

# Laboratory Mechanician

University of California, Los Angeles  
May, 1972

## **Class Specifications - G.40**

Principal Laboratory Mechanician - 8651  
Senior Laboratory Mechanician - 8652  
Laboratory Mechanician - 8653  
Laboratory Mechanician Helper - 8654

## **SERIES CONCEPT**

Laboratory Mechanicians perform or supervise mechanical work involving the design, fabrication, assembly, modification and maintenance and repair of specialized equipment and/or precision instruments of great variety; and perform other related duties as required.

Incumbents primarily perform work that requires machinist skills; however, at the higher levels, the duties require skills in other crafts e.g., sheetmetal and welding, as well as knowledge in such fields as electronics, optics and vacuum systems.

The Laboratory Mechanician series includes positions which range in level of skills from the trainee mechanic up to the mechanic who is required to conceptualize, design from rough ideas, and complete the fabrication and construction of complicated pieces of apparatus.

## **CLASS CONCEPTS**

### **Principal Laboratory Mechanician**

Incumbents supervise mechanical work, and/or perform mechanical work which requires top machinist's skills as described at the Senior Laboratory Mechanician level as well as participate in functional design.

#### **Participation in functional design is characterized by the following:**

1. Guidelines provided consist mainly of rough sketches and oral information is related only to the basic design of the apparatus.
2. Specific details as to component relationships, sizes, fits, shapes and materials are not provided and such details are developed by the incumbent as fabrication progresses.
3. Assignments require incumbents to apply a high degree of comprehension of the researcher's needs and an understanding of the restrictions of the test environment in which the equipment will be operated.

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4. Researchers depend on the originality and ingenuity of incumbents for the solution of fabrication, assembly, installation and related problems.
5. Incumbents frequently suggest changes in the design of an object to solve problems which inhibit the functional utilization of the device. These problems may include heat exchange; vibration; seals, finishes; pump-out; mirror alignment and polish; telescopic alignment; practical materials; interference; insulation; axis orientation; electromechanical control; set up and winding of high precision wire coils as in superconducting magnets or resistance thermometers; pressure or vacuum (heli-arc) welding; expansion; and stress.
6. Incumbents may suggest components and mechanisms such as mounts for optical lenses; mirrors; filters; timing devices; springs; gear trains; balance mechanisms; thermocouples; and coils and resistors.

When positions are allocated to the principal level solely on supervision, the incumbents are typically responsible for the management of the shop and the supervision of three or more mechanics.

**Senior Laboratory Mechanician**

Incumbents perform machining work that requires the knowledge and skill of a top-level machinist. The knowledge and skills include: knowledge of separate machining characteristics of a wide variety of materials; a comprehensive knowledge of shop practices and machining principles with standard and special machine tools; a high degree of manual dexterity to work within close tolerances on special shapes e.g., conical mirrors; microwave transition pieces; knife edge metallic gasket seals and metallic pinch gaskets, Incumbents perform other related duties as required.

Senior Laboratory Mechanics may also perform such duties as fabrication of special templates and fixtures; progressive hard soldering; skilled sheetmetal and welding work; assembly, installation, repair and maintenance of specialized apparatus as well as participating in facilitative design.

**Participation in facilitative design is characterized by the following:**

1. Incumbents work from unchecked drawings, sketches or oral instructions with responsibility for establishing or checking accuracy of all dimensions and clearances supplied.
2. Incumbents discuss fabrication problems with supervisors, engineers or researchers, outlining difficulties encountered; errors in dimensions; improper location of fasteners and other similar deficiencies; and may occasionally recommend changes or means to solve minor fabrication problems or otherwise improve the object.

Incumbents may train a group of students in standard machine shop practices or work with graduate students who are in a training capacity in the construction of research apparatus.

**Laboratory Mechanician**

Incumbents perform journeyman level machining work; set up and operate all standard machine tools; apply accepted shop practices, machining principles and standard techniques; perform sheetmetal and welding work; read and interpret blueprints, sketches and other guides in the assembly, installation, repair and maintenance of specialized apparatus; and perform other related duties as required.

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**Laboratory Mechanician Helper**

Under the supervision of a higher level mechanic, incumbents perform skilled and semi-skilled mechanical work involved in the assembly, maintenance, and repair of specialized apparatus; and perform other related duties as required.

The Laboratory Mechanician Helper is typically used for trainees who are acquiring journeyman skills in the operation of all standard machine shop equipment and may perform additional related craft duties at a semi-skilled level.

**MINIMUM QUALIFICATIONS**

**Principal Laboratory Mechanician**

Graduation from high school or a General Education Diploma and eight years of experience in general machine shop work, tool and die making or instrument making; or an equivalent combination of education and experience.

**Senior Laboratory Mechanician**

Graduation from high school or a General Education Diploma and six years of metal shop experience and journeyman skill in the operation of all standard machine shop equipment; or an equivalent combination of education and experience.

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Graduation from high school or a General Education Diploma and four years of metal shop experience and journeyman skill in the operation of all standard machine shop equipment; or an equivalent combination of education and experience

**Laboratory Mechanician Helper**

Graduation from high school or a General Education Diploma and two years of experience in general shop work or in a skilled trade, or an equivalent combination of education and experience.