Master in

Semiconductor Engineering and Microelectronic Design

Contact

Prof. Albert Cirera, acirera@ub.edu

QS World University Rankings by Subject 2022: Engineering & Technology

Rank	University	Overall Score	International Research Network	H-index Citations
=58	Universidad Politécnica de Madrid (UPM) Madrid, Spain	80.8	88.5	70.5
60	Universitat Politècnica de Catalunya · BarcelonaTech (UPC) Barcelona, Spain	80.6	89.5	78.9
=118	Universitat de Barcelona Barcelona, Spain	75.3	87.8	71.1
141	Universitat Politecnica de Valencia València, Spain 5 QS Stars	74.2	97.3	71.1
=212	Universitat Autònoma de Barcelona Barcelona, Spain	71.2	72.3	69.8
=218	Universidad Autónoma de Madrid Madrid, Spain	70.9	81.6	64.3
=220	Complutense University of Madrid Madrid, Spain	70.8	81.9	68.3

+ CNM

National Center for Microelectronics

- 60 ECTS: 1 year intensive including clean room and design practices
- 2 branches: Technology and Microelectronic design

- High practical content, dynamic and adapted to the necessities/posibilities of ecosystem

- English. Presential (not online). 30 students.

- Double Campus: Bellaterra (CNM+UAB) + Barcelona Diagonal (UPC+UB)
- UPC, coordinator

- 53 scholars involved (50 staff + 3 tenure track)
- 100% PhD –high research and innovation records-
- Starting September 24 course

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SEMICONDUCTOR ENGINEERING AND MICROELECTRONIC DESIGN (60 credits): A. Rubio (UPC) - Responsable

20 ECTS compulsory common subjects

Microelectronic Technologies and Processes (6): J. Bausells. CNM+UPC+UAB
Microelectronic Design (6): J. Cosp. UPC+UB+UAB
Innovation, Entrepreneurship & leadership (6): J. Colomer. UB+UAB
Seminars on microelectronic industry and Advanced research (2)

18 ECTS compulsory IC Manufacturing branch subjects

Semiconductor Devices (6): D. Jiménez i B. Íñiguez. UAB+URV+UPC+UB+CNM
Semiconductor Facilities & Device Manufacturing (6): D. Quirión. CNM+UAB+CNM
Packaging, Characterization and Reliability (6): M. Nafria. UAB+CNM

18 ECTS compulsory IC Design branch subjects

Analog IC Design (6): F. Serra. UAB+UPC+UB
SoC Design & Verification (6): J. Carrabina. UAB+UPC
Integrated Circuits Physical Design (6): Á. Diéguez. UB+UPC+UAB

elective IC Manufacturing branch subjects
12 ECTS, 3 subjects to be elected

Material Characterization (4): B. Garrido. UB+CNM
Integrated Photonics (4) : D. Navarro. UB+CNM
Power devices & Systems (4): X. Perpinà. CNM+UPC
Microsensors (4): D. Prades. UB+UAB+CNM
Emerging Technologies for Computing (4): J. Suñé. UAB+UPC+UB
Flexible & Printed Electronics (4): B. Íñiguez. URV+UB+CNM

elective IC Design branch subjects
12 ECTS, 3 subjects to be elected

RF IC design (4): X. Aragonés. UPC+UB+UAB
ASIC design techniques for highly secure systems (4): S.Manich. UPC+UAB
Advanced IP core design (4): D. Castells. UAB+UAB
Integrated Sensors and Circuits for Imagers & Radiation Detectors (4): D. Gascón. UB+UPC+UAB
Mixed Signal IP Design (4): F. Serra. UAB+UB+UAB
Power Management Circuits in ASICS (4): P.Miribel UB+UPC

Master Thesis (10)

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
- Microelectronic Technologies and Processes (6) - Microelectronic Design (6)						Evaluation, Seminars and Campus Activities (ecosystem)		- Semiconductor Devices (6) - Semiconductor Facilities & Device Manufacturing (6) - Packaging, Characterization and Reliability (6)						Evaluation, Seminars, Campus Activities (ecosystem) Master matching activities	
								- Analog IC Design (6) - SoC Design & Verification (6) - Integrated Circuits Physical Design (6)							

First Semester

(16 week academic period)

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Mandatory subject – Campus Bellaterra
Technology branch Mandatory subject – Campus Bellaterra
Design branch Mandatory subject – Campus Bellaterra

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
- Material Characterization (4) - Integrated Photonics (4) - Power devices & Systems (4) - Microsensors (4) - Emerging Technologies for Computing (4) - Flexible & Printed Electronics (4)						Evaluation, Seminars, Campus Activities (ecosystem) Master definition activities		- Master Thesis (10)					- Innovation, Entrepreneurship & Leadership (6)		Master Thesis presentation week And Closing master activities
- RF IC design (4) - ASIC design techniques for highly secure systems (4) - Advanced IP core design (4) - Integrated Sensors and Circuits for Imagers & Radiation Detectors (4) - Mixed signal IP design (4) - Power Management Circuits in ASICS (4)															

Mandatory subject – Campus Diagonal

Mandatory subject – According with your supervisor

Technology branch Elective subject – Campus Diagonal (minimum 3 subjects)

Design branch Elective subject – Campus Diagonal (minimum 3 subjects)

Second Semester

(16 week academic period)

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Evaluation and other activities. Seminars on microelectronic industry and advanced research (2) will hold mainly during these periods.