Level 3

- ### CSI 211   Programming 1 (3 cr.)

This course introduces the students to basic programming concepts and constructs. Student gain fundamental experience in how C++ is used. Topics include: control structures, functions, recursion, arrays, pointers and strings of the C++ programming language. The course introduces students to structured, top-down programming design and implementation. This course should serve as a foundation for programming to the students in the programming

- ### CSI 212   Disc. Math for CS 1 (3 cr.)

The current course introduces the basic concepts of logic and its tools. This enables problem formulation in a logical manner, so logical way of thinking can be applied to the real life. These objectives can be successfully achieved through the conduction of the following topics: Propositional Logic; Set Theory; Proofs; Functions, Sequences, and Relations; Methods of Counting; Recurrence Relations; Graph Theory and Introduction to Trees.

- ### Math212   Calculus 1 (3cr.)

The current course aims to provide a language for working with ideas relevant to computer science. The course is concerned with two main topics: Differential and Integral Calculus. The 1st topic is covered completely including basic concepts of the function as: Domain, Range, Mathematical Modeling, Composition, Boundness, Equality, Intervals of Increase and Decrease, Piecewise-definition, Symmetry and Homogeneity. Classification, Important types, Graphs and Related Properties, Algebraic Operations on the graph. The Inverse: Conditions and Tests of Existence, Principal Branches, Analytical and Graphical Determination of the inverse. Indeterminate Forms $(0*\infty, \infty-\infty)$: Definitions, Concepts, Related Theorems, and Evaluations, Definitions of Continuity and Discontinuity. The Derivatives of all standard functions: Power Function, Trigonometric Function and their Inverse, Hyperbolic Functions and their Inverse, considering : Graph, Domain, Range, Symmetry, and Periodicity. Applications of the Derivatives regarding: General derivatives, Implicit Differentiation, Parametric Differentiation and the Chain Rule, Important theorems as: Roll's,   Mean Value, Maclurin's, Taylor's and L'Hopital Theorems, Geometric applications: Curve tracing, Polar Coordinates, Famous polar curves. The 2nd topic covers all the essential requirements of integral Calculus, starting with Indefinite Standard Integration including all the Basic Concepts and Properties, Notable Remarks, Tables Of Standard Integration (All Elementary Functions), Basic Forms, Various Skills Using Algebraic Relations to obtain different forms of the solution of the same problem. Also, the student will have robust study of Techniques of Evaluation of Indefinite Non-standard   Integration: Completing a perfect square, Using Partial Fractions, By Parts, By Substitutions

- ### PHYS 217   Physics 2   (3 cr.)

This course includes two parts;

Part A: general physics: Electric fields, Coulomb's law, Gauss' Law, electric potential, capacitance and dielectric, currents and resistance, electrical energy and power, direct current circuits, Kirchhoff's rules, magnetic fields, motion of charged particle in a magnetic field, sources of the magnetic field, Faraday's law of induction, Ampere's law, mutual inductance, alternating current circuits, the RLC series circuit(a resistor, an inductor, and a capacitor connected in series), power in an A.C. circuit, resonance in RLC services circuit.

Part B Basic Electronics: The P-N junction diode and Zener diode with their applications, Junction Field effect transistor, Bipolar junction transistor (Bias and amplifiers: JFET & BJT).

- **ENG 210 Tech. English (2 cr.)**

In this course students learn to read various computer science related materials. Use of the internet both for research and communication is an integral part of the course experience. Most of the course activities are student centred and they learn to cooperate with their friends and partners. Also student-teacher interactions become more frequent in the lecture room.

This course will also offer students a broad introduction to English in the context of information Technology assuming a general English base. It is essentially a functional course that builds IT- related vocabulary with a strong emphasis on reading skills, for finding, understanding and utilizing information. Use of the computer dictionary is an essential part of this course.