

DIRECTION DES ÉTUDES ET DE LA VIE DE L'ÉTUDIANT

Avis sur la Convention Master spacemaster, pour la poursuite du partenariat et la signature de la convention sur les 5 ans à venir

# Commission de la Formation et de la Vie Universitaire du 3 septembre 2019

### Délibération 2019/09/CFVU- 57

Vu le code de l'éducation, notamment son article L.712-6-1 Vu les statuts de l'université Toulouse III – Paul Sabatier, notamment son article 35 ;

Après en avoir délibéré, les conseillers donnent un avis favorable sur la convention du Master spacemaster, pour la poursuite du partenariat et la signature de la convention sur les 5 ans à venir. (document joint)

Toulouse le 5 septembre 2019

La Présidente

Régine ANDRE-OBRECHT

Nombre de membres : 40

Nombre de membres présents ou représentés : 21

Nombre de voix favorables : 20

Nombre de voix défavorables : 0

Nombre d'abstentions : 1

Ne prennent pas part au vote: 0

Nombre de votes blancs : 0

### **Consortium Agreement**

# Joint Master Programme in Space Science and Technology – SpaceMaster

**Luleå University of Technology, Coordinating Institution** of the Consortium Universitetsområdet, SE-971 87 Luleå, Sweden represented by Professor Birgitta Bergvall-Kåreborn, Vice-Chancellor

of the one part,

### **Aalto University**

PO Box 11000, Otakaari 1, FI-00076 Aalto, Finland represented by Professor Petri Suomala, Vice President

### **Cranfield University**

Bedfordshire MK43 0AL Cranfield, UK represented by Professor Sir Peter Gregson, Vice-Chancellor

### **Czech Technical University in Prague**

Technicka 2, CZ-166 27 Prague, Czech Republic represented by doc. RNDr. Vojtech Petracek, CSc., Rector FEE CTU Prague

### Université Toulouse III - Paul Sabatier

118 route de Narbonne, 31062 Toulouse Cedex 9, France represented by Professor Jean-Pierre Vinel, President

hereinafter recognised as **partner institutions** of the Consortium. Together, the Coordinating Institution and the partner institutions shall be recognised as **Partners** to the Consortium.

The Partners have agreed to the following terms and conditions, including those in the annexes which form an integral part of this Consortium Agreement.

### Article 1 – Objective of the present Consortium Agreement

§1. The Coordinating Institution and the Partners bind themselves by the terms and conditions found in this Consortium Agreement for the purposes of creating a Joint Master Programme in Space Science and Technology.

### Article 2 – Entry into force and duration

§1. The Joint Master Programme in Space Science and Technology (SpaceMaster) comes into force on the 1<sup>st</sup> of June 2019 and ends in 2025 after the second year of studies at each respective university.

Round 15, 2019-2021

Round 16, 2020-2022

Round 17, 2021-2023

Round 18, 2022-2024

Round 19, 2023-2025

- **§2.** This Consortium Agreement shall enter into force after it is signed by the Partners individually. It shall be valid until the last student admitted into this Programme has completed his or her studies. It shall be renewable and modifiable by mutual agreement of the Partners. All changes and modifications shall be completed in writing and be signed by the authorised representatives of each Partner and the Coordinating Institution.
- **§3.** Should a Partner want to leave the Programme before the expiration of the Consortium Agreement, such a Partner shall nonetheless be bound to observing all of the terms and conditions found in this Agreement for already admitted students.

### Article 3 - Scope and definitions

- §1. Luleå University of Technology is the Coordinating Institution of the Consortium who has agreed to organize the Joint Master Degree Programme in Space Science and Technology SpaceMaster. The Programme in Space Science and Technology SpaceMaster is solely funded by the Partners of this Consortium and the participating students. Funding by each of the Partners will only concern students registered at their respective university.
- **§2.** Each Partner and Coordinating Institution has approved its relative contribution for the realisation of the activities described in Annex 1.

### Article 4 – Consortium objectives and structure

- §1. The Joint Master Degree Programme in Space Science and Technology SpaceMaster is an integrated Master Programme designed by five Partners:
  - Luleå University of Technology, Sweden

- Aalto University, Finland
- Cranfield University, UK
- Czech Technical University in Prague, Czech Republic
- Université Toulouse III Paul Sabatier, France

The Programme is supported by the Associate Partners given in Annex 3.

- **§2.** The objective of the Programme is to combine the large diversity of university expertise in space science and technology into a common platform of competence within the guidelines of the Bologna process. The educational cooperation is supported by the scientific and industrial Associate Partners. It contributes towards European identity, cohesion and security, as well as bringing young people into scientific and technical education.
- §3. The Programme duration is two academic years and it carries 120 ECTS. The first year takes place at LTU, Kiruna Space Campus (60 ECTS). The second year (together with the Master thesis project) takes place at one of the Partner universities. The Master thesis project can also take place at Associate Partners as well as other industrial and research organisations relevant to the Programme scope.
- **§4.** A student who fulfils the requirements for the Master Degree is eligible for a Master diploma. Each university confers a Master Diploma based on national legislation and institutional rules. A double degree may be awarded subject to a bilateral written agreement between two Partners.
- **§5.** The Consortium has a Steering Committee, an Administrative group, and an External Advisory Board. Functions, constitution and responsibilities of the respective bodies are outlined in Annex 1.
- **§6.** The Programme is open for students from all countries.

### Article 5 – Responsibilities of the Coordinating Institution

- §1. The Coordinating Institution shall undertake the steps necessary to perform and correctly manage the Programme according to the objectives and directions outlined in Annex 1 of this Agreement.
- **§2.** The Coordinating Institution shall communicate to the Partners any information or documents required for the management of the Programme.
- **§3.** The Programme Coordinator is a representative of the Coordinating Institution.
- §4. The Coordinating Institution shall manage in particular the following activities:
  - general coordination of the Programme in collaboration with the Partners;
  - coordination of the decision taking procedure in collaboration with the Partners;
  - creation of tools shared between the Partners (website, forms, guidelines, etc.) in collaboration with the Partners;
  - organisation of selection and admission of students;

- coordination of student re-distribution for the second year including academic documents from the Coordinating Institution for student registration at each Partner respectively;
- complementary proposals and applications within the Program if applicable.
- §5. The Coordinating Institution cooperates with the Associate Partners.

### Article 6 - Responsibilities of the Partners

- §1. Each Partner shall carry out the work in such a way that no act or omission in relation thereto shall constitute, cause, or contribute to any breach or non-compliance by the Coordinating Institution or by other Partners of any of their respective obligations towards the admitted students.
- **§2.** The Partners shall undertake the steps necessary to perform and correctly manage the Programme according to the objectives and directions outlined in Annex 1 of this Agreement.
- §3. The Partners shall communicate to the Coordinating Institution any information or documents required for management and realisation of the Programme.
- **§4.** Each Partner shall organise and realise the Programme activities in its own institution, and assist student registration and enrolment.
- **§5.** Each Partner shall nominate representatives to the Steering Committee and the Administrative Service of the Programme.
- **§6.** Each Partner shall participate in the following procedures:
  - promotion and advertising of the Programme;
  - meetings of the Steering Committee;
    - elaboration of the internal reports in collaboration with the Coordinating Institution;
    - cooperation with the Associate Partners.
- §7. The Partners should notify any delay in performance or any event that may impact on the Programme to the Coordinating Institution.

### Article 7 - Decision taking

- **§1.** The Consortium shall adopt decisions regarding:
  - management of the Programme;
  - communication tools (documents for promotion and presentation, web site);
  - selection of the students;
  - addition of new items to the Programme;
  - suggestions for changes to Annex 1, 2, 3 of this Agreement.
- **§2.** Decisions shall be taken during meetings, video-conferences, tele-conferences or by means of e-mail. All Partners and the Coordinating Institution shall be consulted.

- §3. Due to the remote nature of the consultation all Partners shall acknowledge receipt of any question submitted to them by the Coordinating Institution within one calendar week. Should a Partner representative fail to respond within one calendar week, the Coordinating Institution shall send a reminder. Should the Coordinating Institution then fail to get a reply from the Partner representative, the decision will be taken by at least three Partners including the Coordinating Institution. The Partners shall commit themselves not to block a decision by deliberately not acknowledging receipt. Questions shall not be submitted during legal holidays in the respective countries.
- §4. Decisions regarding the activities of one Partner in particular shall not be taken in its absence.
- **§5.** Since a decision binds the Partner's institution the Partner representatives shall ensure that their decision is in agreement with their respective institution's practices and legal obligations.
- **§6.** A Partner who declares that a decision goes against the legal administrative procedures of his/her institution shall support his/her declaration by legal documents. In this case, the Coordinating Institution and the Partners shall make efforts to resolve the case to the general satisfaction of the Partners and the Coordinating Institution.

#### **Article 8 - Financial Provisions**

- §1. Each Partner is responsible for their own costs associated with Programme activities at their respective university.
- §2. Students admitted into the Programme shall transfer all participation costs and fees to the Coordinator. The Coordinator shall then transfer the applicable participation costs and fees to the individual Partners. See Appendix 2. The individual Partner can collect its own applicable participation costs and fees. This action should be communicated to the Coordinator before the application deadline for the next academic year, i.e. January 15.
- §3. Students admitted into the Programme are solely responsible to cover their own costs associated with the participation in the Programme. These include, but are not limited to, the costs associated with travel, accommodation, daily expenses and insurance.

### Article 9 - Liability

- §1. Each Partner and the Coordinating Institution shall be fully responsible for the performance of any part of its share for the Consortium Agreement and for the requirements of insurance and social security for its personnel involved therein.
- **§2.** Each Partner shall be solely liable toward other Partners within the Consortium and toward third parties for loss, destruction, damage or injury resulting from its own actions in the execution of this Consortium Agreement.

#### **Article 10- Data Protection**

- §1. The Partners may share personal information pertaining to students participating in the Programme.
- **§2.** The Partners may have access to a joint database created by the Coordinating Institution where personal information pertaining to students participating in the Programme may be shared for education purposes. In such a situation, Partners undertake to follow both their own national laws pertaining to processing of personal data as well as any corresponding EU Regulation or Directive including General Data Protection Regulation (GDPR).

### Article 11 - Applicable regulations

- **§1.** The Programme student is bound by the rules and regulations from the university where she/he is enrolled in studies.
- **§2.** The settlement of any difference or conflict arising from or in connection with this Consortium Agreement shall be attempted by amicable efforts by the Partners.

### Article 12 - Language policy

- **§1.** The official language of the Consortium is English.
- **§2.** This agreement may be translated in national languages: Czech, Finnish, French, and Swedish for local purposes.

### Article 13 — Diploma supplement

Students successfully completing the Programme may be sent a diploma supplement by the Coordinating institution that details the joint Space Master Programme taken and achieved over the whole two year period. The Partners agree to the use of their university logo on this diploma supplement.

### The following annexes are part of the present Agreement:

Annex 1. – Programme structure and management

Annex 2. - Programme participation costs and tuition fees

Annex 3. – Associated partners

### For Luleå University of Technology

Name and position:		 	
Signature, date:		 	
Stamp:			

### For Aalto University

Name and position:		·	
Signature, date:			
Stamp:			

### For Cranfield University

Name and position:	 	 	
Signature, date:			 
Stamp:			

### For Czech Technical University

Name and position:	<u></u>	 	
Signature, date:		<u></u>	 
Stamp:			

### For Université Toulouse III - Paul Sabatier

Name and position:	 	 		
Signature, date:			 	
Stamp:				

### **Annex 1. Programme Structure and Management**

### A.1 Program Structure

The Programme has a common first year for all students. The first year takes place at Luleå University of Technology (LTU), Kiruna Space Campus, Sweden. During the second year the students are distributed among the partner universities, i.e. Aalto University (Aalto), Cranfield University (Cranfield), Czech Technical University in Prague (CTU), University of Toulouse III-Paul Sabatier (UT3). The students select the preferred track of specialization and second year university when applying. During the 4th semester the students carry out their Master thesis projects. Table 1 gives the structure of the Programme.

Table 1. Programme structure and student distribution on tracks.

Semester 1 Semester 2	All students at LTI Compulsory and c	J optional modules 60	ECTS. Option	onal module in Swe	edish language.
Semester 3	Aalto Track E1 30 ECTS Track S1 30 ECTS	Cranfield Track E2 15 ECTS	CTU Track E3 3	0 ECTS	Track S2 30 ECTS Track E4 30 ECTS  + Bridging and French modules for both tracks
Semester 4	Aalto Master thesis 30 ECTS	Cranfield Master thesis 45 ECTS	CTU Master thesis 30 ECTS	UT3 Track S2 30 ECTS Master thesis & 1 module Track E4 30 ECTS Master thesis & practical work.	LTU Master thesis 30 ECTS

While the Programme will keep the overall coherence, the module structure at each of the partner universities may be modified during the duration of the Programme. The modifications will be submitted as an addendum to the original agreement.

### A.1.1 First semester, 30 ECTS, LTU, Sweden

Compulsory modules:

- 1. F7008R The Solar System; 7.5 ECTS
- 2. F7001R Space Physics; 7.5 ECTS
- 3. Spacecraft Systems; 7.5 ECTS
- 4. R7021R Space Communications; 7.5 ECTS

### Optional module:

1. S0046P Swedish for International Students; 3 ECTS

### A.1.2 Second Semester, 30 ECTS, LTU, Sweden

### Compulsory modules:

- 1. F7013R Space Instruments; 7.5 ECTS
- 2. R7004R Spacecraft Environment Interactions; 7.5 ECTS (E track)
- 3. E7003R Space Electronics; 7.5 ECTS (E track)
- 4. F7004R Atmospheric Physics; 7.5 ECTS (S track)
- 5. F7014R Polar Atmosphere; 7.5 ECTS (S track)

### Optional modules:

- 1. D70001R Microcomputer Engineering for Space Applications; 7.5 ECTS, (E track)
- 2. P7005R Space Engineering Project; 7.5 ECTS
- 3. E7003R Space Electronics; 7.5 ECTS (S track)
- 4. F7001E Radiative Transfer; 7.5 ECTS (S track)
- 5. F7001E Spectroscopy for Planetary Exploration; 7.5 ECTS (Strack)

### Second year

During the second year there is a track at the chosen partner university. The students will earn 60 ECTS at each university. The 60 ECTS is recognized by LTU.

#### A.1.3 Third Semester

- E1 Engineering Track 1
- E2 Engineering Track 2
- E3 Engineering Track 3
- E4 Engineering Track 4
- S1 Scientific Track 1
- S2 Scientific Track 2

### A.1.3.1 Engineering Track 1, 30 ECTS, at Aalto, Finland – Space Robotics and Automation Compulsory modules:

- ompulsory modules.
  - Embedded real-time systems; 5 ECTS
     Modelling, Estimation and Dynamic Systems; 5 ECTS
  - 3. Robotics; 5 ECTS
  - J. HODOIIGS, J LOTS
  - 4. Finnish 1A; 2 ECTS
  - 5. Thesis Writing for Engineers; 3 ECTS

#### Optional modules, minimum 10 ECTS:

- 1. Autonomous Mobile Robots; 5 ECTS
- 2. Computer Vision 5 ECTS;
- 3. Micro and Nano Robotics; 5 ECTS
- 4. Mechatronics Basics; 5 ECTS
- Robotic Manipulation; 5 ECTS
- 6. Satellite Systems; 5 ECTS
- 7. Stochastics and Estimation; 5 ECTS

### Freely elective modules:

- Get to Know Finland; 1 ECTS
- 2. Reinforcement Learning; 5 ECTS

### A.1.3.2 Engineering Track 2, 15 ECTS, at Cranfield, UK - Dynamics and Control of Systems and Structures

### Compulsory module:

1. Space Propulsion; 5 ECTS

### Optional modules:

- 1. Design and Analysis of Composite Structures; 5 ECTS
- 2. Control Systems; 5 ECTS
- 3. Spacecraft Attitude and Control: 5 ECTS
- 4. Multivariable Control Systems for Aerospace Applications; 5 ECTS
- 5. Aerospace Navigation and Sensors; 5 ECTS
- 6. Finite Element Analysis; 5 ECTS

### A.1.3.3 Engineering Track 3, 30 ECTS, at CTU, Czech Republic - Space Automation and Control

- 1. Control Systems for Aircraft and Spacecraft; 7 ECTS
- 2. Space Systems, Modeling and Identification, 7 ECTS
- 3. Optimal and Robust Control Design; 8 ECTS
- 4. Individual Design Project; 8 ECTS

### A.1.3.4 Engineering Track 4, 30 ECTS, at UT3, France - Space Technique and

- 1. Space Sciences; 6 ECTS
- 2. Space Systems and Technology; 9 ECTS
- 3. Data Analysis and Programming; 9 ECTS
- 4. Scientific English or Beginner's French; 3 ECTS
- 5. Space Industry and Engineering; 3 ECTS

### A.1.3.5 Scientific Track 1, 30 ECTS at Aalto, Finland – Space Science and Technology

### Compulsory modules:

- Space Instrumentation; 5 ECTS
- 2. Microwave Earth Observation Instrumentation; 5 ECTS
- 3. Radio Astronomy; 5 ECTS
- 4. Finnish 1A; 2 ECTS
- 5. Thesis Writing for Engineers; 3 ECTS

#### Optional modules, minimum 10 ECTS

- 1. Introduction to Space; 5 ECTS
- 2. Autonomous Mobile Robots; 5 ECTS
- 3. Computer Vision 5 ECTS;
- 4. Micro and Nano Robotics; 5 ECTS
- 5. Mechatronics Basics; 5 ECTS
- 6. Robotic Manipulation; 5 ECTS
- 7. Satellite Systems; 5 ECTS
- 8. Stochastics and Estimation; 5 ECTS

### Freely elective modules:

- 1. Get to Know Finland; 1 ECTS
- 2. Reinforcement Learning; 5 ECTS

## A.1.3.6 Scientific Track 2, 30 ECTS at UT3, France - Astrophysics, Space Science, Planetology Compulsory modules:

- 1. Physics and Astrophysics; 15 ECTS
- 2. Instrumentation, Data Analysis, Space Mechanics and Engineering; 6 ECTS
- 3. Scientific English or Beginner's French; 3 ECTS

### Optional modules (choose 3) 6 ECTS

- 1. Planet-environment interactions; 2 ECTS
- 2. Interstellar medium; 2 ECTS
- 3. Compact objects and accretion; 2 ECTS
- 4. Star and planet seismology; 2 ECTS
- 5. Planetary surfaces and global cycles; 2 ECTS
- 6. Cosmology and galactic physics; 2 ECTS
- 7. Evolution of Telluric planets; 2 ECTS

### A.1.4 Fourth Semester

The students will do their Master thesis work valued at 30 ECTS at Aalto, CTU, LTU, UT3 (For S1 a combination of Internship 27 ECTS and Numerical Simulations and Data Processing 3 ECTS. For E3 a combination of II 21 ECTS and Practical Assignments 9 ECTS) and 45 ECTS at CU during the 4<sup>th</sup> semester. Thesis work may be performed at the host university of the second year, other Partners, Associate partners, industry or research institutions related to the Programme specialisations.

The individual Master thesis will be assessed according to the specific regulations of each second-year partner. LTU will assess the Master thesis according to its regulations and participates in the Examination Board at partner universities according to their specific regulations.

### A.2 Learning Outcomes

After successful completion of the Programme the graduating student will have acquired skills in the following areas:

### Knowledge and Understanding

- within the main field, i.e. space science and technology, with considerably deeper knowledge within certain parts of the field,
- that give deep insight into current research and development work,
- to show deep knowledge of methods within the main field of the Programme.

### Proficiency Skills and Capacity

- that demonstrate the capability to critically and systematically integrate knowledge, to analyse, evaluate and handle complex phenomena, problems and situations even with limited information,
- to critically, independently and in a creative way identify and formulate problems, to be able to plan
  and with adequate methods to carry out qualified tasks within the given time frames, and thus to
  contribute to the knowledge development as well as to evaluate this work,
- to make oral and written presentations during national and international events, to discuss problems and use arguments suitable for dialogs with different target groups,
- for participation in research and development work or for independent work in another qualified area.

### **Evaluation Skills and Viewpoint**

- to make evaluations with regard to the relevant scientific, social and ethical aspects for research and development work,
- about scientific possibilities and limits, their roles in society and humanity's responsibility for the way of their use,
- to identify their own needs for further knowledge and to take the responsibility for their own lifelong learning.

### A.3 Programme Integration and Recognition

### A.3.1 Integration and Recognition

Programme modules have been developed by each partner university for the existing SpaceMaster Programme. All modules are truly integrated and fully recognized by the degree awarding European universities. Recognition of the Programme in each participating university is carried out by institutional official procedures, which is to assure also that double degrees (two national MSc degrees) can be awarded. Recognition of the Programme includes the following:

- the Programme lasts two academic years and carries 120 ECTS;
- the Programme starts September 2 2019 and ends at the latest by October 30 2025;
- the Consortium partners make joint consensus in numerous aspects including application, selection, admission and examination procedures; application and selection procedures;
- the universities in the Consortium will charge the participation costs according to their respective national legislations and university rules and to ensure the sustainability of the Programme, the participation costs are transparent and clear for the applicants;
- all active university partners will be hosting institutions for the Programme students;
- all students will complete the totality of their studies in Europe being physically in at least two European partner universities (however, activities related to the master's thesis may be performed outside Europe);
- the study medium within the Programme is mainly English. UT3 offers beginner's French language courses. LTU offers a Swedish language module. CU offers English language module. CTU offers Czech language module. Aalto offers a Finnish language module;
- LTU and the university of the second year guarantee the award of the double degree to all successful students. The degrees are fully recognized by the relevant authorities of the countries involved:
- the International Offices at all partner universities will assist in obtaining the visa and residence permit by issuing additional documents for the respective immigration services upon request and within the available resources;
- the current SpaceMaster Programme is promoted via the main web site <a href="www.spacemaster.eu">www.spacemaster.eu</a>. This main site is linked to the local web sites at the partner universities.

### A.3.2 Degrees Awards

A student who fulfils the requirements for the Master Degree will receive upon request a double diploma, i.e. diploma certificates from LTU and the partner European university (Table 2).

Table 2. Degrees awarded.

		El Dogi oco amai acai	
Name of the degree awarding university	Name of the Degree awarded in national language	Name of the Degree awarded in English	Degree recognised at national level (Yes / No*)
Aalto	Diplomi-insinööri	Master of Science (Technology))	Yes
СТИ	Inženýr-ve zkr. lng. / Engineer – in abbr. lng.	MSc in Electrical Engineering and Informatics - Control Engineering	Yes
CU	MSc in Astronautics and	MSc in Astronautics and	Yes

	Space Engineering	Space Engineering	
LTU	Teknologie masterexamen, huvudområde rymdteknik	MSc with a Major in Space Technology	Yes
UT3	According to chosen track:  Mention Sciences de	MSc in Space Techniques	Yes
	l'univers et Technologies Spatiales : techniques spatiales et instrumentation.	and Instrumentation,	
	Mention Sciences de l'univers et Technologies Spatiales : Astrophysique, sciences de l'espace, planétologie.	MSc in Astrophysics, Space Science, Planetology	

<sup>\*</sup>The validity period is not specified, i.e. the degrees are recognised for the time being until further notice.

The Diploma Supplement at Aalto, LTU, CTU, UT3 follows the model developed by the EC, Council of Europe and UNESCO/CEPES. It provides a full description of the curriculum, the role of the universities in the Consortium and the national educational system for each university in the Consortium in order to make it easy to apply for work/education abroad.

A Joint Appendix to Diploma Supplement may be issued by the Consortium after the appropriate juridical decisions are made by the universities involved.

# A.3.3 Standards and Mechanisms for the Application, Selection and Admission of Students A.3.3.1 Application

The Programme is open for all applicants around the world. The eligibility requirements have been recognised by all Consortium universities and are the following:

- successful completion of a Bachelor's degree or equivalent "kandidatexamen" for Swedish
  applicants with a minimum of 180 ECTS in the areas of physics, space physics, astronomy,
  engineering, electronics, mechatronics, space technology, mathematics, computer science or
  equivalent;
- a minimum of 22.5 ECTS in mathematics at university level is required;
- students from non-EU Countries are required to satisfactorily complete English proficiency tests
  provided by Cambridge Certificate, TOEFL test, IELTS test or equivalent test. Students from EU
  countries are required to have obtained a pass in an English language course in their upper
  secondary school leaving certificate or complete an English proficiency test.
- for the science track at UT3 it is essential to have a background with good marks in physics based subjects.

The applicant will be required to submit:

- a completed application form for the Programme;
- truly certified, i.e. by notarius publicus, academic grade certificates and diploma from the previous university studies in the original language and translated to English;

- truly certified, i.e. by notarius publicus, academic grade certificates and diploma from the high school studies in the original language and translated to English;
- truly certified, i.e. by notarius publicus, copy of the passport;
- curriculum vitae including academic studies and professional experience;
- · two recommendation letters in English from two senior experts;
- certificate of English proficiency test;
- a motivation letter which includes two ranked options for university choice and the track for the second year.

The registration for the application procedure is done online via the Swedish National Agency for Service to Universities and University Colleges (VHS) <a href="www.universityadmissions.se">www.universityadmissions.se</a> and common to all students. The applicant will have the right to complement his/her documentation until a specified date. After applying the applicants can log into <a href="www.universityadmissions.se">www.universityadmissions.se</a> at any time to check on the status of their application. Their status will be updated throughout the application process. In addition they will be informed via e-mail about the status of their application.

#### A.3.3.2 Selection

All application documents should be submitted before the selection process begins. Selection of the applicants will be made in 3-steps:

- 1. Authenticity of all certificates and diplomas will be checked by the University Admission service in Sweden.
- 2. Eligibility of the applicants according to the outlined requirements will be checked by the Admissions Office at LTU.
- 3. The eligible applicants will be evaluated by the Consortium Admission Board according to the Ranking Criteria established by the current SpaceMaster Consortium in line with the proficiency requirements for Programme tracks. In order to comply with the available places at each partner university this information will be taken into account during the selection process.

Students offered admission to the Programme will be proposed a second year university and in accepting admission they also accept this choice for their second year. The student can change her/his priorities for the second year after the admission and during the first study year. In this case the Consortium will not guarantee to satisfy the student's choice and reserves rights to offer place(s) at other partner universities upon availability that may also result in delivery of a single diploma upon successful accomplishment of the studies.

### A.3.3.4 Admission

The candidates will follow the admission and registration procedures at LTU for the first year. At the end of the first year the students will follow the admission and registration procedures at the corresponding partner universities responsible for the second year. Details will be sent during the first study year, to the students concerned, of how and when to realise this procedure.

Students who will opt to study the second year at CTU will proceed with the registration before the start of the first year.

Admission for the second year depends on obtaining satisfactory performance during the first year according to the regulations of the corresponding partner university. In exceptional circumstances (failure by the student to obtain satisfactory results during the first year, unforeseen problems such as non deliverance of a visa, mutually agreed changes) the second year university may be altered with the final decision being made in the second semester of the first year.

### A.3.3.5 Participation Costs and Fees

The participation costs and fees will be charged according to the university regulations at the partner universities, and to ensure the sustainability of the Programme.

### A.4. Insurance Scheme

During working hours all students will be covered by student university insurance according to the national legislations and university rules.

### A.5 Disadvantaged Students

According to the national labour and educational legislations the partner universities provide facilities to people with disabilities and special needs, i.e. elevators for carriage, entrances without steps, microphones, and special diet meals. Students with dyslexia are supplied with additional audio support during their studies. Times for their examinations are prolonged.

### A.6. Program Management

The management structure of the Consortium which contains a Steering Committee, an Administrative Service and an Admission Board is outlined in Diagram 1.

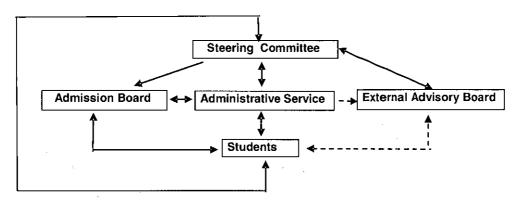


Diagram 1. Management structure of the Programme.

### **Steering Committee:**

Chairman – LTU's Coordinator. Coordinators from partner universities.

### Functions:

- to specify and develop the academic, administrative and financial regulations implemented in the Programme;
- to work in close collaboration with the academic and administrative services in the partner universities;
- to determine the strategic directions for the academic development of the Programme;
- to provide resources for administrative support of the Programme;
- to work out annual and long-term financial and activity plans;
- to work out a plan for visiting scholars on the basis of the educational needs;
- to organize regular meetings and ceremonies.

#### **Administrative Service:**

Administrative coordinators from, Aalto, CTU, CU, LTU, UT3

International Offices, Diploma/Examination Offices, Student Career Centres at Aalto, CTU, CU, LTU, UT3. Functions:

- To ensure the necessary administrative support of the Programme that has been specified by the Steering Committee;
- to provide excellent service to the students.

#### **Admission Board:**

Chairman – LTU's coordinator.

Academic staff from Aalto, LTU, CTU, CU, UT3.

Admission Offices at Aalto, LTU, CTU, CU.

International Offices at UT3.

Functions:

- to update the Ranking Criteria for selection and ranking of the applicants;
- to ensure a fair ranking of the applicants dependent on their qualifications and chosen partner university;
- to assist administrational staff in the Admission and International Offices of the partner universities.

### **External Advisory Board:**

Associated partners.

### Functions:

- to strengthen ties between industry and academia by offering placements and provide supervision for internships and Master thesis;
- to provide lecturing in the modules;
- to provide scientific facilities and access to instrumentation for educational purposes;
- to work with quality assurance issues of the Programme;
- to provide the Steering Committee with socio-economic, scientific, market and other relevant information including prognoses and documents in order to guarantee the development of graduate profiles.

**Annex 2. Programme Participation Costs and Tuition Fees** 

First year (semester 1, semester 2)							
University	Citizens from EU/EES, Nordic countries, Switzerland, others*	Citizens outside EU/EES, Nordic countries, Switzerland					
Luleå University of Technology	0	140.000 SEK					
Seco	Second year (semester 3, semester 4)						
University	Citizens from EU/EES, Nordic countries, Switzerland, others*	Citizens outside EU/EES, Nordic countries, Switzerland					
Aalto University	0 Student Union fee 116 EURO	14.000 – 15.000 EURO*** Student Union fee 116 EURO					
Cranfield University	11.000 EURO	22.500 EURO					
Czech Technical University in Prague	132.000 CZK	132.000 CZK					
Luleå University of Technology**	0	140.000 SEK***					
Université Toulouse III - Paul Sabatier	2.000 EURO	2.500 EURO					

others\* - persons with permanent residence permit in Sweden, residence permit in Sweden of other reasons than studies. The detailed information is available on <a href="https://www.universityadmissions.se/en/All-you-need-to-know1/Applying-for-studies/Fees-and-scholarships/Am-l-required-to-pay/">https://www.universityadmissions.se/en/All-you-need-to-know1/Applying-for-studies/Fees-and-scholarships/Am-l-required-to-pay/</a>

The participation costs are subject to adjustment every academic year. The costs should be announced before the application deadline for the next academic year, i.e. January 15.

<sup>\*\* -</sup> Master diploma from Luleå University of Technology, no double diploma.

<sup>\*\*\*-</sup> The students may apply for the university scholarships.

### Annex 3. Associated Partners 2019-2020

- 1. Swedish Institute of Space Physics (IRF), Sweden <a href="https://www.irf.se/sv/start/">https://www.irf.se/sv/start/</a>
- 2. EISCAT Scientific Association, Sweden https://www.eiscat.se/
- 3. Swedish Space Corporation (SSC Space), Sweden http://www.sscspace.com
- 4. esc Aerospace s.r.o., Czech Republic <a href="http://www.esc-aerospace.com/">http://www.esc-aerospace.com/</a> <a href="http://www.evolvsys.cz/files/tmp/esc\_catalogue\_2015.pdf">http://www.evolvsys.cz/files/tmp/esc\_catalogue\_2015.pdf</a>
- 5. Wigner Research Centre for Physics, Institute for Particle and Nuclear Physics, Hungary <a href="https://wigner.mta.hu/en/">https://wigner.mta.hu/en/</a>
- 6. Harbin Institute of Technology (HIT), Institute of Space Science and Applied Technology (ISSAT), China http://en.hit.edu.cn/
- 7. The University of Tokyo (Todai), Graduate School of Science, the Department of Earth and Planetary Science, Japan <a href="https://www.u-tokyo.ac.jp/en/">https://www.u-tokyo.ac.jp/en/</a> http://interface.t.u-tokyo.ac.jp/english/
- 8. University of Colorado, Smead Aerospace Engineering Science Department, USA <a href="https://www.colorado.edu/">https://www.colorado.edu/</a>
- 9. ICEHOTEL AB, Sweden <a href="https://www.icehotel.com/en-gb/">https://www.icehotel.com/en-gb/</a>