Digital Communications - TCOM 750

George Mason University

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1. Announcements
TCOM 750 will meet in Innovation Hall, room 203 almost every Wednesday, 7:20 – 10:00 p.m., beginning on January 21st, 2009. The Final Exam will be given on Wednesday, May 6th, from 7:20 – 10:00 pm.

Inclement Weather
It is better to be safe. The class will follow the GMU inclement weather policy. As an aid the Mason Alert system can Notify you whenever the University is closed, or closing, due to weather related issues. To receive these alerts, you must add this option to your Mason Alert account. To join this alert group:

- Click the “My Alerts” tab.
- Click the “Optional Alert” bar.
- Review the full list of alerts and join the “Weather related closing group”.
- When finished, click the “Home” tab.
- All of your registered devices and group memberships will be listed.

2. Expected Background
College-level telecommunications engineering, business or engineering statistics and basic business planning are required, although students will be expected to learn, and master, design cost-effective design concepts that require some numerical manipulation. Concepts learned earlier in TCOM classes will be re-enforced with a number of examples to explain the concepts in detail.

3. Expected Learning Experience
TCOM 750 is the required class for all students in the telecommunications program and is the capstone class to introduce you to applying those design concepts in a thoughtful and considered manner.

You will be required to do extensive research on current industry trends as well as research on provided requirements documents and alternative designs for proposed technologies. The class emphasizes an approach based on a Request for Proposal (RFP) and response process. The main material for the course will be Power Point slides. Subsequent lectures will be distributed by the wiki.
You will also be required to select a topic relevant to the syllabus and give a 15-minute presentation to the class during one class this semester.

**NOTE:** All lectures and homework assignments and solutions will be distributed to the class through the class wiki or George Mason University Email accounts. It is essential that students activate their GMU Email accounts. It is a simple matter to have your Email forwarded to a preferred address from the GMU address. **However, please remember you will need to clean out your GMU account regularly so as not to have a storage problem and rejected Emails.**

4. **Required Books** - None

5. **Lecture Notes**
Power Point slides for the lectures will be posted on the Townhall wiki after each lecture.

6. **Homework**
   1. Homework Exercises will be assigned periodically (approximately once per week for the first one-third of the course) and are due the following week at the beginning of class unless otherwise specified.
   2. Homework will be collected in soft copy only, unless otherwise directed. Please show all intermediate steps so partial credit may be given, even if you have not reached the correct solution. **PLEASE put your name and ID number on each file or sheet of paper and staple the sheets together. A suggested file format is lastname_G00012345_TCOM750_HWx.ppt.**
   3. Late homework will only be accepted
      a. With prior permission, and
      b. If the graded homework has not yet been handed back to the class.
   4. To help with travel commitments one assignment may be dropped from the total number of homework.

Students are encouraged to work together on homework problems, but they should **only** submit their own written work.

**IMPORTANT NOTE**

Students are encouraged to find, and use, any and every source they may locate to answer a question or for their term paper. HOWEVER: if elements of their paper have been downloaded from the web or transcribed from another source, STUDENTS MUST WITHOUT FAIL acknowledge the source document. If the elements used are exact copies, those passages must be within quotation marks to note they are not original statements of the student. This includes written sections, diagrams, and pictures. Failure to acknowledge a source used is considered to contravene the copyright act and may also be subject to honor code proceedings if the student claims the work to be original when it is copied from another person or source.

**The resource Turnitin.com may be used as a resource to review papers for plagiarism.**

8. **Semester Project**
Student teams will be required to submit a team presentation paper on a topic to be provided in the form of an engineering proposal in the general field of digital communications. Recent topics for this project in the past have included:
   - Development of a micro-satellite engineering center at GMU.
- Development of a micro-satellite proposal.
- Evaluation and proposal of technologies for a 802.11 city-wide wireless network for the City of Fairfax, VA.

The project is designed to develop awareness of the multifaceted impact of digital communications technology on our everyday lives, teach organization and teamwork, and give an appreciation for the difficulties of developing communications solutions for an imperfect world. It is also a way of getting students used to writing technical papers and business proposal that will be required in their work careers. Students will work in groups on the semester project, but may be graded individually based on their participation. We will be experimenting with Wiki technology this semester and the semester project is to be done in and presented from a Wiki.

References cited may be either placed as footnotes on the page where the reference is cited or sequentially in a numbered index at the end. Full references shall be given (all authors, journal name, volume, number, date, pages [start and stop]) and, for web references, the full URL and the date the material was extracted.

9. Final Exam
The final exam is the semester project presentation and will be given on Wednesday, May 6th, 2009.

10. Course Grades:
Final Grades will be determined by a weighted average of the homework (the lowest scoring homework being dropped from this calculation), class participation, the one student 15 minute presentation and the final exam in the following manner:

- Homework – 15%
- In class Presentation and Participation – 15%
- Final Presentation - 50%
- Group Participation – 20%

I use the following process for grades. Team score *(Final Presentation)* comes first and sets your base grade, which is then modified by my evaluation of your team assigned area *(Group Participation)* compared to the other teams (did you help your team score or was it an area that hurt it). Next I look at your individual class assignments for content, whether they were turned in on time and whether you followed the preparation instructions.

11. Course Outline
Class 01: 21 Jan - Class Introduction/Ideas
Class 02: 28 Jan - Effective Presentations
Class 03: 04 Feb - The Proposal Process
Class 04: 11 Feb - Short Briefs, Data Center Efficiency, Telecom Speeds, Submarine Cables
Class 05: 18 Feb - Business Continuity Planning/Security
Class 06: 25 Feb - Business Intelligence
Class 07: 04 Mar - Requirements Analysis/Semester Project
Class 08: 11 Mar - Spring Break - No Class
Class 09: 18 Mar - Presentations/Architecting Solutions
Class 10: 25 Mar - Individual Presentations
Class 11: 01 Apr - Proposal Coaches/Individual Presentations
Class 12: 08 Apr - Presentations/Team Meetings
Class 13: 15 Apr - Individual Presentations
Class 14: 22 Apr - Individual Presentations
Class 15: 29 Apr - Questions/Individual Presentations/Team Meetings
Class 16: 06 May - Final