



**COWLEY COLLEGE  
& Area Vocational Technical School**

**COURSE PROCEDURE FOR**

<p><b>ANDROID APP DEVELOPMENT 1 CIS1753    3 Credit Hours</b></p>
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**Student Level:**

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

**Catalog Description:**

**CIS1753 –ANDROID APP DEVELOPMENT 1 (3 hrs)**

This course will prepare students to code apps for the Android operating system. The topics will include activities, fragments, intents, UI creation tools, pictures, menus, data storage, content providers, messaging, location-based services, networking, and developing Android services.

**Prerequisites:**

None.

**Co-requisites:**

None

**Controlling Purpose:**

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

**Learner Outcomes:**

Upon completion of the course, the student will be able to code apps including the following topics: activities, fragments, intents, UI creation tools, pictures, menus, data storage, content providers, messaging, location-based services, networking, and developing Android services.

**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.

<b>UNIT 1: Android App Development Environment</b>						
Outcomes: Demonstrate knowledge of the features of the interactive development environment in Android Studio as well as describe the Android architecture						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe the Android operating system
						List Android versions and their feature set
						Define the Android architecture
						Compare the Android devices on the market
						Visit the Android Market application store
						Obtain the tools and SDK for developing Android applications
						Develop a "Hello World" Android application
						Move around in the Integrated Development Environment (IDE)
						Use code completion
						Use breakpoints to debug applications

<b>UNIT 2: Activities, Fragments, and Intents</b>						
Outcomes: Demonstrate the knowledge necessary to implement activities, fragments, and intents within an Android app						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						List the life cycles of an activity
						Use fragments to customize the UI
						Apply styles and themes to activities

						Display activities as dialog windows
						Describe the concept of intents
						Display alerts to the user using notifications

<b>UNIT 3: The Android User Interface</b>						
Outcomes: Describe how to create a user interface using different components in an in Android app						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe how ViewGroups and Layouts can be used to lay out views and organize the application screen
						Adapt and manage changes in screen orientation
						Create the UI programmatically
						Listen for UI notifications

<b>UNIT 4: Designing Your User Interface with Views</b>						
Outcomes: Describe how to create a user interface using different views in an Android app						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Use the basic views in Android to design the user interface
						Implement the picker views to display lists of items
						Utilize the list views to display lists of items
						Use specialized fragments

<b>UNIT 5: Displaying Pictures and Menus with Views</b>						
Outcomes: Describe the techniques of displaying pictures, display menus, and web content via WebView						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Use the ImageSwitcher, GridView, and ImageView views to display images
						Display options menus and context menus
						Display web content using the WebView view

<b>UNIT 6: Data Persistence</b>
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**Outcomes:** Explain the purpose of data persistence and write apps that stored off data in different methods such as SharedPreferences, internal storage, external storage, and SQLite databases

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Save simple data using the SharedPreferences object
						Enable users to modify preferences using a PreferenceActivity class
						Write and read files in internal and external storage
						Create and use a SQLite database

**UNIT 7: Content Providers**

**Outcomes:** Explain how to use content providers to provide additional features within an app including self-created content providers

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe content providers
						Use a content provider in Android
						Create and use your own content provider

**UNIT 8: Messaging**

**Outcomes:** Explain how to use SMS to both send and receive messages within an app

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Send SMS messages programmatically from within the application
						Send SMS messages using the built-in Messaging application
						Receive incoming SMS messages
						Send email messages from the application

**UNIT 9: Location-Based Services**

**Outcomes:** Explain how to use location-based services in an app including Google Maps, geocoding, GPS, Cell-ID, and Wi-Fi triangulation

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Display Google Maps in an Android application
						Display zoom controls on the map
						Switch between the different map views

						Retrieve the address location touched on the map
						Perform geocoding and reverse geocoding
						Obtain geographical data using GPS, Cell-ID, and Wi-Fi triangulation
						Monitor for a location
						Build a location tracker application

**UNIT 10: Networking**

Outcomes: Explain how to write apps that use the following networking protocols and services: HTTP, XML, JSON, and a socket server

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						How to connect to the web using HTTP
						How to consume XML web services
						How to consume JSON web services
						How to connect to a Socket server

**UNIT 11: Developing Android Services**

Outcomes: Explain how to create an Android service that runs in the background and how services work in the Android environment

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Create a service that runs in the background
						Perform long-running tasks in a separate thread
						Perform repeated tasks in a service
						Describe how an activity and a service communicate

**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.