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| **Minor Award Name** | Distributed Systems |
| **Minor Award Code** | 5N0544 |
| **Level** | 5 |

**Suggested resources to support delivery:**

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| --- | --- | --- | --- | --- |
| **Theme/Topic** | **Type** | **Relevance** | **Author/Source** | **Web Link** |
| Centralised Vs Decentralised (Distributed) Systems | Book  Book  Online Article | This book describes centralised, decentralised and hybrid architectures. It also describes the main goals of distributed systems along with their advantages and disadvantages. Various distributed systems are also discussed.  This book characterizes distributed systems and describes its advantages and where they can be applied. A case study is also provided.  This online article summarises the differences between centralised and decentralised systems and provides examples. | Authors: Andrew S. Tanenbaum and Maarten Van Steen. Published by Prentice Hall.  Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair. Published by Addison Wesley Publications.  Eric Dosal | <http://www.amazon.com/Distributed-Systems-Principles-Paradigms-Edition/dp/0132392275>  <http://www.amazon.com/Distributed-Systems-Concepts-Design-Edition/dp/0132143011>  [http://www.compuquip.com/2009/11/20/centralized-vs-distributed-computing](http://www.compuquip.com/2009/11/20/centralized-vs-distributed-computing/) |
| Computing Models | Book  Online Journal | This book provides information on distributed systems, cluster computing, grid computing and transaction processing systems.  This journal publication discusses grid, cluster, cloud, P2P and jungle computing. | Authors: Andrew S. Tanenbaum and Maarten Van Steen. Published by Prentice Hall.  B. Kahanwal and T. P. Singh | <http://www.amazon.com/Distributed-Systems-Principles-Paradigms-Edition/dp/0132392275>  <http://arxiv.org/ftp/arxiv/papers/1311/1311.3070.pdf> |
| Distributed Architecture Models | Online Journal  Book  Book | This journal publication discusses peer to peer models.  This book discusses distributed architecture models including peer to peer, client server and multi-tier.  This book discusses distributed architecture models including peer to peer, client server and multi-tier. | B. Kahanwal and T. P. Singh  Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair. Published by Addison Wesley Publications.  Authors: Andrew S. Tanenbaum and Maarten Van Steen. Published by Prentice Hall. | <http://arxiv.org/ftp/arxiv/papers/1311/1311.3070.pdf>  <http://www.amazon.com/Distributed-Systems-Concepts-Design-Edition/dp/0132143011>  <http://www.amazon.com/Distributed-Systems-Principles-Paradigms-Edition/dp/0132392275> |
| Networking | Book  Online Article  Online Article  Website  Website  Online Article  Online Article | This book addresses various network types including PAN, LAN, MAN, WAN, GAN as well as networking and internetworking in distributed systems. Protocols such as TCP/IP and UDP are described as well as IP addressing.  This online article discusses if wireless is ready to overtake wired for distributed systems.  This article describes what a wireless distribution system is and compares against a wired one.  A website to resolve a hostname to an IP address.  A website to resolve a hostname to an IP address or vice versa.  This article describes what domain name resolution is.  This describes the hierarchy of DNS. | Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair. Published by Addison Wesley Publications  Sean Kalinich  Margaret Rouse | <http://www.amazon.com/Distributed-Systems-Concepts-Design-Edition/dp/0132143011>  <http://www.tweaktown.com/articles/3085/wireless_distribution_system_is_wireless_ready_to_replace_the_wired_network/index3.html>  <http://searchmobilecomputing.techtarget.com/definition/wireless-distribution-system-WDS>  <http://tracert.com/resolver>  [www.getip.com](http://www.getip.com)  <http://www.bleepingcomputer.com/tutorials/what-is-domain-name-resolution/>  <https://www.novell.com/documentation/dns_dhcp/?page=/documentation/dns_dhcp/dhcp_enu/data/behdbhhj.html> |
| Concurrent Processing Models | Book  Book  Book | This book discusses concurrent systems and uses Flynn’s taxomony to categorise multi-processor computing devices. It looks at various mutual exclusion algorithms and deadlock in distributed systems. It also discusses distributed shared memory.  Synchronization, time and global checks are discussed in this book as well as other issues associated with distributed system models.  Global states and times are discussed in this book. examples, advantages and disadvantages, | A. D. Kshemkalyani and M. Singhai. Published by Cambridge University Press.  Authors: Andrew S. Tanenbaum and Maarten Van Steen. Published by Prentice Hall.  Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair. Published by Addison Wesley Publications. | <http://www.amazon.com/Distributed-Computing-Principles-Algorithms-Systems/dp/0521189845>  <http://www.amazon.com/Distributed-Systems-Principles-Paradigms-Edition/dp/0132392275>  <http://www.amazon.com/Distributed-Systems-Concepts-Design-Edition/dp/0132143011> |
| Develop Distributed Systems | Book  Online Article  Online Article  Online Article  Online Article | Various case studies are presented in this book describing various aspects of distributed systems.  This article discusses considerations when designing distributed systems whilst providing two examples.  This article provides design principles for a web based distributed application.  Distributed system design is discussed in this article.  Google Case Study for designing distributed systems. | Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair. Published by Addison Wesley Publications.  Marc Mercuri  Kate Matsudaira  Stephen Balukoff  University of Petra LMS | <http://www.amazon.com/Distributed-Systems-Concepts-Design-Edition/dp/0132143011>  <https://msdn.microsoft.com/en-us/library/dd129908.aspx>  <http://www.aosabook.org/en/distsys.html>  <https://www.blueboxcloud.com/insight/blog-article/distributed-systems-design-part-1-4>  <http://lms.uop.edu.jo/lms/pluginfile.php/2069/mod_resource/content/0/designing-distributed-systems-google-case-study.pdf> |
| Security | Book | Security threats, policies, mechanisms, design issues and cryptography are discussed in this book.  Security techniques, cryptography and digital signatures are described in this book. A case study is also provided. | Authors: Andrew S. Tanenbaum and Maarten Van Steen. Published by Prentice Hall.  Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair. Published by Addison Wesley Publications. | <http://www.amazon.com/Distributed-Systems-Principles-Paradigms-Edition/dp/0132392275>  <http://www.amazon.com/Distributed-Systems-Concepts-Design-Edition/dp/0132143011> |

**Useful Organisations:**

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| **Name** | **Contact Information** |
| CIS, University of Pennsylvania | [www.cis.upenn.edu/~lee/07cis505](http://www.cis.upenn.edu/~lee/07cis505) |
| CS, Helsinki University | <https://www.cs.helsinki.fi/u/jakangas/Teaching> |
| DMOZ | <https://www.dmoz.org/Computers/Computer_Science/Distributed_Computing/> |
| DMOZ | <https://www.dmoz.org/Computers/Computer_Science/Distributed_Computing/Publications/> |

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