CONESTOGA

COURSE OUTLINE

Course Mathematics for Information Technology II (2013-2014)

Code / Version MATH1920 (100)

Total Hours 45

Credits 3

PreRequisite(s) MATH1910 (100) Math for Information Technology I
or MATH1910 (101) Math for Information Technology I

CoRequisite(s)

Course Description

The purpose of the course is to provide the student with a mathematical basis for personal and business financial decisions, and mathematics of computer applications. Financial topics include: simple interest, simple discount, compound interest, annuities and their applications including loans and investments. Information technology topics include number systems and sets. A Texas Instrument BAII "Plus" financial calculator is required.

PLAR Eligible: Yes

Course Outcomes

Successful completion of this course will enable the student to:

1. Solve business problems involving simple interest and promissory note discounting.
2. Identify how data is stored in a computer, and select appropriate data types depending on the information to be stored.
3. Use Venn diagrams and set notation to illustrate relationships between a finite number of sets.
4. Solve business problems involving compound interest.
5. Solve business problems involving ordinary simple annuities.
6. Solve business problems involving general annuities especially as related to Canadian mortgages.
7. Solve problems involving amortization including the construction of schedules.

Unit Outcomes

Successful completion of the following units will enable the student to:

1.0 Business Mathematics in Canada 6th Ed. /N/Simple Interest

- 1.1 Solve for any one of interest, principal, time or rate given the other three quantities.
- 1.2 Determine the time period using the BA2+ calculator.
- 1.3 Solve for maturity value, principal, rate or time given three other quantities.
- 1.4 Present details of the amount and timing of payments in a time diagram.
- 1.5 Calculate the equivalent value on any date of a single payment or payment stream.
- 1.6 Calculate the size of equal loan payments or a final loan payment.

2.0 Simple Interest Applications

- 2.1 Calculate the interest paid on savings accounts and GIC’s.
- 2.2 State the Valuation Principle and use it to calculate the fair market value of an investment providing specified future cash flows.
- 2.3 Calculate the market price and rate of return on commercial paper and Treasury Bills.

3.0 How Data is Stored

- 3.1 Number Systems: convert decimal to binary and hexadecimal.
- 3.2 Describe the difference between how character data and numeric data is stored in memory.

3.3 Identify character data types and how they are stored in an SQL data base.
3.4 Clarify the applications of Unicode character data type.
3.5 Identify numeric data types, their size and limitations.
3.6 Convert date and time to serial date number,
3.7 Use the BAII plus calculator and computer applications to perform date mathematics.

4.0 Data Sets

4.1 Use Venn diagrams to show logical relations between a finite collection of sets.
4.2 Represent Union, Intersect, Compliment, Minus, and Not in set notation and Venn diagrams.
4.3 Relate Venn diagrams to Boolean math and relational expressions in programming

5.0 Compound Interest and Applications

5.1 Calculate the future value and present value in compound interest applications.
5.2 Calculate the maturity value of compound interest GIC's.
5.3 Calculate the price of strip bonds.
5.4 Calculate the equivalent payment on any date for one or more payments on other dates.
5.5 Calculate the economic value of a payment stream.
5.6 Calculate annualized rates of return and growth.

6.0 Compound Interest Further Topics

6.1 Calculate the periodic rate of interest.
6.2 Calculate the number of compounding periods.
6.3 Calculate effective and equivalent interest rates given a nominal rate of interest
6.4 Calculate annu8alized rates of return and growth.

7.0 Ordinary Annuities: Future Value and Present Value

7.1 Define and distinguish between ordinary simple annuities and ordinary general annuities.
7.2 Calculate the future value and present value of ordinary annuities.
7.3 Calculate the present value and length of deferral period for a deferred annuity.
7.4 Calculate the equivalent periodic interest rate for an ordinary general annuity.

8.0 Ordinary Annuities: Payment Size, Term and Interest Rate

8.1 Calculate the payment size for ordinary and deferred annuities.
8.2 Calculate the number of payments for ordinary and deferred annuities.
8.3 Calculate the interest rate for ordinary annuities.

9.0 Annuities Due

9.1 Calculate the future value and present value of annuities due.
9.2 Calculate the payment size, number of payments and interest rate for annuities due.

10.0 Amortization of Loans

10.1 Calculate the outstanding principal balance after any payment using the retrospective method.
10.2 Calculate a different final loan payment.
10.3 Calculate the interest and principal components of any loan payment.
10.4 Construct a loan's amortization schedule.
10.5 Calculate mortgage payments for an original loan amount and a renewal amount.
10.6 Calculate mortgage balances and amortization periods to reflect prepayments of principal.

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Required Student Resources

Jerome, F. Ernest. Business Mathematics in Canada with Connect (7th). McGraw-Hill Ryerson.

Including 2 term Lyryx Interactive Pin Code

Recommended Calculator – Texas Instruments BAII+ (Pre-programmed financial calculator).

Optional Student Resources

Handouts supplied by the professor

Evaluation

The minimum passing grade for this course is 55 (D).

In order to successfully complete this course, the student is required to meet the following evaluation criteria:

Tests	80.00
Assignments	20.00
	100.00 %

Other

Conestoga College is committed to providing academic accommodations for students with documented disabilities. Please contact the Accessibility Services Office.

A course requirements sheet will be distributed at the beginning of the course and will be referred to in conjunction with this course outline.

Prepared By John Akinyemi

School Information Technology

Date 2013-10-21