



COURSE OUTLINE

FACULTY OF TECHNOLOGY

COURSE NAME: Narrowband Network Technologies

COURSE CODE: COMP 2112

CREDIT HOURS: 42 hrs

PREREQUISITES: COMP 1152, COMP 1153, COMP 1160

COREQUISITES:

EFFECTIVE DATE: May 2, 2005

PROFESSOR: Dr. Shazia Hasnie

PHONE: 416-415-5000 ext. 3759 **EMAIL:** shasnies@gbrownc.on.ca

PLAR ELIGIBLE: YES () NO ()

NOTE TO STUDENTS: Academic Departments at George Brown College will NOT retain historical copies of Course Outlines. We urge you to retain this Course Outline for your future reference.

FOR OFFICE USE ONLY		
ORIGINATOR: _____	SIGNATURE	DATE
CHAIR: _____	SIGNATURE	DATE
DATE OF REVISION: _____		

EQUITY STATEMENT: George Brown College values the talents and contributions of its students, staff and community partners and seeks to create a welcoming environment where equity, diversity and safety of all groups are fundamental. Language or activities which are inconsistent with this philosophy violate the College policy on the Prevention of Discrimination and Harassment and will not be tolerated. The commitment and cooperation of all students and staff are required to maintain this environment. Information and assistance are available through your Chair, Student Affairs, the Student Association or the Human Rights Advisor.

STUDENT RESPONSIBILITIES: Students should obtain a copy of the *Student Handbook* and refer to it for additional information regarding the grading system, withdrawals, exemptions, class assignments, missed tests and exams, supplemental privileges, and academic dishonesty. Students are required to apply themselves diligently to the course of study, and to prepare class and homework assignments as given. Regular attendance, though not a requirement, is strongly advised. Past student performance shows a strong relationship between regular attendance and success.

COURSE DESCRIPTION:

This course is offered in conjunction with an industry partner with a focus on field engineering. It will utilize the deployment of a standard mobile telephone cell as a student learning experience. Working with industry, the students will produce network design. This course will also examine the maintenance aspects of cellular deployment in terms of capacity planning and updates.

COURSE OUTCOMES:

- Evaluate the requirements produced by network planning and network engineering
- Generate a production network design
- Simulate the design in a laboratory
- Stage the equipment for the field deployment, deploy, test and commission the resulting network or network segment.
- Conceptualize, organize and carryout a research project that will respond to a current issue in IT
- Present and defend a proposal;
- Organize a timeline for self-managed work on the project;
- Use advanced research techniques both primary and secondary;
- Demonstrate documentation skills for a wide variety of source material;
- Apply individual and collaborative strategies for evaluating course work;
- Organize material using appropriate formats for advanced research projects’
- Summarize information accurately and effectively;
- Render statistical information in a variety of visual forms.

DELIVERY METHODS:

The instructional methods of this course are comprised of class lectures using high quality multi media projection system, lecture-demonstration, lecture-discussion, hands-on lab exercises, and project assignments.

LIST OF TEXTBOOKS AND OTHER TEACHING AIDS:

TEXT REQUIRED

Title: 3G Wireless Networks

Author: Daniel Collins and Clint Smith

ISBN: 0071363815 Publisher: McGraw Hill Professional

REFERENCE

Title: CDMA Capacity and Quality Optimization

Author: Rosenberg, Adam N and Kemp, Sid

ISBN: 0071399194 Publisher: McGraw Hill Professional

TESTING POLICY:

1. A score of zero will be recorded for a missed assignment or examination unless the student presents the professor with official substantiation of the absence the first day she or he returns to class.
2. Students are responsible for reading the appropriate material before classes so that they may benefit from their practical activities and examples.

ASSIGNMENT POLICY:

1. Students are responsible for keeping a back-up copy of each assignment submitted.
2. All assignments submitted should adhere to the documentation standards distributed by the professor.
3. Students should check the assignment handouts for the instructions for submission.

Missing a Test or Examination

Arriving Late for a Test, Quiz, Examination or Other Graded Activity

<p>It is the responsibility of the student to arrive on time for all exams, tests, quizzes, and other graded activities (examinations). A student who arrives late for any examination will be permitted to write the examination only if no other student has completed the examination and left the room. A student who is given late admission will not receive any additional time to complete the activity. If any student has completed the exam and left the room, late admission will be denied and the student arriving late will receive a mark of zero for the missed activity.</p>
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Missed Tests, Quizzes, Examinations or Other Graded Activities

<p>A student who misses an exam, test, quiz, or other graded activity (examination) will receive a grade of zero for that examination. A student will not be allowed a deferred examination unless they have a verifiable medical reason, supported by a Doctor’s certificate. The Chair of the department may consider other situations on a case-by-case basis. A deferred examination will not be granted for students who missed the examination because they overslept, experienced transportation delays, did not know about the exam or did not feel ready for the exam.</p>

EVALUATION SYSTEM:

The final grade is based on student performance in the following areas:

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|----------------------------------|-----|
| 1. Assignment & Presentation | 25% |
| 2. Class Participation / Quizzes | 25% |
| 3. Midterm Examination | 25% |
| 4. Final Exam | 25% |

GRADING SYSTEM

GEORGE BROWN COLLEGE				
A+/A 86-100	B+ 77-79	C+ 67-69	D+ 57-59	Below 50 F
A- 80-85	B 73-76	C 63-66	D 50-56	
	B- 70-72	C- 60-62		

Excerpt from the College Policy on Academic Dishonesty:

The *minimal* consequence for submitting a plagiarized, purchased, contracted, or in any manner inappropriately negotiated or falsified assignment, test, essay, project, or any evaluated material will be a grade of zero on that material.

COURSE OUTLINE:

Week	Outcome	Content	Chapter/Reference
1		Introduction to Mobile Wireless communications.	1,2
2		<ul style="list-style-type: none"> • 1G Analog Cellular Architecture • Cell Site & MTSO Configuration • Call Setup Scenarios • Spectrum Allocation/ Band Plan • Basic Cellular Operation (Paging, Handoff, MRI, RF Power Control etc.) 	2 + Lecture Notes
3		<ul style="list-style-type: none"> • Digital Cellular Radio • GSM • TDMA (IS-54/IS-136) • CDMA (IS-95) 	3
4		<ul style="list-style-type: none"> • GSM Network Architecture • Air Interfaces and Channel Structures • Traffic Calculation Methods 	3 + Lecture Notes
5		<ul style="list-style-type: none"> • IS-95 System Description • CDMA cell site config. • Channel Allocation / Band Plan • Call Processing • PN Assignment, Handoff, Power Control, Multipath and RAKE Filter 	3 + Lecture Notes
6		<ul style="list-style-type: none"> • GPRS • EDGE • HSCSD 	5
7		Midterm Examination	
8		<ul style="list-style-type: none"> • RF Design Procedures & Guidelines • Cell Site Design (Site Qualification Test, Site Acceptance and Rejection, Site Activation, EMF Compliance) • RF Design Report 	9
9		<ul style="list-style-type: none"> • Antenna System Selection 	11+ Lecture Notes
10		<ul style="list-style-type: none"> • 3G Cellular Systems • CDMA 2000 <ul style="list-style-type: none"> ▪ System Architecture ▪ Frequency Planning ▪ Handoff ▪ Sectorized Cells ▪ Traffic Calculation ▪ 	5 + Lecture Notes

11		<ul style="list-style-type: none"> • CDMA 2000 Deployment Guidelines • 1xEV-DO, 1xEV-DV • Planning for CDMA Capacity <ul style="list-style-type: none"> ▪ Pilot Pollution ▪ Cell Splitting ▪ Microcells ▪ Base Station Planning • System Traffic Estimation <ul style="list-style-type: none"> ▪ Increasing Capacity of a Base Station ▪ Adding Cells • Radio Elements • Soft Handoff, PN Offset Assignment, Link Budget 	7, 13 + Lecture Notes
12		<ul style="list-style-type: none"> • UMTS Basics • WCDMA Air Interface • UTRAN Architecture • UMTS Core Network Evolution • Final Review of Course Material 	4, 6, 12
13		Final Presentations by the Student Groups	
14		Final Examination	

Please note:

The allocation of hours to topics is only an approximation.

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1. The attached course description may be subject to change, but it should serve as a guide for study and preparation.
2. Faculty is available to meet with students outside classroom hours on an appointment basis. Please consult the professor immediately before or after a classroom session in order to determine a time, which will be suitable to both.
3. A missed test or assignment will be given a mark of zero and will be reflected in the final mark, except in extraordinary circumstances.

4. Mid-term (interim) grades are based on approximately one half of the course. Students receiving a grade of “F” are requested to make an appointment with the program coordinator in order to discuss their progress.
5. Students wishing to **drop** a subject withdraw from a program or apply for an exemption must ensure that all paperwork is formally completed by the deadline dates as noted in the Student Handbook or “The Source”.
6. A student enrolling in a course outside of the regular daytime program is responsible for getting approval for the course from the program coordinator and ensuring that final marks received in such a course are reported to the same coordinator. Otherwise, the final mark may not appear on the student’s transcript.
7. Cheating is the falsification of a student’s true academic achievement in a college subject for the intent of procuring credit to which he/she is not entitled on the basis of his/her actual performance in that subject.

The penalty for cheating is an automatic zero for that test or assignment.

Where circumstances warrant, the penalty may be more severe including expulsion from the college (see Student Handbook).