UNIVERSITY OF SOUTHERN CALIFORNIA

Industrial Design Engineer

Job Code: 177119

Grade: K
OT Eligible: No
Comp Approval: 10/27/1994

JOB SUMMARY:
Provides product and prototype design services to research projects and facilities for design and engineering fields such as mechanical, electro-mechanical, electronic packaging, discrete electrical devices, and ergonomics. Performs design services in the areas of space planning, documentation, architecture, and construction supervision. Supervises activities and personnel in prototype fabrication.

JOB ACCOUNTABILITIES:

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<th>% TIME</th>
<th>Provides design services to research projects and facilities. Meets with research staff and outside clients in the design development phase of advanced computer systems and related products. Provides input in the areas of electronic packaging, mechanical design, ergonomic design, manufacturing technology and overall aesthetic design. Provides conceptual sketches and drawings to illustrate design intentions for further review and discussion. Determines project specifications and parameters.</th>
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<th>% TIME</th>
<th>Provides design engineering services and documentation. Engineering services include: component and parts selection or in-house design of custom components; thermal and stress analysis; and input on fabrication processes including material properties and finishes. Creates design documentation that complies with standard drafting practices for outside manufacturing vendors and in-house model shop fabrication. Performs design documentation and engineering utilizing 2D, 3D solids modeling and finite element modeling CAD programs.</th>
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<th>% TIME</th>
<th>Supervises all assigned subordinate staff. Recruits, screens, hires and trains staff. Evaluates employee performance and provides guidance and feedback to assigned staff. Counsels, disciplines and/or terminates employees as required.</th>
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<th>% TIME</th>
<th>Supervises in-house fabrication of prototypes. Schedules and assigns projects to staff. Follows up to ensure work is completed in a timely and efficient manner. Analyzes and resolves work problems or assists staff in solving work problems. Provides backup machining and fabrication for overflow work.</th>
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<th>% TIME</th>
<th>Provides cost analysis using time schedules and budgetary considerations. Estimates time, materials and labor costs for in-house model shop fabrication. Prepares bid packages for outside vendors. Selects appropriate vendor based on capability, lead times and cost. Monitors outside vendors. Maintains necessary records and documents for project charges and bookkeeping.</th>
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<th>% TIME</th>
<th>Collaborates with the electronics engineer and electronics laboratory and provides technical support. Designs and fabricates fixtures and equipment used in the assembly and testing of research projects.</th>
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Conducts or assists with research in new electronic packaging technologies, computer-aided-design and manufacturing technologies. Writes or assists in writing proposals in these technologies for government or private funding. Conducts funded research and publishes results. Writes annual and semi-annual reports.

Provides facility and architectural services such as space planning, interior design and construction documentation. Performs construction supervision which includes coordination of contractors, building departments, building owners, and design and implementation of plan or construction change orders. Maintains currency with local building codes.

Creates presentation graphics material, such as 3D CAD exploded view drawings and studio quality photographs of research projects.

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:**

5 Years

**Minimum Field of Expertise:**

Experience in industrial design, architecture, mechanical engineering or other related field. Experience in product or design engineering. Experience in all phases of the design process, mechanical and electrical integration, & use of computers for CAD, text editing & document generation. Strong background in machining & parts fabrication.

**Preferred Field of Expertise:**

Supervisory experience. Experience in high density electronic packaging technologies.

**Skills:** Other:

Analysis
Assessment/evaluation
Communication -- written and oral skills
Conceptualization and design
Conflict resolution
Counseling
Graphic design
Interviewing
Organization
Planning
Problem identification and resolution
Research
Scheduling
Supervisory Skills
Teaching/Training

Skills:  Machine:

Computer Peripheral Equipment
Personal Computer

Supervises:  Level:

Supervises employees and student workers

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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