POLITECNICO
MILANO 1863

"Study Programme's Quality Assurance"

Master of Science in Electronics Engineering

prof. **Franco ZAPPA**
Coordinator of Electronics B.S.E.E. and M.S.E.E. Study Programmes

October 31th, 2019

Summary

1. "Lesson Zero"

2. What students **should know**

3. **AQ** - Quality Assurance and
   AVA (Autovalutazione, Valutazione periodica Accreditamento)

4. ANVUR **visit**

Summary

1. "Lesson Zero" on Oct. 2nd

DONE!

Download from:

www.elettronica.polimi.it/information-material

2. What students **should know**

Students do matter!
Be proactive!

3. **AQ** - Quality Assurance and
   AVA (Autovalutazione, Valut

4. ANVUR **visit**

1.300 staff

1.200 technicians and administration

42.000 students

DONE!

7 Campuses:

- ... "**MI Leonardo**" ...

4 Schools:

- … **Ing. Industriale e dell'Informazione**

SCUOLA	LT	LS	CU	Totale
ARCHITETTURA URBANISTICA INGEGNERIA DELLE COSTRUZIONI	3	9	1	13
SCUOLA DESIGN	4	6		10
SCUOLA INGEGNERIA CIVILE AMBIENTALE E TERRITORIALE	3	4		7
SCUOLA INGEGNERIA INDUSTRIALE E DELL'INFORMAZIONE	14	17		31
Totale	**24**	**36**	**1**	**61**

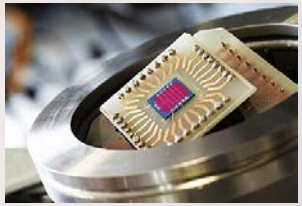
12 Departments:

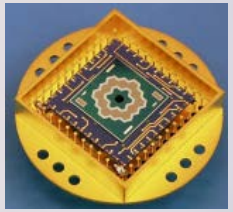
- ... **DEIB** ...

- DIPARTIMENTO DI ARCHITETTURA E STUDI URBANI (DASTU)
- DIPARTIMENTO DI ARCHITETTURA, INGEGNERIA DELLE COSTRUZIONI E AMBIENTE COSTRUITO (DABC)
- DIPARTIMENTO DI CHIMICA, MATERIALI E INGEGNERIA CHIMICA "GIULIO NATTA" (DCMC)
- DIPARTIMENTO DI DESIGN (DESIGN)
- DIPARTIMENTO DI ELETTRONICA, INFORMAZIONE E BIOINGEGNERIA (DEIB)
- DIPARTIMENTO DI ENERGIA (DENG)
- DIPARTIMENTO DI FISICA (DFIS)
- DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (DICA)
- DIPARTIMENTO DI INGEGNERIA GESTIONALE (DIG)
- DIPARTIMENTO DI MATEMATICA (DMAT)
- DIPARTIMENTO DI MECCANICA (DMEC)
- DIPARTIMENTO DI SCIENZE E TECNOLOGIE AEROSPAZIALI (DAER)

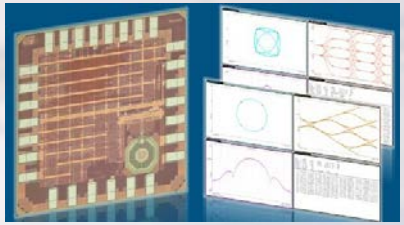
ELECTRONICS research & development at POLIMI

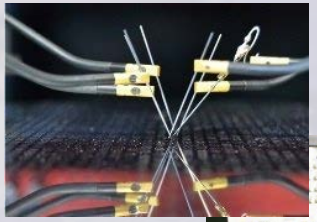
- Nano-electronics devices
- Electronic circuits design
- Digital systems
- Smart microsensors and microsystems
- Single-photon detectors and applications
- Radiation detectors and applications

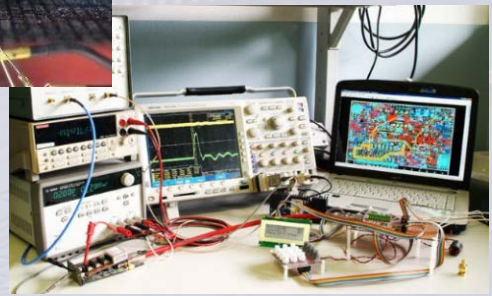


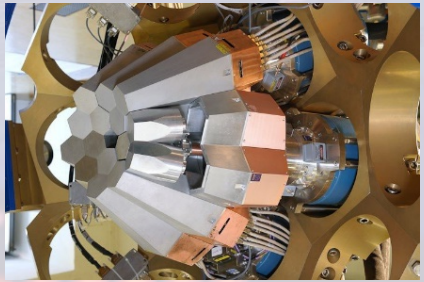


DONE!









Tesi vs. Tesina

Tesi about 8 months duration

gives 7.4 max increment

DONE!

28/30	=	102.7/110	could reach	110
26.5/30	=	97.17/110	could reach	105
24/30	=	88/110	could reach	95

to be uploaded online, 3 weeks before graduation day

with **counter-reviewer** (who reads and ask questions)

discussed with slide projections, standing up, in front of all audience

Tesina about 4 months duration

gives 4.4 max increment

28/30	=	102.7/110	could reach	107
26.1/30	=	95.7/110	could reach	100
24.7/30	=	90.6/110	could reach	95

to be uploaded online few days before graduation day, but no counter-reviewer

discussed on laptop, sitting in front of the Graduation Committee

Internal vs. External thesis

DONE!

Internal

within POLIMI labs

working with Ph.D. students, post-docs, researchers

"first and last time in your life" … apart from Ph.D. !

ask professors about their research (it could differ from teaching!)

External

in a Company or external Research Center or abroad

ask friends, parents, **career service**, profs, Zappa, …

the internship requires to fill in some documents

the Company is in charge to train you and assist you!

(avoid a company where you are the only ELN guy)

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ELECTRONICS website: www.elettronica.polimi.it

POLITECNICO MILANO 1863

USEFUL LINKS PRIVACY

SCUOLA DI INGEGNERIA INDUSTRIALE E DELL'INFORMAZIONE

Corso di Ingegneria Elettronica

PROGRAM | PROSPECTIVE STUDENTS | ENROLLED STUDENTS | JOBS | CONTACTS | PROFESSORS | RESEARCH

- Innovative Education
- Scholarships
- Academic Calendar
- Lessons: classes and timetables
- BeeP
- POLIMI Sport
- POLIMI Events
- POLIMI Open Knowledge

The Study Programme in Electronics Engineering prepares students to design, use, innovate, and deploy electron devices, circuits and systems and to guide the evolution of technology and innovation, with competence and professionalism.

The **Laurea** degree in "Ingegneria Elettronica" (**B.S.E.E.**) aims at training professionals with solid scientific and technologic know-how, combining physical-chemical-mathematical fundamentals of the most advanced technologies with the engineering capacity to conceive and develop products and electronic systems, exploitable in the most diversified areas of society, often opening up new markets and scenarios.

The **Laurea Magistrale** degree in Electronics Engineering (**M.S.E.E.**) aims at fostering the skills acquired during the Laurea courses, and to further expand engineering knowledge and excellence in electronics. Examples are integrated electronic and analog design capabilities, complex products design and system integration (sensor and transducer systems, analog/digital conversion, processing and programming, power management), and expertise on CAD design

HOME | CORSO | STUDENTI FUTURI | STUDENTI ISCRITTI | LAVORO | CONTATTI | DOCENTI | RICERCA

Eventi informativi

La Scuola di "Ingegneria Industriale e dell'Informazione" organizza ogni anno diversi eventi informativi e di orientamento per spiegare agli studenti interessati cosa sia l'ingegneria e cosa siano i vari Corsi di Studio.

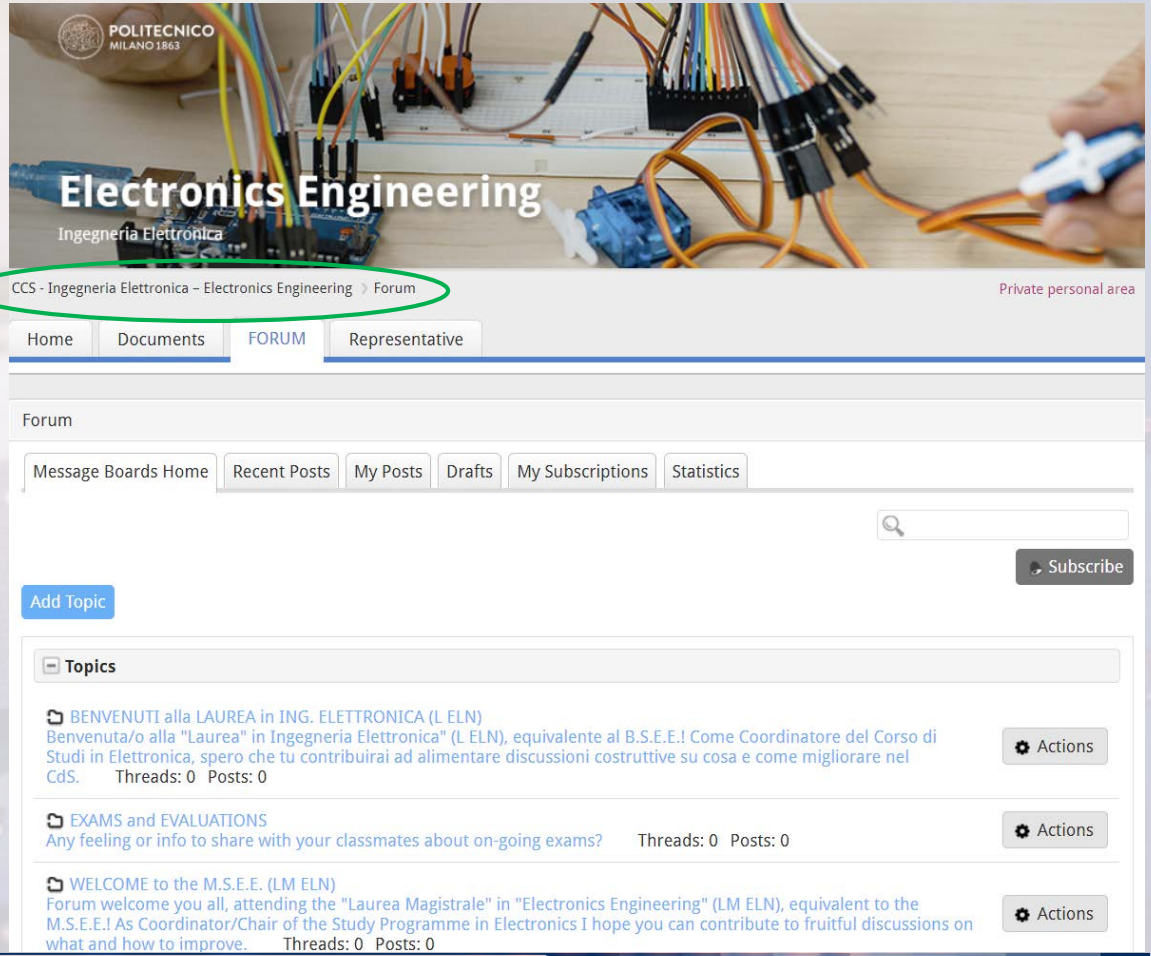
In particolare, il Corso di Studi in Ingegneria Elettronica ha partecipato attivamente ai seguenti eventi, di cui sono scaricabili le presentazioni:

- "OPEN DAY 2019" (tenuto il 6 aprile 2019), rivolto agli studenti delle Scuole Secondarie Superiori di tutt'Italia interessati alla Laurea (L) triennale di primo livello in "Ingegneria Elettronica";
- "LAUREE MAGISTRALI al POLIMI 2019" (tenuto il 14 maggio 2019), rivolto agli studenti delle Lauree di primo livello interessati alla Laurea Magistrale (LM) di secondo livello in "Electronics Engineering";
- "SUMMER SCHOOL 2019" (tenuto il 11 giugno 2019), rivolto ai migliori studenti del penultimo anno delle Scuole Secondarie Superiori di tutt'Italia, per illustrare il Corso di Studi (L e LM) in Ingegneria Elettronica al POLIMI;
- "WELCOME DAY 2019" (tenuto il 11 settembre 2019), rivolto agli studenti internazionali che si sono iscritti alla Laurea Magistrale di secondo livello in "Electronics Engineering", equivalente al Master of Science in Electronics Engineering, M.S.E.E.;
- "ELETTRONICA", una breve rassegna su dov'è l'elettronica nella vita di tutti i giorni;
- "LEZIONE ZERO" (tenuta il 27 settembre 2019) alle matricole del primo anno della Laurea in Ingegneria Elettronica, sul POLIMI, le Scuole, i Dipartimenti, l'organizzazione dell'Ateneo, il ruolo degli Studenti, i Rappresentanti degli studenti, le persone da contattare, i servizi e le opportunità per gli studenti, la Laurea in Ing. Elettronica, gli insegnamenti e i crediti, il tirocinio curriculare;
- "LESSON ZERO" (tenuta il 3 ottobre 2019) agli studenti della Laurea Magistrale in Ingegneria ElettroniCa, sul POLIMI, le Scuole, i Dipartimenti, l'organizzazione dell'Ateneo, il ruolo degli Studenti, i Rappresentanti degli studenti, le persone da contattare, i servizi e le opportunità per gli studenti, la Laurea Magistrale in Electronics Engineering, gli insegnamenti e i crediti, differenza tra tesi e tesina, tesi interna ed in azienda, voto finale, argomenti di tesi interne nei laboratori di Elettronica.
- "QUALITY ASSURANCE" (tenuta il 9 ottobre 2019) agli studenti della Laurea Magistrale in Ingegneria Elettronica, sul "Processo di Bologna", AQ (Assicurazione di Qualità), procedura AVA (Autovalutazione, Valutazione periodica e Accreditamento), ruolo del MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca), ruolo dell'ANVUR (Agenzia Nazionale di Valutazione del sistema Universitario e della Ricerca) e visita periodica CEV (Commissione di Esperti della Valutazione).

BEEP channel and forums

NEW tool and forum to let students communicate among themself, with Representatives and Coordinator about proposals and issues to solve:

https://beep.metid.polimi.it/



Contacts

Dean of the School

prof. **Antonio CAPONE**
antonio.capone@polimi.it

Coordinator of Electronics

prof. **Franco ZAPPA**
franco.zappa@polimi.it

Student representatives in Electronics:

Alberto BADILINI
alberto.badilini@mail.polimi.it
@albertobadilini

Alessandro DI GIOVINE
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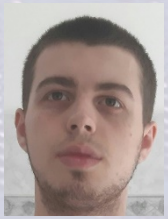

Francesco FAILLACE
francesco.faillace@mail.polimi.it
@francescofaillace

Giacomo TOMBOLAN
giacomo.tombolan@mail.polimi.it
@giacotombolan

"Student ombudsman" - "Difensore degli studenti"

Students can contact him to highlight misconducts

He enters into play after a (not anonymous) complain report, and supports the student to solve issues

He protects and supports the student agains any retaliation

He is prof. **Gerardus JANSZEN** difensoredeglistudenti@polimi.it 02-2399.8366

Professors and Committees

task	activities	name	phone
Coordinator of the B.S. and the M.E. in ELECTRONICS ENG.		Franco ZAPPA	6149
Study Programme secretary	records and reports on CCS meetings	Salvatore LEVANTINO	3731
Quality Assurance	assesses Quality of teachings and Study Programme	Marco SAMPIETRO	6188
School tutoring	manages and proposes tutoring activities	Franco ZAPPA	6149
Interships	selects and accepts companies proposals	Franco ZAPPA	6149
Admission to M.S.E.E.	for Italian students	Massimo GHIONI	4003
	for Italian students	Salvatore LEVANTINO	3731
	for international students	Christian MONZIO COMPAGNONI	4038
Transfers among other B.S.	from / to other B.S.	Daniele IELMINI	6120
International exchanges outgoing	POLIMI students going abroad	Marco SAMPIETRO	6188
incoming	international students coming to POLIMI	Christian MONZIO COMPAGNONI	4038
Lessons timetables B.S.E.E.	2nd and 3rd years (prof. Epifani for 1st year)	Giorgio FERRARI	4008
M.S.E.E.	1st and 2nd years	Carlo SAMORI	4035
Study Plans B.S.E.E.	per la L ELN di primo livello	Dario NATALI	3766
M.S.E.E.	per la LM ELN di secondo livello	Chiara GUAZZONI	6147
Graduation Committee secretary		Alessandro SOTTOCORNOLA SPINELLI	4001
Open Day	organizes events and meetings	Giacomo LANGFELDER	3425
	"Meet me Tonight" and other info events	Marco CARMINATI	6102
ELECTRONICS web site		Ivan RECH	3700
Advisory Board	organizes meetings and discussions with Job market	Franco ZAPPA	6149
	monitors match between offered courses and	Giacomo LANGFELDER	3425
	Company requests	Dario NATALI	3766
Innovative Teaching	evaluats new way to provide teaching and skills	Marco CARMINATI	6102
	proposes novel educational approaches	Fererica VILLA	3490

Summary

1. "Lesson Zero"

2. What students **should know**

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   AVA (Autovalutazione, Valutazione periodica Accreditamento)

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ANVUR

1999 "*Bologna process*": international reform of EU's higher education systems

- Harmonization of educational qualifications
- Adopt two main cycles (3y + 2y = BS + MS)
- Consolidate the credit system (CFU)
- Promote mobility for students and teachers
- Quality Assessment

ENQA (European Association of Quality Assurance)

In Italy: anvur **AGENZIA NAZIONALE DI VALUTAZIONE DEL SISTEMA UNIVERSITARIO E DELLA RICERCA**

an independent third-party evaluator between Ministry and University

Quality Assurance

What is "quality"?

"degree to which a set of intrinsic characteristics meets requirements"

For education:

"**degree to which teaching, courses, training, research meet requirements**"

"**degree of matching between pre-established objectives and end-results**"

Quality Assurance (**AQ**):

"**set of activities implemented to produce trust that objectives will be met**"

Trust for whom? Students, Families, Industries, Society, … stakeholders

AVA system

AUTOVALUTAZIONE
SELF-EVALUATION

POLIMI self-evaluates if a StudyProgramme (e.g. LM ELN) is needed and manages its internal Quality Assurance

VALUTAZIONE
EVALUATION

ANVUR checks results vs. requirements to be consistent with EU standards

ACCREDITAMENTO
ACCREDITATION

MIUR authorizes POLIMI and StudyProgramme to issue "Degrees", since requirements are fulfilled (after ANVUR check and ok)

POLIMI internal Quality Assurance system

PROGETTO & PIANIFICAZIONE **CONCEIVEMENT & PLANNING**	definition of clear StudyProgramme objectives, verification of their value for job market, definition of activities to carry on
EROGAZIONE **DELIVERY**	implementation of what was planned
MONITORAGGIO **MONITORING**	gather information on how everything is going by monitoring careers, exams' results, **students' opinions** and **advices**, and job market's and stakeholders' feedbacks
MIGLIORAMENTO **IMPROVEMENT**	are educational goals been achieved? is there anything to revise or fine-tune?

Students' opinion on teaching

D1		Are you interested in the topics of this teaching?
D2	TEACHING	Was the preliminary knowledge sufficient to understand the topics?
D3	TEACHING	Was the teaching carried out in a manner consistent with what was stated on the Study Program?
D4	TEACHING	Was this teaching free from unnecessary repetitions of topics covered in other courses?
D5	TEACHING	Was the study load proportionate to the assigned credits?
D6	TEACHING	Was the teaching material adequate?
D7	TEACHER	Does the teacher stimulate the interest towards the discipline?
D8	TEACHER	Does the teacher explain the topics clearly?
D9	TEACHER	Are lessons important for learning the contents of this teaching?
D10	TEACHER	Are examination procedures clearly defined?
D11	TEACHER	Was teaching material provided in advance by the teacher?
D12	TEACHER	Are hours of the teaching activity respected?
D13	TEACHER	Is teaching staff actually available for clarifications and explanations?
D14	OTHER ACTIVITIES	Are integrative educational activities (exercises, labs, seminars, etc.) coordinated with lessons?
D15	OTHER ACTIVITIES	Are integrative educational activities other than lessons (exercises, labs, seminars, etc.) useful for learning?
D16	OTHER ACTIVITIES	Are tutors / assistants clear?
D17	INFRASTRUCTURES	Are classrooms suitable to follow lessons well (can you see and hear)?
D18	INFRASTRUCTURES	Are classrooms large enough?
D19	INFRASTRUCTURES	Are premises and equipment for integrative educational activities (exercises, labs, seminars, etc.) adequate?
D20	SATISFACTION	Are are overall satisfied with how this teaching was carried out?

Roles of Students and their Representatives

Students have the right to **participate** to life and governance of POLIMI through their Representatives. Students are asked to express their opinion on POLIMI management bodies.

Student Representatives are elected directly by you. You can **candidate yourself**!

Elections, held **every 2 years**, are important opportunities to make students **voices be heard**

Student Representatives are the simplest and most effective way of conveying students' **proposals and requests** on basic subjects, such as teaching and services for students.

Example of results:

- reorganization of educational activities;
- benefits of the «Right to Education» (DSU), including scholarships for low income students
- Exemptions to tuition fees for top students

Who to contact for...

… questions related to courses:

1. Course teacher(s)
2. StudyProgram Coordinator
3. Student Representatives
4. Joint Professor-Student Committee
5. Dean of the School
6. Ombudsman

… administrative matters:

- Student Office (desks, online chat, chatbot, www.polimi.it/en/current-students/contacts/)

… organizational questions and Study Plans:

- Study Plan Reference person (chiara.guazzoni@polimi.it)
- Dean’s offices (desks, chat, email)
- DEIB department student office

Contact them and be proactive!

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Coordinator of Electronics

prof. **Franco ZAPPA**
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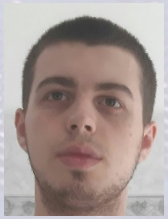

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Giacomo TOMBOLAN
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@giacotombolan

"Prof-Stud Joint Committee"

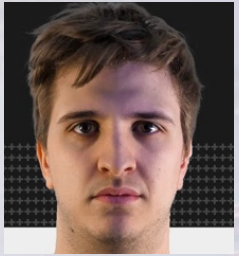
"Commissione Paritetica Docenti-Studenti"

Composed by 5 professors and 5 student representatives of all School's CdSs

Beatrice **Bartolozzi**

Giacomo **Buratti**

Antonella **Polimeno Camastra**



Laurens **Lanzillo**

Pietro **Rossetti**

In charge to:

- monitor the study programme offers, teaching quality and student services quality;
- identify metrics to evaluate monitoring results;
- submit proposals to Dean (Preside) and Evaluation Board (Nucleo di Valutazione) to improve CdSs.

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Assessments at POLIMI

Caro Magnifico,

ho il piacere di confermarti che una Commissione di Esperti della Valutazione (CEV) incaricata dall'ANVUR visiterà la tua Università, in relazione al processo di Accreditamento Periodico, nel periodo 11-15 novembre 2019.

A tale proposito, ti riporto di seguito i Corsi di Studio (CdS) e i Dipartimenti individuati dall'ANVUR con delibera del Consiglio Direttivo n. 108 del 17/04/2019 che, come da Linee Guida, verranno valutati nell'ambito della procedura di accreditamento.

Lauree	Lauree Magistrali	Lauree Magistrali a ciclo unico
• Design degli interni L-4 • Ingegneria per l'ambiente ed il territorio L-7	• Chemical Engineering - Ingegneria Chimica LM-22 • Electronics engineering – Ingegneria elettronica LM-29 • Mechanical engineering – Ingegneria meccanica (Sede di MILANO) LM-33	• Ingegneria Edile-Architettura (Sede di LECCO) LM-4 c.u.

Dipartimenti
Ingegneria civile e ambientale
Meccanica

ANVUR visit in November 2019

ANVUR visit to ELECTRONICS M.S. Study Programme

Meet Rector, General Manager, Deans, Committees

…

Coordinator (F. Zappa) and AQ manager (M. Sampietro)

"Review" committee

"Students Representatives"

teachers

Interviews **students** in the classroom

Visit facilities (study rooms, labs and libraries, and other student services)

Meet stakeholders, i.e. Companies, Industries, alumni

I am a student… so… eventually …. what for?

Students must be informed, be proactive and inform us about issues

The visit wants to check if there are issues UNKNOWN to staff !

Professors planned the Study Programme together with stakeholders

Students must have access to info and to excellent teachings

Students must know they are active players

Problems are always present,

We want to solve them,

We want to be proud and happy to attend LM ELN

"We" are "Students" and "Professors"

Any comment and questions

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