UNIVERSITY OF SOUTHERN CALIFORNIA

Semiconductor Device Characterization Engineer,
Sr./Supervisor - MOSIS

Job Code: 167413

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

JOB SUMMARY:
Plans, designs, and develops activities for device characterization across advanced semiconductor process technologies. Explores and executes research and development activities for advanced semiconductor technologies.

JOB ACCOUNTABILITIES:

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- Explores research opportunities for next generation electronic and photonic device systems. Plans and executes research and development activities for advanced semiconductor technologies.


- 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.

- Provides leadership and technical guidance to subordinate staff regarding device characterization procedures, maintenance, and operation of measurement equipment. Supervises maintenance of semiconductor laboratory equipment and characterization software.

- Supervises all assigned subordinate staff. Recruits, screens, hires, orientes, trains and cross-trains staff. Evaluates employee performance, provides guidance and feedback to assigned staff. Counsels, disciplines and terminates employees as required.

- Develops and evaluates policies and procedures for the laboratory. Directs execution of characterization activity in the laboratory.

- Networks with professional counterparts inside and outside the university. Participates in professional associations to stay informed of new developments and technologies. Makes recommendations to senior management regarding technology changes based on developments in field and business needs.

- Develops and implements security related procedures such as office opening and closing routines, recognition of duress signals and key controls. Coordinates security activities with University Public Safety Department. Promotes and maintains standards for security conscious awareness and behavior. Maintains knowledge of university’s crime prevention and suppression programs and services. Ensures dissemination of security related information to staff.
Performs other related duties as assigned or requested. The university reserves the right to add or change duties at any time.

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

**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:**

- 7 years

**Minimum Field of Expertise:**

- In depth 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 Education:**

- Master’s degree

**Preferred Experience:**

- 10 years

**Preferred Field of Expertise:**

- Modeling of semiconductor devices and integrated circuit design experience. Degree in electrical engineering.

**Skills: Other:**

- Analysis
- Assessment/evaluation
- Coaching
- Communication -- written and oral skills
- Conceptualization and design
- Conflict resolution
- Counseling
- Human resource process and employment knowledge
- Interpretation of policies/analyses/trends/etc.
- Interviewing
- Knowledge of applicable laws/policies/principles/etc.
- Organization
Problem identification and resolution
Public speaking/presentations
Scheduling
Staff development
Supervisory skills
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:
Supervises employees and/or student workers.

Supervises: Nature of Work:
Technical

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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