for achievement [Value]

2.5 LEADERSHIP

Competencies and behavioral markers in this section apply to all team members with the following exceptions:

- “Execution of designated leader authority” only applies to the designated leader
- “Followership” applies to everyone other than the designated leader

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Execution of designated leader's authority	LD1	Accepts leadership responsibilities	<ul style="list-style-type: none"> - Accepts/reviews and understands goals of mission as commander - Ensure that the team accepts and understands the goals - Understands own impact on team performance and well-being - Takes as a responsibility the motivation of team members 	<ul style="list-style-type: none"> - During evening tag-up the Commander reviews the progress of the day and conducts preliminary review of the next day's activities - Prior to a mission, commander reviews mission plan, safety and hazard reports, clarifies mission goals with senior management and then communicates information to the rest of the team 	<ul style="list-style-type: none"> - Leadership roles, expectations, and responsibilities [Comprehend] - Leadership styles, types of authority, and influence techniques [Comprehend] - Importance of knowing flight rules and code of conduct [Comprehend] - Importance of knowing mission goals and objectives [Comprehend] - Importance of understanding own role and influence within the assigned team [Comprehend] 	<ul style="list-style-type: none"> - Commitment to accepting leadership responsibilities and accountability [Value] - Dedication to observing flight rules and code of conduct [Value] - Acknowledgement that leader may be required to implement unpopular decisions [Respond] - Willingness to take initiative [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	LD2	Assigns tasks according to capabilities and individual preferences	<ul style="list-style-type: none"> - Assesses individual team members' strengths, weaknesses and professional capabilities - Discusses individual preferences - Determines activities and requirements - Assigns tasks based on all the above 	<ul style="list-style-type: none"> - After consulting with FE1 and FE2, commander requests that ground allow FE1 to complete Electron repair [FE1 has prior experience with Electron] 	<ul style="list-style-type: none"> - Techniques for evaluating performance and capabilities of individual team members and overall team [Apply] - Motivational factors and techniques [Apply] - How to delegate and empower [Apply] - Project management phases, tools, and techniques [Apply] - Importance of understanding follower's role and influence within the assigned team [Comprehend] 	<ul style="list-style-type: none"> - Recognition of the importance of delegating and empowering others [Respond] - Commitment to respecting team members' capabilities and preferences [Value] - Commitment to supporting (emotionally, physically, intellectually) team members to task completion [Value]
	LD3	Assigns tasks with clearly defined goals	<ul style="list-style-type: none"> - Defines tasks and goals - Clarifies team member roles and responsibilities - Communicates to crewmembers that in executing a task the outcome is of main importance, and not how the task is executed 	<ul style="list-style-type: none"> - Based on the Daily Planning Conference, the Commander assigned 3 tasks to FE2 to be completed in any order, but prior to the 18:00 Communication Pass with MCC-M 	<ul style="list-style-type: none"> - Consequences of unclear or poorly defined goals [Comprehend] - Principles of goal-setting and motivation [Apply] - Consequences of micro-managing [Comprehend] - Empowerment techniques [Apply] 	<ul style="list-style-type: none"> - Recognition of the importance of delegating and empowering others [Respond] - Commitment to respecting team members' capabilities and preferences [Value] - Commitment to supporting (emotionally, physically, intellectually) team members to task completion [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	LD4	Adapts leadership styles to situation	<ul style="list-style-type: none"> - Knows team members' abilities and personalities as well as own leadership style - Can transition between different styles in accordance with the situation and team composition - Recognizes the advantages and disadvantages of different leadership styles and their application to different situations - Modifies execution based on surrounding environment and information - Allows flexibility in execution of task - Trusts the team and respect their capability to perform the tasks 	<ul style="list-style-type: none"> - Commander is directive during critical operations such as docking, but uses participative decision making during non-critical activities such as dinner preparation - Commander selectively uses direction and delegation with two different crewmembers according to their abilities in preparing for an EVA 	<ul style="list-style-type: none"> - Leadership styles, types of authority, and influence techniques [Comprehend] - Leadership roles, expectations, and responsibilities [Comprehend] - Importance of knowing team members' capabilities and preferences [Comprehend] - Situational leadership [Comprehend] - Consequences of using the wrong leadership style [Comprehend] 	<ul style="list-style-type: none"> - Willingness to change preferred leadership style [Value] - Recognize the need to match leadership style to the situation and team member's preferences and abilities [Respond]
	LD5	Responds to information, suggestions and concerns of team members	<ul style="list-style-type: none"> - Encourages team members to voice their suggestions and concerns - Acknowledges input and concerns, evaluates and provide follow-up 	<ul style="list-style-type: none"> - Commander responds to a crewmember's concerns regarding a piece of equipment that is not functioning properly by informing ground about the problem 	<ul style="list-style-type: none"> - Consequences of not establishing atmosphere for open and constructive communication [Comprehend] - Techniques for establishing and maintaining open communications [Apply] - How to encourage the participation of team members [Apply] - Advantages of responding to information, suggestions and concerns of team members for team motivation and morale 	<ul style="list-style-type: none"> - Commitment to acknowledge suggestions and take action on concerns [Value] - Commitment to building trust [Value] - Willingness to listen [Value] - Willingness to admit own weaknesses, limitations, or errors [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
					[Comprehend] - Importance of understanding follower's role and influence within the assigned team [Comprehend]	
	LD6	Maintains team cohesion in adverse and uncertain circumstances	<ul style="list-style-type: none"> - Remains level-headed during adverse conditions and uncertain circumstances - Maintains control of situation - Express confidence and optimism for success during difficult circumstances - Shifts priorities as required 	- Ensures execution of defined procedures during fire or decompression events	<ul style="list-style-type: none"> - Consequences of lack or deterioration of team cohesion [Comprehend] - Factors that influence team cohesion (including the leaders' role) [Comprehend] - Signs of deterioration of team cohesion [Know] - Techniques for building and maintaining team cohesion [Apply] - How to encourage the participation of team members [Apply] 	<ul style="list-style-type: none"> - Commitment to monitor and maintain team cohesion [Value] - Willingness to shift priorities and assignments to maintain team cohesion [Value] - Willingness to listen [Value] - Tolerance of uncertainty [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Mentoring skills	LD7	Provides direction, information, feedback and encouragement and coaching as needed	<ul style="list-style-type: none"> - Shares practical experience and lessons learned - Directs team members to pertinent sources of information - Provides constructive feedback and suggestions for improvement - Facilitates solutions that enhance crew effectiveness - Coaches techniques and skills - Sets an attainable and important goal - Facilitates the crewmember's ability to develop a realistic and workable plan of action - Monitors the crewmember's progress as the action plan is implemented - Assesses the work performance and self-directed learning - Shares tips and tricks Demonstrates proper techniques	<ul style="list-style-type: none"> - Experienced commander provides guidance to inexperienced team members - Crewmember with Long duration experience provides guidance - Commander assists a crewmember in executing a task by pointing out where in ODF the pertinent instructions are provided - Departing crew conducts hand-over session with arriving crew for robotics operations - Experienced team member coaches adaptation to daily living and working skills to inexperienced team member 	<ul style="list-style-type: none"> - Coaching techniques [Apply] - Principles of learning [Comprehend] - Similarities and differences in instructing, coaching, and mentoring [Comprehend] - Recognition of signs that coaching is needed [Comprehend] - How to match instruction, coaching, and mentoring to team member's ability levels [Apply] - Persuasion and influence tactics [Comprehend] 	<ul style="list-style-type: none"> - Commitment to professional and personal development of team members [Value] - Willingness to share knowledge, skills, and learning opportunities [Value] - Willingness to empower team members and share professional opportunities [Value] - Committed to promoting learning [Value] - Attentiveness to learner's readiness for learning [Respond]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	LD8	Leads by example	<ul style="list-style-type: none"> - Displays desirable skills and uses best practices [Acts as a “positive role model”] - Demonstrates congruence between words and actions - Performs activity/task using acknowledged best practices - Demonstrates technical competency 	<ul style="list-style-type: none"> - Leader follows recommended daily exercise routine to encourage others to maintain their health - Commander observes sleep schedule as an example to inexperienced crew members who may be too excited to sleep 	<ul style="list-style-type: none"> - Principles of leadership [Apply] - Behaviors associated with leading by example [Apply] - Effects of leading or not leading by example [Comprehend] 	<ul style="list-style-type: none"> - Willingness to be a role model [Value] - Commitment to carry-out leadership responsibilities and be accountable [Value] - Commitment to achieving high standards
Followership	LD9	Supports leader	<ul style="list-style-type: none"> - Supports leaders decisions and determines best way to support leader - Acknowledges leader's decision - Verbalizes agreement with leader's decision - Actively implements Leader's directions once decision has been made - Volunteers to perform tasks - Recognizes leader's responsibilities, workload, pressures, and stressors - Volunteers opinions and concerns - Questions assumptions but not authority 	<ul style="list-style-type: none"> - Follows lead robotics operator's decision to discontinue operations during loss of signal 	<ul style="list-style-type: none"> - Principles of followership [Apply] - Importance of considering the leader's constraints, responsibilities, styles, and preferences [Comprehend] - Importance of understanding follower's role and influence within the assigned team [Comprehend] - Behaviors required to establish loyalty and trust [Comprehend] 	<ul style="list-style-type: none"> - Willingness to support leader in instances where follower may not agree [Respond] - Willingness to help establish and maintain trust and loyalty within the team [Value] - Commitment to respond to requests, suggestions, and assignments from leader [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	LD10	Reacts promptly to situations requiring immediate response	<ul style="list-style-type: none"> - In absence of the commander, identifies and takes charge of situations requiring immediate action - Recognizes when there is a need to take charge - Assesses situation to determine appropriate action - Takes appropriate action 	<ul style="list-style-type: none"> - Assumes leadership role if/as required 	<ul style="list-style-type: none"> - When and how to take control of a situation [Apply] - Consequences of not taking initiative when required [Comprehend] 	<ul style="list-style-type: none"> - Commitment to safety, crew health, and mission success [Value] - Willingness to assume accountability [Value]
Workload Management	LD11	Plans and prioritizes tasks	<ul style="list-style-type: none"> - Analyzes tasks to be achieved - Determines and verifies the resources needed - Determines task priorities - Develops a plan with attainable milestones 	<ul style="list-style-type: none"> - Plans and prioritizes daily non timelined tasks 	<ul style="list-style-type: none"> - Principles and techniques of time management [Apply] - Project management phases, tools, and techniques [Apply] - Importance of knowing mission and operational timelines [Comprehend] 	<ul style="list-style-type: none"> - Willingness to use project and time management techniques to complete tasks [Value] - Dedication to respecting mission and operational timeline [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	LD12	Adapts plans according to progress and changing conditions	<ul style="list-style-type: none"> - Assesses progress and responds to changing conditions - Assesses and tracks progression of task completion - Recognizes and addresses task saturation - Anticipates and prepares for upcoming tasks - Adapts plans and priorities to meet new situational needs 	<ul style="list-style-type: none"> - During communication with FD, Commander asks for changes to be made to mission timeline due to fatigue 	<ul style="list-style-type: none"> - Consequences of failing to acknowledge a requirement to change the plan [Comprehend] - Situations and factors that may call for a change of plan [Comprehend] - Project management techniques [Apply] - Importance of operating within mission and operational constraints [Comprehend] 	<ul style="list-style-type: none"> - Willingness to monitor the status of tasks and people [Value] - Willingness to shift priorities and assignments [Value]
	LD13	Ensures team members have the appropriate tools and authorization to complete tasks	<ul style="list-style-type: none"> - Facilitates successful task completion by removing barriers and ensuring access to tools and information - Ensures crew is authorized to perform task 	<ul style="list-style-type: none"> - Competing demands by MCC-M and MCC-H were successfully negotiated by the Commander so that the crew's work was not impacted - The Commander explained to the FD why the procedures upload to the crew were not appropriate for the tools they had onboard - Commander gained approval for completing a task from the FD and MMT who were resistant to what the crew felt was important 	<ul style="list-style-type: none"> - Principles of leadership and project management [Apply] - Importance of considering the team members' constraints and responsibilities [Comprehend] - How to empower team members [Apply] 	<ul style="list-style-type: none"> - Willingness to support team members with resources and authority [Respond]

2.6 CONFLICT MANAGEMENT

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Conflict prevention	CM1	Addresses potential sources for conflict	<ul style="list-style-type: none"> - During discussions, brings up possible causes of future conflict - Identifies and addresses interpersonal tension/strain - Anticipates that differences in personality or cultural backgrounds may be sources of conflict - Identifies when policies and/or priorities conflict - Recognizes own role in conflict 	<ul style="list-style-type: none"> - Asks questions to understand others' goals, philosophies, etc. [that may become a root source of future tension] early in the training - Crewmember spends an enormous amount of time in front of the viewing port, commander suggests that others be allowed to have equal viewing time 	<ul style="list-style-type: none"> - Recognition of potential sources of conflict [Comprehend] - Recognition of signs of conflict development [Comprehend] - Situations in which conflicts are more likely [Comprehend] - Potential for conflict among organizational, programmatic, mission, crew, and individual goals [Know] -Compromise and mediation tactics for averting conflict [Apply] - Potential for conflicts among people with different cultural backgrounds [Know] 	<ul style="list-style-type: none"> - Importance of team cohesion and mission needs over individual preferences [Value] - Concern for team members needs, preferences, and emotional state [Value] - Willingness to accept the consequences of being the first to acknowledge or discuss conflict [Value] - Willingness to address potential conflicts [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CM2	Prevents disagreements from influencing personal and professional relationships	<ul style="list-style-type: none"> - Treats team members fairly and respectfully regardless of disagreements - Does not allow disagreements to impact joint professional activities or team relationships - Establishes and maintains a rational and mutually respectful atmosphere 	<ul style="list-style-type: none"> - Two crewmembers work jointly on a project, despite disagreeing on the interpretation of scientific results - Does not take a professional disagreement as a personal criticism 	<ul style="list-style-type: none"> - Recognizing emotional and physiological responses to conflict in self and team [Comprehend] - How to maintain objectivity during a disagreement [Apply] - Behaviors that damage relationships during an argument [Comprehend] - Differences between professional disagreement and personal conflict [Comprehend] 	<ul style="list-style-type: none"> - Concern for team members needs, preferences, and emotional state [Value] - Tolerance and willingness to forgive perceived offenses [Respond] - Commitment to preserving relationships within the team [Value] - Importance of team cohesion and mission needs over individual pride [Value]
Conflict resolution	CM3	Reviews causal factors of a conflict with all involved team members	<ul style="list-style-type: none"> - Initiates discussion with all involved in a conflict to share information that will help identify its causes - Reviews causal factors of a conflict with all involved team members in order to resolve it and avoid future occurrences - Defines subject of the conflict and individual goals 	<ul style="list-style-type: none"> - After a conflict, discusses with all team members to brainstorm factors contributing to the conflict 	<ul style="list-style-type: none"> - Compromise and mediation techniques for resolving conflict [Apply] - Facilitated debriefing [Apply] 	<ul style="list-style-type: none"> - Commitment to objectively examine and discuss factors contributing to a conflict situation [Value] - Concern for team members needs, preferences, and emotional state [Value] - Determination to avoid similar conflicts in the future [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CM4	Adapts conflict management strategies to resolve disagreements	<ul style="list-style-type: none"> - Knows conflict management strategies [e.g., competing, accommodating, compromising, collaborating] - Adapts conflict management strategy to situation - Knows own preferred conflict management styles 	<ul style="list-style-type: none"> - Agrees upon ground rules with others before conflicts occur [e.g., when we can't agree, the commander will decide] 	<ul style="list-style-type: none"> - Conflict management strategies [Apply] - Situations in which certain conflict management strategies are more likely to be successful [Apply] - Awareness of own preferred conflict management styles [Apply] - Importance of knowing team members preferred conflict management styles [Comprehend] - Cultural factors that influence the effectiveness of conflict management strategies [Comprehend] 	<ul style="list-style-type: none"> - Commitment to objectively examine and discuss factors contributing to a conflict situation [Value] - Concern for team members needs, preferences, and emotional state [Value] - Determination to avoid similar conflicts in the future [Value] - Appreciation of different conflict management styles [Value]
	CM5	Exchanges views and positions	<ul style="list-style-type: none"> - Explains rationale behind suggestions and recommendations - Attempts viewing from both sides - Explains own position in the conflict 	<ul style="list-style-type: none"> - During a team debrief , explains one's own rationale as related to function within the team - Presents own position objectively and with consideration and respect for opposing viewpoints - Requests others' positions and seeks to understand their viewpoints 	<ul style="list-style-type: none"> - Non-confrontational methods for exchanging perspectives [Apply] - How communication styles and non-verbal behaviors affect the exchange of views [Apply] - Benefits of exchanging views and positions for conflict resolution [Comprehend] 	<ul style="list-style-type: none"> - Commitment to acknowledge and respect other points of view and positions [Value] - Commitment to objectively expressing own point of view and explaining own position [Value] - Concern for team members needs, preferences, and emotional state [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CM6	Seeks resolution	<ul style="list-style-type: none"> - Addresses conflict in a timely way - Ensures identification of a decision or action that is acceptable to all - When people cannot agree, ensures that a plan for resolving the issue is identified - Focuses on most important things - Looks forward not backward - Focuses on solution, not justification 	<ul style="list-style-type: none"> - Commander discusses resolution to conflict on task scheduling with ground - Team member accepts a compromise 	<ul style="list-style-type: none"> - Conflict resolution models and techniques [Apply] - Situations in which certain conflict resolution techniques are more likely to be successful [Apply] 	<ul style="list-style-type: none"> - Concern for team members needs, preferences, and emotional state [Value] - Determination to avoid similar conflicts in the future [Value] - Importance of team cohesion and mission needs over individual wants [Value]
	CM7	Keeps calm in interpersonal conflicts	<ul style="list-style-type: none"> - Establishes atmosphere for open communication and constructive problem resolution 	<ul style="list-style-type: none"> - During a conflict, controls tone and volume of voice to demonstrate respect 	<ul style="list-style-type: none"> - Awareness of own physiological and emotional responses to anxiety/ anger and how to control them [Apply] - Anxiety/ anger diffusion and relaxation tactics [Apply] - How communication styles and non-verbal behaviors affect emotional responses [Apply] - Social, personal, personality, and environmental factors that contribute to anxiety/ anger [Comprehend] 	<ul style="list-style-type: none"> - Concern for team members needs, preferences, and emotional state [Value] - Commitment to maintaining an atmosphere of open communication [Value] - Commitment to preserving relationships [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CM8	Focuses on what is wrong rather than who is wrong	<ul style="list-style-type: none"> - Reminds others that the goal of discussing conflicts is to learn and to improve vs. blame others - Analyzes problems instead of criticizing the team members involved - Accepts that mistakes are made by competent professionals with good intentions 	<ul style="list-style-type: none"> - Reports “the switch was not turned all the way” rather than “Mary didn’t turn the switch correctly” 	<ul style="list-style-type: none"> - Consequences of placing blame [Comprehend] - How to participate in the discussion of a problem without expressing blame, anger, or hostility [Apply] 	<ul style="list-style-type: none"> - Concern for team members needs, preferences, and emotional state [Value] - Commitment to maintaining an atmosphere of open communication [Value] - Commitment to preserving relationships [Value]
	CM9	Mediates between conflicting parties	<ul style="list-style-type: none"> - Identifies when other team members cannot come to agreement on their own and require a mediator/facilitator - Remains objective and neutral when considering each party’s position - Identifies points of disagreement between parties - Asks parties for their positions and proposals to rectify the conflict - Seeks points of agreement - Moderates the mood of the team when one team member’s suggestion is turned down by others 	<ul style="list-style-type: none"> - Mediates a solution between two team members who disagree about task completion 	<ul style="list-style-type: none"> -Compromise and mediation techniques for resolving conflict [Apply] -Conflict management strategies (including conflict resolution techniques) [Apply] 	<ul style="list-style-type: none"> - Concern for team members needs, preferences, and emotional state [Value] - Commitment to maintaining an atmosphere of open communication [Value] - Commitment to preserving relationships within the team [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	CM10	Defines agreement and positive closure	<ul style="list-style-type: none"> - Clearly spells out terms of agreement - Gets agreements on resolution from all involved parties - Encourages positive closure 	<ul style="list-style-type: none"> - After the conflict is concluded, gets all team members to agree on the settlement, and to cheer each other up for successful resolution 	<ul style="list-style-type: none"> - How to spell out the terms of the agreement with all parties involved [Apply] - Elements of a positive closure [Comprehend] - How to foster satisfaction with a resolution [Apply] 	<ul style="list-style-type: none"> - Concern for team members emotional satisfaction [Value] - Commitment to ensure all team members are willing to support the implementation of resolution [Value] - Commitment to preserving relationships within the team [Value]

2.7 SITUATIONAL AWARENESS

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Maintenance of an accurate perception of the situation	SA1	Monitors people, systems and environment	<ul style="list-style-type: none"> - Is alert for changes in the environment - Collects information on status and changes in systems, environment, people 	<ul style="list-style-type: none"> - Every morning monitors system status to determine potential changes - Maintains instrument scan during docking 	<ul style="list-style-type: none"> - Human-system-environment interactions as potential sources of errors [Comprehend] - Importance of knowledge of system components and functionality [Comprehend] - Importance of knowledge of task requirements [Comprehend] - Monitoring techniques [signs/ signals to monitor and frequency of monitoring] [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value] - Willingness to use techniques to monitor people, systems and environment [Value]
	SA2	Monitors self and others for signs of stress, fatigue, complacency, and task saturation	<ul style="list-style-type: none"> - Constantly checks factors that can impair situational awareness - Recognizes when stress and fatigue level increase in order to take action to mitigate them - Is aware of the negative effect of complacency - Monitors the workload of self and others 	<ul style="list-style-type: none"> - During an EVA, notices and communicates that a crewmember is breathing too fast - Senses and voices crewmember irritability - Notices and communicates that a crewmember has missed a step in a procedure 	<ul style="list-style-type: none"> - Relationship between anxiety and performance [Comprehend] - Relationship between fatigue and performance [Comprehend] - Consequences of complacency and task saturation [Comprehend] - Recognition of personal symptoms and team members' signs of stress and fatigue [Comprehend] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value] - Commitment to assessing state of alertness [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SA3	Reduces distractions while performing operational tasks	<ul style="list-style-type: none"> - Prevents external factors from interrupting critical activity - Avoids being distracted by non-critical tasks - Reduces distractions - Actively avoids being distracted by increasing concentration - Does not interrupt crewmembers during critical tasks 	<ul style="list-style-type: none"> - Does not listen to music while performing an operational task [if distracted by music] - Closes curtain to avoid being distracted by external view - Reduces light, volume, goes to quiet area 	<ul style="list-style-type: none"> - General environmental factors that may be distracting [Comprehend] - Awareness of own distracters [Comprehend] - Methods of reducing/eliminating distractions [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value]
	SA4	Maintains awareness of the environment while focusing on a task or problem	<ul style="list-style-type: none"> - Recognizes, even during a failure, that maintaining the big picture is fundamental to assembling the information that will lead to a correct problem resolution - Maintains scan pattern over relevant parameters, while focusing on the task at hand - Avoids tunnel vision, maintains wide range of view 	<ul style="list-style-type: none"> - Maintains an awareness of the arm elbow position when doing an end effector operation 	<ul style="list-style-type: none"> - Consequences of tunneling of attention/over-focusing on one task or problem [Comprehend] - Techniques for maintaining "big picture" of the environment/ situation [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SA5	Maintains the required level of vigilance for low and high workloads	<ul style="list-style-type: none"> - Maintains vigilance during periods of high workload - Maintains vigilance during periods of low workload - Can handle multiple tasks - Maintains attention during routine tasks - Is alert to the possible incurrence of problems, during long periods of low activity 	<ul style="list-style-type: none"> - During joint crew operations, maintains vigilance to details - During periods of low activity, maintains alertness for abnormal noises 	<ul style="list-style-type: none"> - Challenges associated with maintaining vigilance for different workloads [Comprehend] - Techniques for focusing and prolonging attention [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value]
	SA6	Uses the two-person approach to execute critical tasks and procedures	<ul style="list-style-type: none"> - Uses buddy or team approach to reduce errors and increase safety of operations - Is aware of and exploits the increase of SA and effects thereof when working with buddy 	<ul style="list-style-type: none"> - Exploits working with IV and EV crewmembers - During complex robotic operations, the prime robotics specialist relies on a second robotics specialist to control cameras, read out procedures, and assist in monitoring arm statuses and clearances 	<ul style="list-style-type: none"> - Benefits and challenges of two-person approach [Comprehend] - How to apply two-person approach to situation/ task [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value] - Willingness to apply checklists [Value] - Recognition of the importance of redundancy and check lists [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Processing of information	SA7	Analyzes information to determine operational relevance	<ul style="list-style-type: none"> - Is able to organize and filter information relevant to the operational task - Focuses on information which could affect safety and priority tasks - Assesses and communicates [for team awareness] operational relevance of information - Filters information with respect to criticality, urgency, and impact on safety 	<ul style="list-style-type: none"> - Selects, from all information transferred to them, the information required to perform tasks for following day, requests additional information as required 	<ul style="list-style-type: none"> - Procedure for verifying/ checking information and sources [Apply] - Importance of knowledge of system components and functionality [Comprehend] - Importance of knowledge of task requirements [Comprehend] - Importance of knowing how safety and mission critical information may display itself [Comprehend] - Information filtering limitations and techniques [Apply] - Critical thinking techniques [Apply] - Barriers to critical thinking [Comprehend] 	<ul style="list-style-type: none"> - Willingness to engage in critical thought [Value] - Commitment to acknowledging and addressing limitations [Value] - Willingness to involve other team members as resources for critical thinking/ analysis of information [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SA8	Assesses impacts of actions, plans and decisions on others	<ul style="list-style-type: none"> - Realizes that each action has impact on environment, systems and people, and therefore should be assessed in order to understand impacts and anticipate outcomes [people includes crewmembers and ground personnel] 	<ul style="list-style-type: none"> - When crew discusses the timeline and procedure for a task, any crewmember can propose a change in the procedure; and they assess the effect of the change, in order to make a decision 	<ul style="list-style-type: none"> - Consequences of not considering the impact of one's own plans, actions, and decisions on others [Comprehend] - Importance of knowledge of priorities, timelines, mission expectations, and other team members' plans and activities [Comprehend] - Importance of knowledge of task requirements [Comprehend] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value] - Importance of team success/mission success over individual objectives [Value] - Consideration for other team members' tasks, activities, objectives, and plans [Respond]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SA9	Anticipates potential problems	<ul style="list-style-type: none"> - Projects the current situation and analyzes “what if” scenarios - Increases team SA by improving assessment of future relevant information 	<ul style="list-style-type: none"> - Keeps off-nominal procedures at hand - Identifies reasons that may lead to off-nominal situations, and discusses contingency plans 	<ul style="list-style-type: none"> - Importance of knowledge of system components and functionality [Comprehend] - Importance of knowledge of task requirements [Comprehend] - Importance of knowing factors that influence functioning or lead to off-nominals, contingencies, and emergencies [Comprehend] - Importance of considering what contingencies or situations might evolve from the current situation [Comprehend] - Consequences of not considering the impact of one’s own plans, actions, and decisions on others [Comprehend] - Techniques for keeping up to date with emergency response procedures [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value] - Willingness to pre-prepare for off-nominals, contingencies, and possible emergencies [Value] - Acknowledgement that off-nominals, contingencies, and emergencies can occur to anyone at any time [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SA10	Verifies team readiness to meet operational demands	<ul style="list-style-type: none"> - Makes sure team is ready to respond to an event - Informs team members of own readiness for the upcoming tasks 	<ul style="list-style-type: none"> - When a malfunction occurs, checks readiness of team to perform off-nominal procedure 	<ul style="list-style-type: none"> - Importance of knowing operational demands and available resources [Comprehend] - Operational consequences of insufficient team readiness [Comprehend] - Tools for verifying team members are capable and ready to complete a task (including having the right resources, skills, knowledge) [Apply] - How to apply strategic management principles (ex: strengths, weaknesses, opportunities, and threats analysis) to team and situations [Apply] 	<ul style="list-style-type: none"> - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value] - Willingness to adjust priorities, plans and assignments [Value] - Willingness to admit when self or team members are not ready/prepared [Value]
	SA11	Communicates when situations "feel" wrong	<ul style="list-style-type: none"> - Based on professional experience, recognizes that current situation does not fit into mental model or subconsciously identifies that there is a difference, but consciously "feels" something is wrong 	<ul style="list-style-type: none"> - Preparing for diving, looks at buddy and states that something is not right, but does not know what - Performs a check to determine what may be wrong, and finds out that buddy is missing weight belt 	<ul style="list-style-type: none"> - Consequences of not verbalizing concerns [Comprehend] - How and when to verbalize concerns [Apply] - Barriers to verbalizing concerns [Comprehend] - Importance of obtaining acknowledgement that the concern has been heard [Comprehend] 	<ul style="list-style-type: none"> - Willingness to overcome insecurities and barriers to communicate a concern [Value] - Commitment to safety of operations and mission success [Value] - Commitment to health and welfare of self and others [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	SA12	Identifies and resolves discrepancies between conflicting data or information	<ul style="list-style-type: none"> - When different sources of information that should be the same appear different, checks the information from each source - Requests help if not able to identify a reason for a discrepancy - Identifies and resolves discrepancies between actions and anticipated responses 	<ul style="list-style-type: none"> - When information from two gauges related to the same system display contradictory readings, gathers information to understand why 	<ul style="list-style-type: none"> - Consequences of not resolving discrepancies [Comprehend] - Procedure for verifying/checking information and sources [Apply] - Importance of knowledge of system components and functionality [Comprehend] - Importance of knowledge of task requirements [Comprehend] - Importance of knowing what, how, and when information should display itself (ex: what telemetry should look like) [Comprehend] - Critical thinking techniques [Apply] - Barriers to critical thinking [Comprehend] 	<ul style="list-style-type: none"> - Recognize the need to question information [Respond] - Concern for accuracy [Value] - Commitment to persisting until a resolution is obtained [Value]

2.8 DECISION MAKING AND PROBLEM SOLVING

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Problem solving and decision making methods	DM1	Adopts a problem solving method to meet situational demands	<ul style="list-style-type: none"> - Considers various problem solving methods and chooses a method, or combines steps from multiple methods, to solve a problem effectively within an existing situation - Adopts different failure analysis techniques to assess unforeseen malfunctions 	<ul style="list-style-type: none"> - Corrects an unforeseen on-board computer malfunction by brainstorming corrective actions with ground control and applying FOR-DEC - Combines action-oriented and goal-oriented approaches to resolve a scheduling conflict 	<ul style="list-style-type: none"> - Consequences of failing to apply problem solving methods and decision making processes [Comprehend] - Problem solving methods [Apply] - Applicability of different problem solving methods [Comprehend] - Decision making models related to different problem solving styles [Apply] -Critical thinking techniques [Apply] 	<ul style="list-style-type: none"> - Willingness to change or augment preferred problem solving method [Value] - Commitment to questioning own perceptions and experiences [Value] - Recognition of the need not to miss a critical step when under pressure [Respond]
Preparation of decision	DM2	Involves team members in the process as applicable	<ul style="list-style-type: none"> - Involves team members with relevant experience - When decision affects crewmembers and time allows, seeks their opinion and/or consensus 	<ul style="list-style-type: none"> - A decision shall be taken to shut down some equipment to reduce power consumption. The commander consults with ground EPS specialist - A PR will be organized on a weekend, the crew is asked to provide preferences with respect to the time for the event 	<ul style="list-style-type: none"> - Benefits of involving team members in problem solving and decision making [Comprehend] - How and when to involve team members [Comprehend] 	<ul style="list-style-type: none"> - Recognition that accepting inputs from others may change the outcomes of the decision [Respond]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
	DM3	Assembles Facts	<ul style="list-style-type: none"> - Collects all available relevant information - Asks and searches for missing relevant information 	<ul style="list-style-type: none"> - According to instrument readings, an antenna has failed to retract. Crew confirms status reading with ground and other means, and collects information on the impact of the problem on other planned operations - A new system needs to be installed in the lab. The flight engineer consults the procedures, knowledgeable crew, and ground members to ensure a smooth installation 	<ul style="list-style-type: none"> - Importance of knowing how and where to obtain relevant information [Comprehend] - Importance of assembling all relevant facts [Comprehend] 	<ul style="list-style-type: none"> - Willingness to persist in seeking relevant information [Value] - Commitment to checking the accuracy and completeness of information [Value] - Commitment to questioning own perceptions and experiences [Value] - Recognition of the need not to miss a critical step when under pressure [Respond]
	DM4	Considers different Options	<ul style="list-style-type: none"> - Lists plausible options - Uses past experience to determine options 	<ul style="list-style-type: none"> - An antenna has failed to retract. Crew and ground discuss whether the problem can only be solved during an EVA, or if the retraction procedure could be retried, a software error corrected, etc. If an EVA is the only solution, can the task be done during a planned EVA or is a special one necessary; timing, personnel allocation, and planning options need to be considered - A cooling hose is not working properly in one of the spacesuits prior to an EVA. The astronaut reviews several options for repairing, replacing, or 	<ul style="list-style-type: none"> - Brainstorming techniques [Apply] - Importance of questioning own perceptions and experiences [Comprehend] 	<ul style="list-style-type: none"> - Commitment to questioning own perceptions and experiences [Value] - Recognition of the need not to miss a critical step when under pressure [Respond]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
				substituting the hose. The astronaut knows from a similar experience with a garden hose at home that one option is to remove the spacesuit and reposition the cooling hose to see if that improves the flow		
	DM5	Evaluates Risks and benefits	<ul style="list-style-type: none"> - Performs trade-offs - Estimates merits of options - Identifies pros and cons - Uses past experience for estimates 	<ul style="list-style-type: none"> - An antenna outside the station failed to retract. The crew and ground evaluate the pros and cons and estimate the likely success of manipulating the antenna into place during the next scheduled EVA - An unexpected task requires more time than available according to the OSTPV, the astronaut helps operation planners identify periods in the schedule where time might be regained and at what costs to planned activities 	<ul style="list-style-type: none"> - Risk and benefit analysis methods [Apply] 	<ul style="list-style-type: none"> - Commitment to questioning own perceptions and experiences [Value] - Recognition of the need not to miss a critical step when under pressure [Respond]
	DM6	Decides on an option	<ul style="list-style-type: none"> - Decides based on result of evaluation 	<ul style="list-style-type: none"> - The astronaut reviews the OSTPV and decides to start 2.5 hours of required exercise for the day 15 minutes ahead of schedule in order to gain 15 more minutes to complete atmospheric data logs for an experiment 	<ul style="list-style-type: none"> - Importance of committing to an option and communicating the decision [Comprehend] 	<ul style="list-style-type: none"> - Recognition of the need not to miss a critical step when under pressure [Respond] - Willingness to own the decision [Value]

Competency	REF	Behavioral Marker	Details	Examples	Knowledge [Thinking]	Attitudes [Feeling]
Execution of decision	DM7	Executes decision	- Puts decision into action	- The crew and ground have decided to leverage an extended antenna closed during the next EVA. Based on this decision, the astronauts prepare the tools, evaluate their routes to the antenna, and make preparations to amend their EVA	- Importance of following through once a decision is made [Comprehend] - Obstacles to implementing a decision [Comprehend] - How to get team members to support the decision [Apply]	- Recognition of the need not to miss a critical step when under pressure [Respond] - Willingness to ensure the implementation of the decision [Value]
	DM8	Checks results of decision, and if necessary reapplies process	- Once a decision is executed, checks outcome and compares with expectations (risk/benefit estimate) - In case of discrepancy reapplies process in full (does not bypass any step)	- Astronauts attempt to leverage an extended antenna closed during an EVA, but the antenna is frozen in place and will not close as anticipated. They restart the problem-solving process with ground by collecting visual information to help determine if the antenna is likely interfere with future operations, and what could be holding the antenna in place	- Consequences of failure to check results of a decision [Know] - How to evaluate and re-apply process in given situation [Apply]	- Commitment to verify the outcome [Value] - Willingness to question the decision and reapply a decision making process if needed [Value]

3.0 HBP TRAINING

The behavioral markers listed in section 2.0 form the basis for the HBP training flow described in this section and depicted in Figure 3.1. The flow begins with HBP Basic training, which is then reinforced through HBP Team training and during technical training.

The HBP training outlined herein is considered mandatory by the international partners. However, it does not exclude the International Partners providing additional training to their astronauts/cosmonauts.

Given the limited time available for crew training once assigned to an ISS mission, the majority of HBP training will be formally conducted during the pre-assignment phase.

3.1 HBP BASIC TRAINING

It is recommended that each International Partner consider using a subset of the behavioral markers (Identified in Appendix A), during the selection of astronaut/cosmonaut candidates, wherever possible. In this way, training specialists will have a common understanding of the minimum competency levels of the astronaut/cosmonaut candidates entering the program.

As part of Astronaut/Cosmonaut Basic training and in accordance with “Basic Training Requirements for the International Space Station Astronaut/Cosmonaut Candidate” (SSP 50325), all of the behavioral markers will be trained. This training will be provided by each International Partner training agency in order to certify its own astronauts/cosmonauts.

HBP Basic Training will serve as a formal introduction to the methods, strategies, and techniques associated with the eight competency categories – Self-Care Self-Management, Communication, Cross Cultural, Teamwork and Group Living, Leadership, Conflict Management, Situational Awareness, and Decision Making and Problem Solving.

HBP Basic Training will not be considered completed until the HBP Basic Training objectives are met. If objectives are not met at the end of the planned HBP Basic Training flow, additional training/coaching will be provided.

3.2 HBP TEAM TRAINING

Following Basic Training certification, behavioral markers will be further reinforced through HBP Team Training. Astronauts/Cosmonauts will be trained as a team to apply the HBP methods, strategies, and techniques within a variety of scenarios (i.e., under nominal and challenging situations, within a team, during realistic or analog team activities/tasks), in order to further improve their own use of behavioral markers.

International Partners will work together to define the curriculum, using existing training which meets HBP requirements as outlined in this document. All HBP Team Training

courses will be evaluated in accordance with a multilaterally agreed HBP course assessment plan in order to recommend an international HBP training curriculum.

HBP Team Training will not be considered completed until the HBP Team Training objectives are met. If HBP Team Training objectives (as outlined in section 4.0) are not met at the end of the planned HBP Team Training flow, as determined for astronauts/cosmonauts by their own Agency, additional training/coaching will be provided. Once HBP Team Training is completed, recommendations will be provided by each Agency to MCOP regarding readiness for assignment of its own astronauts/cosmonauts.

3.3 HBP REINFORCEMENT DURING TECHNICAL TRAINING

Some HBP behavioral markers may be suited for reinforcement during technical training. These behavioral markers are identified in Appendix A.

Note that technical trainers will not be required to modify their training to account for HBP behavioral markers, but rather will be asked to review their training programs to determine if there are existing opportunities to reinforce behavioral markers which naturally occur within their training.

For example, robotics training currently includes situational awareness behavioral markers, such as using a two-person approach to execute critical tasks (SA6), as well as some communication behavioral markers when communicating with instructors who are playing the roles of the second robotics specialist or MCC-H. Robotics instructors provide situational awareness guidelines to learners and monitor their performance during simulations.

3.4 HBP MISSION- AND CREW-SPECIFIC TRAINING

It is strongly recommended that the entire six-person crew be trained together in at least one event under observation by an HBP specialist, prior to launch. These events could be HBP-specific or technical in nature, provided that all six crewmembers are present.

3.5 GUIDELINES FOR HBP ASSESSMENT

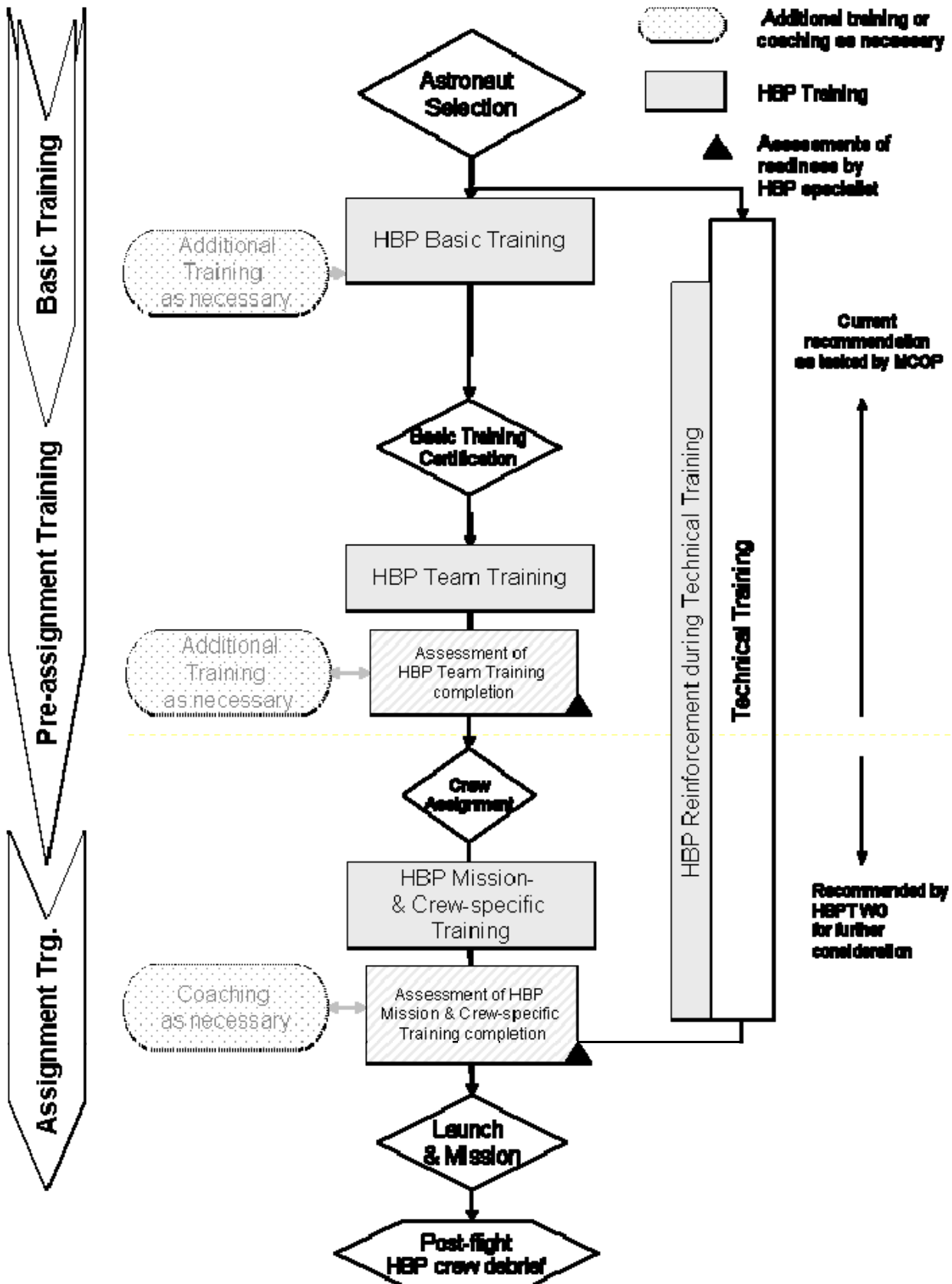
HBP training is designed to provide formative feedback to participants, and opportunities for practicing HBP skills. Assessment of learning progression conducted via HBP observations performed by HBP training specialists and fellow participants for formative feedback during the conduct of training will not be shared outside the participants group.

Upon completion of HBP Team Training, formal assessments will be conducted, and recommendations will be provided by each Agency for their own astronauts/cosmonauts to MCOP regarding readiness for assignment.

Formal HBP assessment events, as well as any other HBP assessment events occurring during HBP or technical training, will observe the following guidelines, as per SHBP “Recommendations to ISS MCOP Regarding ISS BHP Training” – September 2004 – section 6.0:

- Assessment will be announced to participants and will be conducted in accordance with established standards
- Participants will be made aware of criteria and methods of assessment prior to the start of training, and will be informed as to who has access to assessment results and how results will be used
- Participants will be debriefed at the end of each assessment
- Assessments will be performed by HBP specialist representatives designated by the Agency of the crewmembers being assessed

Figure 3.1: HBP Training Flow



4.0 TRAINING OBJECTIVES FOR HBP SPECIFIC TRAINING

HBP Specific Training in this section refers to training that occurs prior to Crew Assignment.

During HBP training, participants are asked to demonstrate mastery of HBP competencies through use of behavioral markers in selected group activities and exercises. The behavioral markers used depend on the opportunities provided by the exercises and the specific group of trainees participating in the exercise. Behavioral markers are achieved through the use of combinations of methods, strategies and techniques, as indicated in the table in section 2.0.

4.1 HBP BASIC TRAINING OBJECTIVES

HBP Basic Training refers to training which occurs soon after initial selection, and prior to HBP Team Training.

Overall Performance Objective (PO)

Learning Level (Bloom's Taxonomy)	Performance Statement	Conditions	Standards
Applying	Applies HBP methods, strategies and techniques	Group activities/exercises; facilitator guidance/assistance	Actively participates in exercises and engages in discussions Provides examples from own experience Describes how could transfer methods to own working and living environment Verbalizes reflections on own performance during debriefings Provides constructive feedback to other participants

Knowledge Enabling Objective (EO)

Learning Level (Bloom's Taxonomy)	Performance Statement	Conditions	Standards
Comprehending	Identifies examples of positive and negative behaviors	Given case studies; role-plays, group activities/exercises, facilitator guidance/assistance	At least x instances (numbers are situationally dependent)
Comprehending	Describes positive and negative consequences of HBP behavioral markers	Given case studies; role-plays, group activities/exercises; facilitator guidance/assistance	At least x consequences for at least y behavioral markers (numbers are situationally dependent)
Comprehending	Describes methods, strategies and techniques for improving application of behavioral markers	Discussion opportunities; facilitator guidance/assistance	At least x HBP methods, strategies and techniques (numbers are situationally dependent)

Attitude Enabling Objective (EO)

Learning Level (Bloom's Taxonomy)	Performance Statement	Conditions	Standards
Responding	Engages in discussions and exercises/activities	During classroom instruction, training exercise/activities, briefs/debriefs, and facilitator guidance/assistance	Listening actively; participating in exercises and discussions; asking and responding to questions; and attempting to apply some HBP behavioral markers during group tasks
Responding	Supports safety, mission success, crew health and team cohesion	During classroom instruction, training exercise/activities, briefs/debriefs, and facilitator guidance/assistance	Listening actively; participating in exercises and discussions; asking and responding to questions
Responding	Supports individual/team learning and development	During classroom instruction, training exercise/activities, briefs/debriefs, and facilitator guidance/assistance	Listening actively; participating in exercises and discussions; asking and responding to questions
Responding	Demonstrates empathy and respect	During classroom instruction, training exercise/activities, briefs/debriefs, and facilitator guidance/assistance	Listening actively; participating in exercises and discussions; asking and responding to questions

4.2 HBP TEAM TRAINING OBJECTIVES

HBP Team Training refers to training which occurs after HBP Basic Training, and prior to crew assignment.

Overall Performance Objective (PO)

Learning Level (Bloom's Taxonomy)	Performance Statement	Conditions	Standards
Applying Or Analyzing	Demonstrates application of HBP methods, strategies and techniques for improving own use of HBP behavioral markers	<i>HBP specific:</i> Under nominal and challenging situations; within a team; during realistic or analogue team activities/tasks <i>Technical:</i> During technical training	Uses opportunity for feedback and debriefing after completion of every major task, seeks to consciously apply HBP techniques

Knowledge Enabling Objective (EO)

Learning Level (Bloom's Taxonomy)	Performance Statement	Conditions	Standards
Applying	Describes own use of HBP behavioral markers, impact and suggested improvements	<i>HBP specific:</i> Under nominal and challenging situations; within a team; during realistic or analogue team activities/tasks <i>Technical:</i> During technical training <i>Both:</i> During debriefing, given feedback (with facilitator guidance/ assistance)	Other participants and / or instructors concur with most of the individual's observations regarding use of HBP behavioral markers; individual states how they intend to apply HBP behavioral marker in their own environment

Attitude Enabling Objective (EO)

Learning Level (Bloom's Taxonomy)	Performance Statement	Conditions	Standards
Valuing	Applies HBP behavioral markers and techniques	<i>HBP specific:</i> Under nominal and challenging situations; within a team; during realistic or analogue team activities/tasks <i>Technical:</i> During technical training	Consistently using HBP behavioral markers and techniques; evaluating own performance against HBP behavioral markers; and incorporating feedback from team
Valuing	Promotes safety, mission success, crew health and team cohesion	<i>HBP specific:</i> Under nominal and challenging situations; within a team; during realistic or analogue team activities/tasks <i>Technical:</i> During technical training	Consistently using HBP behavioral markers and techniques
Valuing	Promotes individual/team learning and development	<i>HBP specific:</i> Under nominal and challenging situations; within a team; during realistic or analogue team activities/tasks <i>Technical:</i> During technical training	Consistently using HBP behavioral markers and techniques; evaluating own performance against HBP behavioral markers; and incorporating feedback from team Consistently participating in debriefing and providing constructive feedback Sharing perspectives and experiences
Valuing	Promotes empathy and respect	<i>HBP specific:</i> Under nominal and challenging situations; within a team; during realistic or analogue team activities/tasks <i>Technical:</i> During technical training	Inviting participation and inputs from others Listening actively Sharing perspectives and experiences

5.0 HBP COMPETENCIES IN TECHNICAL TRAINING

5.1 GUIDELINES/RECOMMENDATIONS

- Technical training should not be redesigned to specifically address HBP objectives; rather, some HBP objectives can be met through existing technical training
- Technical trainers may consult HBP specialists/ HBP training specialists to review existing training and identify opportunities for HBP behavioral marker reinforcement
- Conditions/Standards should be reviewed to ensure that HBP behavioral markers are integrated where appropriate
- Provision should be made for technical trainers to receive training in:
 - HBP competency model, goals, and methods
 - Development of tools to rate HBP behavioral markers
 - HBP observational techniques
 - Facilitation techniques for debriefing behaviors individually and within groups

5.2 SUGGESTED STEPS

1. Become familiar with the “Volume II, Human Behavior and Performance Competency Model Guide” (Schmidt 2), specifically Appendix A
2. Analyze technical training objectives and content for HBP reinforcement opportunities
3. Review existing technical training conditions/standards and evaluation methods to identify missing HBP criteria
4. Create specific HBP conditions/standards and update evaluation tools, if necessary, to ensure HBP behavioral markers are included
5. Include HBP-specific observations during technical debriefings
6. Recommend additional coaching by HBP specialists/training specialist if deemed helpful

APPENDIX A RECOMMENDATION FOR REINFORCEMENT DURING TECHNICAL TRAINING AND SELECTION

In the following table, the Behavioral Markers that should be reinforced during technical as well as HBP training are identified.

'T' indicates that reinforcement can occur both during technical and during specific HBP training.

'H' indicates that reinforcement shall occur during HBP specific training.

Additionally, behavioral markers suggested for consideration during selection are identified as recommended by the MMOP SHBPWG.

Competency	REF	Behavioral Marker	Reinforcement	Selection
Self-care Self Management				
Refine accuracy of self image	SCSM1	Identifies personal tendencies and their influence on own behavior.	H	Y
	SCSM2	Identifies factors for personal successes or failures	H	Y
	SCSM3	Seeks formal and informal feedback to understand impact of own behavior on others	H	Y
	SCSM4	Assesses own skills knowledge and abilities against task requirements	T	N
Manage stress	SCSM5	Identifies symptoms and causes of personal stress	H	Y
	SCSM6	Takes action to prevent and mitigate stress, negative mood or low morale	H	Y
	SCSM7	Uses calm and flexible approach in dealing with unfamiliar situations	T	Y
Care for oneself	SCSM8	Uses mistakes as learning opportunities	T	N
	SCSM9	Maintains social relationships	H	Y
	SCSM10	Maintains personal goals for satisfaction and motivation and to maximize performance	H	N
	SCSM11	Maintains balance of work, personal time and rest	T	Y
Maintain efficiency	SCSM12	Sets challenging and attainable goals	T	Y
	SCSM13	Uses time efficiently	T	Y
	SCSM14	Keeps items organized	T	N
Communication				
Optimize communication	COM1	Communicates information clearly and concisely	T	Y
	COM2	Shares information	T	N
	COM3	Communicates intentions before taking action	T	N
	COM4	Communicates task status and completion	T	N
	COM5	Provides constructive feedback	H	N
	COM6	Adjusts time and/or style of	H	N

		communication to fit the situation		
	COM7	Communicates concerns; persists until acknowledged	H	N
	COM8	Establishes atmosphere for open and constructive communication	H	N
	COM9	Briefs and debriefs behavioral and technical issues with team members	H	N
Ensure Understanding	COM10	Listens "actively"	T	N
	COM11	Addresses barriers to communication	H	N
	COM12	Seeks answers in proactive manner	T	N
	COM13	Verifies information	T	N
	COM14	Acknowledges confusion or misunderstanding	T	N
	COM15	Resolves discrepancies, confusions and misunderstandings	T	N
Cross Cultural Skills				
Demonstrate respect towards other cultures [national, organizational, professional]	CC1	Demonstrates respect and appreciation for team members' culture[s] and viewpoints	H	Y
	CC2	Respects differences in gender role expectations, behaviors, and attitudes	H	Y
Understand culture and cultural differences [national, organizational and professional]	CC3	Uses understanding of cultural factors and circumstances to interpret team members' behaviors	H	N
	CC4	Acknowledges the impact of cultural dominance on crew interaction	H	N
	CC5	Mitigates the impact of cultural stereotypes and prejudices on group interaction	H	N
Build and maintain social and working relationships	CC6	Demonstrates tolerance of cultural differences and ambiguities	H	N
	CC7	Develops strategies to clarify ambiguities created by own behavior	H	N
Intercultural communication and language skills	CC8	Communicates respectfully with people from different cultural and linguistic backgrounds	T	N
	CC9	Makes an effort to learn and use the languages of colleagues	T	N
Commitment to multicultural work	CC10	Puts a common "space faring culture" ahead of one's own national organizational and professional cultures	T	N
Teamwork and Group Living				
Active team participation	TW1	Acts cooperatively rather than competitively	T	Y
	TW2	Takes responsibility for own actions and mistakes	T	Y
	TW3	Puts common goals above individual needs	T	Y
	TW4	Works with teammates to ensure safety and efficiency	T	N
	TW5	Respects team member's roles, responsibilities, and task allocation	T	Y

Interpersonal relationships	TW6	Demonstrates patience, respect and appreciation for crewmembers	T	Y
	TW7	Provides emotional support to crewmembers	T	Y
	TW8	Encourages participation in team activities	T	N
	TW9	Develops positive relationships with team members	T	Y
Group living	TW10	Adapts living and working habits to improve team cohesion	H	N
	TW11	Volunteers for routine and unpleasant tasks	T	N
	TW12	Offers and provides assistance if accepted	T	N
	TW13	Balances own needs with those of crewmembers	H	N
	TW14	Shares attention and credit for achievements with teammates	T	N
Leadership				
Execution of designated leader's authority	LD1	Accepts leadership responsibilities	H	Y
	LD2	Assigns tasks according to capabilities and individual preferences	H	N
	LD3	Assigns tasks with clearly defined goals	H	N
	LD4	Adapts leadership styles to situation	H	N
	LD5	Responds to information, suggestions and concerns of team members	H	N
	LD6	Maintains team cohesion in adverse and uncertain circumstances	H	N
Mentoring skills	LD7	Provides direction, information, feedback and encouragement and coaching as needed	H	N
	LD8	Leads by example	H	Y
Followership	LD9	Supports leader	H	Y
	LD10	Reacts promptly to situations requiring immediate response	T	Y
Workload Management	LD11	Plans and prioritizes tasks	T	N
	LD12	Adapts plans according to progress and changing conditions	T	N
	LD13	Ensures team members have the appropriate tools and authorization to complete tasks	T	N
Conflict Management				
Conflict prevention	CM1	Addresses potential sources for conflict	H	Y
	CM2	Prevents disagreements from influencing personal and professional relationships	T	N
Conflict resolution	CM3	Reviews causal factors of a conflict with all involved team members	H	N
	CM4	Adapts conflict management strategies to resolve disagreements	H	Y
	CM5	Exchanges views and positions	H	Y
	CM6	Seeks resolution	H	Y
	CM7	Keeps calm in interpersonal conflicts	T	Y
	CM8	Focuses on what is wrong rather than	H	N

		who is wrong		
	CM9	Mediates between conflicting parties	H	N
	CM10	Defines agreement and positive closure	H	Y
Situational Awareness				
Maintenance of an accurate perception of the situation	SA1	Monitors people, systems and environment	T	Y
	SA2	Monitors self and others for signs of stress, fatigue, complacency, and task saturation	H	Y
	SA3	Reduces distractions while performing operational tasks	T	N
	SA4	Maintains awareness of the environment while focusing on a task or problem	T	Y
	SA5	Maintains the required level of vigilance for low and high workloads	T	Y
	SA6	Uses the two-person approach to execute critical tasks and procedures	T	N
Processing of information	SA7	Analyzes information to determine operational relevance	T	N
	SA8	Assesses impacts of actions, plans and decisions on others	T	Y
	SA9	Anticipates potential problems	T	Y
	SA10	Verifies team readiness to meet operational demands	T	N
	SA11	Communicates when situations "feel" wrong	H	Y
	SA12	Identifies and resolves discrepancies between conflicting data or information	T	Y
Decision Making and Problem Solving				
Problem solving and decision making methods	DM1	Adopts a problem solving method to meet situational demands	H	
Preparation of decision	DM2	Involves team members in the process as applicable	H	Y
	DM3	Assembles F acts	T	Y
	DM4	Considers different O ptions	T	Y
	DM5	Evaluates R isks and benefits	T	Y
	DM6	D ecides on an option	T	Y
Execution of decision	DM7	E xecutes decision	T	Y
	DM8	C hecks results of decision, and if necessary reapplies process	T	Y

APPENDIX B ACRONYMS USED IN THIS DOCUMENT

CC	Cross-Cultural
CM	Conflict Management
COG	Cognitive Skills
COM	Communication
CSA	Canadian Space Agency
DACUM	Developing A CurriculUM
DM	Decision Making
EPS	Electrical Power System
ESA	European Space Agency
EV	Extravehicular
EVA	Extravehicular Activity
FD	Flight Director
FE	Flight Engineer
FOR-DEC	Facts, Options, Risk and benefit – Decision, Execution
FSA	Federal Space Agency
GCTC	Gagarin Cosmonaut Training Center
HBP	Human Behavior and Performance
HBPT WG	Human Behavior and Performance Training Working Group
ISS	International Space Station
ITCB	International Training and Control Board
IV	Intravehicular
JAXA	Japan Aerospace Exploration Agency
LD	Leadership
MCC-H	Mission Control Center - Houston
MCC-M	Mission Control Center - Moscow
MCOP	Multilateral Crew Operations Panel
MMOP	Multilateral Medical Operations Panel
MMT	Mission Management Team
NASA	National Aeronautics and Space Administration
OBT	On Board Training
ODF	Operations Data File
OSTPV	Onboard Short Term Plan Viewer
PR	Public Relations
SA	Situational Awareness
SCSM	Self-care Self-Management
SHBP WG	Spaceflight Human Behavior and Performance Working Group
TW	Team Work

**APPENDIX C
GLOSSARY**

Active Listening	Giving undivided attention to a speaker, using verbal and nonverbal techniques to ensure an accurate understanding of the speaker's message.
Assumption	Something taken for granted or accepted as true without proof; a supposition.
Attitude	A complex mental state involving values, beliefs, and feelings, which predisposes an individual to act in a certain way.
Barriers to Communication	Anything that prevents information, thoughts, messages, and/or ideas from exchanging among people. These obstacles can be environmental (e.g., background noise, danger, etc.), language differences, lack of active listening, and other factors.
Behavioral Marker	Observable, non-technical behaviors that contribute to performance within a work environment. Usually structured into a set of categories that contain sub-components, called competencies.
Category	A group of competencies.
Coaching	Improving another person's performance through technical direction and motivation.
Communal Task	A task that benefits the entire group and may be completed by any member who is able and willing.
Competency	A set of behavioral markers and the ability to apply them to new situations and environments within the context of human spaceflight.
Complacency	A feeling of satisfaction with the status quo; generally associated with a lack of diligence and lack of motivation to take action.
Constructive Feedback	Information about the result of an action or process that points out strengths and weaknesses, and suggests improvements in a helpful and tactful manner.

Countermeasures	Actions taken to alleviate or eliminate a potential problem.
Course	Small group of training activities; synonymous with Training Event and Training Element.
Culture	Behavioral patterns, expectations, and beliefs (e.g., religious, political) that are characteristic of a nation, organization, profession, or individual group.
Crewmember	Onboard crew
DACUM	Developing A CurricuLUM (DACUM) is a process used to determine the training requirements and lesson flow for a given job. The process involves an analysis of duties, tasks, skills, knowledge, and attitudes required for effective job performance.
Designated Authority	The power to enforce policies, to make decisions, to command, or to judge.
Empathy	Identification with and understanding of another's situation, feelings, and motives. Empathy goes beyond an intellectual understanding and includes emotional components (i.e., the ability to place self in another person's circumstance and truly understand what being in their situation feels like even though they may not agree or feel the same).
Followership	The act or condition of following a leader.
FOR-DEC Method	An acronym for a decision-making process containing the following steps: 1 – Assembles F acts; 2 – Considers different O ptions; 3 – Evaluates R isks and benefits; 4 – D ecides on an option; 5 – E xecutes decision; 6 – C hecks results of decision.
Gender Role Expectation	A term representing a set of behavioral expectations that accompany a given gender status in a social group or system.
Human Behavior and Performance	Non-technical factors and issues that impact individual's ability to perform a variety of tasks effectively. They include both interpersonal (e.g., teamwork, communication) and intrapersonal factors (e.g., motivation, stress).
Human Behavior	Professionals with expertise in the field of human behavior and

and Performance Specialist	performance; e.g., psychologists, psychiatrists, anthropologists, operational psychology personnel, etc.
Intercultural Communication	How people from different cultural backgrounds communicate.
Interpersonal	Factors impacting interactions or relations between persons.
Intrapersonal	Thought processes and emotions occurring within a person.
Leadership	The act of influencing and directing others to accomplish an objective.
Lesson	A single continuous session of formal instruction which may have theoretical and/or practical content
Operational Relevance	Ideas or actions directly applicable to a mission task; practical rather than theoretical in nature.
Self-Care	Taking actions necessary to maintain one's psychological and physical well-being, which is critical for effective performance, especially under difficult or stressful circumstances.
Self-Image	The way in which individuals see themselves. It includes details that are observable and verifiable by others (height, weight, hair color, etc.). It also includes characteristics about the person (e.g., level of skill, degree of insight) that may or may not be consistent with the way that others view them.
Social Norms	A pattern of behavior expected and considered "normal" within a particular society in a given situation.
Space Faring Culture	Behavioral patterns, beliefs, values, and a common purpose shared by people involved in space exploration.
Stereotype	Generalities or judgments about groups applied to a specific person that disregards characteristics of that individual. They may create false assumptions about that individual that impact thoughts, behavior, emotions, and expectations.
Stress	A set of conditions that lead to emotional, physiological, and psychological reactions. Excessive stress often has negative

	physiological and psychological effects.
Task Saturation	When a person is overloaded by a task or set of tasks to the point that the person cannot complete the task. Under these circumstances, the person may ignore important external stimuli and make mistakes.
Team Cohesion	The extent to which a group works harmoniously.
Team member	Crewmember or ground personnel
Training Program	A set of training courses and lessons.
Training Specialist	Professional with expertise in training design, development, and/or delivery; e.g., instructional designers, curriculum developers, educational technologists, instructors/facilitators, etc.
Two/Multiple-Person Approach	Using one or more additional persons for critical tasks that can be performed by one person. The second person verifies that the task is performed correctly. This approach reduces the chance that human error will occur.
Vigilance	To be continuously ready to act; staying watchful and alert.