



# Maintenance Reliability Certification

Dramatically Reducing the Frequency, Costs, and Consequences of Human Error in Aviation Maintenance and Logistics Operations

## Course Catalog

Course descriptions, sequence and prerequisites for online version of Maintenance Reliability Certification Program



## Maintenance Reliability Certification:

### Course Catalog

The Maintenance Reliability Certification program is a comprehensive human factors error control curriculum designed to provide individual maintenance technicians and logistical support personnel a world class understanding of human error causes and countermeasures in support of reliable mission accomplishment. All courses are available online and can be taken at the student's own pace or delivered at training locations worldwide.

**Instructional Design:** The essence of this MRC lies in three pillars of instructional design – deep content, sequencing of information and rigorous evaluation. **Over 100 sources were used in creating this curriculum, and using multiple data sets from across the globe objectives were systematically developed to specifically target the leading causes of incidents and accidents.** We believe it to be the finest and most rigorous human factors training program for aviation maintenance personnel in the world today – bar none.

Individual courses will be updated on a regular basis as new research emerges and feedback from MRC alumni is obtained and analyzed. MRC courses were created and designed for maintenance and logistics professionals in a sequence that – for the first time – allows a carefully crafted systems approach to the complexity of human performance in these settings. Finally, each module of learning is imbedded with knowledge checks throughout and an end of course examination insures that the learner has achieved the necessary competencies to apply the error reduction knowledge, skills and abilities and is ready to move to the next level.

**Linked and Sequenced Courses:** To the best of our knowledge, this is the only systemic and linked human factors curriculum designed to reduce individual maintenance technician error anywhere in the world. All courses are built upon knowledge mastered in previous lessons and therefore, must be taken in sequence. MRC 101: Professional Discipline is the cornerstone course for the entire program of study and the logic for this sequencing follows, with each course title followed by a one sentence purpose statement:

**MRC 101: Professional Discipline: The Cornerstone of Aviation Maintenance:**  
Establishes a common professional ethos and reiterates the role of personal accountability within the framework of existing policy, procedures, and regulatory guidance.

**MRC 102: Mind-Body Link: Physiology and Psychology of Human Error:** Creates physiological and psychological readiness upon which personal performance improvement can take place.

**MRC 103: The Many Faces of Error in Aviation Maintenance (Personal Error Awareness and Reduction):** This course makes the error reduction effort personal by teaching each learner how to first identify common error producing conditions (EPC), followed by a demonstration of how they can analyze their own individual error patterns to assist them in controlling personal error.

**MRC 104: Essential Foundations of Maintenance Resource Management (MRM):**  
Applies new error awareness and reduction skills with refined team skills to traditional MRM paradigm in order to dramatically reduce human error in the aviation maintenance and logistics operations.

**Individual Course Content Design:** Each MRC course was carefully designed using *Bloom's Taxonomy of Educational Objectives* – a tried and true approach that sequences information from basic knowledge and comprehension to applied operational use, finally building towards analysis and evaluation levels of competence.

The deep content and structured design of this program insures that each graduate leaves the program with adequate knowledge to apply personal error reduction in both their professional and personal lives. Each graduate of the program will receive a Maintenance Reliability Program Certification diploma and card which verifies they have achieved mastery levels of learning in each of these critical areas and satisfactorily completed all error reduction program requirements.

**Level of Effort:** All on line courses are designed to be completed in between 2.5 to 5 hours of actual contact time for an average learner. Additional course resources, such as case studies and mission scenario analysis, may require additional reading time. Additionally, outside reading and study is recommended (though not required) to maximize the impact of course materials. Although key areas receive appropriate emphasis, the course is not “spoon fed” to pass the end of course quiz. The learner must engage with and master the content of each course in order to satisfactorily pass the end of course examination. This is not a “pay your fee and get your B” program. We want everyone to succeed, but if you are not serious about personal improvement through error control – do not enroll in this program.

**Advanced Training and Products:** For many professionals, achieving their MRC certification will only whet their appetite for greater improvement and be the first step in a lifelong improvement effort. For these high achievers, advanced training resources, products and links will be available at [www.convergentperformance.com](http://www.convergentperformance.com).

## **MRC 101: Professional Discipline: The Cornerstone of Aviation Maintenance**

**Pre-requisites:** None

**Brief Synopsis:** This course establishes an anchor point of understanding and compliance to act as a cornerstone for follow on professional development.

**Course Topics:** Professional ethics, violation producing conditions, normalization of deviance, peer pressure, hazardous attitudes, personality impacts on flight discipline, rogue personnel

**Course Benefits:** Professionals who complete this course will be better prepared to apply the following knowledge and skill sets for greater mission accomplishment:

- Comprehend the personal and professional advantages of rigorous compliance with established policy and regulatory guidance
- Recognize and counter violation producing conditions before they result in a noncompliance event
- Recognize and respond aggressively to hazardous attitudes before they hijack decision making and judgment
- Recognize and respond to the individual and organizational normalization of deviance sequences
- Maintain personal integrity and professional compliance in the presence of peer pressure to do otherwise
- Recognize the traits of rogue personnel in themselves and others

**Assessment:** End of course on line examination. Minimum passing score is 80%. Mastery level learning is achieved through examination review to 100% competency.

## **MRC 102: Mind-Body Link: Physiology and Psychology of Human Error**

**Pre-requisites:** MRC 101

**Brief Synopsis:** This course provides vital background information on physiological and psychological readiness that underpins peak mental function in tightly coupled, error intolerant environments such as professional maintenance.

**Course Topics:** Physiological basics of mental functions; impacts and countermeasures of fatigue, stress, nutrition, and hydration on decision making; time compressed decision making; limits of multi-tasking

**Course Benefits:** Professionals who complete this course will be better prepared to apply the following knowledge and skill sets for greater mission accomplishment

- Comprehend how “things of the body impact things of the mind”
- Develop a personal readiness routine to maximize physical and cognitive performance
- Manage chronic and daily fatigue levels for peak performance
- Recognize and respond appropriately to physiological red flags
- Limit multi-tasking to appropriate levels and flight regimes
- Apply effective time management & decision scheduling in time constrained environments

**Assessment:** End of course on line examination. Minimum passing score is 80%. Mastery level learning is achieved through examination review to 100% competency.

## **MRC 103: The Many Faces of Error in Aviation Maintenance (Personal Error Awareness and Reduction)**

**Pre-requisites:** MRC 101; MRC 102

**Brief Synopsis:** This course makes the error reduction effort personal by teaching each learner how to first identify common error producing conditions (EPC), followed by a guided analysis of their own individual error patterns to laser target key error reduction centers of gravity.(ERCG).

**Course Topics:** Top ten error producing conditions and countermeasures; accuracy vs. precision; basic error types and common causes; personal error pattern tracking and analysis; habit pattern development – breaking bad ones, forming good ones

**Course Benefits:** Professionals who complete this course will be better prepared to apply the following knowledge and skill sets for greater mission accomplishment

- Recognize and counter the top ten error producing conditions (EPC)
- Decouple error producing conditions to avoid cumulative effects
- Apply systemic error reduction techniques to achieve better precision and accuracy in your operational environment
- Apply personal error tracking tools to identify and counter individual error tendencies
- Comprehend and apply precise habit formation techniques for error reduction

**Assessment:** End of course on line examination. Minimum passing score is 80%. Mastery level learning is achieved through examination review to 100% level.

## **MRC 104: Essential Foundations of Maintenance Resource Management (MRM)**

**Pre-requisites:** MRC 101; MRC 102, MRC 103

**Brief Synopsis:** This course provides the knowledge components of the traditional Maintenance Resource Management curriculum. Since MRM is, by definition, applied in a team environment, the course is limited to addressing key individual skill components as they apply to mission optimizing and error reduction in the team environment.

**Course Topics:** Small group dynamics; Assertiveness; Real time communications; Team induced error; Error reduction in the team environment; Situational awareness; Mission change management; MRM skills and tools (i.e. conservative response rule; two-challenge rule, etc.)

**Course Benefits:** Professionals who complete this course will be better prepared to apply the following knowledge and skill sets for greater mission accomplishment

- Avoid team induced error traps such as groupthink and power of the first idea
- Use appropriate levels of assertiveness to heighten SA in the team environment
- Identify and leverage available and mission appropriate resources in time constrained environments
- Manage stress and conflict to reduce errors and optimize performance
- Key tools and skill sets (i.e., conservative response rule; two-challenge rule, assertiveness statement, etc.)
- Develop the ability to deliver “bad news” with skill and confidence in the team environment

**Assessment:** End of course on line examination. Minimum passing score is 80%. Mastery level learning is achieved through examination review to 100% level