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INTERNATIONAL SPACE UNIVERSITY

2014 - 2015

MESSAGE FROM THE PRESIDENT

One cannot ignore the negative impact of the present economic situation which hits all sectors, also the space sector. However, economy is cyclic and first positive recovery indicators are appearing. Unfortunately unemployment for younger professionals remains high, but the best remedy against this remains to start a professional career with a strong academic background which is in high demand. If we take as an example the ISU Master degree (MSS), a survey of the last Master class, graduating in 2012, taught us that more than 75% of the alumni found a job (or started a PhD) within only 6 months after graduation.

ISU provides a number of possibilities at all levels and tailored to the respective needs. Space professionals can join the shorter, resp. 9 and 5 weeks, programs at SSP or SHS/SP. This will considerable broaden the knowledge on other disciplines and no doubt will be an asset for career development or also be of benefit to young professionals with different backgrounds (life sciences, policy, law, business,…) interested in entering the space sector.

Also professionals at middle or higher management level, entering the space field after a career in different sectors, will considerably profit from the short one-week Executive Space Program, providing an introduction to the space field and its terminology, hence facilitating communication with space specialists.

Space is a complex endeavor whereby a maximum performance with a minimum mass, combined with high resistance and high reliability, is a permanent objective. It is therefore no surprise that many space specialists, mastering these space system engineering and project management techniques, can be found in other areas where such complexity is increasingly required, just think of the automotive industry and robotics, just to quote a few examples. Therefore studies at ISU do not restrict the alumni to the space sector, but allow also for careers in other, complex, sectors.

Besides gaining this knowledge there is a very strong additional advantage of joining the International Space University. Indeed, you will join the most powerful network of space professionals in the world, with some 3700 ISU alumni from more than 100 countries! Therefore, do not hesitate and have a look in this brochure. It is sure that for you, interested in space – hence in the future! – there will be a program well fitting your situation.

Looking forward to meet you in ISU,

Walter Peeters

"The International Space University is an institution founded on the vision of a peaceful, prosperous and boundless future through the study, exploration and development of space for the benefit of all humanity."

ISU Founders: Peter Diamandis, Todd B. Hawley, Robert D. Richards

THE INTERNATIONAL **SPACE** UNIVERSITY

ISU's concept

3Is approach
- International
- Interdisciplinary
- Intercultural

"ISU is an institution which recognizes the importance of interdisciplinary studies for the successful exploration and development of space. It is dedicated to international affiliations, collaboration, and open, scholarly pursuits related to outer space exploration and development. ISU is a place where students and faculty from all backgrounds are welcomed; where diversity of culture, philosophy, lifestyle, training and opinion are honored and nurtured."

ISU Credo

ISU's mission

- Develop the future leaders of the space community
- Nurture the exchange of knowledge and ideas on the challenging issues related to space in a neutral forum
- Impart the critical skills essential to future space initiatives

MESSAGE FROM THE DEAN

ISU has built its reputation on the solid foundation of its interdisciplinary academic and professional development programs. The strength of the university is derived from the ISU faculty and the impressive array of academic offerings, which address a broad range of training and educational needs of those working in the space sector and related enterprises. The demographics of our clientele are just as far ranging, comprising young graduates to seasoned professionals.

Whether the requirement is a three- to five-day intensive space course aimed at executives or a full fledged masters experience designed for recent graduates, ISU has in its portfolio of offerings a program that will fit most any space educational requirement. ISU programs are highly interdisciplinary with a strong hands-on experiential learning component and are offered in an international intercultural environment. Academic excellence is stressed at all levels, preparing our alumni to succeed in the extremely dynamic and challenging fields of space exploration and exploitation.

ISU provides our students and participants with a unique skill set, placing emphasis on understanding the "big picture" as well as providing an appreciation of the details of the various subject matter elements that are important and relevant to space endeavors. For example, a successful spacecraft design requires the integration of structures, mechanisms, thermal controls, electronics, communications, data processing, power, and attitude and orbital control systems and orchestration of their various functions. Not only are the technical considerations of space missions addressed, but also the relevant business, management, law, and policy aspects. Indeed, ISU alumni success results from artfully weaving together the threads of space science, engineering, management and business, space applications, life sciences, law and policy, and humanities into a rich and complex interdisciplinary tapestry.

Academic excellence and rigor are crucial to the success of our academic programs. With the sage advice of the ISU Academic Council and steady direction of the Academic Advisory Committee of the Board of Trustees, ISU programs are continually improved and enhanced to ensure that the content is up-to-date, highly relevant, and delivered consistent with best pedagogical practice. As a result, our programs are recognized world wide. Our goal is to continue to provide an academic experience of the highest quality.

We look forward to welcoming you into one of our programs soon, be it at our Central Campus in Strasbourg, or in one of our globetrotting academic offerings somewhere else on the planet.

Angie Bukley

"My life can be clearly divided between before and after ISU. ISU was a breaking point that created a world of possibilities in front of me."

Carmen Felix, MSS10

THE ISU EDUCATIONAL EXPERIENCE

Specializes in the education of postgraduates and professionals to prepare them for work in an exciting, progressive sector – Space! Future leaders and influential thinkers need new skills and a global perspective to prepare them to meet the challenges of a constantly evolving world.

Located in Strasbourg, France, ISU provides an incomparable opportunity for an international and interdisciplinary education. Students and teachers come from around the world, with experience in many fields related to the space sector, both technical – physical and life sciences, technology and engineering, applications, medicine – and non-technical - law, economics, business, humanities, art, policy, philosophy, history.

Living and working in a unique international environment, sharing the daily experience of different cultural approaches to common challenges and working towards a collective goal using diverse methods – an intense and unforgettable experience!

A singular opportunity for interacting with some of the world's space experts and leaders, and for building lasting relationships with dedicated professionals and fellow students, brought together by a common interest in the exploration and utilization of space.

ISU AND THE SPACE WORLD

ISU is the center of a worldwide network:

- more than 3700 alumni from 100 countries
- several hundred faculty and lecturers drawn from around the globe
- Space Studies Program host institutions in different international cities
- MSS internship host organizations worldwide
- governing bodies consisting of leading international space representatives
- sponsors from around the world, including space agencies, industry, non-governmental organizations, foundations, and individuals

ISU International Space University

ISU is involved with several international and national organizations:

- observer status at COPUOS (the Committee on the Peaceful Uses of Outer Space of the United Nations Office for Outer Space Affairs)
- cooperative agreements with CSA (Canadian Space Agency), CNES (French National Space Agency), CSF (Chinese Space Foundation), ESA (European Space Agency), JAXA (Japanese Aerospace Exploration Agency), NASA (National Aeronautics and Space Administration) and UNESCO
- member of the International Astronautical Federation (IAF)
- focal point for space education matters at SAF (the Space Agency Forum)
- cooperative agreements with organizations devoted to furthering public understanding and knowledge about space, such as the US National Space Society, The Planetary Society, and the AAAF in France

SPACE EDUCATION AT ISU

The 3Is approach generates a special set of skills and qualities needed to meet present and future challenges in the space domain

Learning to manage all aspects of the programs – scientific, engineering, economic, regulatory, political and organizational – and appreciating the interactions among different disciplines are essential in order to approach the development and utilization of space from a global perspective.

ISU provides this international experience and expertise

Sharing different cultural backgrounds and learning to appreciate different approaches to solving problems and dealing with conflicting objectives are fundamental in preparing to live and work within a multicultural framework.

ISU imparts this interdisciplinary knowledge and understanding

Developing teamwork, leadership and decision-making skills in a truly international environment is key to enabling professionals to cooperate efficiently in the preparation and implementation of multinational enterprises.

ISU teaches this intercultural insight and open-mindedness

"ISU's "3 Is" philosophy (Interdisciplinary, Intercultural, and International) prepared me well for my international and interdisciplinary experiences."

Tomas Hirmer,
SSP09 and MSS10

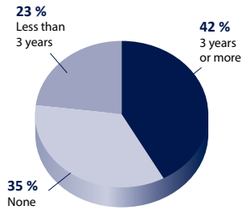
MSS Master of Space Studies Program

The ISU Master of Space Studies Program (MSS) is intended for individuals seeking professional development, further academic study, or both, through a one- or two-year graduate degree program. For experienced professionals, the MSS supports career advancement, a shift of career within the space sector or a career move into the space sector. For students who wish to make their careers in space, the MSS supports entry into the sector through access to space agencies, space commerce, space research and related actors.

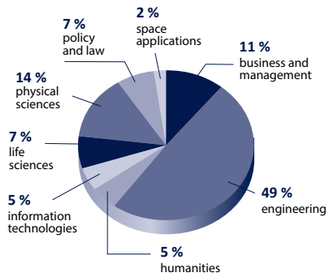
The MSS aims are to:

- Provide an interdisciplinary, international, intercultural (3Is) Master's course for highly-motivated students from a diverse range of educational, cultural and professional backgrounds.
- Deliver high-quality 3Is education in the space domain and associated areas which both enhances students' knowledge, skills and effectiveness and offers them the opportunity to achieve their full potential.
- Maintain, promote and build productive links with the global space community, including ISU alumni, and use these to provide a contemporary 'real-world' dimension to the program.
- Produce graduates capable of contributing effectively and holding responsible positions within the global space sector.

In MSS 2013, students came from 26 different countries. Their average age was 28 and 26% held degrees at Master's level or higher.



MSC 2013 STUDENTS' PRIOR EXPERIENCE



MSC 2013 STUDENTS' EDUCATIONAL BACKGROUNDS

MSS DISCIPLINES

The disciplines covered by the MSS are as follows:

3I Space (3IS) - The study and application of international, intercultural and interdisciplinary knowledge in a space context.

Space Engineering (ENG) - The study and application of the design, implementation and operation of space vehicles and missions.

Space Sciences (SCI) - The study of the fundamental natural sciences of the cosmos together with aspects of the space environment and space-related technologies.

Human Performance in Space (HPS) - The study of biological, physiological, psychological, and medical changes during spaceflight, as well as the selection, training, and support for living and working in space.

Space Applications (APP) - The study and application of the practical benefits to humanity offered through access to space, primarily through Earth-orbiting satellites.

Space Management and Business (MGB) - The study of commercial and public space activities and the application of appropriate business and management techniques to these.

Space Policy, Economics and Law (PEL) - The study of policy, economics and law as applicable to the space sector and space activities.

Space Humanities (HUM) - The study of the social, cultural and personal domains as related to space activities and the application of related knowledge.

Master of Space Studies Program MSS

MSS STRUCTURE

The MSS is structured as a one- or two-year program. The first year is essentially a taught one and is delivered primarily at the ISU Central Campus in Strasbourg. Some students will take only this year and graduate with an MSc in Space Studies. During the first year, students who perform at an appropriate level may apply for the second 'thesis year' in which they perform a single extended piece of research or scholarly activity, either at ISU, or an appropriate host institution. These students will graduate with an MSc in Space Studies and Thesis.

MSS YEAR 1

MSS Year 1 is an intensive year worth 75 ECTS. It consists of three types of module:

CORE MODULES are mandatory taught modules designed primarily to deliver academic program content and are broad and interdisciplinary in their scope.

- **M1-ITS** Introduction to Space (10 ECTS)
- **M2-ISS** Interdisciplinary Space Studies (20 ECTS)

PRACTICE MODULES are mandatory student-activity focused modules, designed to deliver experience in the application of academic program content in a broad 3Is context.

- **M3-TPR** 3I Team Project (12 ECTS)
- **M4-IPR** Individual Project (12 ECTS)
- **M5-INT** Internship (15 ECTS)

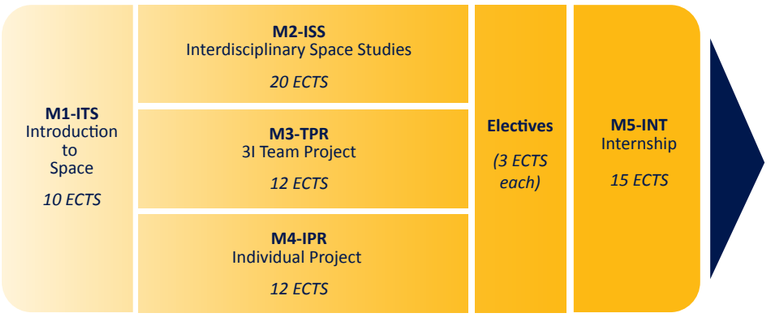
The 12-week internship is usually carried out in a space company or other host institution. Supported and advised by ISU, students identify their internship opportunities in accordance with their particular interests/career goals.

ELECTIVE MODULES are shorter, optional, taught modules designed to deliver academic program content. They are narrower and more discipline-focused than core modules. Students must take two elective modules.

- **M6-PRO** Space Propulsion (3 ECTS)
- **M7-SAT** Satellite Communications (3 ECTS)
- **M8-NEU** Space Neuroscience (3 ECTS)
- **M9-SED** Space Systems Engineering and Design (3 ECTS)
- **M10-ABL** Astrobiology (3 ECTS)
- **M11-EVM** Earned Value Methods (3 ECTS)
- **M12-ISM** International Space Negotiation (3 ECTS)
- **M13-NSE** New Space and Entrepreneurship (3 ECTS)

Please note that not all elective modules will necessarily be offered/run each academic year. This will depend on both resourcing and uptake.

MSS Year 1 can be completed in full-time mode from September of one year to September of the following year or in part-time mode by completing one or more modules per year within a maximum of seven years.



MSS YEAR 1 CORE AND PRACTICE MODULE AIMS

M1-ITS Introduction to Space

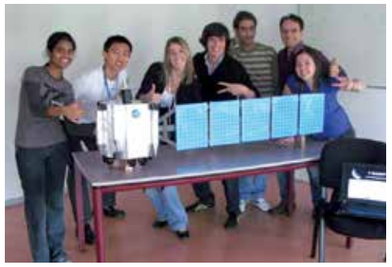
1. To introduce students to the fundamental MSS disciplines and build a firm foundation for interdisciplinary study in subsequent modules.
2. To develop students' transferable skills, including intercultural awareness, time management, team working, written communication and oral presentations.

M2-Interdisciplinary Space Studies

1. To extend students' knowledge of the MSS disciplines and enhance their understanding of the interdisciplinary links between them.
2. To demonstrate the integrated and interdisciplinary nature of space activities.

M3-TPR 3I Team Project

1. To provide students with experience in interdisciplinary, intercultural and international (3I) teamwork.
2. To develop in students the relevant skills (e.g., research, problem-solving, design, communication, organizational and project management) required to perform a significant 3I project in a 3I team environment.
3. To allow students to engage with and apply principles learned elsewhere in the course and apply them in a 3I context.



"I knew I had found a Masters programme that would stretch me and still prove that the more willing I was to be stretched the greater the barriers we could break together."

Simon Adebola, MSS08

M4-IPR Individual Project

1. To provide students with experience of performing a significant individual piece of investigative work characterized by a requirement for independent initiative, self-organisation and critical thinking.
2. To develop in students a professional level of communication (orally, graphically and in writing)
3. To encourage students to explore the current limits of knowledge and demonstrate originality and creativity.

M5-INT Internship

1. To allow students to apply their knowledge and skills to on-going activity in a real-world space context.
2. To provide students with the opportunity to establish professional links within the global space community.

MSS YEAR 2 (optional)

MSS Year 2 consists of a single module:

- **M14-THP** Thesis Project (45 ECTS)

Taking MSS Year 2 is not an automatic right of all students taking MSS Year 1. Eligibility for MSS Year 2 is assessed during Year 1. Subject also to a suitable Thesis Project being approved, successful candidates may then transfer to the two-year program. Thesis Projects may take place at ISU's Strasbourg Central Campus or at other institutions/organizations as appropriate.

"A journey of a thousand miles starts with a single step" I am glad that i stepped into ISU that helped me mold my career and I foresee a promising future.

Sindhu Emmanuel, MSS10

Master of Space Studies Program MSS

MSS Year 2 can be completed in full-time mode over seven months or in part-time mode over a longer period within a maximum of seven years from the start of MSS Year 1.

The aims of M14-THP are:

1. To enhance students' individual knowledge in a given area of intellectual enquiry significantly above its initial level.
2. To develop students' individual research, design, development, problem solving, communication, organizational and project management skills.
3. To allow students to apply the knowledge gained in the first year of the MSS and apply relevant principles in a multidisciplinary context.
4. To refine students' communication skills in a variety of forms, e.g. oral presentations, written reports, graphically, etc.

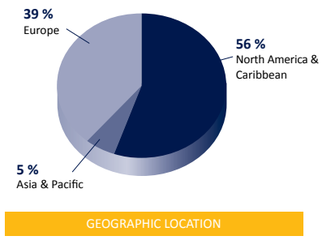
PROFESSIONAL VISITS

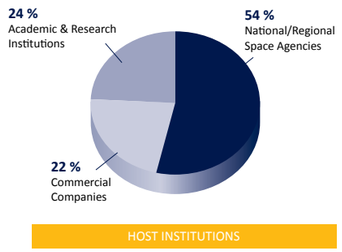
During the academic year, students have the opportunity to visit significant space-related enterprises and activities in Europe. Previous visits have been made to EADS Astrium Space Transportation, EADS Astrium Satellites, Snecma, SES, European Space Operation Centre, European Space Agency HQ, European Astronaut Centre, CNES, EUMETSAT, Telespazio Vega, UNESCO, University of Stuttgart Institute for Space Research and DLR. Outside of the official MSS curriculum some students have also had the opportunity to visit the ESA launch site in French Guiana, the European Space Technology Centre in The Netherlands and space-related facilities in Russia.

LANGUAGE CLASSES

At the start of the MSS, students are offered the possibility to improve their English language skills or to gain a basic knowledge of the French language. These classes are provided by University of Strasbourg language teachers.

MSS 2013 Internship Distribution:





"Attending ISU has been, for me, the ultimate eye-opening experience. Attending the Master of Space Studies allowed me to pursue my personal interests with a limit determined only by my imagination. I found myself working on very exciting projects with talented and knowledge-thirsty colleagues"

Diego Urbina, MSS09

FACULTY

A significant part of the ISU academic programs are delivered by resident faculty that provide teaching and advisory support to all ISU programs and activities. A number of the ISU Faculty not resident at ISU are involved in supporting the MSS as visiting lecturers or as mentors for students during their internships.

DEAN

Prof. Angie Bukley
USA
Full Professor, Space Engineering, Dean

PhD in Electrical Engineering (Control Theory), University of Alabama, Huntsville, USA. Formerly Associate Vice President and Chief Administrator for University of Tennessee Space Institute and Associate Dean for Research and Graduate Studies, Russ College of Engineering & Technology, Ohio University. Served as Director of Laser Applications with the Aerospace Corporation and was assigned to the Airborne Laser System Program Office, Kirtland Airforce Base, New Mexico. Over 25 years in the aerospace business with seven years service at the NASA Marshall Space Flight Center, Alabama directing the Large Space Structures Controls Laboratory and working on remote sensing applications. SSP 93 Alumna. Active in AIAA (Associate Fellow), AAS, IFAC, NSS, SWE, EWB, and ASEE. Recipient of numerous awards for technical achievement.

FACULTY IN FULL-TIME RESIDENCE

Prof. Gilles Clément
France
Full Professor, Space Life Sciences

PhD Natural Sciences, University of Paris VI/CNRS. PhD Neurobiology and Master of Physiology, University of Lyon I/INSERM. Holder of the CNES Faculty Chair at ISU. Previous positions include: Director of Research at the CNRS Centre de Recherche Cerveau et Cognition, Toulouse; Senior Research Scientist at the CNRS Laboratoire de la Perception et de l'Action, Paris; Project Scientist at the Institute of Space Medicine and Physiology (MEDES), Toulouse; Visiting Scientist at the Neurosciences Laboratory, NASA Johnson Space Center, Houston. Visiting Professor at the Ohio University Russ College of Engineering and Technology, Athens. Main research interests include the effects of microgravity on posture, eye movements, spatial orientation, and visual perception in astronauts; neuropsychology studies in patients with balance disorders; and artificial gravity. Principal Investigator of human physiology experiments flown on Salyut, Mir, Space Shuttle, Spacelab, and the International Space Station.

Dr. John Farrow
UK
Associate Professor, Space Applications

PhD (Laser Transmission through the Atmosphere), University of Essex, MSc Quantum Electronics, University of Essex, BSc Physics, University of Sheffield. Formerly Head of Scientific Spacecraft Studies, Mission and Systems Department, Matra Marconi Space (MMS) UK Ltd. (1968-1999). Space system engineering and management of proposals and feasibility studies of Earth observation and scientific satellites (including participation in early program phases of ESA missions such as ERS, Giotto, SOHO, Meteosat Second Generation, Polar Platform, XMM, etc). Author of several publications in the field of Earth observations and space science missions. Fellow of the British Interplanetary Society (FBIS). Chair of the Organizing Team for ISU's series of Annual International Symposia.

Dr. Hugh Hill
Ireland
Associate Professor, Space Sciences

PhD in Astronomy (avec Mention Très Honorable et les Félicitations du Jury), Institut d'Astrophysique Spatiale – CNRS, Orsay and Muséum National d'Histoire Naturelle, Paris. MSc awarded for meteorite research completed at the Universities of Dublin (Trinity College) and Cambridge. BA (Physics and Computing), Open University, U.K. Formerly employed at Armagh Planetarium, Ireland (1986-1994). Associate Lecturer in Astronomy & Planetary Science and Location Advisor for the Open University (1995-1998). Fellowship holder, NASA Goddard Space Flight Center (1999-2002). Research interests include: astrochemistry, astrobiology, and experimental microgravity. Evaluator for the NASA Astrobiology Institute and referee for several peer-reviewed journals. Member of several academic committees and societies including the Meteoritical Society and the European Astrobiology Network Association.

Mr. Junjiro Nakahara
Japan
JAXA Visiting Professor, Space Engineering

Masters in Information Technology, Kyushu University, Japan, Bachelor's in Electrical Engineering, Kyushu Institute of Technology, Japan. On detachment to ISU from JAXA. Joined JAXA in 1976 where positions have included: Senior Engineer working successively on the development of spacecraft and ground control systems, and on Japan's Space Station program (1976-2004); Director of the Consolidated Space Tracking and Data Acquisition

Department managing the operation and maintenance of JAXA's spacecraft tracking network (2005- 2008); Director of the Tsukuba Space Center (2008-2009); Advisor, Human Space Program Systems Engineering Office (2009-2011); Advisor, Systems Engineering Office and Member of the Independent Assessment Team for Crewed Space Projects (2011-2012).

Prof. Walter Peeters
Belgium
Full Professor, Space Business, President

Ph.D. Engineering in Industrial Organization, Technical University of Delft, the Netherlands. MBA, Bachelor of Industrial Engineering, University of Louvain, Belgium. On detachment to ISU from ESA. Previous responsibilities at ESA have included project control and coordination assignments on the Hermes project and the EUROMIR flights with Russia. Former Head of the Coordination Office of the European Astronaut Centre in Cologne. Author of the book, "Space Marketing" (Kluwer, 2000) and various publications in the field of contract devel¬opment, incentive contracting, cost man¬agement and financing of space activi¬ties. Advisor to various organizations and companies on space tourism devel¬opment. Director of the International Institute of Space Commerce (IISC), a space think tank based in the Isle of Man. Present research interest in space commercialization and personal space¬flight.

Prof. Chris Welch
UK
Full Professor, Space Engineering, Director, Masters Programs

PhD Spacecraft Engineering, Cranfield University, MSc Experimental Space Physics, University of Leicester, BSc (Hons) Physics, Cardiff University. Formerly Principal Lecturer in Astronautics and Director of the Aerospace Research Centre at Kingston University, UK. Current research interest in space propulsion, microgravity science and planetary exploration. Professional memberships include Fellow of the British Interplanetary Society and Associate Fellow of the American Institute of Aeronautics and Astronautics. Visiting lecturer in space propulsion at Cranfield University. Board member of several space-related organizations. Extensive media experience. Significant track record in both space education and outreach (recipient of the 2009 Sir Arthur Clarke Award for Space Education) and higher education.

Dr. Vasilis Zervos
Greece
Associate Professor, Space Economics and Policy

DPhil in Economics (The Economics of the European Space Industry), University of York, UK; MSc in Economics, University of Birmingham, UK with focus on macroeconomic policies and the European Central Bank; BA in Economics, American College of Greece, Athens, Greece. Formerly employed at the University of York Economics Department and Nottingham University Business Scholl (Industrial Economics). Associate member, Strasbourg University (BETA- Bureau d'Economie Théorique et Appliquée). Associate Professor in economics and policy. Teaching, consulting and research interests and publications in the field of economics, primarily focused on space, aerospace and defence industries and policies, as well as foreign direct investment, strategic partnerships and economics of innovation and technology policy. Referee for numerous peer-reviewed Economics and Science and Technology Journals.

PROFESSOR EMERITUS

Dr. Nikolai Tolyarenko
Russia
Full Professor, Space Engineering

Ph.D. in Orbital Mechanics, Central Design Bureau, Kaliningrad Experimental Machine Production, Russia, Engineering Diploma "cum laude" from Moscow Aviation Institute, Russia. Over 12 years experience as engineer and researcher at the Russian Space Corporation "Energia". Associate Professor at the Airspace School of the Moscow State Aviation Institute serving in various research and teaching capacities. 22 years of involvement in ISU educational programs, serving as Director of the MSc program for the previous 12 years. Main research interests: orbital mechanics, system engineering, design methods for spacecraft, space stations and space transportation systems. Author of several books and over 130 publications in Russian and international refereed journals. Full member of the International Academy of Astronautics.

VISITING LECTURERS

In addition to resident faculty, courses are delivered by a number of invited lecturers drawn from the academic, government and industry sectors from around the world. Recent lecturers have included :

- **Philippe Achilleas**, IDEST, Université de Paris Sud, France
- **Yasuhiro Akahoshi**, Kyushu Institute of Technology, Japan
- **Audrey Allison**, The Boeing Company, USA
- **Jacques Arnould**, CNES, France
- **Laurent Bach**, Université de Strasbourg, BETA, France
- **Nelly Ben Hayoun,** Freelance Designer, UK
- **Marco Beijersbergen**, cosine Research B.V., Netherlands
- **Rudolf Benz**, EADS SPACE Astrium, Germany
- **Milan Cermack***, Applied Space Technologies Network Ltd., Switzerland
- **Patrick Chilot**, Astrium SAS – Toulouse, France
- **Stephen Clandillon**, SERTIT, France
- **Philippe Clerc**, CNES - Headquarters, France
- **Bernard Comet**, MEDES, France
- **James Dator***, Hawaii Research Center for Futures Studies, USA
- **Vincent Denis**, SE Consulting, France
- **Emmanouil Detsis****, ESF – European Science Foundation, France
- **Isabelle Duvaux-Bechon**, ESA – Headquarters, France
- **Fabian Eilingsfeld**, PRICE Systems Ltd. Deutschland, Germany
- **Peter Elson**, JLT Reinsurance Brokers Limited, UK
- **Stuart Eves**, Surrey Satellite Technology, UK
- **Reinhold Ewald****, ESA - EAC, Germany
- **André Farand****, ESA Headquarters, France
- **Stefano Fiorilli***, ESA - ESTEC, Netherlands
- **Andrea Gini**, Space Safety Magazine, Netherlands
- **Gilles Grand**, SEMIA, France
- **Marcello Ingrassia**, City Council of Turin, Italy
- **Bhupendra Jasani**, King's College London, UK
- **Ruediger Jehn***, ESA - ESOC, Germany
- **Gilbert Kirkham**, US Embassy-Paris, France
- **Joachim Koppen***, Observatoire Astronomique, France
- **Otto Koudelka****, Technical University Graz, Austria
- **Joerg Kreisel**, JOERG KREISEL International Consultant (JKIC), Germany
- **Pierre Lionnet**, EUROSPACE, France
- **Kelvin Long**, Stellar Engines Ltd., UK
- **Bernd Madauss***, Project Management Team MADAUSS, Germany
- **Pierre Margue**, SES Société Anonyme, Luxembourg
- **Gary Martin***, NASA Ames Research Center, USA
- **Christopher McKay***, NASA Ames Research Center, USA
- **Nathalie Meusy**, ESA - Headquarters, France
- **Robert Parkinson****, Consultant Engineer retired from EADS Astrium, UK
- **Anne Pavy-Le-Traon**, MEDES, France
- **Regina Peldszus**, ESA – ESOC, Germany
- **Julien Pénin**, Université de Strasbourg, BETA, France
- **Casey Pruett**, Wyle Laboratories GmbH, Germany
- **Claude Rousseau**, NSR, France
- **Michael Rycroft***, CAESAR Consultancy, United Kingdom
- **Alex Salam**, Research MD, UK
- **Bernd Schäfer****, DLR, Germany
- **Kai-Uwe Schrogl****, ESA Headquarters, France
- **Jörg Schröter**, ESA - ESTEC, Netherlands
- **Wolfgang Seboldt****, DLR, Germany
- **Robert Shishko****, NASA Jet Propulsion Laboratory, USA
- **Vern Singhroy***, Canadian Centre for Remote Sensing, Canada
- **Klaus Slenzka****, OHB-System GmbH, Germany
- **Lesley Jane Smith**, Solicitor and Notary Public, Germany
- **Gongling Sun**, CASC European Office, France
- **Martin Tajmar**, Dresden University of Technology, Germany
- **Robert Thirsk****, NASA Johnson Space Center, USA
- **Nikolai Tolyarenko***, International Space University, France
- **Laurent Valignon**, SATConsult, France
- **Nadjejda Vicente**, ESA - ESTEC, The Netherlands
- **Hajime Yano**, Japan Aerospace Exploration Agency, Japan
- **Kazuya Yoshida***, Tohoku University, Japan
- **Olga Zhdanovich***, MODIS, The Netherlands
- **Cornelius Zund**, Astrium ST, France

* ISU Faculty ** ISU Adjunct Faculty

Executive MBA

INTERNATIONAL SPACE EXECUTIVE MASTER OF BUSINESS ADMINISTRATION (EMBA)

Currently Under Review

Space is a new and diverse industry that is evolving rapidly, as a transition from publicly funded space activities towards the 'New Space Economy 'is taking place. It is an industry that brings together scientific as well as practical applications influencing our daily life and the economy at large. This Space EMBA is designed to support individuals involved in this enterprise who want to further develop their careers and their businesses.

It is specifically designed to give an international focus to the understanding of the space sector, therefore alternating venues geographically among the different sessions to provide a better understanding of intercultural variations. The course will be taught in English to give this international perspective. Course participants will be expected to develop their English language skills to a level that allows them to write business reports in English and contribute at a professional level to discussions conducted in the English language.

The course aims to enhance the participants' careers in international space business by providing a clear understanding of the principles and practice of management and entrepreneurship as it has developed worldwide. Participants, upon completion of the course, will be ready to make a greater contribution to the management of their existing organization by choosing an individual thesis topic of interest to the organization.

It is tailor-made for executives in the space sector who have attained mid-career positions of leadership in their organizations. The Space EMBA will provide an in-depth knowledge and understanding of the challenges ahead in a global context, including amongst others the telecommunications market. The program combines global insight into the space business with MBA skills and is therefore unique worldwide.

Specifically, the course aims to provide participants with the following skills:

1. Application of accounting, financial, economic, management and marketing principles in space organizations, to solve business problems.
2. Ability to relate this theoretical knowledge directly into the workplace.
3. In-depth understanding of the specific policy and legal frameworks governing space activities.
4. The ability to use effectively business management techniques in an international environment.
5. The opportunity to generate and communicate ideas in an intercultural environment.
6. The skills to access and use business information efficiently and accurately.
7. Experience in marketing and the development of business plans to suit a range of market situations.
8. A basic knowledge of accounting principles.
9. Understanding of international space business and the specificities of the modern space economy.
10. Knowledge of the specific space project management techniques developed in the space sector.
11. The opportunity to apply learning and research skills to produce, as part of their final thesis, a thorough analysis of a business situation.
12. The ability and confidence to get more from themselves and from others, having enhanced lifelong learning skills and personal development.

SPECIFIC LEARNING BLOCKS

The course is divided in 4 main blocks that can also be taken individually.
Two additional blocks complete the requirements for the EMBA degree, namely:

- An off-site period to allow preparation of a thesis, under supervision of an ISU faculty with specific knowledge in that field.
- A closing session with case studies and defense of the thesis.

The four main blocks are divided as follows on next page.

«I had been thinking about an MBA for a few years. When ISU announced the launch of its own new program, I knew this was the EMBA I was dreaming of. ISU's EMBA's excellence is in the 3 i's, academics, logistics, high-skilled and polyglot teammates and faculty. The deeper I advance in ISU's EMBA, the broader I see my career perspectives.»

Ivan Benilan,
Thales Alenia, France

Module A
Space Business

As participants are coming from different backgrounds, the first block ensures that basic knowledge is provided on the different aspects of the curriculum, both technical as well as managerial. The first block will therefore:

- Cover an overview of space applications, in particular the commercial oriented ones;
- Provide an overview of space business and organization within the sector;
- Provide an introduction to general financial principles;
- Provide an introduction to space law and policy aspects.

Learning objectives

- To get an overall understanding of space applications and the commercial potential thereof;
- To understand the underlying mechanism driving the sector, in particular the shift from public to private financed activities;
- To understand the basics of the fundamental international law principles, in particular the different space treaties; and
- To understand the interrelation between space activities and politics.

Module B
Space Policy and Law

More than terrestrial programs, space activities are very closely linked to policy decisions. It is important for space managers to understand these interactive mechanisms as they influence the choice of different options. Moreover, space is limited in particular orbits and a good knowledge of space law is needed to communicate with specialists in case of problems or issues.

Learning objectives

- To understand policy rationales and the effect they have on space projects;
- To be familiar with the international law aspects governing space activities;
- To be familiar with business law and in particular intellectual property rules as well as export control regulations; and
- To be able to communicate with experts in the field in case of legal or major policy issues.

Module C
Accounting and financing

From a budget driven environment the space sector is now more and more looking into financing on the open market. Moreover, a wave of mergers and acquisitions is still continuing requiring good knowledge of accounts and key performance indicators. Similarly, business plans are more and more required not only for start-up companies but also to support intra-company new initiatives.

Learning objectives

- To have a basic understanding of the underlying accounting principles;
- To be able to read company accounts e.g. from yearly reports to evaluate the financial health of companies;
- To have a good knowledge in the structure and content of a space business plan; and
- To be able to effectively communicate with the financing and banking community.

Module D
Space projects Management

The specific complexity of space programs, combined with the fact that high reliability levels need to be reached, lead to the development of specific project management methods. With the observation that labor costs are very important in space projects, methods have been developed, like the Earned Value Method (EVM) to make sure that progress is carefully monitored. Risk management and risk mitigation are other integral parts of a good space project management.

Learning objectives

- To understand and be able to work out schedules using modern planning methods;
- To understand the functioning of cost control and combined progress control methods;
- To have a good understanding of configuration control and phased approaches; and
- To direct and interact with project controllers in a space project.

Module E
EMBA Thesis

The thesis is aimed towards an academic novel study in one of the fields of the curriculum in its broadest sense. Each participant is invited to propose a topic which can be of his own or his company's interest, provided that the academic content is in line with the expectations of a Master level thesis.
Topics covered include amongst others the space insurance market, the analysis of the space sector for a given country and its impact on the economy, public funding of space technologies for developing countries, challenges of satellite spectrum and orbital resources.

The proposal will be made to the EMBA Faculty Committee and, upon acceptance; each participant will be assigned a thesis supervisor with experience in one of the underlying academic fields of the topic chosen. The thesis aims to be of a high quality standard and completed off-site.

Module F
Strategic Space Applications

Part of this module will be devoted to the presentation of the thesis material by the respective participants, with the other participants attending, as well as a jury composed of members of the EMBA Faculty Committee. In addition, within the given period, integrating the knowledge acquired will be refined by guided case studies.

"Studying with ISU is a rich and powerful experience. Meeting professionals from different areas of the Space Industry and with various backgrounds is as much enlightening as following the lectures of the charismatic ISU experts. I never before learned as much in such a short period of time."

Katharina Deil, SES Astra, Luxembourg

TEAM ASSIGNMENTS

For other assignments, participants will work on- and offline together in small teams. Team assignments will be given to participants throughout the EMBA program. Team assignments are an important component of the EMBA curriculum providing a better understanding and more in-depth and focused knowledge in some of the subjects covered, and an opportunity for participants from different backgrounds to assist each other in understanding the different space related disciplines through exchange of knowledge and expertise. Depending on the nature of the academic subject, assignments may take the form of:

- Practical homework exercises or additional research/study following on from a block of lectures
- Tracking and review of resources (e.g. literature, public network information) available on a given topic
- Study of subject matter in preparation for, or in follow-up to a discussion session or a workshop on a given topic.

PROFESSIONAL VISITS

At various stages in ISU's EMBA program, arrangements are made for class visits to facilities of space related organizations in the vicinity of the module's location. These visits are an integral part of the EMBA curriculum and provide participants with further opportunity to see in practice what they have studied in the classroom.

DIPLOMA

After completion of all modules and compliance with the graduation requirements, participants will receive the degree of Master of Business Administration, with the mentioning cum laude when applicable.

"ISU's EMBA offers a very complete and comprehensive course, encompassing technological, financial and managerial aspects of space sector. The opportunity to share this knowledge with highly qualified faculty within a highly motivated and highly skilled intercultural group is an experience which undoubtedly will set a milestone in my career."

José María Fernández Ibarz, Sener, Spain

EMBA FACULTY AND LECTURERS

- Ms. K. Alexander, HR Consultant
- Mr. G. Bethscheider, SES
- Mr. B. Biddington, Biddington Research Pty Ltd
- Mr. V. Billig, Consultant
- Mr. H. Botha, Higgins Botha
- Dr. A. Bukley, ISU
- Mr. M. Davis, Adelta Legal
- Prof. J. Duffy, Orbital Sciences USA
- Mr. M. Franci, SES
- Mr. M. Halliwell, SES Engineering
- Prof. R. Larson, NASA
- Prof. J. Logsdon, George Washington University
- Mr. P. Novak, USA
- Dr. S. Pace, George Washington University
- Prof. W. Peeters, ISU
- Mr. R. Sanford, Space Ground Amalgam
- Dr. B. Shishko, Jet Propulsion Laboratory
- Prof. M. Simpson, Secure World Foundation
- Dr. L.-J. Smith, University of Bremen
- Mr. D. Stone, NASA
- Dr. C. Welch, ISU

"ISU's Executive MBA is exactly the type of course that space professionals have been waiting for, for a long time as the perfect complement to the rest of the training activities ISU has in its portfolio. It really covers a need in the space community, an EMBA course focused on space business".

Juan Manuel Del Cura, Sener, Spain

Admissions criteria

Applicants will be admitted on the basis of their academic and professional achievements and must have earned a bachelors degree or equivalent.
Preference will be given to applicants:

- having a minimum of five years relevant experience
- having a proficiency in English
- demonstrating focused career perspectives in the space sector or similarly complex area.

In the case of applicants who are sponsored by their organization's Human Resources department, selection will be performed in cooperation with that department.

Admissions procedure

Applicants selected by the Human Resources department of their organization shall submit the following documents to ISU either directly or through their HR department:

- A Curriculum Vitae
- A certified academic record, transcript or mark sheet
- A proof of language proficiency in English.

Non-sponsored applicants should submit the above items plus those listed below directly to ISU:

- An essay explaining the reasons why they wish to attend the course
- Two letters of recommendation
- A declaration of professional experience.

Tuition Fees

Tuition for ISU's Executive MBA is 33 000 Euro covering teaching fees, all academic material, access to the school library and computer labs, lunches and selected dinners. Fees do not include transportation, accommodation and regular dinners or any meals not mentioned above.

Tuition may be paid in two installments, the first covering Modules A through C and the second covering Modules D through F including the EMBA thesis. Reductions are available for applicants from organizations associated with ISU's EMBA (WIA, SSPI) and alumni. You may visit ISU's website at www.isunet.edu/mba where you will find detailed information on this as well as on ISU's EMBA and activities.

Space Studies Program SSP

The Space Studies Program (SSP), an intense nine-week course for postgraduate students and professionals of all disciplines, is a unique educational experience. The curriculum covers the principal space related fields, both non-technical and technical and ranges from policy and law, business and management and humanities to life sciences, engineering, physical sciences and satellite applications. The shared experience of an international, interactive working environment is an ideal networking forum leading to the creation of an extensive, international, multidisciplinary professional network by the program's alumni (numbering more than 3500 to date), faculty members and visiting lecturers. Through the exchange of ideas and information this network has been successful in advancing projects in such areas as disaster warning and mitigation systems, human health enhancement using space technologies, and has even significantly contributed to the creation of a national space agency. Each year the SSP is held in a different location across the globe. Moving to a new city and country adds an exciting dynamic as well as new resources and expertise to the program.

"To take an opportunity to exchange knowledge and to start developing new skills is one of the great achievements of ISU Space Studies Program. The chance to interact with all staff members, professors, lecturers, and participants brought changes to all of us. The ISU experience and network gave me new ideas, new plans and energy to help Brazil grow in space activities."

Priscila Matos,
SSP12

SSP14:
MONTRÉAL, CANADA
June 9– August 8, 2014

The International Space University (ISU) is proud to announce that its 27th annual Space Studies Program (SSP) session will be hosted by the École de technologie supérieure (ÉTS) and HEC Montréal in 2014.

The ISU is very proud to partner with the ÉTS and HEC Montréal, two of the most prominent institutions of higher learning in Canada. The ÉTS is part of the Université du Québec network and specializes in applied teaching and research in engineering. HEC Montréal is Canada's oldest business school, and was the first business school in North America to receive the three most prestigious accreditations in the field of management education: AACSB International, AMBA and EQUIS.

By providing both the technical expertise and facilities of an engineering school with the managerial know-how and facilities of a leading management school, the ÉTS and HEC Montréal partnership offers tremendous potential to complement ISU's rich curriculum.

Prof. Angie Bukley, ISU Dean, points out: The opportunity to convene the SSP in Montréal is something we've long awaited. With well over 400 ISU alumni, a well-established ISU scholarship foundation, dozens of ISU faculty members, and the strong support of the Canadian Space Agency, Canada as a country is among the strongest of ISU supporters across the board. Montréal as a venue is culturally rich and will offer a plethora of opportunities for our participants.

The ÉTS and HEC Montréal believe that hosting the SSP14 jointly not only reflects the interdisciplinary nature of the SSP, but more importantly reflects the reality of the space sector.

Yves Beauchamp, CEO of the ÉTS, stated: "This renowned program will be an amazing opportunity to share our experience with the international participants of the SSP14. The ÉTS' core strengths in aerospace focus on aerodynamics, avionics, controls, design and manufacturing. ÉTS also hosts a NSERC/P&WC Industrial Research Chair on Propulsion System Integration and Optimization, and a Canada Research Chair for Aircraft Modeling and Simulation Technologies."

Michel Patry, Director of HEC Montréal, declared: "HEC Montréal is proud to collaborate with the ISU in this major endeavour. We want the participants of the ISU-SSP14 to benefit from the School expertise in economic space sector analysis, knowledge management and management of innovation."

The Consortium for Research and Innovation in Aerospace in Québec (CRIAQ) and the Canadian Space Agency will also support and contribute to the SSP14.

ÉTS Engineering for Industry HEC MONTRÉAL

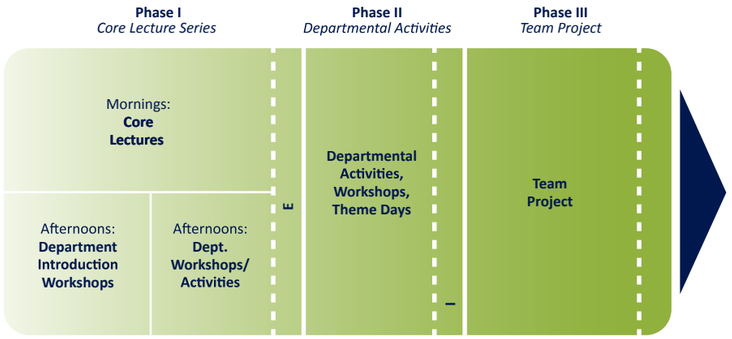
The interdisciplinary curriculum of the SSP, with its emphasis on international cooperation, exposes participants to broad new perspectives on the world's space activities - perspectives otherwise reserved for those with many years of diverse professional experience. The program is packed with a wide variety of activities, including lectures by renowned experts, hands-on activities and projects, team work and professional visits. The main elements of the SSP curriculum are the core lecture series, workshops, departments and team projects. **All course work at ISU is conducted in English.**

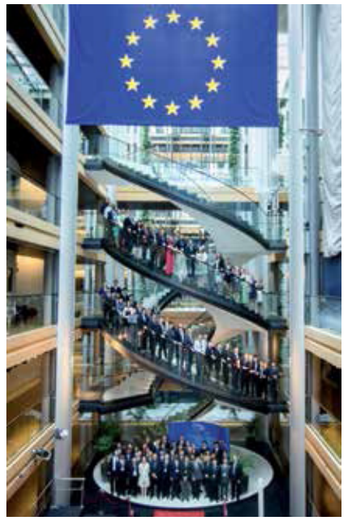
"I find it hard to believe how much I've learned. Not only about space, but about people. It is an experience that cannot be described, only shared"

Damian Hoffman
SSP10

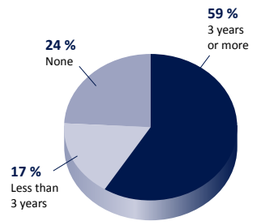
Each year the program evolves to better meet the needs of the participants and their employers. Participants are strongly encouraged to contribute their own knowledge, experience, ideas, culture and opinions as well as their energy and enthusiasm. Reflecting on ISU's pedagogical approach and vision, interest in and respect for different cultures and backgrounds is expected from participants.

The layout of these and other elements is depicted graphically below and described in the following pages.

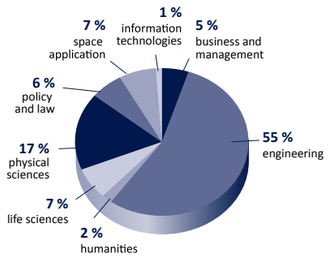




The SSP class of 2012 comprised 134 participants from 31 countries ranging from 21 to 54 years of age.
Their professional experience and educational backgrounds are shown in the graphics.



SSP13 Professional Experience



SSP13 Participants' Educational Backgrounds

Space Studies Program SSP

CORE LECTURE SERIES

This component of the curriculum ensures participants have a basic grounding in the fundamentals of all the disciplines that are relevant to space programs — and that they understand the relationships between these disciplines in any space-related activity. All participants attend the core lecture series, which creates a basic framework of knowledge to prepare participants for informed and balanced judgment.

A series of lectures in each field of study that is designed primarily for non-experts is presented. Thus, medical specialists can understand the lectures on propulsion and engineers and lawyers can understand the lectures on the effects of weightlessness on the human body.

Core lectures are often grouped in clusters. Questions from participants and group discussions with the lecturers are encouraged.

Knowledge gained from the core lectures allows participants to:
- understand the very large range of factors, both technical and non-technical, involved in space activity.
- apply good decision-making and management skills to projects.
- appreciate the relevance of all disciplines during the development and exploitation of space activities.

WORKSHOPS

These activities and workshops are designed to enhance and complement the knowledge acquired during core lectures through more active learning in smaller groups. Participants choose activities based on their interests. A number of activities are conducted in parallel and participants must sign up in advance. Topics may be offered more than once so as many people as possible are able to benefit.

Workshop activities offered in SSP13 included:

- Systems Tool Kit (STK) and Orbital Mechanics
- Robotics
- Space Mission Design using Concurrent Engineering
- Military Space
- Space Applications for Disaster Management
- Microgravity
- Developing an International Treaty for Mars
- Remote Sensing Hands-On Computing
- Model-Based Systems Engineering Applied in Concurrent Engineering
- Artificial Gravity
- Concurrent Business Creation
- Crisis Communication and Media Training
- Conceptual Design of GEO Servicing Satellite
- Remote Sensing of Coastal Environments
- Computer Vision for Space Applications
- China's Space History & Culture
- Being Bruce Willis: How to Deflect an Astroid
- Space: Enhancing Spirituality & Interfaith Dialogue

Phase II of the SSP is structured around seven academic departments, which provide a focus for smaller groups of participants to hone in on a particular discipline of interest. Each participant chooses one of the following departments:

Space Management and Business (MGB):
The basics of topics such as management techniques, financing, cost estimation, risk management and business planning, the economics and contractual aspects of space activities.

Human Performance in Space (HPS):
With an emphasis on Human Space Flight, the physiological and psycho-sociological changes unique to space flight and planetary exploration and the challenges these present to mission success.

Space Policy, Economics & Law (PEL):
The role of politics and policy in shaping current space activities and the international legal framework within which space activities must operate.

Space Physical Science (SCI):
The basic principles of space physics, astronomy and astrophysics - the electromagnetic spectrum; plasma physics; the geospacial environment; the nature, composition and evolution of our solar system; stellar, galactic and extragalactic astronomy. The microgravity environment and recent and future missions to planets, comets and asteroids.

«SSP10 exposed me to facets of the Space industry that I would never otherwise have had the chance to see.»

Elliot Greenberg
SSP10

Space Applications (APP):
The various applications enabled by access to space, focusing on telecommunications, Earth remote sensing, environmental and weather satellites, Global Navigation Satellite Systems and Geographic Information Systems.

Space Engineering (ENG):
The fundamental concepts of on-orbit space vehicles and their associated ground and launch systems. The complex, integrated systems involved in the design of spacecraft, space missions, and international space programs.

Space Humanities (HUM):
The meaning and significance of humanity's exploration and utilization of space and the implications of expanding into the cosmos. Why go into space? What impact are space activities having on the human condition? How can we think about the futures of our descendants in space?

DEPARTMENT ACTIVITIES

Department activities encourage exchange of knowledge, ideas and opinions through debate and discussion, as well as hands-on activities. Departments have more time to go into greater depth with activities such as:
- A seminar and discussion that go into greater depth following a core lecture
- Visiting a space-related facility in the area
- Building and operating very low frequency radio receivers
- Remote sensing projects using local imagery and involving ground truthing
- Examining barriers to technology transfer
- Presentations by participants on their own work or interests
- Building and launching a small rocket and payload
- Hands-on experience with data systems or experimental hardware
- Debates on space exploration's impact on society

Department activities provide an important opportunity for participants to interact with faculty members and lecturers and build their professional network. They also provide a means for participants to become sensitive to the cultural differences that govern personal interactions in a group setting and to adapt and develop presentation and negotiation skills in light of this cultural diversity.

INDIVIDUAL OR SMALL TEAM ASSIGNMENTS

The department chair will work with each participant to define a short exercise or project as part of the departmental activities. These projects may be done individually or in small teams and include an oral presentation of professional research or a professional paper and presentation on current issues for a conference.

Examples of individual assignment topics include:
- Examining the technical aspects of global navigation satellite constellations
- Analyzing the influence of space exploration on art
- Evaluating reusable launcher technologies
- Collecting research data on human responses under high stress

Examples of team assignment topics include:
- Writing a white paper on the creation of a space agency for an emerging space nation
- Responding to a request for proposal/invitation to tender
- Building and programming a robot to complete an autonomous mission simulation
- Preparing and conducting an international negotiation on space policy in a simulated United Nations setting

"SSP has been a challenge and also a useful way to demonstrate to myself what I am able to do, with all my efforts, the collaborations of the rest of students, and the help of TAs and other Staff. Now SSP is a knowledge acquired as well as a big group of friends from all around the world, sharing with me the big passion for space. This summer session is the big opportunity you have to jump directly into the last step of your space career."

Joan Miquel Portero,
SSP 08

PROFESSIONAL VISITS

During the SSP, departments make professional visits to space-related research institutes and companies. The specific activities vary based on the available local resources. Some examples of SSP13 professional visits and activities were:

- Visit to the European Organization for Nuclear Research (CERN) in Switzerland
- Visit to SES, global satellite owner / operator in Luxembourg
- Tour of the historic Strasbourg Observatory at the University of Strasbourg
- Visit to the European Astronaut Center and the ESA European Space Operations Center in Germany
- Discovery of robotic surgery performed at the European Institute of Telesurgery in Strasbourg

«My space flight in 2008 was really the big changing point of my whole life. Since my background is mechanical engineering, not space, I do not know much about space. Therefore I realized that I needed to study about space, which led me to the International Space University (ISU) Space Studies Program (SSP).»

Soyeon Yi – Astronaut, SSP09

TEAM PROJECTS

In the team projects, participants work in international, interdisciplinary and intercultural teams to produce a comprehensive analysis and proposals for an international space project or on a topic of relevance to the professional space sector. Participants choose one from multiple team project topics and work on that topic for the duration of the SSP. This element of the program has three main objectives:

1. To encourage participants to put into practice what they have brought from their own educational and/or professional background, plus knowledge and skills they learn from lectures, workshops and other presentations during the SSP.

2. To experience decision-making and organizing work in sub teams. Also, to learn how to converge on solutions and recommendations while working in multidisciplinary and intercultural teams- where conflicting requirements emerge and compromises must be made.

3. To produce a comprehensive report of professional level and present it in a public session at the end product of the team project. The report covers all aspects - technical, financial, organizational, political, schedule and risk.

Many ISU reports have served as resources for the world space community (see www.isunet.edu for Team Project reports). The structure of team projects depends to some extent on their subject matter, but certain aspects are common to all team projects:

- An early phase of exploratory or brainstorming discussion of the project
- A series of factual lectures specific to the team project topics
- Research and an intensive fact finding period
- A challenging period of wrestling with different ways of organizing the study effort
- Extensive opportunities to engage departmental faculty members and lecturers in discussion of team project issues
- An interim presentation and review where expert advice and comments will be given
- A period of very intense work to complete the final report.

Team Project topics for SSP13:

- **Solar Maximum and Spacecraft Protection**

Many assumptions have been made regarding the effect of a solar storm equivalent to the one in 1859, the so-called Carrington event, should one occur today. It was reported at the time that even the US Telegraph system was considerably affected, with some equipment reported to catch fire. The intensity of the next solar activity which, according the solar cycle forecast, is scheduled for 2013, cannot be predicted, but the analogy of some previous bursts have been estimated to be so intense that no doubt they will damage even protected satellites. Such an event could have a dual effect, both on strategically important satellites as well as on the fleet of commercial satellite operators.

This team project can therefore follow a classical risk assessment approach putting the various satellites in different categories in terms of the protection against such electromagnetic impact. In addition to the basic built-in protection systems, the lead-time on warnings for such events has increased thanks to a greater number of solar observation satellites such as SOHO. Indeed, being forewarned will allow operators to implement a limited number of countermeasures. The impact on strategic assets such as navigation systems is important as it may lead to a disruption of location-based services. A similar effect would take place on military and other strategic satellites. A mitigation strategy will need to take into account such countermeasure possibilities for a system to react to an advanced warning.

There is also no doubt that there is a considerable business risk for satellite operators. The loss of transponder capacity, temporarily or permanent, will lead to interruption of services and associated income losses. In this case, apart from the technical aspects, operators must consider a number of business risk mitigation strategies (e.g. insurance or risk-sharing).

- **Affordable Microsatellite-Based Internet Access & Environmental Monitoring (AMBIENT)**

The use of space-based services has steadily increased since the beginning of the space race in the 1950's. Today, satellite communications is an economically and commercially viable industry; satellite-based systems for geospatial data provide low cost or even free of charge Earth Observation related products/information; complex space-based telescopes and deep space probes improve our knowledge about the secrets of the Universe.

Despite all of these developments in satellite communications, some regions on Earth still do not have Internet access even though this is recognized as a right by the laws of several countries. In fact, the United Nations Organization states that all people must be able to access the Internet in order to exercise and enjoy their rights. Moreover, countries need to ensure that Internet access is available and may not unreasonably restrict an individual's access to the Internet.

Therefore, the AMBIENT team project will look into low-cost microsatellite constellation systems architectures for providing Internet Protocol connection for various services including environmental monitoring mainly for remote locations.

- **Coastal Sustainability and Offshore Resource and Activity Management**

Our relationship with the ocean is powerful, necessary, and fragile. As with all systems, the really interesting characteristics and complexity of this relationship occurs at the interfaces – where ocean meets land. We are well adapted to coastal conditions, and have exploited this for millennia. Space-borne remote sensing assets are generally dedicated to particular surfaces and measurements – we can coarsely group them into 'ocean missions', 'land missions', 'ice missions', and 'air missions'. How well do these resources integrate to help monitor conditions in coastal regions? What regional ground-based initiatives complement these, and where might opportunities be to promote new collaborations between space resources and long-term community needs? The coordination of technological development, management techniques, and understanding of coastal systems behavior is essential to balance impact with a sustainable management of the environment.

New orbital assets have recently been added to the global toolkit for ocean and water cycle studies (Aqua, NPP, Cryosat2, Aquarius, SMOS, etc.). Future missions, including ESA's Sentinels, will extend the capability further and ensure continuous and cross-validated information availability. Climate change is driving initiatives at policy, technology, education, and cultural levels. This team project aims to update a consolidated view of the state-of-the-art in monitoring systems for in-situ and remote sensing as applied to coastal regions, considering them as active biological ecosystems, active geological sites, and active regions of human economic activity. It is not intended to perform any kind of susceptibility or sensitivity analysis with regard to climate change, since such work is underway through much larger scale projects. Shipping, oil slicks, port authorities and management, fisheries, coast guards functions, tourism and renewable energy production are all in scope, but coverage of this list is neither exhaustive nor mandatory.

Post-SSP Team Project Activities

ISU alumni regularly present the results of SSP team projects at international conferences and meetings, such as the International Astronautical Congress and the United Nations Committee on the Peaceful Uses of Outer Space. Opportunities for presentation also occur through the invitation of space agencies and businesses. Participants are encouraged to discuss post-SSP publishing possibilities with their Team Project partners and faculty both during and after their SSP experience

Space Studies Program SSP

THEME DAYS

The SSP includes several half-day sessions that concentrate on a topic of particular importance on the world scene or that are related to a particular expertise available at the SSP host site. Several departments and/or team projects may combine their efforts to cover the chosen theme from an interdisciplinary perspective.

Theme day topics for SSP13 were:
- Why Nations Cooperate in Space
- Space and Security

In addition to the above curriculum components, participants are offered optional tutorials in disciplines with which they are not familiar (such as engineering, law, life sciences).There are also English lectures for space specific vocabulary, lecture comprehension, report editing, etc.

PANELS AND EVENTS AT SSP13

- **Soffen Memorial Panel**

Unknown Worlds: The Exciting Future of Moon and Mars Exploration, Walter Peeters, Moderator

- **Parabolic Flight: Zero-G Without all the Fuss of Going to Space**

Angie Bukley, Moderator

- **International Astronaut Panel**

Dwayne McCay, Moderator

- **ISU Panel: Opening the Space Frontier**

Angie Bukley, Moderator

FACULTY AND LECTURERS

The SSP curriculum is coordinated by the Core, Department, and Team Project chairs and supported by members of the ISU Faculty. This is a list of the chairs, emerging chairs, and long-stay faculty for SSP13:

- **Gary Martin**, Program Director, USA
- **Jim Dator**, Core Chair, USA
- **Chris Welch**, Core Chair, UK
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- **David Zusiman**, Lecturer, Israel

In a typical SSP about 100 lecturers and experts academia from space agencies, industry and from all over the world provide instruction to the student body. A list of the lecturers and experts invited to SSP13 can be found at: www.isunet.edu in the Program Handbook.

ALUMNI CONFERENCE

During each SSP, ISU and Alumni Associations organize a two-to-three day Alumni Conference and Reunion event. The Conference gathers distinguished speakers from space industries and agencies and includes a poster session, in addition to a number of educational, networking and social events. These activities are open for active participation to alumni, faculty and staff from all ISU programs. For more information on the 2013 Alumni conference, please visit the ISU website at www.isunet.edu.

EVALUATION

Each participant's academic performance is evaluated on the basis of:
- Performance on the examination of the fundamental concepts of the core lecture series
- Participation in departmental activities and the individual or team assignment
- Contribution to the team project.

Participants are required to obtain a satisfactory evaluation in each of these three elements in order to obtain a Certificate of Completion for the program.

ACADEMIC CREDIT FOR THE SSP

SSP graduates have received academic credits from their home universities for the work they have accomplished during the SSP.

Participants who successfully complete the SSP and register for the MSS program are exempt from module 1 on the condition that they graduate within 7 years of SSP completion and have shown good SSP performance.

"ISU is Broadening the Global Space Community and Connecting New Space Countries to Old and Mighty Ones"

Mart Vihmand,
SSP11 and MSS13

University of South Australia

THE SOUTHERN HEMISPHERE SUMMER SPACE PROGRAM

The Southern Hemisphere Summer Space Program (SHS-SP) is ISU's newest program offering, provided in partnership by ISU and the University of South Australia. The program is designed with a particular eye to the southern hemisphere environment and is built around the themes of space applications, policy and services, while giving a well rounded exposure to the principles and concepts involved in space science, space systems engineering and technology, space business and leadership and space legal and regulatory issues. The program is designed to be the catalyst to boost the role of space for countries in the southern hemisphere and those cooperating with them there, and build human capability and capacity.

The program uses the interdisciplinary educational method for which ISU is renowned, and includes core lectures from international and Australian experts, workshops and a 'white paper' group project lead by faculty and invited experts. The program will take the form of an intensive five week program, providing the International, Intercultural, and Interdisciplinary ISU experience in a format and schedule more suited to Southern nations.

As in other ISU programs, participants will benefit from the shared experience of an international, interactive working environment with other professionals, graduate researchers and senior undergraduate students. Successful completion of the program will lead to a graduate qualification or credit towards undergraduate programs in Australia and internationally. Program graduates will become part of the professional networking forum of ISU alumni (numbering more than 3,700 to date), faculty members and visiting lecturers.

ADELAIDE AUSTRALIA

January 6 - February 7, 2014

Conducted in partnership with the University of South Australia (UniSA), the first three SHS-SP sessions were held at UniSA's Mawson Lakes campus in Adelaide, Australia, and will then alternate between Australia and other sites in the Southern Hemisphere.

Adelaide is the capital of South Australia. It is one of the world's most beautiful and well planned cities with a population of about one million people and combines traditional charm with the sophistication of a major city.

The city is located on the Adelaide plains, within easy reach of a coastline of sandy beaches and the wine producing regions of the Barossa, the Adelaide Hills, McLaren Vale and Clare. To the east the gently undulating Mt Lofty Ranges provide a scenic backdrop to the city skyline. With its Mediterranean climate, relaxed lifestyle and multicultural society, Adelaide is the perfect place to visit, work and play. Adelaide's people are naturally warm and friendly, many of them born overseas or the children of migrants from around the world. This rich cultural mix is reflected in Adelaide's reputation for fine cosmopolitan dining and entertainment.

PROGRAM STRUCTURE

The SHS-SP's interdisciplinary program delivers an expertly designed curriculum suited to the space education needs of professionals seeking additional knowledge of international space systems and services, graduate researchers in all fields seeking a broader understanding of the context of their work, and undergraduate students seeking exposure to the International, Intercultural, and Interdisciplinary aspects of space that are not available in their home institution studies. This is an accredited Australian Graduate Certificate Program (through UniSA) for local and international students who desire it. An Executive Certificate will be awarded to all participants on successful completion of the program. Holders of the Executive Certificate will receive a 50% credit in the UniSA Graduate Certificate in Space Studies. Holders of the of the UniSA Graduate Certificate in Space Studies may receive credit for the first module of the ISU Master of Space Studies program held in Strasbourg, France.

Nine units (or the equivalent of one quarter of one academic year) of elective credit in a UniSA undergraduate program may be granted by UniSA for successful completion of the SHS-SP. The obtaining of equivalent credit in graduate and undergraduate programs in other Australian and overseas universities will be the responsibility of the individual participant.

CORE LECTURE SERIES

The SHS-SP's core lecture series will comprise one third of the program, presenting 40 lectures covering the world's space activities with a focus on space applications, services and policy. A broad understanding of the role of space, the current status of our capacity to use it and future directions, opportunities, and challenges for the space sector will be presented in a manner clearly understandable to participants from a broad range of backgrounds.

HANDS-ON WORKSHOPS

Another one third of the program will be allocated to hands-on workshops, public space events, and professional visits in the area. Workshops will often be linked with lectures, with hands-on activities using local remote sensing data, GPS field exercises, collecting satellite data, and other topics. There will be several public events with invited speakers and we will make several professional visits to space-related facilities in the local region.

WHITE PAPER TEAM PROJECT

The final one third will be the group White Paper Team Project assignments to be completed in week 5. Each year the program will focus on a theme or application area. The participants will, as a group, research an issue of interest to the Southern Hemisphere nations and then jointly author a White Paper on the subject which will be suitable for sharing with interested organizations and agencies or for submission to an international professional conference.

http://shs-sp.isunet.edu/Apply

If you have a specific question about the SHS-SP: inquiries@shs-sp.isunet.edu

SHORT COURSES

ISU organizes a number of short courses on request that are tailored to the specifications of the company or organization needing a course. These courses may be prepared in cooperation with partner organizations and delivered at locations chosen by the customer.

Workshops, seminars and courses have been organized on topics such as Telemedicine, Space Propulsion, Communications Satellites, Management of International Space Programs and Projects, and International Strategy and Cooperation in Space.

For more information, please contact :
extrelations@isunet.edu

SPACE ODYSSEY INSTITUTE

This short course is designed to meet the needs of experienced participants from mid-level to leadership positions in the international aerospace community. The multidisciplinary course is balanced between classroom lectures, insightful workshops and pertinent professional visits. The course work will focus in areas such as, strategic vision, policy development, global implications, project management and high-level architecture development. Professional visits are used to illustrate specific discussion topics and offer many unique insights into the aerospace industry.

To increase the participant's exposure to multiple perspectives, ideas and approaches, the Space Odyssey Institute is co-located with a module of the EMBA Program and the participants will be able to meet and interact with EMBA students from around the world and an expanded teaching staff of international aerospace experts.

Previous Space Odyssey Institutes:
- **2007: "Emerging Space Nations"**, *Beijing, China*
- **2008: "Niche Opportunities in Space Exploration"**, *Barcelona, Spain*
- **2011: "Space Policy and Law"**, *Washington, USA*
- **2010 & 2011: "Space Policy and Law"**, *Washington, USA*
- **2012: "Space Project Management"**

EXECUTIVE SPACE COURSE

7-11 April 2014, ISU Central Campus

As the world's leading university solely dedicated to the study of space, ISU offers again its acclaimed one-week Executive Space Course.

The Executive Space Course looks at current space and space-related activities and explains the technology, science, business and policies upon which each phase of a space program or mission is based.

Taught from an international perspective, the course allows participants to gain an understanding of the differences as well as the common approaches to space strategy across the globe. The course explains core engineering and technical concepts in a simple, understandable manner, allowing participants to develop their knowledge of space-related activities and terminology.

The course is intended mainly for non-technical professionals of diverse backgrounds and experience from around the world.

The ISU Faculty is specialized in integrating the technical aspects of space into clear, interdisciplinary programs for students with a range of professional and educational backgrounds.
There will also be additional guest lecturers of interest to the class.

Objectives

The course, taught in English, aims to:

> **Provide a neutral and global overview of space and space related subjects**

> **Explain core engineering and technical concepts in a simple manner**

> **Deliver a greater understanding of the challenges and opportunities of the space sector**

> **Give an insight into the traditional space markets (telecom, navigation, earth observation…) as well as new space economy.**

Program

	Monday 7 April	Tuesday 8 April	Wednesday 9 April	Thursday 10 April	Friday 11 April
9.00 to 10.00	Welcome and Introduction to Space History	Introduction to Space Systems Design	Legal Issues of Space Telecommunication and Broadcasting	Principles of Earth Observation	Workshop in CDF
10.15 to 11.15	Organisation of the space sector & outlook	General Space Legal Framework	Principles of Space Telecommunication s and Navigation	Space Marketing	Workshop in CDF (continued)
11.30 to 12.30	The Space Environment	Microgravity Applications/Space Biology Workshops	Telecom Market	Space Mission Planning and Development	Workshop in CDF (continued)
12.30 to 13.50	Lunch	Lunch	Lunch	Lunch	Lunch
14.00 to 14.50	Human Space Flight	Fundamentals of Space Propulsion	Space Cost Engineering and Risk Management	Strategic Management	Presentation of Workshop Results
15.00 to 15.50	Space Policy and Economics	Space Transportation Systems	Satellite Configurations	Case Study: Iridium & Galileo	Closing Ceremony
16.10 to 17.00	Introduction to Astrodynamics (Concurrent Design Facility - CDF)	National Space Legislation	New Space Economy	Workshop "Design of Telecom Satellite in CDF Environment" Introduction	
17.10 to 18.00	Welcome Reception				
		Boat tour of Strasbourg : 18:45-20:15	Guest Lecturer : 19:00-19:30		
		Alsatian Dinner : 20:00 - 22:30	Dinner : 19:30 - 22:30		

"The ISU Executive Space course is a must for anyone looking to expand their knowledge of the global space industry. I came away with a head full of knowledge, encouragement to dream and an address book full of new friends.."

Mr. Adrian Moore, Isle of Man, Industry and Space

ISU **FACILITIES**

ISU is the proud owner of a number of education tools that broaden the hands-on training possibilities for the students of ISU Master of Space Studies program. Some of these tools were a donation from the European Space Agency (ESA), as a statement of the agency's strong support to the university.

ISU RADIO TELESCOPES

The Radio Telescopes at ISU give students the opportunity of performing observations as well as the necessary analysis, which introduces them to typical techniques of astrophysical research and gives them a first-hand experience in the study of the invisible Universe.
Observations of natural radio emissions have been instrumental to enhance our knowledge not only of the Earth atmosphere and ionosphere, the structure and activity of the Sun and its relationship with the Earth, but has opened up an entirely new window in the classical discipline of Astronomy.

Radio Astronomy also provides an excellent educational opportunity, since it combines the technology of radio communications, weak signal detection techniques, and the sciences of physics and astronomy. ISU currently operates several Radio Telescopes at different wavelengths, with which students can explore different aspects of natural radio emissions:

- INSPIRE VLF Receiver
- Radio JOVE Receiver
- ESA Haystack Radio Telescope
- ESA-Dresden Radio Telescope

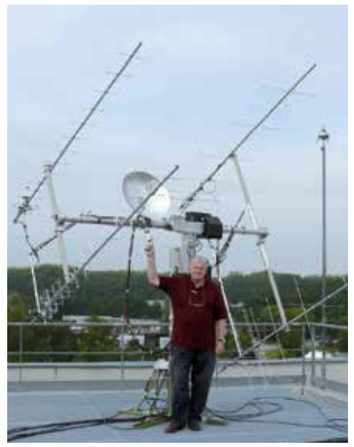
More information on the different ISU facilities on www.isunet.edu/training-facilities-msc

ISU GROUND STATION

ISU's full automated satellite Ground Station provides its students with several hands-on training opportunities in satellite tracking and operations

ISU Ground Station was built in the scope of the Global Educational Network for Satellite Operations (GENSO) project (www.genso.org), an endeavour involving students worldwide and promoted by the International Space Education Board (ISEB), an organization consisting of the Educational Departments of some of the major space agencies worldwide.
The GENSO project intends to unite individual isolated Ground Stations developed for local educational satellite projects into a global network thus allowing each of the projects affiliated to enjoy a considerably higher return for their missions as remotely collected data is forwarded to the mission controllers via a secure internet communication standard.

With this equipment ISU is capable of establishing communications with satellites operating in the Amateur Radio bands on VHF, UHF, and S-band, employing either analog or digital signals, a universe of more than 100 earth-orbiting spacecrafts.



ISU CONCURRENT DESIGN FACILITY

Concurrent Engineering is a systematic approach to integrated product development focused on the team values of cooperation, trust and sharing, that focuses in the response to customer expectations.
At ESA establishment European Space Research and Technology Centre (ESTEC), Noordwijk, the Netherlands, the application of concurrent engineering principles is undertaken at the site known as Concurrent Design Facility (CDF).

As a new CDF installation was devised at ESTEC, the initial CDF arrangement was offered to ISU and was setup at ISU central campus during summer 2008.
The CDF installation brings ISU MSS students the possibility of familiarization with concurrent engineering and its processes of application through the organization of workshops and assignments, which shall always be double-oriented tasks, by combining the CDF process with the development of space related subjects.

As the usefulness of concurrent engineering extends much further than space mission design, the use of ISU CDF for other design processes in other industry fields is also under consideration.

RESEARCH STUDIES

As a neutral forum with its international network of experts on call, ISU is ideally positioned to conduct research studies to provide agencies, industry and public organizations with the impartial global perspective and advanced analysis needed to stay on the cutting edge of the space sector and respond resourcefully to future challenges.
For more information, please contact :
info@isunet.edu

CO-SPONSORED EVENTS

ISU organizes conferences, seminars, workshops and other meetings in collaboration with partners such as , Eurisy, NASA, UNESCO, IAF, AIAA, SAIC, USAF and The Eisenhower Institute. These events are hosted at the ISU campus or at other locations around the world.
For more information, please contact :
extrelations@isunet.edu

CONFERENCE FACILITIES

ISU leases its Conference Center facilities to organizations seeking a prestigious environment fitted with state-of-the-art equipment.
For more information, please contact :
conferences@isunet.edu

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Spain
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United Kingdom
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www.ukspaceagency.bis.gov.uk

ISU ALUMNI ASSOCIATIONS

Africa
ISU African Alumni Association
http://www.isuaaa.org
contact@isuaaa.org

Oceania
Australasian Alumni of ISU
http://groups.google.com/group/australian-isu-alumni
Kim Ellis:
kel18885@bigpond.net.au

Austria
Austrian ISU Alumni Association (IISUA)
http://www.oewf.org/aisua
aisua@oewf.org

Canada
CAISU (Canadian Alumni of ISU)
http://www.caisu.org
amir.komeily@comdev.ca

France
ISU-France
http://isu-france.org
bguedel@yahoo.fr

Japan
Japanese Alumni Society for the ISU (JASI)
http://www.jasi.jp
yamanaka.tsutomu@jaxa.jp

Spain
SPISU (Spanish ISU Alumni Association)
http://spisu.isunet.edu
xavier.alabart@gmail.com

Turkey
ISU Turkish Alumni network (ISUTR)
http://www.isutr.org
info@isutr.org

USA
ISU*USA
http://isu-usa.org
board@isu-usa.org

THE **ISU** COMMUNITY

ISU SPONSORS

International Organizations
- European Space Agency (ESA)

Governments
- Australian Defence Force
- Australian Government
- Canadian Air Force
- Canadian Space Agency (CSA)
- Centre National d'Etudes Spatiales (CNES)
- Conseil Régional d'Alsace
- Communauté Urbaine de Strasbourg
- China Aerospace Science and Technology Corporation (CASC)
- Chinese Space Foundation (CSF)
- South Africa
- Deutsches Zentrum füer Luftund Raumfahrt e. V. (DLR)
- Federal Aviation Administration (FAA)
- French Air Force
- Indian Space Research Organization (ISRO)
- Isle of Man
- Israel Ministry of Defense
- Japan Aerospace eXploration Agency(JAXA)
- Korean Space Agency (KARI)
- NASRDA
- National Institute for Space Research (INPE, Brazil)
- National Aeronautics and Space Administration (NASA)
- Norwegian Space Center
- UK Space Agency

Private Sector
- Active Space Technologies
- Arianespace
- Astrium
- ATK
- Austrospace
- AXIANS
- Boeing
- CAINS
- China Great Wall Corporation
- COM DEV
- DELL
- Engineers Australia
- Enterprise Ireland
- EUMETSAT
- Excalibur Almaz
- IISC
- INMAC
- Inmarsat
- Institute of Space System
- KPMG
- Lockheed Martin
- ManSat
- MDA Corporation
- MEASAT Satellite Systems
- Neptec
- NigComSat Ltd
- NSR
- Office Depot
- SCC
- Securitas
- SES
- Societe Generale
- Société Nationale d'Étude et de Construction de Moteurs d'Aviation (SNECMA)

Non-profit sector
- Aerospace Corporation
- Altenklingen Foundation
- American Astronautical Society (AAS)
- American Institute of Aeronautics and
- Astronautics (AIAA)
- Arsenault Family Foundation for the Secure World Foundation
- Arthur C. Clarke Foundation
- Canadian Foundation for ISU (CFISU)
- Centre de Technologia Aerospacial (CTAE)
- Florida Institute of Technology
- Ilan Ramon Foundation
- Johns Hopkins University Applied Physics Laboratory
- Katholieke Universiteit Leuven
- Kyushu Institute of Technology
- Lady Mamie Ngan Memorial
- National Space Society (NSS)
- Nazarian Family Foundation
- Moscow Aviation Institute
- Odyssey Space Research
- Ohio University
- Royal Military College of Canada
- Secure World Foundation
- Space Policy Institute
- The Robert A. and Virginia Heinlein Prize Trust
- Tohoku University
- University of South Australia
- University of Waterloo

Individuals
- Angie Bukley
- Jim Burke
- Steven Brody
- Andrea Gini
- John Logsdon
- Scott Madry
- James H Newman
- Joe Pelton
- Michael Potter
- Marc Simmons
- Michael K Simpson
- Phil Spector
- Chris & Nicole Stott
- Eric Tilenius
- Peter & Barbara Wood

Admissions

Master of Space Studies Program

ADMISSION REQUIREMENTS

The ISU Admissions Committee assesses applicants to the Master of Space Studies primarily on the basis of their academic and professional qualifications, their achievements, and their
proficiency in English.

- Applicants must have a Bachelor's Degree or the equivalent, including 3 years of studies as a minimum, awarded by an accredited university. Information on academic qualification equivalencies may be obtained from the ISU Admissions Office

- Preference is given to applicants holding higher academic degrees and to applicants with professional experience in industry, government agencies or academic institutions.

- Language Requirements Courses are carried out exclusively in English, and all applicants to ISU programs must demonstrate that they are sufficiently proficient in English to follow classes and to conduct project work.

FEES

The tuition fees for the MSS 2014-2015 are EUR 25,000.

The fees for taking either program in modules also amount to EUR 25,000, but a registration fee of EUR 400 will be charged each time the student registers for a subsequent module or series of modules. Students who choose this option must complete their degree within seven years. The tuition fees for each module are as

Module 1: EUR 5,500
Module 2: EUR 7,500
Module 3: EUR 3,500
Module 4: EUR 3,500
Electives: EUR 2,000
Module 5: EUR 3,000

MSS Year 2: EUR 7,500

For further information:
Admissions Office
International Space University
Parc d'Innovation
1 rue Jean-Dominique Cassini
67400 Illkirch-Graffenstaden
France
Tel: +33 (0)3 88 65 54 30
Fax: +33 (0)3 88 65 54 47
e-mail: admissions@isunet.edu

Space Studies Program

ADMISSION REQUIREMENTS

Applicants are assessed on the basis of their academic and professional qualifications and their achievements, as well as on their proficiency in English. The decision on admission is made by the ISU Admissions Committee.

- Applicants must have 3 years of studies as a minimum, awarded by an accredited university. Information on academic qualification equivalencies may be obtained from the ISU Admissions Office Under exceptional circumstances, appropriate professional experience in fields relevant to the main academic content of SSP could be considered by the Admissions Committee as contributing to achieving the equivalence of the required academic qualification.

- Preference is given to applicants holding higher academic degrees and to applicants with professional experience in industry, government agencies or academic institutions.

- Language Requirements Courses are carried out exclusively in English, and all applicants to ISU programs must demonstrate that they are sufficiently proficient in English to follow classes and to conduct project work.

FEES

The fees for the SSP14 are EUR 18,000. Payment may also be made in US dollars at the inter-bank exchange rate on the date of payment.

This fee includes of tuition, accommodation and meals. Travel to and from the host site and medical insurance are not included.

Participants who successfully complete the SSP and register for the MSS are exempt (with validation by the admissions committee) from module 1 on the condition that they graduate within 7 years of SSP completion. Tuition fees for these applicants are as follows:

Participants who complete the SSP successfully in 2014 - if admitted to the MSS 2015 (with validation by the admissions committee)- pay a total tuition fee for the 2 programs of EUR 34,000.

Participants who have successfully completed an earlier SSP pay a tuition fee of EUR 19,500 (plus a EUR 400 registration fee) for the MSS 2015, on the condition that they graduate within seven years of SSP completion (with validation by the admissions committee).

Funding

The International Space University receives support from industry, agencies and international organizations to assist applicants who are unable to pay the full amount of the fees and are seeking funding assistance through the institution.

Funding is provided to selected applicants, covers part of the tuition fees, and is paid directly to ISU by the sponsoring organization.

Financial support is granted on the basis of:
- Academic and professional merit
- Demonstrated efforts in personal fundraising
- Demonstrated financial need

To be eligible for such funding, students should send their applications to the ISU Admissions Office no later than the following deadlines . For financial support no extra document is required other than the application form.

MASTER OF SPACE STUDIES PROGRAM:
15 March
MSS 2014-2015 applicants who do
not require funding through ISU may apply
until 30 June

SPACE STUDIES PROGRAM:
31 January
SSP14 applicants who do not require funding
through ISU may apply until 30 April

SPECIFIC SCHOLARSHIP OPPORTUNITIES

Specific scholarship opportunities are
available through:
- American Astronautical Society
- CAINS Associates
- Centre National d'Études Spatiales (CNES)
- European Space Agency (ESA)
- INMARSAT
- Japan Aerospace Exploration Agency (JAXA)
- Enterprise Ireland
- UK Space Agency
- Norwegian Space Center
- SES
- Communauté Urbaine de Strasbourg
- Région Alsace

Southern Hemisphere Summer Space Program

Deadline to apply: 30th November 2014
Fees: AUD 10,900

For more information, please visit the ISU website: **http://www.isunet.edu**