Instructor
- Dr. X. Li, Office: NTDP B231, Tel: (940) 891-6875, Email: xinrong@UNT.EDU
  Office Hours: Tuesday and Thursday, 11:00 AM - 12:00 PM
  (Additional appointments can be requested by email.)
- TA: Chirag Borkar, Lab: NTDP B288, Email: ChiragBorkar@my.unt.edu;
  Office Hours: 9AM – 12PM, on Tuesday.

Course Description
- To study basic theory and applications of modern digital signal processing, to learn basic
theory of real-time digital signal processing, and to develop ability to implement and simulate
digital signal processing algorithms using MATLAB and on real-time DSP platform.

Prerequisites
- EENG 2620

Course Objectives
- Understand basic concepts of digital signal processing theories and techniques;
- Develop basic understanding of real-time digital signal processing;
- Develop ability to implement digital signal processing algorithms in Matlab and LabVIEW;
- Develop ability to implement digital signal processing algorithms on real-time DSP platform.

Required Textbook and References
- Real-Time Digital Signal Processing from MATLAB to C with the TMS320C6x DSPs, Second Edition
  Authors: T. B. Welch, C. H. G. Wright, and M. G. Morrow
  Publisher: CRC Press, Taylor & Francis Group, LLC, 2012
  Book website: http://rt-dsp.com
- MATLAB References (online materials and recommended reference books)
- LabVIEW References (online materials and recommended reference books)
- Connexions: Musical DSP with LabVIEW, http://cnx.org/content/m15510/latest/

Course Requirements and General Policies
- Class attendance is mandatory.
Everyone must turn in individual homework. Simply copying other's homework will be treated as a violation of academic honesty.

Late assignments will be penalized except in extenuating circumstances. Homework is due before the class in the following week.

Please remember to turn off phones prior to class.

Please do not wait until the last minute. If you are having trouble with this class, please come by my office during office hours. I am also available by email.

Please visit [http://www.unt.edu/csrr](http://www.unt.edu/csrr) for your rights and responsibilities.

**Disability Accommodation**

The University of North Texas (UNT) complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. UNT provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation ([http://www.unt.edu/oda](http://www.unt.edu/oda)) at 940-565-4323 during the first week of class. It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office.

**Grading Policies**

- Lab assignment and report, 70%
- Final project report and presentation, 30%
- There will be no extra credits.
- Final accumulated number score is on a 100 point scale.
- Final letter grade distribution: A = 100 - 85, B = 75 - 84, C = 65 - 74, D = 55 - 64, F = 0 - 54
- According to the College of Engineering degree requirements, you need a final letter grade of C or better to pass this class.

**Course Outline and Tentative Schedule**

You can find the lectures notes and homework assignments in the [Blackboard Vista](http://www.unt.edu).

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Day</th>
<th>Topics</th>
<th>Readings</th>
<th>HW Due</th>
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<tbody>
<tr>
<td>1</td>
<td>09/03</td>
<td>M</td>
<td>Labor Day, no class</td>
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<tr>
<td>2</td>
<td>09/10</td>
<td>M</td>
<td>Introduction, Matlab and CCS tutorial</td>
<td>Chap 1, 2</td>
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<td>3</td>
<td>09/17</td>
<td>M</td>
<td>FIR Digital Filters</td>
<td>Chap 3</td>
<td>A1</td>
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<td>09/24</td>
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<td>IIR Digital Filters</td>
<td>Chap 4</td>
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<td>10/01</td>
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<td>Periodic Signal Generation</td>
<td>Chap 5</td>
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<td>6</td>
<td>10/08</td>
<td>M</td>
<td>Frame-based DSP and Digital Filters</td>
<td>Chap 6, 7</td>
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<td>7</td>
<td>10/15</td>
<td>M</td>
<td>Fast Fourier Transform and Spectrum Analysis</td>
<td>Chap 8, 9</td>
<td>A5</td>
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<td>Day</td>
<td>Topic</td>
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<td>8</td>
<td>10/22</td>
<td>M</td>
<td>Signal Processing in LabVIEW – Graphical Programming</td>
<td>A6</td>
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<td>9</td>
<td>10/29</td>
<td>M</td>
<td>Signal Processing in LabVIEW – Hybrid Programming with MathScript</td>
<td>A7</td>
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<td>10</td>
<td>11/05</td>
<td>M</td>
<td>Real-time Signal Processing with MyDAQ and LabVIEW</td>
<td>A8</td>
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<td>11</td>
<td>11/12</td>
<td>M</td>
<td>Final project</td>
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<td>12</td>
<td>11/19</td>
<td>M</td>
<td>Final project</td>
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<td>11/26</td>
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<td>12/03</td>
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<td>Pre-finals week; Final project presentation</td>
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<tr>
<td>15</td>
<td>12/10</td>
<td>M</td>
<td>Finals week; Final project report due</td>
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**Useful Links**
- Course webpage: [http://www.ee.unt.edu/public/xinrong/courses/EENG3910/Fall12](http://www.ee.unt.edu/public/xinrong/courses/EENG3910/Fall12)
- UNT Catalogs: [http://www.unt.edu/catalog/](http://www.unt.edu/catalog/)
- Office of the Registrar: [http://essc.unt.edu/registrar](http://essc.unt.edu/registrar) (schedule of classes and exams, etc.)
- Eagle Student Services Center: [http://essc.unt.edu/](http://essc.unt.edu/)
- Blackboard Vista: [http://ecampus.unt.edu/](http://ecampus.unt.edu/)

_Last updated: 08/13/2012_