TLMN – 630 - Research Paper Assignment: *25% of Grade, 100 points*: - Due no later than end of Week 11

Each student will prepare a research paper on a relevant topic in Satellite Communications. Its purpose is to give the student an opportunity to bring the information and concepts of the course to bear on a topic, issue, or project with which he or she is concerned. Research papers must demonstrate graduate-level work, including writing ability. The test of a good paper is, "Are its conclusions compelling as judged by their significance and supporting arguments?"

Basic indicators of competency include:

Understanding the full range of basic concepts covered in the course and how they apply to specific situations responding to the essential points of all course assignments presenting clear, reasoned, and well-organized responses using correct grammar, spelling, and so on for all written assignments, and especially for out-of-class writing as relevant, making professional-quality oral presentations, using graphics effectively, and making substantial use of databases, or other presentation materials meeting deadlines for assignments following the style set forth in the Publications Manual of the American Psychological Association. You could lose up to 2 letter grades for non-APA compliant formats.

The grade of “A” is given only when a substantial original contribution to the subject matter is demonstrated. Only students who fully meet this standard and demonstrate exceptional comprehension and application of the course subject matter merit an "A." Students who earn an "A" clearly have mastered and are fluent in the subject matter. Indicators of exceptional performance include:

- Analysis that follows a cogent line of reasoning
- Analysis that evaluates alternative solutions or reasoning
- Consistently apply application of concepts and reasoning to data and situations;
- Analysis that recognizes connections across a range of concepts that draws appropriate implications and conclusions, and exhibits novelty and creativity of ideas or represents conceptual advances on what is taught.

Type of Paper:

The paper should examine a topical area relating to the some area of Satellite Communications. *Purely technical papers are unacceptable* and will be downgraded accordingly. The paper should address technical, economic, regulatory, policy and operational use of the Internet/Telecommunication topic that you are researching.

A. At a minimum the paper should include one case study / practical example and more of these are helpful.

B. The paper must state a thesis and, based on the research, undertake to prove or disprove that thesis.

C. The paper should review the recent literature (e.g., the last five years), distill the fundamental issues, discuss various solutions to the issues raised, identify trends, and formulate the student's own position. An adequate literature search is based primarily on academic journals (e.g., Federal Communications Law Journal, IEEE Journals), secondarily on professional journals (e.g., Journal of Systems Management), and lastly on books and textbooks and online sources.

D. At least eight (8) or more recent references (2010 or later) should be cited. In-text citations (APA Style) are also required for any referenced material.

Length and Style. The paper should have a body of 16 to 24 pages. Cover pages, table –of -contents, abstract/executive summary, charts, graphics, tables, appendices and references do not count toward length minimum. The paper must be prepared in accordance with Appendix A of APA 6th edition. ISBN 9781433805615 2nd edition.

The paper must include an abstract or an executive summary, which will be posted for all students to read at the end of week 4. *All Research papers will be submitted to Turnitin Database to determine if all references are cited properly.*

Topics:

The topics can be anything related to satellite communications. Some examples are listed below

- Latest advancements in Satellite Communication
- Space Weather
- Next Generation Satellites
- Satellite Security
- Reusable Satellites
- Military Applications of Satellites

Other topics that are relevant to satellite communication/technology are also possible with prior approval from the instructor
Please pick a topic that interests you. It is much more exciting to read a paper in which the author is excited and enthusiastic. The excitement and enthusiasm frequently show through the paper. If you do not care about the topic, why should your reader?

Deliverables:

• Session 4: Submit Outline and Abstract; submit your assignment in MS Word or pdf (preferred) format through your assignment folder for approval (see sample below)

• Session 11: Finalized Research Paper; submit your assignment in MS Word or pdf (preferred) format through your assignment folder and Turnitin (see Turnitin instruction below).

Sample Research Paper;

Next Generation Satellites and Future of Satellite Systems – Outline and Abstract

Outline

I. Abstract
II. Introduction
III. Brief History of Communication Satellites
IV. Current Satellite Industry Statistics
V. Next Generation Satellites
   A. LightSquared's SkyTerra 1 and SkyTerra 2 next generation satellites to deliver voice and data services throughout North America.
   B. Hylas 1 satellite provides broadband Internet service to Europe. Hylas 2 to be launched in 2012 and will provide data services to Europe, the Middle East, and Africa.
   C. Networks next generation MEO satellites to provide broadband service to more than 3 billion people without access to broadband due to geography, political instability, andeconomics. Affordable broadband service will be offered to markets in Latin America, Africa, Middle East, Asia, and Australia.
VI. Feasibility of Next Generation Satellites to Provide Broadband Services
   A. Discuss pros and cons of using satellites for broadband services
   B. Based off data, state if satellites are a viable method for providing broadband service
VII. Conclusions
VIII. Reference

Abstract

Communication satellites have transformed global communications by offering telecommunications services worldwide, and more importantly, to remote parts of the world where terrestrial networks are nonexistent or inaccessible. Given the rising demand for bandwidth due to significant increases in voice, video, and data traffic, communication satellites will continue to play a vital role in providing telecommunication services well into the 21st century. Recent emphasis has been on providing broadband coverage throughout the United States which is a goal of the National Broadband Plan. Next generation satellites will play a key role in complementing terrestrial networks and in ensuring nationwide broadband. This research paper will discuss how communication satellites have evolved over time and how next generation communication satellites will be of importance in bridging the "digital divide." In addition, the research paper will discuss the feasibility of using satellite communications for high-speed broadband Internet service and discuss if it is a viable option for providing broadband service to the entire country.