### Course Title: Network Algorithmics

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Network Algorithmics</th>
<th>Course No</th>
<th>To be allotted later on by the office</th>
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</thead>
<tbody>
<tr>
<td>Specialization</td>
<td>COE</td>
<td>Structure (IPC)</td>
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<td>Offered for</td>
<td>PG/PhD</td>
<td>Status</td>
<td>Core □ Elective ■</td>
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<tr>
<td>Pre-requisite</td>
<td>Data Structures &amp; Algorithms, Computer Networks</td>
<td>To take effect from</td>
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#### Objectives
To make familiar with the set of techniques to overcome implementation bottlenecks at all network devices and to provide a set of principles and models to help overcome current and future networking bottlenecks.

#### Course Outcomes
The student can able to implement an efficient algorithms and architectures for packet processing. Can able to design high Speed packet processing network systems such as bridges, switches, routers and firewalls.

#### Contents of the course
(With approximate break up of hours)
- Introduction to Network Algorithmics (NA) - Bottlenecks and techniques (3hrs).
- Network Implementation Models - Protocols, Hardware, network device architectures and operating Systems (4hrs).
- Fifteen NA Implementation Principles and Actions (6hrs).
- Demultiplexing and Protocol Processing (6hrs).
- Exact-Match Lookups, Prefix-Match Lookups (6hrs).
- Packet Classifications and Routers as Distributed Systems (6hrs).
- High Speed Packet Classification Hardware Architectures - TCAM Razor, Bit Weaving, All-Match Redundancy Removal, Sequential Decomposition, and Topological Transformations. (11hrs)

#### Text Book

#### Reference Books