

MASSACHUSETTS DEPARTMENT OF PERSONNEL ADMINISTRATION

CLASSIFICATION SPECIFICATION

APPROVED

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Department of Personnel
Administration

I. EDP PROGRAMMER SERIES:

EDP Programmer I
EDP Programmer II
EDP Programmer III
EDP Programmer IV
EDP Programmer V

II. SUMMARY OF SERIES:

Incumbents of positions in this series develop, design, write, test and/or maintain computer programs for processing a variety of mathematical, accounting and statistical problems on electronic data processing (EDP) equipment and perform related work as required.

The basic purpose of this work is to translate the operating procedures and information needs of an organization through a series of instructions or statements into a form acceptable to an electronic computer.

III. ORGANIZATIONAL LEVELS:

EDP Programmer I is the entry-level professional job in this series.

EDP Programmer II is the first-level supervisory job in this series.

EDP Programmer III is the second-level supervisory job in this series.

EDP Programmer IV is the third-level supervisory job in this series.

EDP Programmer V is the fourth-level supervisory job in this series.

IV. EXAMPLES OF DUTIES COMMON TO ALL LEVELS IN SERIES:

1. Designs input/output formats for computer programs; prepares or reviews job control language and related input data; encodes programs according to specifications for production run.
2. Prepares, tests, evaluates and debugs programs to determine validity and compliance with standards.
3. Determines causes of program failure by evaluating error messages and by using such tools as core dumps, file dumps and program listings in order to determine appropriate response and to make necessary program changes.
4. Designs programs to accommodate user needs and hardware capabilities; modifies existing programs and documentation for changes in hardware, user specifications or other related reasons.
5. Chooses most efficient method for completion of job requests, using manuals or other reference material.

6. Prepares flow charts, file layouts, input documents and program narratives for program or systems documentation.
7. Notifies users of the status of data sets requiring user action such as deletion, substitution, correction, etc.
8. Researches statistical reference materials to determine and apply most suitable method for analysis and interpretation of data.
9. Performs related duties such as operating remote terminals; and attending seminars, workshops, training sessions and professional meetings to keep abreast of developments in the field.

V. DIFFERENCES BETWEEN LEVELS IN SERIES:

EDP Programmer II:

Incumbents of positions at this level or higher also:

1. Consult with users to clarify needs to review and analyze requests for new systems, programs or requests for maintenance and enhancement of existing systems and to determine feasibility, define input/output procedures and required systems output.
2. Implement systems and/or programs including runstreams, file retention cycles and error recovery procedures to insure program adequacy.
3. Write task plans and/or status reports to comply with agency standards.
4. Develop and maintain program libraries and update tape, card deck and/or disk libraries to make necessary additions, deletions and changes.
5. Maintain data base files through disk allocations, back-up scheduling and reorganization scheduling; and by cataloging, classifying, filing and updating inventories of tapes, disk packs and card decks.

EDP Programmer III:

Incumbents of positions at this level or higher also:

1. Work with other data processing personnel on team projects.
2. Make changes to operating systems programs to improve overall performance.
3. Determine the amount of computer time, core size and number of devices required to process production requests.

EDP Programmer IV:

Incumbents of positions at this level or higher also:

1. Direct a project or program which encompasses several related functions.
2. Provide on-the-job training to agency personnel or students.
3. Schedule changes of software systems development including structured walk-throughs and program team assignments.
4. Review documentation submitted by programmers and prepare written documentation of data needs assessment to be used as basis for systems design.
5. Conduct workshops and/or classroom training sessions for users and agency personnel.
6. Prepare bidder specifications for data processing hardware, software, service and supplies and install new releases of systems software to accomodate new software technology.
7. Write newsletters or other correspondence for systems users describing changes, problems and availability.
8. Estimate time, equipment and staff requirements for current or proposed systems.

EDP Programmer V:

Incumbents of positions at this level also:

1. Schedule test times for analysts or programmers.
2. Establish or amend standard operating procedures for data processing operations.
3. Determine feasibility of proposed programs, systems and/or data base changes.
4. Interview and/or recommend applicants for employment.
5. Provide information to users on such matters as computer augmented instructions or business oriented computer instructions.
6. Develop programs or systems for engineering or scientific application and accept or reject systems based on compliance with standards.

7. Speak at conventions, seminars and conferences and provide information to data processing personnel of other agencies.

IV. RELATIONSHIPS-WITH OTHERS:

Major work contacts are with agency staff, representatives of various state agencies, technical personnel and vendors.

VII. SUPERVISION RECEIVED:

EDP Programmer I:

Incumbents of positions at this level receive direct supervision from EDP Programmers or other employees of higher grade who provide instruction, assign work and review performance through conferences and reports for effectiveness and compliance with standards and procedures.

EDP Programmer II:

Incumbents of positions at this level receive general supervision from EDP Programmers or other employees of higher grade who provide guidance on procedures, assign work and review performance through conferences and reports for effectiveness and compliance with standards and procedures.

EDP Programmer III:

Incumbents of positions at this level receive general supervision from EDP Programmers or other employees of higher grade who provide policy guidance, assign work and review performance through conferences and reports for effectiveness and compliance with standards and procedures.

EDP Programmer IV:

Incumbents of positions at this level receive general supervision from EDP Programmers or other employees of higher grade who provide policy guidance, assign work and review performance through conferences and reports for compliance with policy and procedures.

EDP Programmer V:

Incumbents of positions at this level receive general supervision from employees of higher grade who provide policy guidance and review performance through conferences and reports for compliance with policy and procedures.

VIII. SUPERVISION EXERCISED:

EDP Programmer I:

None.

EDP Programmer II:

Incumbents of positions at this level exercise direct supervision (i.e. not through an intermediate level supervisor) over, assign work to and review the performance of 1-5 professional or technical personnel.

EDP Programmer III:

Incumbents of positions at this level exercise direct supervision (i.e. not through an intermediate level supervisor) over, assign work to and review the performance of 1-5 professional and administrative personnel; and indirect supervision (i.e., through an intermediate level supervisor) over 1-5 technical or professional personnel.

EDP Programmer IV:

Incumbents of positions at this level exercise direct supervision (i.e., not through an intermediate level supervisor) over, assign work to and review the performance of 1-10 professional and administrative personnel; and indirect supervision (i.e., through an intermediate level supervisor) over 5-10 professional or technical personnel.

EDP Programmer V:

Incumbents of positions at this level exercise direct supervision (i.e. not through an intermediate level supervisor) over, assign work to and review the performance of 1-5 professional and administrative personnel; and indirect supervision (i.e. through an intermediate level supervisor) over 6-15 administrative and professional personnel.

IX. WORKING CONDITIONS:

Incumbents of positions in this series may be required to work varied shifts, weekends, holidays, or nights, or may be subject to a standby (on call) work status.

X. QUALIFICATIONS REQUIRED AT HIRE FOR ALL LEVELS IN SERIES:

1. Knowledge of the concepts, methods, techniques and applications of computer programming.
2. Knowledge of the capabilities and limitations of computer hardware.
3. Knowledge of terminology, codes and standard abbreviations applicable to electronic data processing.
4. Knowledge of basic mathematics, elementary algebra and the mathematical techniques used in solving electronic data processing problems.

5. Knowledge of the types and applications of job control language applicable to EDP systems.
6. Knowledge of COBOL.
7. Ability to prepare and use flow charts and diagrams.
8. Ability to perform arithmetical computations with speed and accuracy (addition, subtraction, multiplication and division).
9. Ability to make decisions and act quickly in emergency situations.
10. Ability to adjust to changing or emergency program or production requirements.
11. Ability to exercise sound judgement.
12. Ability to determine proper format and procedure for assembling items of information.
13. Ability to communicate effectively both orally and in writing.
14. Ability to follow oral and written instructions.
15. Ability to establish rapport with others.
16. Ability to analyze and determine the applicability of electronic data processing data, to draw conclusions and make appropriate recommendations.
17. Ability to perform mathematical computations using formulae to solve electronic data processing problems.
18. Ability to work independently.
19. Ability to work in a team setting.
20. Ability to assemble items of information in accordance with established procedures.
21. Ability to work accurately with names, numbers, codes and/or symbols.
22. Ability to understand the laws, rules, regulations, policies, procedures, specifications, standards and guidelines governing assigned unit activities.
23. Ability to give written and oral instructions in a precise, understandable manner.
24. Ability to maintain accurate records.
25. Ability to prepare technical reports.

Based on assignment, the following may be required at hire:

1. Knowledge of computer programming languages such as FORTRAN, APL, etc.
2. Knowledge of hybrid computer programming languages such as SNOBOL, PL/1, etc.

Additional qualifications required at hire for EDP Programmer II positions:

1. Knowledge of the methods of technical report writing.
2. Ability to supervise, including planning and assigning work according to the nature of the job to be accomplished, the capabilities of subordinates and available resources; controlling work through periodic reviews and/or evaluations; determining subordinates' training needs and providing or arranging for such training; motivating subordinates to work effectively; determining the need for disciplinary action and either recommending or initiating disciplinary action.

Additional qualifications required at hire for EDP Programmer III positions:

1. Knowledge of the methods and techniques used in organizing work processes and functions to facilitate the use of computer methods.
2. Knowledge of the principles, practices and techniques of supervision.

Additional qualifications required at hire for EDP Programmer IV positions:

1. Knowledge of the principles and applications of software design.
2. Ability to plan and conduct training or instruction.

Additional qualifications required at hire for EDP Programmer V positions:

1. Ability to organize work by establishing operating and/or reporting relationships and by assigning the work accordingly.

XI. QUALIFICATIONS ACQUIRED ON JOB AT ALL LEVELS IN SERIES:

1. Knowledge of the methods and techniques of computer systems analysis and design.
2. Knowledge of the principles of computer systems analysis and design.

3. Knowledge of the principles of operation of EDP equipment.
4. Knowledge of the types, availability and applications of EDP operating systems.
5. Knowledge of the methods and techniques of operating computers and peripheral devices (tape drives, consoles, input/output devices, etc.).
6. Knowledge of the policies, procedures, specifications, standards and guidelines governing assigned unit activities.
7. Knowledge of the laws, rules and regulations governing assigned unit activities.
8. Skill in the operation of typewriter-style, keyboard-controlled electronic data processing equipment.
9. Skill in the operation of electronic data processing peripheral equipment related to output preparation including bursters, decollators and binders.

Additional qualifications acquired on job in EDP Programmer I positions:

1. Knowledge of the methods of technical report writings.

Additional qualifications acquired on job in EDP Programmer II positions:

1. Knowledge of the methods and techniques used in organizing work processes and functions to facilitate the use of computer methods.
2. Knowledge of the principles, practices and techniques of supervision.

Additional qualifications acquired on job in EDP Programmer III positions:

1. Knowledge of the principles and applications of software design.

II. MINIMUM ENTRANCE REQUIREMENTS:

EDP Programmer I:

Applicants must have at least (A) one year of full-time, or equivalent part-time, professional experience in electronic data processing work, the major duties of which included computer programming and/or computer systems analysis, or (B) any equivalent combination of the required experience and the substitutions below

Substitutions:

- I. An Associate's or higher degree with a major in the field of data processing or computer and/or information science may be substituted for the required experience.*
- II. A diploma for completion of a two year, full-time or equivalent part-time, program in an approved non-degree granting business or vocational/technical school above the high school level with a major in the field of computer programming may be substituted for the required experience.*
- III. An official transcript from a recognized business or technical/vocational school as evidence of completion of a program consisting of at least 650 hours of instruction in the field of computer programming may be substituted for the required experience.
- IV. Graduation from the data processing course of a recognized vocational/ technical high school may be substituted for the required experience.*

*Education toward such a degree or diploma will be prorated on the basis of the proportion of the requirements actually completed.

EDP Programmer II:

Applicants must have at least (A) two years of full-time, or equivalent part-time, professional experience in electronic data processing work, the major duties of which included computer programming and/or computer systems analysis or (B) any equivalent combination of the required experience and the substitutions below.

Substitutions:

- I. An Associate's degree with a major in the field of data processing or computer programming may be substituted for a maximum of one year of the required experience.*
- II. A Bachelor's or higher degree with a major in the field of data processing or computer and/or information science may be substituted for the required experience.*
- III. A diploma for completion of a two year full-time, or equivalent part-time, program in a recognized non-degree granting business or vocational/technical school above the high school level with a major in the field of computer programming may be substituted for a maximum of one year of the required experience.*
- IV. An official transcript from a recognized business or vocational/ technical school as evidence of completion of a program consisting of at least 650 hours of instruction in the field of computer programming may be substituted for a maximum of one year of the required experience.

- V. Graduation from the data processing course of a recognized vocational/technical high school may be substituted for a maximum of one year of the required experience.*

*Education toward such a degree or diploma will be prorated on the basis of the proportion of the requirements actually completed.

EDP Programmer III:

Applicants must have at least (A) three years of full-time or equivalent part-time professional experience in electronic data-processing work, the major duties of which included computer programming and/or computer systems analysis, of which (B) at least one year must have been in a supervisory capacity, or (C) any equivalent combination of the required experience and the substitutions below.

Substitutions:

- I. An Associate's degree with a major in the field of data processing or computer programming may be substituted for a maximum of one year of the required (A) experience.*
- II. A Bachelor's or higher degree with a major in the field of data processing or computer and/or information science may be substituted for a maximum of two years of the required (A) experience.*
- III. A diploma for completion of a two year full-time, or equivalent part-time, program in a recognized non-degree granting business or vocational/technical school above the high school level with a major in the field of computer programming may be substituted for a maximum of one year of the required (A) experience.*
- IV. An official transcript from a recognized business or vocational/technical school as evidence of completion of a program consisting of at least 650 hours of instruction in the field of computer programming may be substituted for a maximum of one year of the required (A) experience.
- V. Graduation from the data processing course of a recognized vocational/technical high school may be substituted for a maximum of one year of the required (A) experience.*

*Education toward such a degree or diploma will be prorated on the basis of the proportion of the requirements actually completed.

No substitution will be allowed for the required (B) experience.

EDP Programmer IV:

Applicants must have at least (A) four years of full-time, or equivalent part-time, professional experience in electronic data processing work, the major duties of which included computer programming or computer

systems analysis, of which (B) at least two years must have been in a supervisory capacity, or (C) any equivalent combination of the required experience and the substitutions below.

Substitutions:

- I. An Associate's degree with a major in the field of data processing or computer programming may be substituted for a maximum of one year of the required (A) experience.*
- II. A Bachelor's degree with a major in the field of data processing or computer and/or information science may be substituted for a maximum of two years of the required (A) experience.*
- III. A Graduate degree with a major in the field of data processing or computer and/or information science may be substituted for a maximum of two years of the required (A) experience.*
- IV. A diploma for completion of a two-year full-time, or equivalent part-time, program in a recognized non-degree granting business or vocational/technical school above the high school level with a major in the field of computer programming may be substituted for a maximum of one year of the required (A) experience.*
- V. An official transcript from a recognized business or vocational/technical school as evidence of completion of a program consisting of at least 650 hours of instruction in the field of computer programming may be substituted for a maximum of one year of the required (A) experience.
- VI. Graduation from the data processing course of a recognized vocational/ technical high school may be substituted for a maximum of one year of the required (A) experience.*

*Education toward such a degree or diploma will be prorated on the basis of the proportion of the requirements actually completed.

No substitution will be allowed for more than two years of the required (A) experience.

No substitution will be allowed for the required (B) experience.

EDP Programmer V:

Applicants must have at least (A) five years of full-time, or equivalent part-time, professional experience in electronic data processing work the major duties of which included computer programming and/or computer systems analysis, of which (B) at least two years must have been in a supervisory capacity, or (C) any equivalent combination of the required experience and the substitutions below.

Substitutions:

- I. An Associate's degree with a major in the field of data processing or computer programming may be substituted for a maximum of one year of the required (A) experience.*
- II. A Bachelor's degree with a major in the field of data processing or computer and/or information science may be substituted for a maximum of two years of the required (A) experience.*
- III. A Graduate degree with a major in the field of data processing or computer and/or information science may be substituted for a maximum of two years of the required (A) experience.*
- IV. A diploma for completion of a two year full-time, or equivalent part-time, program in a recognized non-degree granting business or vocational/technical school above the high school level with a major in the field of computer programming may be substituted for a maximum of one year of the required (A) experience.*
- V. An official transcript from a recognized business or vocational/technical school as evidence of completion of a program consisting of at least 650 hours of instruction in the field of computer programming may be substituted for a maximum of one year of the required (A) experience.
- VI. Graduation from the data processing course of a recognized vocational/technical high school may be substituted for a maximum of one year of the required (A) experience.*

*Education toward such a degree or diploma will be prorated on the basis of the proportion of the requirements actually completed.

No substitution will be allowed for more than two years of the required (A) experience.

No substitution will be allowed for the required (B) experience.

XIII. SPECIAL REQUIREMENTS:

None.

Occupational Group 14

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