

EUROMIND		
European Master In Design and Technology of Advanced Vehicles Systems		
SESA6040	SPACECRAFT STRUCTURAL DESIGN	
Spacecraft Specialisation		
Prerequisites		
Syllabus		
<p><u>AIMS:</u> The aims of this module are to: * To provide an overview of the issues that need to be addressed in the design of spacecraft structures and mechanisms. * To provide students with an appreciation and understanding of the development of the whole spacecraft structural design process.</p> <p><u>CONTENTS:</u> * Introduction * The spacecraft structural design process * Launch vehicles * Large spacecraft structures * Satellite structures * Low cost satellite structures * Typical structural component * Secondary structures * Mechanisms * Structural analysis techniques for spacecraft structures * Thermal design * Manufacturing * Structural verification / testing * Materials for spacecraft structures</p>		<p>Lectures: 20 h</p> <p>Independent Learning:80h</p> <p><u>Assessment:</u> * 2h written examination</p>
TOTAL	ECTS =5	Total workload=100 h

EUROMIND		
European Master In Design and Technology of Advanced Vehicles Systems		
SESA6036 Spacecraft Specialisation	SPACECRAFT ENGINEERING DESIGN	
Prerequisites	Fundamentals of Astronautics	
Syllabus		
<p><u>AIMS:</u> The aims of this module are to: * To provide students with a broad appreciation of the processes involved in the design of selected spacecraft subsystems * Illustrate the application of a systems engineering approach by the use of case studies in each of the major mission types (communications, science, remote sensing and manned)</p> <p><u>CONTENT:</u></p> <ul style="list-style-type: none"> * Space environment and its Effect on Spacecraft Design * Orbit Dynamics * Propulsion * Power * Telecommunications 		<p>Lectures: 36h</p> <p>Independent Learning: 164h</p> <p><u>Assessment:</u> Examination *2 h written examination *assignments</p>
TOTAL	ECTS = 10	Total workload: 200H

EUROMIND		
European Master In Design and Technology of Advanced Vehicles Systems		
Spacecraft Specialisation	SPACECRAFT INSTRUMENTATION	
Prerequisites	Fundamentals of Astronautics, Astronautics	
Syllabus		
<p>AIMS: The aims of this module are to: * Assess the requirements for spacecraft instrumentation * To provide an overview of the different types of instruments flown on spacecraft. * To provide students with an appreciation and understanding of the development of the design processes involved for different instruments and how they interface with the spacecraft platform.</p> <p>CONTENT: * Introduction * The spacecraft structural design process * The instrumentation design process in general * The space qualification process * The performance parameters * Overview of detector technology * Physics of instruments * Data Handling and transmission including data processing * Deployment Mechanisms * Thermal and Structural design * Future Developments * Low cost spacecraft</p>		<p>Lectures: 18h</p> <p>Independent Learning: 82H</p> <p><u>Assessment:</u> * 2H written examination</p>
TOTAL	ECTS = 5	Total workload: 100H

EUROMIND		
European Master In Design and Technology of Advanced Vehicles Systems		
SESA3005	ASTRONAUTICS	
SPACECRAFT SPECIALISATION		
Prerequisites	Fundamentals of Astronautics	
Syllabus		
<p>AIMS: The aims of this module are to: * To develop an understanding of spacecraft system engineering and the rôle of subsystem design.</p> <p>CONTENT: * Spacecraft Systems Engineering * Payloads * Mission Analysis * Attitude Control * Space Environment and its Effects on Spacecraft Design * Orbit Dynamics and Mission Anlysis * Spacecraft Propulsion * Spacecraft Power * Thermal Control * Telecommunications, Including Ground Control * Mission Operations * Course Wrap-up</p>		<p>Lectures: 36h</p> <p>Independent learning: 164h</p> <p><u>Assessment:</u> * 3h written examination</p>
TOTAL	ECTS = 10	Total workload: 200H

EUROMIND European Master In Design and Technology of Advanced Vehicles Systems		
SPACECRAFT SPECIALISATION	FUNDAMENTALS OF ASTRONAUTICS	
Prerequisites		
Syllabus		
<p>AIMS: The aims of this module are to: * To introduce the student cohort to their first end-to-end view of spacecraft design</p> <p>CONTENT: * Spacecraft Systems Engineering * Natural and Induced Environment * Launch Vehicles * Payloads * Mission Analysis * Attitude Control * Propulsion * Power * Communications * Thermal Control * Example Classes</p>		<p>Lectures: 18H</p> <p>Independent learning: 82 H</p> <p><u>Assessment:</u> * 2 hours examination * Assignment</p>
TOTAL	ECTS = 5	Total workload: 100H