Define function VALIDATE\_INP (parameters: INP, FUNC, ERR\_MSG (default: “Invalid input (was it formatted correctly?). ”), INP\_MSG (default: “Please re-enter your answer: ”):

Boolean REPEAT\_CNV = true

While REPEAT\_CNV = true:

REPEAT\_CNV = false

Try:

FUNC (INP)

Except if value error occurs:

Display text: ERR\_MSG

INP = input (prompt: INP\_MSG)

REPEAT\_CNV = true

Return value: INP to calling function

Define function PARSE\_ID (parameters: ID):

If ID not = alphanumeric:

Remove all instances of “ ” from ID

If length of ID = 7 and slice of ID (1-3) = only alphabetical and slice of ID (4-7) = only digits:

List ID = (uppercase slice of ID (1-3), slice of ID (4-7))

Else:

Raise error: value error

Return value: ID to calling function

Define function GET\_ID:

Dictionary COURSES = () (empty)

While true (continue indefinitely):

Text ID = input (prompt: “Enter a course ID: ”)

If lowercase ID = “end”:

Break out of loop

ID = VALIDATE\_INP (ID, PARSE\_ID)

If ID (index: 1) not in COURSES:

COURSES (key: ID (index: 1)) = ID (index: 2)

Else:

COURSES (key: ID (index: 1)) += ID (index: 2)

Return value: COURSES to calling function

Define function LIST\_COURSES (COURSES):

SUBJECT = input (prompt: “Enter a subject ID: ”)

Display text: COURSES (key: SUBJECT)

Define function MAIN:

COURSES = GET\_ID

LIST\_COURSES (COURSES)

MAIN