

Western Technical College

10152122 IBM RPG I

Course Outcome Summary

Course Information

Description	Introduces the learner to the AS/400 operating system, OS/400, from a programming and operations perspective. The course has three areas of emphasis: review AS/400 system operations and utilities; introduce Command Language programming; and introduction to the RPG IV programming language.
Career Cluster	Information Technology
Instructional Level	Associate Degree Courses
Total Credits	3
Total Hours	72

Textbooks

Programming in ILE RPG. 5th Edition. Copyright 2015. Buck, Jim and Bryan Meyers. Publisher: Penton Technology Media. **ISBN-13:** 978-1-58347-379-5. Required.

Program Outcomes

1. Design software systems.
2. Integrate database technologies.
3. Develop software applications.
4. Develop technical documentation.

Course Competencies

- 1. Interpret OS/400 procedures to access and explore the AS/400 environment.**

Assessment Strategies

- 1.1. Demonstration

Criteria

You will know you are successful when

- 1.1. you demonstrate mastery of Western Technical College AS/400 access procedure.
- 1.2. you sign on and sign off the AS/400.
- 1.3. you display spool files.
- 1.4. you call a program from the command line.
- 1.5. you use AS/400 menu system.

Learning Objectives

- 1.a. Demonstrate mastery of Western Technical College AS/400 access procedure
- 1.b. Demonstrate ability to sign on and sign off the AS/400
- 1.c. Practice using OS/400 operating system and Western Technical College procedures to explore the AS/400 components and features
- 1.d. Apply knowledge to display spool files
- 1.e. Apply knowledge to call a program from the command line
- 1.f. Apply knowledge to use AS/400 menu system

2. Use OS/400 and Western Technical College procedures to enter, compile, execute and print results from applications program languages.

Assessment Strategies

- 2.1. Demonstration

Criteria

You will know you are successful when

- 2.1. you create and edit source programs with Source Entry Utility (SEU) under Program Development Manager (PDM).
- 2.2. you use PDM to compile source programs, DM option or Display Messages command (DSPMSG) to view system messages, SP option to view compiled listings and SEU to correct compile errors in source programs
- 2.3. you use the Call option (C) to CALL command to execute object programs.
- 2.4. you use the Work With Spool Files option (WS) or command (WRKSPLF) to view and redirect compiler and program outputs to the line printer to product hard copies.

Learning Objectives

- 2.a. Create source program members on the AS/400
- 2.b. Create and execute object programs and create printed output from programs on the AS/400

3. Employ Program Development Manager (PDM) and Source Entry Utility (SEU) to enter programs.

Assessment Strategies

- 3.1. Demonstration

Criteria

You will know you are successful when

- 3.1. you explain the relationship between libraries, objects, and members.
- 3.2. you demonstrate the functions available through PDM.
- 3.3. you demonstrate the functions available through SEU.
- 3.4. you describe the difference between program objects and file objects.
- 3.5. you describe the difference between source members and physical file members.
- 3.6. you describe the functions of an object based on the objects type.
- 3.7. you identify subsets of libraries, objects and members.
- 3.8. you navigate through PDM.
- 3.9. you enter RPG programs using SEU commands.
- 3.10. you use SEU for on-line syntax checking .
- 3.11. you execute a program from the command line.

Learning Objectives

- 3.a. Interpret and demonstrate the relationship between libraries, objects, and members.
- 3.b. Ascertain and demonstrate the functions available through PDM.
- 3.c. Ascertain and demonstrate the functions available through SEU.
- 3.d. Differentiate between program objects and file objects.
- 3.e. Differentiate between source members and physical file members.
- 3.f. Describe the functions of an object based on the objects type.
- 3.g. Identify subsets of libraries, objects and members.
- 3.h. Use PDM options to navigate through PDM.
- 3.i. Use SEU commands to enter RPG programs.
- 3.j. Use SEU on-line syntax checking.

3.k. Execute a program from the command line.

4. Manage problems with applications programs using AS/400 features.

Assessment Strategies

- 4.1. Demonstration
- 4.2. Written Objective Test

Criteria

You will know you are successful when

- 4.1. you locate, analyze and correct errors in source programs.
- 4.2. you locate, analyze and correct logic errors in object programs.

Learning Objectives

- 4.a. Apply syntax and logic error correction techniques.
- 4.b. Apply skills to debug a program with AS400 utilities.

5. Acquire basic RPG programming logic.

Assessment Strategies

- 5.1. Demonstration

Criteria

You will know you are successful when

- 5.1. you use edit codes to format numeric fields.
- 5.2. you explain how File Specification (F-Spec) is used to determine which files are used in your program.
- 5.3. you explain how Calculation Specification (C-Spec) is the logic portion of the program.
- 5.4. you explain how Output Specification (O-Spec) is used to determine the printer output layout.

Learning Objectives

- 5.a. Use edit codes to format numeric fields.
- 5.b. Use File Specification (F-Spec) is used to determine which files are used in your program.
- 5.c. Use Calculation Specification (C-Spec) is the logic portion of the program.
- 5.d. Use Output Specification (O-Spec) is used to determine the printer output layout.

6. Use RPG data types to determine what is allowed in programmer defined fields.

Assessment Strategies

- 6.1. Demonstration
- 6.2. Written Objective Test

Criteria

You will know you are successful when

- 6.1. you create standalone fields based on program needs.
- 6.2. you explain how Data Specification (D-Spec) is used to create programmer defined fields.
- 6.3. you create a zoned and packed decimal field and know the difference between them.
- 6.4. you create an indicator standalone field.
- 6.5. you create a data structure sub-field and overlapping sub-field.
- 6.6. you create an indicator standalone field.
- 6.7. you initialize and validate fields in your programs with IBM supplied figurative constants.
- 6.8. you identify difference between numeric and character fields.

Learning Objectives

- 6.a. Use standalone fields based on program needs.
- 6.b. Use Data Specification (D-Spec) is used to create programmer defined fields.
- 6.c. Use a zoned and packed decimal field and know the difference between them.
- 6.d. Use an indicator standalone field.
- 6.e. Use a constant.
- 6.f. Use a data structure subfield and overlapping subfield.
- 6.g. Use IBM supplied figurative constants to initialize and validate fields.
- 6.h. Ascertain difference between numeric and character fields.

7. Ascertain RPG assignment and arithmetic operations.

Assessment Strategies

- 7.1. Written Objective Test
- 7.2. Project

Criteria

You will know you are successful when

- 7.1. you use EVAL statement for arithmetic operations.
- 7.2. you identify when rounding is necessary.
- 7.3. you assign values to numeric fields with figurative constants.
- 7.4. you calculate remainders with the %REM command.
- 7.5. you perform division with the %DIV command.

Learning Objectives

- 7.a. Utilize EVAL statement for arithmetic operations.
- 7.b. Ascertain when rounding is necessary.
- 7.c. Assign values to numeric fields with figurative constants.
- 7.d. Calculate remainders with the %REM command.
- 7.e. Apply division with the %DIV command.

8. Apply top-down, structured program design.

Assessment Strategies

- 8.1. Written Objective Test
- 8.2. Project

Criteria

You will know you are successful when

- 8.1. you conceptualize that the computer processes commands sequentially.
- 8.2. you explain that selection lets you establish alternate paths of instructions within a program.
- 8.3. you explain that iteration permits instructions within the program to be repeated until a condition is met or no longer is met.
- 8.4. you use the IF command for selection.
- 8.5. you use the SELECT command.
- 8.6. you use RPG page overflow logic.
- 8.7. you use the DOW, DOU, and FOR commands for iteration.
- 8.8. you use the LEAVE command to leave a loop.
- 8.9. you use the ITER command to repeat the loop.
- 8.10. you create subroutines to make the program readable.

Learning Objectives

- 8.a. Interpret the computer processes commands sequentially.
- 8.b. Interpret that selection lets you establish alternate paths of instructions within a program.
- 8.c. Discover that iteration permits instructions within the program to be repeated until a condition is met or no longer is met.
- 8.d. Use the IF command for selection.
- 8.e. Use the SELECT command.
- 8.f. Use RPG page overflow logic.
- 8.g. Use the DOW, DOU, and FOR commands for iteration.
- 8.h. Use the LEAVE command to leave a loop.
- 8.i. Use the ITER command to repeat the loop.
- 8.j. Produce subroutines to make the program readable.

9. Apply file access and record manipulation.

Assessment Strategies

- 9.1. Written Objective Test
- 9.2. Project

Criteria

You will know you are successful when

- 9.1. you use the READ command to process a file sequentially.

- 9.2. you use the SETLL command to position the file pointer to the closest record with the specified key.
- 9.3. you use the READE command to process a file sequentially until the key changes.
- 9.4. you use the CHAIN command to retrieve records from a file based on a specific key.
- 9.5. you use the WRITE command to write a record to a file.
- 9.6. you use the DELETE command to delete a record from a file.
- 9.7. you use the UPDATE command to update a record on a file.

Learning Objectives

- 9.a. Utilize the READ command to process a file sequentially.
- 9.b. Utilize the SETLL command to position the file pointer to the closest record with the specified key.
- 9.c. Utilize the READE command to process a file sequentially until the key changes.
- 9.d. Utilize the CHAIN command to retrieve records from a file based on a specific key.
- 9.e. Utilize the WRITE command to write a record to a file.
- 9.f. Utilize the DELETE command to delete a record from a file.
- 9.g. Utilize the UPDATE command to update a record on a file.