Program Code & Name:P132::B.Tech. (Computer Science & Engineering)

System: Semester Year of Admission: 2022 Duration in Years: 4

| | Term 1 | | | | | | | | |
|------|-------------|---------------------------------|------|-----|-----|--------|------------------|------|--------|
| S.No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Type | Nature |
| 1 | | CORE ELECTIVE 1 | 2 | 1 | 0 | 3.0 | 3.0 | CE | ESC |
| 2 | | CORE ELECTIVE 2 | 3 | 0 | 0 | 3.0 | 3.0 | CE | BSC |
| 3 | | CORE ELECTIVE 3 | 0 | 0 | 2 | 1.0 | 2.0 | CE | BSC |
| 4 | CSE111 | ORIENTATION TO COMPUTING-I | 2 | 0 | 0 | 2.0 | 2.0 | CR | DSC |
| 5 | CSE326 | INTERNET PROGRAMMING LABORATORY | 0 | 0 | 3 | 2.0 | 3.0 | CR | DSC |
| 6 | INT108 | PYTHON PROGRAMMING | 3 | 0 | 2 | 4.0 | 5.0 | CR | DSC |
| 7 | MTH174 | ENGINEERING MATHEMATICS | 3 | 1 | 0 | 4.0 | 4.0 | CR | BSC |
| 8 | PES318 | SOFT SKILLS-I | 1 | 2 | 0 | 3.0 | 3.0 | CR | LCS |
| DTAL | | | 14.0 | 4.0 | 7.0 | 22.0 | 25.0 | | |

CORE ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--|---|---|---|--------|------------------|
| 1 | ECE249 | BASIC ELECTRICAL AND ELECTRONICS ENGINEERING | 3 | 1 | 0 | 4.0 | 4.0 |
| 2 | MEC135 | BASICS OF MECHANICAL ENGINEERING | 2 | 1 | 0 | 3.0 | 3.0 |

CORE ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--------------------------|---|---|---|--------|------------------|
| 1 | CHE110 | ENVIRONMENTAL STUDIES | 2 | 2 | 0 | 4.0 | 4.0 |
| 2 | PHY110 | ENGINEERING PHYSICS | 3 | 0 | 0 | 3.0 | 3.0 |

CORE ELECTIVE 3 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--|---|---|---|--------|------------------|
| 1 | ECE279 | BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY | 0 | 0 | 2 | 1.0 | 2.0 |

| | | Term 2 | | | | | | | P132-2-202 |
|------|-------------|-----------------------------|------|-----|-----|--------|------------------|------|------------|
| S.No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Туре | Nature |
| 1 | | CORE ELECTIVE 1 | 2 | 1 | 0 | 3.0 | 3.0 | CE | ESC |
| 2 | | CORE ELECTIVE 2 | 3 | 0 | 0 | 3.0 | 3.0 | CE | BSC |
| 3 | | CORE ELECTIVE 3 | 0 | 0 | 2 | 1.0 | 2.0 | CE | BSC |
| 4 | | LANGUAGE ELECTIVE 1 | 3 | 0 | 0 | 3.0 | 3.0 | LE | LCS |
| 5 | CSE101 | COMPUTER PROGRAMMING | 2 | 0 | 2 | 3.0 | 4.0 | CR | DSC |
| 6 | CSE121 | ORIENTATION TO COMPUTING-II | 1 | 0 | 0 | 1.0 | 1.0 | CR | DSC |
| 7 | CSE320 | SOFTWARE ENGINEERING | 3 | 0 | 0 | 3.0 | 3.0 | CR | DSC |
| 8 | INT306 | DATABASE MANAGEMENT SYSTEMS | 3 | 0 | 2 | 4.0 | 5.0 | CR | DSC |
| 9 | MTH401 | DISCRETE MATHEMATICS | 3 | 0 | 0 | 3.0 | 3.0 | CR | BSC |
| TAL | | | 20.0 | 1.0 | 6.0 | 24.0 | 27.0 | | |

CORE ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--|---|---|---|--------|------------------|
| 1 | ECE249 | BASIC ELECTRICAL AND ELECTRONICS ENGINEERING | 3 | 1 | 0 | 4.0 | 4.0 |
| 2 | MEC135 | BASICS OF MECHANICAL ENGINEERING | 2 | 1 | 0 | 3.0 | 3.0 |

CORE ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--------------------------|---|---|---|--------|------------------|
| 1 | CHE110 | ENVIRONMENTAL STUDIES | 2 | 2 | 0 | 4.0 | 4.0 |
| 2 | PHY110 | ENGINEERING PHYSICS | 3 | 0 | 0 | 3.0 | 3.0 |

CORE ELECTIVE 3 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--|---|---|---|--------|------------------|
| 1 | ECE279 | BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY | 0 | 0 | 2 | 1.0 | 2.0 |

LANGUAGE ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|---------------------------------------|---|---|---|--------|------------------|
| 1 | PEL121 | COMMUNICATION SKILLS-I | 3 | 0 | 0 | 3.0 | 3.0 |
| 2 | PEL130 | ADVANCED COMMUNICATION SKILLS-I | 3 | 0 | 0 | 3.0 | 3.0 |

| | | Term 3 | | | | | | | P132-3-2022 |
|------|-------------|----------------------------------|------|-----|------|--------|------------------|------|-------------|
| S.No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Type | Nature |
| 1 | | CORE ELECTIVE 4 | 3 | 0 | 0 | 3.0 | 3.0 | CE | DSC |
| 2 | | CORE ELECTIVE 5 | 0 | 0 | 2 | 1.0 | 2.0 | CE | DSC |
| 3 | | LANGUAGE ELECTIVE 2 | 1 | 0 | 3 | 3.0 | 4.0 | LE | LCS |
| 4 | CSE202 | OBJECT ORIENTED PROGRAMMING | 3 | 0 | 2 | 4.0 | 5.0 | CR | DSC |
| 5 | CSE205 | DATA STRUCTURES AND ALGORITHMS | 3 | 0 | 2 | 4.0 | 5.0 | CR1 | DSC |
| 6 | CSE211 | COMPUTER ORGANIZATION AND DESIGN | 3 | 1 | 0 | 4.0 | 4.0 | CR | DSC |
| 7 | CSE306 | COMPUTER NETWORKS | 3 | 0 | 0 | 3.0 | 3.0 | CR1 | DSC |
| 8 | CSE307 | INTERNETWORKING ESSENTIALS | 0 | 0 | 2 | 1.0 | 2.0 | CR1 | DSC |
| 9 | GEN231 | COMMUNITY DEVELOPMENT PROJECT | 0 | 0 | 4 | 2.0 | 4.0 | CR3 | PRC |
| OTAL | | | 16.0 | 1.0 | 15.0 | 25.0 | 32.0 | | |

CORE ELECTIVE 4 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|----------------------------|---|---|---|--------|------------------|
| 1 | CSE316 | OPERATING SYSTEMS | 3 | 0 | 0 | 3.0 | 3.0 |
| 2 | MTH302 | PROBABILITY AND STATISTICS | 3 | 0 | 0 | 3.0 | 3.0 |

CORE ELECTIVE 5 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|---------------------------------|---|---|---|--------|------------------|
| 1 | CSE325 | OPERATING SYSTEMS LABORATORY | 0 | 0 | 2 | 1.0 | 2.0 |

LANGUAGE ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--|---|---|---|--------|------------------|
| 1 | PEL132 | COMMUNICATION SKILLS-II | 1 | 0 | 3 | 3.0 | 4.0 |
| 2 | PEL136 | ADVANCED COMMUNICATION SKILLS-II | 1 | 0 | 3 | 3.0 | 4.0 |

| | | Term 4 | | | | | | | P132-4-2022 |
|------|-------------|-----------------------------------|------|-----|-----|--------|------------------|------|-------------|
| S.No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Type | Nature |
| 1 | | APTITUDE ELECTIVE 1 | 2 | 1 | 0 | 3.0 | 3.0 | APE | EEA |
| 2 | | CORE ELECTIVE 4 | 3 | 0 | 0 | 3.0 | 3.0 | CE | DSC |
| 3 | | CORE ELECTIVE 5 | 0 | 0 | 2 | 1.0 | 2.0 | CE | DSC |
| 4 | | ENGINEERING MINOR ELECTIVE 1 | 3 | 0 | 0 | 3.0 | 3.0 | EM | DSC |
| 5 | | ENGINEERING MINOR ELECTIVE 2 | 3 | 0 | 0 | 3.0 | 3.0 | EM | DSC |
| 6 | CSE310 | PROGRAMMING IN JAVA | 3 | 0 | 2 | 4.0 | 5.0 | CR | DSC |
| 7 | CSE408 | DESIGN AND ANALYSIS OF ALGORITHMS | 3 | 0 | 0 | 3.0 | 3.0 | CR | DSC |
| 8 | INT404 | ARTIFICIAL INTELLIGENCE | 3 | 1 | 0 | 4.0 | 4.0 | CR | DSC |
| OTAL | | | 20.0 | 2.0 | 4.0 | 24.0 | 26.0 | | |

APTITUDE ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---------------------------------|---|---|---|--------|------------------|---------------|
| 1 | PEA305 | ANALYTICAL SKILLS-I | 2 | 1 | 0 | 3.0 | 3.0 | |
| 2 | PEA307 | ADVANCED ANALYTICAL SKILLS-I | 2 | 1 | 0 | 3.0 | 3.0 | |

CORE ELECTIVE 4 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|----------------------------|---|---|---|--------|------------------|---------------|
| 1 | CSE316 | OPERATING SYSTEMS | 3 | 0 | 0 | 3.0 | 3.0 | |
| 2 | MTH302 | PROBABILITY AND STATISTICS | 3 | 0 | 0 | 3.0 | 3.0 | |

CORE ELECTIVE 5 BASKET

| S. | No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|----|----|----------------|---------------------------------|---|---|---|--------|------------------|---------------|
| | 1 | CSE325 | OPERATING SYSTEMS LABORATORY | 0 | 0 | 2 | 1.0 | 2.0 | |

ENGINEERING MINOR ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|--|---|---|---|--------|------------------|--|
| 1 | INT330 | MANAGING CLOUD SOLUTIONS | 2 | 0 | 2 | 3.0 | 4.0 | CLOUD COMPUTING |
| 2 | INT242 | CYBER SECURITY ESSENTIALS | 2 | 0 | 2 | 3.0 | 4.0 | CYBER SECURITY |
| 3 | INT217 | INTRODUCTION TO DATA MANAGEMENT | 2 | 0 | 2 | 3.0 | 4.0 | DATA SCIENCE |
| 4 | INT219 | FRONT END WEB DEVELOPER | 2 | 0 | 2 | 3.0 | 4.0 | FULL STACK WEB DEVELOPMENT |
| 5 | ECE217 | INTRODUCTION TO INTERNET OF THINGS (IOT) | 3 | 0 | 0 | 3.0 | 3.0 | INTERNET OF THINGS (IOT) |
| 6 | INT254 | FUNDAMENTALS OF MACHINE LEARNING | 2 | 0 | 2 | 3.0 | 4.0 | MACHINE LEARNING |
| 7 | CSE374 | ADVANCE SOFTWARE ENGINEERING | 3 | 0 | 0 | 3.0 | 3.0 | SOFTWARE METHODOLOGIES AND TESTING |

ENGINEERING MINOR ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---|---|---|---|--------|------------------|--|
| 1 | INT362 | CLOUD ARCHITECTURE AND IMPLEMENTATION-I | 2 | 0 | 2 | 3.0 | 4.0 | CLOUD COMPUTING |
| 2 | INT249 | SYSTEM ADMINISTRATION | 2 | 0 | 2 | 3.0 | 4.0 | CYBER SECURITY |
| 3 | INT232 | DATA SCIENCE TOOLBOX : R PROGRAMMING | 2 | 0 | 2 | 3.0 | 4.0 | DATA SCIENCE |
| 4 | INT222 | ADVANCED WEB DEVELOPMENT | 2 | 0 | 2 | 3.0 | 4.0 | FULL STACK WEB DEVELOPMENT |
| 5 | ECE341 | PROGRAMMING IOT | 1 | 0 | 3 | 3.0 | 4.0 | INTERNET OF THINGS (IOT) |
| 6 | INT354 | MACHINE LEARNING-I | 2 | 0 | 2 | 3.0 | 4.0 | MACHINE LEARNING |
| 7 | CSE375 | SOFTWARE TESTING | 3 | 0 | 0 | 3.0 | 3.0 | SOFTWARE METHODOLOGIES AND TESTING |

| | Term 5 | | | | | | | | | |
|------|--------------------|------------------------------|---|---|---|--------|------------------|------|--------|--|
| S.No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Туре | Nature | |
| 1 | | ENGINEERING MINOR ELECTIVE 3 | 2 | 0 | 2 | 3.0 | 4.0 | EM | DSC | |
| 2 | | ENGINEERING MINOR ELECTIVE 4 | 2 | 0 | 2 | 3.0 | 4.0 | EM | DSC | |
| 3 | | OPEN MINOR 1 | 3 | 0 | 0 | 3.0 | 3.0 | OM | OEM | |
| 4 | | PATHWAY ELECTIVE 1 | 0 | 0 | 3 | 2.0 | 3.0 | PW | PWE | |

| 5 | | PATHWAY ELECTIVE 2 | 0 | 0 | 3 | 3.0 | 3.0 | PW | PWE |
|-------|--------|--|------|-----|------|------|------|----|-----|
| 6 | | TRAINING ELECTIVE 1 | 0 | 0 | 6 | 3.0 | 6.0 | TE | TCS |
| 7 | CSE322 | FORMAL LANGUAGES AND AUTOMATION THEORY | 3 | 0 | 0 | 3.0 | 3.0 | CR | DSC |
| TOTAL | | | 10.0 | 0.0 | 16.0 | 20.0 | 26.0 | | |

ENGINEERING MINOR ELECTIVE 3 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|--|---|---|---|--------|------------------|--|
| 1 | INT363 | CLOUD MICROSERVICES | 2 | 0 | 2 | 3.0 | 4.0 | CLOUD COMPUTING |
| 2 | INT250 | DIGITAL EVIDENCE ANALYSIS | 2 | 0 | 2 | 3.0 | 4.0 | CYBER SECURITY |
| 3 | INT233 | DATA VISUALIZATION | 2 | 0 | 2 | 3.0 | 4.0 | DATA SCIENCE |
| 4 | INT252 | WEB APP DEVELOPMENT WITH REACTIS | 2 | 0 | 2 | 3.0 | 4.0 | FULL STACK WEB DEVELOPMENT |
| 5 | ECE128 | INTRODUCTION TO IOT NETWORKING PROTOCOLS | 3 | 0 | 0 | 3.0 | 3.0 | INTERNET OF THINGS (IOT) |
| 6 | INT344 | NATURAL LANGUAGE PROCESSING | 2 | 0 | 1 | 3.0 | 3.0 | MACHINE LEARNING |
| 7 | CSE376 | AUTOMATED TESTING | 2 | 0 | 2 | 3.0 | 4.0 | SOFTWARE METHODOLOGIES AND TESTING |

ENGINEERING MINOR ELECTIVE 4 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---|---|---|---|--------|------------------|--|
| 1 | INT364 | CLOUD ARCHITECTURE AND IMPLEMENTATION- II | 2 | 0 | 2 | 3.0 | 4.0 | CLOUD COMPUTING |
| 2 | INT244 | SECURING COMPUTING SYSTEMS | 2 | 0 | 2 | 3.0 | 4.0 | CYBER SECURITY |
| 3 | INT234 | PREDICTIVE ANALYTICS | 2 | 0 | 2 | 3.0 | 4.0 | DATA SCIENCE |
| 4 | INT220 | SERVER SIDE SCRIPTING | 2 | 0 | 2 | 3.0 | 4.0 | FULL STACK WEB DEVELOPMENT |
| 5 | ECE237 | ARCHITECTING SMART IOT DEVICES | 1 | 0 | 3 | 3.0 | 4.0 | INTERNET OF THINGS (IOT) |
| 6 | INT423 | MACHINE LEARNING-II | 2 | 0 | 2 | 3.0 | 4.0 | MACHINE LEARNING |
| 7 | CSE377 | ADVANCE TESTING TECHNOLOGIES | 2 | 0 | 2 | 3.0 | 4.0 | SOFTWARE METHODOLOGIES AND TESTING |

PATHWAY ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|----------------------------------|---|---|---|--------|------------------|-----------------|
| 1 | PEA308 | ADVANCED ANALYTICAL SKILLS-II | 2 | 1 | 0 | 3.0 | 3.0 | GOVERNMENT JOBS |
| 2 | PEA306 | ANALYTICAL SKILLS-II | 2 | 1 | 0 | 3.0 | 3.0 | GOVERNMENT JOBS |
| 3 | PEA306 | ANALYTICAL SKILLS-II | 2 | 1 | 0 | 3.0 | 3.0 | HIGHER STUDIES |
| 4 | PEA308 | ADVANCED ANALYTICAL SKILLS-II | 2 | 1 | 0 | 3.0 | 3.0 | HIGHER STUDIES |
| 5 | CSE329 | PRELUDE TO COMPETITIVE CODING | 0 | 0 | 3 | 2.0 | 3.0 | PRODUCT BASED |
| 6 | PEA306 | ANALYTICAL SKILLS-II | 2 | 1 | 0 | 3.0 | 3.0 | SERVICE BASED |
| 7 | PEA308 | ADVANCED ANALYTICAL SKILLS-II | 2 | 1 | 0 | 3.0 | 3.0 | SERVICE BASED |

PATHWAY ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|----------------------------|---|---|---|--------|------------------|-----------------|
| 1 | CSE333 | COMBINATORIAL STUDIES-I | 3 | 0 | 0 | 3.0 | 3.0 | GOVERNMENT JOBS |
| 2 | CSE333 | COMBINATORIAL STUDIES-I | 3 | 0 | 0 | 3.0 | 3.0 | HIGHER STUDIES |

| 3 | CSE330 | COMPETITIVE CODING APPROACHES- TECHNIQUES | 0 | 0 | 3 | 3.0 | 3.0 | PRODUCT BASED |
|---|--------|---|---|---|---|-----|-----|---------------|
| 4 | PEV109 | VERBAL ABILITY | 2 | 0 | 2 | 3.0 | 4.0 | SERVICE BASED |
| 5 | PEV111 | ADVANCED -VERBAL ABILITY | 2 | 0 | 2 | 3.0 | 4.0 | SERVICE BASED |

TRAINING ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|-------------------------------|---|---|---|--------|------------------|---------------|
| 1 | CSE343 | TRAINING IN PROGRAMMING | 0 | 0 | 6 | 3.0 | 6.0 | |
| 2 | CSE443 | SEMINAR ON SUMMER TRAINING | 0 | 0 | 6 | 3.0 | 6.0 | |

| | Term 6 | | | | | | | | | |
|-------|-------------|----------------------------------|------|-----|-----|--------|------------------|------|--------|--|
| S.No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Type | Nature | |
| 1 | | ENGINEERING MINOR ELECTIVE 5 | 2 | 0 | 2 | 3.0 | 4.0 | EM | DSC | |
| 2 | | OPEN MINOR 2 | 3 | 0 | 0 | 3.0 | 3.0 | OM | OEM | |
| 3 | | PATHWAY ELECTIVE 3 | 0 | 0 | 3 | 2.0 | 3.0 | PW | PWE | |
| 4 | | PATHWAY ELECTIVE 4 | 3 | 0 | 0 | 3.0 | 3.0 | PW | PWE | |
| 5 | CSE332 | INDUSTRY ETHICS AND LEGAL ISSUES | 2 | 0 | 0 | 2.0 | 2.0 | CR | DSC | |
| 6 | CSE393 | ONLINE ACADEMIC COURSE | 3 | 0 | 0 | 3.0 | 3.0 | CR | DSC | |
| ΓΟΤΑL | | | 13.0 | 0.0 | 5.0 | 16.0 | 18.0 | | | |

ENGINEERING MINOR ELECTIVE 5 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---|---|---|---|--------|------------------|--|
| 1 | INT327 | CLOUD INFRASTRUCTURE AND RESOURCE MANAGEMENT | 2 | 0 | 2 | 3.0 | 4.0 | CLOUD COMPUTING |
| 2 | INT245 | PENETRATION TESTING | 2 | 0 | 2 | 3.0 | 4.0 | CYBER SECURITY |
| 3 | INT312 | BIG DATA FUNDAMENTALS | 2 | 0 | 2 | 3.0 | 4.0 | DATA SCIENCE |
| 4 | INT221 | MVC PROGRAMMING | 2 | 0 | 2 | 3.0 | 4.0 | FULL STACK WEB DEVELOPMENT |
| 5 | ECE129 | IOT FOR DIGITAL SOCIETY | 3 | 0 | 0 | 3.0 | 3.0 | INTERNET OF THINGS (IOT) |
| 6 | INT345 | COMPUTER VISION | 2 | 0 | 2 | 3.0 | 4.0 | MACHINE LEARNING |
| 7 | CSE378 | WEBSERVICES API AUTOMATION TESTING | 2 | 0 | 2 | 3.0 | 4.0 | SOFTWARE METHODOLOGIES AND TESTING |

PATHWAY ELECTIVE 3 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|-----------------------------|---|---|---|--------|------------------|-----------------|
| 1 | CSE334 | COMBINATORIAL STUDIES-II | 3 | 0 | 0 | 3.0 | 3.0 | GOVERNMENT JOBS |
| 2 | CSE334 | COMBINATORIAL STUDIES-II | 3 | 0 | 0 | 3.0 | 3.0 | HIGHER STUDIES |
| 3 | CSE331 | CODING PEARLS | 0 | 0 | 3 | 2.0 | 3.0 | PRODUCT BASED |
| 4 | CSE357 | COMBINATORIAL STUDIES | 2 | 0 | 2 | 3.0 | 4.0 | SERVICE BASED |

PATHWAY ELECTIVE 4 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|------------------------------|---|---|---|--------|------------------|-----------------|
| 1 | CSE335 | COMBINATORIAL STUDIES-III | 3 | 0 | 0 | 3.0 | 3.0 | GOVERNMENT JOBS |
| 2 | CSE335 | COMBINATORIAL STUDIES-III | 3 | 0 | 0 | 3.0 | 3.0 | HIGHER STUDIES |
| 3 | PES319 | SOFT SKILLS-II | 1 | 2 | 0 | 3.0 | 3.0 | PRODUCT BASED |
| 4 | PES319 | SOFT SKILLS-II | 1 | 2 | 0 | 3.0 | 3.0 | SERVICE BASED |

| Term 7 (For those students who opt for course work) | | | | | | | | | | |
|---|-------------|------------------------------|-----|-----|------|--------|------------------|------|--------|--|
| S.No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Туре | Nature | |
| 1 | | DEPARTMENT ELECTIVE 1 | 0 | 0 | 4 | 2.0 | 4.0 | DE | DSC | |
| 2 | | DEPARTMENT ELECTIVE 1 LAB | 0 | 0 | 2 | 1.0 | 2.0 | DE | DSC | |
| 3 | | ENGINEERING MINOR ELECTIVE 6 | 0 | 0 | 4 | 3.0 | 4.0 | EM | DSC | |
| 4 | | OPEN MINOR 3 | 3 | 0 | 0 | 3.0 | 3.0 | OM | OEM | |
| 5 | CSE339 | CAPSTONE PROJECT-I | 0 | 0 | 4 | 2.0 | 4.0 | CR | PRJ | |
| TOTAL | | | 3.0 | 0.0 | 14.0 | 11.0 | 17.0 | | | |

DEPARTMENT ELECTIVE 1 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---|---|---|---|--------|------------------|---------------|
| 1 | CSE304 | COMPUTER GRAPHICS AND VISUALIZATION | 3 | 1 | 0 | 4.0 | 4.0 | |
| 2 | CSE327 | SIMULATION AND MODELLING | 3 | 0 | 0 | 3.0 | 3.0 | |
| 3 | CSE406 | ADVANCED JAVA PROGRAMMING | 3 | 0 | 2 | 4.0 | 5.0 | |
| 4 | CSE434 | GAME DEVELOPMENT IN 3D | 2 | 0 | 2 | 3.0 | 4.0 | |
| 5 | CSE436 | BLOCKCHAIN | 3 | 0 | 2 | 4.0 | 5.0 | |
| 6 | INT301 | OPEN SOURCE TECHNOLOGIES | 0 | 0 | 4 | 2.0 | 4.0 | |
| 7 | INT402 | MODERN WEB PROGRAMMING TOOLS AND TECHNIQUES | 2 | 0 | 2 | 3.0 | 4.0 | |

DEPARTMENT ELECTIVE 1 LAB BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---|---|---|---|--------|------------------|---------------|
| 1 | CSE328 | SIMULATION AND MODELLING LABORATORY | 0 | 0 | 2 | 1.0 | 2.0 | |

ENGINEERING MINOR ELECTIVE 6 BASKET

| S. No | Course Code | Course Title | L | Т | P | Credit | Contact Hours | Elective Area |
|-------|----------------|---|---|---|---|--------|------------------|--|
| 1 | INT328 | NETWORK VIRTUALIZATION AND CLOUD SECURITY | 2 | 0 | 2 | 3.0 | 4.0 | CLOUD COMPUTING |
| 2 | INT251 | MALWARE ANALYSIS AND CYBER DEFENCE | 2 | 0 | 2 | 3.0 | 4.0 | CYBER SECURITY |
| 3 | INT315 | CLUSTER COMPUTING | 2 | 0 | 2 | 3.0 | 4.0 | DATA SCIENCE |
| 4 | INT253 | WEB DEVELOPMENT IN PYTHON USING DJANGO | 2 | 0 | 2 | 3.0 | 4.0 | FULL STACK WEB DEVELOPMENT |
| 5 | ECE140 | WORKSHOP ON IOT FOR DIGITAL SOCIETY | 1 | 0 | 3 | 3.0 | 4.0 | INTERNET OF THINGS (IOT) |
| 6 | INT422 | DEEP LEARNING | 2 | 0 | 2 | 3.0 | 4.0 | MACHINE LEARNING |
| 7 | CSE379 | MOBILE AUTOMATED TESTING | 0 | 0 | 4 | 3.0 | 4.0 | SOFTWARE METHODOLOGIES AND TESTING |

| Term 7 (For those students who opt for industrial internship) | | | | | | | | | | |
|---|--------|--------------------------|--|-----|-----|------|------|------|--------|-----|
| S.No Course Code Course Title L T P Credit Contact Hours Type | | | | | | | | | Nature | |
| 1 | CSE447 | INDUSTRY CO-OP PROJECT-I | | 0 | 0 | 32 | 16.0 | 32.0 | CR | TCF |
| TOTAL | | | | 0.0 | 0.0 | 32.0 | 16.0 | 32.0 | | |

| Term 8 (For those students who opt for course work) | | | | | | | P132-8-2022 | | |
|---|-------------|---------------------------|---|---|----|--------|------------------|------|--------|
| S.No | Course Code | Course Title | L | T | P | Credit | Contact Hours | Туре | Nature |
| 1 | | DEPARTMENT ELECTIVE 2 | 3 | 0 | 0 | 3.0 | 3.0 | DE | DSC |
| 2 | | DEPARTMENT ELECTIVE 2 LAB | 0 | 0 | 2 | 1.0 | 2.0 | DE | DSC |
| 3 | | OPEN MINOR 4 | 3 | 0 | 0 | 3.0 | 3.0 | OM | OEM |
| 4 | CSE435 | COMPREHENSIVE SEMINAR | 0 | 0 | 2 | 1.0 | 2.0 | CR | SMN |
| 5 | CSE439 | CAPSTONE PROJECT-II | 0 | 0 | 16 | 8.0 | 16.0 | CR | PRJ |
| TOTAL 6.0 0.0 20.0 16.0 26.0 | | | | | | | | | |

DEPARTMENT ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--------------------------------------|---|---|---|--------|------------------|
| 1 | CSE493 | LINUX SYSTEM ADMINISTRATION | 3 | 0 | 2 | 4.0 | 5.0 |
| 2 | CSE403 | NETWORK SECURITY AND CRYPTOGRAPHY | 3 | 0 | 2 | 4.0 | 5.0 |
| 3 | CSE504 | STORAGE TECHNOLOGY FOUNDATION | 3 | 0 | 0 | 3.0 | 3.0 |
| 4 | INT411 | SOFTWARE PROJECT MANAGEMENT | 3 | 0 | 0 | 3.0 | 3.0 |

DEPARTMENT ELECTIVE 2 LAB BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|--|---|---|---|--------|------------------|
| 1 | CSE507 | STORAGE TECHNOLOGY FOUNDATION LABORATORY | 0 | 0 | 2 | 1.0 | 2.0 |
| 2 | INT416 | SOFTWARE PROJECT MANAGEMENT LABORATORY | 0 | 0 | 3 | 2.0 | 3.0 |

| Term 8 (For those students who opt for industrial internship) | | | | | | | P132A-8-2022 | | |
|---|---|---------------------|---|---|----|------|--------------|----|--------|
| S.No | S.No Course Code Course Title L T P Credit Contact Hours Type M | | | | | | | | Nature |
| 1 | | TRAINING ELECTIVE 2 | 0 | 0 | 32 | 16.0 | 32.0 | TE | TCF |
| TOTAL 0.0 0.0 32.0 16.0 32.0 | | | | | | | | | |

TRAINING ELECTIVE 2 BASKET

| S. No | Course Code | Course Title | L | T | P | Credit | Contact Hours |
|-------|----------------|------------------------------|---|---|----|--------|------------------|
| 1 | CSE441 | INDUSTRY INTERNSHIP PROJECT | 0 | 0 | 32 | 16.0 | 32.0 |
| 2 | CSE448 | INDUSTRY CO-OP PROJECT-II | 0 | 0 | 32 | 16.0 | 32.0 |

Important Points

- The calculation of Total Contact hours in Lecture (L), Tutorial (T) and Practical (P) for Elective Course slots reflecting the minimum L, T and P of a course in Elective Basket.

 • Every Course has a 'Type' and 'Nature' which defines its character.

Program Structure

Program Code: P132::B.Tech. (Computer Science & Engineering)

Program Batch: 2022

| Category | Category Description | Sub Category | Number of Theory (T)/Practical (P) BYOD (B) | Total Credits |
|----------|--|--|---|------------------|
| A1 | Language & Communication Skills | PES (Soft Skills) | 1T | 3 |
| Ai | (LCS) | | | |
| B1 | Basic Science(BSC) | Maths | 2T | 7 |
| D1 | basic Science(BSC) | Basic Science(BSC) | 2T 2P | 8 |
| C1 | Discipline Core(DSC) | Discipline Core(DSC) | 24T 8P 9B | 87 |
| D | Open Minor/Open Elective(OEM) | Open Minor/Open Elective(OEM) | 4T | 12 |
| E | Project (including Capstone Project and Research Project)(PRJ) | Project (including Capstone Project and Research Project)(PRJ) | 2P | 10 |
| | Community Development Project (PRC) | Community Development Project(PRC) | 1P | 2 |
| | Employability Enhancement Activities (EEA) | Employability Enhancement Activities (EEA) | 1T | 3 |
| F | Engineering Science (ESC) | Engineering Science(ESC) | 2T | 6 |
| Г | Pathway Elective(PWE) | Pathway Elective(PWE) | 1T 3P | 10 |
| | Seminar(SMN) | Seminar(SMN) | 1P | 1 |
| | Training Compulsory - Summer (TCS) | Training Compulsory - Summer (TCS) | 1P | 3 |
| | | Total | 39T 18P 10B | 158 |

Note

² Discipline Core (DSC) are be mapped with GATE/UGCNET/CSIRNET/IES/AMCAT/ICAR as per applicability.

| Γerm-v | vise Credits | | | |
|--------|---|--------|---------------------------|-----------------------|
| Term | Semester | Path | Credit (without rounding) | Credit(with rounding) |
| 1 | Term 1 | Common | 21.5 | 22.0 |
| 2 | Term 2 | Common | 24 | 24.0 |
| 3 | Term 3 | Common | 24.5 | 25.0 |
| 4 | Term 4 | Common | 24 | 24.0 |
| 5 | Term 5 | Common | 18 | 20.0 |
| 6 | Term 6 | Common | 15.5 | 16.0 |
| 7 | Term 7 (For students who opt for industrial internship) | A | 16 | 16.0 |

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For applicable programs, students can graduate with 2 Minors (1 within discipline and 1 outside discipline and as depicted in the structure under the headings Discipline Minors and Open Elective/Minors respectively).

| 7 | Term 7 (For students who opt for course work) | В | 10 | 11.0 |
|---|---|---|----|------|
| 8 | Term 8 (For students who opt for industrial internship) | A | 16 | 16.0 |
| 8 | Term 8 (For students who opt for course work) | В | 16 | 16.0 |

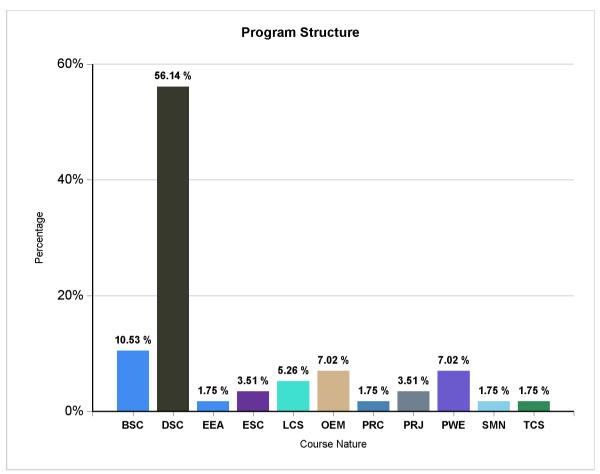
| Term path wise Credits (Including Common Term) | | | | | | | | | |
|--|--|-------|--|--|--|--|--|--|--|
| Path | Path Credit (without rounding) Credit(with rounding) | | | | | | | | |
| A | 159.5 | 163.0 | | | | | | | |
| В | 153.5 | 158.0 | | | | | | | |

Course Prerequisites

| Term 8 (For st | udents who opt for course worl | k) | | | | | | | | |
|---|--------------------------------|---------|--------|------|-----|----|-----|--------|--|--|
| CSE439-CAPS | STONE PROJECT-II | | | | | | | | | |
| Course Code Course Title L T P Credit Type Nature | | | | | | | | | | |
| CSE439 | CAPSTONE PROJECT-II | 0.0 | 0.0 | 16.0 | 8.0 | CR | | PRJ | | |
| Term-8 | Course P | rerequi | site D | ata | | | | | | |
| Course Co | de Course Name | L | | | T | | P | Credit | | |
| CSE339 | CAPSTONE PROJECT-I | 0.0 | , | | 0.0 | | 4.0 | 2.0 | | |

| | Course 1, po |
|-----|---|
| APE | Aptitude Elective |
| CE | Core Elective |
| CR | Core Course |
| CR1 | CORE-I |
| CR3 | |
| DE | Departmental Elective |
| EM | Engineering Minor |
| LE | Language Elective |
| OM | Open/Minor |
| PW | Pathway Elective |
| TE | Training Elective |
| | Course Nature |
| BSC | Basic Science |
| DSC | Discipline Core |
| EEA | Employability Enhancement Activities |
| ESC | Engineering Science |
| LCS | Language & Communication Skills |
| OEM | Open Minor/Open Elective |
| PRC | Community Development Project |
| PRJ | Project (including Capstone Project and Research Project) |
| PWE | Pathway Elective |
| SMN | Seminar |
| TCF | Training Compulsory – Full term |
| TCS | Training Compulsory - Summer |

Course Type



| Sr No | NAME | Nature Name | Total |
|----------|------|--|-------|
| 1 | BSC | Basic Science | 6 |
| 2 | DSC | Discipline Core | 32 |
| 3 | EEA | Employability Enhancement Activities | 1 |
| 4 | ESC | Engineering Science | 2 |
| 5 | LCS | Language & Communication Skills | 3 |
| 6 | OEM | Open Minor/Open Elective | 4 |
| 7 | PRC | Community Development Project | 1 |
| 8 | PRJ | Project (including Capstone Project and Research Project) | 2 |
| 9 | PWE | Pathway Elective | 4 |
| 10 | SMN | Seminar | 1 |
| 11 | TCS | Training Compulsory - Summer | 1 |