ECE 7440 T04 – Advanced Signal Processing

COURSE DESCRIPTION:
Signal Processing is an area of applied mathematics to perform useful operations on those signals. e.g., signal analysis and information extraction.

COURSE OBJECTIVE:
The objective of this course is to understand fundamental signal representations and algorithms for signal analysis and information extraction.

PRE-REQUISITES:
Undergraduate courses on Linear Algebra & Digital Signal Processing.

CONTACT HOURS:
3-hours per week

COURSE CONTENT:
The following topics will be discussed:

- Linear signal spaces
- Projection theorem & orthogonality principle
- Linear operators and their inverses
- Frame theory
- Sparse least squares
- Sparse signal processing

Additional advanced research topics as determined by the instructor.

HOMEWORK:
Homework will consist of analytical or computer-based assignments.

TEXTBOOKS:


GRADE ANNOUNCEMENTS:
TBA – Due to COVID-19, this date to be announced by the Registrar’s Office
EVALUATION:

Your final course grade is determined by your performance in the components list below in the Evaluation Table (seminar, assignments, project, mid-term, and a final examination. Students must receive a minimum of 50% on the final examination and must complete and pass all components in the course in order to be eligible to receive a passing grade.

Each component is weighted as follows:

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<thead>
<tr>
<th>COMPONENT</th>
<th>NO</th>
<th>VALUE %</th>
<th>TOTAL VALUE</th>
<th>DETAILS / ADDITIONAL INFO</th>
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<tr>
<td>Seminars</td>
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<tr>
<td>Assignments</td>
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<tr>
<td>Project</td>
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<tr>
<td>Mid-Term Exam</td>
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<td>Final Exam</td>
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GRADE SCALE:

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<td>B+</td>
<td>80-84</td>
<td>C+</td>
<td>65-69</td>
<td>D</td>
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<td>B</td>
<td>70-79</td>
<td>C</td>
<td>55-64</td>
<td>F</td>
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INSTRUCTOR INFO:

Name: ...................... Sherif S. Sherif
Office: ..................... E3-557 EITC
Tel: ......................... (204) 474-6893
Email: ........................ Sherif.Sherif@umanitoba.ca

Office Hours: ............. By appointment

VOLUNTARY WITHDRAW:

TBA – Due to COVID-19, this date to be announced by the Registrar’s Office

REQUIREMENTS/REGULATIONS

**Student Responsibilities**: It is the responsibility of each student to contact the instructor if he/she is uncertain about his/her standing in the course and his/her potential for receiving a failing grade. Students should also familiarize themselves with Sections 4 and 6 of the Regulations dealing with, among others, incomplete term work, deferred examinations, attendance and withdrawal, etc.

**Lectures**: Attendance at lectures is essential for successful completion of this course. Students must satisfy each evaluation component in the course.

ACADEMIC INTEGRITY