<table>
<tr><td>1</td><td colspan="6">Name of Course/Module :CLOUD COMPUTING</td></tr>
<tr><td>2</td><td colspan="6">Course Code: CCP 233</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff:</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:<br>This course provides a hands-on in depth study of Cloud concepts and capabilities across the various Cloud service models.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 3</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L=Lecture<br>T=Tutorial<br>P=Practical<br>O=Others<br>TSLT=Total student learning time</td><td>29</td><td>2</td><td>31</td><td>6</td><td>62</td><td>130</td></tr>
<tr><td>7</td><td colspan="6">Credit Value:3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Course Learning Outcomes:<br>On completion of this course students will be able to:<br>• Analyze the Functioning of Cloud Computing and Cloud Architecture.<br>• Demonstrate practical skills onInteroperability- Portability- Integration- Security.<br>• Solve a real-world problem using cloud computing through group collaboration.</td></tr>
<tr><td>10</td><td colspan="6">Transferable Skills:<br>• Critical thinking and problem solving skills<br>• Information Management and Lifelong Learning</td></tr>
<tr><td>11</td><td colspan="6">Teaching –learning and assessment strategy<br>• Lectures<br>• Tutorials<br>At the end of the programme, students are given an opportunity to evaluate the course and the lecturer.</td></tr>
<tr><td>12</td><td colspan="6">Synopsis:<br>This course introduces the core concepts of cloud computing and helps to gain the foundational knowledge required for understanding cloud computing from a business perspective as also for becoming a cloud practitioner.</td></tr>
<tr><td>13</td><td colspan="6">Mode of Delivery:<br>Lectures, Tutorials, Practical.</td></tr>
</table>

14 **Assessments Methods and Types:**

| | |
|---|---|
| Assignments | 20% |
| Mid Exam | 20% |
| Final Exam | 50% |
| Quiz | 10% |
| **Total** | **100%** |

15 **Content Outline of the course/module and the SLT per topic**

| No | Subject description | Face to face | | | | ILT | Total |
|---|---|---|---|---|---|---|---|
| | | Lecture | Tutorial | Practical | Others | | |
| 1 | **Introduction:**<br>• A short history client – server computing<br>• Peer - to - peer Computing<br>• Distributed Computing<br>• Collaborative Computing<br>• Cloud Computing<br>• Functioning of Cloud Computing<br>• Cloud Architecture<br>• Cloud Storage<br>• Cloud Services<br>• Industrial Applications | 3 | 2 | - | - | 5 | 10 |
| 2 | **Business values, introduction:**<br>• Service Modeling<br>• Infrastructure Services<br>• Platform Services<br>• Software Services - Software as service modes- Massively scaled software as a service- Scale of Economy, Management and Administration | 2 | - | 3 | - | 5 | 10 |
| 3. | **Inside Cloud Computing:**<br>• Feeling Sensational about Organization<br>• Making Strategy Decisions- Governance Issues- Monitoring Business Processes- IT Cost Management | 2 | - | 2 | - | 4 | 8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | **Cloud Service Administration:**<br>• Service Level Agreements and Monitoring-Support Services-Accounting Services<br>• Resource Management- IT Security- Performance Management- Provisioning-Service Management<br>• Untangling Software Dependencies | 2 | - | 3 | - | 5 | 10 |
| | 5. | **Cloud Computing Technology:**<br>• Clients - Mobile - Thin - Thick<br>• Security - Data Linkage - Offloading Work - Logging - Forensics - Development - Auditing<br>• Network- Basic Public Internet- The Accelerated Internet- Optimised Internet Overlay- Site-to-Site VPN- Cloud Providers- Cloud Consumers - Pipe Size- Redundancy<br>• Services- Identity- Integration- Mapping- Payments- Search | 4 | - | 4 | - | 8 | 16 |
| | 6. | **Accessing The Cloud:**<br>• Platforms- Web Application Framework- Web Hosting Services- Proprietary Methods<br>• Web Applications- API's in Cloud Computing,<br>• Browsers for Cloud Computing- Internet Explorer- Mozilla Firefox- Safari- Chrome. | 2 | - | 3 | - | 5 | 10 |
| | 7. | **Data Management:**<br>• Data Security- Data Location- Data Control- Securing data for transport<br>• Scalability and Cloud Services- Large Scale Data Processing- Databases and Data Stores- Data Archival. | 3 | - | 3 | - | 6 | 12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 8. | **Information Storage In Cloud Computing:**<br>• Storage as a Service<br>• Storage Providers- Amazon Simple Storage Service- Nirvanix- Google BigtableDatastore- MobileMe- Live Mesh<br>• Storage Security<br>• Merits and Demerits of Storage | 3 | - | 3 | - | 6 | 12 |
| | 9. | **Discovery of Private & Hybrid Clouds:**<br>• Need for Privacy- Defining a private cloud- Public<br>• Private and Hybrid Clouds - A Comparison<br>• Examining the Economics of the private cloud- Assessing capital expenditures- Vendor Private Cloud Offerings<br>• The Up Key Vendors- Service Oriented- Systems Integrators- Technology Enablers | 4 | - | 4 | - | 8 | 16 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 10. | **Cloud Computing Standards:**<br>• Best Practices and Standards<br>• Practical Issues- Interoperability- Portability- Integration- Security<br>• Standards Organizations and Groups- Cloud Security Alliance- Distributed Management Task Force (DMTF)- National Institute of Standards and Technology (NIST)- Open Cloud Consortium (OCC)- Open Grid Forum (OGF)- Object Management Group (OMG)- Storage Networking Industry Association (SNIA)- Cloud Computing Interoperability Forum (CCIF)- Vertical Groups | 4 | - | 6 | - | 10 | 20 |
| | | **Total** | 29 | 2 | 31 | - | 62 | 124 |
| 16. | **Main references supporting the course:**<br>• "*Cloud Computing: A Hands-On Approach*" by ArshdeepBahga and Vijay Madisetti<br>• *"Cloud Computing (The MIT Press Essential Knowledge series)"* by Nayan B Ruparelia<br>• *"Cloud Computing: From Beginning to End"* by Mr Ray J Rafaels<br>• *"Cloud Computing For Dummies"* by Judith Hurwitz<br>• *"Cloud Computing for Programmers"* by Daniele Casal | | | | | | | |