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| NAIT/DMIT |
| DMIT104 Programming Fundamentals |
| Course Documentation |
| **Abbreviated** |
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| **5/20/2009** |

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| **Changes to This Course Outline** |
| Every effort has been made to ensure that information in this course outline is accurate at the time of publication. The Institute reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes. |
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**1. Course Description**

**Course Code:**  DMIT104

**Course Title:**  Programming Fundamentals

**Hours:**  96

**Credits:**  3

**Calendar Description:**  This course provides an introduction to program development and programming standards. Emphasis will be placed on modular design and good programming practices. Students will create standalone console applications, with the possibility of also creating web and mobile device applications. Programs may or may not be developed using object oriented design principles.

**Prerequisites:** None

**Co-requisites:**  None [**DMIT103 strongly encouraged**]

**2. Major Topics**

**A.** Basic Programming Concepts

**B.** Intermediate Programming Concepts

**C.** Object-Oriented Programming Concepts

**4. Student Evaluation**

A variety of methodologies designed to evaluate mastery learning of competencies. Students are required to complete a core achievement, which consists of the following:

1. **Portfolio** [**20%**] – application(s), which demonstrate student’s mastery of the core skills
2. **Quiz** [**20%**] – tests the student’s understanding of the core skills
3. **Exercises** [**15%**] – allow student and instructor to gauge a student’s progress through the core skills

A student must demonstrate mastery of the core achievement [effectively 85% or better on each component] in order to obtain credit for DMIT104.

The remainder of a student’s grade [45%] will be made up of several student selectable achievements which are to be integrated into the source code of their portfolio project.

* **Objects: Beginner** [**15%**] – Student will demonstrate basic understanding of objects by creating objects from class diagrams and using objects in code.
* **Objects: Intermediate** [**5%**] – Student will demonstrate an advanced understanding of objects by implementing composition and inheritance.
* **Arrays/Lists: Intermediate** [**5%**] – Student will demonstrate their understanding of how to use parallel arrays or lists.
* **Arrays: Advanced** [**10%**] – Student will demonstrate, in source code, their understanding of using 2D arrays.
* **File IO** [**15%**] – Student will demonstrate their understanding of file input/output. This includes reading from and altering a single file, preferably in a known file format (csv, xml).
* **Course Material** [**10%**] – Students will contribute to the course material repository by submitting a proposal for an achievement. The proposal must be accompanied by an acceptable solution and marking guideline.
* **Second Language** [**10%**] – Student will demonstrate ability to code in a programming language other than what has been used in class exercises.
* **Platform** [**10%**] – Student will demonstrate knowledge of a platform other than what has been used in class exercises. Projects include: web-based, mobile, desktop application, etc.
* **Unit Tests** [**10%**] – Student will demonstrate knowledge of creating unit tests as part of software development.
* **Instructor Selection** [**X%**] – Student will demonstrate some other related programming skill/concept in consultation with instructor. (This category must be approved by the instructor in order to be eligible for credit.)