Space education proposals under RPA call in Latvia

12 September 2022

Rationale of space education

Three pillars

Why finance space education?

- **Prepare** and **encourage** students to pursue a career in the space industry
- Provide a suitable and ready **workforce** for Latvian entities
- Leads to **stronger European expertise**
- Help initiate **collaboration** between ESA member states

Development of a space degree

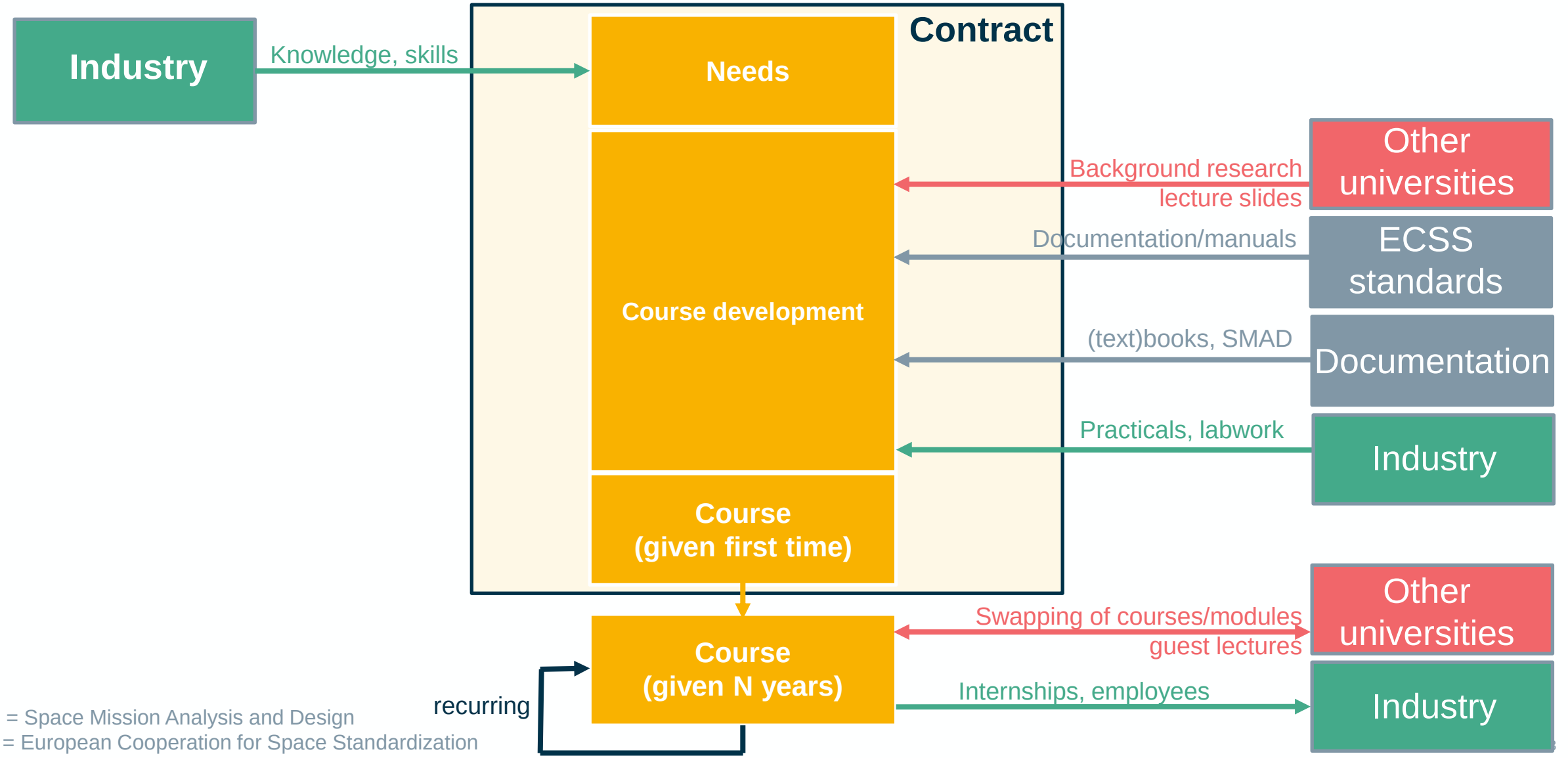
- **Prerequisites**
  - Needs to **build on existing degrees**
  - Cannot be done in one step
  - Responds to **needs of local industry**
  - Modules have test criteria (exam/thesis) AND give credits (ECTS)
- **Very strongly encouraged**
  - Use of ECSS

International links

- **Increases efficiency** of the course development
- Space business is international
- **Increases visibility** of space education
- Improves **chances for collaborations** with other entities of ESA member states
- **Very strongly encouraged**
  - Use of English

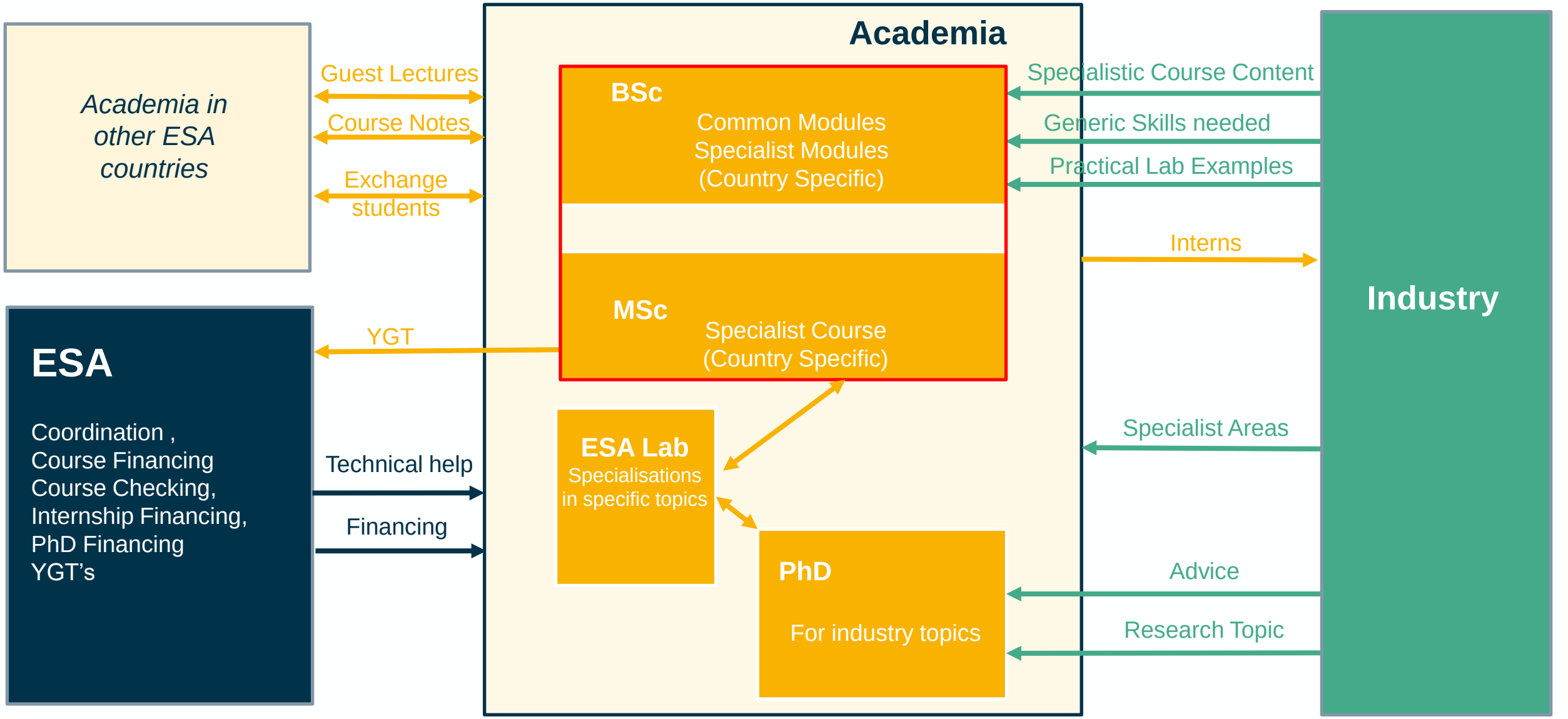
ECSS = European Cooperation for Space Standardization

Space Education Development Model



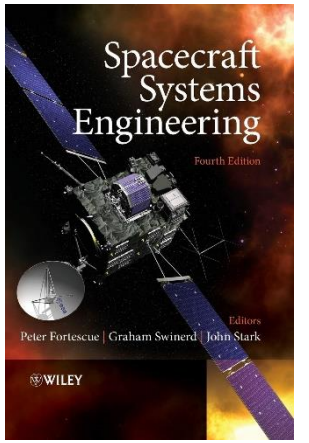
SMAD = Space Mission Analysis and Design
ECSS = European Cooperation for Space Standardization

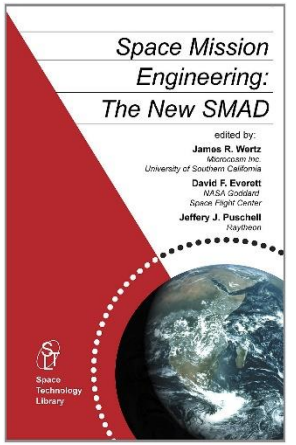
Idealized model for long term Space Education and cooperation with industry



Common mistakes in Education Proposals

- Not showing outline course contents
- Not showing the input information sources (textbooks, SMAD, universities, etc.)
- Not having the course in English (at least partially)
- Not including industry
- Not taking advantage of ECSS
- Not being accredited OR discussing accreditation process
- Not including independent reviews of course material (correct and complete information)
- Not giving assurances of recurring nature of the course (i.e., it is a single shot/one off)
- Not showing how it fits into the current BSc/MSc programme OR discussing end goals





Overview of funded space education activities

	Activity	Country	Entity
1	Space Education for Bulgaria (SpaceEdu4BG)	Bulgaria	Faculty of Physics, Sofia University St. Kliment Ohridski
2	TRACOFUNAT: Training courses “Fundamentals of aerospace technologies”	Lithuania	Vilnius University
3	Space Image Processing	Lithuania	Vilnius Gediminas Technical University
4	University Course and Public Lectures on Earth Observations (UniEO)	Lithuania	Faculty of Chemistry and Geosciences, Vilnius University
5	Aquatic Remote Sensing in Higher Education (QREDO)	Lithuania	Klaipeda University
6	VENTSPILS UNIVERSITY COLLEGE SATELLITE TECHNOLOGY EDUCATION PROGRAMME	Latvia	Ventspils University College
7	Development of study course “Thermal Management and Power Electronic Packaging in Spacecraft Applications"	Latvia	Riga Technical University
8	Introduction to Wavelets for Space Applications	Latvia	University of Latvia
9	Development of university course – satellite communications systems	Latvia	Ventspils University College
10	Space for Education, Education for Space (SEES)	Slovakia	Slovak University of Technology - FEI-STU
11	TUKE Space Forum	Slovakia	Faculty of Electrical Engineering and Informatics, Technical University of Kosice
12	University course Earth Observation with ESA missions	Slovakia	Faculty of Mining, Ecology, Process Control and Geotechnologies, Technical University of Kosice
13	SIREN Space Ionizing Radiation Experts Nursery	Slovakia	Slovak Academy of Sciences - Institute of Experimental Physics

Other key universities in Member States

	University	Country
1	Technical University of Denmark	Denmark
2	ISAE Superaero	France
3	Technical University of Berlin	Germany
4	Technical University of Munich	Germany
5	Polytechnic University of Milan	Italy
6	Sapienza University of Rome	Italy
7	University of Pisa	Italy
8	Delft University of Technology	Netherlands
9	KTH Royal Institute of Technology	Sweden
10	Swiss Federal Institute of Technology Zurich	Switzerland
11	Cranfield University	UK
12	University of Glasgow	UK
13	University of Southampton	UK
14	University of Surrey	UK

- Note: this list is far from comprehensive