

Course Title	<b>Crew Resource Management</b>				
Course Code	AVM323				
Course Type	Major elective				
Level	Bachelor (1 <sup>st</sup> cycle)				
Year / Semester	4 <sup>th</sup> Year / 1 <sup>st</sup> Semester				
Instructor's name	TBA				
ECTS	5	Lectures / week	3 Hours / 14 Weeks	Laboratories / week	None
Course Purpose and Objectives	<p>The purpose of the CRM course is to provide the student with the knowledge and abilities to efficiently interact with all resources (human or not) available during a flight with main purpose of achieving the highest degree of safety during a flight. The course aims in covering subjects relating to human factors, performance and psychology, interaction with equipment and automation, management of stress, fatigue and other performance affecting factors, error management, decision making, situation awareness, information processing, teamwork, leadership and more.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>• Define CRM and the main related terms and issues</li> <li>• Analyse the human physiological and psychological factors that may affect the crew performance</li> <li>• Analyse the proper means of interaction between crew and equipment</li> <li>• Explain the symptoms and effects of fatigue and stress on a crew member and describe ways to overcome them</li> <li>• Describe the main aspects of human information processing and its limitations</li> <li>• Describe the processes through which errors may be prevented or detected and managed.</li> <li>• Analyse the main issues relating to situation awareness of flight deck and cabin crew</li> <li>• Demonstrate knowledge and capabilities of proper communication, teamwork and leadership skills</li> <li>• Describe the main issues relating to the use of automation and other emerging areas relating to CRM</li> </ul>				
Prerequisites	None	Co-requisites	AVM410		

## Course Content

- **Introduction:** CRM definition, cognitive skills (situational awareness, planning and decision making), interpersonal skills (communication, teamwork), factors affecting performance (emotional climate, stress, pressure, fatigue, incapacitation). CRM training. CRM Requirements for: Cabin Crew, Flight Deck Crew, CRM instructors (CRMI), CRM Instructor Examiners (CRMIE). Evaluation of CRM skills. CRM standards. Objectives of CRM training.
- **Human factors:** Communications, observations, leadership, problem solving, decision making, instrument scanning, detection, situational awareness, reaction to failures, workload, vigilance, stress management, risk management, prioritisation, emotional control, time management, self-discipline and procedural behaviour, self-motivation, task allocation, computer literacy.
- **Human Performance:** Breathing, pressure, limitations of the senses, acceleration, disorientation, fatigue, alertness, sleep disturbances, effects of: nutrition, alcohol, drugs, medication, blood donation, aging. Psychological fitness, stress management, pregnancy.
- **Psychology:** Human error and reliability, workload management, information processing, attitudes, perceptual and situational awareness, judgement and decision making, stress.
- **Pilot equipment relationship:** Controls and displays, alerting and warning systems, personal comfort, cockpit visibility and eye-reference position, motor workload, SOPs, software, automation.
- **Attention, vigilance, fatigue, stress and workload management:** Arousal and workload, overload and underload, domestic and work related stress: causes, symptoms, stress management, time pressure, deadlines, sleep, fatigue, circadian rhythms,.
- **Information processing:** Basic theory of information processing, sensory receptors and sensory stores, attention and perception, selective attention, divided attention, focused attention, sustained attention, decision making, memory, motor programmes, situation awareness, information processing limitations.
- **Human error, reliability and error management:** Error models and theories, design Vs operator errors, variable vs constant error, reversible vs irreversible errors, slips, lapses, mistakes, violations, error management, error detection and prevention.
- **Situation awareness:** Definitions, basic theory, types of situation awareness, clues to loss of situation awareness, situations awareness management. Awareness of: aircraft systems, external environment, time.
- **Communication, Teamwork, Leadership, Decision making and Managerial skills:** Modes of communication, verbal and non-verbal

	<p>communication, communication problems, leadership and followership, teams, crew coordination, use of authority and assertiveness, providing and maintaining standards, planning and coordination, problem definition and diagnosis, option generation, risk assessment and option selection, team building and maintaining, consideration of others, support of others, conflict solving.</p> <ul style="list-style-type: none"> <li>• <b>Automation:</b> Training for automation, guidelines on the use of automation, use of accident/incident data, monitoring, requalification, standardisation and simplification, operational procedures and checklists.</li> <li>• <b>Miscellaneous CRM topics:</b> Line Operations Safety Audit (LOSA), Advance CRM, emerging issues and standards in CRM.</li> </ul>
Teaching Methodology	Face-to-face
Bibliography	<ul style="list-style-type: none"> <li>• <b>US Air Force.</b> <i>Crew Resource Management (CRM) Basic Concepts</i> - Scholar's Choice Edition Paperback – February 16, 2015. ISBN 978-1297043604.</li> <li>• <b>Jean Denis Marcellin.</b> <i>The Pilot Factor: A fresh look into Crew Resource Management.</i> Paperback – May 17, 2014. ISBN 978-1497374614.</li> <li>• <b>Barbara G. Kanki, Jose Anca, Robert L. Helmreich.</b> <i>Crew Resource Management.</i> Elsevier, 2nd Edition (2010). ISBN 978-0123749468.</li> <li>• <b>Eduardo Salas, Eleana Edens, Katherine A. Wilson.</b> <i>Crew Resource Management: Critical Essays (Critical Essays on Human Factors in Aviation).</i> Routledge; 1<sup>st</sup> edition (2009). ISBN 978-0754628293.</li> <li>• <b>UK CAA.</b> <i>Crew Resource Management (CRM) Training: Guidance For Flight Crew, CRM Instructors (CRMIS) and CRM Instructor-Examiners (CRMIES).</i> (2005). ISBN 0 11790 390 6.</li> <li>• CRM documentation and manuals (EASA, ICAO etc.)</li> </ul>

Assessment	<table border="1"><tr><td>Examinations</td><td>70%</td></tr><tr><td>Assignments / Report</td><td>20%</td></tr><tr><td>Participation</td><td>10%</td></tr><tr><td></td><td>100%</td></tr></table>	Examinations	70%	Assignments / Report	20%	Participation	10%		100%
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Language	English								