



DEPARTMENT OF COMPUTER APPLICATIONS

| COURSE PLAN – PART I   |   |                          |                  |
|--|---|--------------------------|------------------|
| Name of the programme and specialization   | MCA   |                          |                  |
| Course Title   | BIG DATA MANAGEMENT                                 |                          |                  |
| Course Code  | CA7C6   | No. of Credits           | 3                |
| Course Code of Pre-requisite subject(s)  | CA712, CA721, CA726                                 |                          |                  |
| Session  | July 2022   | Section (if, applicable) | A&B              |
| Name of Faculty  | Dr.S.R.Balasundaram                                 | Department               | CA               |
| Official Email   | blsundar@nitt.edu                                   | Telephone No.            | +91-431-250 3738 |
| Name of Course Coordinator(s) (if, applicable)   | Dr Jitendra Kumar                                   |                          |                  |
| Official E-mail  | jitendra@nitt.edu                                   | Telephone No.            |                  |
| Course Type (please tick appropriately)  | <input checked="" type="checkbox"/> Elective course |                          |                  |
| <b>Syllabus (approved in BoS)</b>  |   |                          |                  |
| <p>Big Data – Unstructured Data - Introduction to data analytics, big data analytics, big data management</p> <p>Data Management Techniques: Storage of large data – Analyze of large data –Extraction of business relevant, social relevant information</p> <p>Columnar databases - Map Reduce as a tool for creating parallel algorithms -Processing very large amounts of data.</p> <p>Big Data applications -Columnar stores -Distributed databases –Hadoop -Locality Sensitive Hashing (LSH) –Dimensionality reduction –Data streams –Unstructured data processing, NoSQL-NewSQL</p> <p>Mining massive datasets - Socio-Business intelligence using big-data</p> <p>REFERENCES:</p> <p>1. Michael Minelli, Michele Chambers, Ambiga Dhiraj , "Big Data, Big Analytics", John Willey , 2013</p> <p>2. Chris Eaton, Dirk Deroos, Tom Deutsch, George Lapis, Paul Zikopoulos, "Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data", Tata McGraw Hill Education, 2012</p> |   |                          |                  |
| <b>COURSE OBJECTIVES</b>   |   |                          |                  |
| To gain ability to design high scalable systems.   |   |                          |                  |
| <b>MAPPING OF COs with Pos</b>   |   |                          |                  |
| Course Outcomes  | Programme Outcomes (PO)<br>(Enter Numbers only)     |                          |                  |



|  |             |
|--|-------------|
| 1. Explain the concepts of big data analysis                       | 1,2,3       |
| 2. Identify the various Big data management, processing techniques | 1,2,3,4,5   |
| 3. Analyse performance of big data analysis in Hadoop environment  | 1,2,3,4,5,7 |

| COURSE PLAN – PART II                   |                    |  |                           |
|---|--------------------|--|---------------------------|
| COURSE OVERVIEW                         |                    |  |                           |
| COURSE TEACHING AND LEARNING ACTIVITIES |                    |  |                           |
| S.No.                                   | Week/Contact Hours | Topic  | Mode of Delivery (Online) |
| 1                                       | Week 1/ 3 Hrs      | Big Data – Unstructured Data - Introduction to data analytics                                | PPT                       |
| 2                                       | Week 2/ 3 Hrs      | big data analytics, big data management  | Chalk and Talk, PPT       |
| 3                                       | Week 3/ 3 Hrs      | Data Management Techniques: Storage of large data – Analyze of large data                    | Chalk and Talk, PPT       |
| 4                                       | Week 4/ 3 Hrs      | Extraction of business relevant, social relevant information                                 | Chalk and Talk, PPT       |
| 5                                       | Week 5/ 3 Hrs      | Columnar databases   | Chalk and Talk, PPT       |
| 6                                       | Week 6/ 3 Hrs      | Map Reduce as a tool for creating parallel algorithms- Processing very large amounts of data | Videos, PPT               |
| 7                                       | Week 7/ 3 Hrs      | Map Reduce as a tool for creating parallel algorithms- Processing very large amounts of data | Chalk and Talk, PPT       |
| 8                                       | Week 8/ 3 Hrs      | Big Data applications -Columnar stores -Distributed databases                                | PPT                       |
| 9                                       | Week 9/ 3 Hrs      | Hadoop -Locality Sensitive Hashing (LSH) –Dimensionality reduction                           | Chalk and Talk, PPT       |



|    |                |  |                     |
|----|----------------|--|---------------------|
| 10 | Week 10/ 3 Hrs | Data streams –Unstructured data processing, NoSQL-NewSQL | Videos, PPT         |
| 11 | Week 11/ 3 Hrs | Mining massive datasets                                  | Chalk and Talk, PPT |
| 12 | Week 12/ 3 Hrs | Socio-Business intelligence using big-data               | Chalk and Talk, PPT |

**COURSE ASSESSMENT METHODS** (shall range from 4 to 6)

| S.No. | Mode of Assessment       | Week/Date                                | Duration | % Weightage |
|-------|--------------------------|--|----------|-------------|
| 1     | Cycle Test 1             | As per schedule                          | 60 mins  | 20          |
| 2     | Cycle Test 2             | As per schedule                          | 60 mins  | 20          |
| 3     | Assignment               | As per schedule                          | -        | 10          |
| CPA   | Compensation Assessment* | 7 <sup>th</sup> to 10 <sup>th</sup> week | 60 mins  | 20          |
| 4     | Final Assessment *       | As per schedule                          | 3 Hrs.   | 50          |

\*mandatory; refer to guidelines on page 4

**COURSE EXIT SURVEY** (mention the ways in which the feedback about the course shall be assessed)

- The students through the class representative may give their feedback at any time to the course chairman which will be duly addressed.
- The students may also give their feedback during class committee meeting.
- Course Outcome Survey' form will be distributed on the last working day to all the students and the feedback on various rubrics will be analyzed.
- The COs will be computed after arriving at the final marks.

**COURSE POLICY** (including compensation assessment to be specified)

**MODE OF CORRESPONDENCE (email/ phone etc)**

The course handling faculty will be available at Room No:119, Dept of Computer Applications (Lyceum Building, Ground Floor) / Online Mode

Phone : +91-431-250 3738

Mail Id: blsundar@nitt.edu

**COMPENSATION ASSESSMENT POLICY**



One Compensation assessment will be conducted for students who were absent for cycle tests due to genuine reasons.

**ATTENDANCE POLICY** (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

**ACADEMIC DISHONESTY & PLAGIARISM**

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

**ADDITIONAL INFORMATION, IF ANY**

**FOR APPROVAL**

Course Faculty S.R. Balasubramanian CC- Chairperson [Signature] HOD [Signature]



**Guidelines**

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

| B.Tech. Admitted in                               |      |   |      | P.G. |
|---|------|---|------|------|
| 2018  | 2017 | 2016  | 2015 |      |
| 35% or (Class average/2)<br>whichever is greater. |      | (Peak/3) or (Class Average/2)<br>whichever is lower |      | 40%  |

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.