University of Southern California

VLSI Research Engineer

Job Code: 167406

Grade: TM
OT Eligible: No
Comp Approval: 10/1/2008

Job Summary:

Uses design methodologies to investigate research principles in complex micro-electronic circuits utilized in advance Very Large Systems Integration (VLSI).

Job Accountabilities:

*E/M/NA  % Time

Applying electrical and computer engineering VLSI principles and concepts in the design of micro-electronic circuits.

Plans, coordinates and executes research and development activities to advance VLSI. Executes research on next generation VLSI circuits including digital, analog, and mixed-mode signals as well as wireless RF in the domain of embedded systems. Contributes to state-of-the-art in VLSI and micro-circuits technology.

Solves a wide variety of engineering problems centered on VLSI and micro-circuits analysis and design concepts. Selects methods and techniques for obtaining solutions.

Interacts with peers. Makes presentations at conferences; participates in workshops and collaborates in specific areas of research.

Writes technical reports and publishes technical papers and articles.

*Select E (ESSENTIAL), M (MARGINAL) or NA (NON-APPLICABLE) to denote importance of each job function to position.

Emergency Response/Recovery:

Essential: Yes

In the event of an emergency, the employee holding this position is required to “report to duty” in accordance with the university’s Emergency Operations Plan and/or the employee’s department’s emergency response and/or recovery plans. Familiarity with those plans and regular training to implement those plans is required. During or immediately following an emergency, the employee will be notified to assist in the emergency response efforts, and mobilize other staff members if needed.

Job Qualifications:

Minimum Education:

Master’s degree

Combined experience/education as substitute for minimum education

Minimum Experience:
5 years

**Minimum Field of Expertise:**

Thorough knowledge of VLSI electrical and computer engineering principles at the chip level; experience with CAE/CAD tools, modern design methodologies and development of solutions for specific design tasks using VLSI engineering principles.

**Preferred Education:**

Doctorate

**Preferred Experience:**

7 years

**Skills: Other:**

Analysis
Assessment/evaluation
Circuit design
Communication -- written and oral skills
Conceptualization and design
Knowledge of applicable laws/policies/principles/etc.
Networking
Organization
Planning
Problem identification and resolution
Public speaking/presentations
Research

**Skilled in:**

Computer-Aided Design (CAD) tools
Device physics
Electronic semiconductor test equipment
Engineering software tools
Integrated circuit design
Mathematics
Semiconductor device modeling
Software design tools
Technical documentation
VLSI electrical engineering at circuit level
VLSI electrical engineering at device level

**Skills: Machine/Equipment:**

Computer aided tools for circuit or device level simulations
Computer network (department or school)
Computer network (university)
Computer peripheral equipment
Fax
Personal computer
Photocopier

**Supervises: Level:**

May oversee student and/or temporary workers.
Comments:

May require periodic weekend or evening work.

SIGNATURES:

Employee: _____________________________________  Date:_____________________________

Supervisor: ____________________________________  Date:_____________________________

The above statements are intended to describe the general nature and level of work being performed. They are not intended to be construed as an exhaustive list of all responsibilities, duties and skills required of personnel so classified.

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