

Semester wise Course List- Computer Engineering

Semester I

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|------------------------------------|---------------|----------------------------------|
| 1 | MA-101 | Calculus | --- | (3-0-3) |
| 2 | PH-103 | Physics | --- | (3-1-4) |
| 3 | EE-102 | Electric Circuit Analysis | --- | (3-1-4) |
| 4 | CE-101 | Computer Organization Fundamentals | --- | (2-0-2) |
| 5 | HU-118 | Islamic Studies | --- | (2-0-2) |
| 6 | HU-115 | Pakistan Studies | --- | (2-0-2) |
| NO. of Courses = 6 | | Credit Hours = 17 | | Labs = 2 |

Semester II

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|-------------------|-------------|-----------------------|---------------|----------------------------------|
| 1 | MA-201 | Linear Algebra | | (3-0-3) |
| 2 | EE-222 | Digital Logic Design | | (3-1-4) |
| 3 | EE-201 | Network Analysis | EE-102 | (3-1-4) |
| 4 | CE-111 | Computing Programming | | (2-1-3) |
| 5 | HU-101 | Communication Skills | --- | (3-0-3) |
| No. of Courses =5 | | Credit Hours = 17 | | Labs = 3 |

Semester III

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|------------------------|---------------|----------------------------------|
| 1 | CE-202 | Computer Architecture | CE-101 | (3-1-4) |
| 2 | CE-212 | Data Structures | CE-111 | (3-1-4) |
| 3 | MA-106 | Differential Equations | MA-101 | (3-0-3) |
| 4 | EE-203 | Analog Electronics I | EE-102 | (3-1-4) |
| 5 | MA-204 | Discrete Mathematics | --- | (3-0-3) |
| No. of Courses = 5 | | Credit Hours = 18 | | Labs = 3 |

Semester IV

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|--|---------------|----------------------------------|
| 1 | MA-303 | Probability and Random Variables | --- | (3-0-3) |
| 2 | CE-213 | Object Oriented Programming | CE-212 | (3-1-4) |
| 3 | EE-234 | Signals and Systems | MA-101 | (3-1-4) |
| 4 | CE-203 | Computer Application in Engineering Design | | (2-1-3) |
| 5 | CE-221 | Operating Systems | CE-212 | (3-0-3) |
| No. of Courses = 5 | | Credit Hours = 17 | | Labs = 3 |

Semester V

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|---------------------------------------|---------------|----------------------------------|
| 1 | EE-462 | Computer Networks | | (3-1-4) |
| 2 | MA-202 | Numerical Analysis and Computation | MA-101 | (3-0-3) |
| 3 | EE-433 | Digital Signal Processing | EE-234 | (3-1-4) |
| 4 | CE-304 | Microprocessors and Microcontroller I | EE-222 | (3-1-4) |
| 5 | CE-3XX | Elective-I | --- | (3-1-4) |
| No. of Courses = 5 | | Credit Hours = 19 | | Labs = 4 |

Semester VI

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|--------------------------|---------------|----------------------------------|
| 1 | CE-331 | Digital Image Processing | EE-433 | (2-1-3) |
| 2 | EE-354 | Control systems | MA-201,MA-106 | (3-1-4) |
| 3 | CE-3XX | Elective-II | | (3-1-4) |
| 4 | CE-341 | Database systems | CE-212 | (3-1-4) |
| 5 | CE-3XX | Elective-III | --- | (3-0-3) |
| 6 | CE-497 | Final Year Project I | ----- | (0-1-1) |
| No. of Courses = 6 | | Credit Hours = 19 | | Labs = 5 |

Semester VII

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|---|---------------|----------------------------------|
| 1 | CE-405 | Digital System Design | EE-222 | (3-1-4) |
| 2 | CE-461 | Introduction to Artificial Intelligence | | (3-1-4) |
| 3 | EE-439 | Analog and Digital Communication | MA-303 | (2-1-3) |
| 4 | CE-498 | Final Year Project II | ----- | (0-2-2) |
| 5 | CE-4XX | Elective-IV | | (3-0-3) |
| 6 | HU-109 | Technical Writing | | (2-0-2) |
| No. of Courses = 6 | | Credit Hours = 18 | | Labs = 5 |

Semester VIII

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|--------------------|-------------|------------------------|---------------|----------------------------------|
| 1 | HU-215 | Ethics | | (2-0-2) |
| 2 | CE-491 | Entrepreneurship | --- | (2-0-2) |
| 3 | CE-4XX | Elective-V | | (3-0-3) |
| 4 | CE-499 | Final Year Project III | ----- | (0-3-3) |
| No. of Courses = 4 | | Credit Hours = 10 | | Labs = 3 |

Total Credits = 135

ELECTIVES

| S.No | Course Code | Courses | Prerequisites | Credit Hrs. (Theory-Lab-Credits) |
|------|-------------|--|------------------|-------------------------------------|
| 1 | CE-451 | Fault Tolerant Computing | CE-315 | (3-0-3) |
| 2 | CE-315 | Parallel and Distributed Computing | --- | (3-0-3) |
| 3 | CE-331 | System Programming | CE-213 | (3-0-3) |
| 4 | CE-401 | Embedded Systems | CE-304 | (3-0-3) |
| 5 | EE-204 | Analog Electronics II | EE-203 | (3-0-3) |
| 6 | CE-305 | Microprocessor and Microcontroller II | CE-304 | (3-1-4) |
| 7 | CE-431 | Introduction to Visual Perception | MA-201 | (3-0-3) |
| 8 | CE-361 | Machine Learning | -- | (3-0-3) |
| 9 | CE-462 | Data Mining Fundamentals | CE-461 | (3-0-3) |
| 10 | CE-463 | Big Data Analysis | -- | (3-0-3) |
| 11 | EE-435 | Information Coding Theory | -- | (3-0-3) |
| 12 | CE-411 | Mobile Application Development | CE-213 | (3-1-4) |
| 13 | CE-311 | Software Engineering | CE-213 | (3-0-3) |
| 14 | EE-432 | Wireless Communication | EE-439 | (3-0-3) |
| 15 | CE-402 | Introduction to Robotics | MA-201 | (3-0-3) |
| 16 | CE-492 | Laser and its Applications | PH-103 | (3-0-3) |
| 17 | CE-471 | Virtual Environment Basics | CE-213 | (3-0-3) |
| 18 | CE-371 | Computer Graphics | -- | (3-1-4) |
| 19 | CE-306 | Digital instrumentation and Systems | -- | (3-1-4) |
| 20 | CE-381 | Integrated Services over Packet Networks | -- | (3-1-4) |
| 21 | CE-412 | Software Design and Testing | CE-213 | (3-1-4) |
| 22 | EE-341 | Electrical Machines | -- | (3-1-4) |
| 23 | EE-403 | Industrial Automation | -- | (3-1-4) |
| 24 | CE-452 | Cloud Computing | CE-315 | (3-1-4) |
| 25 | CE-421 | Computer System Modeling | -- | (3-1-4) |
| 26 | EE-303 | Digital Electronics | -- | (3-1-4) |
| 27 | CE-403 | VLSI Design | EE-222 | (3-1-4) |
| 28 | CE-404 | Human-Computer Interface | CE-331 | (3-0-3) |
| 29 | CE-432 | Bio Medical Signal Processing | CE-331 | (3-0-3) |
| 30 | CE-413 | GPU Programming | CE-213 | (3-1-4) |
| 31 | EE-401 | Power Electronics | -- | (3-1-4) |
| 32 | EE-456 | Engineering Management & Economics | -- | (3-0-3) |
| 33 | CE-481 | Computer Engineering Project Management | | (3-0-3) |
| 34 | CE-455 | Quantum Computing | CE-315 | (3-0-3) |
| 35 | CE-496 | Advanced Topics in Computer Engineering | CE-203 CE-221 | (3-0-3) |