KU LEUVEN

Something about Belgium

Dr ing. Peter Arras
Faculty Policy Coordinator for exchange studies

Belgium

Flemish speaking

French speaking

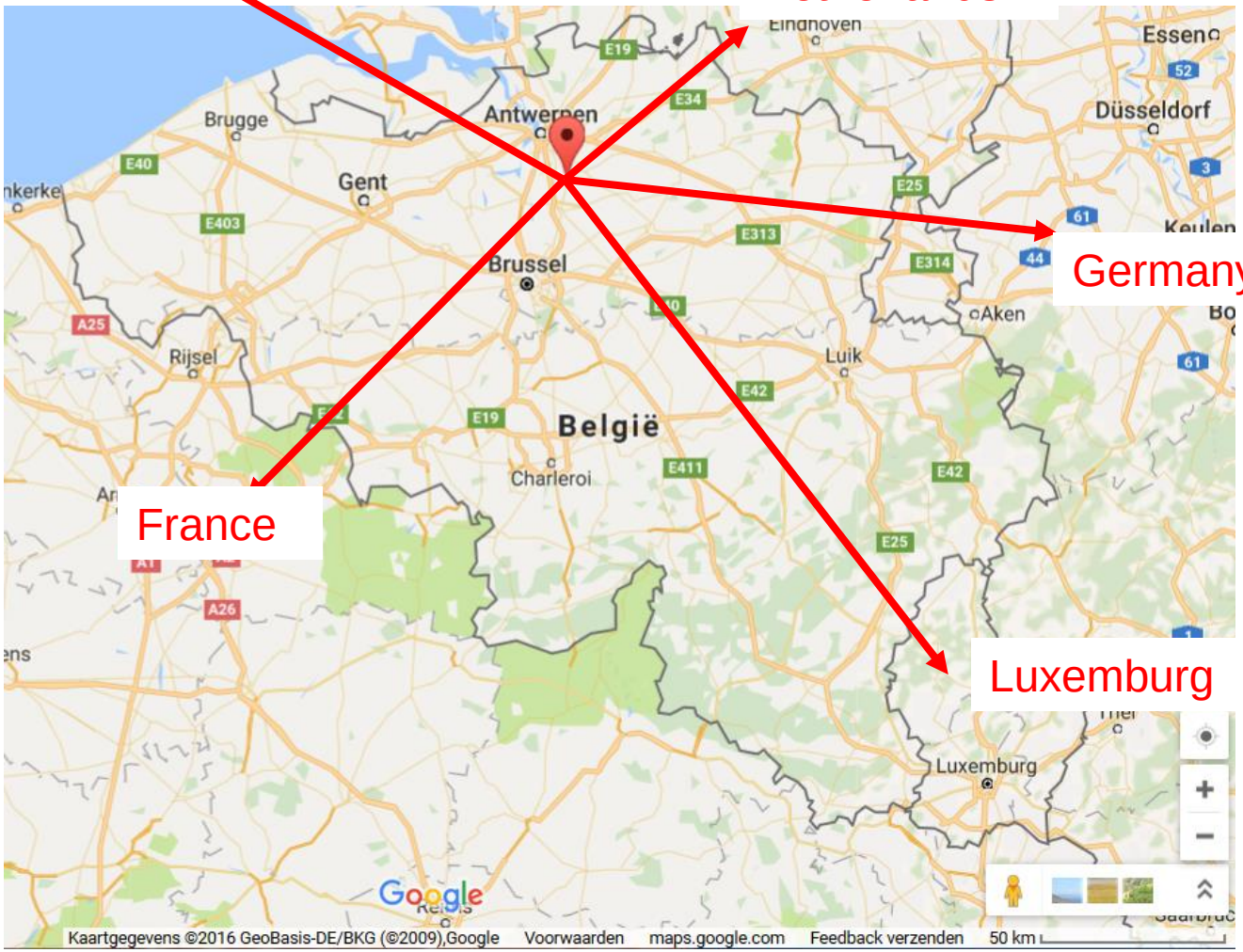
Bilingual

German speaking

Belgium: 30000 km^2
Ukraine: 600000 km^2

Great Britain

Netherlands



Germany

France

Luxemburg

Belgium, home of many important people ☺

ТАНТАНА

Люк и Люси

Смурфы

Worldwide well-known DJ’s

- https://youtu.be/kIll0-AyMa0
- https://youtu.be/GGawVPg9tvE
- https://youtu.be/3UOtF4J9wpo

Home of Tomorrowland

- Dance and fantasy festival.
- https://youtu.be/AtdnWYqbMwc

Belgium, known for.

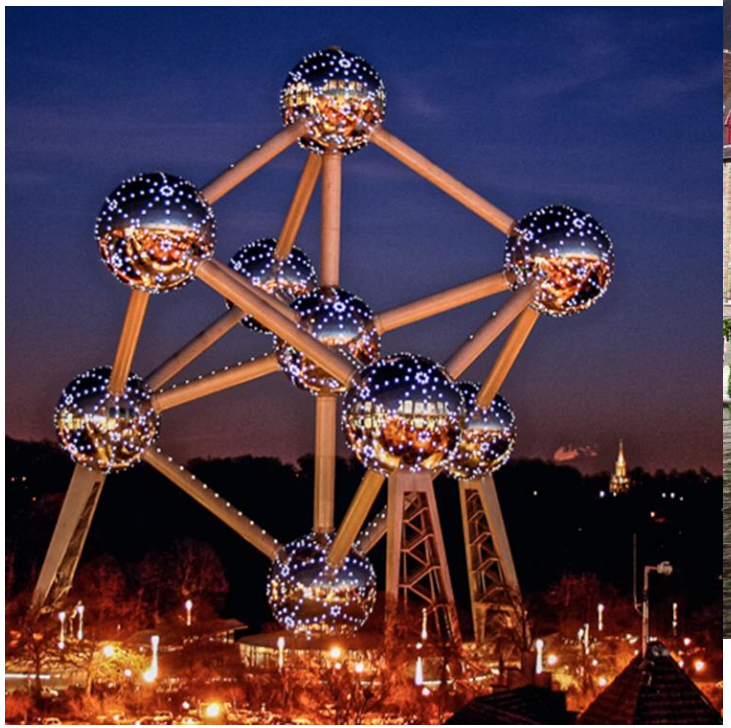

Konijn in bokbier met pruimen
© Uit de keuken van Arden: http://uitdekeukenvanarden.blogspot.com

Home of fashion.

- Dirk Bikkembergs
- Walter Van Beirendonck (creative director for Scapa Sports).
- Raf Simons (creative director for Dior).

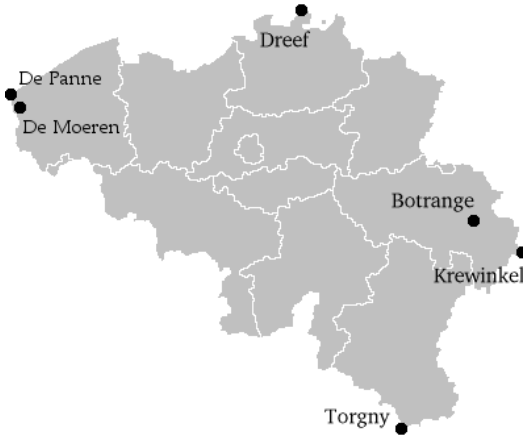
DIRK BIKKEMBERGS
Sport Couture

Belgium: sceneries, cultural heritage.



Belgium:

- Highest mountain: 694 m, Signal de Botrange.



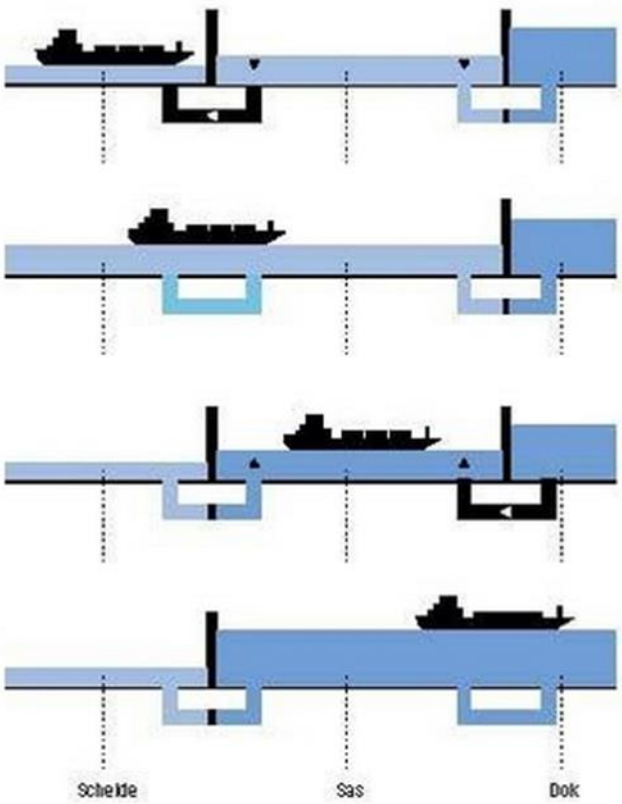
- Lowest point: 0m, De Moeren

Economical region.

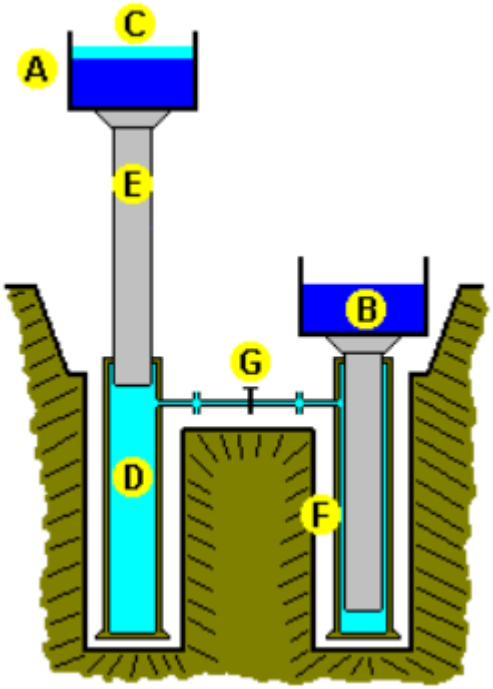
MSC ZOE

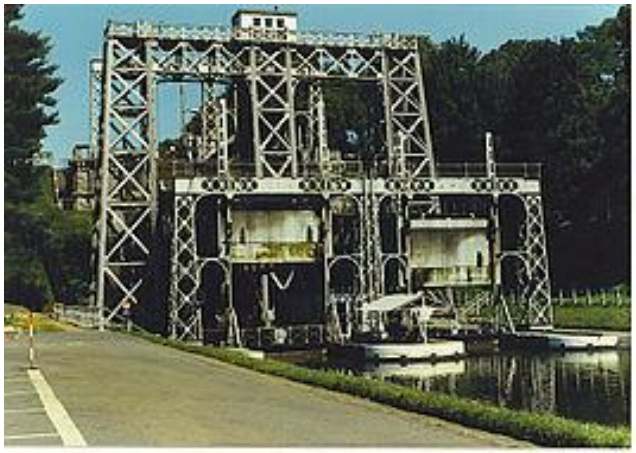
TEU	19.224 TEU
Lengte	399 m
Breedte	59 m
Operationele diepgang	16 m
Tonnenmaat	197.362 BT

Deurganckdok lock: biggest in the world.



Ship elevator.





Other big companies.

TOYOTA

S.A.B.C.A.

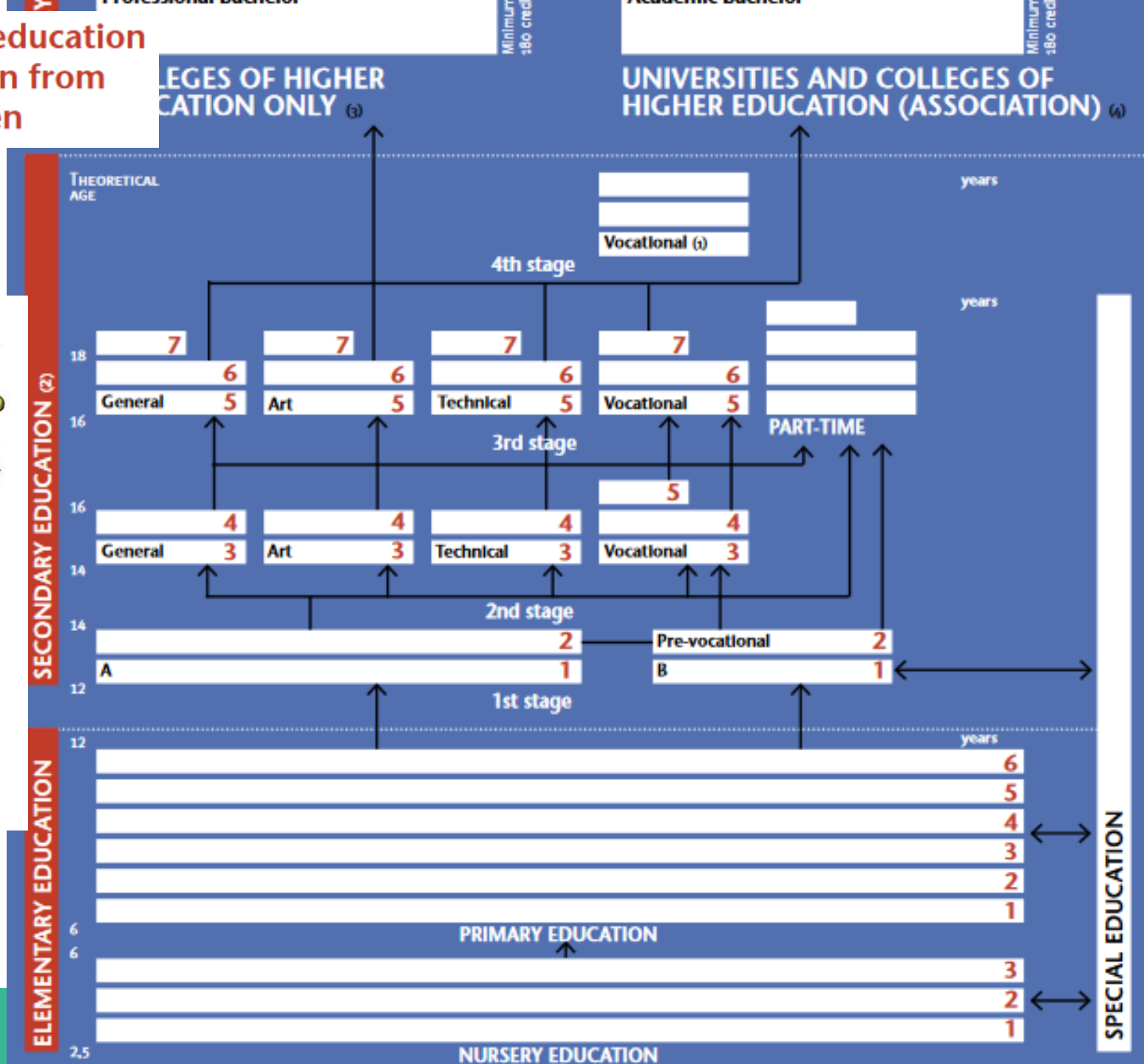
asco

ZF

NEW HOLLAND AGRICULTURE

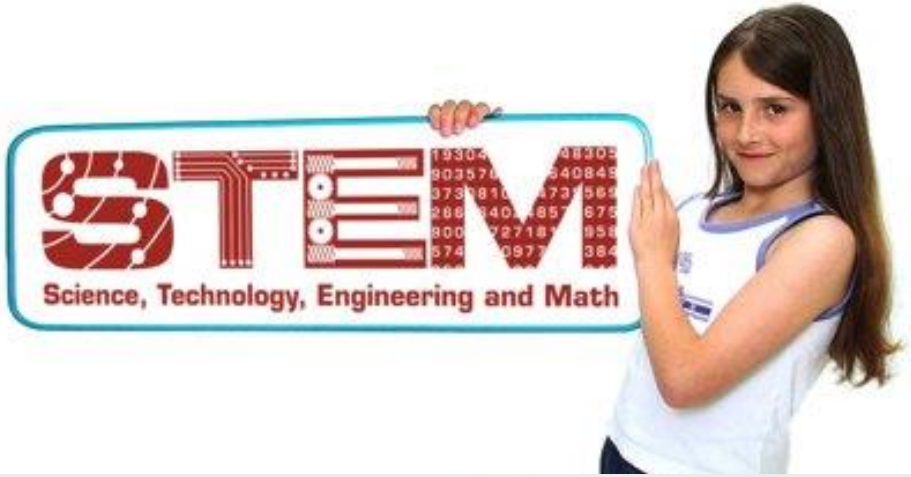
CNH

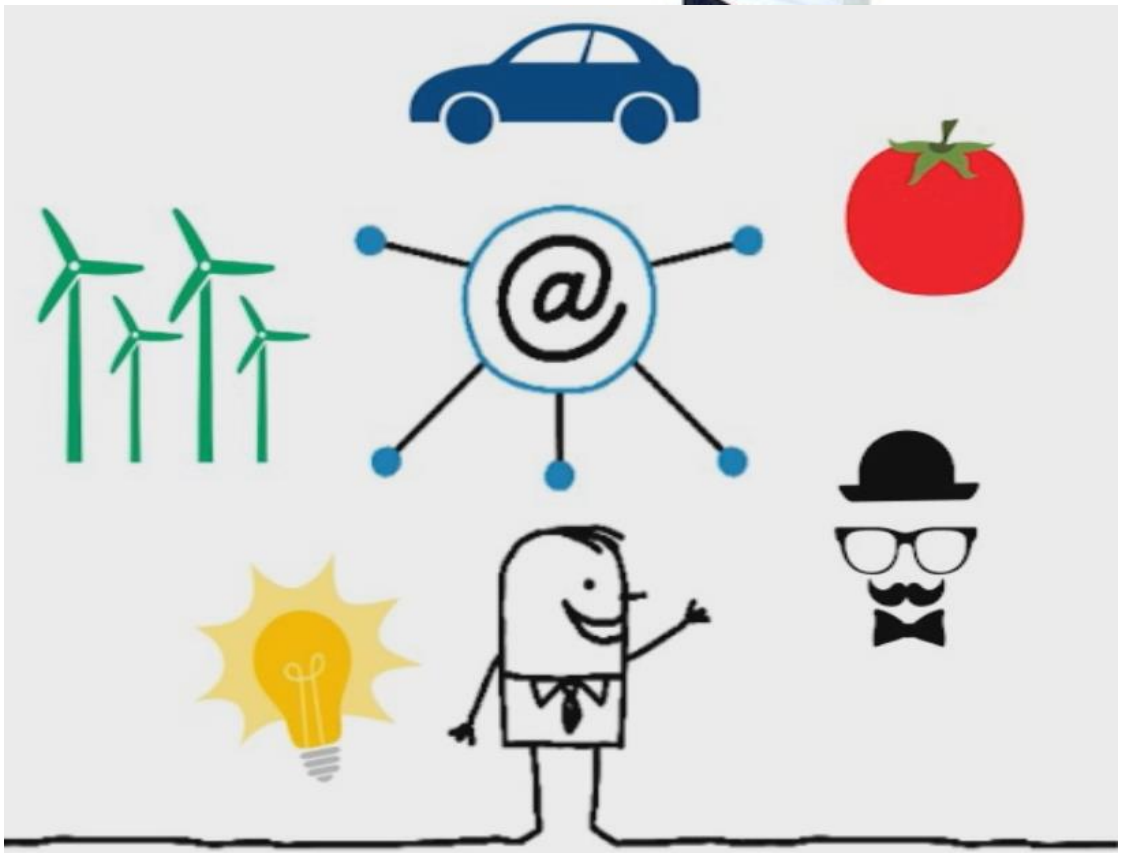
Compulsory education for all children from six to eighteen



STEM

Science • Technology • Engineering • Math

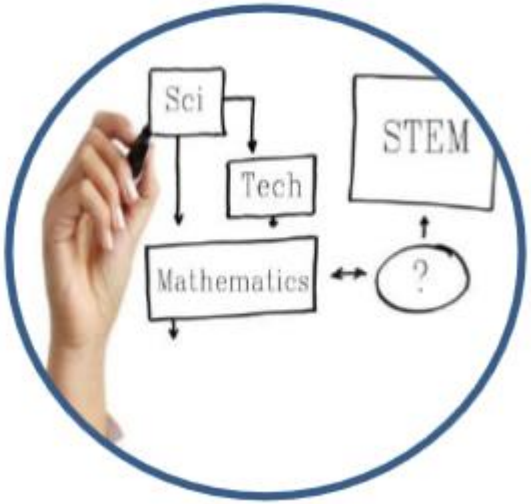




Timeline of release years

2005	ROKR
2006	
2007	iPhone (1st generation)
2008	iPhone 3G
2009	iPhone 3GS
2010	iPhone 4
2011	iPhone 4S
2012	iPhone 5
2013	iPhone 5S iPhone 5C
2014	iPhone 6/6 Plus
2015	iPhone 6S/6S Plus
2016	iPhone SE iPhone 7/7 Plus

STEM-education:
Science-Technology-Engineering-Mathematics.

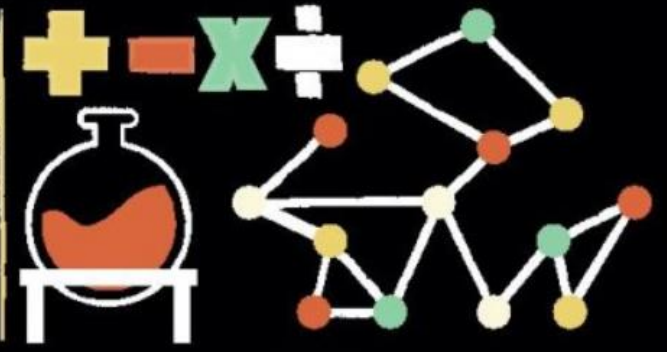


- Need for engineers and technicians
- Need for scientists

To innovate, to improve products, to make economy grow.

In gymnasium, secondary school.
In universities.

STEM FOR THE AGES



THE VALUE OF EDUCATING STUDENTS IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

ARE LESS LIKELY TO EXPERIENCE JOBLESSNESS.

COMMAND 26% HIGHER WAGES THAN NON-STEM WORKERS.

COMPUTER PROGRAMMERS | PHYSICISTS | PETROLEUM ENGINEERS | SURVEY TECH. | ENGINEERING MANAGERS | SALES REP. | FOREST TECH.

WHAT WE CAN DO

Triggering students' interest in pursuing more technical fields begins in schools. There are many effective strategies for engaging students and improving their performance in STEM subjects:

Interdisciplinary project-based learning

Real-world learning through internships, mentors

Teachers trained to work in specific STEM disciplines

Opportunities for college instruction during high school years

STEM Activities Handbook.

- Easy experiments
- With day to day objects
- Fun and learning at the same time.

Candy Math

Overview
Participants will explore and discuss statistics: terminology, mean, percents, frequency distributions, histograms, and pie charts.

Category: Math

Learning Goals

- Discuss and use statistics terminology
- Calculate mean and percent
- Represent data using frequency distributions, histograms, and pie charts.

Participants
The activity can be conducted with most any number of participants and one session leader. .

Materials

• Candy – Small packets or a scoop (~1T) of small candy (e.g. M&Ms, Skittles, • Smarties, etc.) for each participant • Pen/Pencil • Crayons, Markers, or Colored Pencils	• Activity Sheets (one of each for each participant) • Candy Math Activity Sheet • Grid Paper for the Histogram • Polar Paper for Pie Chart (http://www.incompetech.com/graphpaper/polar/) • Calculator

STEM: project based learning.

Industry role assignments.

Anthropologist	Engineer	Artist	Journalist	Entrepreneur	Scientist
User Storyboard	Design Brief	Product Brand	News Article	Business Plan	Research Proposal
Field Study	Craft-based Model	Logo	Broadcast	Market Study	Experiment
Map	Kit-based model	Comic Strip	Webpage/Blog	Elevator Pitch	Science poster
Political Cartoon	Advanced manufacturing model	Exhibit	Biography	Advertisement	Analytical Model
Debate	Failure Modes and Effects Analysis	Book Cover	Post Card	Presentations	Research Article
Oral History	3-D model	Diorama	Interview	Company Speech	Journal review
Storytelling	Computer simulation	Mosaic	Book talk		
Interview		Collage	Book review		
		Painting			
		Mural			

Cross cutting activities: online research, product research, user research, local research, expert research, creativity notebook, brainstorming, prototyping, role playing, user study, quad chart, posters, videos, audios, skits, simulations, puppet shows, dialogues, demonstration, panel discussion, interview, graphic organizer, storytelling

Curriculum Example

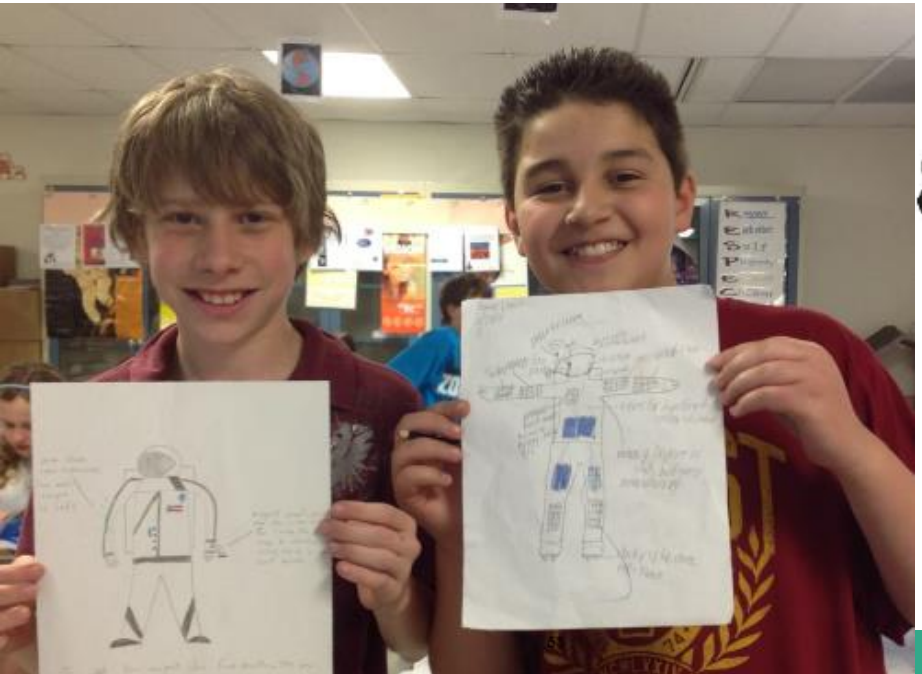
Spacesuit Project

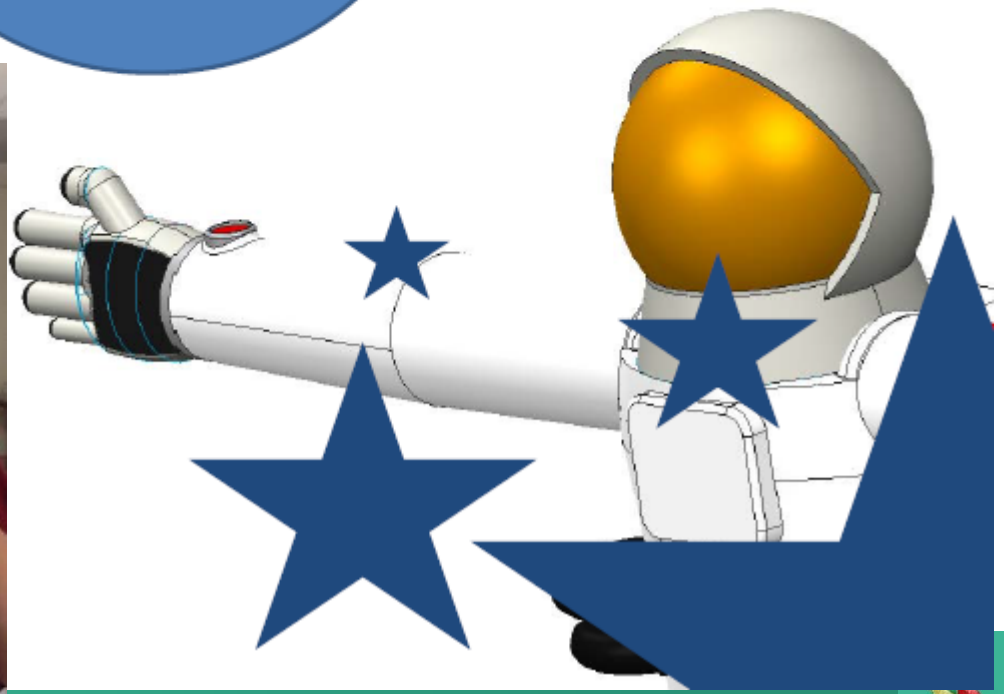
Design a Mars Spacesuit Inspired by Plant Adaptations

Grades: 5-12

Guiding Principle: Biomimicry

Subjects: Biology, Technology, Engineering, Physical Science, Visual Arts, Social Studies, and English Language Arts.



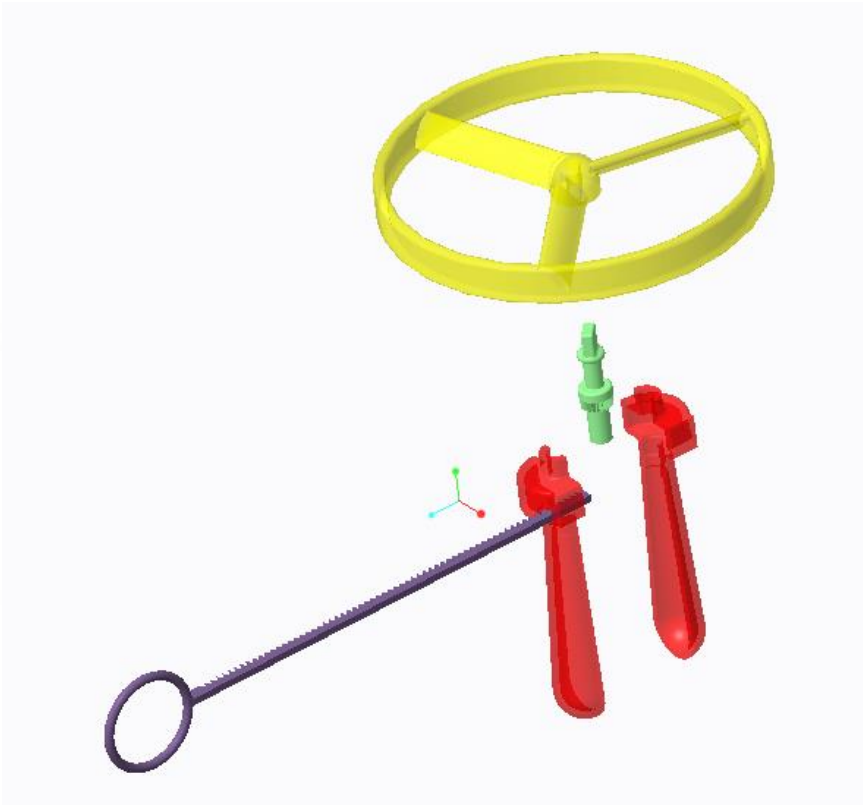


CREO for schools

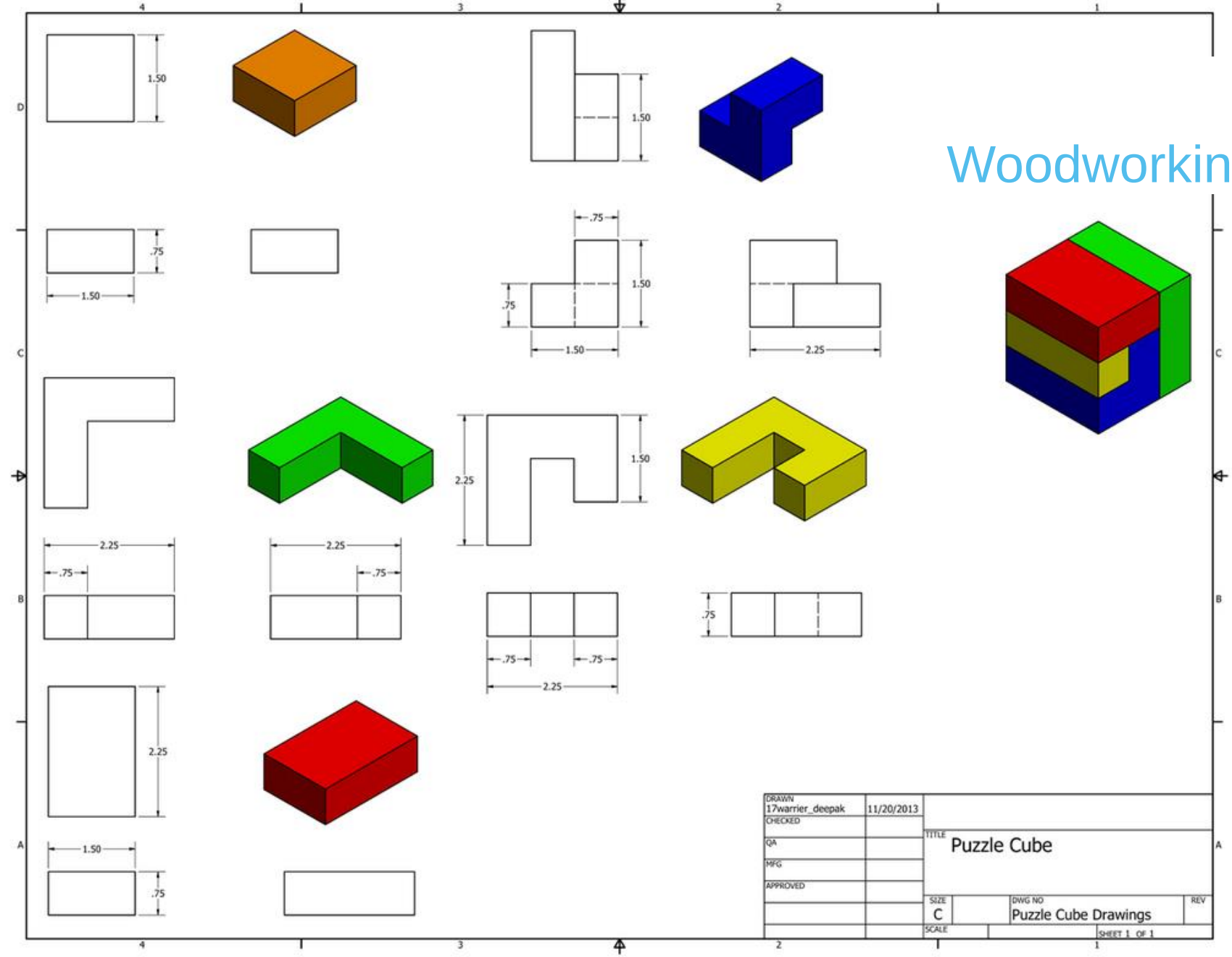
- CREO: 3D-design software.
- PTC Academic Program has defined a free CREO offer for K-12 available worldwide.
- http://www.ptc.com/academic-program/products/free-software

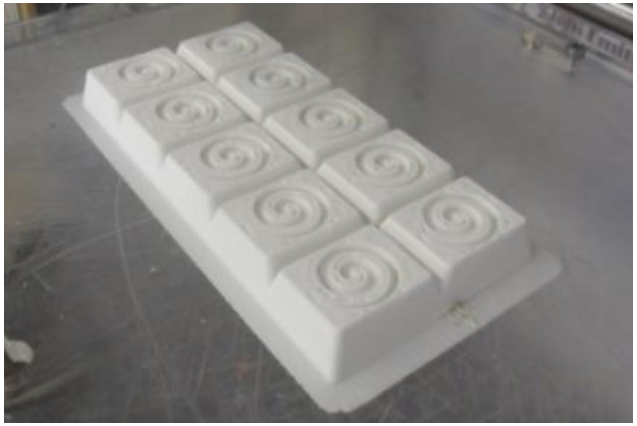
- http://www.scalextric.com/scalextric-4-schools/
- http://engopps.com/engineering-in-school/revving-up-the-curriculum

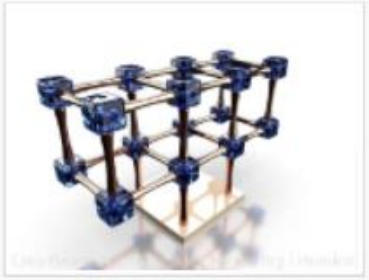
Pupils work: toy-helicopter, physical model with 3D-printer



Woodworking.

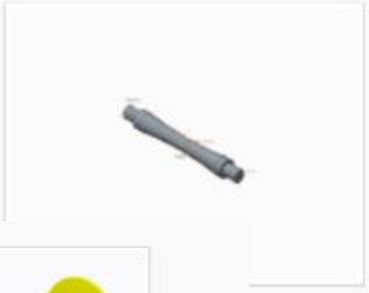






Rendered Image

Assembled Design

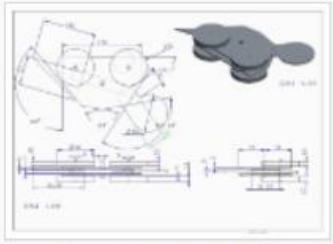


Cube part

1) Mechanical Toy Exploded Isometric

2) Mechanical Toy Rendered Toy

3) Mechanical Toy Rendered with Shadow



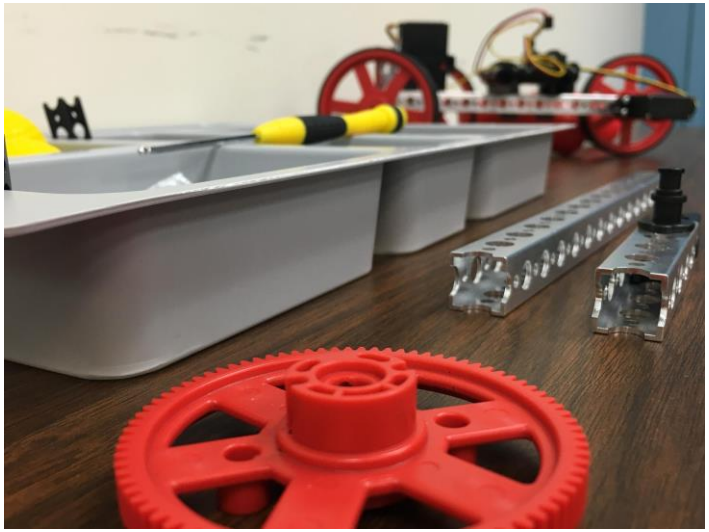
4) Mechanical Toy Working drawing with 3 Dimensional pictorial view

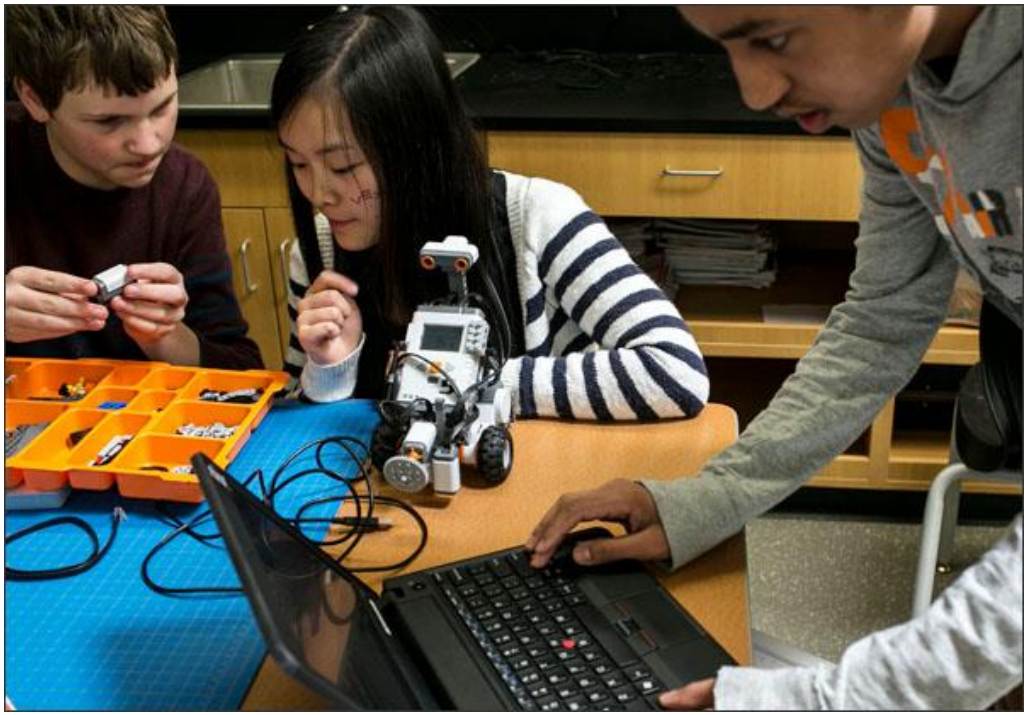
Scalextric4Schools Packs

There are two Scalextric packs available to support the curriculum; a Component Pack (C8523) of axles, motors, wheels etc. and a Track Pack (C8524) with power supply and hand controllers.

Please note: These two packs not available direct from Scalextric, they can only be purchased via the Scalexrtic4Schools organisation for institutions enrolled in this scheme.

Robot building and programming.





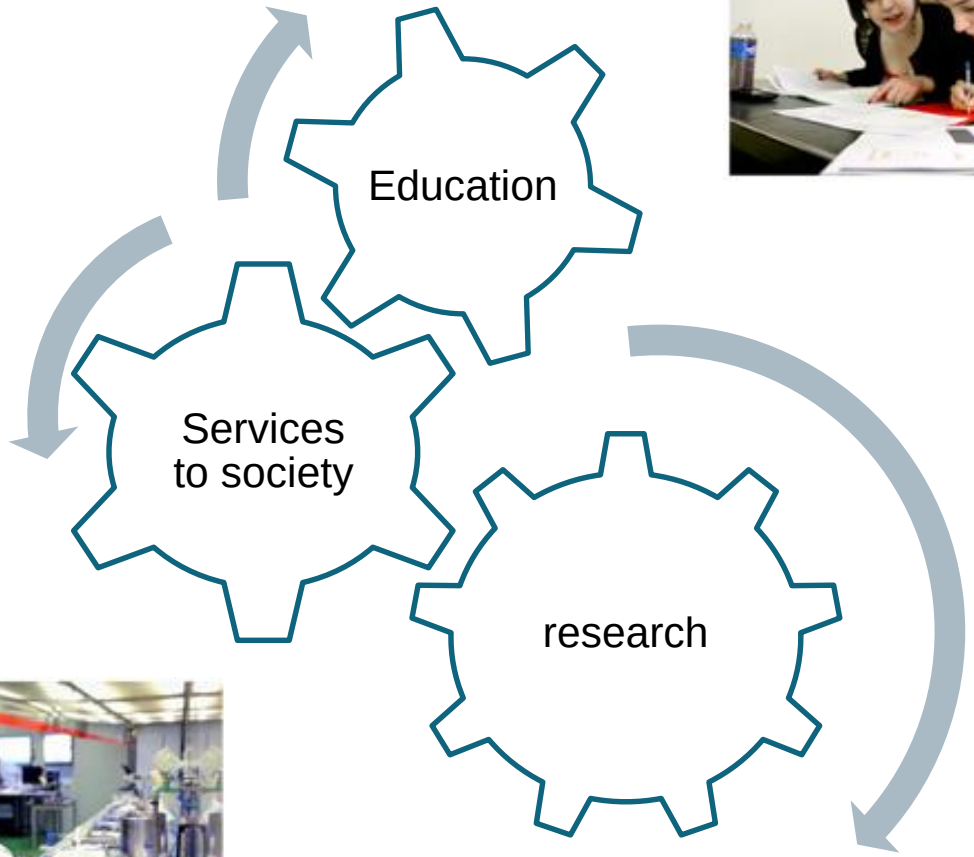
3D printing and Fablab.

3D printers.

KU Leuven, nearly 600 years of university tradition.

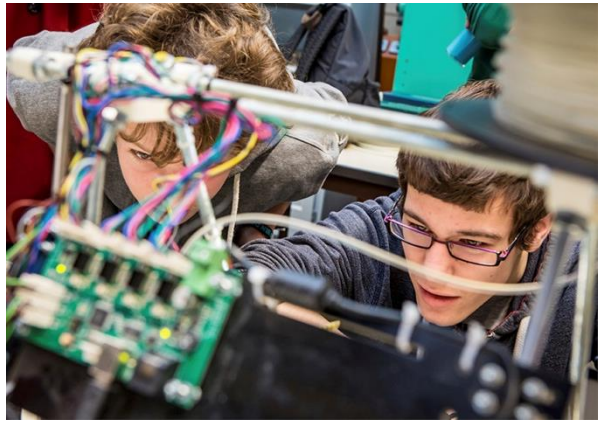
- Founded in 1425.
- Biggest university in Belgium.
- Reuters Most Innovative Universities Top 100: 15, first in Europe
- Times Higher Education ranking: 35
- QS World University Rankings 2015/16: 82
- US News: 8 in Europe, 44 worldwide
- Students 2015-2016: 56259
- Personnel: 12000 in university + 8000 in university hospitals

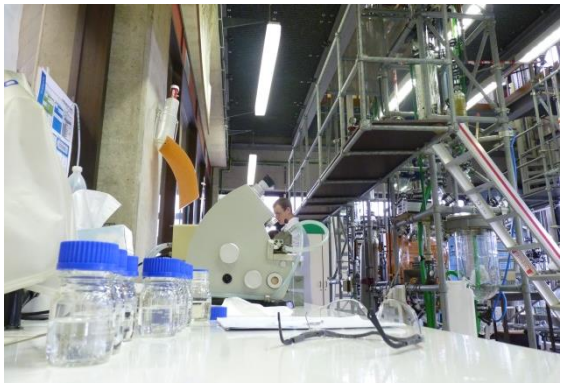
University mission:



Mission Faculty of Engineering Technology

Unique combination of research based curricula and practice-based courses





Researchers with practical experience in the implementation of knowledge and technology in different companies or spin-offs

Multicampus faculty with strong local ties to Community Service Engineering

Cooperation with ZNTU.

KU LEUVEN

- Tempus PROMENG
- Tempus DESIRE
- KA1 teaching and student exchange.
- Engineering and Software Tools Department (Zaporizhzhya National Technical University)

Remote labs, state-of-the-art design software.

STEM-projects at university.

Contact.

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Curriculum responsible Master Electro-Mechanics

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