

Area of Interest: Computers and Technology

Mobile Application Design and Development

Ontario College Diploma

2 Years

Ottawa Campus

Academic Year: 2018/2019

Program Code: 1515X01FWO

Our Program

This two-year Ontario College Diploma program prepares students for careers in the expanding and evolving fields of mobile web and application development. Students learn the design of user interfaces, user experience and usability of mobile solutions. They engage in cross-platform, mobile web and native application development.

Students effectively design mobile website interfaces that work across multiple platforms and devices. Students also learn to build native applications for mobile devices, such as smartphones and tablets. Emphasis is placed on a hands-on approach to developing sites and applications. Real-world applications and solutions are created with a variety of technologies and programming languages. Diverse topics, such as user experience design, web security, online mobile marketing, user interface design and native smartphone application development with the latest standard web technologies are examined.

The rapid proliferation of mobile devices combined with the demand for continuous information access by consumers is creating exciting employment opportunities. Graduates may find employment in all levels of government, including healthcare and education, as well as business, marketing and communications.

Bring Your Own Device (BYOD): Students are expected to have and use a laptop or mobile computing device when registered in this on-campus program. Hardware and software specifications required by your program are outlined at <http://algonquincollege.com/byod>. Mobile devices/laptops and supplies can be purchased directly from Algonquin's New Technology Store at educational rates.

- Are interested in working with computers and mobile devices, such as smartphones and tablets.
- Enjoy the challenge of working with evolving mobile technology.
- Have good problem-solving skills and enjoy solving logic problems.
- Enjoy non-repetitive tasks and the challenge of developing new and creative solutions for mobile applications.
- Can work independently and as a productive member of a team.
- Are organized in their work and pay attention to detail.
- Are committed and dedicated.
- Are proficient with basic computer skills, such as keyboarding and the use of office software suite.

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Employment

Graduates may be employed in a wide variety of positions in both the public and private sectors. These include, ecommerce developer, interactive designer, interface designer, web designer, client-side web developer, server-side web developer, hybrid application developer, user experience designer, new media designer, production assistant, project manager, business analyst, mobile

application usability tester, mobile application marketer, technical project lead, programmer, online marketer, online advertising production worker, online entrepreneur, mobile entrepreneur, production coordinator, mobile application interaction designer or mobile application developer.

Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Identify requirements and implement mobile solutions.
- Promote mobile technology solutions using business communication and marketing skills.
- Create effective user interfaces that leverage evolving mobile device capabilities.
- Design and develop websites that deploy to different devices and platforms.
- Design and develop cross-platform applications built with rich-media and HTML-based technologies.
- Design and develop device-specific, native applications.
- Research and apply various software development kits (SDKs), frameworks and toolkits.
- Integrate database and server-side technologies to provide complete mobile development solutions.
- Build, test, and deploy secure mobile solutions using appropriate network technologies.
- Collaborate in a team-based, mobile development project.
- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

Program of Study

Level: 01	Courses	Hours
MAD8010	Digital Citizenship	45.0
MAD9010	Graphics Technologies	45.0
MAD9013	Cross-Platform Web Development	60.0
MAD9014	Cross-Platform Application Development I	60.0
MAD9111	Fundamentals of Computer Hardware and Networking	60.0
Level: 02	Courses	Hours
DSN2100M	Design Thinking	45.0
ENL1813T	Communications I	45.0
MAD9020	User Interface Design	45.0
MAD9021	Introduction to Object Oriented Programming	60.0
MAD9022	Cross-Platform Application Development II	60.0
MAD9124	Mobile API Development	75.0
Level: 03	Courses	Hours
ENL8720	Technical Communication for Technicians	45.0
MAD9034	User Experience Design	60.0
MAD9132	Android Application Development	75.0
MAD9135	Developing HTML5 Mobile Applications	60.0
MAD9137	IOS Development	75.0
Level: 04	Courses	Hours
MAD9042	Best Practices for Mobile Development	60.0
MAD9143	Business for the Mobile Industry	45.0
MAD9145	Applied Project	90.0

MAD9146	Windows Development for Mobile	75.0
Choose one from equivalencies: Courses		Hours
GED1515	General Education Elective	45.0

Fees for the 2018/2019 Academic Year

Program fees listed are for the **2018/2019** Academic Year.

Total Level 01 program fees are \$2,721.81 as detailed below:

Program Fees:

Tuition: \$1,512.54

eText: \$ 130.00

Compulsory Ancillary Fees:

Student Activity: \$ 217.37

Sports: \$ 72.63

Technology: \$ 159.62

Transcript: \$ 20.00

Health Services: \$ 20.00

Student Experience: \$ 18.00

Health Plan: \$ 153.19 *

U-Pass: \$ 415.04 *

U-Pass Admin: \$ 3.42 *

* Assessed once annually at the beginning of each academic year.

International students pay all fees listed above (excluding the Health Plan fee) plus:

International Premium: \$4,577.00

International Health Insurance: \$ 696.00

Fees are subject to change.

For further fees information please visit: www.algonquincollege.com/ro.

Students are required to have a functioning MacBook Pro laptop at all lecture and lab classes. Students must also provide their own smartphone and tablet.

Important! Detailed specifications for which MacBook Pro to purchase can be found at: <http://tinyurl.com/madd-byod>.

We highly recommend that students purchase enough extended Applecare protection for their MacBook Pro to cover 2 years.

For details, see <https://apple.com/ca/support/products/mac.html>.

Students must provide their own activated and functioning smartphone from the following list:

- Android smartphone (Android version 6 or higher)
- iPhone 6 (or higher)
- Windows Phone 10 (or higher)

Textbooks and supplies:

Course textbooks including etextbooks

- Thunderbolt to Gigabit Ethernet adapter

Estimated costs:

- MacBook Pro laptop: approximately \$3,000 - \$3,500

- Smartphone: \$300 to \$700
- Textbooks: \$250 per term
- Thunderbolt to Gigabit Ethernet adapter: \$50

Special note for OSAP students: OSAP automatically includes a \$500 technology hardware allotment. You can put the amount towards the purchase of your MacBook Pro.

Admission Requirements for the 2019/2020 Academic Year

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or Mathematics courses at the Basic Level, or with Workplace or Open courses, will be tested to determine their eligibility for admission; OR
- Academic and Career Entrance (ACE) certificate; OR
- General Educational Development (GED) certificate; OR
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of \$50 (subject to change) will be charged.

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- English, Grade 12 (ENG4C or equivalent).
- Mathematics, Grade 12 (MAP4C or equivalent).
- International applicants must provide proof of the subject-specific requirements noted above along with proof of either: (IELTS / TOEFL) IELTS-International English Language Testing Service (Academic) Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT) Overall 80, with a minimum of 20 in each component: Reading 20; Listening 20; Speaking 20; Writing 20.
- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency.

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Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

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- General Educational Development (GED) certificate; **OR**
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of \$50 (subject to change) will be charged.

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- English, Grade 12 (ENG4C or equivalent).
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- Applicants with International transcripts must provide proof of the subject specific requirements noted above along with proof of either: IELTS-International English Language Testing Service-Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT)-overall 80, with the minimum of 20 in each component: Reading 20; Listening:

- Applicants with International transcripts must provide proof of the subject specific requirements noted above along with proof of either: IELTS-International English Language Testing Service-Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT)-overall 80, with the minimum of 20 in each component: Reading 20; Listening: 20; Speaking: 20; Writing: 20.

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Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

Application Information

MOBILE APPLICATION DESIGN AND DEVELOPMENT
Program Code 1515X01FWO

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca
60 Corporate Court
Guelph, Ontario N1G 5J3
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at www.ontariocolleges.ca.

Applications for Fall Term and Winter Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information: <https://algonquincollege.force.com/myACint/>.

For further information on the admissions process, contact:

Registrar's Office
Algonquin College
1385 Woodroffe Ave, Room C150
Ottawa, ON K2G 1V8
Telephone: 613-727-0002
Toll-free: 1-800-565-4723
TTY: 613-727-7766
Fax: 613-727-7632
Email: AskUs@algonquincollege.com

Additional Information

Although basic computer skills are recommended, programming experience is not a requirement to enter the program.

For more information, please email the Program Coordinators Steve.Griffith@algonquincollege.com or Gerald.Hurdle@algonquincollege.com.

Course Descriptions

DSN2100M Design Thinking

Design Thinking uses a designer mindset to produce business innovations in products and services, with a focus on deep understanding of and empathy with the people who use them. Following a holistic innovation process for an area of interest or organization, students build an initial business case and apply design thinking and creative problem-solving strategies to make innovation a sustainable practice.

Prerequisite(s): none

Corerequisite(s):none

ENL1813T Communications I

Communication remains an essential skill sought by employers, regardless of discipline or field of study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practice writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none

Corerequisite(s):none

ENL8720 Technical Communication for Technicians

Clear, concise and detailed communication is essential for technical workplaces. Students plan and execute a variety of formal and informal visual, oral and written communication tasks. Exercises and activities foster confidence and competence in workplace communication.

Prerequisite(s): ENL1813T

Corerequisite(s):none

GED1515 General Education Elective

Students choose one course, from a group of general education electives, which meets one of the following four theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, and Science and Technology.

Prerequisite(s): none

Corerequisite(s):none

MAD8010 Digital Citizenship

Increasingly, students are experiencing online components as part of their course delivery. Blended and online courses require specific skills and knowledge essential for student success in these environments. Significant emphasis is placed on the social aspects of learning, time management and study skills, socio-cultural aspects of learning, community building, group work and networking. The content is scaffolded using three delivery modes: face-to-face, blended and online. Students identify motivations for learning, understanding and level of ability, and self-directed learning competencies. Students also develop online communication skills, explore effective ways to communicate in an online environment, and learn how to give constructive and proactive feedback to others even when they do not share the same point of view.

Prerequisite(s): none

Corerequisite(s):none

MAD9010 Graphics Technologies

Students are introduced to graphics and illustration programs in the computer environment. Students also learn skills and production techniques which help to design effective interfaces for websites, mobile websites and mobile applications. Focus is placed on hands-on learning of software, such as Adobe Photoshop and Illustrator. Basic design concepts are covered within the context of becoming productive with the software packages.

Prerequisite(s): none

Corerequisite(s):none

MAD9013 Cross-Platform Web Development

Technologies on the web evolve quickly. Every year brings new devices and with them new capabilities. These devices present many challenges and opportunities to web developers. Fundamentals of web development using hypertext markup language (HTML), and cascading style sheets (CSS) are reviewed, with a focus on developing responsive and mobile websites.

Multiple IDEs are introduced and used to complete hands-on projects.

Prerequisite(s): none

Corerequisite(s):MAD9014

MAD9014 Cross-Platform Application Development I

While developing native applications for mobile devices holds many advantages, not every application requires direct access to native capabilities and there are many ways web developers can build applications using the programming skills they already possess. Students use HTML, CSS and Javascript to build applications which can quickly be deployed to multiple mobile platforms, such as iPhone and Android. Designing to conserve battery life is introduced as a concept in this course. Using mobile marketplaces to publish and market applications is introduced.

Prerequisite(s): none

Corerequisite(s):MAD9013

MAD9020 User Interface Design

Students learn how to create functional, efficient and enjoyable interfaces. They gain an appreciation for the challenges of building websites and applications that remain functional across different devices and platforms. Usability that allows people to complete tasks on any device, any time, is emphasized. Focus is placed on practical application of students' design software experience in the creation of mobile application interfaces.

Prerequisite(s): MAD9010

Corerequisite(s):none

MAD9021 Introduction to Object Oriented Programming

Students learn the fundamentals of object-oriented programming within the context of mobile application development. Emphasis is placed on the concepts of Classes, Encapsulation, Polymorphism and Inheritance. Concepts are taught while using multiple IDEs and multiple programming languages, in preparation for native mobile application development.

Prerequisite(s): MAD9014

Corerequisite(s):none

MAD9022 Cross-Platform Application Development II

HTML-based web technologies, including a wide variety of Javascript toolkits and APIs, are used to create Hybrid Mobile applications that leverage native device capabilities. More advanced approaches to application development with Javascript are investigated. Designing to conserve battery life on mobile devices is emphasized.

Prerequisite(s): MAD9014

Corerequisite(s):none

MAD9034 User Experience Design

Going beyond the basics of graphics and user interface fundamentals, students learn how to combine these elements to create intuitive, efficient and enjoyable products. Students are introduced to a user-centered approach to designing mobile applications. Students begin with user research and build toward creating interaction design specifications in the form of wireframe documents. Topics such as information architecture, navigation and orientation, and interaction design principles are discussed and applied.

Prerequisite(s): MAD9020

Corerequisite(s):none

MAD9042 Best Practices for Mobile Development

Having studied the development of web apps, hybrid apps, native apps, and server-side technologies for mobile, students are encouraged to use methodologies for consolidating their skills. Topics include web security, the role of mobile devices in the Internet of Things, the use of Open Data and Javascript APIs. Through their assignments, students are also encouraged to participate in conferences, hack-a-thons and mobile development contests.

Prerequisite(s): none

Corerequisite(s):none

MAD9111 Fundamentals of Computer Hardware and Networking

Students learn how network-enabled devices communicate with each other, what protocols are and why they are important. Differences in desktop, laptop and mobile device hardware, as well as some of the practical differences between the Windows, Linux and Mac operating systems are also exposed. Students work individually, as well as with other students to complete tasks.

Prerequisite(s): none

Corerequisite(s):none

MAD9124 Mobile API Development

Students enhance their JavaScript skills to become productive with Full-stack development. They use a hands-on approach to build APIs using Node.JS and a variety of tools, frameworks, libraries and packages. The creation of these modern APIs also requires the students to develop skills with persistent scalable database storage systems. Project work culminates with students creating APIs to be used with websites and mobile applications. Students work individually as well as with other students to complete tasks.

Prerequisite(s): MAD9014

Corerequisite(s):none

MAD9132 Android Application Development

Using Java, students learn to develop mobile applications for the Android mobile platform. Students use the Android application programming interface (API) and Android software development kit (SDK) for hands-on development of deployable mobile applications. Designing to conserve battery life on mobile devices is emphasized.

Prerequisite(s): MAD9021

Corerequisite(s):none

MAD9135 Developing HTML5 Mobile Applications

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.

Prerequisite(s): MAD9022 and MAD9124

Corerequisite(s):none

MAD9137 IOS Development

Students use the Swift language within the standard Mac OSX development environment to create native applications for the iPhone and iPad. Working together in teams, students build and test applications. User interface requirements and building for a better user experience is stressed.

Prerequisite(s): MAD9021

Corerequisite(s):none

MAD9143 Business for the Mobile Industry

The mobile landscape from a business point of view is discussed. Topics to be covered include business planning, revenue models, analytics, as well as other entrepreneurial skills. Students work together to explore the importance of networking within the context of mobile development projects.

Prerequisite(s): none

Corerequisite(s):none

MAD9145 Applied Project

Working in teams, students experience the analysis, design, implementation, testing and deployment of a mobile solution for a real-world client. Important topics from throughout their program of study are applied in this course. Faculty advisors facilitate student teams to demonstrate their skills in the applied project. Student teams make a technical presentation to their faculty advisors and participate in a public showcase of projects.

Prerequisite(s): MAD9034 and MAD9132 and MAD9135

Corerequisite(s):none

MAD9146 Windows Development for Mobile

Windows development can be accomplished through a variety of languages. Leveraging prior skills in creating mobile applications with object-oriented concepts, students focus on developing Windows mobile applications using XAML and C#. Designing to conserve battery life on mobile devices is stressed.

Prerequisite(s): MAD9021

Corerequisite(s):none