

Job Description

(For Positions in CAW Local 555, Unit 1)

Job descriptions do not include every duty that an individual in a position performs. They are intended to be representative and characteristic of the duties required and the level of work performed. Depending upon the size of the department or unit and its functional activities, incumbents who fall into this category may perform all of the duties listed below or, in the case of large departments or units, may be assigned to designated specialized functions.

JD #:	JD00409	Pay Grade:	11
JD Title:	Principal Research Engineer	JD FTE Hours:	35
Job Family:	Engineer		

General Description

Responsible for providing guidance and advice for multiple research projects and providing extensive, highly-specialized, professional engineering services in broad areas of assignments in order to design, develop, and oversee research and contract projects.

Representative Duties & Responsibilities

- Develop and design research projects.
- Prepare and submit proposals to external funding and granting agencies.
- Manage multiple research projects by defining and coordinating resource needs, determining priorities to achieve project goals, and setting schedules that will meet defined deadlines.
- Design, fabricate, and assemble equipment and instruments that require the identification, modification, and adaptation of novel engineering techniques.
- Apply specialized knowledge to review, critically appraise, and interpret published literature.
- Conduct standardized research experiments using specialized equipment and instruments.
- Identify, analyze, and solve new, unique, and complex problems as presented in research contracts and projects.
- Apply standardized engineering principles and adapt methods from a specialized field or discipline.
- Collect, evaluate, and analyze data.
- May be required to design and develop computer software required for, but not limited to, data collection, design, modelling, and mathematical and statistical analysis.
- Identify, recommend, and incorporate new approaches and methodologies into research.
- Author scientific reports and papers for inclusion in journal publications and contract reports.
- Format and summarize data and write technical reports based on research findings.
- Develop and deliver technical presentations to engineering colleagues, industry, and contract agencies.
- Present briefings to industry and to representatives of contracting agencies on the progress of the work that is being conducted to ensure the awarding of or continuing of additional funding.
- Obtain contracts to provide support for projects.
- Assign and schedule work to others and review work for technical accuracy and adequacy.
- Provide financial and resource planning and tracking for research projects and contracts.
- Provide advice in a specialized field to colleagues, collaborators, and students.
- Exchanges technical and scientific information with others.
- Liaise with external clients and project partners.
- May be required to perform activities which require dexterity and precision including, but not limited to, the manual calibration of laboratory equipment, and assembly of circuit boards,
- Remain current with frequent advances in a technical field or scientific discipline.

Supervision

- Ensure adherence to quality standards and procedures for short-term staff and volunteers.
- May provide direction to others in how to carry out tasks.

Qualifications

- Doctoral degree in Engineering in a relevant field of study.
- Requires a minimum of 2 years of relevant experience.

Effort

Physical Effort:

- A typical work day consists of greater than 3.5 hours of low physical effort for activities such as:
 - Intermittent periods of keyboarding to word process documents and enter data into databases.
- A typical work day occasionally requires moderate physical effort for activities such as:
 - Standing to conduct experiments.
 - Moving and carrying moderate weight and awkward objects.
- Elements of high physical effort are not a regular feature of this job.

Mental Effort:

- A typical work day occasionally requires routine mental effort for activities such as:
 - Collecting information, responding to routine inquiries, processing routine documents, and inputting data into spreadsheets.
- A typical work day consists of up to 2 hours of moderate mental effort for activities such as:
 - Recommending and incorporating new approaches and methodologies into research.
 - Conducting standardized research experiments using specialized equipment and instruments.
 - Applying standardized engineering principles and adapting methods from a specialized field or discipline.
 - Summarizing data and writing technical reports based on research findings.
 - Providing advice in a specialized field to colleagues, collaborators, and students.
 - Exchanging technical and scientific information with others.
- A typical work day consists of greater than 3.5 hours of high mental effort for activities such as:
 - Developing and designing research projects.
 - Designing equipment and instruments that require the identification, modification, and adaptation of novel engineering techniques.
 - Applying specialized knowledge to review, critically appraise, and interpret published literature.
 - Identifying, analyzing, and solving new, unique, and complex problems as presented in research contracts and projects.

Working Conditions

Physical Environment:

- Occasionally required to work in confined spaces when performing maintenance work or calibrating equipment.
- Occasionally exposed to loud and irritating noises from laboratory equipment and tools for fabricating equipment.
- Occasionally exposed to dirt, dust, and grease when fabricating and assembling equipment.
- Occasionally required to wear protective equipment including, but not limited to, safety shoes, goggles, and masks.

Psychological Environment:

- Occasionally interacts with individuals who may be rude or upset.
- Frequently handles competing requests with simultaneous deadlines.

Health & Safety:

- Operating power tools to fabricate and assemble equipment.
- Handling chemicals when conducting experiments.

Job Description Rating Sheet

(For Positions in CAW Local 555, Unit 1)

JD #:	JD00409	Pay Grade:	11
JD Title:	Principal Research Engineer	Total Points:	672
Job Family:	Engineer		

Factor	Subfactor	Level Rating	Points	Comments
Skill	1. Applied Reasoning and Analytical Skills	6.0	128	
	2. Breadth of Knowledge	2.0	13	
	3. Adaptation to Change/Updating of Learning	2.5	17	
	4. Interpersonal Skill	3.0	39	
	5. Education and Experience	G2	143	
	6. Dexterity and Coordination	3.0	21	
Effort	7. Physical Effort	1.0	3	
	8. Mental Effort	5.0	100	
Responsibility	9. Planning and Coordination	3.0	46	
	10. Responsibility for Others	2.0	33	
	11. Accountability for Decisions Actions Affecting People, Assets, and Information	4.0	93	
Working Conditions	12. Physical Environment	2.0	10	
	13. Psychological Environment	2.0	10	
	14. Health and Safety	2.0	16	