

Seminario Internacional de Capacitación Basada en la Competencia para ATCOs y Personal ATSEP

Decimoctava Reunión de Directores de Centros de Instrucción de Aviación Civil de la Región Sudamericana de la OACI (CIAC/18)
(Lima, Perú, del 1º al 5 de abril de 2019)

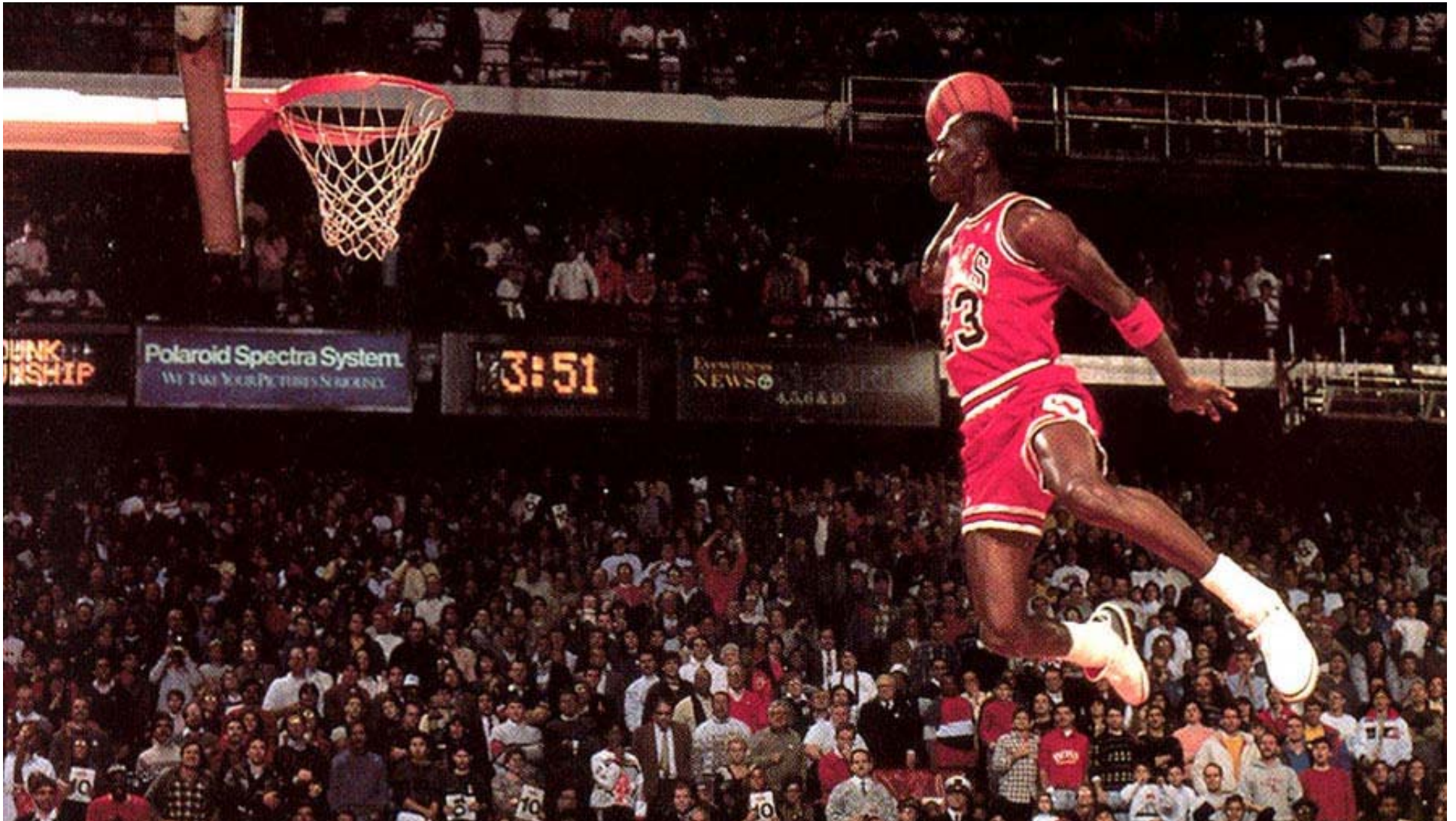


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**Módulo 4:El Manual de Instrucción:
Documento OACI 10057**

Propósito del Seminario



Identificar los conceptos y criterios de implementación de la capacitación basada en la competencia para Controladores de Tránsito Aéreo (ATCOs) y Personal ATSEP (Air Traffic Safety Electronic Personnel) y compartir experiencias para la mejora continua de la instrucción aeronáutica en la Región Sudamericana de la OACI.

Purpose of Training Manual 10057

- This manual provides guidance to ANSPs and training organizations on the development of ATSEP Competency Based Training and Assessment Programs



New Manual Structure

- Chapter 1 Introduction (Scope, Phases, Paths)
- Chapter 2 Development of CBT and Assessment Program for ATSEP
- Chapter 3 Initial Training Phase
- Chapter 4 Unit Training Phase
- Chapter 5 Continuation Training
- Chapter 6 Developmental Training



Appendix

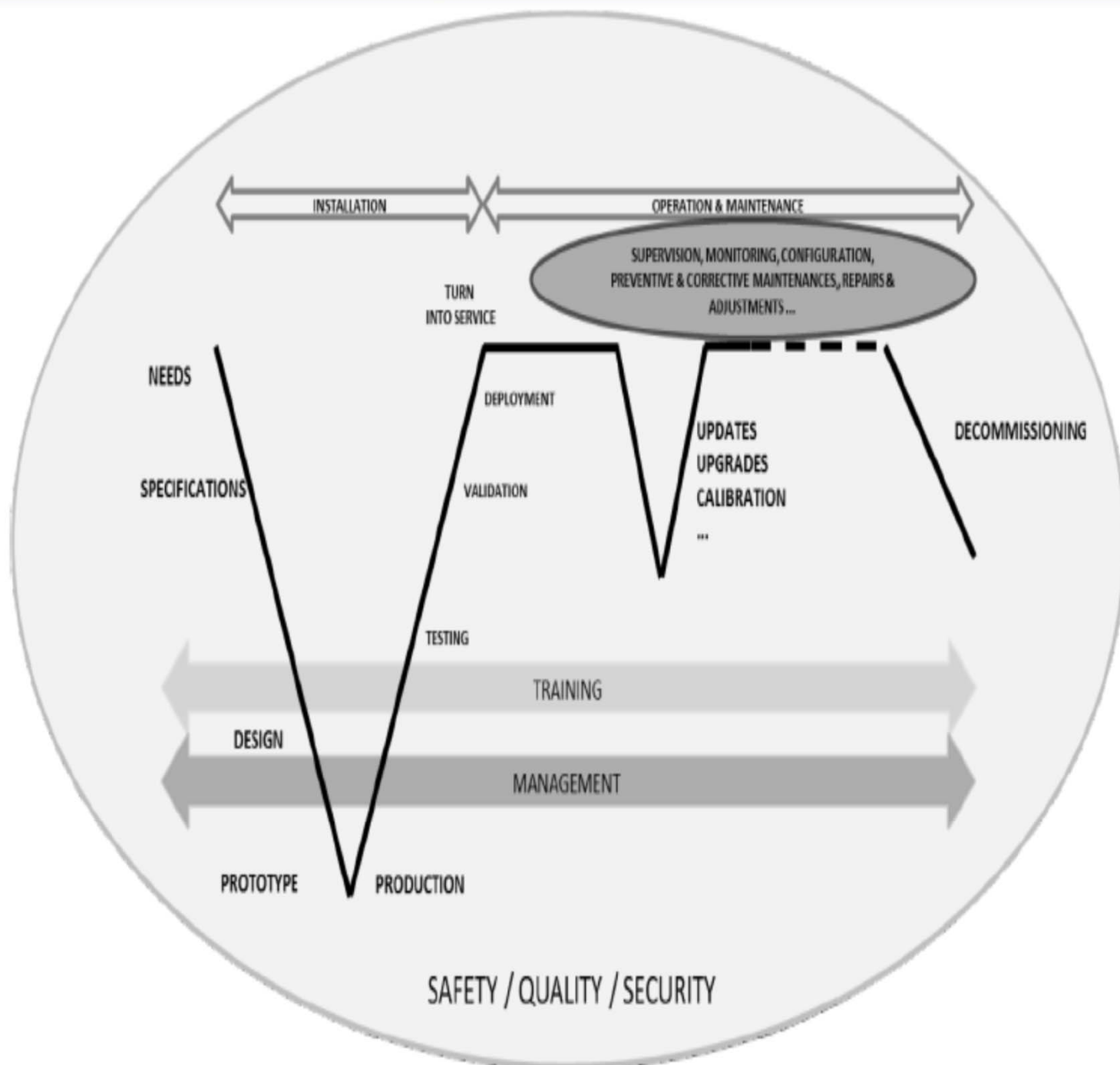
- Appendix A Two Examples of Developing CBT
- Appendix B Objectives for Initial Training
- Appendix C Training Objectives Taxonomy
- Appendix D Examples for Development Training



ATSEP Scope

- Wide variety of Systems/Equipment
- Different levels, from technician to high level engineering
- Requires a wide range of competencies and expertise





INSTALLATION

OPERATION & MAINTENANCE

TURN INTO SERVICE

SUPERVISION, MONITORING, CONFIGURATION,
PREVENTIVE & CORRECTIVE MAINTENANCES, REPAIRS &
ADJUSTMENTS ...

NEEDS

SPECIFICATIONS

DEPLOYMENT

VALIDATION

UPDATES
UPGRADES
CALIBRATION
...

DECOMMISSIONING

TESTING

TRAINING

DESIGN

MANAGEMENT

PROTOTYPE

PRODUCTION

SAFETY / QUALITY / SECURITY

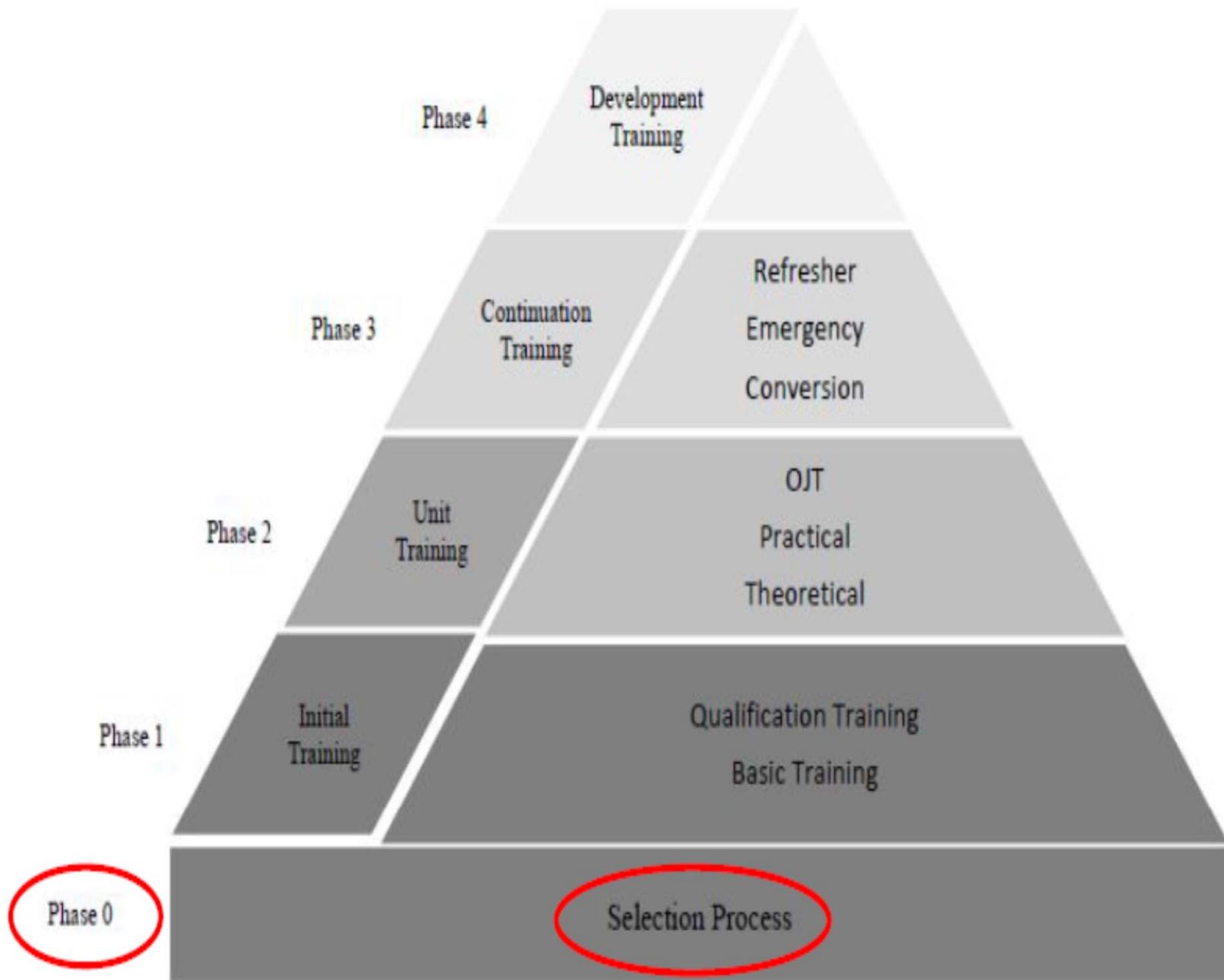
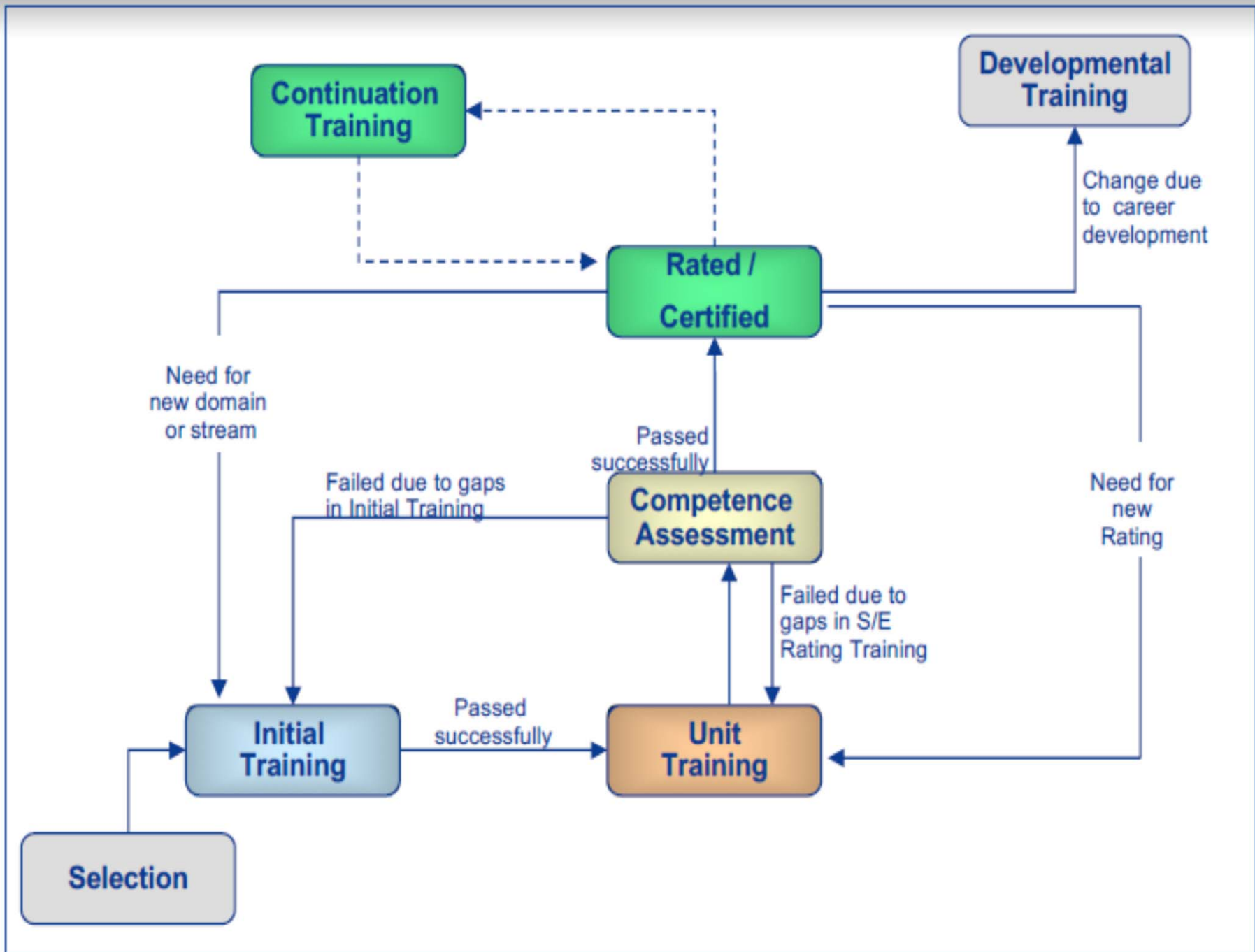
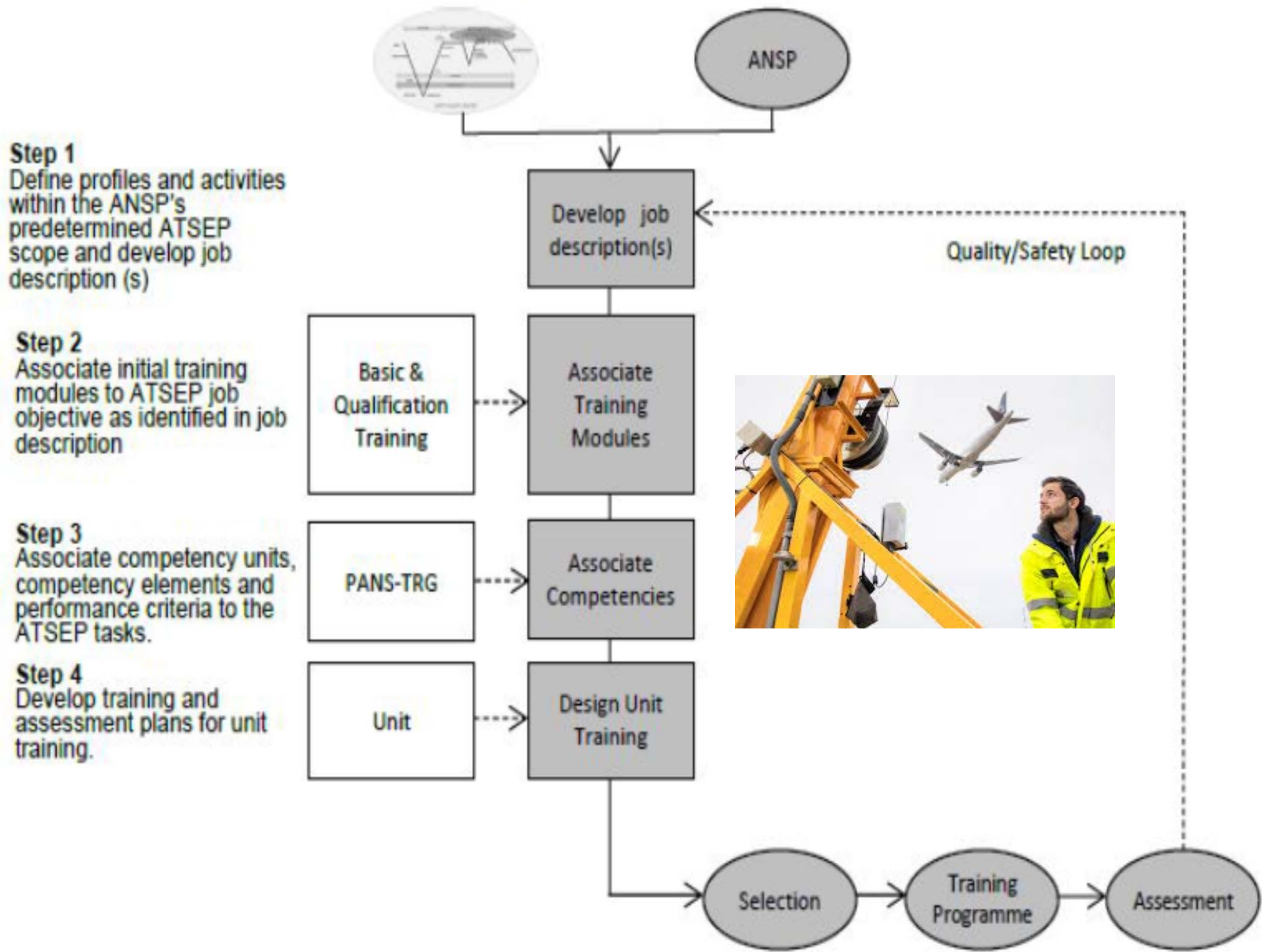


Figure 1-2. ATSEP training phases



Developing a Competency Based Training and Assessment Program for ATSEP





Training Plan

- Document used for Structuring, Developing, and Delivering Training



Training Plan

- Composition and Structure of Training
- Syllabus
- Modules
- Schedule



Assessment

- Provide Incentive and Motivation
- Confirm Learning and Competence Achieved
- Validate Training





Interim Competencies

- Milestones
- Logical Breaks in training

Chapter 3 Initial Training Phase

- Basic Training
- Qualification Training



Basic Training Module

- Organizations and Standards
- Air Traffic Services, Standards, Meteorology and Altimetry
- CNS & ATM Concepts
- Human Factors



Qualification Training Modules

- Communication
- Navigation
- Surveillance
- Data Processing/Automation
- System Monitoring and Control
- Infrastructure
- Engineering (New)



Chapter 4 Unit Training Phase

- Activities and Competencies an ATSEP will perform in a Specific Technical and Operational Environment



Unit Training Modules

- Technical and Operational Environment
- System/Equipment Specific
- On the Job training

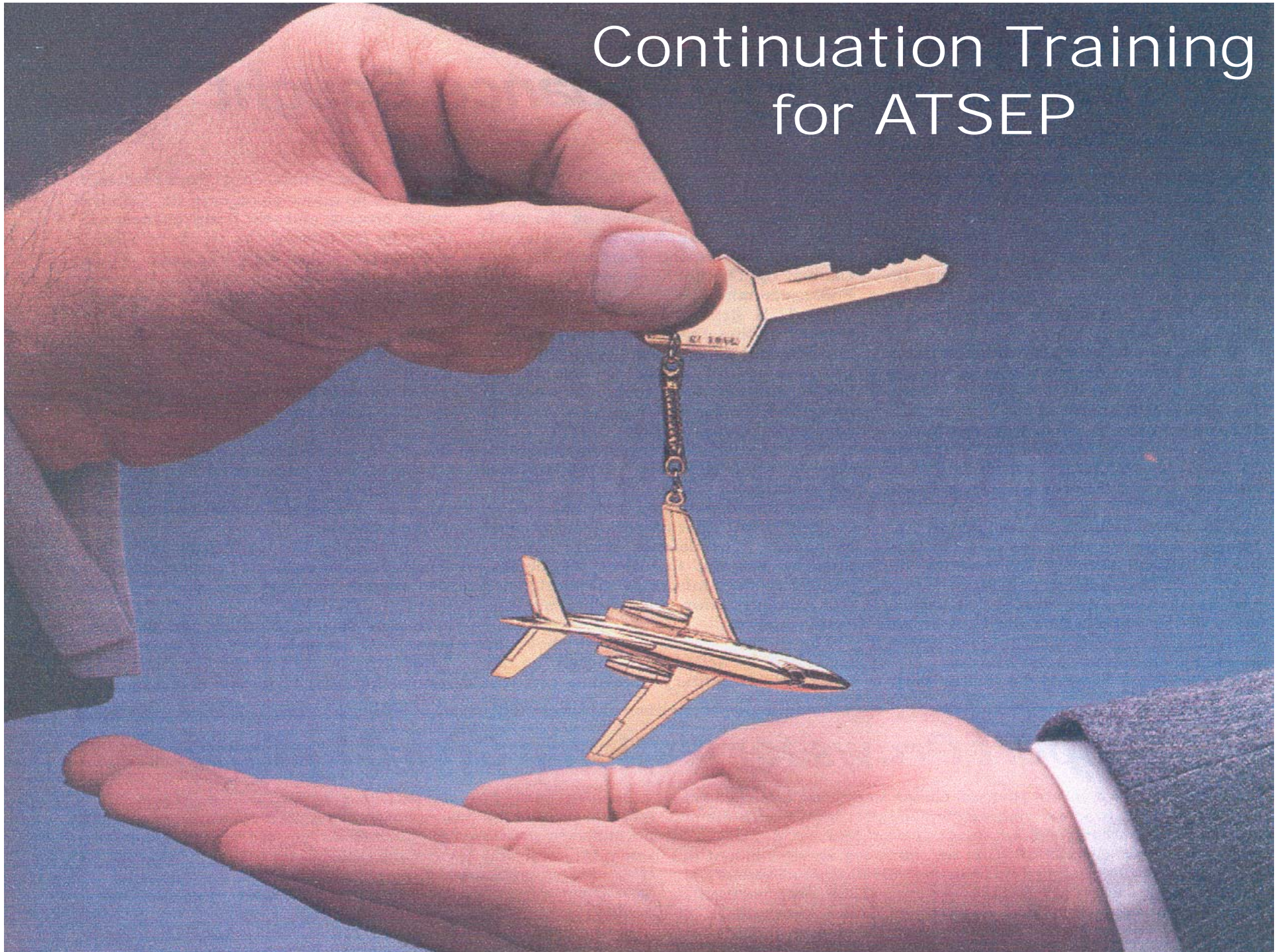


Chapter 6 Development Training

- Additional competencies required when a change in activity is identified

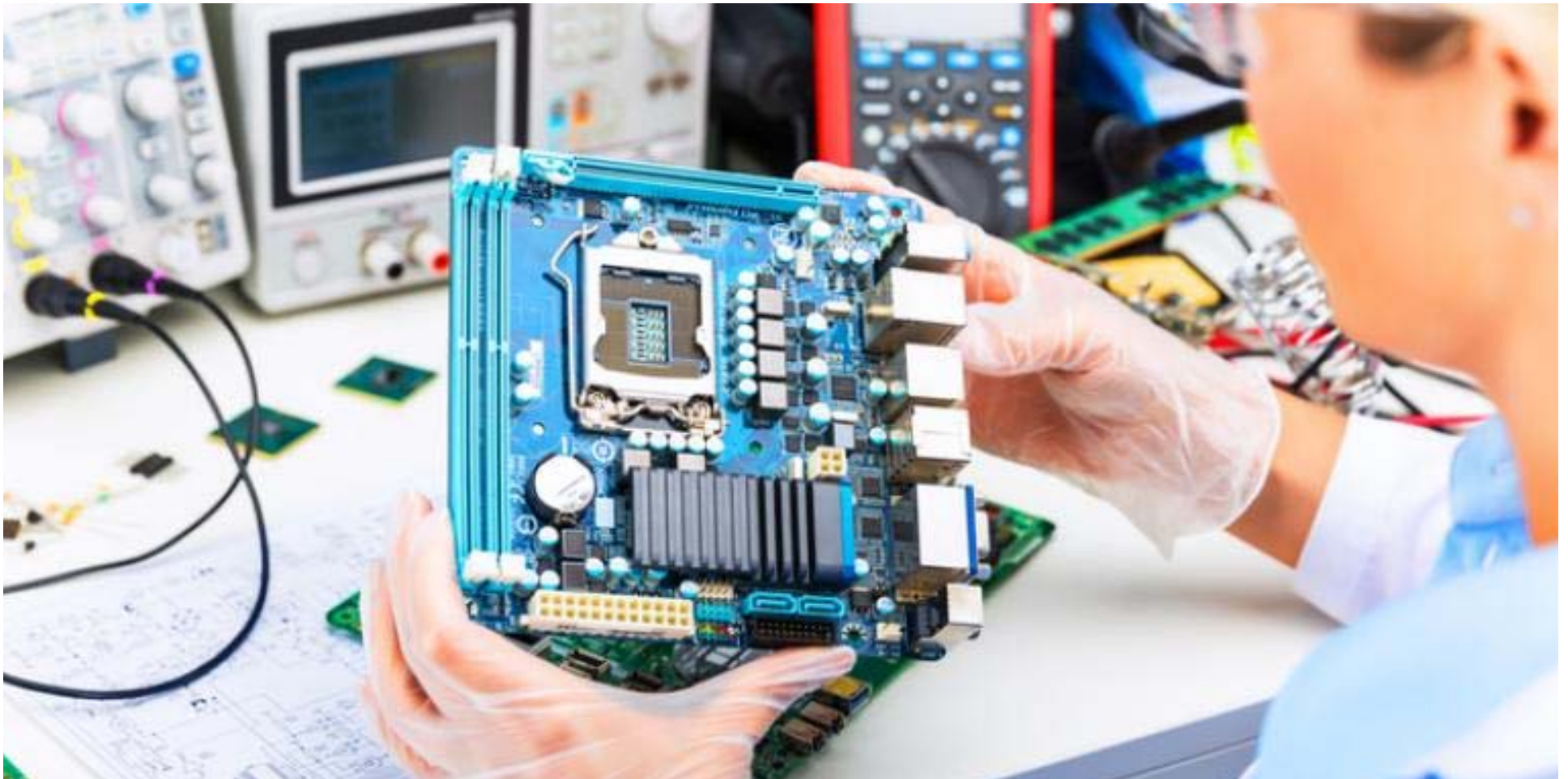


Continuation Training for ATSEP



Types of continuation training :

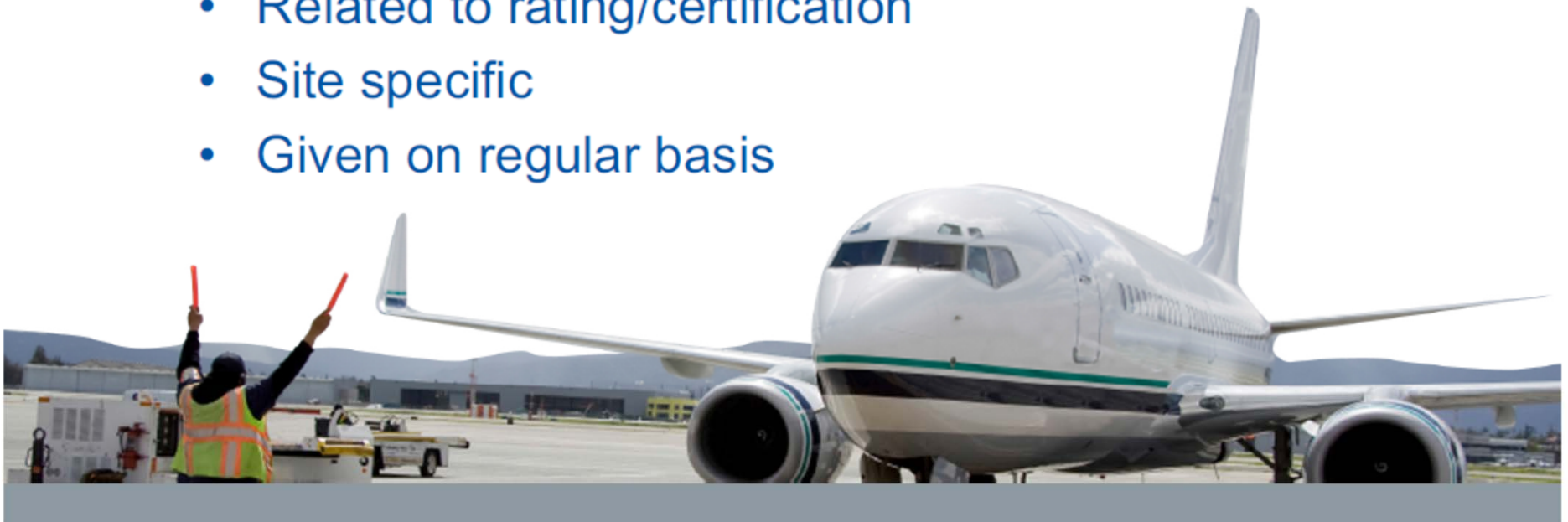
- Refresher training
- Emergency training
- Conversion training





Refresher training:

- Related to rating/certification
- Site specific
- Given on regular basis





Refresher training design:

- System-specific
- Domain based
- Role-based training



Refresher training objectives

- Directly related to ATSEP's rating/certification activities
- Training objectives typically are a sub-set of unit training objectives





Frequency and duration of refresher training depend on:

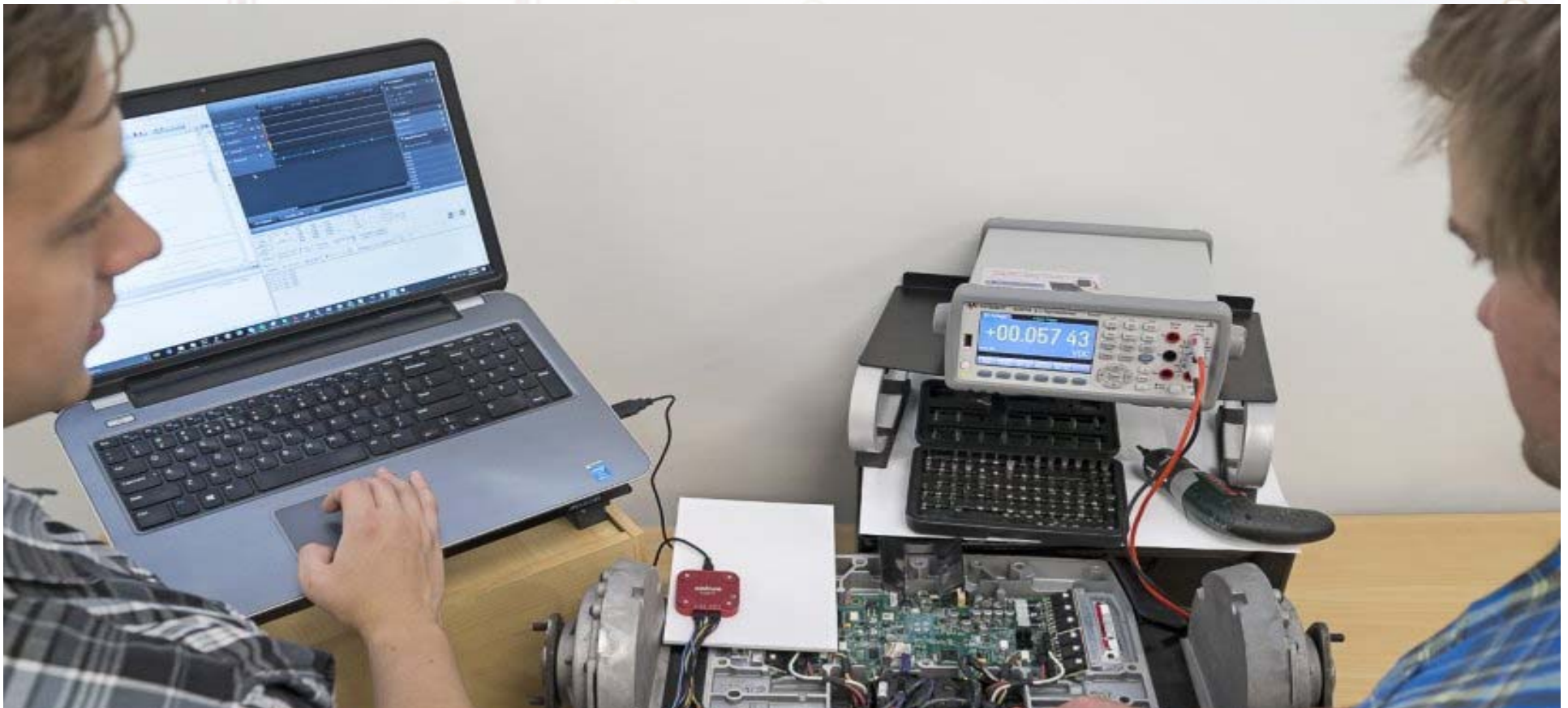
- the activity exposure
- the complexity of the system / equipment / activity
- the impact of the loss of the system / equipment for the service provision



Emergency training

Emergency training refers to training for the management of non-routine situations

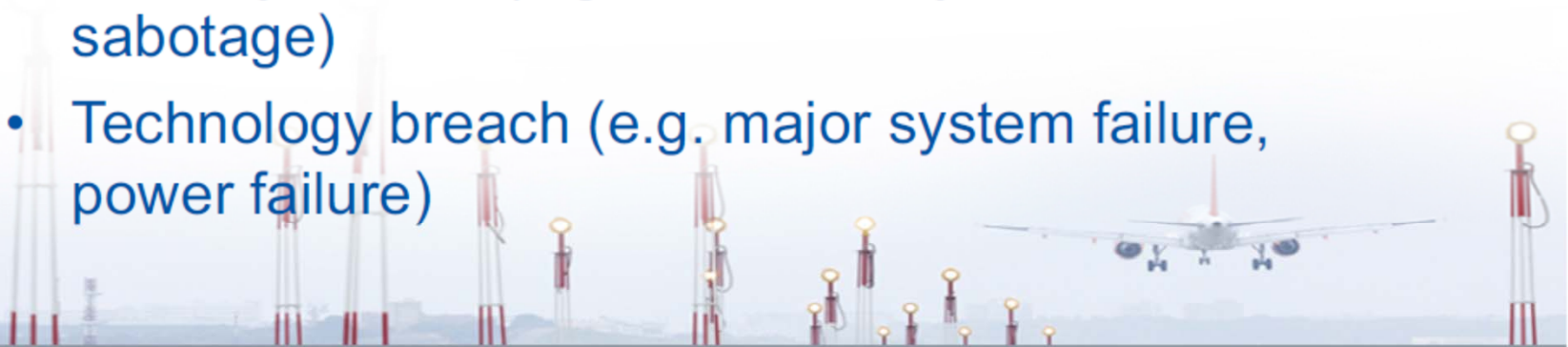
1. Immediate or short term: and/or
2. Human life is engaged or endanger: and/or
3. Major degradation of service provision





Emergency Training

- Natural events (e.g. earthquakes, tornado, flood, fire)
- Security breach (e.g. terrorism, cyber-attack, sabotage)
- Technology breach (e.g. major system failure, power failure)





Types of emergency training

- Recurrent training or exercises based on written procedures
- Hypothetical scenario
- Lessons learned discussions
- Debriefing after major events, incidents or accidents

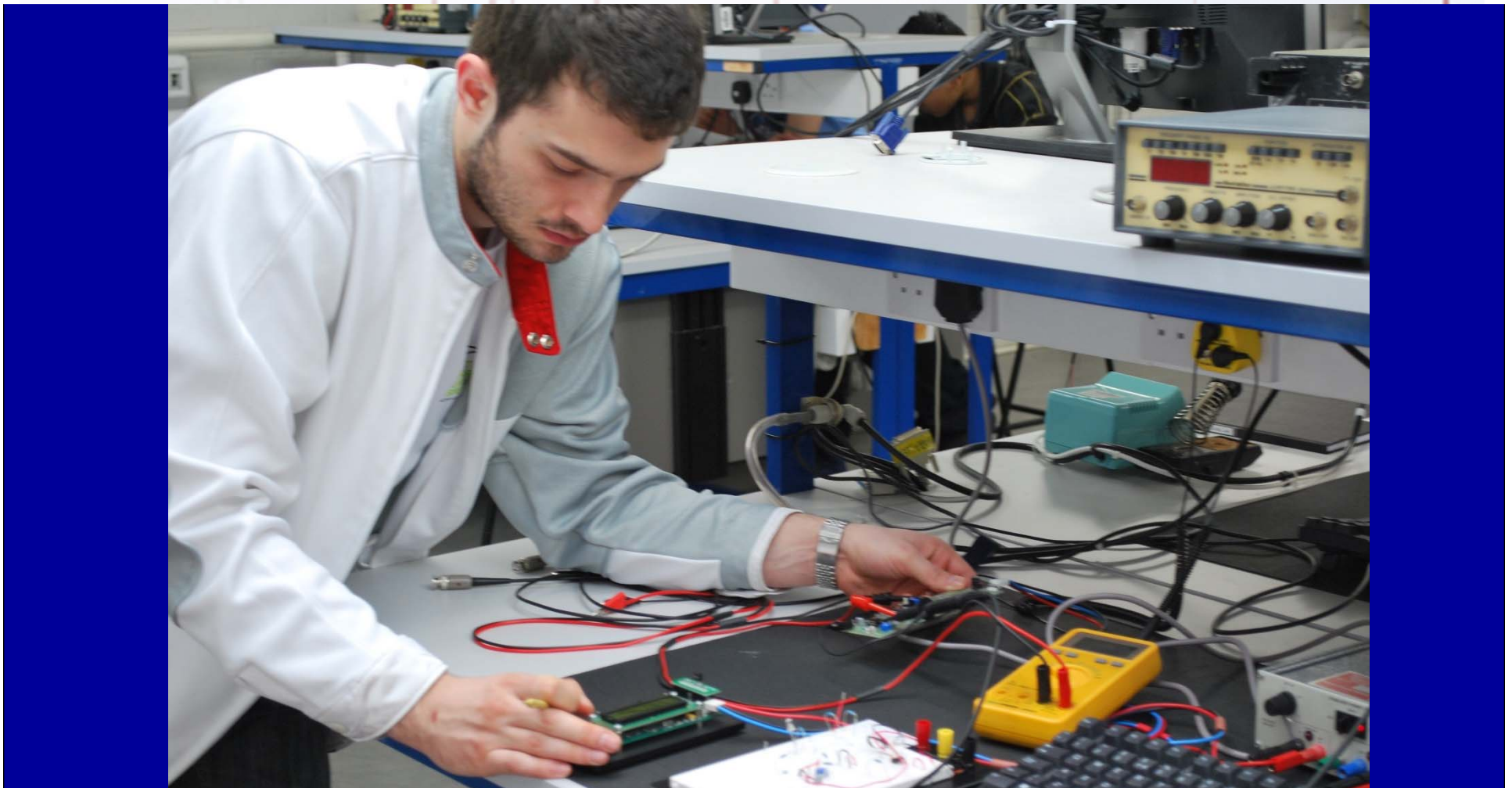


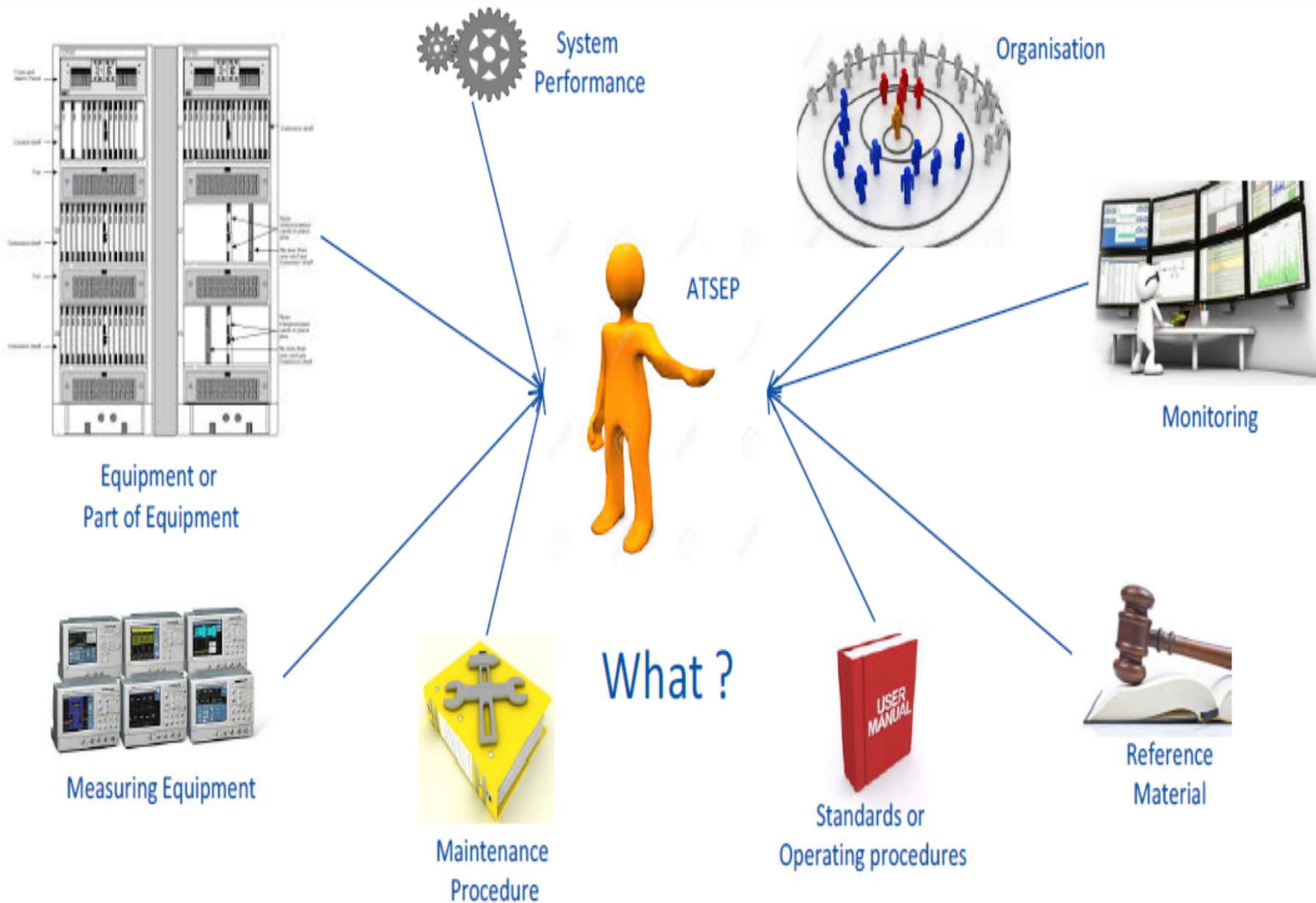
Conversion Training

Conversion training should be triggered by a change to an existing system that impacts operations



- Conversion training designed to familiarize ATSEP's with any changes since the last training session
- Training should be triggered by changes to the system or procedures







Equipment
Procedures
Environment



Events
Feedback
Strategy

Quality
Safety
Security

New Equipment
and/or
New Procedures
and/or
New Environment

New knowledge
and/or
New skills
and/or
New Competences



Rated ATSEP



Unit Training

Why ?



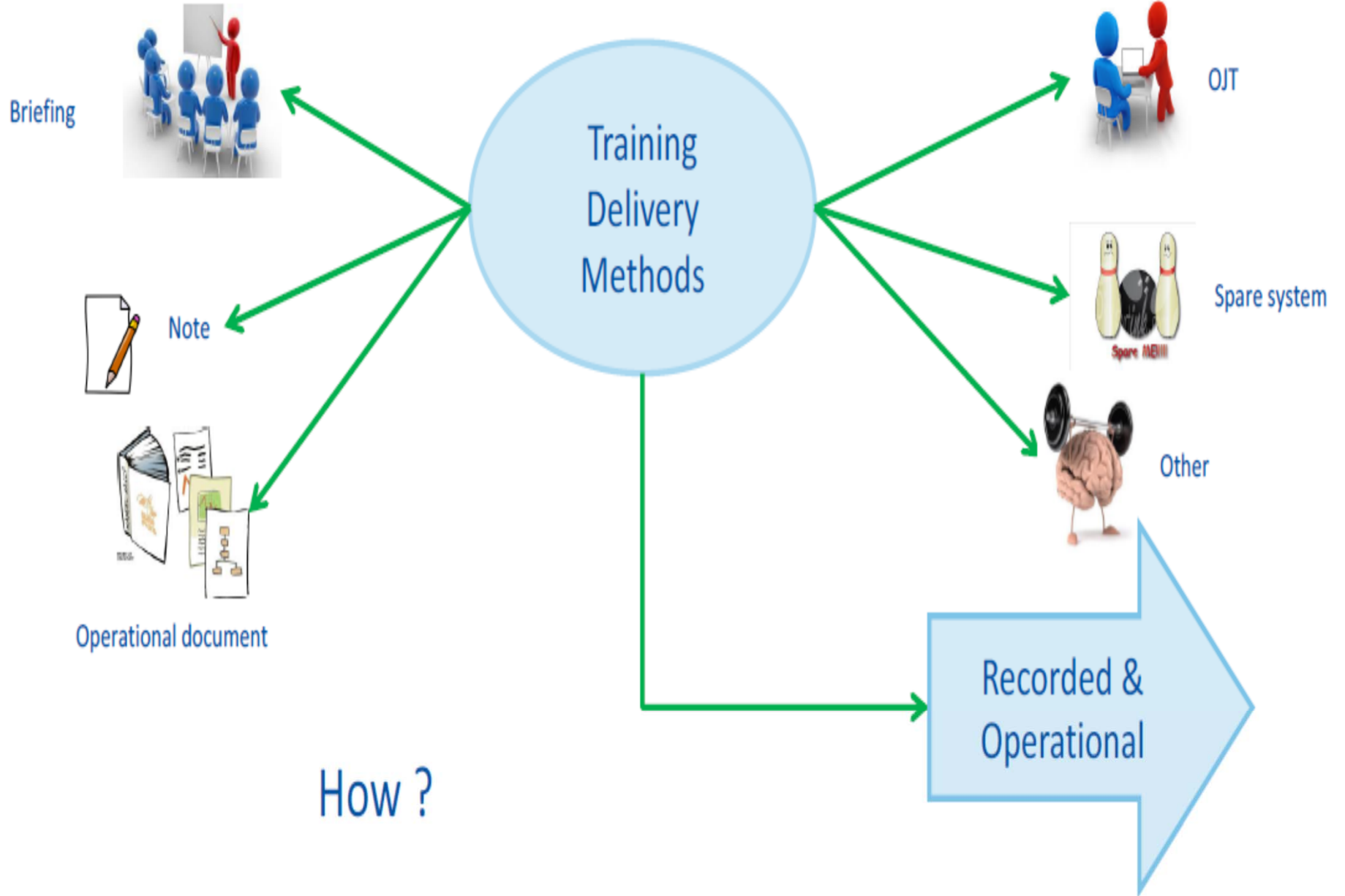
Reporting



Process of ongoing improvement



Conversion Training





In Summary...

Continuation training is to ensure that the ATSEP maintains up-to-date operational competence of systems and procedures in his or her responsibility



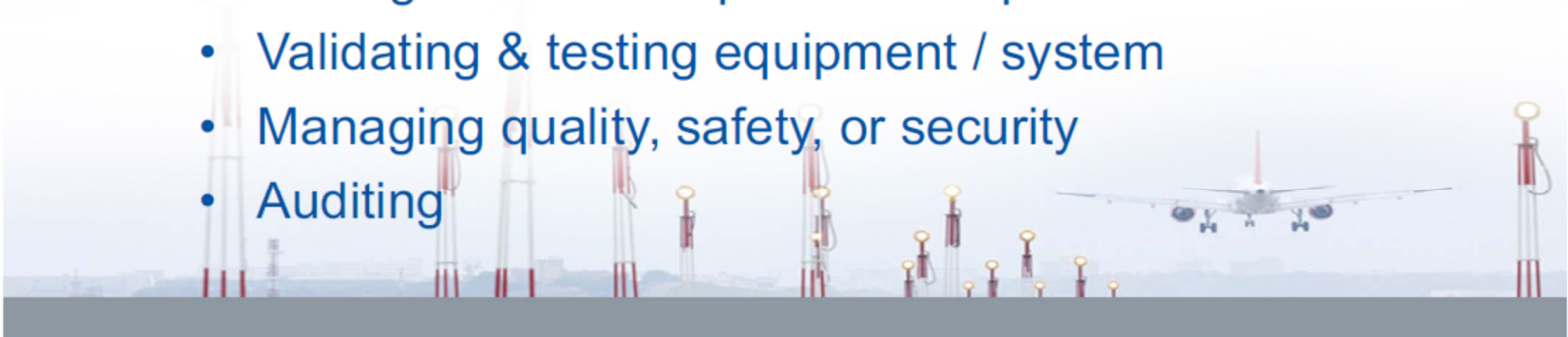
Development Training for ATSEP





New activities may include:

- Training function
- Managing staff
- Writing technical requirements / policies
- Validating & testing equipment / system
- Managing quality, safety, or security
- Auditing



Examples:

- Instructor
- Engineering Installation
- More examples in Appendix D of ICAO DOC 10057



Instructor

- Classroom instructional techniques
- On-the-job training and coaching
- Assessment training



Instructional Techniques

- Principles of adult learning / motivation
- how to design and structure a lesson and lesson plan, including design of instructional events, selection of training techniques and selection of media options
- questioning techniques



On-the-job Training & Coaching

- Designed for ATSEPs in an operational unit
- Best practices
- Quality and efficiency
- Advocate a code of practice



Assessment Training

- Experienced ATSEPs conducting assessments
- Competency standards & safety are maintained
- International, regional, and local safety regulatory requirements
- Understanding of human factors





In Summary...

- Development training is for:
 - Developing additional competencies
 - Career progression
 - Appendix D of ICAO DOC 10057 provides examples



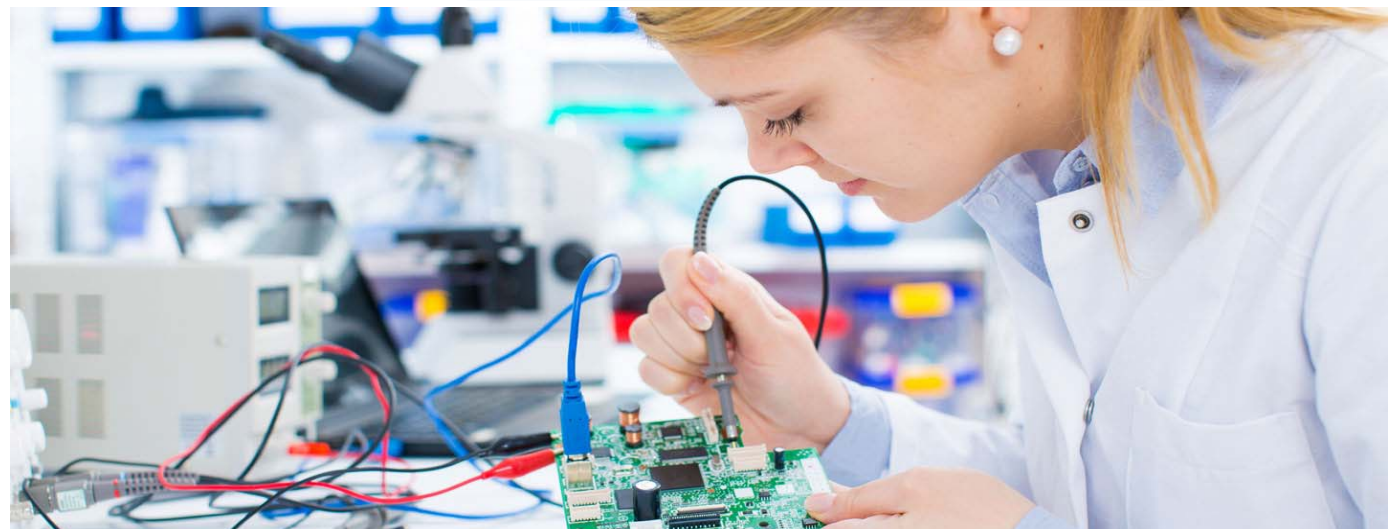
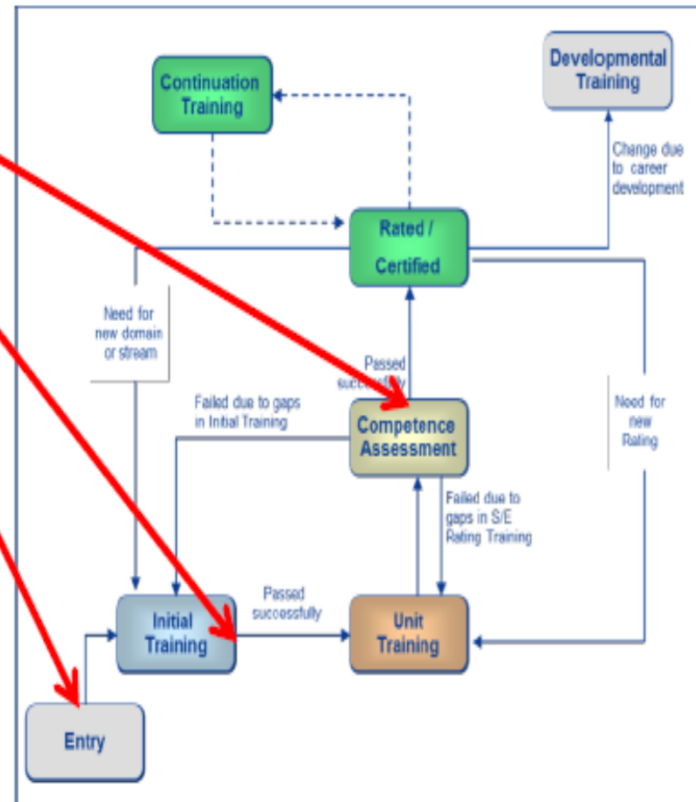
- Assessments
- Unsuccessful Progression



Assessments in ATSEP Training

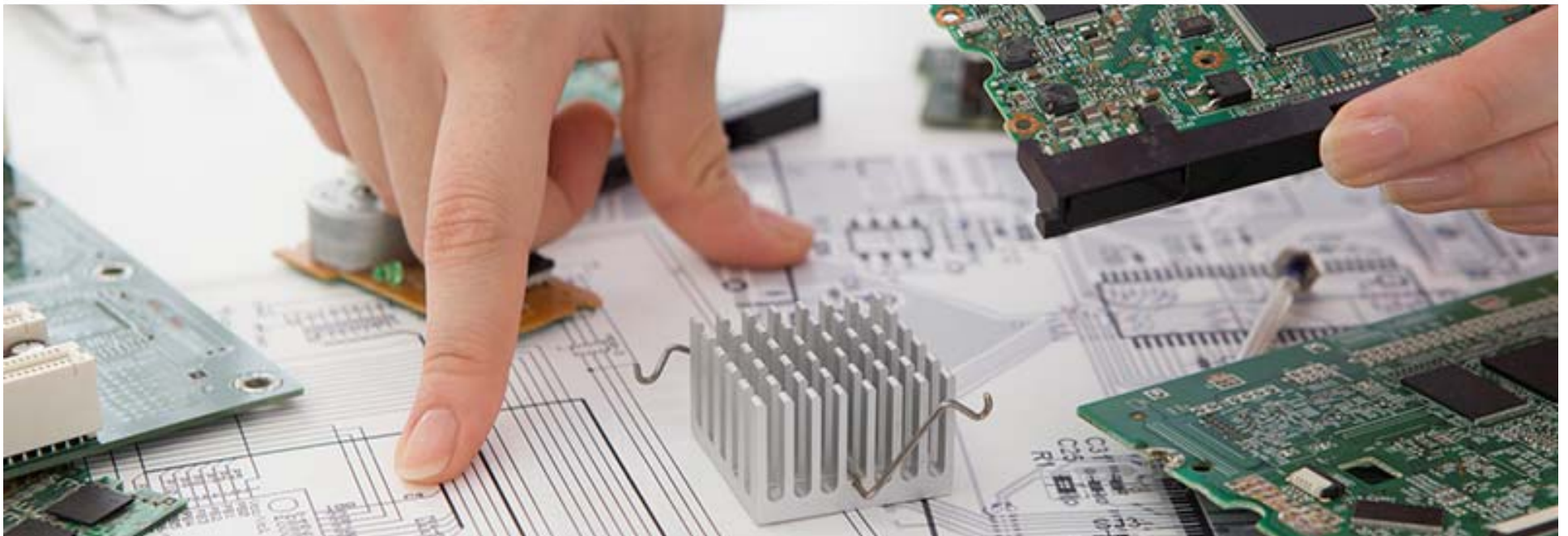
Aim of Assessment

- Validation of new competencies, confirm learning
- Validation of training strategy
 - Progression
 - Content
 - Methods
- Incentive



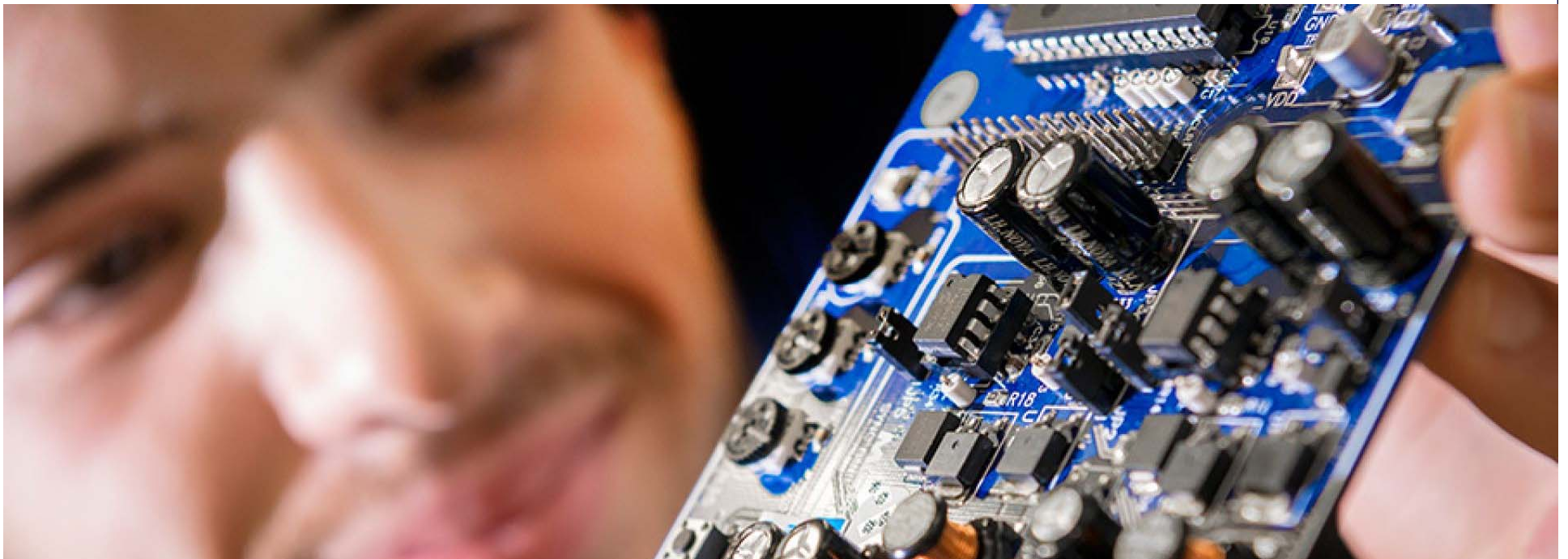
Assessments:

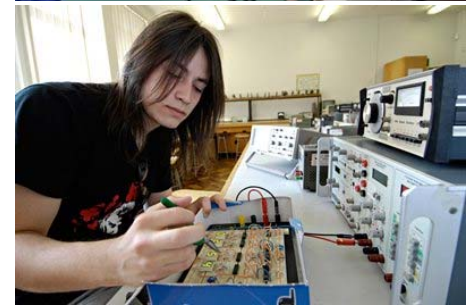
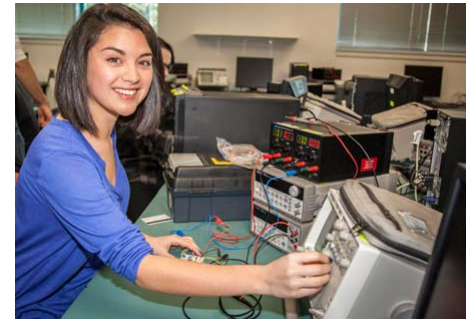
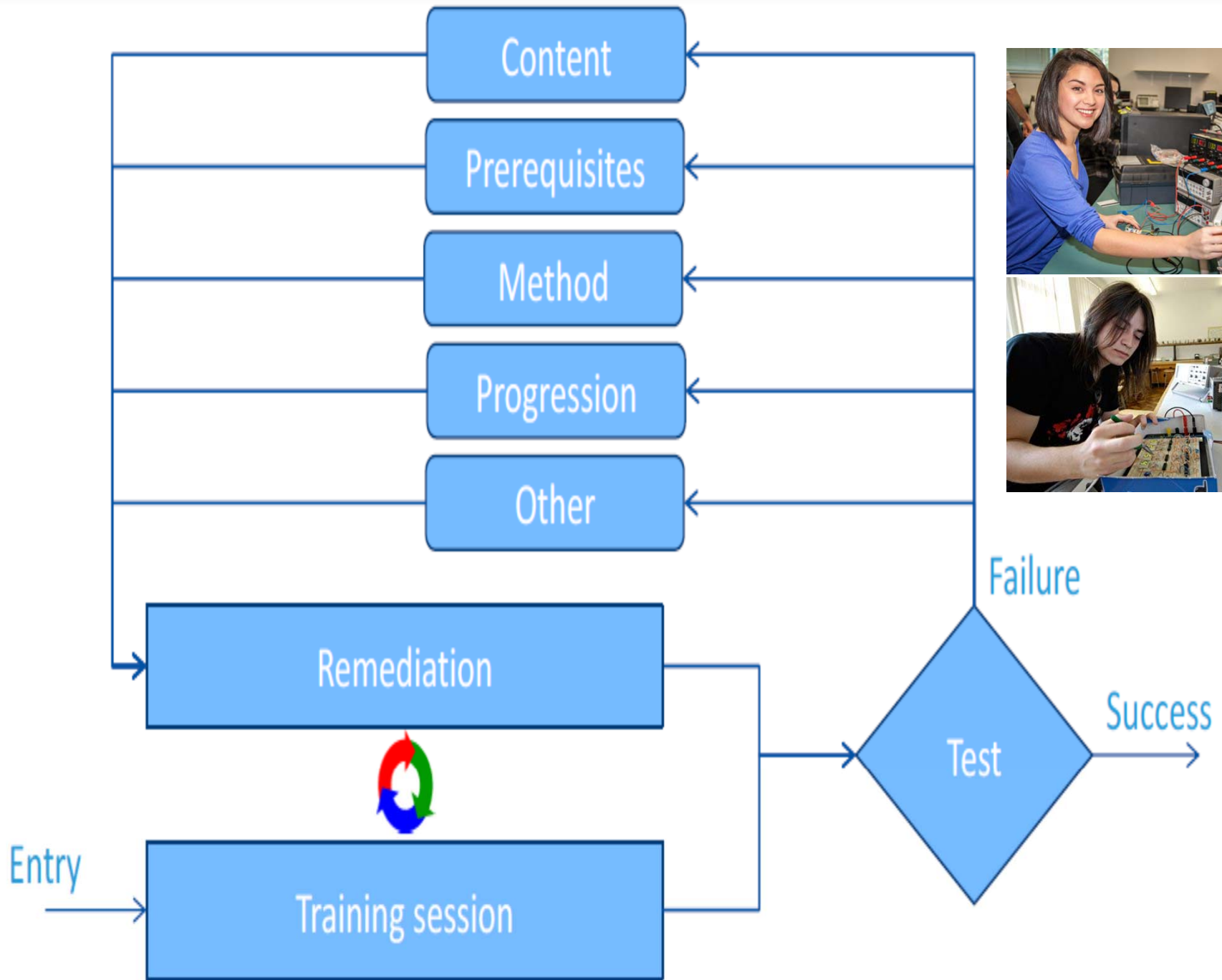
- Help Trainers gain insight into what students understand in order to plan and guide instruction
- Students develop an awareness of how they learn and use that awareness to advance their own learning
- Inform students and trainers of achievement in order to celebrate success or plan intervention



Student Learning is best supported when:

- Instruction and assessment are based on clear goals
- Instruction and assessment are differentiated according to student learning needs
- Students are involved in the learning process- understand learning goals and criteria, receive feedback





Reasons of Failure

Prerequisites

- Mathematics
- Physics
- Electronics
- Network
- Computer sciences
- ...

Methods

- Training method
- Testing tool
- Situation
- ...

Content

- Inappropriate
- Confusion
- Objectives
- ...

Progression

- Too fast
- Too high
- ...

Other

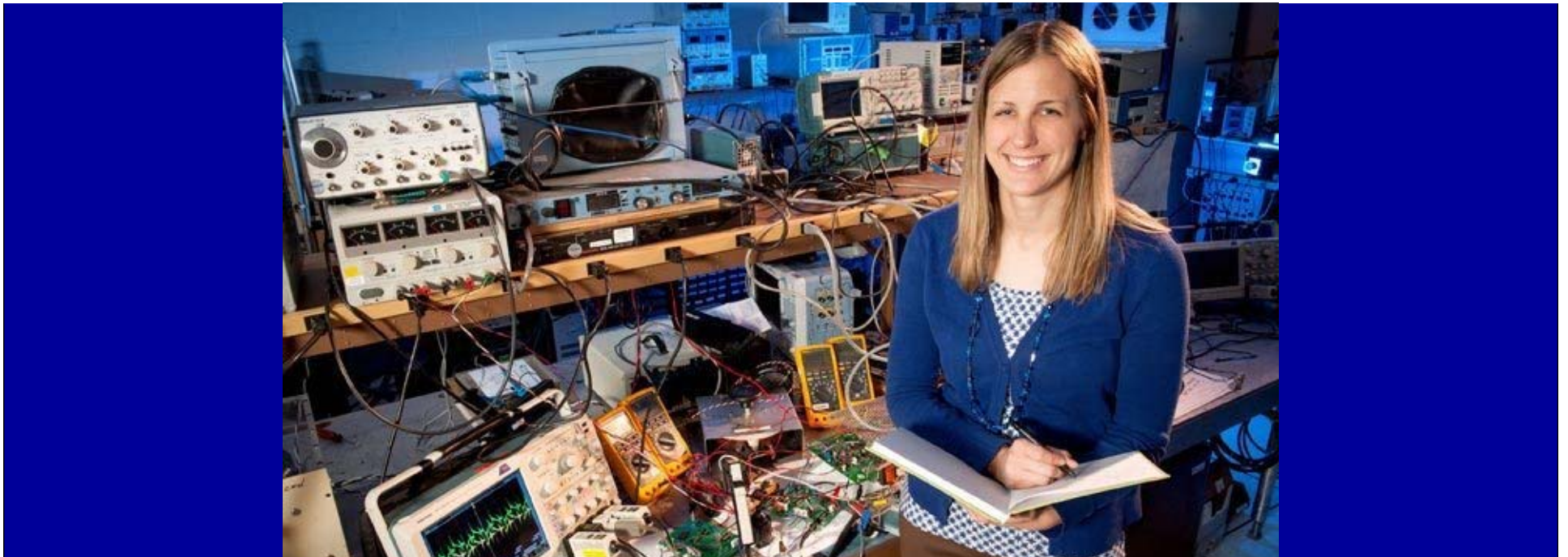
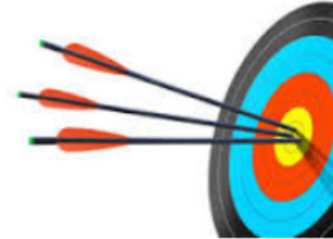
- Human Factors
- Environment
- Stress
- Motivation
- ...



Factors of success

Factors of success

- Appropriate level of objectives and content
- Appropriate progression (slope and duration)
- Appropriate teaching methods
- Prerequisites verified
- Appropriate assessment tools and/or methods
- Training objectives shared
- Trainee's motivation
- ...



Conclusion

Assessments

- Critical to Training Program
- Incentive and Motivation
- Confirm Learning
- Validate Training

Unsuccessful Progression

- Understand Reasons/Risk of Failure
- Plan Remediation
- Understand Factors for success



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