

ERASMUS+ DESIGN-STEM  
MEETING ESTONIA  
DECEMBER 2016  
PV VERSION



TECHNICAL TECHNOLOGICAL HIGH SCHOOL  
MICHELANGELO BUONARROTI - POZZO

Where are we from?

# TRENTINO

An area in the middle of the Alps



Visiting Trentino..

- Dolomites
- Lake Garda
- Trento



# Autonomous province of Trento

Surface Area: 6.206,88 km<sup>2</sup>  
about 3% of Italy's area



70% above 1000 m sea level

# Autonomous province of Trento

Population in 2016: 537745

86 people/km<sup>2</sup>

(Italy: 195 people/km<sup>2</sup>)



county CAPITAL:  
Trento

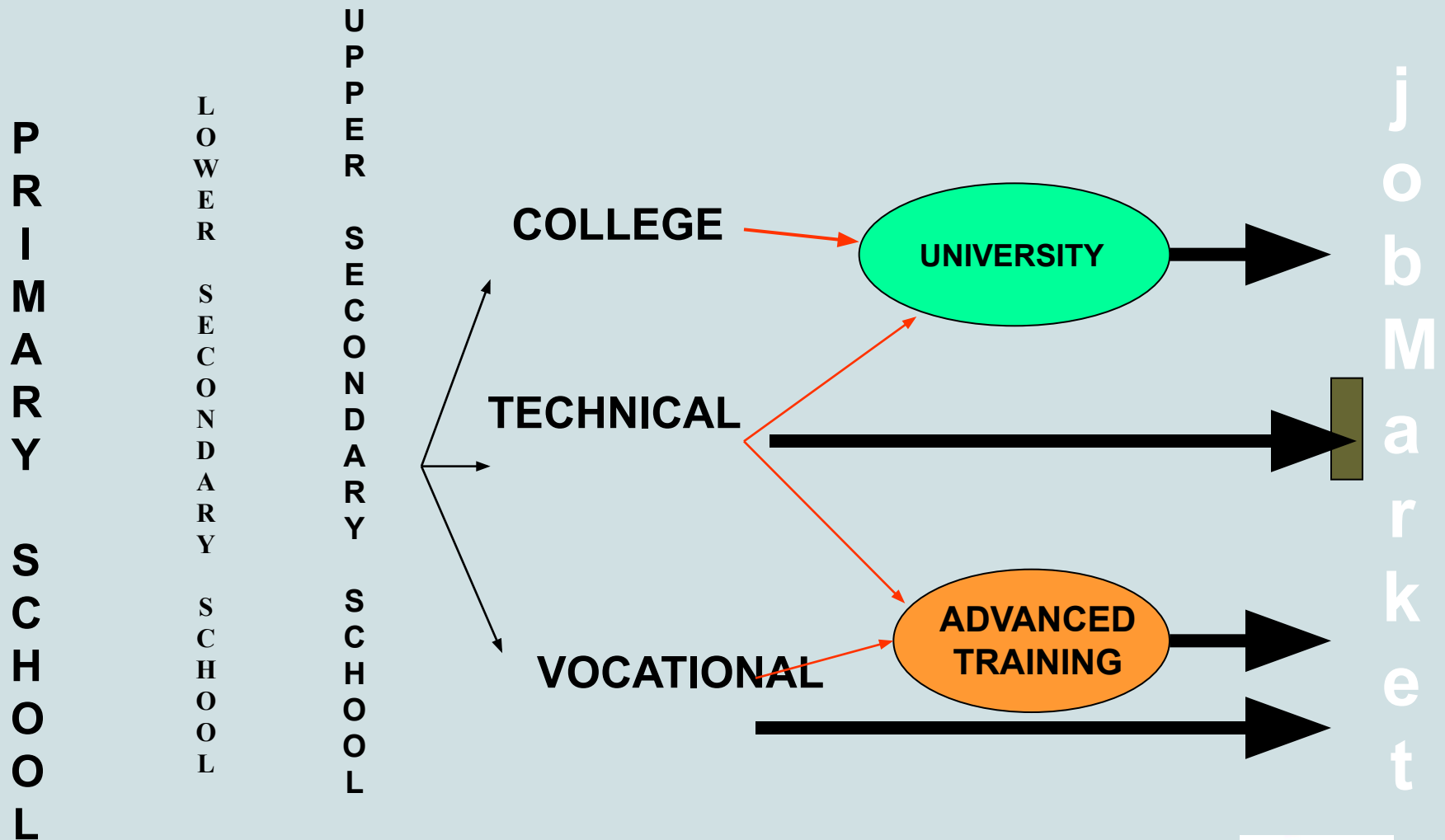
# Autonomous province of Trento

Primary jurisdiction in education:



establishing **schools** and  
**institutes** modifying **school**  
curricula choosing **examination**  
boards funding **school** system

# SCHOOL SYSTEM IN TRENTINO



COMPULSORY EDUCATION UP TO 16

# Autonomous Province of Trento

## Schools in the province:

287 preschools

54 primary + middle schools

30 upper secondary schools

25 public  
(9 T/VET)

5 private  
(2 T/VET)



# SCHOOL BODIES

- **School Board** (members: the headmaster, teachers representatives, parents and students, only in the upper secondary school)
- **Headmaster** (legal representative of the institution)
- **Staff meeting** (aimed at dealing with education and teaching)
- **Class meeting** (aimed at defining the activities of each class)
- **Controllers**
- **Team for internal evaluation** (check/audit of the results)
- **Students and parents' meetings**





1600  
students

200  
teachers

60  
administrative  
staff

18 000 m<sup>2</sup>



# Technological Equipment



- all classrooms are equipped with an interactive whiteboard
- 42 laboratories enable the students to work individually, in pairs or groups combining a sound theoretical background with state-of-the-art workshop experiences

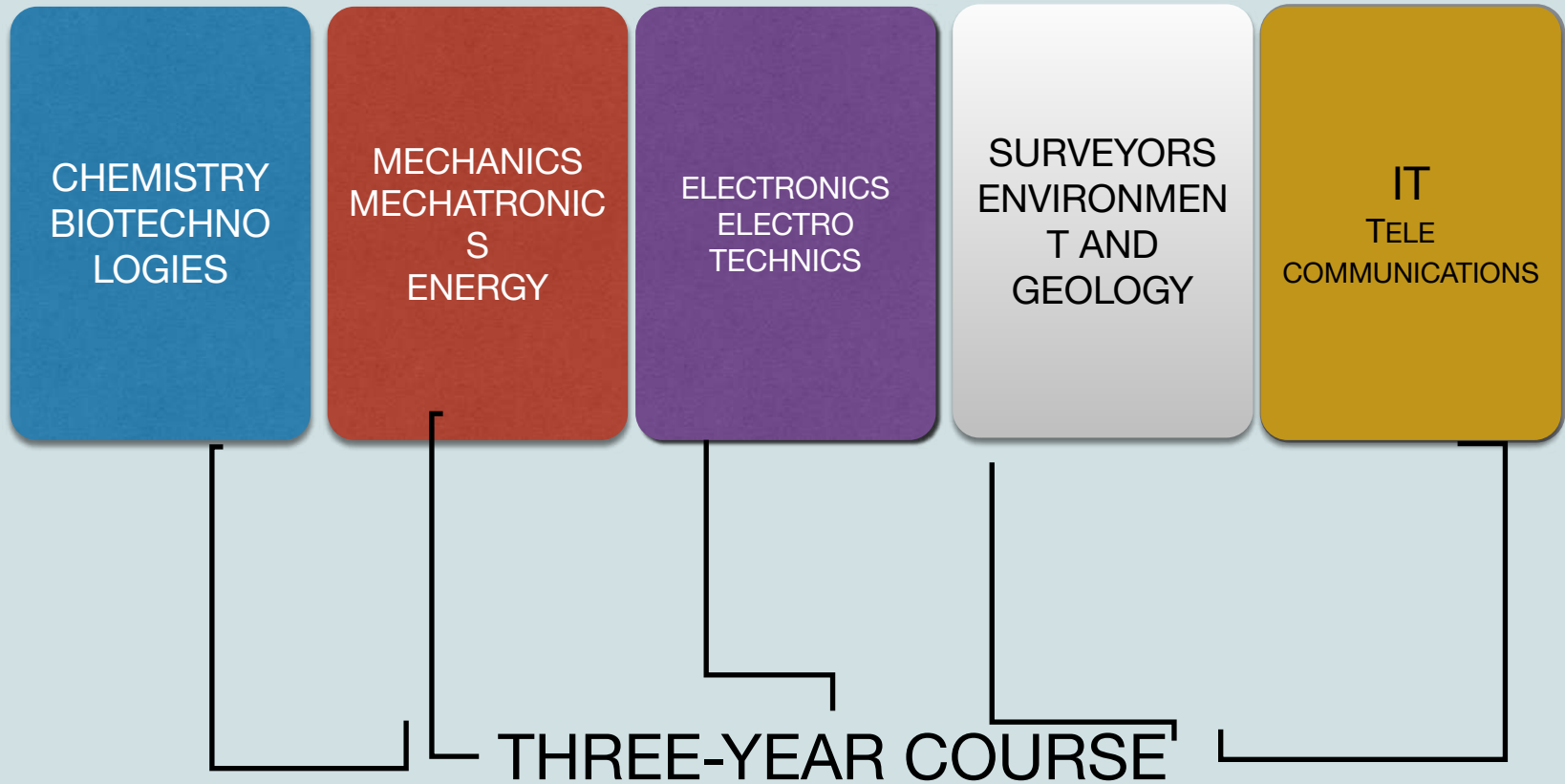
## 1st and 2nd year curriculum 35 hours per week

- **Religious Education (optional)** 1 hour
- **Italian** 4 hours
- **History** 3 hours
- **1st foreign language: English** 3 hours
- **2nd foreign language: German** 2 hours
- **Mathematics** 4 hours
- **Law and Economy** 2 hours
- **Earth Science and Biology** 2 hours
- **Physics and lab** 3 hours
- **Chemistry and lab** 3 hours
- **Technical Drawing and technologies** 3 hours
- **I.T. (first year)** 3 hours
- **P.E.** 2 hours
- **Science and applied technologies (second year)** 3 hours



**science & applied  
technology**

# SECOND PART OF THE CURRICULUM



# EXTRA CURRICULAR ACTIVITIES

- Sport activities
- Language certificates (Cambridge English-DSD-Goethe)
- School trips
- School twinning
- Competition: maths, chemistry, web trotter ,problem solving... in all scientific areas and not only
- specific certificates in technical areas



## PROJECTS

- Health, Fitness and Well Being at school
- IPad Classrooms, E-learning platforms (moodle-Edmodo),
- Robotics: First Lego League and Robocup
- CLIL lessons for more than 1600 hours
- Competition: robotics, maths, chemistry, problem solving

## PARTNERSHIPS

- Eutin Gymnasium GERMANY
- Bundesrealgymnasium  
Reutte AUSTRIA
- ITIS da Vinci Trapani Italy



## CURRENT INTERNATIONAL PARTNERS

- **Erasmus+** mobility teachers students and staff
- **TECHNASIUM** partner Northgo College di Noordwijk Netherlands
- **MOBIDIC** UK - CLIL DEVELOPMENT
- **WELT** Entrepreneurship for learners and teachers
- **TEACHING IN THE DIGITAL AGE**
- **AND OF COURSE DESIGNSTEM !!!!**

# Career Projects

- LinkedIn
- Lavoro 3.0
- Internships (summer break )
- Individual projects with companies during the school year

# At the end of the five-year course...

our students can

- easily enter the job market as employees or independent professionals
- continue their learning path accessing any kind of university studies

# DesignStem

## First Meeting

### Proposals

1. Our contribution for the definition of the didactical units:
  - a. Geometrical transformations
  - b. PROCESSING programming language (Object Oriented and graphic oriented) [link](#)
  - c. fractals-based graphics
  - d. graphic generation with random and pseudorandom numbers; probability

docs.google.com

Corso Processing Introduzione

File Modifica Visualizza Inserisci Diapositiva Formato Disponi Strumenti Tabella Guida L'ultima modifica è stata apportata il 24 ottobre 2015 d...

Avvia presentazione Commenti Condividi

Sfondo... Layout... Tema... Transizione...

1 Processing

2 Cosa è Processing

- Un linguaggio di programmazione (CODICE) specializzato nella GRAFICA MULTIMEDIALE
- Pensato per Artisti, Giochi, Sculture...
- Fontemente connesso ad Arduino e simili

3 Esempi Processing

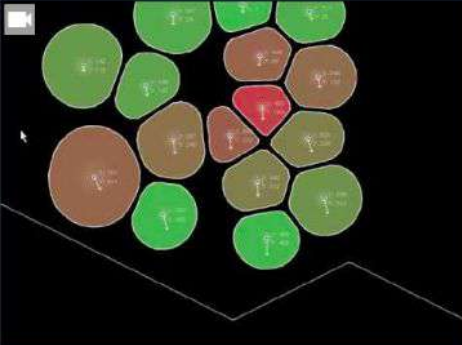
4 Esempi Processing

5 Cosa prevede il corso

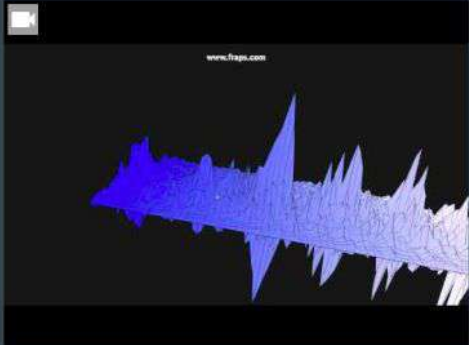
1. Introduzione a Processing
2. Ripercorre i concetti basilari e i tutorial
3. Strutturare dati array, array 2D, ...
4. Breve introduzione alla programmazione ad oggetti
5. Connessione ad Arduino con porte seriali

# Esempi Processing

## Grafica 2D Interattiva



## Analisi suono LIVE 3D



Fai clic per aggiungere note















# DesignStem

## First Meeting

### Proposals

2. Possible local stakeholders (yet to be contacted):
  - a. GraphiTech foundation [link](http://www.graphicsmedia.net/) (network <http://www.graphicsmedia.net/>)
  - b. UniTn (maths didactic group)
3. Students involvement:
  - a. experimentation of didactic units plus their evaluation
  - b. eTwinning projects (for example aimed to experiment units in more countries)

## News

-  [Alfio Ghezzi 2.0](#)
-  [SLOPE Final Conference](#)
-  [Workshop LIFE+IMAGINE, Genova, 16 Novembre](#)
-  [Trento Smart City](#)
-  [Alfio Ghezzi & GeoBrowser3D Live Paragliding Tracking](#)
-  [iTrentino for Desktop](#)
-  [Trekking tracks on iTrentino](#)
-  [New features of GeoBrowser3D](#)
-  [PhD thesis defended!](#)
-  [Ciao Federico](#)
-  [GraphiTech at LIFE+IMAGINE Workshop](#)
-  [Virtual Tours in iTrentino](#)
-  [C-SPACE and GraphiTech @ IIMSS 2016](#)
-  [SLOPE @ ISPRS 2016](#)



## Membership

Fondazione GraphiTech is a founding member of GraphicsMedia.net, International Network for the Cooperation in:

- Applied Research in Computer Graphics
- Multimodal-Multimedia Technologies
- Visual Interactive Digital Media Technologies
- 3D Video Technologies

GraphicsMedia.net is an international organization that coordinates the activities of research and development (R&D), technology transfer and the exploitation in computer graphics, multimodal-multimedia technologies, and visual interactive digital media and 3D video technologies.

GraphicsMedia.net is open to international applied R&D institutes (public/private), R&D units of multinational companies and multinational hi-tech transfer companies. Common interest is international collaboration in:

- Joint Applied Research Projects
- Academic / Scientific knowledge transfer
- Technology Transfer and Innovation

The current members of GraphicsMedia.net are located in Germany, Italy, Panama, Portugal, and Spain with together about 250 researchers, an aggregated project volume of yearly € 20 million, and about 140 publications in high ranking international journals and conferences. Its office is based in Kaiserslautern, Germany.

GraphicsMedia.net is your single point of access to international excellence in media, graphics, computer vision and interaction. Services include studies for ICT policies, consulting for bootstrapping applied R&D institutes, international technology transfer, and virtual incubation.

The members of the advisory board are international experts who promote the connection of GraphicsMedia.net with partners in the scientific and industrial communities as well as the public sector, and also provide advice and assistance on technical issues to its management.



- Student office
- Erasmus
- Italian language courses
- Esse3
- Online didactics
- Internship
- Stage & placement
- Tutoring
- Didactic laboratories
- Diploma supplement
- Statistics (Italian only)



img\_Laboratori didattici

printable version

## Didactic laboratories

Translation in progress, sorry ...

**Laboratorio per la Didattica e Comunicazione della Matematica | Laboratori didattici di Informatica | Laboratori didattici di Scienze e Tecnologie Biomolecolari**

Nella Facoltà di Scienze sono presenti i Laboratori didattici dove vengono svolte le esperienze pratico-didattiche connesse alle lezioni teoriche dei Corsi di Laurea. I laboratori sono dotati di diverse strumentazioni scientifiche e significative apparecchiature che sono a disposizione degli studenti per un uso interattivo.

### Laboratori didattici di Fisica

- Laboratorio di Meccanica e Termodinamica
- Laboratorio di ChimicaLaboratorio di Ottica
- Laboratorio di Fisica SanitariaLaboratorio di Elettronica
- Laboratorio di Misure Fisiche 1
- Laboratorio di Misure Fisiche 2
- Laboratorio Preparazione Esperienze Didattiche

#### Responsabili:

- Matteo Grott
- Pierluigi Minati
- Rossella Tomazzoli

### Laboratorio Didattica e Comunicazione della Matematica

Il laboratorio di didattica e comunicazione della matematica si trova nella nuova palazzina (vicino alle aule 20 e 21). Nel laboratorio si svolgono attività di ricerca e sperimentazione di metodologie didattiche per l'insegnamento e l'apprendimento anche informale della matematica e si producono materiali, testi, software finalizzati a questo scopo. Gli studenti vi possono