Title	**Programming Fundamentals**
Code	**CMP-340**
Credit Hours	3
Category	Computing
Prerequisite	None
Co-Requisite	None
Follow-up	CMP-342: Object Oriented Programming CMP-343: Object Oriented Programming Lab
Course Description	**Topics**: Flowcharts/Pseudo Codes, Basic C++ Language Constructs: Data types, Variable and Constants, Operator and Expressions, Input and Output (I/O), Formatted I/O, Escape Sequences. Structured Programming in C Language: Decision making using if control structure, Repetition using for and do while, multiple selection using switch and logical operators. Procedural Programming in C Language: functions, prototype, parameter and arguments, call by value and call by reference, library and header files, scope and life time of variables (storage classes). Composite data types arrays: definition, processing, and passing of array to a function, multi-dimensional arrays, searching and sorting. Pointers: pointer definition, pointer arithmetic, constant pointers, pointer and arrays. Strings: string and characters, string conversion functions, Dynamic Memory Allocation. User Defined Data Types: structures, definition, initialization, accessing members of structures, typedef, union, enumerations. C File Processing: files and streams, Sequential Access File, Random Access File, Secondary Storage I/O. Miscellaneous Topics: Command Line Arguments.
Text Book(s)	1. Tony Gaddis, Starting out with C++: from control structures through objects, 7th Ed., Addison-Wesley, 2012, ISBN 978-0-13-257625-3
Reference Material	1. D.S. Malik, C++ Programming, From Problem Analysis to Program Design, 5th Ed., ISBN-13: 978-0-538-79813-6 2. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, 2nd Ed., Prentice Hall, ISBN 978-0131103627. 3. Bjarne Stroustrup, The C++ Programming Language, 4th Edition, Addison-Wesley, 2013, ISBN 978-0321563842. 4. Reference from different books, some web-link or lecture notes for reading will be provided.