<table>
<thead>
<tr>
<th>Course Code</th>
<th>MH1401/CY1401</th>
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<tbody>
<tr>
<td>Course Title</td>
<td>Algorithms and Computing I</td>
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<tr>
<td>Pre-requisites</td>
<td>N.A.</td>
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<tr>
<td>Contact Hours</td>
<td>1 hour lecture, 2 hours tutorial/lab</td>
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**Course Aim:**
This core course aims to introduce you to some fundamentals of programming (such as variables, data types, control statements, iteration, recursion) using Python programming language. By applying your newly acquired knowledge to solve simple problems, this course will also develop your algorithm thinking, which is essential for any professional working in a more and more computer-driven world. This course is required for future computing courses and for courses using Python as supporting tool. You do not need any prior experience in programming to take this course.

**Intended Learning Outcomes:**
1. Implement simple algorithms in Python
2. Interpret simple algorithms written in pseudo-code or in Python
3. Design algorithms to solve simple problems
4. Work as a team and collaborate to manage larger programming projects

**Course Content:**
1. Python Basics (operators, variables, types, …)
2. Lists
3. Matrices with NumPy module
4. Strings
5. Input/Output
6. Selection statements
7. Loop statements
8. Functions
9. Files
10. Errors and debugging
11. Recursion
12. Algorithms complexity
13. Sorting algorithms
14. Plotting with Python

**Reading and References:**

School of Physical and Mathematical Sciences
Division of Mathematical Sciences