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| **Minor Award Name** | Mobile Technologies |
| **Minor Award Code** | 5N0580 |
| **Level** | Level 5 |

**Suggested resources to support delivery:**

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| **Theme/Topic** | **Type** | **Relevance** | **Author/Source** | **Web Link** |
| ***Note:*** The approach in this set of resources is to develop a mobile technology that is independent of operating system, but works and feels intuitive to any operating system. This is done with the use of MVC architecture, incorporating mobile specific application programming, based on an object orientated approach. The language used in the majority of these resources is C#, using Visual Studio Community Edition 2015. This is free software. *The approach of MVC architecture can be applied directly to Java using rails for ruby, using the resources mentioned in this resource.* |
| Introduction:(LO 1, 2, 6) | PDF | Complete overview of LO 1, 2 and 3. This resource has its advantages of being populated with a lot of pictures, which is useful for introductions. | Michael Sharon | <http://uberthings.com/mobile/intro_to_mobile.pdf>  |
| Introduction:(LO 1, 2, 6) | e-book | The evolution of mobile infrastructures, this covers Edge to GSM, 2G and then 3G. | Vijay K Garg | <https://books.google.ie/books?id=C3bgCCxHqvIC&pg=PA392&lpg=PA392&dq=mobile+infrastructures+edge+gsm+3g&source=bl&ots=QZVmoFBMH5&sig=Ms9ljTVT1Jb8OKsufvXOcM0GghU&hl=en&sa=X&ved=0CD0Q6AEwB2oVChMImo70wvjsyAIVg0YPCh2ELA3h#v=onepage&q=mobile%20infrastructures%20edge%20gsm%203g&f=false>  |
| Introduction:(LO 1, 2, 6) | Lecture Slides | Introduction from Berkley university, this covers mobile operating systems with the history and specifications discussed.  | Dr. Tal Lavian | <http://www.cs.berkeley.edu/~tlavian/Spring2014/Presentations/week_04_os_for_wireless_mobile_devices.ppt> |
| Introduction:(LO 1, 2, 6) | Lecture Slides | Introduction to Mobile Hardware and communication techniques, this includes Bluetooth and Wi-Fi.  | Dong Xuan | <http://web.cse.ohio-state.edu/~xuan/courses/788/788_overview_xuan.ppt>  |
| Introduction(LO 1, 2, 6) | Website | Overview of HTML, with additional references. | Unknown | <http://www.w3.org/html/>  |
| Introduction(LO 1, 2, 6) | Web tutorial | Largest single bank of HTML examples. This site has examples of HTML5, this is important for mobile applications and the use of mobile specific frameworks such as JQuery Mobile.  | Unknown | <http://www.w3schools.com/html/>  |
| Introduction(LO 1, 2, 6) | Web tutorial | This tutorial site is for JQuery mobile. This is very important in mobile applications; as it allows one application to be designed, but will dynamically change to be mobile operating specific with it come to user interfacing and local intuitive look and feel. | Unknown | <http://demos.jquerymobile.com/1.4.5/>  |
| Mobile Device Networking(LO 3, 1) | Website | Easy to follow overview of mobile device networking. | Michael Miller | <http://www.quepublishing.com/articles/article.aspx?p=2021961>  |
| Mobile Device Networking(LO 3, 11) | Website | Overview and diagrams of Network infrastructure components, switch, router and routers. | Educational Institution | <http://fcit.usf.edu/network/chap3/chap3.htm>  |
| Mobile Device Networking(LO 3, 11) | Journal publication(Draft) | Considerations for mobile device security. | Unknown | <http://csrc.nist.gov/publications/drafts/800-124r1/draft_sp800-124-rev1.pdf>  |
| Mobile Device Networking(LO 3, 11) | Journal PublicationX2 | This publication, from Sun microsystems, goes through in detail how DCHP, DNS, Mobile IP and middle ware are required for the mobile internet of today. Each item is described, although it is at a much higher level it is very easy to understand the basics surrounding mobile communication. | Charles E. Perkins  | <https://www.cs.tcd.ie/~htewari/papers/mnt071.pdf> <http://jpkc.fudan.edu.cn/picture/article/101/1f/a1/448d9f714251b8bdd859cb35edaf/a31eb908-986c-4372-bd3c-3e72e9f1e94e.pdf>  |
| Mobile Application Design(LO 4) | WebsiteX2 | This reference guide uses JQuery Mobile, which uses CSS, HTML and Minimal scripting to make the interface as intuitive as possible while keeping keep feature on mobile device operating systems, such as layout and navigation design. | Unknown | <https://jquerymobile.com/> <http://www.w3schools.com/jquerymobile/>  |
| Mobile Application Design(LO 4) | Website | JQuery Mobile with Events, there is now every event required to construct a mobile app with all the functionality as a native app. This design once and deploy a lot approach, saves considerable time in development and knowledge in different operating systems. | Unknown | General Events:<http://www.w3schools.com/jquerymobile/jquerymobile_events_intro.asp>Touch Events:<http://www.w3schools.com/jquerymobile/jquerymobile_events_touch.asp> Scroll Events:<http://www.w3schools.com/jquerymobile/jquerymobile_events_scroll.asp> Orientation Events:<http://www.w3schools.com/jquerymobile/jquerymobile_events_orientation.asp> Page Events:<http://www.w3schools.com/jquerymobile/jquerymobile_events_page.asp>  |
| Mobile Application Design(LO 4) | Nuget | A Nuget package is a Framework that will automatically deploy itself with the application allowing for immediate use of the JQuery Mobile library within the MVC application.  | Microsoft | <https://www.nuget.org/packages/jquery.mobile/>  |
| Mobile Application Development(LO 5,7,8,9,10,12) | MOOC | Complete MOOC, Although this is not directly aimed at mobile applications, this is the ideal starting point in developing them. This tutorial shows in detail how Object Orientated Web Development can dramatically speed up development. This uses Entity to rapidly develop database communications and is now the primary method of mobile application cloud data storage. This method is even used in historical app development where data is transferred via XML and web servers.  | Scott Allen | <http://www.pluralsight.com/courses/mvc4-building>  |
| Mobile Application Development(LO 5,7,8,9,10,12) | Website | This tutorial expands on the MVC 4 C# web application to focus the app towards mobile specific devices using the JQuery Mobile Nuget. | Microsoft | <http://www.asp.net/mvc/overview/older-versions/aspnet-mvc-4-mobile-features>  |
| Mobile Application Development(LO 5,7,8,9,10,12) | Web tutorial | This tutorial uses Visual studio, MVC4 and Nuget’s to use integrated simulators / emulators with the IPhone in focus to develop very specific mobile interfaces while keeping the switchable desktop site and only developing once. | SCOTT HANSELMAN | <http://www.hanselman.com/blog/MakingASwitchableDesktopAndMobileSiteWithASPNETMVC4AndJQueryMobile.aspx>  |
| Mobile Application Development(LO 5,7,8,9,10,12) | Web tutorial | This tutorial uses Visual studio, MVC4 and Nuget’s to use integrated simulators / emulators. Similar to previous tutorial. | Sumit Maitra  | <http://www.dotnetcurry.com/aspnet-mvc/791/using-jquery-mobile-aspnet-mvc-signalr>  |
| Mobile Application Development(LO 5,7,8,9,10,12) | Web tutorial | This tutorial shows how to acquire the geolocation of the phone via either GPS or mobile data. | Sumit Maitra  | <http://www.dotnetcurry.com/aspnet-mvc/782/html5-geolocation-aspnet-mvc-part1>  |
| Mobile Application Development(LO 5,7,8,9,10,12) | Web tutorial | Step by step using HTML 5 and API to use handling data such as Gyroscope, Force | RUADHAN  | <https://mobiforge.com/design-development/html5-mobile-web-device-orientation-events>  |

 **Useful Organisations:**

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| **Name** | **Contact Information** |
| IEEE | <https://www.ieee.org/index.html>  |
| Oracle | <http://www.oracle.com/index.html> |
| Microsoft  | <https://www.visualstudio.com/en-ie>  |
| FESS | [www.fess.ie](http://www.fess.ie) |
| NCCA | [www.ncca.ie](http://www.ncca.ie)  |
| QQI | [www.qqi.ie](http://www.qqi.ie) |
| NITA | Contact FESS for details |
| W3Schools | <http://www.w3schools.com/>  |

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| **MOOCs (Massive Online Open Courses)** |
| Free access to online courses | What is a MOOC?<https://www.youtube.com/watch?v=eW3gMGqcZQc> MVC4: <http://www.pluralsight.com/courses/mvc4-building>JQuery Mobile: <https://www.mooc-list.com/tags/jquery?static=true>  |