Information Technology (BIT)

Information Technology (BIT) Courses

BIT 1000 [0.5 credit]
Mathematics I for NET
Tailored for students in the Network Technology program, this course covers basic concepts in functions (polynomials, exponential, logarithmic) and introduces concepts of limits, derivatives and rules of differentiation, applications of differentiation (max-min problems, curve sketching) and integration.
Precludes additional credit for BIT 1100, BIT 1200, ECON 1401, ECON 1402, MATH 1002, MATH 1004, MATH 1007, MATH 1009, MATH 1401, MATH 1402.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 1001 [0.5 credit]
Mathematics II for NET
Tailored for students in the Network Technology program, this course covers systems of linear equations, vector space of n-tuples, subspaces and bases, matrix transformations, kernel, range, matrix algebra and determinants, inner products and orthogonality, eigenvalues, diagonalization and applications.
Precludes additional credit for BIT 1101, BIT 1201, ECON 1401, ECON 1402, MATH 1104, MATH 1107, MATH 1119, MATH 1401, MATH 1402.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial and laboratory one hour a week.

BIT 1002 [0.5 credit]
Physics for Information Technology I
An introductory course on energy, thermodynamics, sound and electromagnetic waves, optics, and modern physics. Practical skills are learned in the laboratory, which is a required part of the course.
Precludes additional credit for BIT 1203, PHYS 1001, PHYS 1003, PHYS 1007.
Prerequisite(s): Restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial three hours/ laboratory three hours alternate weeks.

BIT 1003 [0.5 credit]
Physics for Information Technology II
Electrostatics, electric field and potential. Capacitors, inductors. Study of DC and AC Circuits. Introduction to semiconductors. Practical skills are learned in the laboratory, which is a required part of the course.
Precludes additional credit for BIT 1204, PHYS 1002, PHYS 1004, PHYS 1008.
Prerequisite(s): BIT 1002.
Lectures three hours a week, tutorial three hours/ laboratory three hours alternate weeks.

BIT 1006 [0.5 credit]
Elective
Students must choose from among a list of approved Electives at Algonquin College.
Precludes additional credit for BIT 2003 (no longer offered).
Prerequisite(s): restricted to students in the B.I.T. degree program.

BIT 1100 [0.5 credit]
Mathematics I for IMD
Tailored for students in the Interactive Multimedia Design program, this course covers basic concepts in functions (polynomials, exponential, logarithmic) and introduces concepts of limits, derivatives and rules of differentiation, applications of differentiation (max-min problems, curve sketching) and integration.
Precludes additional credit for BIT 1000, BIT 1200, ECON 1401, ECON 1402, MATH 1002, MATH 1004, MATH 1007, MATH 1009, MATH 1401, MATH 1402.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 1101 [0.5 credit]
Mathematics II for IMD
Tailored for students in the interactive Multi-media Design program, this course covers systems of linear equations, vector space of n-tuples, subspaces and bases, matrix transformations, kernel, range, matrix algebra and determinants, inner products and orthogonality, eigenvalues, diagonalization and applications.
Precludes additional credit for BIT 1001, BIT 1201, ECON 1401, ECON 1402, MATH 1104, MATH 1107, MATH 1119, MATH 1401, MATH 1402.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial and laboratory one hour a week.

BIT 1200 [0.5 credit]
Mathematics I for PLT
Limits. Differentiation of the elementary functions, including trigonometric functions. Rules of differentiation. Applications of differentiation: max-min problems, curve sketching, approximations. Introduction to integration: definite and indefinite integrals, areas under curves, fundamental theorem of calculus.
Precludes additional credit for BIT 1000, BIT 1100, MATH 1002, MATH 1004, MATH 1007, MATH 1009, MATH 1401/ECON 1401, MATH 1402/ECON 1402.
Prerequisite(s): Ontario Grade 12 Mathematics: Advanced Functions; or MATH 0005 and MATH 0006; or equivalent. Restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 1201 [0.5 credit]
Mathematics II for PLT
Systems of linear equations; vector space of n-tuples, subspaces and bases; matrix transformations, kernel, range; matrix algebra and determinants. Dot product. Complex numbers (including de Moivre's Theorem, and n-th roots). Eigenvalues, diagonalization and applications.
Note: MATH 1119 is not an acceptable substitute for BIT 1201.
Precludes additional credit for BIT 1001, BIT 1101, MATH 1102, MATH 1104,MATH 1107, MATH 1119, MATH 1401/ECON 1401, MATH 1402/ECON 1402.
Prerequisite(s): Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005, or equivalent, or permission of the School. restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial and laboratory one hour a week.

BIT 1203 [0.5 credit]
Physics for Photonics I
Mechanics, properties of matter, thermodynamics. Applications chosen in part from the life sciences.
Precludes additional credit for BIT 1002, PHYS 1001, PHYS 1003, PHYS 1007.
Prerequisite(s): (i) Grade 12 Mathematics: Advanced Functions or equivalent; or (ii) Grade 12 Mathematics: Calculus and Vectors or equivalent, or MATH 1007 or BIT 1200 (may be taken concurrently); or (iii) permission of the Department.Restricted to students in the B.I.T. degree program.
Lectures three hours a week, laboratory or tutorial three hours a week.

BIT 1204 [0.5 credit]
Physics for Photonics II
Electricity and magnetism, DC and AC circuits, wave motion and light. Elements of modern physics. Applications chosen in part from the life sciences.
Precludes additional credit for BIT 1003, PHYS 1002, PHYS 1004, PHYS 1008.
Prerequisite(s): BIT 1203 or PHYS 1001 or PHYS 1003 or PHYS 1007 or permission of the Department. Restricted to students in the B.I.T. degree program.
Lectures three hours a week, laboratory or tutorial three hours a week.

BIT 1400 [0.5 credit]
Introduction to Programming and Problem Solving
Introduction to basic concepts of algorithm design and computer programming in C/C++. Topics include computer architecture, algorithms and pseudocode, basic operators, variables and functions, program control with iteration and conditionals, I/O operations, text processing, structures, arrays, pointers, and debugging.
Precludes additional credit for IMD 1003, NET 1000 and PLT 1000.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial/laboratory three hours a week.

BIT 2000 [0.5 credit]
Introduction to Statistics
This course covers data analysis, introduction to probability theory, some standard discrete and continuous distributions and their application to interval estimation and significance testing, computational aspects of statistics.
Precludes additional credit for BIT 2100 (no longer offered), BIT 2300 (no longer offered), ECON 2201, ENST 2006, GEOG 2006, STAT 2507, STAT 2606, and STAT 3502.
Prerequisite(s): restricted to students in the BIT degree program.
Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 2001 [0.5 credit]
Introduction to Business
An overview of the most fundamental business functions. The management of people, human resources, marketing, accounting and finances, business law and operations.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures: three hours a week.

BIT 2002 [0.5 credit]
Marketing in the IT sector
Basic problems and practices in marketing. Marketing strategies, planning, packaging, branding and promotion at the level of the individual firm; distribution channels.
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week.

BIT 2004 [0.5 credit]
Differential Equations For Photonics
First-order equations, linear second- and higher-order equations, linear systems, stability of second-order systems.
Precludes additional credit for MATH 1005, MATH 2404, and MATH 2454.
Prerequisite(s): BIT 1201 and BIT 2007 or MATH 1002 and MATH 1102 or MATH 1107 and MATH 2007, either previously or concurrently; or equivalents; or permission of the School. Restricted to students in the B.I.T. degree program.
Lectures three hours a week, laboratory three hours a week.

BIT 2005 [0.5 credit]
Multivariate Calculus for Photonics
Curves and surfaces. Polar, cylindrical and spherical coordinates. Partial derivatives, gradients, extrema and Lagrange multipliers. Exact differentials. Multiple integrals over rectangular and general regions. Integrals over surfaces. Line integrals. Vector differential operators. Green's Theorem, Stokes' theorem, Divergence Theorem. Applications.
Also listed as MATH 2004.
Precludes additional credit for MATH 2000, MATH 2004 and MATH 2008.
Prerequisite(s): BIT 2004 or MATH 1005 or MATH 2007; and ii) BIT 1201 or MATH 1104 or MATH 1107; or permission of the School. Restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial one hour a week.

BIT 2006 [0.5 credit]
Elective
Students must choose from among a list of approved Electives at Algonquin College.
Precludes additional credit for BIT 3003 (no longer offered).
Prerequisite(s): restricted to students in the B.I.T. degree program.
Lectures three hours a week, or as arranged.

BIT 2007 [0.5 credit]
Mathematics III for PLT
Techniques of integration, improper integrals. Polar coordinates, parametric equations. Indeterminate forms, sequences and series, Taylor's formula and series.
Precludes additional credit for MATH 1002, MATH 1005, MATH 2007.
Prerequisite(s): BIT 1200 or MATH 1004; or permission of the School. restricted to students in the B.I.T. degree program.
Lectures: three hours a week, tutorial/laboratory one hour a week.

BIT 2400 [0.5 credit]
Intermediate Programming
Introduction to object-oriented programming using C++ language. Topics include detailed study of pointers and structures, encapsulation of data and code through objects and classes, inheritance, polymorphism, object- oriented program design, class libraries, user interface objects and event-driven systems.
Precludes additional credit for IMD 2004, NET 2006 and PLT 2004.
Prerequisite(s): BIT 1400. Restricted to students in the B.I.T. degree program.
Lectures three hours a week, tutorial/laboratory three hours a week.

BIT 3999 [0.0 credit]
Co-operative Work Term

BIT 4000 [0.5 credit]
Directed Studies
A course of independent study under the supervision of a member of the School of Information Technology, open only to students in the B.I.T. program. Students are required to obtain their supervisor's written approval prior to registration and are limited to one such course in their programs.
Prerequisite(s): permission of the School of Information Technology.

BIT 4001 [0.5 credit]
Selected Topics in Information Technology
Topics not ordinarily treated in the regular course program due to their contemporary subject matter. The choice of topics varies from year to year.
Prerequisite(s): third-year standing in the BIT Program or permission of the department.
Lecture three hours a week.

Summer session: some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at central.carleton.ca

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current session and to determine the term of offering, consult the class schedule at central.carleton.ca