# *Developing HTML5 Mobile Applications*

## Ict-Applications & Programming

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| **Course Number:** | **Co-Requisites:** | **Pre-Requisites:** |
| MAD9135 | N/A | MAD9022 and MAD9124 |
| **Applicable Program(s):** | **AAL:** | **Core/Elective:** |
| 1515X01FWO - Mobile App. Des. & Dev | 3 | Core |
| **Prepared by:** | Professor Steve Griffith, Coordinator | |
| **Approved by:** | Sandra Brancatelli, Chair, ICT - Applications & Programming | |
| **Approval Date:** | Monday, July 29, 2019 | |
| **Approved for Academic Year:** | 2019-2020 | |
| **Normative Hours:** | 56.00 | |

## Course Description

Students leverage acquired HTML5 and Javascript skills to create both web and hybrid apps. Students learn to develop web apps using modern Frameworks such as React, Angular JS, Vue, Backbone or Ember. Students also learn to develop hybrid apps using Frameworks such as Cordova, PhoneGap, and React Native. The use of task automation and productivity tools is also explored. Hands-on development of applications for multiple platforms is the goal. Designing to conserve battery life on mobile devices is stressed.

## Relationship to Vocational Learning Outcomes

This course contributes to your program by helping you achieve the following Vocational Learning Outcomes:

**1515X01FWO - Mobile App. Des. & Dev**

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| VLO 1 | Identify requirements and implement mobile solutions. (T, A,) |
| VLO 4 | Design and develop websites that deploy to different devices and platforms. (CP,) |
| VLO 5 | Design and develop cross-platform applications built with rich-media and HTML-based technologies. (T, A, CP,) |
| VLO 9 | Build, test, and deploy secure mobile solutions using appropriate network technologies. (T, A,) |

## Relationship to Essential Employability Skills

This course contributes to your program by helping you achieve the following Essential Employability Skills:

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|---|---|
| EES 4 | Apply a systematic approach to solve problems. (T, A) |
| EES 5 | Use a variety of thinking skills to anticipate and solve problems. (CP) |
| EES 7 | Analyze, evaluate and apply relevant information from a variety of sources. (CP) |
| EES 10 | Manage the use of time and other resources to complete projects. (T, A) |

## Course Learning Requirements/Embedded Knowledge and Skills

When you have earned credit for this course, you will have demonstrated the ability to:

**1.) Create web apps using a JavaScript-based framework such as React JS.**

Construct web apps using the ReactJS framework and JSX.

Construct web apps using the ReactJS framework without JSX.

Build nested components with ReactJS that leverage the React state and props objects to manage data.

Construct web apps with ReactJS that include imported Routing modules to manage navigation.

Determine which React features best suit the development of a web app by using the official React documentation.

Research and incorporate external libraries in React-based solutions for web apps.

Integrate an external data source into a React-based web app.

**2.) Build a mobile application using a JavaScript-based framework solutions such as React with React Native.**

Use the React framework with React Native to construct a mobile application.

Incorporate an external data source into a React Native application.

Incorporate external libraries into a React Native application to access native device capabilities.

Style mobile applications using the built-in React Native CSS equivalent in a manner that is appropriate for a specific native platform - iOS or Android.

Integrate an external set of styled components in a React Native application.

Use Expo to test and deploy a React Native application.

Produce a production ready version of a React Native application.

Install and run a React Native application on a physical device.

**3.) Explain the differences between a mobile web app, a hybrid app and a native app.**

Create a mobile web page that is optimized to load and run on a mobile browser.

Explain the differences between Cordova, React and React Native

Explain the differences between a PWA, a website, a hybrid application, and a native mobile application.

**4.) Plan the working environment for the development and testing of web and mobile applications using JavaScript-based tools, libraries, and frameworks.**

Outline the requirements for building different mobile applications.

Demonstrate how to use a JavaScript Testing framework to do unit testing on a JavaScript based application.

Demonstrate how to customize a JavaScript tool for compressing, concatenating, and transpiling applications.

**5.) Identify native moblie device capabilities that can and cannot be accessed with HTML5/JavaScript based technologies.**

Outline the mobile device capabilities which can be accessed through React Native plugins.

Explain what native plugins for cross platform solutions are.

Explain how to add native device capabilities to a web technology based mobile app with React Native.

## Learning Resources

Online written and video tutorials

Lynda.com videos

Safari Books online

CodeSchool.com

PluralSight.com

Git and GitHub

CodePen

YouTube video tutorials

## Learning Activities

In class assignments;

Homework assignments;

Videos;

Following tutorials;

Collaboration, group projects;

Reviews, research;

Working with the instructor / professor.

## Evaluation/Earning Credit

The following list provides evidence of this course's learning achievements and the outcomes they validate:

Assignment(s) (30%)

Validates Outcomes: CLR 1, CLR 2, CLR 3, EES 4

Hybrid Assignment(s) (30%)

Validates Outcomes: CLR 3, CLR 4, CLR 5, EES 10

Project(s) (40%)

Validates Outcomes: CLR 1, CLR 2, CLR 4, EES 4, EES 10

Students are expected to meet evaluation and completion deadlines as stated in course outline and course section information documents. In circumstances where evaluation and/or completion deadlines are missed or student performance has been affected by a temporary or permanent disability (including mental health), interim or retroactive accommodations may be considered. In such instances, please consult your course faculty member. For other situations where deferral of evaluations may be warranted, please refer to college policy AA21.

## Prior Learning Assessment and Recognition

Students who wish to apply for prior learning assessment and recognition (PLAR) need to demonstrate competency at a post-secondary level in all of the course learning requirements outlined above. Evidence of learning achievement for PLAR candidates includes:

- Portfolio
- Performance Test
- Project/Assignment

## Grade Scheme

| Final Grade | Mark Equivalent | Numeric Value | Final Grade | Mark Equivalent | Numeric Value |
|---|---|---|---|---|---|
| A+ | 90% - 100% | 4.0 | A | 85% - 89% | 3.8 |
| A- | 80% - 84% | 3.6 | B+ | 77% - 79% | 3.3 |
| B | 73% - 76% | 3.0 | B- | 70% - 72% | 2.7 |
| C+ | 67% - 69% | 2.3 | C | 63% - 66% | 2.0 |
| C- | 60% - 62% | 1.7 | D+ | 57% - 59% | 1.4 |
| D | 53% - 56% | 1.2 | D- | 50% - 52% | 1.0 |
| F | 0% - 49% | 0 | FSP | 0 | 0 |

## Course Related Information

Please refer to the Course Section Information (CSI) / weekly schedule for specific course-related information as provided by your professor.

## Program Related Information

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The late policy for assignments is a 10% per day deduction to a maximum of 30%.

If an assignment is still not submitted 10 days after the due date then a grade of zero will be given for the assignment. Students can still submit work for review and feedback after the 10 days but no grade will be given.

Any extensions to due dates must be arranged with the course instructor BEFORE the due date.

## Department Related Information

STUDENT ACADEMIC RESPONSIBILITIES

Each student is responsible for:
• Knowing the due dates for marked out-of-class assignments.
• Attending all classes and knowing the dates of in-class marked assignments and exercises.
• Maintaining a folder of all work done in the course during the semester for validation claims in cases of disagreement with faculty.
• Keeping both paper and electronic copies of all assignments, marked and unmarked, in case papers are lost or go missing.
• Regularly checking both Blackboard announcements as well as one's Algonquin e-mail account for important messages from both professors and college administration.
• Participating in on-line and classroom exercises and activities as required.
• Retaining course outlines for possible future use to support applications for transfer of credit to other educational institutions.

**Harassment/Discrimination/Violence will not be tolerated.** Any form of harassment (sexual, racial, gender or disability-related), discrimination (direct or indirect), or violence, whether involving a professor and a student or amongst students, will not be tolerated on the college premises. Action taken will start with a formal warning and proceed to the full disciplinary actions as outlined in Algonquin College Policies - HR22 and SA07.
Harassment means one or a series of vexatious comment(s) (whether done verbally or through electronic means), or conduct related to one or more of the prohibited grounds that is known or ought reasonably to be known to be unwelcome/unwanted, offensive, intimidating, derogatory or hostile. This may include, but is not limited to: gestures, remarks, jokes, taunting, innuendo, display of offensive materials, offensive graffiti, threats, verbal or physical assault, stalking, slurs, shunning or exclusion related to the prohibited grounds.

For further information, a copy of the official policy statement can be obtained from the Student Association.

### Violation of the Copyright Act

**General – The Copyright Act** makes it an offence to reproduce or distribute, in whatever format, any part of a publication without the prior written permission of the publisher. For complete details, see the Government of Canada website at http://laws.justice.gc.ca/en/C-42 . Make sure you give it due consideration, before deciding not to purchase a textbook or material required for your course.

**Software Piracy - The Copyright Act** has been updated to include software products. Be sure to carefully read the licensing agreement of any product you purchase or download, and understand the terms and conditions covering its use, installation and distribution (where applicable). Any infringement of licensing agreement makes you liable under the law.

**Disruptive Behaviour** is any conduct, or threatened conduct, that is disruptive to the learning process or that interferes with the well being of other members of the College community. It will not be tolerated. Members of the College community, both students and staff, have the right to learn and work in a secure and productive environment. The College will make every effort to protect that right. Incidents of disruptive behaviour must be reported in writing to the departmental Chair as quickly as possible. The Chair will hold a hearing to review available information and determine any sanctions that will be imposed. Disciplinary hearings can result in penalties ranging from a written warning to expulsion.

For further details, consult the Algonquin College Policies AA32, SA07 and IT01 in your Instaguide.

## College Related Information

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### Email

Algonquin College provides all full-time students with an e-mail account. This is the address that will be used when the College, your professors, or your fellow students communicate important information about your program or course events. It is your responsibility to ensure that you know how to send and receive e-mail using your Algonquin account and to check it regularly.

### Students with Disabilities

If you are a student with a disability, you are strongly encouraged to make an appointment at the Centre for Accessible Learning to identify your needs. Ideally, this should be done within the first month of your program, so that a Letter of Accommodation (LOA) can be provided to your professors. If you are a returning student, please ensure that professors are given a copy of your LOA each semester.

### Retroactive Accommodations

Students are expected to meet evaluation and completion deadlines as stated in course outline and course section information documents. In circumstances where evaluation and/or completion deadlines are missed or student

performance has been affected by a temporary or permanent disability (including mental health), interim or retroactive accommodations may be considered. In such instances, please consult your course faculty member. For other situations where deferral of evaluations may be warranted, please refer to college policy AA21.

### Academic Integrity & Plagiarism

Adherence to acceptable standards of academic honesty is an important aspect of the learning process at Algonquin College. Academic work submitted by a student is evaluated on the assumption that the work presented by the student is his or her own, unless designated otherwise. For further details consult Algonquin College Policies AA18: Academic Dishonesty and Discipline and AA20: Plagiarism

### Student Course Feedback

It is Algonquin College's policy to give students the opportunity to share their course experience by completing a student course feedback survey for each course they take. For further details consult Algonquin College Policy AA25: Student Course Feedback

### Use of Mobile Devices in Class

With the proliferation of small, personal mobile devices used for communications and data storage, Algonquin College believes there is a need to address their use during classes and examinations. During classes, the use of such devices is disruptive and disrespectful to others. During examinations, the use of such devices may facilitate cheating. For further details consult Algonquin College Policy AA32: Use of Mobile Devices in Class

### Transfer of Credit

It is the student's responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.

***Note:*** *It is the student's responsibility to refer to the Algonquin College Policies website for the most current information at http://www.algonquincollege.com/policies/*

## Legend

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### Terms

•ALO: Aboriginal Learning Outcome
•Apprenticeship LO: Apprenticeship Learning Outcome
•CLR: Course Learning Requirement
•DPLO: Degree Program Learning Outcome
•EES: Essential Employability Skill
•EOP: Element of Performance
•GELO: General Education Learning Outcome
•LO: Learning Outcome
•PC: Program Competency
•PLA: Prior Learning Assessment
•PLAR: Prior Learning Assessment and Recognition
•VLO: Vocational Learning Outcome

### Assessment Levels

- T: Taught
- A: Assessed
- CP: Culminating Performance