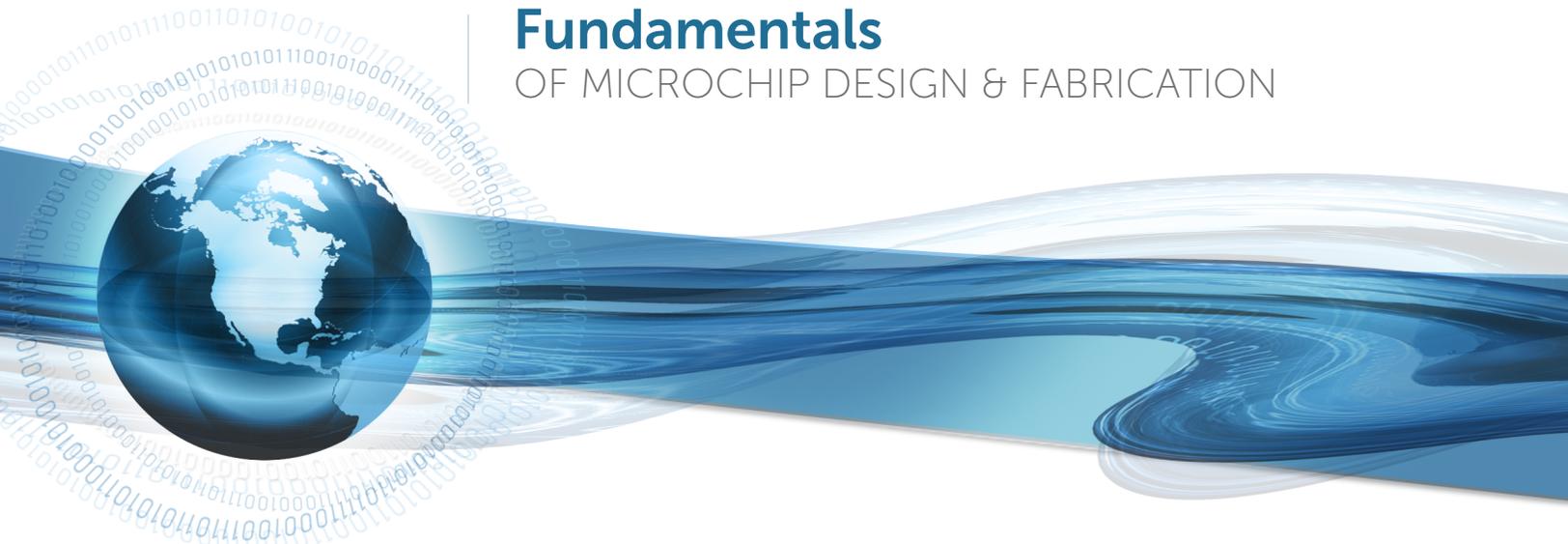


COURSE OFFERING

Fundamentals

OF MICROCHIP DESIGN & FABRICATION



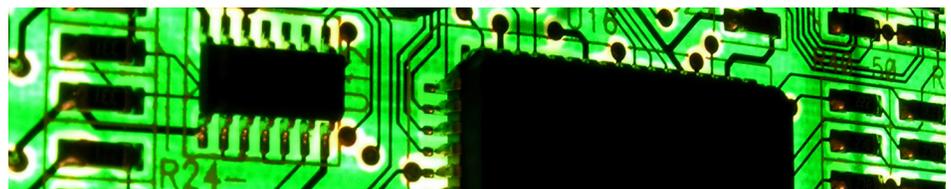
To the uninitiated, microchip technology is a bewildering, exotic subject filled with confusing jargon and strange equipment.

duration:

One Day

course brief:

This course provides an excellent introduction to the science of IC design and fabrication as well as an overview of microchip packaging. It is introductory in nature, explanatory in tone, and covers the most basic concepts of microchip design and manufacturing in simple, easy-to understand terms. It is taught in a highly interactive style with key question reviews for each module and in-class exercises.



instructor:

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course objectives:

appropriate for:

course outline:

Microchip manufacturing is so complex that the engineers involved in the field appear to be speaking an incomprehensible dialect of English. The objective of this course is to de-mystify the subject of microchip design and fabrication by presenting a clear and concise overview of the subject in a language that can be understood by non-technical personnel.

New hires, managers, purchasing and marketing personnel, Product and Design Engineers, and a wide range of industry personnel who are interested in learning the basics of microchip technology

Basic Electronics:

- Voltage, current, resistance, electrical circuits, ohm's law, electrical components (transistors, capacitors, diodes, resistors)

Semiconductor Fundamentals:

- The PN junctions (forward and reversed bias)
- MOSFETs, PMOS, NMOS, CMOS
- Microchip scaling; what is a technology node?
- Key microchip advances: strained silicon, high-k metals gates, multi-core processors designs

Microchip design:

- Logic gates, digital logic. physical layout, Logic design, simulation tools, chip layout, design rule checks, mask generation, silicon prototype and debug, design revision and final qualification

Silicon Processing Technology:

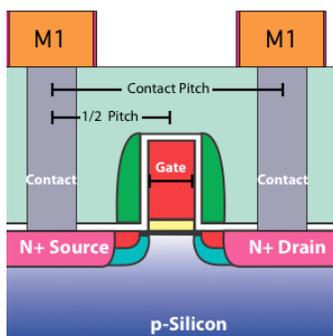
- Atomic Layer Deposition (ALD), Chemical Mechanical Polishing (CMP), Chemical Vapor Deposition (CVD), Cleaning technology, Electro-plating, Etch, Ion implantation, Lithography, Physical Vapor Deposition (PVD), and Rapid Thermal Processing (RTP)

Microchip Fabrication:

- A step-by-step fabrication sequence for a FinFET microchip is described in detail

Microchip Packaging:

- The packaging process flow, wire bonding, Chip Scale Packaging (CSP), stacked CSP, Wafer Level Packaging (WLP), the flip-chip process (C4), System-in-Package (SiP), Multi-Chip Modules (MCM), System on Chip (SoC), stacked die, Package-in-Package (PiP), Package-on-Package (PoP), 3D packaging



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The information in this course is introductory in nature, profusely illustrated, and presented in a clear, technically current and easy-to-understand manner.

It is taught by a world-class instructor who has over 30 years of hands-on experience in the field of silicon fabrication and who is an award winning public speaker.

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