**Course Syllabus**

[Jump to Today](https://mst.instructure.com/courses/41063/assignments/syllabus)

**Perspective  
The objective of the course is to provide the basic tools and concepts of architecting complex engineering systems. The following topics are covered; Architecture, Architect and Architecting; Ambiguity in Systems Architecting and Fuzzy Systems; Search as an Architecting Process; Architecting Heuristics; Systems Scoping and Attribute Selection; Assessing Architectures; Systems Aggregation and Partitioning; Systems Behavior Generation;  Engineering Systems; System Science and Systems Thinking; System of Systems.**

**Text Book**  
Edward Crawley, Bruce Cameron and Daniel Selva   ‘System Architecture: Strategy and Product Development for Complex Systems 1st Edition, Pearson, 2016    ISBN-13: 978-0133975345 ISBN-10: 0133975347

**Lectures**  
Thursdays 4:00-6:30 PM US Central Time  
Lectures are webcasted from Missouri S&T Global- St. Louis and through Zoom on Internet. On campus students will connect to St. Louis from the class room at S&T.

**Grading**   
Mid-Term Exam: 25 points Due on October 10, 2019  
Project Tasks: 20 points as assigned  
Final Paper: 30 Points Due on December 6, 2019  
Final Exam: 25 points Due on December  9, 2019

**Recent Procedia**

You can download papers from this site without any charge.

1. Complex Adaptive Systems Volume 8, Procedia Computer Sciences Volume 140-2018  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com)  ISSN 1877-0509, November 2018. [https://www.sciencedirect.com/journal/procedia-computer-science/vol/140/suppl/C (Links to an external site.)](https://www.sciencedirect.com/journal/procedia-computer-science/vol/140/suppl/C)
2. Complex Adaptive Systems Volume 7, Procedia Computer Sciences Volume 95-2017,  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com)  ISSN 1877-0509, November 2017. [http://www.sciencedirect.com/science/journal/18770509/114 (Links to an external site.) (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/114)
3. [(Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/114)Complex Adaptive Systems Volume 6, Procedia Computer Sciences Volume 95-2016, Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com )  ISSN 1877-0509, November 2016. [http://www.sciencedirect.com/science/journal/18770509/95 (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/95)
4. Complex Adaptive Systems Volume 5, Procedia Computer Sciences Volume 61-2015,  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com )  ISSN 1877-0509, November 2015. [http://www.sciencedirect.com/science/journal/18770509/61 (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/61)
5. Complex Adaptive Systems Volume 4, Procedia Computer Sciences Volume 36-2014,  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com )  ISSN 1877-0509, November 2014. [http://www.sciencedirect.com/science/journal/18770509/36  (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/36%C2%A0)
6. Complex Adaptive Systems Volume 3, Procedia Computer Sciences Volume 20-2013,  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com )  ISSN 1877-0509, November 2013. [http://www.sciencedirect.com/science/journal/18770509/20  (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/20%C2%A0)
7. Complex Adaptive Systems Volume 2, Procedia Computer Sciences Volume 12-2012,  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com)  ISSN 1877-0509, November 2012. [http://www.sciencedirect.com/science/journal/18770509/12  (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/12%20)
8. Complex Adaptive Systems Volume 1, Procedia Computer Sciences Volume 6-2011,  Cihan H Dagli Editor , Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com)  ISSN 1877-0509, November 2011.[http://www.sciencedirect.com/science/journal/18770509/6 (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/6)
9. 2015 Conference on Systems Engineering Research Procedia Computer Science Volume 44, Pages 1-718 (2015)  Edited by Jon Wade and Robert Cloutier SciVerse ScienceDirect ( www.sciencedirct.com )  ISSN 1877-0509 March 2015   [http://www.sciencedirect.com/science/journal/18770509/44  (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/44%C2%A0)
10. 2014 Conference on Systems Engineering Research, Procedia Computer Science, Volume 28, Azad M. Madni and Barry Boehm Editors  ( www.sciencedirct.com )  ISSN 1877-0509, March 2014 [http://www.sciencedirect.com/science/journal/18770509/28 (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/28).
11. 2013 Conference on Systems Engineering Research, Procedia Computer Sciences Volume 16 Christiaan J.J. Paredis, Carlee Bishop and Douglas Bodner Editors, Elsevier SciVerse ScienceDirect ( www.sciencedirct.com)  ISSN 1877-0509, March 2013 [http://www.sciencedirect.com/science/journal/18770509/16 (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/16)
12. Challenges in Systems Engineering and Architecting, Procedia Computer Sciences Volume 8-2011, Cihan H Dagli Editor, Elsevier, SciVerse ScienceDirect ( www.sciencedirct.com)  ISSN 1877-0509, March  2012 [http://www.sciencedirect.com/science/journal/18770509/8 (Links to an external site.)](http://www.sciencedirect.com/science/journal/18770509/8)
13. Disciplinary Convergence in Systems Engineering Research - 2018, Azad M. Madni, Barry Boehm, Roger G. Ghanem, Daniel Erewin and Marilee J. Wheaton, Editors, Springer, Cham, 2018.

**Other Reference Books**

Oliver L. de Weck, Daniel Ross, and Christopher L. Magee, Engineering Systems, The MIT Press, 2011Duane w. Hybertson, Model-Oriented Systems Engineering Science, CRC Press Boca Raton, Florida, 2009  
Maier, W. Mark and Rechtin, Eberhard, The Art of Systems Architecting, CRC Press, Boca Raton, Florida, 2009Mohammad Jamshidi ,”System of Systems Engineering”, John Wiley, 2009**.**ISBN: 978-0-470-19590-1

**Course Summary:**

| **Date** | **Details** |
| --- | --- |
| Thu Aug 29, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 1](https://mst.instructure.com/courses/41063/assignments/142821) | due by 2pm | |
| Thu Sep 5, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 2](https://mst.instructure.com/courses/41063/assignments/145427) | due by 2pm | |
| Thu Sep 12, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 3](https://mst.instructure.com/courses/41063/assignments/145428) | due by 2pm | |
| Thu Sep 19, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 4](https://mst.instructure.com/courses/41063/assignments/157840) | due by 2pm | |
| Thu Sep 26, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 5](https://mst.instructure.com/courses/41063/assignments/158595) | due by 2pm | |
| Thu Oct 3, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project task 6](https://mst.instructure.com/courses/41063/assignments/158837) | due by 2pm | |
| Thu Oct 10, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Mid -Term Exam](https://mst.instructure.com/courses/41063/assignments/159929) | due by 11:59pm | |
| Thu Oct 24, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 7](https://mst.instructure.com/courses/41063/assignments/161277) | due by 2pm | |
| Thu Oct 31, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 8](https://mst.instructure.com/courses/41063/assignments/162287) | due by 2pm | |
| Thu Nov 7, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 9](https://mst.instructure.com/courses/41063/assignments/163438) | due by 2pm | |
| Thu Nov 14, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Project Task 10](https://mst.instructure.com/courses/41063/assignments/163772) | due by 2pm | |
| Fri Dec 6, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Final Paper](https://mst.instructure.com/courses/41063/assignments/166381) | due by 4pm | |
| Mon Dec 9, 2019 | |  |  |  | | --- | --- | --- | | Assignment | [Final Exam](https://mst.instructure.com/courses/41063/assignments/166379) | due by 11:59pm | |

December 2019

| Calendar | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| 24 Previous month | 25 Previous month | 26 Previous month | 27 Previous month | 28 Previous month | 29 Previous month | 30 Previous month |
| 1 | 2 | 3 | 4 | 5 | 6 Click to view event details | 7 |
| 8 | 9 Click to view event details | 10 | 11 | 12 | 13 | 14 |
| 15 Today | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | 1 Next month | 2 Next month | 3 Next month | 4 Next month |

**Assignments are weighted by group:**

| **Group** | **Weight** |
| --- | --- |
| **Final Paper** | 30% |
| **Final Exam** | 25% |
| **Project Tasks** | 20% |
| **Exam** | 25% |
|  |  |