



COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

<p>ANDROID APP DEVELOPMENT 2 CIS1754 3 Credit Hours</p>
--

Student Level:

This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:

CIS1754 –ANDROID APP DEVELOPMENT 2 (3 hrs)

This course will prepare students to code apps with extended features for the Android operating system. The topics will include local data storage, SQLite database, external databases, content providers, unit testing, audio playback, locations, play services, object oriented programming, and 2D game development.

Prerequisites:

CIS1753– ANDROID APP DEVELOPMENT 1.

Co-requisites:

None

Controlling Purpose:

This course is designed to prepare students to code apps with extended features on the Android operating system. These concepts provide a foundation for further courses in Android app development as well as creating midsize apps for use in industry.

Learner Outcomes:

Upon completion of the course, the student will be able to code apps including the following topics: local data storage, SQLite database, external databases, content providers, unit testing, audio playback, locations, play services, object oriented programming, and 2D game development.

Units Outcomes and Clock Hours of Instruction for Core Curriculum:

The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is

considerably above the minimum required for doing more advanced work in the same field.

- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.
- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
- D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

UNIT 1: Storing Data on Android						
Outcomes: Demonstrate knowledge of how to access data stored locally on the Android device and when SQLite databases are necessary in an app						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Use SharedPreferences
						Implement internal and external storage methods
						Describe SQLite databases

UNIT 2: Using a SQLite Database						
Outcomes: Demonstrate the knowledge necessary to manipulate data in an SQLite database						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Create advanced SQLite schemas
						Use wrappers for SQLite databases
						Debug an SQLite database
						Display activities as dialog windows
						Describe the concept of intents
						Display alerts to the user using notifications
						Build SQLite queries including SELECT, WHERE filters and SQL operators, DISTINCT and LIMIT clauses, ORDER BY, GROUP BY, and HAVING

UNIT 3: Using Content Providers						
Outcomes: Explain how to use advanced content providers to enhance the user interface of the app						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Define a content provider
						Implement a content provider
						Access a content provider

UNIT 4: Android Databases in Practice						
Outcomes: Describe how databases can be used in an app						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe when to use a local database
						Discuss databases as caches
						Design a typical application using databases

UNIT 5: External Databases and Collecting Data						
Outcomes: Describe the techniques of accessing data stored in an external database						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Discuss different external databases and their benefits
						Describe Google App Engine and JDO databases
						Create a PersistenceManager and queries
						List methods for collecting data
						Use web scraping
						Extend HTTP servlets for GET/POST methods
						Schedule CRON jobs
						Implement HTTP GET requests
						Parse responses
						Binding resulting data to the UI

UNIT 6: Unit Testing and Audio Playback

Outcomes: Explain the purpose of unit testing, setup a unit testing situation, and play audio in an app

A	B	C	D	F	N	Specific Competencies:
						Create a SoundPool
						Load and play sounds
						Test dependencies
						Create a test class
						Set up the test
						Write the test
						Unload sounds

UNIT 7: Flickr, Locations, and Play Services

Outcomes: Use various external sites and services to enhance an Android app including Flickr, Google Play services, and Maps API key

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Implement a search on Flickr
						Use SearchView
						Create and use your own content provider
						Setup and use Google Play services
						Implement Flickr Geosearch
						Import play services maps
						Describe mapping on Android
						Get a Maps API Key
						Setup and work with a map

UNIT 8: Object Oriented Programming

Outcomes: Explain how to implement object oriented programming including classes, encapsulation, inheritance, and polymorphism

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Define object oriented programming
						Use classes, encapsulation, inheritance, and polymorphism

UNIT 9: Game Development on the Android						
Outcomes: Explain how to write simple 2D games on the Android operating system						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Create and import assets
						Manage user input
						Implement collision handling
						Use sprites
						Create realistic special effects using particle systems
						Play sound FX and music
						Build menus and dialogs
						Implement animations using the Animation Framework
						Integrate Google Play Services

Projects Required:

Varies, refer to syllabus.

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

None

Attendance Policy:

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Time Frame:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended

learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.