



# BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE (AUTONOMOUS)

Odalarevu, Allavaram Mandal, East Godavari District, Andhra Pradesh, INDIA - 533210.

## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

### BATCH: 2023-24 COURSE OUTCOMES

#### III B.Tech I Semester

| S.No  | Course Code | Courses  | L  | T | P  | Credits |
|-------|-------------|--|----|---|----|---------|
| 1     | 20CS5T09    | ComputerNetworks                                     | 3  | 0 | 0  | 3       |
| 2     | 20CS5T10    | Formal LanguageandAutomataTheory                     | 3  | 0 | 0  | 3       |
| 3     | 20CS5T11    | DataBaseManagementSystem                             | 3  | 0 | 0  | 3       |
| 4     | 20CS5E01    | <b>OpenElective-I</b><br>ComputerOrganization        | 3  | 0 | 0  | 3       |
| 5     | 20CS5D03    | <b>ProfessionalElective-I</b><br>SoftwareEngineering | 3  | 0 | 0  | 3       |
| 6     | 20CS5L11    | ComputerNetworksLab                                  | 0  | 0 | 3  | 1.5     |
| 7     | 20CS5L12    | DBMSLab  | 0  | 0 | 3  | 1.5     |
| 8     | 20HS5M04    | ForeignLanguage                                      | 2  | 0 | 0  | 0       |
| 9     | 20CS5S03    | SkillAdvancedCourse:APPDevelopment                   | 1  | 0 | 2  | 2       |
| 10    | 20CS5P01    | SummerInternship                                     | 0  | 0 | 3  | 1.5     |
| Total |             |  | 18 | 0 | 11 | 21.5    |

SUBJECT: ComputerNetworks Course Code: 20CS5T09

| CO# | Studentsareableto   | Taxonomy    | PO        |
|-----|---|-------------|-----------|
| CO1 | Identifybasiccomputernetworktechnology,typesof networktopologiesandprotocols.     | Remembering | PO10, PO9 |
| CO2 | AnalyzePhysicallayerstandardsanditsProtocols                                      | Analyze     | PO2       |
| CO3 | Demonstratethe techniques used in data link layer                                 | Applying    | PO1       |
| CO4 | AnalyzetheroutingstrategiesforanIPbasednetworking infrastructureandtransportlayer | Analyze     | PO2       |
| CO5 | DemonstratetheImportanceofApplicationlayerandthe wirelessweb.                     | Applying    | PO1       |

SUBJECT: Formal Language and Automata Theory Course Code: 20CS5T10

| CO# | Students are able to  | Taxonomy      | PO             |
|-----|---|---------------|----------------|
| CO1 | The student will be able to understand the need for automata theory and its applications in computer science. | Understanding | PO1, PS01      |
| CO2 | The student will be able to apply the pumping lemma to analyze properties of regular languages.               | Analyzing     | PO2, PO3, PS01 |
| CO3 | The student will be able to identify and handle ambiguous grammars.   | Analyzing     | PO4, PO5, PS01 |
| CO4 | The student will be able to design and construct pushdown automata for language recognition.                  | Applying      | PO4, PO6, PS01 |
| CO5 | The student will be able to evaluate the decidability and complexity of problems using Turing machines.       | Applying      | PO7, PO8, PS01 |

SUBJECT: Database Management System

Course Code: 20CS5T11

| CO# | Students are able to   | Taxonomy   | PO                  |
|-----|--|------------|---------------------|
| CO1 | Describe fundamental concepts of relational database                 | UNDERSTAND | PO1, PO2            |
| CO2 | Create, maintain and manipulate relational database using SQL        | ANALYZE    | PO1, PO2, PO3       |
| CO3 | Apply Conceptual and Logical database design                         | Apply      | PO1, PO2, PO3, PS01 |
| CO4 | Apply normalization for database design                              | Apply      | PO1, PO2, PO3, PS01 |
| CO5 | Illustrate Storage management and Transaction management techniques. | Analyze    | PO1, PO2, PO3, PS01 |

SUBJECT: Computer Organization

Course Code: 20CS5E01

| CO# | Students are able to   | Taxonomy   | PO                 |
|-----|--|------------|--------------------|
| CO1 | Student Able to Apply the Principles and the Implementation of Computer Arithmetic                                     | APPLY      | PO1, PO6, PO8      |
| CO2 | Student Able to Analyze Operation of CPUs including RTL, ALU, Instruction Cycle and Buses                              | ANALYZE    | PO2, PO4, PO10     |
| CO3 | Student Able to Apply Fundamentals of different Instruction Set Architectures and their relationship to the CPU Design | APPLY      | PO1, PO6, PO8, PO5 |
| CO4 | Student Able to Analyze Memory System and I/O Organization   | ANALYZE    | PO2, PO4, PO10     |
| CO5 | Student Able to know the Principles of Operation of Multiprocessor Systems and Pipelining                              | UNDERSTAND | PO7, PO10, PO11    |

SUBJECT:SoftwareEngineering

Course Code: 20CS5D03

| CO# | Studentsareableto  | Taxonomy         | PO           |
|-----|--|------------------|--------------|
| CO1 | Studentsareabletounderstandssoftwareengineering,process and software processmodels | Understand&apply | Po1,po2      |
| CO2 | Studentsareabletoknowtheimportanceofagileprocess                                   | Apply            | Po2,po11     |
| CO3 | Studentsareabletoidentifyminimumrequirements& typeof requirement.                  | Understand,Apply | Po2,         |
| CO4 | Studentsareabletounderstanddifferentsoftwaredesign.                                | Analyse          | Po3,         |
| CO5 | Studentsareabletounderstandssoftwaretestingstrategies &qualityofsoftwareprocess    | Analyse          | Po3,po4,psol |

### III B.Tech II Semester

| S.No  | Course Code | Courses   | L  | T | P  | Credits |
|-------|-------------|---|----|---|----|---------|
| 1     | 20CS6T12    | CompilerDesign                                      | 3  | 0 | 0  | 3       |
| 2     | 20CS6T13    | DataMiningandDatawarehousing                        | 3  | 0 | 0  | 3       |
| 3     | 20CS6T14    | DesignandAnalysisof Algorithms                      | 3  | 0 | 0  | 3       |
| 4     | 20CS6D05    | <b>ProfessionalElective-II</b><br>1.MachineLearning | 3  | 0 | 0  | 3       |
| 5     | 20CS6E03    | <b>OpenElective-II</b><br>1.MeanStackDevelopment    | 3  | 0 | 0  | 3       |
| 6     | 20CS6L13    | CompilerDesignLab                                   | 0  | 0 | 3  | 1.5     |
| 7     | 20CS6L14    | DataMiningLab                                       | 0  | 0 | 3  | 1.5     |
| 8     | 20CS6L15    | WebTechnologyLab                                    | 0  | 0 | 3  | 1.5     |
| 9     | 20CS6S04    | SkillAdvancedcourse: GameDevelopment                | 1  | 0 | 2  | 2       |
| 10    | 20HS6M05    | UniversalHumanValues                                | 2  | 0 | 0  | 0       |
| Total |             |   | 18 | 0 | 11 | 21.5    |

SUBJECT: Compiler Design

Course Code:20CS6T12

| CO# | Studentsareableto   | Taxonomy      | PO                       |
|-----|---|---------------|--------------------------|
| CO1 | studentswillbeabletocomprehendthefundamentalprinciplesoflexicalanalysis,  | Understanding | PO1,PSO2                 |
| CO2 | Students will adeptly apply context-free grammars, parse trees, top-down parsing techniques, and error recovery strategies, in the compilation process. | Applying      | PO2,<br>PO3,PO4,P<br>SO2 |
| CO3 | Studentswillpossessthe skillstodifferentiateLRandLL parsers.  | Analyzing     | PO3,PO4,<br>PSO2         |

|     |   |            |                |
|-----|---|------------|----------------|
| CO4 | students will be adept at applying syntax-directed definitions, implementing L-attributed SDDs, and generating an intermediate code | Applying   | PO3, PO4, PSO2 |
| CO5 | students will proficiently understand run-time environments, code optimization techniques and code generation                       | Understand | PO1, PO3       |

**SUBJECT:** Data Mining and Data Warehousing

**Course Code:** 20CS6T13

| CO# | Students are able to   | Taxonomy             | PO             |
|-----|--|----------------------|----------------|
| CO1 | Interpret the fundamentals of data mining and statistical analysis on multi dimensional data | <b>Understanding</b> | 2,3,4          |
| CO2 | Design a Data Warehouse system and perform business analysis with OLAP tools                 | <b>Create</b>        | 2,3,4          |
| CO3 | Construct frequent pattern and association rule mining techniques for data analysis          | <b>Apply</b>         | 1,2,3,4,5,11   |
| CO4 | Distinguish appropriate classification techniques for data analysis                          | <b>Analyze</b>       | 1,2,3,4,5,6,11 |
| CO5 | Determine appropriate clustering techniques for data analysis                                | <b>Evaluate</b>      | 1,2,3,4,5,6,11 |

**SUBJECT:** Design and Analysis of Algorithms

**Course Code:** 20CS6T14

| CO# | Students are able to  | Taxonomy   | PO       |
|-----|---|------------|----------|
| CO1 | Explain the usage of asymptotic notations and calculate the time & space complexities for various types of algorithms and estimate the performance of algorithm | Understand | PO1, PO2 |
| CO2 | Student is able to describe the divide-and-conquer strategy and when an algorithmic design situation calls for it   | Remember   | PO2, PO3 |
| CO3 | Student is able to explain about algorithms design using greedy method paradigm and recite algorithms that employ this paradigm.                                | Understand | PO2, PO3 |
| CO4 | Apply designing method for development of algorithms to realistic problems such as dynamic programming strategy   | Apply      | PO2, PO3 |
| CO5 | Implement to solve by using backtracking design strategy  | Create     | PO2, PO3 |

**SUBJECT:** Machine Learning

**Course Code:**20CS6D05

| <b>CO#</b> | <b>Studentsareableto</b>  | <b>Taxonomy</b> | <b>PO</b>       |
|------------|---|-----------------|-----------------|
| CO1        | Studentswillbeabletounderstandanddescrib<br>ekeyelementsindevelopinglearningsystems,i<br>ncludingtrainingdata,conceptrepresentation<br>,andfunctionapproximation. | UNDERSTAND      | PO1,PO2,PO3,PO4 |
| CO2        | Studentswillunderstandandapplymeasures<br>such as entropy and<br>informationgaintoselectoptimalsplittingattri<br>butes<br>fordecisiontrees.                       | APPLY           | PO1,PO2,PO3     |
| CO3        | Studentswillbeabletoanalyzesamplecomple<br>xityinthecontextofinfinitehypothesis<br>spaces.  | Analyze         | PO1,PO2,PO3     |
| CO4        | Students will be capable of evaluating<br>theperformance of SVMmodels,<br>consideringfactors such as accuracy,<br>precision, recall,andF1score.                   | Evaluate        | PO2,PO3         |
| CO5        | StudentswillbeproficientinapplyingtheNaive<br>Bayes learning algorithm for<br>classificationtasks.  | Apply           | PO1,PO2,PO3,PO4 |

**SUBJECT:**MeanStackDevelopment

**Course Code:**20CS6E03

| <b>CO#</b> | <b>Studentsareableto</b>   | <b>Taxonomy</b> | <b>PO</b>   |
|------------|--|-----------------|-------------|
| CO1        | Studentsareabletorememberandunderstandtheconcep<br>tsHTTP,FTP,SMTP,HTML5,CSS3XML,<br>DOMandSAXapproaches | UNDERSTAND      | PO1,PO2,PO6 |
| CO2        | StudentsareabletoanalyzetheJavascriptandAngularJS<br>concepts  | ANALYZE         | PO1,PO3,PO5 |
| CO3        | StudentsareabletoanalyzeandapplyNodeJSandExpres<br>sframeworkconcepts                                    | APPLY           | PO1,PO2,PO5 |
| CO4        | StudentsareabletoapplytheRESTfullwebservicesto<br>sampleapplications                                     | APPLY           | PO1,PO4,PO6 |
| CO5        | StudentsareabletounderstandtheMangoDBConcepts  | UNDERSTAND      | PO1,PO2,PO3 |