



<p><b>Title of module:</b> “Management systems in the aviation sector”</p> <p><b>Programme:</b> “Flight safety and airworthiness”</p> <p><b>Level:</b> “Masters” – EQF Level 7</p> <p><b>ECTS value:</b> 8 credits</p>	
<p><b>Module summary</b></p>	<p>The modern approach to aviation safety is holistic, with strong pro-active, evidence-based, aviation safety activities requiring a systematic approach to managing the machine-human-environment relationships required to ensure the reliability of aircraft construction, the competence of pilots and traffic management staff, the quality of ground handling and airport services, the way in which security services combat terror threats, the way in which cabin crew deal with air-rage.</p> <p>International oversight bodies including the International Civil Aviation Organisation, the European Aviation Safety Agency and the Federal Aviation Authority now require that these issues are dealt with by implementing “Safety Management Systems”. Such systems require a change in mind set, away from traditional compartmentalised training emphasising technical solutions to the use of a formal, holistic top-down business approach to managing safety risk by establishing polices, organisational structures and accountabilities backed by a safety promotion framework and culture.</p> <p>The aim of this module is to support the introduction and development of flight safety management systems by providing students with a theoretical understanding of the principles, benefits and techniques of flight safety and airworthiness through lectures and seminars and teaches them to apply this knowledge using practical case studies and collaborative projects using real data from the field of flight safety management systems.</p>
<p><b>Relationship of module to other modules</b></p>	<p>The module «Management systems in the aviation sector» is a compulsory part of the masters programme, studied after the module “Introduction to the aviation business” and “Legislation and regulation in the aviation sector”.</p> <p><b>Pre-requisites:</b> Entry to the module is accepted providing the general requisites for entry to the full programme are met.</p> <p><b>Co-requisites:</b> The module requires at least a basic understanding of statistics and ideally should run in parallel with the module on statistics and human factors in aviation.</p>
<p><b>Module aims</b></p>	<p>The student knows and understands the main factors that affect flight safety and the interrelationships between them, the different functions of flight safety management systems, the main conceptions of the FSMS of ICAO, EASA and MAK, and are able to choose and apply effective methods for the identification, assessment and management of threats and risks and to critically assess strategies for the development and strengthening of the safety culture in organisations, including the role of leadership, structures and monitoring and accountability systems.</p>
<p><b>Intended learning outcomes</b></p>	<p>On successful completion of the module, students will be able to:</p> <ol style="list-style-type: none"> <li>1: Demonstrate an in-depth understanding of the essential ingredients that affect flight safety and the interrelationships between them;</li> <li>2: Understand and apply the main elements of management systems in general and flight safety management systems in particular and design and manage such systems in accordance with the requirements of ICAO, EASA and MAK;</li> </ol>

	<p>3: Identify the possible threats to flight safety and assess the associated risk, establish suitable risk management programmes;</p> <p>4: Use basic statistics and statistical tools for aviation, data collection and analysis techniques and the essentials of information security and data distribution;</p> <p>5: Apply the essential techniques of project management to ensure the engagement of other personnel in flight safety management programmes.</p>															
<b>Short description of curriculum content</b>	<p><b>Introduction to management systems in the aviation sector:</b> What is management, quality, safety, principles of ISO 9004. Management systems in aviation, international and national organisations (IATA, ICAO, EASA, FAA, RosAviation, MAK) and their role.</p> <p><b>Statistics and data management:</b> Basic statistics and statistical tools for aviation, data collection and analysis, information security and data distribution.</p> <p><b>Risk management:</b> Identifying sources of risk, their categorisation, analysis and managing risks, tools for managing risk, monitoring.</p> <p><b>ICAO's approach and flight safety:</b> Introduction to the approach of ICAO, State Safety Programs, basic legislation, state systems and their function, resolution of safety problems.</p> <p><b>ICAO's annexes:</b> Operations, Airworthiness, Navigation and air traffic services, Investigation of incidents and accidents, Aerodromes, Security.</p> <p><b>Flight safety management systems 1:</b> Role of leadership and safety policies, key personnel, their competences and responsibilities, coordinating activities in emergency situations.</p> <p><b>Flight safety management systems 2:</b> Managing risks for flight safety, analysing and reducing risk, analysing effectiveness of flight safety, continuous improvement, training, information exchange.</p> <p><b>Key questions of flight safety:</b> Automation, ground collision in managed flight, landings, resource management, pilot fatigue, flight path monitoring, loss of flight control, flight safety.</p>															
<b>Teaching and learning strategy</b>	<p>The module is delivered using a combination of lectures, seminars and guest presentations to cover the main elements of the curriculum in two one week blocks separated by several weeks to allow for guided reading and study. Emphasis is placed on using actual case studies and information/data from the aviation sector using the databases and materials from the Flight safety portal. Following the second week of study students will participate in a collaborative project with other students with the aim of developing transversal skills in the context of flight safety management systems.</p> <p>Teaching notes, webinars, reading materials, data-bases for problem solving and other supplementary materials will be available on the Flight safety portal.</p> <p>Students will be expected to spend a total of 288 hours on the module including independent study. As a guide this may involve:</p> <table border="1" data-bbox="363 1738 1495 2051"> <tr> <td rowspan="3">Scheduled learning and teaching</td> <td>Lectures</td> <td>48 hours</td> </tr> <tr> <td>Case studies and practical tasks</td> <td>60 hours</td> </tr> <tr> <td>Webinars/tutorials</td> <td>12 hours</td> </tr> <tr> <td rowspan="3">Guided independent study</td> <td>Guided reading and study</td> <td>30 hours</td> </tr> <tr> <td>Problem solving tasks</td> <td>44 hours</td> </tr> <tr> <td>Collaborative project</td> <td>94 hours</td> </tr> </table>		Scheduled learning and teaching	Lectures	48 hours	Case studies and practical tasks	60 hours	Webinars/tutorials	12 hours	Guided independent study	Guided reading and study	30 hours	Problem solving tasks	44 hours	Collaborative project	94 hours
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<b>Assessment strategy</b>	<p>Knowledge acquired during lectures will be assessed using short tests at session end. Two practical tasks implemented by individuals will be assessed based on written submissions.</p>															

	<p>At the end of the course, the team of students participating in the collaborative project will be assessed based on a formal presentation of their results during which the results achieved and the transversal skills utilized during the project are assessed.</p> <p>Feedback during the module given through group discussion, workshop and tutorial sessions as well as actual assessments to enable the students to develop an awareness of their rate and level of progress, their strengths and weaknesses in the subject area and support students in preparing for their final assessments.</p>		
<b>Map of learning outcomes to assessment strategy</b>	Learning Outcome	Assessment strategy	Percentage weighting
	1: Demonstrate an in-depth understanding of the essential ingredients that affect flight safety and the interrelationships between them; 2: Understand and apply the main elements of management systems in general and flight safety management systems in particular and design and manage such systems in accordance with the requirements of ICAO, EASA and MAK;	Results of tests after lectures	10%
		First coursework – 4000 words	20%
	3: Identify the possible threats to flight safety and assess the associated risk, establish suitable risk management programmes;	Second coursework – 4000 words	20%
	4: Use basic statistics and statistical tools for aviation, data collection and analysis techniques and the essentials of information security and data distribution;	Third coursework – analysis and problem solving project – 4000 words	20%
	5: Apply the essential techniques of project management to ensure the engagement of other personnel in flight safety management programmes.	Collaborative project – 1 hour presentation.	30%
	<b>Achieving a pass requires that at least 50% is achieved in each category and overall 60%.</b>		
<b>Bibliography</b>	<b>Core texts:</b> To be defined		
	<b>Recommended reading:</b> Materials on Flight safety portal.		