

LABORATORY MECHANIC SERIES

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Code No.	Class Title	Occ. Area	Work Area	Prob. Period	Effective Date	Last Action
2597	Assistant Laboratory Mechanic	14	501	6 mo.	00/00/00	Rev.
2596	Laboratory Mechanic	14	501	6 mo.	00/00/00	Rev.
2599	Senior Laboratory Mechanic	14	501	6 mo.	00/00/00	Rev.
2306	Instrument Maker	14	501	6 mo.	00/00/00	Rev.

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Series Narrative

Employees in this series perform and/or supervise work involved in the development, fabrication, testing, operation, and/or maintenance of laboratory equipment and tools.

DESCRIPTIONS OF LEVELS OF WORK

Level I: Assistant Laboratory Mechanic

2597

Employees at this level perform semi-skilled and unskilled work involved in the fabrication, operation, and maintenance of laboratory equipment and tools. They work under direct supervision from a designated supervisor.

An Assistant Laboratory Mechanic typically –

1. under close technical direction, performs work involving an apprentice degree of skill in making and fitting components of laboratory equipment (ALM)
2. performs simple mechanical repair and maintenance jobs on laboratory tools and equipment (ALM & JD)
3. MAY PERFORM SIMPLE ELECTRICAL REPAIR AS NEEDED
- ~~4. SETS UP ELECTRONIC EQUIPMENT AS NEEDED~~
- ~~5.4.~~ in accordance with specific instructions, assembles and tests SIMPLE laboratory equipment in order to determine that it is in working order (ALM)
- ~~6.5.~~ demonstrates use of simple laboratory equipment with responsibility for giving out instructions on operating, maintenance, and storage procedures (ALM)
- ~~7.6.~~ performs related duties as assigned (ALM)

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Level II: Laboratory Mechanic**2596**

Employees at this level perform work comparable to that of **A JOURNEYMAN LEVEL** in the fabrication, operation, maintenance *and repair* of general laboratory equipment AND MACHINE TOOLS. They work under ~~DIRECT supervision~~ *direction of from* a designated supervisor.

A Laboratory Mechanic typically –

1. performs work *with a journeyman degree* of skill in making, fitting, and assembling components of laboratory equipment (LM)
2. tests and operates laboratory equipment in the area of employment (LM)
3. uses basic machine tools with a *journeyman* degree of skill, including set-ups for the basic machine operations (LM)
4. works from clear sketches or detailed drawings and completes necessary calculations involving mathematics (LM)
5. *uses CAD/CAM software to CREATE part files for CNC machine tools (JD)*
6. performs work of loose-to-medium tolerances with commercial surface finishes (LM)
7. machines effectively common commercial alloys and plastics (LM)
8. performs work requiring the use of the usual precision measuring devices (such as vernier and micrometer calipers, micrometers, dial gauges, and gauge blocks) (LM)
9. employs welding, brazing, and hard and soft soldering techniques as necessary (LM)
10. performs work related to laboratory tests and laboratory equipment requiring knowledge of construction materials (such as concrete, lumber, and structural steel) (LM)
11. as required, assists in the training and supervision of employees of lower rank and instructs or assists students or staff in proper use of tools and machinery (LM)
12. *assists in the selection, purchase, installation and maintenance of equipment (JD)*
13. MAY PERFORM DUTIES OF ASSISTANT LABORATORY MECHANIC AS NECESSARY
14. performs related duties as assigned

Level III: Senior Laboratory Mechanic**2599**

Employees at this level perform highly skilled work in the development, fabrication, testing, and/or operation of a variety of diverse laboratory equipment **AND** MACHINE TOOLS. They work under general supervision from a designated supervisor.

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Comment [CN3]: Wording acceptable as is.

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A Senior Laboratory Mechanic typically –

1. performs highly skilled work in the development, fabrication, calibration, and assembly of laboratory apparatus (SLM, JD)
2. tests and operates developmental laboratory apparatus in the area of employment (SLM)
3. uses general type of machine tools with a journeyman degree of skill, working independently on machine set-up and job layout (SLM)
4. works from sketches or detailed working drawings and completes necessary calculations.
5. performs work of medium-to-fine tolerances with commercial surface finishes suitable for high vacuum or high pressure seals (SLM)
6. machines effectively most metals and non-metals (SLM)
7. prepares AND PRODUCES simple sketches AND/OR CAD DRAWINGS for the fabrication of components of laboratory apparatus (SLM)
8. assists in the training and supervision of employees of lower rank and, as required, instructs or assists students or staff in proper use of tools and machinery (SLM)
9. employs welding, brazing, and hard and soft soldering techniques as necessary (LM)
10. uses CAD/CAM software to CREATE part files for CNC machine tools (JD - LM)
11. if needed, assists in the selection, purchase, installation and maintenance of equipment (JD - LM)
12. may perform duties of Laboratory Mechanic as necessary
13. performs related duties as assigned

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Comment [CN6]: Wording acceptable as is. Disagree with removing it.

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Level IV: Instrument Maker

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Employees at this level perform and/or supervise fine-tolerance work requiring the highest level of skill in the development, fabrication, and testing of complex laboratory apparatus. They work under direction from a designated supervisor.

An Instrument Maker typically –

1. assumes responsibility for the practical development and fabrication of unusually complicated, delicate, or precise laboratory apparatus (IM)
2. performs work at the highest level of skill to meet precise and predetermined engineering or research specifications (IM)
3. uses all types of machine tools, including special purpose machines, and works independently regarding course of action (IM)

4. reads and interprets complex drawings; makes appropriate calculations to complete project (IM)
5. performs work of fine-to-tight tolerances in machine parts with extremely fine surface finishes (IM)
6. advises on best choice of materials in design of laboratory apparatus, requiring knowledge of the physical properties, heat treatment, and machining characteristics of commercial ferrous and non-ferrous metals, alloys, and plastics (IM)
7. uses all types of precision measuring tools to ascertain the size and surface finish; calibrates the tools when necessary (IM)
8. CREATES drawings, sketches, and specifications of details or assembled laboratory apparatus for use by other staff members (IM)
9. IF REQUIRED, assigns work to and inspects work of, and generally supervises employees of lower level; instructs or assists students or staff in proper use of tools and machinery and in safety methods (IM, JD)
10. assumes responsibility for testing of equipment and setting up and maintaining instruments; assists with gathering data during testing (JD)
11. if needed, assists in the selection, purchase, installation and maintenance of equipment (JD - LM)
12. may perform duties of Senior Laboratory Mechanic as necessary
13. performs related duties as assigned

MINIMUM ACCEPTABLE QUALIFICATIONS REQUIRED FOR ENTRY INTO:

Level I: Assistant Laboratory Mechanic

2597

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. High school graduation or equivalent

PERSONAL ATTRIBUTES NEEDED TO UNDERTAKE JOB

1. SKILLED IN performing routine maintenance on equipment and determining when and what kind of maintenance is needed
2. Ability and willingness to follow instructions
3. Knowledge of machines and tools, including their designs, uses, repair, and maintenance
4. Ability to EFFECTIVELY COMMUNICATE INFORMATION VERBALLY AND IN WRITING SO THAT OTHERS CAN UNDERSTAND

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5. Ability to understand written instructions
6. *Ability to use tools and equipment*
7. *Mechanical aptitude*
8. POSSESSION OF BASIC COMPUTER SKILLS

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Level II: Laboratory Mechanic**2596**

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. High school graduation or equivalent
2. ANY COMBINATION TOTALING ~~THREE (3)~~ FOUR (4) YEARS
 - A. Successful completion of a machinist apprentice (or in a closely related program) in an approved training program or in a training program established by an employer served by the State Universities Civil Service System.
 - B. Work experience comparable to that performed at the Assistant Laboratory Mechanic level of this series or in other positions of comparable responsibility.
 - C. College course work in welding, electrical/HVAC, industrial/technology machining or manufacturing area or a closely related field.
 - 30 semester hours equals to one (1) year.
 - 60 semester hours (or an Associate's degree) equals to two (2) years.

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KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

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1. SKILLED IN performing maintenance on equipment and determining when and what kind of maintenance is needed)
2. Ability to install equipment, machines, wiring, or programs to meet specifications and to operate such equipment
3. SKILLED AT determining causes of operating errors and deciding what to do about it
4. Knowledge of materials (e.g., metals) and of machines and tools, including their designs, uses, repair, and maintenance
5. Ability to EFFECTIVELY COMMUNICATE INFORMATION VERBALLY AND IN WRITING SO THAT OTHERS CAN UNDERSTAND
6. Ability to understand written instructions
7. Working knowledge of computer systems, such as CAD files and CAM software

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8. Knowledge of math concepts and applications, including ALGEBRA, trigonometry, and geometry
9. Ability to train and direct others
10. Ability to read, UNDERSTAND, and interpret *maintenance manuals, schematics*, drawings, sketches, and diagrams of systems involving mechanical, electrical, pneumatic, and hydraulic devices, and **THE ABILITY TO PRODUCE SIMPLE SKETCHES FOR PRODUCTION PURPOSES**
11. *Skill and ability to perform necessary maintenance and repair on laboratory equipment*

Level III: Senior Laboratory Mechanic**2599**

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. High school graduation or equivalent
2. **ANY COMBINATION TOTALING FOUR (4) YEARS**
 - A. Successful completion of a machinist apprentice (or in a closely related program) in an approved training program or in a training program established by an employer served by the State Universities Civil Service System.
 - B. Work experience comparable to that performed at the Assistant Laboratory Mechanic level of this series or in other positions of comparable responsibility.
 - C. College course work in welding, electrical/HVAC, industrial/technology machining or manufacturing area or a closely related field.
 - 30 semester hours equals to one (1) year.
 - 60 semester hours (or an Associate's degree) equals to two (2) years.

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1. **Three (3) years of work experience in the design and construction of precision instruments (such as but not limited to scale models of machine tools, special machinery, progressive dies, jigs, and fixtures)**

KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

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1. SKILLED IN performing maintenance on equipment and determining when and what kind of maintenance is needed
2. Ability to install equipment, machines, wiring, or programs to meet specifications and to operate such equipment
3. SKILLED AT determining causes of operating errors and deciding what to do about it)
4. Knowledge of materials (e.g., metals) and of machines and tools, including their designs, uses, repair, and maintenance

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5. Ability to EFFECTIVELY COMMUNICATE INFORMATION VERBALLY AND IN WRITING SO THAT OTHERS CAN UNDERSTAND
6. Ability to understand written instructions
7. Working knowledge of specialized computer files and software, such as CAD files and CAM software
8. Knowledge of math concepts and applications, including algebra, GEOMETRY, and trigonometry, and the ability to make needed mathematical computations involved in designing and constructing apparatus
9. Ability to train and direct others
10. Ability to read, UNDERSTAND, and interpret drawings, sketches, and diagrams of systems involving mechanical, electrical, pneumatic, and hydraulic devices and the ability to produce simple sketches for production purposes
11. *Skill and ability to do precision work and to design the necessary jigs and fixtures required in the construction of laboratory apparatus*

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Level IV: Instrument Maker**2306**

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. High school graduation or equivalent
2. ANY COMBINATION TOTALING ~~FIVE (5)~~ FOUR (4) YEARS
 - A. Successful completion of a machinist apprentice (or in a closely related program) in an approved training program or in a training program established by an employer served by the State Universities Civil Service System.
 - B. Work experience comparable to that performed at the (SENIOR) Laboratory Mechanic level of this series or in other positions of comparable responsibility.
 - C. College course work in welding, electrical/HVAC, industrial technology machining or manufacturing area or a closely related field.
 - 30 semester hours equals to one (1) year.
 - 60 semester hours (or an Associate's degree) equals to two (2) years.
3. ~~Three (3)~~ Five (5) years of work experience in the design and construction of **complex** laboratory apparatus/precision instruments (such as but not limited to scale models of machine tools, special machinery, progressive dies, jigs, and fixtures)

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KNOWLEDGE, SKILLS AND ABILITIES (KSAs)

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1. SKILLED IN performing maintenance on equipment and determining when and what kind of maintenance is needed
2. Ability to install equipment, machines, wiring, or programs to meet specifications and to operate such equipment
3. SKILLED AT determining causes of operating errors and deciding what to do about it
4. Advanced knowledge of materials and their properties and advanced knowledge of machines and tools, including their designs, uses, repair, and maintenance
5. Ability to EFFECTIVELY COMMUNICATE INFORMATION VERBALLY AND IN WRITING SO THAT OTHERS CAN UNDERSTAND
6. Ability to understand written instructions
7. Working knowledge of specialized computer files and software, such as CAD files and CAM software
8. Knowledge of math concepts and applications, including algebra, GEOMETRY, and trigonometry, and the ability to make varied mathematical computations involved in designing and constructing apparatus
9. Ability to train and direct others
10. Ability to read, UNDERSTAND, and interpret COMPLEX drawings, sketches, and diagrams of systems involving mechanical, electrical, pneumatic, and hydraulic devices, and the ability to produce detailed sketches for production purposes
11. *Practical or working knowledge of the operation of electrical, pneumatic, hydraulic, and optical systems and devices*
12. *Ability to work from ideas and draw own sketches and designs*

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