

Electronic Engineering at Leading International Universities

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Outline

- **Universities Analyzed**
- **Scope of Analysis**
- **Conclusions**

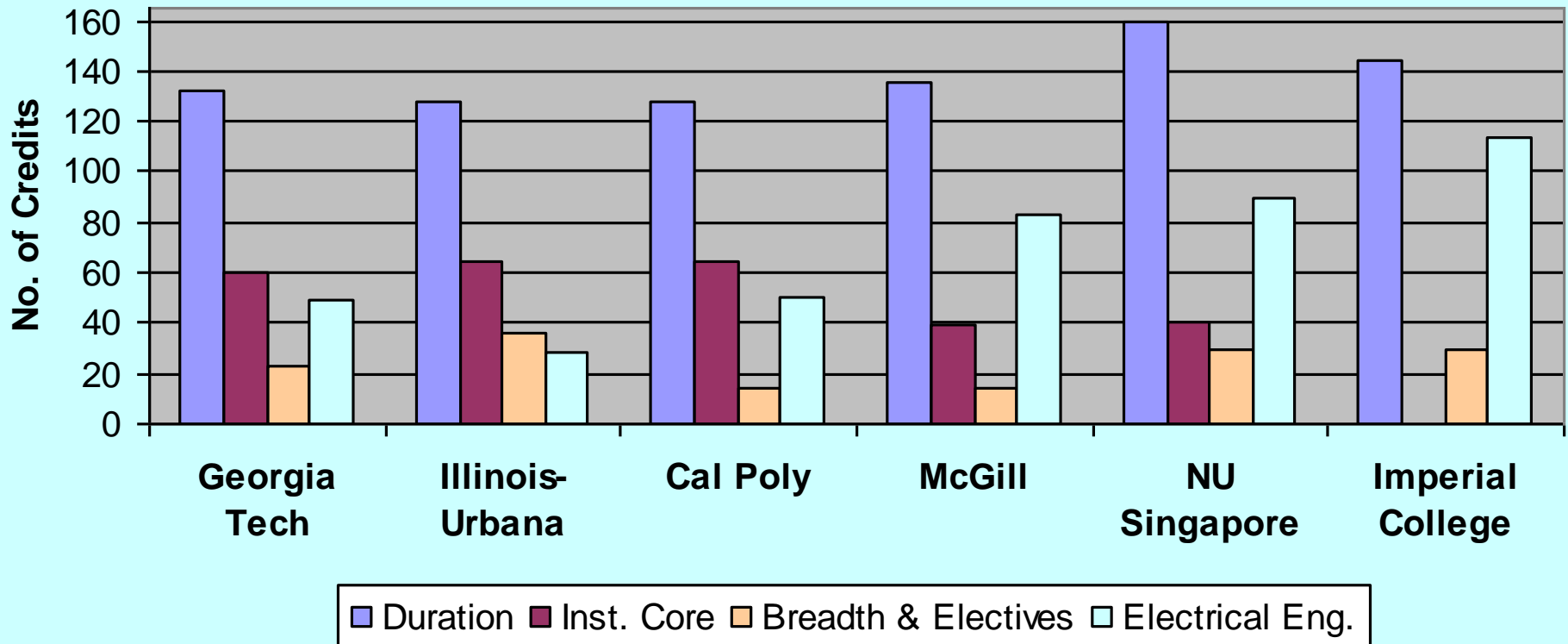
Universities Analyzed

- **Georgia Tech – USA**
- **University of Illinois - Urbana – USA**
- **Cal Poly - San Luis Obispo – USA**
- **McGill University – Canada**
- **National University of Singapore – Singapore**
- **Imperial College – UK**

Scope of Analysis

- **General Program Structure**
- **Electronic Engineering Core Subjects**
- **Electronic Engineering Depth & Electives**
- **Sample Electronic Engineering Electives**
- **Number of Faculty & Specialization Areas**
- **Sample Electronic Engineering Specializations /Tracks**
- **Factors that Affect Curriculum Development**

General Program Structure



General Program Structure

	Georgia Tech	Illinois-Urbana	Cal Poly	McGill	N.U. Singapore	Imperial College
Duration	132	128	128	136	160 mc	144 mc
Inst. Core	60	64	64	39	40 mc	0
Breadth & Electives	23	36	14	14	30 mc	30 mc
Electrical Engineering	49	28	50	83	90 mc	114 mc

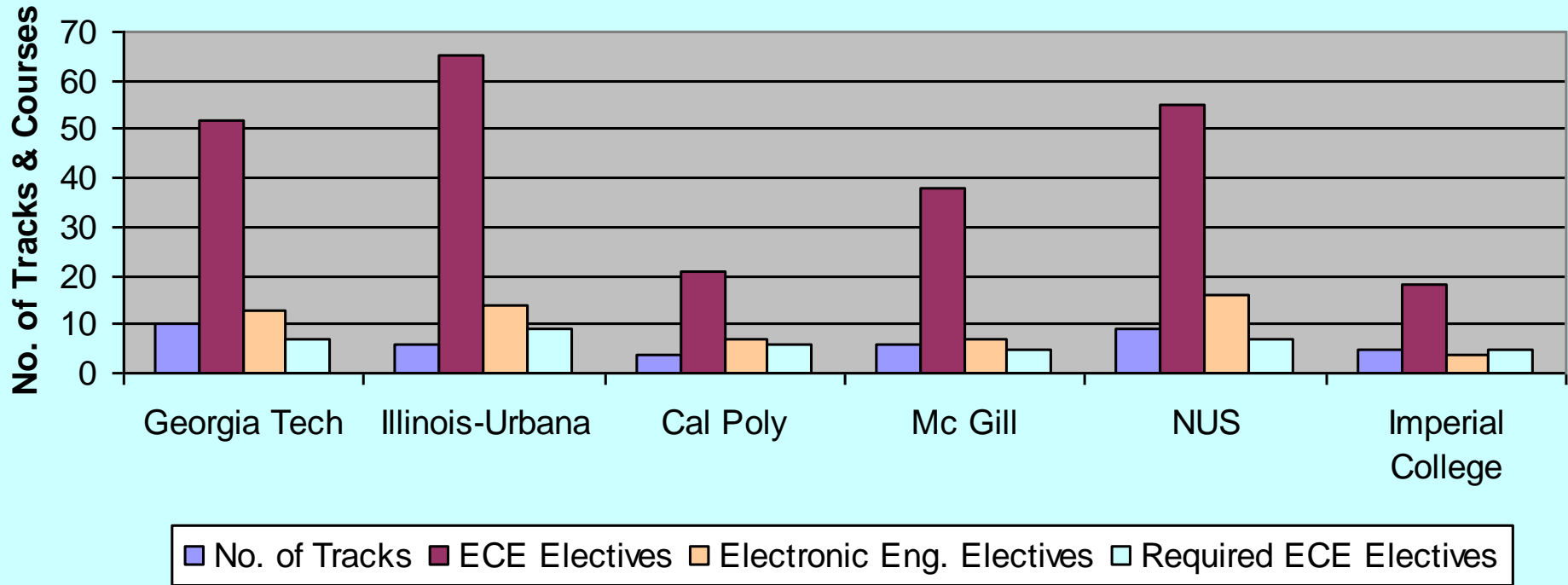
Electronic Engineering Core Subjects



Electronic Engineering Core Subjects

	Georgia Tech	Illinois-Urbana	Cal Poly	McGill	N.U. Singapore	Imperial College
Electronic Eng. Subjects	10	11	9	16	12 mc	32mc
Other ECE Subjects	16	12	34	29	32 mc	36 mc
Projects	6	2	4	3	22 mc Individual Project 12 mc	16 mc 2 Projects. FYP 35% of final mark

Electronic Engineering Depth & Electives



Electronic Engineering Depth & Electives

	Georgia Tech	Illinois-Urbana	Cal Poly	McGill	N.U. Singapore	Imperial College
No. of Tracks	10	6	4	6	9	5
ECE Electives	52	65	21	38	55	18
Electronic Eng. Electives	13	14	7	7	16	4
Required ECE Electives	7	9	6	5	7	5

* Table gives number of courses/modules.

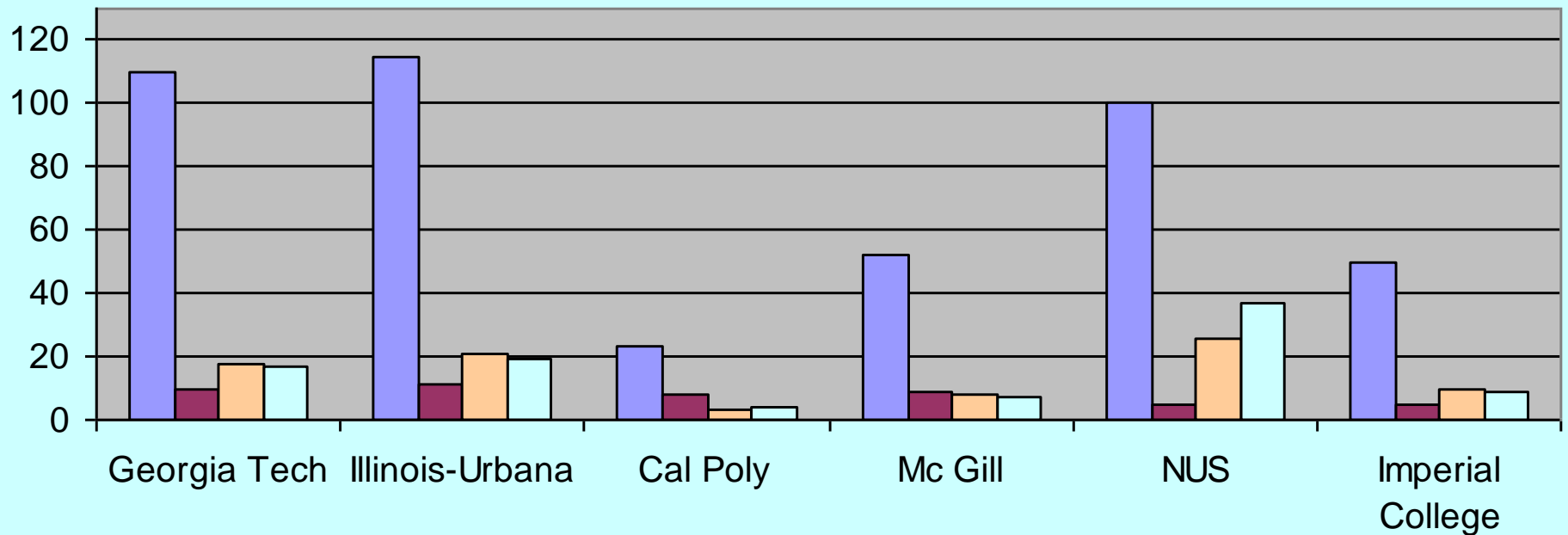
Sample Electronics Electives

- Solid State Electronic Devices
- Active Microwave Circuit Design
- Optical Electronics
- VLSI Design
- Power Electronics
- Analog IC Design
- Low Noise Electronic System Design
- Wireless IC Design
- Silicon-Based Heterostructure Devices and Circuits

Sample Electronic Engineering Specializations/Tracks

- Circuits & Systems
- Microelectronic/Micro systems
- Electronic Design & Applications
- Micro-electronics & Computer Sys.
- Nano Electronic Devices & Materials
- Optical & Semiconductor Devices
- Physical Electronics
- Integrated Circuits and Systems
- Quantum Electronics

No. of Faculty & Specialization Areas



■ No. of Faculty

■ No. of Specialization Areas

■ Ave. Faculty per Area

■ Ave. Faculty in Electronic Eng.

No. of Faculty & Specialization Areas

	Georgia Tech	Illinois-Urbana	Cal Poly	McGill	N.U. Singapore	Imperial College
No. of Faculty	110	115	23	52	100	50
No. of Specialization Areas	10	11	8	9	5	5
Ave. Faculty per Area	18	21	3	8	26	10
Ave. Faculty in Electronic Eng.	17	19	4	7	37	9

Factors that Affect Curriculum Development

- **Advances in Technology**
- **Diversity of Faculty Specializations**
- **Accreditation Bodies Requirements**
- **Industrial Input**
- **Quality of Faculty, Staff and Support Services**
- **Quality of Students Intake**
- **Funding**
- **Stable & Rewarding Environment**
- **Coherent Institution Wide Policies**

Conclusions

- EE programs in 6 prominent int. universities studied.
- Programs have relatively high level of similarity, especially in early years.
- Rich set of elective offered in the senior years.
- Universities studied have relatively large number of faculty.
- All the institutions are research intensive (except Cal Poly).
- High amounts of resources needed to support the programs.
- Industrial demand for the graduates of such programs is high.