

Educational Platform for Space Science and Technology

We Unlocking the Space to Everyone

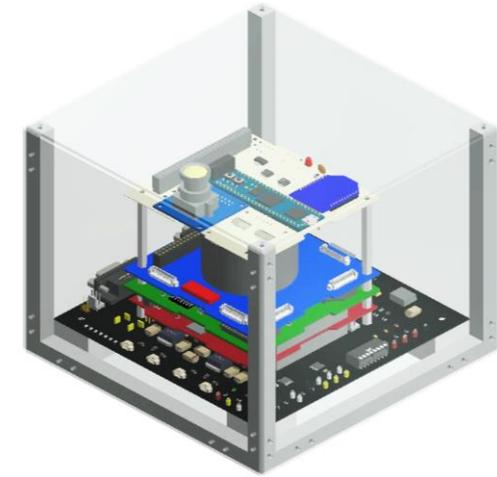
Educational Platform for Space Science and Technology



Developer and Financier



Financier



Space Keys

Success Usually Comes To Those
Who Are Too Busy To Be Looking For It.

We Unlocking the Space technology to Everyone in to
Africa and Middle East Countries

Space and Education



Education is one of the principal Sustainable Development Goals (SDG) because it can have a spillover effect on the other goals. An educated society stands a better chance at reaching the SDGs. Space education, a top priority for most nations, focuses on technical education for employment in space and related sectors. However, space (topics) can also be leveraged to improve general educational outcomes. Space, being universally fascinating, can be a key catalyst in education. Several projects have already used space topics and contexts to teach literacy, numeracy, programming etc. Here the end goal is not to impart an education in space but rather use the excitement of space to better teach a standard curriculum. Space topics are also well suited to instill tolerance and empathy, especially relevant in our highly globalized world with multiple breaking points.

A proposed plan to leverage the potential of space topics is to create an open-source Educational space system connected to the online educational portal repository containing space contextualized examples to teach various subjects. Over time, with more users, evaluations and studies can be carried out in classrooms across the Egyptian University's in order to uncover the most effective ways of leveraging space topics to improve educational outcomes.

Mohamed El-Koosy
COE Egyptian Space Agency

Space Keys

Space Keys is a The Space Science and Technology Platform for Space Educational purposes, The Space Keys Platform design to give to the students a hands-on space education and Outreach with understanding and exploring concepts in electrical design, mechanical design, software design, and systems engineering by using the subsystems and functionality of a spacecraft. Hardware and exercises design to give the students of engineering hands-on experience in satellite testing and operation. Space Keys Platform even provides satellite subsystem boards that allow advanced students to design their own payload and learn about control, operation, and data acquisition. The instructor will find the full space system course curriculum with a lot of exercises that can be applied directly to the kit, some are more advanced than others and the intent is to offer a set of base exercises that illustrate the operation of all the elements of Space Keys Platform .

Mohamed Ibrahim
Space Key Project Manager





Space Keys

We Unlocking the Space for Every One

Space Innovation Lab

The instructor will need to tailor these exercises to the needs of their students. Through the Space Keys Platform organization instructors can exchange ideas and lectures exercises. It is important to point out that Space Keys Platform design such that it can be used in courses that provide high-level overviews of Spacecraft subsystems and their interrelationships, but it can also be used to teach principles of systems engineering, and even detailed design engineering. Space Keys Platform come with the different satellite payload types to simulate the Earth Monitoring, weather monitoring applications, communication application, navigation Application, and space environment effects

What We Do



WHO WE ARE?

The best of the best specialists of the manpower of the Egyptian Space Agency



BEST SERVICE

Space education, technology transfer, and training of manpower in the space industry



VERY USEFUL

undergraduate and postgraduate students, fresh engineers, and scientist

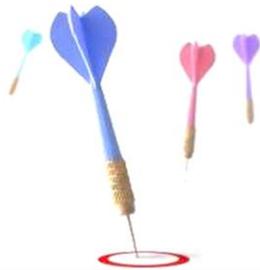


GOOD VISION

Investment in People (IIP); and building the space workforce with higher-skilled human resources

Space Innovation Lab Contents

We offers distinguished educational services including cost-effective reliable educational tools and platform solutions for universities and research institutes. Our educational platform is a comprehensive, multidisciplinary demonstrative tool with state of the art educational systems.



Simplifying Education



Space Keys Platform



Space Science and
Technology Course
Portfolio



lectures Platform



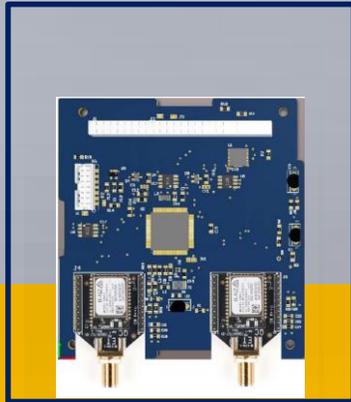
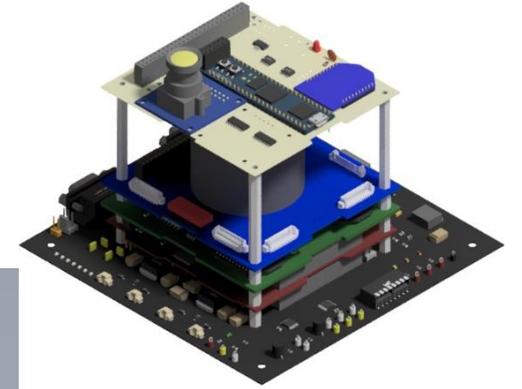
Ground Control Station
Software



Space Application SW

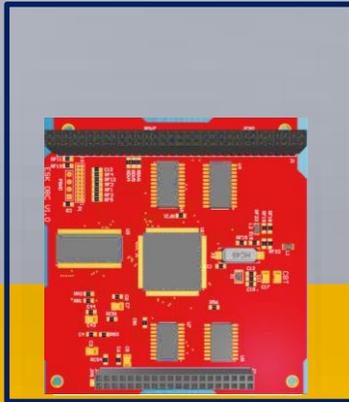
Space Keys Platform

Core of Space Innovation Lab



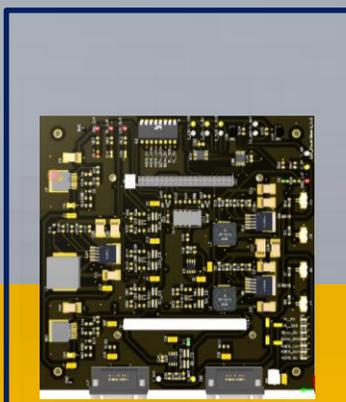
Communication Subsystem

- TT&C subsystem operation
- Communication protocols
- Communication security
- Link budget
- Wireless transamination



Command & Data Handling Subsystem

- Satellite Commanding.
- Telemetry Gathering.
- Satellite Control bus.
- CDH Operation.
- CDH SW Errors Investigation.
- CDH SW modification.



Electric Power Subsystem

- EPS operation
- Power Generation
- Power Storage
- Power distribution
- Load protection
- Devices control



ADCS Subsystem

- ADCS Sensors
- ADCS Actuators
- Orbits mechanism
- Satellite Control by Thruster
- Satellite Orientation.
- Satellite Control Algorithms



Payload Subsystem

- Earth Monitoring Application.
- Satellite Communication App.
- Weather Monitoring App.
- Image formats & resolution
- Image data handling & storage

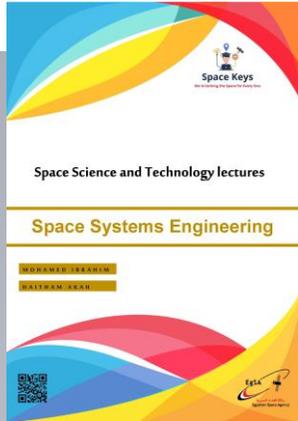


Space Science Subsystem

- Space Environment Sensors.
- Radiation effect
- Magnetic Field effect:
- Thermal effect

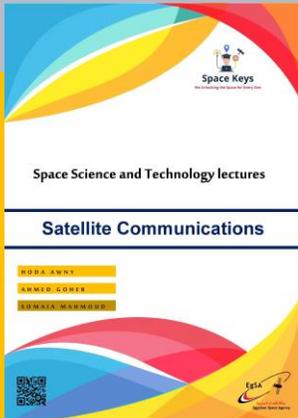
Space Science and Technology Course Portfolio

Brain of Space Innovation Lab



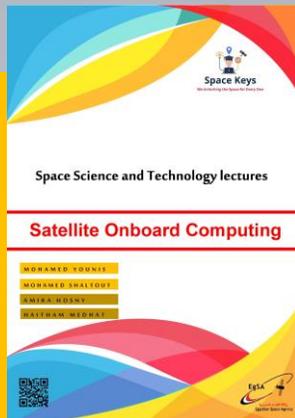
Space System Engineering lectures

2 Lec.



Satellite Communication lectures

4 Lec.



Satellite CDH lectures

4 Lec.



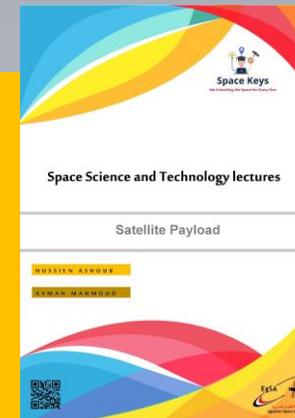
Satellite Electric Power lectures

4 Lec.



Satellite ADCS lectures

4 Lec.



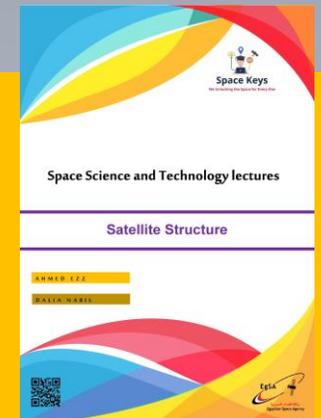
Satellite Payload lectures

4 Lec.



Space Science lectures

4 Lec.

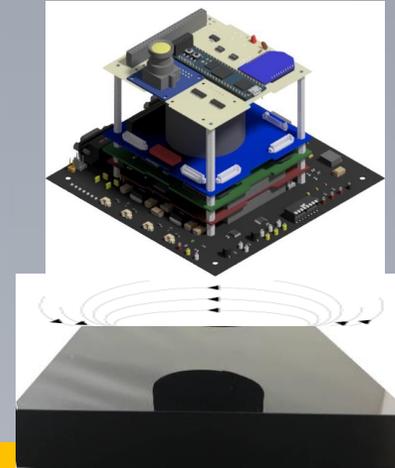
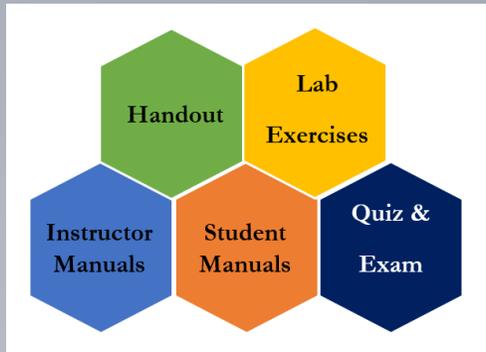


Satellite Structure lectures

2 Lec.

Space Science and Technology lectures Platform

Brain of Space Innovation Lab



Magnetic Levitation



Experiments Frame

Space System Engineering Experiments

2 EXP.

Satellite Communication Experiments

5 EXP.

Satellite CDH Experiments

6 EXP.

Satellite Electric Power Experiments

6 EXP.

Satellite AOCS Experiments

6 EXP.

Satellite Payload Experiments

4 EXP.

Space Science Experiments

5 EXP.

Satellite Structure Experiments

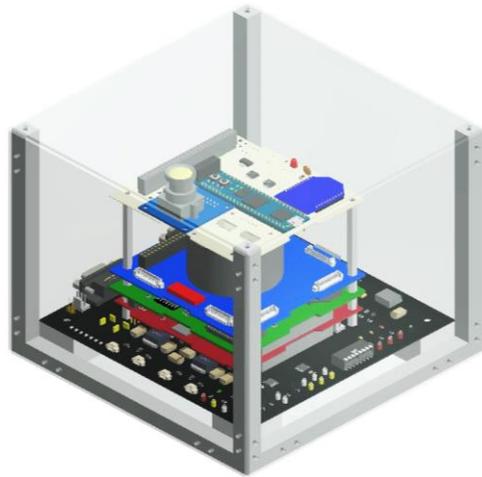
3 EXP.



Our Objectives

1. **Building the space workforce with higher-skilled human resources that are capable of achieving sustainable development goals (SDGs).**
2. **Providing an experimental way for teaching these technologies will create unique opportunities for students to understand and explore satellite subsystems.**
3. **Unification of the space knowledge through Egyptian Space Agency educational portal.**
4. **Supporting the stimulating innovation & entrepreneurship in universities.**
5. **Unlocking the Space technology to Everyone in to Africa and Middle East Countries**

Timeline



صنع في مصر
Made Egypt

We Learn From The Best, Success Seems To Be **Connected With Action**

2020

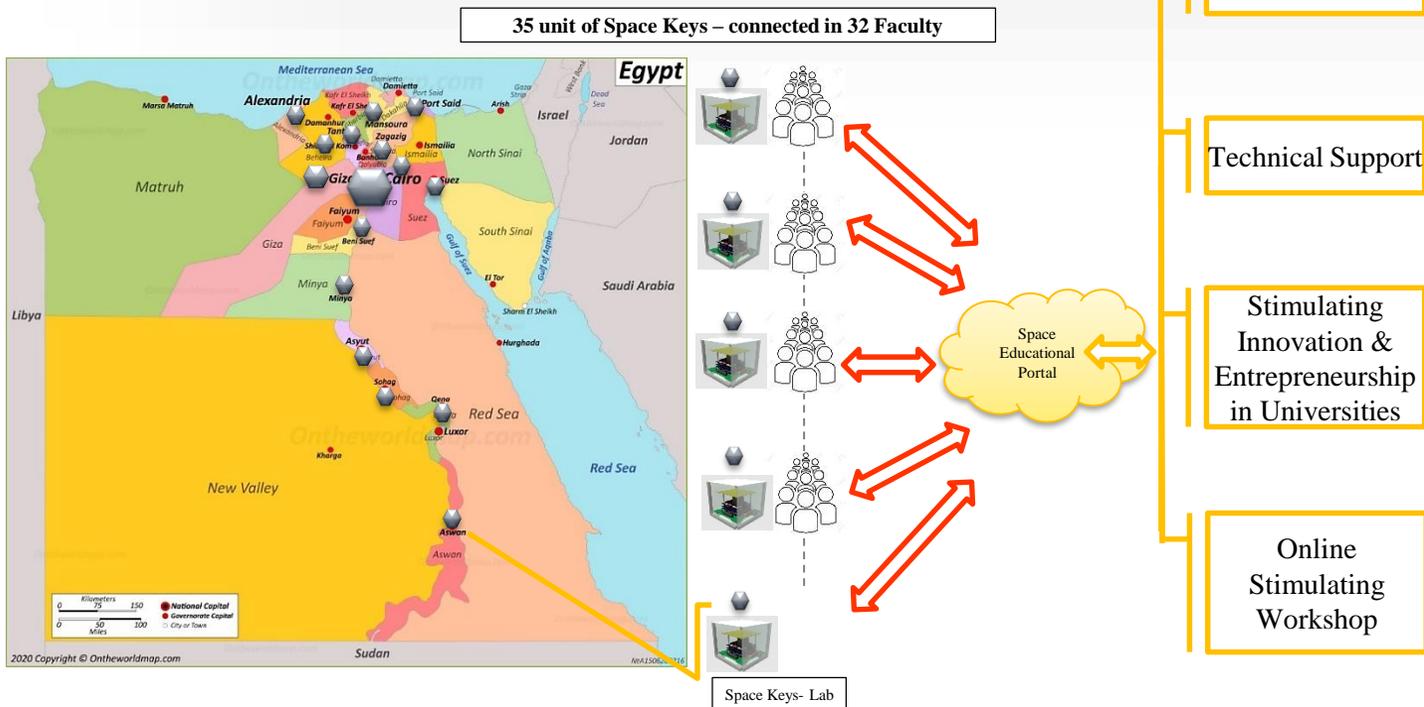
Finishing design and Building of the first model of Space educational platform, so that is ideal to be cost-effective multidisciplinary modern educational systems focusing on, low-cost science, and commercial proof-of-concept for educational purposes.

Space keys platform offers a full mission solution based on our portfolio of subsystems and extensive knowledge, for science and technology dissemination.

2021

Action

To permit about (35 unit) of the **Space keys** platform to establishment of the Egyptian Space Innovation Lab in the Faculty of Engineering and Faculty of Science across Egyptian University, with capability to join together in online learning distance system through Egyptian Space Agency educational portal to the unification of the space knowledge system.



2022



Action

- Stimulating Innovation, Entrepreneurship in Universities activity
- Pre-Incubation & Incubation Program for Space Technology Startups

Incubator Focus Areas



Space Imaging



Space Software



System Engineering Space



Ground Control Station



Space Environment



Spacecraft Computers

Our Long Plan



2022



Phase 1

32 Space Innovation Lab



Phase 2

5 African Countries (Sudan, Nigeria, Uganda, Kenya, Ghana)



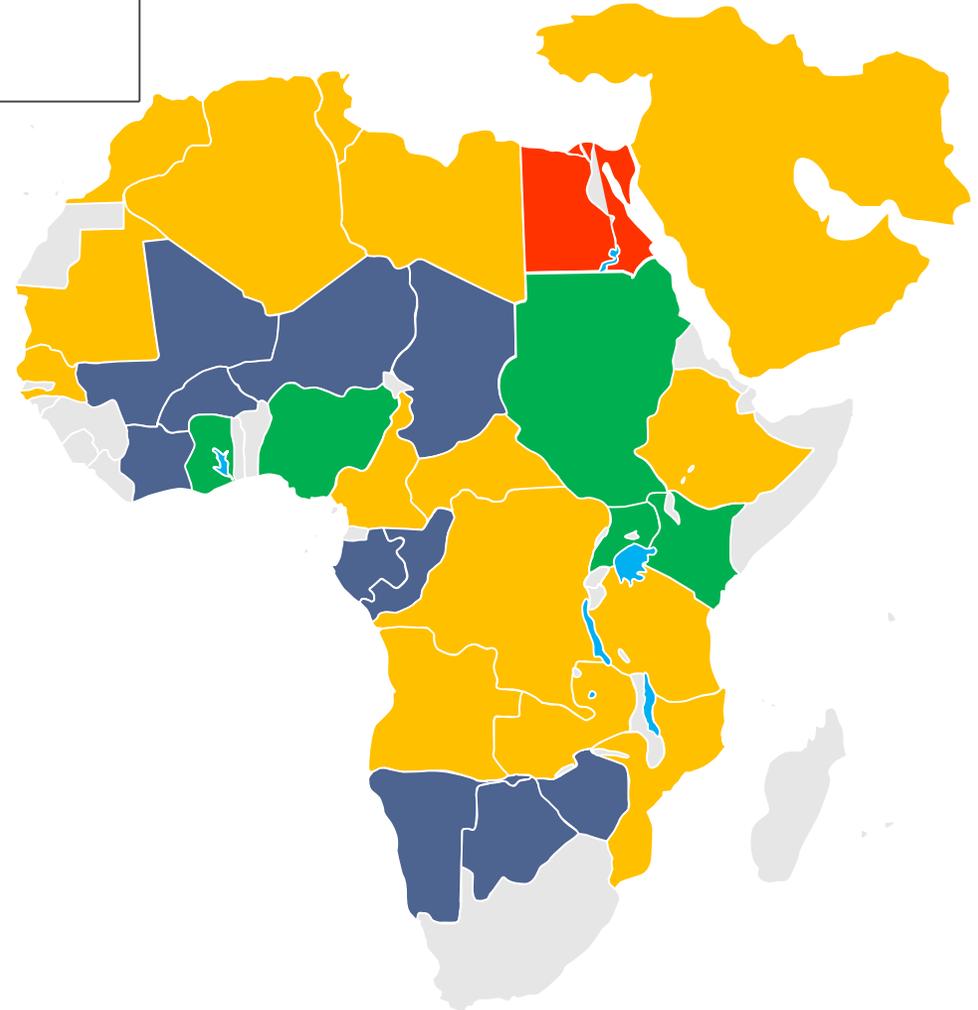
Phase 3

14 Africa and Middle East Countries



Phase 4

Rest of the African Countries





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Thanks For Watch