UNIVERSITY OF SOUTHERN CALIFORNIA

Semiconductor Device Characterization Engineer -
MOSIS

Job Code: 167412

Grade: TK
OT Eligible: No
Comp Approval: 10/8/2008

JOB SUMMARY:
Designs and develops semiconductor device characterization methodologies and hardware. Applies knowledge of device physics and electrical engineering principles to solve highly technical engineering problems centered on complex micro- and nano-electronic technologies. Works independently receiving minimal direction.

JOB ACCOUNTABILITIES:

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

**E/M/NA** | % TIME
--- | ---
Develops complex electronic characterization systems and hardware using state-of-the-art approaches and measurement techniques. Designs micro electronic test structures for advanced integrated circuits. | E/M/NA
Plans and executes characterization development activities for semiconductor micro- and nano-technologies. Solves a wide range of complex engineering problems related to all semiconductor processes available through MOSIS. | E/M/NA
Formulates and defines device characterization specifications and guidelines for advanced fabrication processes. Analyzes wafer electrical parameter data, providing interpretation and judgment requiring extensive knowledge of device physics and electrical engineering principles. | E/M/NA
Leads subordinate engineering staff in executing device characterization procedures, maintenance and operation of measurement equipment. | E/M/NA
Develops and evaluates policies and procedures for the laboratory. Directs execution of characterization activity in the laboratory. | E/M/NA
Stays informed of new developments and technologies by reading journals and other pertinent publications, maintaining contact with vendors, and participating in professional organizations, meetings and seminars. | E/M/NA
Performs other related duties as assigned or requested. The university reserves the right to add or change duties at any time. | E/M/NA

EMERGENCY RESPONSE/RECOVERY:

Essential: ☐ No ☑ 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:
- Bachelor's degree
- Combined experience/education as substitute for minimum education

Minimum Experience:
- 5 years

Minimum Field of Expertise:
- Thorough knowledge of device physics and VLSI electrical engineering principles at the device and circuit level; Working knowledge of electronic semiconductor test equipment, CAD tools, and other engineering software tools.

Preferred Experience:
- 7 years

Preferred Field of Expertise:
- Semiconductor electronic characterization or related field. Degree in electrical engineering.

Skills: Other:
- Analysis
- Assessment/evaluation
- Communication -- written and oral skills
- Conceptualization and design
- Interpretation of policies/analyses/trends/etc.
- Knowledge of applicable laws/policies/principles/etc.
- Lead/guidance skills
- Organization
- Problem identification and resolution
- Public speaking/presentations
- Scheduling
- Teaching/training

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 lead one or more employees performing similar work.

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.

The University of Southern California is an Equal Opportunity Employer