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| **Minor Award Name** | Systems Software |
| **Minor Award Code** | 6N1411 |
| **Level** | 6 |

**Suggested resources to support delivery:**

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| --- | --- | --- | --- | --- |
| **Theme/Topic** | **Type** | **Relevance** | **Author/Source** | **Web Link** |
| Reference | Website | **FOLDOC**The Free Online Dictionary of Computing: online since 1985, but lately no longer supported by Imperial College London. | Denis Howe | <http://foldoc.org/>  |
|  | Website | **Microsoft TechNet Command-line Reference A-Z** | Microsoft | <http://technet.microsoft.com/en-us/library/bb490890.aspx>  |
|  | Website | **Distro Watch**Source of news, reference, and an indication of system popularity. | Unsigned Integer Limited | <http://distrowatch.com/> |
|  | Website | **Linux Manpages**One of the many sites that present a searchable collection of Linux command manual pages "manpages". | die.net | <http://linux.die.net/man>  |
|  | Website | **Linux Professional Institute (LPI) Exam Prep** | IBM | <http://www.ibm.com/developerworks/linux/lpi/>  |
|  | Website | **OpenSUSE Documentation** | Suse LLC | [http://doc.opensuse.org](http://doc.opensuse.org/)  |
|  | Website | **Official Ubuntu Documentation** | Canonical | [http://help.ubuntu.com](http://help.ubuntu.com/)  |
|  | Website | **A Quick Introduction to Bash Programming** | Harold Rodriguez | <http://www.codecoffee.com/tipsforlinux/articles2/043.html>  |
|  | Website | **Linux Documentation Project**Large selection of full-size guides and articles on Linux and command-line tools. | Linux Documentation Project (LDP) | [http://www.tldp.org](http://www.tldp.org/)  |
|  | Website | **Linux v Windows**One of the many articles on the Windows/Linux debate. | Computer Hope | <http://www.computerhope.com/issues/ch000575.htm>  |
|  | Wikipedia† | **OS Stats** | Commons | <https://en.wikipedia.org/wiki/Usage_share_of_operating_systems> |
|  | Wikipedia† | **OS Timeline** | Commons | <https://en.wikipedia.org/wiki/Timeline_of_operating_systems> |
|  | Website | **MS Windows Timeline** | Sam C. Chan | <http://bravotech.us/info/msos-timeline.htm> |
|  | Wikipedia† | **Unix Timeline**Includes graphic. | Commons | <https://en.wikipedia.org/wiki/History_of_Unix> |
|  | Website | **Interactive Linux Timeline** | Linux-Netbook.com | <http://www.linux-netbook.com/linux/timeline/> |
|  | Books | **O'Reilly Open Books** | O'Reilly | <http://www.oreilly.com/openbook>  |
|  | Book | **Linux Network Administrator's Guide, 2nd Edition** | Olaf Kirch & Terry Dawson | <http://www.oreilly.com/openbook/linag2/book/> |
|  | Book | **Producing Open Source Software** | Karl Fogel | <http://producingoss.com/>  |
|  | Book | **Using Samba** | Robert Eckstein, David Collier-Brown, Peter Kelly | <http://www.oreilly.com/openbook/samba/book/> |
|  | Book | **Free as in Freedom**"Richard Stallman's Crusade for Free Software" | Sam Williams | <http://www.oreilly.com/openbook/freedom/> |
|  | Book | **Ubuntu Pocket Guide and Reference**HTML and PDF. | Keir Thomas | <http://www.ubuntupocketguide.com/index_main.html> |
|  | Book | **Ubuntu Manual Project** | Benjamin Humphrey | <http://ubuntu-manual.org/> |
|  | Book | **The Linux Cookbook: Tips and Techniques for Everyday Use**1st Edition. | Michael Stutz | <http://dsl.org/cookbook/cookbook_toc.html> |
| Open Source Readings | Website | **Open Source Definition** | Open Source Initiative | <http://opensource.org/osd-annotated> |
|  | Poster | **Open Source Definition** | Open Source Initiative | <http://www.dsri.de/downloads/ha2005/osd.pdf> |
|  | Website | **Open source education resources** | Open Source Initiative | <http://opensource.org/osi-open-source-education> |
|  | Website | **GNU**“GNU is an operating system that is free software—that is, it respects users' freedom. The development of GNU made it possible to use a computer without software that would trample your freedom.” | Free Software Foundation | <http://www.gnu.org/> |
|  | Article | **Cathedral and the Bazaar** | Eric S. Raymond | <http://www.catb.org/esr/writings/cathedral-bazaar/> |
|  | Book | **Open Sources: Voices from the Open Source Revolution** | Chris DiBona, Sam Ockman | <http://www.oreilly.com/openbook/opensources/book/> |
|  | Book | **Understanding Open Source and Free Software Licensing** | Andrew M. St. Laurent | <http://www.oreilly.com/openbook/osfreesoft/book/> |
|  | Website | **The Halloween Documents**Infamous leaked Microsoft responses to Linux. | Eric S. Raymond | <http://www.catb.org/~esr/halloween/> |
| Tutorials | Video | **Professor Messer’s Free Microsoft 70-680 Certification Training** | James Messer | <http://www.professormesser.com/microsoft-70-680/free-microsoft-70-680-training/> |
| Open Courseware | Lectures | **MIT Open Courseware: Operating System Engineering** | MIT.edu | <http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-828-operating-system-engineering-fall-2012/lecture-notes-and-readings/> |
| Video‡ | Video | **TED Talks**“TED is a nonprofit devoted to spreading ideas, usually in the form of short, powerful talks (18 minutes or less).” | TED Talks | <http://www.ted.com/topics/technology> <http://www.ted.com/topics/open-source>  |
|  | TV | **NerdTV**Free online interviews with technology pioneers (2005-2006). | PBS | <http://www.pbs.org/cringely/nerdtv/shows/>  |
|  | Movie | **Pirates of Silicon Valley**History of Apple and Microsoft. | Martyn Burke | <http://www.imdb.com/title/tt0168122/> |
|  | TV | **Triumph of the Nerds**"Three part documentary that shows the insight look at the history of computers, from its rise in the 1970s to the beginning of the Dot-com boom of the late 1990s." | PBS (<http://www.pbs.org/nerds/>) | <http://www.imdb.com/title/tt0115398/> |
|  | TV | **The Virtual Revolution**"A co-production between the BBC and the Open University, the series looks at the impact the World Wide Web has had since its inception 20 years ago." (Wikipedia) | BBC | <http://www.imdb.com/title/tt1594955/><https://www.youtube.com/watch?v=NPD4Ep_J81k&list=PL289282B5A4F3F07A> |
|  | TV | **The Codebreakers**"The famous digital divide is getting wider. A two-part documentary, The Codebreakers, aired on BBC World starting 10 May 2006, examines whether free/open source software (FOSS) might be the bridge." http://www.unesco.org/archives/multimedia/?s=films\_details&pg=33&id=1639 | BBC | <https://en.wikipedia.org/wiki/The_Code-Breakers><https://www.youtube.com/watch?v=Zc-hlV2xbSg> |
|  | Movie | **RevolutionOS**"tells the inside story of the hackers who rebelled against the proprietary software model and Microsoft to create GNU/Linux and the Open Source movement." | J.T.S. Moore | <http://www.revolution-os.com/><http://www.imdb.com/title/tt0308808/> |
|  | Video | **Richard Stallman**Geneva TEDx | Free Software Foundation | <http://www.fsf.org/blogs/rms/20140407-geneva-tedx-talk-free-software-free-society> |
| Podcasts | Podcast | **Linux Action Show** | Jupiter Broadcasting | <http://www.jupiterbroadcasting.com/show/linuxactionshow/> |
|  | Podcast | **Computing Britain**“Hannah Fry looks back at 75 years of computing history to reveal the UK's lead role in developing the technologies we rely on today.” | BBC | <http://www.bbc.co.uk/programmes/b06bq6j1/episodes/downloads>  |
|  | Podcast | **Digital Human**“Aleks Krotoski explores the digital world.” | BBC | <http://www.bbc.co.uk/programmes/b01n7094/episodes/downloads>  |
|  | Podcast | **Click** “Technological and digital news from around the world.” | BBC | <http://www.bbc.co.uk/programmes/p002w6r2/episodes/downloads>  |
| OSs | Software | **Ubuntu**The popular free open-source Linux: desktop/server editions. Create virtual machines, bootable DVD/USB. | Canonical | <http://www.ubuntu.com/> |
|  | Website | **Microsoft Windows** | Microsoft | <https://www.microsoft.com/en-us/windows>  |
|  | Software | **Microsoft Windows Server 2012**Free evaluation download (180 days). | Microsoft | <https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2012> |
|  | Software | **FreeDOS**“FreeDOS is a complete, free, DOS-compatible operating system that you can use to play classic DOS games, run legacy business software, or develop embedded systems. Any program that works on MS-DOS should also run on FreeDOS.” | Jim Hall | <http://www.freedos.org/> |
|  | Software | **FreeBSD**“FreeBSD is an advanced computer operating system used to power modern servers, desktops and embedded platforms.” | The FreeBSD Project | <http://www.freebsd.org/>  |
|  | Software | **Microsoft Boot Disks** | Bootdisk.Com | <http://www.bootdisk.com/bootdisk.htm> |
|  | Software | **MenuetOS**Interesting example of an alternative OS.“a pre-emptive, real-time and multiprocessor Operating System in development for the PC written entirely in 32/64 bit assembly language” | MenuetOs.net | <http://menuetos.net/> |
|  | Software | **Kolibri OS**Fork of MenuetOS. | KolibriOS Team | <http://kolibrios.org/en/>  |
|  | Software | **tomsrtbt**"Tom's floppy which has a root filesystem and is also bootable.""The most GNU/Linux on 1 floppy disk." | Tom@Toms.Net | <http://www.toms.net/rb/> |
|  | Software | **Damn Small Linux**Designed small for bootable CDs and USBs and useful as small footprint virtual machines. | DSL contributors | <http://www.damnsmalllinux.org/>  |
|  | Software | **SliTaz**“is a secure and high performance operating system using the Linux Kernel and GNU software.” | SliTaz | <http://www.slitaz.org/en/> |
|  | Software | **BunsenLabs**“BunsenLabs Linux is a distribution offering a light-weight and easily customizable Openbox desktop. “ | The BunsenLabs Linux Project | <https://www.bunsenlabs.org/>  |
|  | Software | **TinyCore**“It is not a complete desktop nor is all hardware completely supported. It represents only the core needed to boot into a very minimal X desktop typically with wired internet access.” Especially useful as small footprint virtual machines. | Team Tiny Core | <http://www.tinycorelinux.net/> |
|  | Software | **Tizen**An operating system to watch. “Tizen is an open and flexible operating system built from the ground up to address the needs of all stakeholders of the mobile and connected device ecosystem, including device manufacturers, mobile operators, application developers and independent software vendors (ISVs). Tizen is developed by a community of developers, under open source governance, and is open to all members who wish to participate.” | Linux Foundation | <https://www.tizen.org/> |
|  | Software | **Steam OS**Of particular interest to gamers and an interesting install project. | Steam | <http://store.steampowered.com/steamos/buildyourown>  |
|  | Software | **ReactOS**Alpha of an opensource Windows rewrite. | ReactOS Foundation | <http://www.reactos.org/> |
|  | Software | **Red Star OS 3.0**North Korea's latest Linux version. | Korea Computer Center | <http://www.openingupnorthkorea.com/downloads-2> |
|  | Software | **IBM PC Disk Archive**Archive versions of Windows, Linux, and OS2. | Jeff Parsons | <http://www.pcjs.org/disks/pc/> |
| Sample Windows OS Services | Software | **WAMP**Windows alternative to the LAMP stack. | Romain Bourdon | <http://www.wampserver.com/en/> |
|  | Software | **FileZilla**Free open-source FTP server for Windows. | Mozilla Foundation | <https://filezilla-project.org/>  |
|  | Software | **Free SSHd**For Windows (albeit makes less sense than an SSH server in Linux). | Kresimir Petric | <http://www.freesshd.com/> |
| Free Anti-Virus | Software | **AVG Free** | AVG Technologies | <http://free.avg.com/ie-en/homepage> |
|  | Software | **AVAST** | AVAST | <https://www.avast.com/index> |
| OS Monitoring/Administration | Software | **Munin**Monitor software for Linux machines. | Munin open project | <http://munin-monitoring.org/> |
|  | Software | **Webmin**Web interface remote and local administration tool for Linux. | Webmin | <http://www.webmin.com/>  |
| Tools | Website | **AlternativeTo.net**Software software and alternatives for different systems. | AlternativeTo.net | <http://alternativeto.net/> |
|  | Website | **Ninite**Simple and reliable software installation tool for free/open-source software. | Secure By Design Inc. | <https://ninite.com> |
|  | Software | **Live USB Creator**Windows & Linux. |  | <http://live.learnfree.eu/> |
|  | Software | **UNetbootin**Cross-platform bootdisk creator. | Geza Kovacs | <http://unetbootin.github.io/> |
|  | Software | **Ultimate Boot CD**Collection of hardware and OS recovery tools. | Victor Chew | <http://www.ultimatebootcd.com/>  |
|  | Software | **Ultimate Boot CD for Windows**“UBCD4Win is a bootable recovery CD that contains software used for repairing, restoring, or diagnosing almost any computer problem.” | Benjamin Burrows  | <http://www.ubcd4win.org/>  |
|  | Software | **Darik's Boot and Nuke (DBAN)**Free data wiping tool. | blancco | <http://www.dban.org/> |
|  | Software | **Eraser**Open source secure data deletion for Windows. | Eraser | <http://eraser.heidi.ie/> |
|  | Software | **Clonezilla**Open source partition and disk cloning software. | Clonezilla | <http://clonezilla.org/> |
|  | Software | **GParted**Open source Gnome partition Editor. | GParted | <http://gparted.org/> |
|  | Software | **Ext2/3 filesystem driver for Windows**Free and open source. | matt\_wu | <http://sourceforge.net/projects/ext2fsd/>  |
|  | Software | **MemTest**Hardware tool which nicely demonstrates the need to sometimes not run an operating system. | Chris Brady | <http://www.memtest.org/> |
|  | Software | **SystemRescueCD**"SystemRescueCd is a Linux system rescue disk available as a bootable CD-ROM or USB stick for administrating or repairing your system and data after a crash." |  | <http://www.sysresccd.org/SystemRescueCd_Homepage> |
|  | Software | **Super Grub**Open source boot and repair tool. |  | <http://www.supergrubdisk.org/> |
|  | Software | **Disk Editor**Free Windows raw disk and filesystem editor and explorer. | Active | <http://disk-editor.org/> |
|  | Software | **wxHexEditor**Cross-platform free open source disk editor. | Erdem U. Altinyurt | <http://www.wxhexeditor.org/>  |
|  | Software | **TestDisk**Free and open source partition recovery software. | CGSecurity | <http://www.cgsecurity.org/wiki/TestDisk> |
|  | Software | **PhotoRec**Free and open source file recovery software. | CGSecurity | <http://www.cgsecurity.org/wiki/PhotoRec>  |
| Online Emulations | Website | **IBM PC Machine Configurations**: Windows 1.01 "a collection of computer simulations written in JavaScript" (includes a library of IBM disks and application) | Jeff Parsons | <http://www.pcjs.org/devices/pc/machine/5160/cga/256kb/win101/> |
|  | Website | **MAC OS System 7** | James Friend | <https://jamesfriend.com.au/> |
|  | Website | **MAC OS System 8** | adam@virtualdesktop.org | <http://www.virtualdesktop.org/complete/os8/index.html> |
|  | Website | **DOS: IBM PC** (Model 5150) with Monochrome Display | Jeff Parsons | <http://www.pcjs.org/> |
|  | Website | **Virtual Desktops**Application only, OS only, or full desktops from Windows 95 to XP, OS 8.6 to 10.4. | adam@virtualdesktop.org | <http://www.virtualdesktop.org/> |
|  | Website | **Total Emulator**Windows ME to Vista. | temsupport@gmail.com | <http://temulator.com/> |
| Virtualisation | Software | **VirtualBox**Free and open-source virtualisation software. Create and test virtual network and client-server relationships. Store and run from a library of multiple operating systems and pre-installed appliances easily in the lab. | Oracle | <https://www.virtualbox.org/>  |
|  | Software | **VMware Player**Free proprietory virtualisation software. No longer advertised on the company site but still available in the downloads at this time. | VMware | <https://my.vmware.com/web/vmware/free#desktop_end_user_computing/vmware_player/6_0|PLAYER-607>  |
|  |  | **Mini vMac** | Paul C. Pratt | <http://www.gryphel.com/c/minivmac/> |
|  |  | **Virtual Appliances** (VirtualBox) |  | <https://virtualboximages.com/> |
|  |  | **Oracle Pre-Built Developer VMs** | Oracle | <http://www.oracle.com/technetwork/community/developer-vm/index.html> |
|  |  | **Virtual Appliances** (VMWare) | VMware | <https://solutionexchange.vmware.com/store/category_groups/virtual-appliances> |
|  |  | **SUSE Studio**Custom OS builder. | Novell, Inc. | <https://susestudio.com/> |
|  |  | **SUSE Studio Gallery** | Novell, Inc. | <https://susestudio.com/browse> |
|  |  | **WINE** Is Not an EmulatorWindows compatibility layer for Linux. | codeweavers | <https://www.winehq.org/> |
|  |  | **Crossover Office**Windows software installer for Mac and Linux. | codeweavers | <https://www.codeweavers.com/> |
| Demonstration/ Remote Access |  | **iTALC**Free open-source PC lab management software for classroom monitoring and support using VNC (currently requires a VNC server running without password protection in Windows 7). | iTALC | <http://italc.sourceforge.net/>  |
|  |  | **Teamviewer**Free for private use; remote access to a GUI server/OS. | TeamViewer | <https://www.teamviewer.com/en/index.aspx> |
|  |  | **VNC**Virtual Network Computing | RealVNC Limited | <http://www.realvnc.com/> |
|  |  | **VNC Viewer for Chrome** | RealVNC Limited | <http://chrome.google.com/webstore/detail/vnc%C2%AE-viewer-for-google-ch/iabmpiboiopbgfabjmgeedhcmjenhbla?hl=en> |
|  |  | **PuTTY**Free portable Windows SSH/Telnet client. | Simon Tatham | <http://www.chiark.greenend.org.uk/~sgtatham/putty/> |
| News & Media | Website | **Slashdot**"News for Nerds. Stuff that Matters" | DHI Group, Inc. | <http://slashdot.org/>  |
|  | Website | **OMG! Ubuntu!** | Ohso Ltd. | <http://www.omgubuntu.co.uk/> |
|  | Website | **Channel 9** | MSDN | <https://channel9.msdn.com/> |
|  | Website | **BBC Technology News** | BBC | <http://www.bbc.com/news/technology>  |
|  | Website | **The Guardian Technology News** | The Guardian | <http://www.theguardian.com/uk/technology>  |
| Further Resources |  | More emphasis has been given to non-Windows operating systems – as those that are least familiar while also of most use to the teacher in presenting a range of modern technologies. See also the resource list for Operating Systems 5N2928. |  |  |

†While *Wikipedia* is crowd-sourced and thus not an intrinsically reliable academic reference, it has proved to be a very useful starting point for exploring technical information and context in systems software and IT generally.

‡ May not be currently available on TV, online, or as DVD; but might be worth keeping an eye out for or searching for online.

 **Useful Organisations:**

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| **Name** | **Contact Information** |
| Open Source Initiative | [http://opensource.org](http://opensource.org/)  |
| Irish Linux Users Group | <http://www.linux.ie/>  |
| Linux Professional Institute | [http://www.lpi.org](http://www.lpi.org/)  |
| Free Software Foundation | [http://fsf.org](http://fsf.org/)  |
| The Linux Foundation | [http://www.linuxfoundation.org](http://www.linuxfoundation.org/)  |
| Microsoft | [http://microsoft.com](http://microsoft.com/)  |
| Apple | [http://www.apple.com](http://www.apple.com/)  |
| Android | [http://www.android.com](http://www.android.com/)  |
| National IT Teachers Association (NITTA) | <https://sites.google.com/a/cfedundrum.com/nitta-brown-bag-sessions-beta/> |

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| **MOOCs (Massive Online Open Courses)** |
| Free access to online coursesSearch regularly for new courses and new start dates | https://www.mooc-list.com/ |