

# AERONAUTICS AND SPACE GRADUATE SCHOOL OF ENGINEERING



SCHOOL ACCREDITED BY NATIONAL ACCREDITATION BOARD (CTI)

POLYTECHNIC INSTITUTE OF ADVANCED SCIENCES

[WWW.IPSA.FR](http://WWW.IPSA.FR)



Erasmus+





# THE COLLEGE FOR AEROSPACE ENTHUSIASTS

**IPSA is an engineering college offering a 5 year syllabus (accredited by the CTI\*) 100% dedicated to Aeronautics and Space. The interest in 'everything Aerospace' is a particular source of motivation in the college and the passion is shared by both students and lecturers.**

The pedagogy at IPSA is very specific. During their studies, IPSAliens\*\* have to:

- Develop the scientific skills essential to their future profession as engineers specializing in Aeronautics and Space,
- Consolidate their knowledge in the Humanities,
- Remain in permanent contact with the world of work within the aeronautical and space sectors through internships or projects on industrial topics.

\* The 'CTI' (Commission des Titres d'Ingénieur) is the organization which monitors and accredits the diplomas of engineering colleges in France.

\*\* IPSAliens is the nickname given to students studying at IPSA

# ENCOURAGING THE PASSION FOR AERONAUTICS AND SPACE



## PROJECT BASED PEDAGOGY

IPSA places its culture of projects at the center of the curriculum. Right from the start of training, students, working in teams, carry out projects on themes. These become increasingly complex from the 1<sup>st</sup> year of the engineering syllabus, finishing with a high level of technical content at the end of course. These projects teach students project management.

Examples of projects carried out by IPSAliens during the engineering syllabus.

- Choice of material for the thermal shield of a space shuttle. (3<sup>rd</sup> year)
- Aviation in the post-oil era? (3<sup>rd</sup> year)
- Design of a convertible drone (4<sup>th</sup> year)
- Design of a delta wing interceptor aircraft (4<sup>th</sup> year)
- Dimensioning an engine for a manned suborbital vehicle. (5<sup>th</sup> year)
- A study of the wing shape of a FALCON 2000 L (5<sup>th</sup> year)

# THE IPSA SYLLABUS OVER 5 YEARS



The preparatory program (Paris and Toulouse) lasts 2 years and from the beginning, initiates students into the aerospace sector. The passion for the sector is mirrored through concrete industry orientated design and build projects. The subjects studied are mathematics, physics, aeronautical science, computer science and electronics, languages and project management.

The engineers program lasts 3 years and allows students to specialize in their own chosen field and to individualize their courses through options and scientific majors.

During their training the IPSAliens spend 9 months on compulsory approved work experience including a 6 month end of course internship, proving real professional experience right out of school.

## **3<sup>RD</sup> YEAR:**

aerospace systems or vehicles.

## **4<sup>TH</sup> YEAR: 5 MAJORS**

- Energy, Propulsion and engine innovation
- Mechanics and aircraft Structures
- Embedded systems and Telecommunications
- Mechatronic control systems
- Space, Launchers and Satellites

## **5<sup>TH</sup> YEAR: 3 COURSE CHOICES PROPOSED TO THE STUDENTS**

### **EXPERT-ENGINEER COURSE DESIGN OF AERONAUTIC SYSTEMS**

#### **Vehicle :**

- Energy And Motorisation
- Aeronautical Cells

#### **Systems :**

- Operation And Transmission Of Embedded Information
- Auto Piloted Airborne Controls

### **DESIGN OF SPACE SYSTEMS**

- Space Vehicles
- Space Systems

### **MANAGEMENT AND INDUSTRIAL LOGISTICS:**

- Industrial Projects And Business Engineering
- Industrial Logistics - Production – Maintenance

### **DUAL CURRICULUM SKILLS IPSA / MBA ISG**

(sales engineer)

### **INTERNATIONAL CURRICULUM:**

Double diploma with foreign universities

# A COLLEGE WITH A RESOLUTELY INTERNATIONAL VISION

In order to prepare its students for the international and multicultural world that the Aerospace sector has become, IPSA has implemented a major English language training program from year 1, with immersion weeks. Teaching is mostly in English for the last two years of the course, promoting better integration of foreign students and thus increasing academic exchanges with IPSA's partner universities in other countries.

All 4<sup>th</sup> year students spend a compulsory study semester abroad and 5<sup>th</sup> year students can prepare a 'French–Foreign double diploma'. These international experiences nurture open minds and can boost the early careers of some graduates.

## SOME OF OUR PARTNERS:

- Arizona University, USA
- Cheng Kung National University, Taiwan
- Cranfield University, England, UK
- Nanjing University of Aeronautics and Astronautics, China
- Samara State Aerospace University, Russia
- Shenyang Aerospace University, China
- SeoulTech, South Korea

## RESEARCH AT IPSA

At the crossroads of the industrial and academic worlds, research is one of the fundamental axes of Ipsalien pedagogy. A college for Aeronautical and Space engineers, with three research laboratories dedicated to Aerospace, IPSA puts innovation at the heart of its engineering training.

## 2 axes of research:

- > Microaeronautics
- > Scientific calculation applied to the aerospace field



# OUR PARTNERS AROUND THE WORLD

## 1. GERMANY

→ MUNICH UNIVERSITY OF APPLIED SCIENCES

## 2. ARGENTINA

→ SAN MARTIN NATIONAL UNIVERSITY

## 3. AUSTRIA

→ UNIVERSITY OF APPLIED SCIENCES OF WIENER NEUSTADT

## 4. BELGIUM

→ UNIVERSITY OF LIEGE

## 5. BRAZIL

→ UNIVERSITY OF SAO PAULO

## 6. CANADA

→ UNIVERSITY OF LAVAL, QUEBEC  
→ UNIVERSITY OF CONCORDIA

## 7. CHINA

→ SHENYANG AEROSPACE UNIVERSITY  
→ UNIVERSITY OF AERONAUTICS AND ASTRONAUTICS OF NANJING

## 8. COLOMBIA

→ SCHOOL OF ANTIOQUIA ENGINEERS

## 9. SOUTH KOREA

→ KOREA TECH  
→ UNIVERSITY OF DONGGUK  
→ UNIVERSITY OF KEIMYUNG  
→ UNIVERSITY OF KYUNGSUNG  
→ UNIVERSITY OF KOOKMIN  
→ SEOULTECH  
→ UNIVERSITY OF DANKOOK

## 10. SPAIN

→ UNIVERSITY POLYTECHNIC OF MADRID (ETSIA)  
→ UNIVERSITY OF PAIS VASCO (BILBAO)  
→ UNIVERSITY POLYTECHNIC OF VALENCE



## 11. UNITED STATES

→ UNIVERSITY OF ARIZONA (TUCSON)  
→ UNIVERSITY OF SAN DIEGO, CALIFORNIA

## 12. BRITAIN

→ UNIVERSITY OF CRANFIELD  
→ UNIVERSITY OF SALFORD  
→ HERIOT-WATT UNIVERSITY

## 13. HUNGARY

→ UNIVERSITY TECHNOLOGIC AND ECONOMIC OF BUDAPEST  
→ UNIVERSITY OF MISKOLC

## 14. HONK KONG

→ HONG KONG POLYTECHNIC UNIVERSITY

## 15. INDIA

→ CHANDIGARH UNIVERSITY  
→ HINDUSTAN UNIVERSITY  
→ CHITKARA UNIVERSITY  
→ UNIVERSITY OF APPLIED SCIENCES OF RAMAIAH  
→ SRM UNIVERSITY

## 16. ITALIA

→ POLYTECHNIC OF TURIN  
→ UNIVERSITY OF NAPLES FEDERICO II

## 17. JAPON

→ GUNMA UNIVERSITY

## 18. LATVIA

→ RIGA TECHNICAL UNIVERSITY

## 19. LITUANIA

→ UNIVERSITY OF VILNIUS (VGTU)  
→ TECHNICAL UNIVERSITY OF KAUNAS



**20. MEXICO**

- ↪ UNIVERSITY LASALLE MEXICO
- ↪ AUTONOMOUS UNIVERSITY OF PUEBLA

**21. HOLLAND**

- ↪ INHOLLAND UNIVERSITY

**22. PERU**

- ↪ PERUVIAN UNIVERSITY OF APPLIED SCIENCES

**23. POLAND**

- ↪ WARSAW TECHNOLOGICAL UNIVERSITY
- ↪ UNIVERSITY OF POZNAN

**24. PORTUGAL**

- ↪ UNIVERSITY OF BEIRA INTERIOR (COVILHA)
- ↪ HIGHER TECHNICAL INSTITUTE OF LISBON
- ↪ UNIVERSITY OF COIMBRA

**25. CZECH REPUBLIC**

- ↪ TECHNOLOGICAL UNIVERSITY OF OSTRAVA
- ↪ CZECH TECHNICAL UNIVERSITY IN PRAGUE

**26. RUSSIA**

- ↪ MIPT
- ↪ MOSCOW AVIATION INSTITUTE
- ↪ SAMARA STATE UNIVERSITY AEROSPACE
- ↪ SAINT -PETERSBURG UNIVERISITY OF AEROSPACE

**27. ROMANIA**

- ↪ BUCAREST TECHNOLOGICAL UNIVERSITY

**28. TAIWAN**

- ↪ NATIONAL CHENG KUNG UNIVERSITY
- ↪ TAIPEITECH
- ↪ TAIWANTECH

**29. THAILANDE**

- ↪ UNIVERSITY OF CHULALONGKORN

**30. TURKEY**

- ↪ ISTANBUL TECHNICAL UNIVERSITY

# OPPORTUNITIES & CAREERS

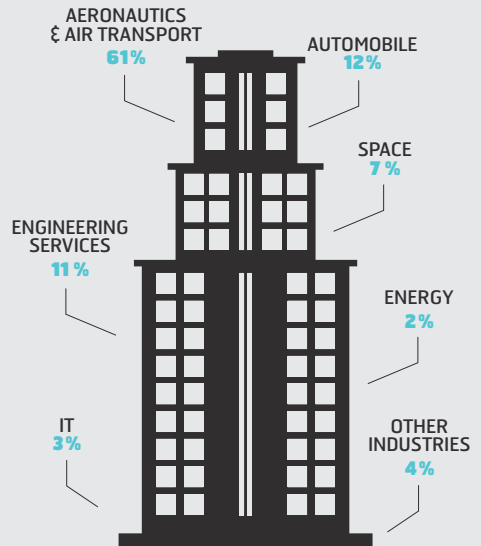
Since its creation more than 50 years ago, IPSA has maintained strong relations with the Aerospace industry. Boosted by a network of Alumni occupying key positions in large companies in the sector, the college is recognized as a reference by professionals.

## GEOGRAPHICAL REPARTITION

- PARIS REGION 43%
- TOULOUSE REGION 24%
- PACA 7%
- DOM TOM : 1%
- OTHER REGIONS 14%
- INTERNATIONAL 11%



## ACTIVITY SECTORS OF COMPANIES



The World Wide Attitude is one of the flagship values of IPSA. Prepared to be 'open to international' by their studies, 11% of 2015 graduates started their careers abroad, notably in Asia and Europe.



## AEROSPACE, A SECTOR FOR THE FUTURE

Arriving in a sector in rapid growth, with full order books for many years, R&D projects multiplying requiring high-level skills, IPSAliens are particularly prized for their operational, managerial and intercultural skills. Anchored in the aeronautics and space sectors their added value is demonstrated by the real professional experience acquired during the studies.

### ACTIVITY SECTORS OF GRADUATES

DESIGN - R&D: **42%**  
 QUALITY - CERTIFICATION - SECURITY: **5%**  
 INDUSTRIALIZATION - PRODUCTION: **23%**  
 TESTING: **3%**  
 OPERATIONS - MANAGEMENT: **16%**  
 MARKETING - COMMERCIAL: **4%**  
 MAINTENANCE: **3%**  
 COMPUTING : **4%**



## FEW PARTNERS IN FRANCE AND ABROAD

AIRPORTS OF PARIS  
 AIR FRANCE  
 AIRBUS  
 AIRBUS SAFRAN LAUNCHERS  
 ALTEN  
 ALTRAN  
 ARIANESPACE  
 AVIATION DESIGN  
 SPACE CITY  
 CNES  
 DAHER AEROSPACE  
 DASSAULT DS  
 DASSAULT FALCON SERVICE  
 FRENCH CIVIL AVIATION AUTHORITY (DGAC)  
 FRENCH DEFENCE AGENCY (DGA)  
 EMBRAER  
 FRENCH AIR FORCE  
 MESSIER BUGATTI DOWTY  
 ONERA  
 PSA  
 RENAULT  
 ROLLS-ROYCE  
 SABENA TECHNICS  
 SAFRAN  
 SAFRAN AIRCRAFT ENGINES  
 SAFRAN ELECTRICAL & POWER  
 SAFRAN HELICOPTER ENGINES  
 SAFRAN NACELLES  
 SAFRAN TRANSMISSION SYSTEMS  
 SEGULA TECHNOLOGIES  
 SOGETI HIGH TECH  
 SOPRA - STERIA  
 STELIA AEROSPACE  
 THALES  
 WIJET

# STUDENT LIFE

The passion and the dynamism of IPSAliens materializes through student associations. Whether they are of a cultural, sporting or technical nature, the students lead innovative, sometimes ambitious projects, where technological venture is at stake. Design and launch of rockets or drones, construction of a full size flight simulator for a Boeing 777, pilot training, model airplanes, but also music, team sports, video and many other things..... IPSAliens student life is full of passion.

## SOME OF OUR ASSOCIATIONS IN PARIS

- **BDE IPSA:** Animation of student life by the Students Association.
- **Bureau des Sports:** Sports Association
- **Aéro IPSA:** Design and build of experimental rockets.
- **IPSA Technologies:** Design and build of drones.
- **Evolutek:** Robots
- **IPSA Flight:** Construction of a flight simulator for a Boeing 777
- **Mach 0.1:** Flying gliders
- **IPSA KART:** Karting
- **Bureau des Arts:** Cultural events.
- **STUD'ACT:** Humanitarian and solidarity actions

## IN TOULOUSE :

- **BDE IPSA:** Animation of student life by the Students Association.
- **Bureau des Sports:** Sports Association
- **IPSA RETRO:** Restoration of old aircraft
- **IPSA Plane:** Piloting of gliders
- **IPSA Hero:** Modeling



# PRactical INFORMATION

## PARIS

Located near the best student city in the world\*, the IPSA Paris campus enjoys the economic and cultural dynamism of the French capital.

\* British QS ranking



## LOCATION

TOULOUSE



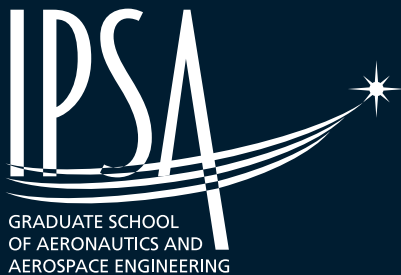
## TOULOUSE

The IPSA Toulouse campus enjoys the unique industrial environment of this large aerospace capital.

## ACCOMMODATION AND HOUSING AID:

The international office has various contacts with agencies or private owners to help international student to find the perfect place to stay

More information on our website : [www.ipsa.fr](http://www.ipsa.fr)



GRADUATE SCHOOL  
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## POLYTECHNIC INSTITUTE OF ADVANCED SCIENCES

Privately endowed graduate  
educational institution

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[www.ipsa.fr](http://www.ipsa.fr)



Download the IPSA application  
Available on App Store and Google Play

### ABOUT IONIS EDUCATION GROUP :

«Created in 1980 by Marc Sellam, the IONIS Education Group is the first group of private, higher education in France. The 23 schools and entities\* of the Group bring together nearly 25,000 students and 65,000 alumni in the fields of business, marketing, communication, management, finance, information technology, digital, aerospace, energy, transport, biotechnology and innovation. The self-defined mission of the IONIS Group is to bring forth new business intelligence today and tomorrow. A strong international scope, attachment to innovation, entrepreneurial spirit, and a veritable 'culture of adaptability and change', these are the main values taught to the future alumni of the IONIS Group - key actors in tomorrow's economy.»

\* ISG, ISG Programme Business & Management, Moda Domani Institute, ISEG Marketing & Communication School, ISTE, ICS Bégué, ISEFAC Bachelor, ISEFAC R.H., EPITA, ESME Sudria, IPSA, Epitech, Web@cadémie, Sup'Biotech, e-artsup, Ionis-STM, SUP'Internet, ISEFAC Alternance, ETNA, IONIS UP, Coding Academy, IONISx, IONIS 361.

This school is member of 

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Business Intelligence