

# Andhra Pradesh State Council of Higher Education

B.Sc., Honours in Computer Science MAJOR

w.e.f AY 2023-24 onwards

**COURSE STRUCTURE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Semester** | **Course** | **Title** | **Hrs./**  **Week** | **Credits** |
| I | I | 1 | Essentials and applications of Mathematical,  Physical and Chemical Sciences | 5 | 4 |
| 2 | Advances in Mathematical, Physical and  Chemical Sciences | 5 | 4 |
| II | 3 | Problem Solving using C - (T) | 3 | 3 |
| Problem Solving using C- (P) | 2 | 1 |
| 4 | Digital Logic Design- (T) | 3 | 3 |
| Digital Logic Design- (P) | 2 | 1 |
| II | III | 5 | Object Oriented Programming using Java- (T) | 3 | 3 |
| Object Oriented Programming using Java - (P) | 2 | 1 |
| 6 | Data Structures using C - (T) | 3 | 3 |
| Data Structures using C - (P) | 2 | 1 |
| 7 | Computer Organization - (T) | 3 | 3 |
| Computer Organization- (P) | 2 | 1 |
| 8 | Operating Systems - (T) | 3 | 3 |
| Operating Systems - (P) | 2 | 1 |
| IV | 9 | Database Management System - (T) | 3 | 3 |
| Database Management System - (P) | 2 | 1 |
| 10 | Object Oriented Software Engineering - (T) | 3 | 3 |
| Object Oriented Software Engineering - (P) | 2 | 1 |
| 11 | Data Communications and Computer Networks  - (T) | 3 | 3 |
| Data Communications and Computer Networks  - (P) | 2 | 1 |
| III | V | 12 | Web Interface Designing Technologies - (T) | 3 | 3 |
| Web Interface Designing Technologies - (P) | 2 | 1 |
| 13 | Web Applications Development using PHP &  MYSQL - (T) | 3 | 3 |
| Web Applications Development using PHP &  MYSQL - (P) | 2 | 1 |
| 14 A | Internet of Things (T) | 3 | 3 |
| Internet of Things (P) | 2 | 1 |
|  | OR |  |  |
| 14 B | Foundations of Data Science - (T) | 3 | 3 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | Foundations of Data Science - (P) | 2 | 1 |
| 15 A | IoT Applications Development and  Programming - (T) | 3 | 3 |
| IoT Applications Development and  Programming - (P) | 2 | 1 |
|  | OR |  |  |
| 15 B | Application development using Python - (T) | 3 | 3 |
| Application development using Python - (P) | 2 | 1 |
| VI |  | Internship/ Apprenticeship |  |  |
| IV | VII | 16 A | Advanced Data Structures - (T) | 3 | 3 |
| Advanced Data Structures - (P) | 2 | 1 |
|  | OR |  |  |
| 16 B | Artificial Intelligence - (T) | 3 | 3 |
| Artificial Intelligence - (P) | 2 | 1 |
| 17 A | Computer Graphics - (T) | 3 | 3 |
| Computer Graphics - (P) | 2 | 1 |
|  | OR |  |  |
| 17 B | Design and Analysis of Algorithms - (T) | 3 | 3 |
| Design and Analysis of Algorithms - (P) | 2 | 1 |
| 18 A | Principles of Machine Learning - (T) | 3 | 3 |
| Principles of Machine Learning - (P) | 2 | 1 |
|  | OR |  |  |
| 18 B | Software Testing- (T) | 3 | 3 |
| Software Testing- (P) | 2 | 1 |
| SEC | 19 A | Advanced Java Programming - (T) | 3 | 3 |
| Advanced Java Programming - (P) | 2 | 1 |
|  | OR |  |  |
| 19 B | Mobile Application Development - (T) | 3 | 3 |
| Mobile Application Development - (P) | 2 | 1 |
| 20 A | MEAN Stack Development - (T) | 3 | 3 |
| MEAN Stack Development - (P) | 2 | 1 |
|  | OR |  |  |
| 20 B | R Programming - (T) | 3 | 3 |
| R Programming - (P) | 2 | 1 |
| VIII | 21 A | Big Data Technologies - (T) | 3 | 3 |
| Big Data Technologies - (P) | 2 | 1 |
|  | **OR** |  |  |
| 21 B | Compiler Design - (T) | 3 | 3 |
| Compiler Design - (P) | 2 | 1 |
| 22 A | Data Mining Concepts & Techniques - (T) | 3 | 3 |
| Data Mining Concepts & Techniques - (P) | 2 | 1 |
|  | OR |  |  |
| 22 B | Digital Image Processing - (T) | 3 | 3 |
| Digital Image Processing - (P) | 2 | 1 |

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|  |  | 23A | Information Security and Cryptography - (T) | 3 | 3 |
| Information Security and Cryptography - (P) | 2 | 1 |
|  | OR |  |  |
| 23 B | Mobile ADHOC and Sensor Networks - (T) | 3 | 3 |
| Mobile ADHOC and Sensor Networks - (P) | 2 | 1 |
| SEC | 24 A | Advanced DBMS - (T) | 3 | 3 |
| Advanced DBMS - (P) | 2 | 1 |
|  | OR |  |  |
| 24 B | Cloud Computing - (T) | 3 | 3 |
| Cloud Computing - (P) | 2 | 1 |
| 25 A | Computer Vision - (T) | 3 | 3 |
| Computer Vision - (P) | 2 | 1 |
|  | OR |  |  |
| 25 B | Digital Forensics - (T) | 3 | 3 |
| Digital Forensics - (P) | 2 | 1 |

# ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh) Revised UG Syllabus Under CBCS (Implemented from Academic Year 2020-21) PROGRAMME: FOUR

YEAR B.Sc. (Hons)

Domain Subject**: COMPUTER SCIENCE**

***Skill Enhancement Courses (SECs) for Semester V, from 2022-23*** *(Syllabus with Learning Outcomes, References, Co-curricular Activities)*

Structure of SECs for Semester – V

*(To choose one pair from the three alternate pairs of SECs)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Univ Code | Course Number 6 & 7 | Name of Course | Hours/ Week Theo+Prac | Credits Theo+Prac | Marks |  |
| IA – 20  Filed Work 05 | Sem  End |
|  | 6A | Web Interface  Designing Technologies | 3 + 3 | 3+ 2 | 25 | 75 |
|  | 7A | Web Applications  Development using PHP& MYSQL | 3 + 3 | 3 + 2 | 25 | 75 |
| OR | | | | | | |
|  | 6B | Internet of Things | 3 + 3 | 3+ 2 | 25 | 75 |
|  | 7B | Application  Development using Python | 3 + 3 | 3 + 2 | 25 | 75 |
| OR | | | | | | |
|  | 6C | Data science | 3 + 3 | 3+ 2 | 25 | 75 |
|  | 7C | Python for Data  science | 3 + 3 | 3 + 2 | 25 | 75 |

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

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## REVISED SYLLABUS OF B.Sc. (COMPUTER SCIENCE/

INFORMATION TECHNOLOGY) UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

### PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

B.Sc. Computer Science/ Information Technology (IT)

***(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Ǫ.P.)***

***For Fifteen Courses of 1, 2, 3 & 4 Semesters)***

## (To be Implemented from 2020-21 Academic Year)

### Structure of Computer Science /Information Technology (IT)

**Programme: B.Sc. with Computer Science as one of the Core Subjects. Discipline: Computer Science**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Semester** | **Paper Code** | **Subject** | **Hrs. per Week** | **Credits** | **IA** | **ES** | **Total** |
| First Year | I | C1 | Problem Solving in C | 4 | 3 | 25 | 75 | 100 |
| I | C1-P | Problem Solving in C Lab | 2 | 2 |  | 50 | 50 |
| II | C2 | Data Structures using C | 4 | 3 | 25 | 75 | 100 |
| II | C2-P | Data Structures using C  Lab | 2 | 2 |  | 50 | 50 |
| Second Year | III | C3 | Database Management  System | 4 | 3 | 25 | 75 | 100 |
| III | C3-P | Database Management  System Lab | 2 | 2 |  | 50 | 50 |
| IV | C4 | Object Oriented  Programming using Java | 4 | 3 | 25 | 75 | 100 |
| IV | C4-P | Object Oriented  Programming using Java Lab | 2 | 2 |  | 50 | 50 |
| IV | C5 | Operating Systems | 4 | 3 | 25 | 75 | 100 |
| IV | C5-P | Operating Systems Lab  using C/Java | 2 | 2 |  | 50 | 50 |