This course provides students with a comprehensive and accurate approach for the specification and detailed design of different spacecraft payloads, including optical payload, microwave payload, communications payload, and planetary exploration payload. Reliability analysis and its application will also be covered for space systems. Payload design projects will be assigned to students during the course. Three lecture hours per week. Prerequisites: LE/ENG 2001 3.00; SC/ENG 2002 3.00 or permission of the instructor.

**TOPICS AND CONCEPTS**

Course topics include:

- Chapter 1 – Introduction
- Chapter 2 – Payload Design and Sizing
- Chapter 3 – Spacecraft Sensors
- Chapter 4 – Communication Satellite Payload Design
- Chapter 5 – Landed Payload

**GRADED ASSESSMENT**

Course grades are determined as follows:

- Assignments (including readings): 10%
- Preliminary Project Design: 5% (Letter of Intent)
- Detailed Design Review: 5% (Presentation)
- Final Project Design: 35% (Report 25% and Presentation 10%)
- Final Exam: 45%
- Total: 100%

**ADDITIONAL INFORMATION**

**Required Textbook**


**Recommended References**
• *Spacecraft Sensors*. Mohamed M. Abid, John Wiley & Sons Ltd., 2005
• *Spacecraft Systems Engineering*. 3rd Ed., Edited by Peter Fortescue, John Stark, and Graham Swinerd, John Wiley & Sons Ltd., 2003
• *Journal of Guidance, Control, and Dynamics*. AIAA
• *Journal of Spacecraft and Rockets*. AIAA

ACADEMIC INTEGRITY LINKS
• Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
• Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Counselling and Disability Services - http://cds.info.yorku.ca/

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Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

[Moodle @ York University](http://Moodle)