

ANNA UNIVERSITY, CHENNAI  
AFFILIATED INSTITUTIONS  
B.E. ELECTRONICS AND COMMUNICATION ENGINEERING  
REGULATIONS – 2017  
CHOICE BASED CREDIT SYSTEM  
I - VIII SEMESTERS CURRICULA AND SYLLABI

**SEMESTER I**

| Sl. No            | COURSE CODE | COURSE TITLE                                      | CATEGORY | CONTACT PERIODS | L         | T        | P         | C         |
|-------------------|-------------|---------------------------------------------------|----------|-----------------|-----------|----------|-----------|-----------|
| <b>THEORY</b>     |             |                                                   |          |                 |           |          |           |           |
| 1.                | HS8151      | Communicative English                             | HS       | 4               | 4         | 0        | 0         | 4         |
| 2.                | MA8151      | Engineering Mathematics - I                       | BS       | 4               | 4         | 0        | 0         | 4         |
| 3.                | PH8151      | Engineering Physics                               | BS       | 3               | 3         | 0        | 0         | 3         |
| 4.                | CY8151      | Engineering Chemistry                             | BS       | 3               | 3         | 0        | 0         | 3         |
| 5.                | GE8151      | Problem Solving and Python Programming            | ES       | 3               | 3         | 0        | 0         | 3         |
| 6.                | GE8152      | Engineering Graphics                              | ES       | 6               | 2         | 0        | 4         | 4         |
| <b>PRACTICALS</b> |             |                                                   |          |                 |           |          |           |           |
| 7.                | GE8161      | Problem Solving and Python Programming Laboratory | ES       | 4               | 0         | 0        | 4         | 2         |
| 8.                | BS8161      | Physics and Chemistry Laboratory                  | BS       | 4               | 0         | 0        | 4         | 2         |
| <b>TOTAL</b>      |             |                                                   |          | <b>31</b>       | <b>19</b> | <b>0</b> | <b>12</b> | <b>25</b> |

**SEMESTER II**

| Sl. No            | COURSE CODE | COURSE TITLE                                     | CATEGORY | CONTACT PERIODS | L         | T        | P        | C         |
|-------------------|-------------|--------------------------------------------------|----------|-----------------|-----------|----------|----------|-----------|
| <b>THEORY</b>     |             |                                                  |          |                 |           |          |          |           |
| 1.                | HS8251      | Technical English                                | HS       | 4               | 4         | 0        | 0        | 4         |
| 2.                | MA8251      | Engineering Mathematics - II                     | BS       | 4               | 4         | 0        | 0        | 4         |
| 3.                | PH8253      | Physics for Electronics Engineering              | BS       | 3               | 3         | 0        | 0        | 3         |
| 4.                | BE8254      | Basic Electrical and Instrumentation Engineering | ES       | 3               | 3         | 0        | 0        | 3         |
| 5.                | EC8251      | Circuit Analysis                                 | PC       | 4               | 4         | 0        | 0        | 4         |
| 6.                | EC8252      | Electronic Devices                               | PC       | 3               | 3         | 0        | 0        | 3         |
| <b>PRACTICALS</b> |             |                                                  |          |                 |           |          |          |           |
| 7.                | EC8261      | Circuits and Devices Laboratory                  | PC       | 4               | 0         | 0        | 4        | 2         |
| 8.                | GE8261      | Engineering Practices Laboratory                 | ES       | 4               | 0         | 0        | 4        | 2         |
| <b>TOTAL</b>      |             |                                                  |          | <b>29</b>       | <b>21</b> | <b>0</b> | <b>8</b> | <b>25</b> |



*S. Rajan*  
Head of the Department  
Mechanical Engineering  
Mount Zion College of Engg. & Tech.  
Pudukkottai - 622 507

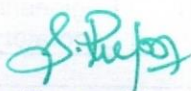
### SEMESTER III

| Sl. No            | COURSE CODE | COURSE TITLE                                      | CATEGORY | CONTACT PERIODS | L         | T        | P         | C         |
|-------------------|-------------|---------------------------------------------------|----------|-----------------|-----------|----------|-----------|-----------|
| <b>THEORY</b>     |             |                                                   |          |                 |           |          |           |           |
| 1.                | MA8352      | Linear Algebra and Partial Differential Equations | BS       | 4               | 4         | 0        | 0         | 4         |
| 2.                | EC8393      | Fundamentals of Data Structures In C              | ES       | 3               | 3         | 0        | 0         | 3         |
| 3.                | EC8351      | Electronic Circuits- I                            | PC       | 3               | 3         | 0        | 0         | 3         |
| 4.                | EC8352      | Signals and Systems                               | PC       | 4               | 4         | 0        | 0         | 4         |
| 5.                | EC8392      | Digital Electronics                               | PC       | 3               | 3         | 0        | 0         | 3         |
| 6.                | EC8391      | Control Systems Engineering                       | PC       | 3               | 3         | 0        | 0         | 3         |
| <b>PRACTICALS</b> |             |                                                   |          |                 |           |          |           |           |
| 7.                | EC8381      | Fundamentals of Data Structures in C Laboratory   | ES       | 4               | 0         | 0        | 4         | 2         |
| 8.                | EC8361      | Analog and Digital Circuits Laboratory            | PC       | 4               | 0         | 0        | 4         | 2         |
| 9.                | HS8381      | Interpersonal Skills/Listening & Speaking         | EEC      | 2               | 0         | 0        | 2         | 1         |
| <b>TOTAL</b>      |             |                                                   |          | <b>30</b>       | <b>20</b> | <b>0</b> | <b>10</b> | <b>25</b> |

### SEMESTER IV

| Sl. No            | COURSE CODE | COURSE TITLE                              | CATEGORY | CONTACT PERIODS | L         | T        | P        | C         |
|-------------------|-------------|-------------------------------------------|----------|-----------------|-----------|----------|----------|-----------|
| <b>THEORY</b>     |             |                                           |          |                 |           |          |          |           |
| 1.                | MA8451      | Probability and Random Processes          | BS       | 4               | 4         | 0        | 0        | 4         |
| 2.                | EC8452      | Electronic Circuits II                    | PC       | 3               | 3         | 0        | 0        | 3         |
| 3.                | EC8491      | Communication Theory                      | PC       | 3               | 3         | 0        | 0        | 3         |
| 4.                | EC8451      | Electromagnetic Fields                    | PC       | 4               | 4         | 0        | 0        | 4         |
| 5.                | EC8453      | Linear Integrated Circuits                | PC       | 3               | 3         | 0        | 0        | 3         |
| 6.                | GE8291      | Environmental Science and Engineering     | HS       | 3               | 3         | 0        | 0        | 3         |
| <b>PRACTICALS</b> |             |                                           |          |                 |           |          |          |           |
| 7.                | EC8461      | Circuits Design and Simulation Laboratory | PC       | 4               | 0         | 0        | 4        | 2         |
| 8.                | EC8462      | Linear Integrated Circuits Laboratory     | PC       | 4               | 0         | 0        | 4        | 2         |
| <b>TOTAL</b>      |             |                                           |          | <b>28</b>       | <b>20</b> | <b>0</b> | <b>8</b> | <b>24</b> |



  
 Head of the Department  
 Mechanical Engineering  
 Mount Zion College of Engg. & Tech.  
 Pudukkottai - 622 507

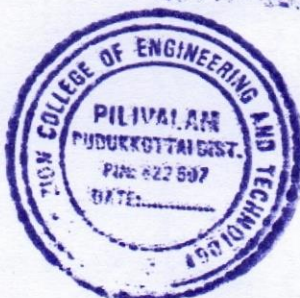


### SEMESTER V

| Sl. No            | COURSE CODE | COURSE TITLE                           | CATEGORY | CONTACT PERIODS | L         | T        | P         | C         |
|-------------------|-------------|----------------------------------------|----------|-----------------|-----------|----------|-----------|-----------|
| <b>THEORY</b>     |             |                                        |          |                 |           |          |           |           |
| 1.                | EC8501      | Digital Communication                  | PC       | 3               | 3         | 0        | 0         | 3         |
| 2.                | EC8553      | Discrete-Time Signal Processing        | PC       | 4               | 4         | 0        | 0         | 4         |
| 3.                | EC8552      | Computer Architecture and Organization | PC       | 3               | 3         | 0        | 0         | 3         |
| 4.                | EC8551      | Communication Networks                 | PC       | 3               | 3         | 0        | 0         | 3         |
| 5.                |             | Professional Elective I                | PE       | 3               | 3         | 0        | 0         | 3         |
| 6.                |             | Open Elective I                        | OE       | 3               | 3         | 0        | 0         | 3         |
| <b>PRACTICALS</b> |             |                                        |          |                 |           |          |           |           |
| 7.                | EC8562      | Digital Signal Processing Laboratory   | PC       | 4               | 0         | 0        | 4         | 2         |
| 8.                | EC8561      | Communication Systems Laboratory       | PC       | 4               | 0         | 0        | 4         | 2         |
| 9.                | EC8563      | Communication Networks Laboratory      | PC       | 4               | 0         | 0        | 4         | 2         |
| <b>TOTAL</b>      |             |                                        |          | <b>31</b>       | <b>19</b> | <b>0</b> | <b>12</b> | <b>25</b> |

### SEMESTER VI

| Sl. No            | COURSE CODE | COURSE TITLE                                    | CATEGORY | CONTACT PERIODS | L         | T        | P         | C         |
|-------------------|-------------|-------------------------------------------------|----------|-----------------|-----------|----------|-----------|-----------|
| <b>THEORY</b>     |             |                                                 |          |                 |           |          |           |           |
| 1.                | EC8691      | Microprocessors and Microcontrollers            | PC       | 3               | 3         | 0        | 0         | 3         |
| 2.                | EC8095      | VLSI Design                                     | PC       | 3               | 3         | 0        | 0         | 3         |
| 3.                | EC8652      | Wireless Communication                          | PC       | 3               | 3         | 0        | 0         | 3         |
| 4.                | MG8591      | Principles of Management                        | HS       | 3               | 3         | 0        | 0         | 3         |
| 5.                | EC8651      | Transmission Lines and RF Systems               | PC       | 3               | 3         | 0        | 0         | 3         |
| 6.                |             | Professional Elective -II                       | PE       | 3               | 3         | 0        | 0         | 3         |
| <b>PRACTICALS</b> |             |                                                 |          |                 |           |          |           |           |
| 7.                | EC8681      | Microprocessors and Microcontrollers Laboratory | PC       | 4               | 0         | 0        | 4         | 2         |
| 8.                | EC8661      | VLSI Design Laboratory                          | PC       | 4               | 0         | 0        | 4         | 2         |
| 9.                | EC8611      | Technical Seminar                               | EEC      | 2               | 0         | 0        | 2         | 1         |
| 10.               | HS8581      | Professional Communication                      | EEC      | 2               | 0         | 0        | 2         | 1         |
| <b>TOTAL</b>      |             |                                                 |          | <b>30</b>       | <b>18</b> | <b>0</b> | <b>12</b> | <b>24</b> |



*S. Deepa*  
 Head of the Department,  
 Mechanical Engineering  
 Mount Zion College of Engg. & Tech  
 Pudukkottai - 622 507

# SEMESTER VII

| Sl.No             | COURSE CODE | COURSE TITLE                        | CATEGORY | CONTACT PERIODS | L         | T        | P        | C         |
|-------------------|-------------|-------------------------------------|----------|-----------------|-----------|----------|----------|-----------|
| <b>THEORY</b>     |             |                                     |          |                 |           |          |          |           |
| 1.                | EC8701      | Antennas and Microwave Engineering  | PC       | 3               | 3         | 0        | 0        | 3         |
| 2.                | EC8751      | Optical Communication               | PC       | 3               | 3         | 0        | 0        | 3         |
| 3.                | EC8791      | Embedded and Real Time Systems      | PC       | 3               | 3         | 0        | 0        | 3         |
| 4.                | EC8702      | Ad hoc and Wireless Sensor Networks | PC       | 3               | 3         | 0        | 0        | 3         |
| 5.                |             | Professional Elective -III          | PE       | 3               | 3         | 0        | 0        | 3         |
| 6.                |             | Open Elective - II                  | OE       | 3               | 3         | 0        | 0        | 3         |
| <b>PRACTICALS</b> |             |                                     |          |                 |           |          |          |           |
| 7.                | EC8711      | Embedded Laboratory                 | PC       | 4               | 0         | 0        | 4        | 2         |
| 8.                | EC8761      | Advanced Communication Laboratory   | PC       | 4               | 0         | 0        | 4        | 2         |
| <b>TOTAL</b>      |             |                                     |          | <b>26</b>       | <b>18</b> | <b>0</b> | <b>8</b> | <b>22</b> |

# SEMESTER VIII

| Sl. No            | COURSE CODE | COURSE TITLE             | CATEGORY | CONTACT PERIODS | L        | T        | P         | C         |
|-------------------|-------------|--------------------------|----------|-----------------|----------|----------|-----------|-----------|
| <b>THEORY</b>     |             |                          |          |                 |          |          |           |           |
| 1.                |             | Professional Elective IV | PE       | 3               | 3        | 0        | 0         | 3         |
| 2.                |             | Professional Elective V  | PE       | 3               | 3        | 0        | 0         | 3         |
| <b>PRACTICALS</b> |             |                          |          |                 |          |          |           |           |
| 3.                | EC8811      | Project Work             | EEC      | 20              | 0        | 0        | 20        | 10        |
| <b>TOTAL</b>      |             |                          |          | <b>26</b>       | <b>6</b> | <b>0</b> | <b>20</b> | <b>16</b> |

TOTAL NO. OF CREDITS: 186

*[Signature]*

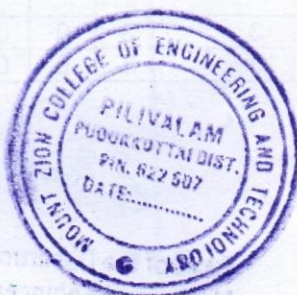
Head of the Department  
Mechanical Engineering  
Mount Zion College of Engg. & Tech.  
Pudukkottai - 622 507



|     |        |                                                 |    |   |   |   |   |   |
|-----|--------|-------------------------------------------------|----|---|---|---|---|---|
| 27. | EC8681 | Microprocessors and Microcontrollers Laboratory | PC | 4 | 0 | 0 | 4 | 2 |
| 28. | EC8701 | Antennas and Microwave Engineering              | PC | 3 | 3 | 0 | 0 | 3 |
| 29. | EC8751 | Optical Communication                           | PC | 3 | 3 | 0 | 0 | 3 |
| 30. | EC8791 | Embedded and Real Time Systems                  | PC | 3 | 3 | 0 | 0 | 3 |
| 31. | EC8702 | Ad hoc and Wireless Sensor Networks             | PC | 3 | 3 | 0 | 0 | 3 |
| 32. | EC8711 | Embedded Laboratory                             | PC | 4 | 0 | 0 | 4 | 2 |
| 33. | EC8761 | Advanced Communication Laboratory               | PC | 4 | 0 | 0 | 4 | 2 |

*S. Rupa*

Head of the Department  
Mechanical Engineering  
Mount Zion College of Engg. & Tech  
Pudukkottai - 622 507



**PROFESSIONAL ELECTIVES (PE)  
SEMESTER V  
ELECTIVE I**

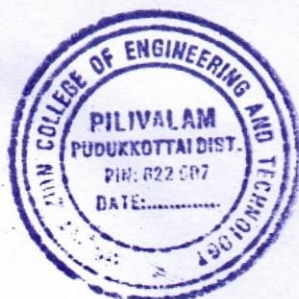
| Sl. No | COURSE CODE | COURSE TITLE                     | CATEGORY | CONTACT PERIODS | L | T | P | C |
|--------|-------------|----------------------------------|----------|-----------------|---|---|---|---|
| 1.     | CS8392      | Object Oriented Programming      | PE       | 3               | 3 | 0 | 0 | 3 |
| 2.     | EC8073      | Medical Electronics              | PE       | 3               | 3 | 0 | 0 | 3 |
| 3.     | CS8493      | Operating Systems                | PE       | 3               | 3 | 0 | 0 | 3 |
| 4.     | EC8074      | Robotics and Automation          | PE       | 3               | 3 | 0 | 0 | 3 |
| 5.     | EC8075      | Nano Technology and Applications | PE       | 3               | 3 | 0 | 0 | 3 |
| 6.     | GE8074      | Human Rights                     | PE       | 3               | 3 | 0 | 0 | 3 |
| 7.     | GE8077      | Total Quality Management         | PE       | 3               | 3 | 0 | 0 | 3 |

**SEMESTER VI  
ELECTIVE II**

| Sl. No | COURSE CODE | COURSE TITLE                             | CATEGORY | CONTACT PERIODS | L | T | P | C |
|--------|-------------|------------------------------------------|----------|-----------------|---|---|---|---|
| 1.     | CS8792      | Cryptography and Network Security        | PE       | 3               | 3 | 0 | 0 | 3 |
| 2.     | EC8091      | Advanced Digital Signal Processing       | PE       | 3               | 3 | 0 | 0 | 3 |
| 3.     | EC8001      | MEMS and NEMS                            | PE       | 3               | 3 | 0 | 0 | 3 |
| 4.     | EC8002      | Multimedia Compression and Communication | PE       | 3               | 3 | 0 | 0 | 3 |
| 5.     | EC8003      | CMOS Analog IC Design                    | PE       | 3               | 3 | 0 | 0 | 3 |
| 6.     | EC8004      | Wireless Networks                        | PE       | 3               | 3 | 0 | 0 | 3 |
| 7.     | GE8075      | Intellectual Property Rights             | PE       | 3               | 3 | 0 | 0 | 3 |

**SEMESTER VII  
ELECTIVE III**

| Sl. No | COURSE CODE | COURSE TITLE                                        | CATEGORY | CONTACT PERIODS | L | T | P | C |
|--------|-------------|-----------------------------------------------------|----------|-----------------|---|---|---|---|
| 1.     | EC8092      | Advanced Wireless Communication                     | PE       | 3               | 3 | 0 | 0 | 3 |
| 2.     | EC8071      | Cognitive Radio                                     | PE       | 3               | 3 | 0 | 0 | 3 |
| 3.     | GE8072      | Foundation Skills in Integrated Product Development | PE       | 3               | 3 | 0 | 0 | 3 |
| 4.     | CS8082      | Machine Learning Techniques                         | PE       | 3               | 3 | 0 | 0 | 3 |
| 5.     | EC8005      | Electronics Packaging and Testing                   | PE       | 3               | 3 | 0 | 0 | 3 |
| 6.     | EC8006      | Mixed Signal IC Design                              | PE       | 3               | 3 | 0 | 0 | 3 |
| 7.     | GE8071      | Disaster Management                                 | PE       | 3               | 3 | 0 | 0 | 3 |



*S. Pappu*  
Head of the Department  
Mechanical Engineering  
Mount Zion College of Engg. & Tech  
Pudukkottai - 622 507

### HUMANITIES AND SOCIALSCIENCES (HS)

| SI.NO | COURSE CODE | COURSE TITLE                          | CATEGORY | CONTACT PERIODS | L | T | P | C |
|-------|-------------|---------------------------------------|----------|-----------------|---|---|---|---|
| 1.    | HS8151      | Communicative English                 | HS       | 4               | 4 | 0 | 0 | 4 |
| 2.    | HS8251      | Technical English                     | HS       | 4               | 4 | 0 | 0 | 4 |
| 3.    | GE8291      | Environmental Science and Engineering | HS       | 3               | 3 | 0 | 0 | 3 |
| 4.    | MG8591      | Principles of Management              | HS       | 3               | 3 | 0 | 0 | 3 |

### BASIC SCIENCES (BS)

| SI.NO | COURSE CODE | COURSE TITLE                                      | CATEGORY | CONTACT PERIODS | L | T | P | C |
|-------|-------------|---------------------------------------------------|----------|-----------------|---|---|---|---|
| 1.    | MA8151      | Engineering Mathematics I                         | BS       | 4               | 4 | 0 | 0 | 4 |
| 2.    | PH8151      | Engineering Physics                               | BS       | 3               | 3 | 0 | 0 | 3 |
| 3.    | CY8151      | Engineering Chemistry                             | BS       | 3               | 3 | 0 | 0 | 3 |
| 4.    | BS8161      | Physics and Chemistry Laboratory                  | BS       | 4               | 0 | 0 | 4 | 2 |
| 5.    | MA8251      | Engineering Mathematics II                        | BS       | 4               | 4 | 0 | 0 | 4 |
| 6.    | PH8253      | Physics for Electronics Engineering               | BS       | 3               | 3 | 0 | 0 | 3 |
| 7.    | MA8352      | Linear Algebra and Partial Differential Equations | BS       | 4               | 4 | 0 | 0 | 4 |
| 8.    | MA8451      | Probability and Random Processes                  | BS       | 4               | 4 | 0 | 0 | 4 |

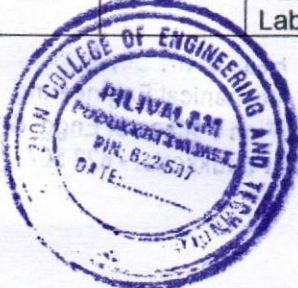
### ENGINEERING SCIENCES (ES)

| SI. NO | COURSE CODE | COURSE TITLE                                      | CATEGORY | CONTACT PERIODS | L | T | P | C |
|--------|-------------|---------------------------------------------------|----------|-----------------|---|---|---|---|
| 1.     | GE8151      | Problem Solving and Python Programming            | ES       | 3               | 3 | 0 | 0 | 3 |
| 2.     | GE8152      | Engineering Graphics                              | ES       | 6               | 2 | 0 | 4 | 4 |
| 3.     | GE8161      | Problem Solving and Python Programming Laboratory | ES       | 4               | 0 | 0 | 4 | 2 |
| 4.     | BE8254      | Basic Electrical and Instrumentation Engineering  | ES       | 3               | 3 | 0 | 0 | 3 |
| 5.     | GE8261      | Engineering Practices Laboratory                  | ES       | 4               | 0 | 0 | 4 | 2 |
| 6.     | EC8393      | Fundamentals of Data Structures In C              | ES       | 3               | 3 | 0 | 0 | 3 |
| 7.     | EC8381      | Fundamentals of Data Structures in C Laboratory   | ES       | 4               | 0 | 0 | 4 | 2 |



# PROFESSIONAL CORE (PC)

| SI.NO | COURSE CODE | COURSE TITLE                              | CATEGORY | CONTACT PERIODS | L | T | P | C |
|-------|-------------|-------------------------------------------|----------|-----------------|---|---|---|---|
| 1.    | EC8251      | Circuit Analysis                          | PC       | 4               | 4 | 0 | 0 | 4 |
| 2.    | EC8252      | Electronic Devices                        | PC       | 3               | 3 | 0 | 0 | 3 |
| 3.    | EC8261      | Circuits and Devices Lab                  | PC       | 4               | 0 | 0 | 4 | 2 |
| 4.    | EC8351      | Electronic Circuits- I                    | PC       | 3               | 3 | 0 | 0 | 3 |
| 5.    | EC8352      | Signals and Systems                       | PC       | 4               | 4 | 0 | 0 | 4 |
| 6.    | EC8392      | Digital Electronics                       | PC       | 3               | 3 | 0 | 0 | 3 |
| 7.    | EC8391      | Control System Engineering                | PC       | 3               | 3 | 0 | 0 | 3 |
| 8.    | EC8361      | Analog and Digital Circuits Laboratory    | PC       | 4               | 0 | 0 | 4 | 2 |
| 9.    | EC8452      | Electronic Circuits II                    | PC       | 3               | 3 | 0 | 0 | 3 |
| 10.   | EC8491      | Communication Theory                      | PC       | 3               | 3 | 0 | 0 | 3 |
| 11.   | EC8451      | Electromagnetic Fields                    | PC       | 4               | 4 | 0 | 0 | 4 |
| 12.   | EC8453      | Linear Integrated Circuits                | PC       | 3               | 3 | 0 | 0 | 3 |
| 13.   | EC8461      | Circuits Design and Simulation Laboratory | PC       | 4               | 0 | 0 | 4 | 2 |
| 14.   | EC8462      | Linear Integrated Circuits Laboratory     | PC       | 4               | 0 | 0 | 4 | 2 |
| 15.   | EC8501      | Digital Communication                     | PC       | 3               | 3 | 0 | 0 | 3 |
| 16.   | EC8553      | Discrete-Time Signal Processing           | PC       | 4               | 4 | 0 | 0 | 4 |
| 17.   | EC8651      | Transmission Lines and RF Systems         | PC       | 3               | 3 | 0 | 0 | 3 |
| 18.   | EC8552      | Computer Architecture and Organization    | PC       | 3               | 3 | 0 | 0 | 3 |
| 19.   | EC8551      | Communication Networks                    | PC       | 3               | 3 | 0 | 0 | 3 |
| 20.   | EC8562      | Digital Signal Processing Laboratory      | PC       | 4               | 0 | 0 | 4 | 2 |
| 21.   | EC8561      | Communication Systems Laboratory          | PC       | 4               | 0 | 0 | 4 | 2 |
| 22.   | EC8563      | Communication Networks Laboratory         | PC       | 4               | 0 | 0 | 4 | 2 |
| 23.   | EC8691      | Microprocessors and Microcontrollers      | PC       | 3               | 3 | 0 | 0 | 3 |
| 24.   | EC8095      | VLSI Design                               | PC       | 3               | 3 | 0 | 0 | 3 |
| 25.   | EC8652      | Wireless Communication                    | PC       | 3               | 3 | 0 | 0 | 3 |
| 26.   | EC8661      | VLSI Design Laboratory                    | PC       | 4               | 0 | 0 | 4 | 2 |



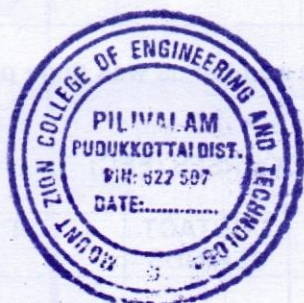
Head of the Department  
Mechanical Engineering  
Pudukkottai - 622 507

# SUMMARY

| S.NO. | SUBJECT AREA           | CREDITS AS PER SEMESTER |    |     |    |    |    |     |      | CREDITS TOTAL | Percentage |
|-------|------------------------|-------------------------|----|-----|----|----|----|-----|------|---------------|------------|
|       |                        | I                       | II | III | IV | V  | VI | VII | VIII |               |            |
| 1.    | HS                     | 4                       | 4  |     | 3  |    | 3  |     |      | 14            | 7.56%      |
| 2.    | BS                     | 12                      | 7  | 4   | 4  |    |    |     |      | 27            | 14.6%      |
| 3.    | ES                     | 9                       | 5  | 5   |    |    |    |     |      | 19            | 10.27%     |
| 4.    | PC                     |                         | 9  | 15  | 17 | 19 | 16 | 16  |      | 92            | 50%        |
| 5.    | PE                     |                         |    |     |    | 3  | 3  | 3   | 6    | 15            | 8.10%      |
| 6.    | OE                     |                         |    |     |    | 3  |    | 3   |      | 6             | 3.24%      |
| 7.    | EEC                    |                         |    | 1   |    |    | 2  |     | 10   | 13            | 6.48%      |
|       | Total                  | 25                      | 25 | 25  | 24 | 25 | 24 | 22  | 16   | 186           |            |
| 8.    | Non Credit / Mandatory |                         |    |     |    |    |    |     |      |               |            |

*S. Dura*

Head of the Department,  
Mechanical Engineering  
Mount Zion College of Engg. & Tech  
Pudukkottai - 622 507



**SEMESTER VIII  
ELECTIVE IV**

| Sl.No | COURSE CODE | COURSE TITLE                                    | CATEGORY | CONTACT PERIODS | L | T | P | C |
|-------|-------------|-------------------------------------------------|----------|-----------------|---|---|---|---|
| 1.    | EC8072      | Electro Magnetic Interference and Compatibility | PE       | 3               | 3 | 0 | 0 | 3 |
| 2.    | EC8007      | Low power SoC Design                            | PE       | 3               | 3 | 0 | 0 | 3 |
| 3.    | EC8008      | Photonic Networks                               | PE       | 3               | 3 | 0 | 0 | 3 |
| 4.    | EC8009      | Compressive Sensing                             | PE       | 3               | 3 | 0 | 0 | 3 |
| 5.    | EC8093      | Digital Image Processing                        | PE       | 3               | 3 | 0 | 0 | 3 |
| 6.    | GE8076      | Professional Ethics in Engineering              | PE       | 3               | 3 | 0 | 0 | 3 |

**SEMESTER VIII  
ELECTIVE V**

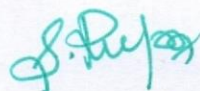
| Sl.No | COURSE CODE | COURSE TITLE                     | CATEGORY | CONTACT PERIODS | L | T | P | C |
|-------|-------------|----------------------------------|----------|-----------------|---|---|---|---|
| 1.    | EC8010      | Video Analytics                  | PE       | 3               | 3 | 0 | 0 | 3 |
| 2.    | EC8011      | DSP Architecture and Programming | PE       | 3               | 3 | 0 | 0 | 3 |
| 3.    | EC8094      | Satellite Communication          | PE       | 3               | 3 | 0 | 0 | 3 |
| 4.    | CS8086      | Soft Computing                   | PE       | 3               | 3 | 0 | 0 | 3 |
| 5.    | IT8006      | Principles of Speech Processing  | PE       | 3               | 3 | 0 | 0 | 3 |
| 6.    | GE8073      | Fundamentals of Nano Science     | PE       | 3               | 3 | 0 | 0 | 3 |

\*Professional Electives are grouped according to elective number as was done previously.

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

| S.NO | COURSE CODE | COURSE TITLE                              | CATEGORY | CONTACT PERIODS | L | T | P  | C  |
|------|-------------|-------------------------------------------|----------|-----------------|---|---|----|----|
| 1.   | HS8381      | Interpersonal Skills/Listening & Speaking | EEC      | 2               | 0 | 0 | 2  | 1  |
| 2.   | EC8611      | Technical Seminar                         | EEC      | 2               | 0 | 0 | 2  | 1  |
| 3.   | HS8581      | Professional Communication                | EEC      | 2               | 0 | 0 | 2  | 1  |
| 4.   | EC8811      | Project Work                              | EEC      | 20              | 0 | 0 | 20 | 10 |



  
**Head of the Department**  
**Mechanical Engineering**  
**Mount Zion College of Engg. & Tech.**  
**Pudukkottai - 622 507**

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION**  
**ENGINEERING**  
**REGULATION 2017**

**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                | Course Outcome(CO)<br>Students will be able to                                                                                      | Knowledge Level |
|-------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| MA8251      | ENGINEERING MATHEMATICS-II | CO1: Define the Eigen values and Eigen vectors of the matrix.                                                                       | K1              |
|             |                            | CO2: Apply the concept of Cayley-Hamilton theorem in inverse and powers of the matrix.                                              | K3              |
|             |                            | CO3: Explain the concept of canonical form of the given quadratic form.                                                             | K2              |
|             |                            | CO4: Explain the concept of solenoidal and irrotational vector.                                                                     | K2              |
|             |                            | CO5: Apply the concept of Gauss divergence, Stoke's and Green's theorem.                                                            | K3              |
|             |                            | CO6: Apply the concept of Cauchy –Riemann equations                                                                                 | K3              |
|             |                            | CO7: Solve the bilinear transformation problems.                                                                                    | K3              |
|             |                            | CO8: Apply the concept of Cauchy's integral theorem and integral formula.                                                           | K3              |
|             |                            | CO9: Solve the Laurent expansions and contours problems.                                                                            | K3              |
|             |                            | CO10: Define Laplace transform, unit step function and impulse functions.                                                           | K1              |
|             |                            | CO11: Solve the inverse Laplace transform by using convolution theorem and solve simultaneous equations with constant coefficients. | K3              |



# CO-PO MAPPING

| COs     |    | Pos |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 |     |     |     |     |      |      |      |
| C3O1.1  | K1 | 1   | -   | -   | -   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.2  | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.3  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.4  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.5  | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.6  | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.7  | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.8  | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.9  | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.10 | K1 | 1   | -   | -   | -   | 1        | -   | -   | -   | -   | -    | -    | -    |
| C3O1.11 | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |

NAME OF THE STAFF: M.RAMESH

VERIFIED BY HOD

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                       | Course Outcome(CO)<br>Students will be able to                                         | Knowledge Level |
|-------------|-----------------------------------|----------------------------------------------------------------------------------------|-----------------|
| DS7201      | Advanced Digital Image Processing | CO1: Describe Brightness and Contrast.                                                 | K2              |
|             |                                   | CO2: Differentiate between various Image enhancements in spatial and frequency domain. | K4              |
|             |                                   | CO3: Demonstrate the different types of morphological watersheds.                      | K3              |
|             |                                   | CO4: Describe the atlas based segmentation.                                            | K2              |
|             |                                   | CO5: Learn the second order edge detection operators.                                  | K2              |
|             |                                   | CO6: Design type of shape skeletonization.                                             | K3              |
|             |                                   | CO7: Relate correspondence between sensed and Reference images.                        | K3              |
|             |                                   | CO8: Demonstrate parameters of a transformation Function that registers the images.    | K3              |
|             |                                   | CO9: Design of measurement on 3D images.                                               | K3              |
|             |                                   | CO10: Design the image processing in 3D.                                               | K3              |

**CO-PO MAPPING**

| COs  |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 |     |     |     |     |      |      |      |
| CO1  | K2 | 2   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K4 | 3   | 3   | 3   | 2   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K3 | 3   | 3   | 2   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO4  | K2 | 2   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO5  | K2 | 2   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K3 | 3   | 3   | 2   | 1   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K3 | 3   | 3   | 2   | 1   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K3 | 3   | 3   | 2   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K3 | 3   | 3   | 2   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K3 | 3   | 3   | 2   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |



*[Signature]*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.  
 Pudukkottai - 622 507.

# MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY

## DEPARTMENT OF ECE

### REGULATION 2017

### B.E ECE - COURSE OUTCOMES (CO)

### EC8252-ELECTRONIC DEVICES

#### COURSE OUTCOMES:

At the end of the course the student should be able to

| CO NO | COURSE OUTCOMES                                                                                 | POs(1..12)<br>MAPPING | PSOs(1&2)<br>MAPPING |
|-------|-------------------------------------------------------------------------------------------------|-----------------------|----------------------|
| CO.1  | The student should be able to demonstrate the basic concepts of Diode                           | 1,2,3,12              | 1,2                  |
| CO.2  | The student should be able to demonstrate the basic concepts of Bipolar Junction Transistor     | 1,2,3,4,11,12         | 1,2                  |
| CO.3  | The student should be able to demonstrate the basic concepts of Field Effect Transistor         | 1,2,3,4, 11,12        | 1,2                  |
| CO.4  | The student should be able to model the special semiconductor devices.                          | 1,2,3,4,11,12         | 1,2                  |
| CO.5  | The student should be able to demonstrate the basic concepts power devices and display devices. | 1,2,3,4,6,11,12       | 1,2                  |

#### COURSE OUTCOMES POs & PSOs MAPPING (DETAILED; HIGH: 3; MEDIUM: 2; LOW:1):

| PO   | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| CO   |     |     |     |     |     |     |     |     |     |      |      |      |      |      |
| CO.1 | 3   | 2   | -   | -   | -   | -   | -   | -   | -   | -    | -    | 2    | 1    | 2    |
| CO.2 | 3   | 2   | 2   | -   | -   | -   | -   | -   | -   | -    | -    | 2    | 1    | 2    |
| CO.3 | 3   | 2   | 2   | 1   | -   | -   | -   | -   | -   | -    | -    | 2    | 1    | 2    |
| CO.4 | 3   | 2   | 2   | 2   | -   | -   | -   | -   | -   | -    | -    | 2    | 2    | 2    |
| CO.5 | 3   | 2   | 2   | 2   | -   | -   | -   | -   | -   | -    | -    | 2    | 2    | 3    |

\* For Entire Course, PO & PSO Mapping; it may not be an average score

Signature of course instructor



Signature of HOD/ECE

Dr. S. ROBINSON, M.E., Ph.D.  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                         | Course Outcome (CO)<br>Students will be able to                                                                | Knowledge Level |
|-------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------|
| PH8253      | PHYSICS FOR ELECTRONICS ENGINEERING | CO01: Interpret the fundamental knowledge on classical and quantum electron theories.                          | K2              |
|             |                                     | CO02: Classify the materials into metals, semiconductors and insulators on the basis of band theory of solids. | K2              |
|             |                                     | CO03: Identify the properties of intrinsic and extrinsic semiconductors.                                       | K3              |
|             |                                     | CO04: Outline the Hall effects and its applications                                                            | K2              |
|             |                                     | CO05: Compare the magnetic properties of materials.                                                            | K2              |
|             |                                     | CO06: Show the magnetic storage devices and their applications.                                                | K2              |
|             |                                     | CO07: Illustrate the functioning of optical materials for optoelectronics.                                     | K2              |
|             |                                     | CO08: Apply the concept of optoelectronics and get expertise the photodiode, LED, solar cells etc.             | K3              |
|             |                                     | CO09: Infer the basics of quantum structures and their applications in carbon electronics.                     | K2              |
|             |                                     | CO10: Make use of quantum theory concepts to study the density of states in various dimensions.                | K2              |

**CO-PO MAPPING**

| COs  |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO4  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO5  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                      | Course Outcome(CO)<br>Students will be able to                                             | Knowledge Level |
|-------------|----------------------------------|--------------------------------------------------------------------------------------------|-----------------|
| MA8451      | Probability and Random Processes | CO1: Explain the fundamental concepts of probability and random processes.                 | K2              |
|             |                                  | CO2: Compare the one dimensional and two dimensional random variables.                     | K2              |
|             |                                  | CO3: Solve engineering problem using one dimensional and two dimensional random variables. | K3              |
|             |                                  | CO4: Explain the correlation and linear regression.                                        | K2              |
|             |                                  | CO5: Explain the Markov process of random variables.                                       | K2              |
|             |                                  | CO6: Compute the random telegraph process.                                                 | K3              |
|             |                                  | CO7: Explain the correlation and spectral densities.                                       | K2              |
|             |                                  | CO8: Compare power spectral and cross spectral densities.                                  | K2              |
|             |                                  | CO9: Solve the linear system and random inputs.                                            | K3              |
|             |                                  | CO10: Compute the linear time invariant system.                                            | K3              |

**CO-PO MAPPING**

| Cos  |    | Pos |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO4  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO5  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name             | Course Outcome(CO)<br>Students will be able to                                                                        | Knowledge Level |
|-------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------|
| EC8451      | Electro magnetic Fields | CO1: Understand the fundamental electromagnetic laws and concepts                                                     | K2              |
|             |                         | CO2: Define and recognize different co-ordinate systems to describe the spatial variations of the physical quantities | K1              |
|             |                         | CO3: Compute the electromagnetic force exerted on charged particles, current elements                                 | K3              |
|             |                         | CO4: Apply KVL and KCL in electrostatic fields                                                                        | K3              |
|             |                         | CO5: Apply Biot-savart law for the analysis of magneto statics                                                        | K3              |
|             |                         | CO6: Estimate electric and magnetic field quantities                                                                  | K3              |
|             |                         | CO7: Understand the coupling between electric and magnetic fields through Faraday's law                               | K2              |
|             |                         | CO8: Apply Maxwell's equations in integral, differential and phasor forms                                             | K3              |
|             |                         | CO9: Compute boundary conditions for time varying fields                                                              | K3              |
|             |                         | CO10: Compare electromagnetic wave propagation in lossy and in lossless media                                         | K2              |

**CO-PO MAPPING**

| Cos  |    | Pos |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K1 | 1   | -   | -   | -   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | 3   | -    | -    | -    |
| CO4  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | 3   | -    | -    | -    |
| CO5  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K3 | 3   | 2   | 1   | -   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                | Course Outcome(CO)<br>Students will be able to                        | Knowledge Level |
|-------------|----------------------------|-----------------------------------------------------------------------|-----------------|
| EC8453      | Linear Integrated Circuits | CO1: Design linear applications of operational amplifiers.            | K2              |
|             |                            | CO2: Design non linear applications of operational amplifiers.        | K2              |
|             |                            | CO3: Design applications using analog multiplier.                     | K2              |
|             |                            | CO4: Design applications using phase locked loop.                     | K2              |
|             |                            | CO5: Design analog to digital converters using operational amplifiers | K2              |
|             |                            | CO6: Design digital to analog converters using operational amplifiers | K2              |
|             |                            | CO7: Generate waveforms using operational amplifiers circuits         | K3              |
|             |                            | CO8: Analyze special function ICs                                     | K3              |

**CO-PO MAPPING**

| COs |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|-----|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|     |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|     |    | K3  | K4  | K5  | K5  | K3/K5/K6 |     |     |     |     |      |      |      |
| CO1 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO4 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO5 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO6 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO7 | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO8 | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |



*S. Rufog*

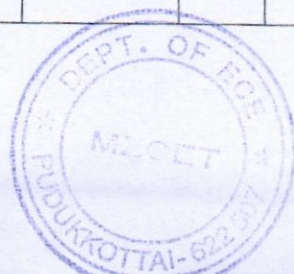
Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name          | Course Outcome(CO)<br>Students will be able to                                   | Knowledge Level |
|-------------|----------------------|----------------------------------------------------------------------------------|-----------------|
| EC8491      | Communication Theory | CO1: Design amplitude modulated communication systems                            | K3              |
|             |                      | CO2: Design frequency modulated communication systems                            | K3              |
|             |                      | CO3: Design phase modulated communication systems                                | K3              |
|             |                      | CO4: Apply the concepts of Random Process to the design of Communication systems | K3              |
|             |                      | CO5: Analyze the noise performance of AM systems                                 | K4              |
|             |                      | CO6: Analyze the noise performance of FM systems                                 | K4              |
|             |                      | CO7: Gain knowledge in sampling of analog signal                                 | K2              |
|             |                      | CO8: Gain knowledge in quantization                                              | K2              |

**CO-PO MAPPING**

| COs |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|-----|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|     |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|     |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1 | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | 1    | -    |
| CO2 | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO3 | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO4 | K3 | 3   | 2   | 1   | 1   | 1        | -   | -   | -   | 3   | -    | 1    | -    |
| CO5 | K4 | 3   | 3   | 2   | 2   | 2        | -   | -   | -   | 3   | -    | 1    | -    |
| CO6 | K4 | 3   | 3   | 2   | 2   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO7 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO8 | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |



Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF MECHANICAL ENGINEERING**  
**REGULATION 2017**  
**B.E EEE- COURSE OUTCOMES (CO)**

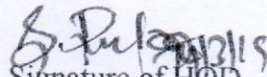
| Course Code | Course Name                           | Course Outcome(CO)<br>Students will be able to      | Knowledge Level |
|-------------|---------------------------------------|-----------------------------------------------------|-----------------|
| GE8291      | ENVIRONMENTAL SCIENCE AND ENGINEERING | CO.1: Ecological succession process                 | K2              |
|             |                                       | CO.2: Threats to biodiversity                       | K3              |
|             |                                       | CO.3: Solid waste management                        | K1              |
|             |                                       | CO.4: Role of individual in prevention of pollution | K3              |
|             |                                       | CO.5: Timber extraction and forest resources        | K2              |
|             |                                       | CO.6: Bioconversion of pollutants                   | K1              |
|             |                                       | CO.7: Urban problems related to energy              | K3              |
|             |                                       | CO.8: Resettlement and rehabilitation of people     | K1              |
|             |                                       | CO.9: Environment pollution act                     | K1              |
|             |                                       | CO.10: Population explosion                         | K3              |
|             |                                       | CO.11: Women and Child welfare                      | K1              |

**CO-PO MAPPING**

| COs   |    | POs       |           |           |           |                 |     |     |     |     |      |      |      |
|-------|----|-----------|-----------|-----------|-----------|-----------------|-----|-----|-----|-----|------|------|------|
|       |    | PO1<br>K3 | PO2<br>K4 | PO3<br>K5 | PO4<br>K5 | PO5<br>K3/K5/K6 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO.1  | K2 | 2         | 1         | -         | -         | 2               | -   | -   | -   | -   | -    | -    | -    |
| CO.2  | K3 | 3         | 2         | 1         | 1         | 3               | -   | -   | -   | -   | -    | -    | -    |
| CO.3  | K1 | 1         | -         | -         | -         | 1               | -   | -   | -   | -   | -    | -    | -    |
| CO.4  | K3 | 3         | 2         | 1         | 1         | 3               | -   | -   | -   | -   | -    | -    | -    |
| CO.5  | K2 | 2         | 1         | -         | -         | 2               | -   | -   | -   | -   | -    | -    | -    |
| CO.6  | K1 | 1         | -         | -         | -         | 1               | -   | -   | -   | -   | -    | -    | -    |
| CO.7  | K3 | 3         | 2         | 1         | 1         | 3               | -   | -   | -   | -   | -    | -    | -    |
| CO.8  | K1 | 1         | -         | -         | -         | 1               | -   | -   | -   | -   | -    | -    | -    |
| CO.9  | K1 | 1         | -         | -         | -         | 1               | -   | -   | -   | -   | -    | -    | -    |
| CO.10 | K3 | 3         | 2         | 1         | 1         | 3               | -   | -   | -   | -   | -    | -    | -    |
| CO.11 | K1 | 1         | -         | -         | -         | 1               | -   | -   | -   | -   | -    | -    | -    |

Staff name: Dr. R.PRABAKRAN



  
 Signature of HOD  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

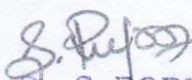
**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                           | Course Outcome(CO)<br>Students will be able to                                                             | Knowledge Level |
|-------------|---------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------|
| EC8462      | Linear Integrated Circuits Laboratory | CO1: Understand various applications of linear IC's 741 and 555 timer                                      | K2              |
|             |                                       | CO2: Understand the basics of linear integrated circuits and available ICs                                 | K2              |
|             |                                       | CO3: Understand the characteristics of the operational amplifier                                           | K2              |
|             |                                       | CO4: Apply operational amplifiers in linear and nonlinear applications such Schmitt circuit                | K3              |
|             |                                       | CO5: Analyze the working of PLL and describe its application as a frequency multiplier                     | K3              |
|             |                                       | CO6: Design dc power supply using LM317 and LM723                                                          | K3              |
|             |                                       | CO7: Design multi vibrators using 555 timer                                                                | K3              |
|             |                                       | CO8: Design filters using op-amp and performs an experiment on frequency response                          | K3              |
|             |                                       | CO9: Design analog to digital and digital to analog converter using IC741                                  | K3              |
|             |                                       | CO10: Analyze the performance of filters, multi vibrators, A/D converter and analog multiplier using SPICE | K3              |

**CO-PO MAPPING**

| Cos  |    | Pos |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | 3   | -    | -    | -    |
| CO4  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | 3   | -    | -    | -    |
| CO5  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |



  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                                    | Course Outcome(CO)<br>Students will be able to                                                | Knowledge Level |
|-------------|------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|
| BE8254      | Basic Electrical & Instrumentation Engineering | CO1: Understand the fundamentals of AC circuits                                               | K2              |
|             |                                                | CO2: Classify the different kinds of transformer                                              | K2              |
|             |                                                | CO3: Understand the basic principles of electrical machines and their performance             | K2              |
|             |                                                | CO4: Understand the different energy sources, protective devices and their field applications | K2              |
|             |                                                | CO5: Design step down transformer for commercial applications                                 | K3              |
|             |                                                | CO6: Demonstrate the applications of various electronic instrumentations                      | K2              |
|             |                                                | CO7: Compute the applications of AC machines                                                  | K2              |
|             |                                                | CO8: Understand the basics of motors and generators                                           | K2              |
|             |                                                | CO9: Compute the applications of DC machines                                                  | K2              |
|             |                                                | CO10: Understand the principles and operation of measuring instruments and transducers        | K2              |

**CO-PO MAPPING**

| Cos  |    | Pos |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K2 | 3   | 2   | 1   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | 3   | -    | -    | -    |
| CO4  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | 3   | -    | -    | -    |
| CO5  | K3 | 3   | 2   | 1   | -   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |

*Kareg*



*S. Robinson*  
**DR. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

**EC8351**

**ELECTRONICS CIRCUITS-I 3<sup>rd</sup> Semester ECE**

**Course Objective:**

1. To understand the methods of biasing transistors
2. To design and analyze single stage and multistage amplifier circuits
3. To analyze the frequency response of small signal amplifiers
4. To design and analyze the regulated DC power supplies
5. To troubleshoot and fault analysis of power supplies

**Course Outcome:**

Students will be able to

**CO1:** Recall a structure of BJT

**CO2:** Describe the need for biasing

**CO3:** Develop selection of operating point of transistor

**CO4:** Design various biasing circuits for BJT, FET and MOSFET

**CO5:** Apply bias compensation techniques

**CO6:** Analyze low frequency and high frequency model

**CO7:** Describe CE, CC and CB amplifiers

**CO8:** Describe power supplies

**CO9:** Describe electronic device testing

**CO-PO Mapping**

| CO      | PO      | 1   | 2   | 3    | 4    | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
|---------|---------|-----|-----|------|------|----|----|----|----|----|----|----|----|
|         | K-level | K3  | K4  | K5   | K5   | K6 | K4 | K2 | K3 | K3 | K2 | K3 | K3 |
| CO1     | K1      | 1   | -   | -    | -    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO2     | K2      | 2   | -   | -    | -    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO3     | K3      | 3   | 2   | 1    | 1    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO4     | K3      | 3   | 2   | 1    | 1    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO5     | K3      | 3   | 2   | 1    | 1    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO6     | K3      | 3   | 2   | 1    | 1    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO7     | K2      | 2   | -   | -    | -    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO8     | K3      | 3   | 2   | 1    | 1    | -  | -  | -  | -  | -  | -  | -  | -  |
| CO9     | K3      | 3   | 2   | 1    | 1    | -  | -  | -  | -  | -  | -  | -  | -  |
| Average |         | 2.5 | 1.3 | 0.66 | 0.66 | -  | -  | -  | -  | -  | -  | -  | -  |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                                       | Course Outcome(CO)<br>Students will be able to                                           | Knowledge Level |
|-------------|---------------------------------------------------|------------------------------------------------------------------------------------------|-----------------|
| MA8352      | Linear algebra and partial differential equations | CO1: Explain the fundamental concepts of advanced algebra.                               | K2              |
|             |                                                   | CO2: Compare the linear independence and linear dependence.                              | K2              |
|             |                                                   | CO3: Describe matrix representation of a linear transformation.                          | K2              |
|             |                                                   | CO4: Solve the eigen values and eigen vectors.                                           | K3              |
|             |                                                   | CO5: Explain the inner product spaces, norms and gram schmidt orthogonalization process. | K2              |
|             |                                                   | CO6: Solve the adjoint of linear operations and least square approximation.              | K3              |
|             |                                                   | CO7: Solve the lagranges linear equations.                                               | K3              |
|             |                                                   | CO8: Solve the various types of partial differential equations.                          | K3              |
|             |                                                   | CO9: Explain the method of separation of variables.                                      | K2              |
|             |                                                   | CO10: Solve engineering problems using fourier series.                                   | K3              |

**CO-PO MAPPING**

| COs  |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|      |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|      |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO2  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO3  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO4  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO5  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO6  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO7  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO8  | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO9  | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO10 | K3 | 3   | 2   | 1   | 1   | 3        |     |     |     |     |      |      |      |



*S. Robinson*  
24/6/15

Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**

**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                                     | Course Outcome(CO)<br>Students will be able to                                                      | Knowledge Level |
|-------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------|
| EC8381      | Fundamentals of Data Structures in C Laboratory | CO1: Write basic and advanced programs in C                                                         | K2              |
|             |                                                 | CO2: Implement function and recursive functions in C                                                | K3              |
|             |                                                 | CO3: Implement data structures using C                                                              | K3              |
|             |                                                 | CO4: Choose appropriate sorting algorithm for an application and implement it in a modularized way. | K4              |
|             |                                                 | CO5: Create an code using data structure algorithms                                                 | K6              |

**CO-PO MAPPING**

| COs     |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K2  | K4  | K3  | K3  | K3   | K2   | K3   |
| CO1     | K2 | 1   | 2   | 3   | 3   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO2     | K3 | -   | 1   | 2   | 2   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K3 | -   | 1   | 2   | 2   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K4 | 1   | -   | 1   | 1   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K6 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| Average |    | 1   | 1.2 | 1.8 | 1.8 | 1.8      | -   | -   | -   | -   | -    | -    | -    |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;



*S. Robinson*

Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                                       | Course Outcome(CO)<br>Students will be able to                                           | Knowledge Level |
|-------------|---------------------------------------------------|------------------------------------------------------------------------------------------|-----------------|
| MA8352      | Linear algebra and partial differential equations | CO1: Explain the fundamental concepts of advanced algebra.                               | K2              |
|             |                                                   | CO2: Compare the linear independence and linear dependence.                              | K2              |
|             |                                                   | CO3: Describe matrix representation of a linear transformation.                          | K2              |
|             |                                                   | CO4: Solve the eigen values and eigen vectors.                                           | K3              |
|             |                                                   | CO5: Explain the inner product spaces, norms and gram schmidt orthogonalization process. | K2              |
|             |                                                   | CO6: Solve the adjoint of linear operations and least square approximation.              | K3              |
|             |                                                   | CO7: Solve the lagrange's linear equations.                                              | K3              |
|             |                                                   | CO8: Solve the various types of partial differential equations.                          | K3              |
|             |                                                   | CO9: Explain the method of separation of variables.                                      | K2              |
|             |                                                   | CO10: Solve engineering problems using fourier series.                                   | K3              |

**CO-PO MAPPING**

| COs     |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1     | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO2     | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO6     | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO7     | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO8     | K3 | 3   | 2   | 1   | 1   | 3        | -   | -   | -   | -   | -    | -    | -    |
| CO9     | K2 | 2   | 1   | -   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO10    | K3 | 3   | 2   | 1   | 1   | 3        |     |     |     |     |      |      |      |
| Average |    | 2.5 | 1.5 | 0.5 | 0.5 | 2.5      |     |     |     |     |      |      |      |

\*3-High correlation; 2-Medium correlation; 1-Low correlation;



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF EEE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name     | Course Outcome(CO)<br>Students will be able to                                                                          | Knowledge Level |
|-------------|-----------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|
| EC8391      | Control systems | CO1: Describe The Concepts And Techniques Involved In Designing Control Schemes For Dynamic Systems                     | K2              |
|             |                 | CO2: Analyze Closed-Loop Control Systems For Stability And Steady-State Performance                                     | K4              |
|             |                 | CO3: Design Pd, Pi And Pid Controllers For given Control System Model Using Matlab                                      | K6              |
|             |                 | CO4: Design Lead, Lag, Lead-Lag Systems In Control Systems                                                              | K2              |
|             |                 | CO5: Compute Stability Of Linear Systems Using The Routh Array Test And Use This To Generate Control Design Constraints | K2              |
|             |                 | CO6: Compute Gain And Phase Margins From Bode Diagrams And Nyquist Plots In Terms Of Stability                          | K2              |
|             |                 | CO7: Illustrate The State Space Model Of A Physical System And Discuss The Concepts Of Sampled Data Control System      | K2              |
|             |                 | CO8: Design Various Transfer Functions Of Digital Control System Using State Variable Models                            | K3              |

**CO-PO MAPPING**

| Cos     |    | Pos   |       |      |       |          |     |     |     |     |      |      |      |
|---------|----|-------|-------|------|-------|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1   | PO2   | PO3  | PO4   | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3    | K4    | K5   | K5    | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1     | K2 | 2     | 1     | -    | -     | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO2     | K4 | 3     | 3     | 2    | 2     | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K6 | 3     | 3     | 3    | 3     | -        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K2 | 2     | 1     | -    | -     | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K2 | 2     | 1     | -    | -     | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO6     | K2 | 2     | 1     | -    | -     | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO7     | K2 | 2     | 1     | -    | -     | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8     | K3 | 3     | 2     | 1    | -     | 3        | -   | -   | -   | -   | -    | -    | -    |
| Average |    | 2.375 | 1.625 | 0.75 | 0.625 | 1.625    | -   | -   | -   | -   | -    | -    | -    |

**3-High Correlation ;2-Medium Correlation ;1-Low Correlation**



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engineering & Tech.,  
 Pudukkottai - 622 507.

*[Signature]*  
 11/7/19

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2013**

**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name         | Course Outcome(CO)<br>Students will be able to                                                        | Knowledge Level |
|-------------|---------------------|-------------------------------------------------------------------------------------------------------|-----------------|
| EC8392      | Digital Electronics | CO1: Understand the number system representations, base conversions, Boolean algebra, Canonical forms | K2              |
|             |                     | CO2: Apply the minimization technique for digital systems in many applications                        | K3              |
|             |                     | CO3: Design of combinational circuits using logic functions                                           | K3              |
|             |                     | CO4: Analyze and implement combinational using logic functions                                        | K4              |
|             |                     | CO5: Describe the sequential elements used in sequential system                                       | K2              |
|             |                     | CO6: Design, optimize and implement sequential circuits using logic functions                         | K3              |
|             |                     | CO7: Explain the fundamentals of hazard free circuits used in digital system                          | K2              |
|             |                     | CO8: Design asynchronous sequential circuits used in digital system                                   | K3              |
|             |                     | CO9: Discuss the characteristics of memory and implement digital functions using PLDs                 | K2              |
|             |                     | CO10: Explain the logic families and their characteristics used in integrated circuits                | K2              |

**CO-PO MAPPING**

| COs     |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K2  | K4  | K3  | K3  | K3   | K2   | K3   |
| CO1     | K2 | 3   | 2   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2     | K3 | 3   | 2   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K3 | 3   | 2   | 2   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K4 | 3   | 2   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K2 | 3   | 2   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO6     | K3 | 3   | 2   | 2   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO7     | K2 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO8     | K3 | 3   | 2   | 2   | -   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO9     | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10    | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| Average |    | 2.8 | 1.8 | 0.7 | 0.1 | 0.6      | -   | -   | -   | -   | -    | -    | -    |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;

*Dr. S. Robinson*



*Dr. S. Robinson*

Dr. S. ROBINSON, M.E., Ph.D.,  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engineering & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**

**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code   | Course Name                                 | Course Outcome(CO)<br>Students will be able to                                              | Knowledge Level |
|---------------|---------------------------------------------|---------------------------------------------------------------------------------------------|-----------------|
| <b>EC8393</b> | <b>Fundamentals of Data Structures in C</b> | CO1: Describe the structure of a C program                                                  | K2              |
|               |                                             | CO2: Execute appropriate linear / non-linear data structure for any given data set.         | K3              |
|               |                                             | CO3: Recognize the function declaration and function definition.                            | K2              |
|               |                                             | CO4: Examine about structures and its operations.                                           | K4              |
|               |                                             | CO5: Explain array based implementation of list                                             | K2              |
|               |                                             | CO6: Describe about the implementation stack using linked list.                             | K3              |
|               |                                             | CO7: Classify graph and list out the different ways for representing the graph              | K2              |
|               |                                             | CO8: Analyze in detail the implementation of Binary Search Tree and perform its operations. | K3              |
|               |                                             | CO9: Differentiate the linear search & binary search algorithm                              | K4              |
|               |                                             | CO10: Identify the advantage of sorting algorithms.                                         | K3              |

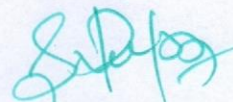
**CO-PO MAPPING**

| COs            |    | POs        |            |            |            |            |     |     |     |     |      |      |      |
|----------------|----|------------|------------|------------|------------|------------|-----|-----|-----|-----|------|------|------|
|                |    | PO1        | PO2        | PO3        | PO4        | PO5        | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|                |    | K3         | K4         | K5         | K5         | K3/K5/K6   | K2  | K4  | K3  | K3  | K3   | K2   | K3   |
| CO1            | K2 | 1          | 2          | 3          | 3          | 1          | -   | -   | -   | -   | -    | -    | -    |
| CO2            | K3 | -          | 1          | 2          | 2          | 3          | -   | -   | -   | -   | -    | -    | -    |
| CO3            | K2 | 1          | 2          | 3          | 3          | 1          | -   | -   | -   | -   | -    | -    | -    |
| CO4            | K4 | 1          | -          | 1          | 1          | 2          | -   | -   | -   | -   | -    | -    | -    |
| CO5            | K2 | 1          | 2          | 3          | 3          | 1          | -   | -   | -   | -   | -    | -    | -    |
| CO6            | K3 | -          | 1          | 2          | 2          | 3          | -   | -   | -   | -   | -    | -    | -    |
| CO7            | K2 | 1          | 2          | 3          | 3          | 1          | -   | -   | -   | -   | -    | -    | -    |
| CO8            | K3 | -          | 1          | 2          | 2          | 3          | -   | -   | -   | -   | -    | -    | -    |
| CO9            | K4 | 1          | -          | 1          | 1          | 2          | -   | -   | -   | -   | -    | -    | -    |
| CO10           | K3 | -          | 1          | 2          | 2          | 3          | -   | -   | -   | -   | -    | -    | -    |
| <b>Average</b> |    | <b>0.6</b> | <b>1.2</b> | <b>2.2</b> | <b>2.2</b> | <b>2.0</b> | -   | -   | -   | -   | -    | -    | -    |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;

**FACULTY IN-CHARGE**



  
**HODECE**

Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                            | Course Outcome(CO)<br>Students will be able to                                             | Knowledge Level |
|-------------|----------------------------------------|--------------------------------------------------------------------------------------------|-----------------|
| EC8361      | Analog and Digital circuits laboratory | <b>CO1:</b> Analyze various types of biasing and amplifier configuration.                  | K4              |
|             |                                        | <b>CO2:</b> Analyze the limitation in bandwidth of single stage and multi stage amplifier. | K4              |
|             |                                        | <b>CO3:</b> Measure CMRR in differential amplifier.                                        | K6              |
|             |                                        | <b>CO4:</b> Simulate amplifiers using Spice                                                | K5              |
|             |                                        | <b>CO5:</b> Use simplification techniques to design a combinational hardware circuit.      | K3              |
|             |                                        | <b>CO6:</b> Design and Implement combinational and sequential circuits.                    | K3              |
|             |                                        | <b>CO7:</b> Design and Implement a simple digital system.                                  | K3              |

**CO-PO MAPPING**

| COs     |    | POs       |           |           |           |                 |           |           |           |           |            |            |            |
|---------|----|-----------|-----------|-----------|-----------|-----------------|-----------|-----------|-----------|-----------|------------|------------|------------|
|         |    | PO1<br>K3 | PO2<br>K4 | PO3<br>K5 | PO4<br>K5 | PO5<br>K3/K5/K6 | PO6<br>K4 | PO7<br>K2 | PO8<br>K3 | PO9<br>K3 | PO10<br>K2 | PO11<br>K3 | PO12<br>K3 |
| CO1     | K4 | 3         | 3         | 2         | 2         | -               | -         | -         | -         | -         | -          | -          | -          |
| CO2     | K4 | 3         | 3         | 2         | 2         | -               | -         | -         | -         | -         | -          | -          | -          |
| CO3     | K6 | 3         | 3         | 3         | 3         | -               | -         | -         | -         | -         | -          | -          | -          |
| CO4     | K5 | 3         | 3         | 3         | 3         | -               | -         | -         | -         | -         | -          | -          | -          |
| CO5     | K3 | 3         | 2         | 1         | 1         | -               | -         | -         | -         | -         | -          | -          | -          |
| CO6     | K3 | 3         | 2         | 1         | 1         | -               | -         | -         | -         | -         | -          | -          | -          |
| CO7     | K5 | 3         | 3         | 3         | 3         | 2               | -         | -         | -         | -         | -          | -          | -          |
| Average |    | 3         | 2.7       | 2.1       | 2.1       | 0.2             |           |           |           |           |            |            |            |

\*3-High correlation; 2-Medium correlation; 1-Low correlation;



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**

**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code    | Course Name                     | Course Outcome(CO)<br>Students will be able to                                   | Knowledge Level |
|----------------|---------------------------------|----------------------------------------------------------------------------------|-----------------|
| <b>GE 8077</b> | <b>Total Quality Management</b> | CO1: Understand the dimensions and barriers with quality.                        | K2              |
|                |                                 | CO2: Study the Principles of Deming 14 points philosophy.                        | K2              |
|                |                                 | CO3: Understand the concept of quality strategic planning.                       | K2              |
|                |                                 | CO4 Apply the continuous process improvement in PDCA life cycle.                 | K3              |
|                |                                 | CO5: Demonstrate the mathematical concept of new management.                     | K3              |
|                |                                 | CO6 Apply the principle of FMEA method for quality improvements.                 | K3              |
|                |                                 | CO7: Understand the basic concept of Taghuchi quality loss function.             | K2              |
|                |                                 | CO8: Demostrate the principle of total productive maintenance.                   | K2              |
|                |                                 | CO9: Understand the concept of ISO quality management system.                    | K2              |
|                |                                 | CO10: Apply the concept of ISO 14000 EMS in the real world environmental system. | K3              |

**CO-PO MAPPING**

| COs            |    | POs        |          |            |            |            |            |            |            |            |          |            |            |
|----------------|----|------------|----------|------------|------------|------------|------------|------------|------------|------------|----------|------------|------------|
|                |    | PO1        | PO2      | PO3        | PO4        | PO5        | PO6        | PO7        | PO8        | PO9        | PO10     | PO11       | PO12       |
|                |    | K3         | K4       | K5         | K5         | K3/K5/K6   | K2         | K4         | K3         | K3         | K3       | K2         | K3         |
| CO1            | K2 | 2          | -        | -          | -          | 2          | 2          | 2          | 2          | -          | -        | -          | -          |
| CO2            | K2 | 2          | -        | -          | -          | 2          | -          | 2          | 2          | 2          | -        | -          | -          |
| CO3            | K2 | 2          | -        | -          | -          | 2          | -          | 2          | 2          | -          | -        | -          | -          |
| CO4            | K3 | 2          | -        | -          | -          | 2          | -          | 2          | 2          | 2          | -        | -          | 2          |
| CO5            | K3 | 3          | -        | -          | -          | 2          | -          | 2          | 2          | -          | -        | -          | -          |
| CO6            | K3 | 2          | -        | -          | -          | 2          | 2          | 2          | 2          | -          | -        | 2          | -          |
| CO7            | K2 | 2          | -        | 1          | 1          | 2          | -          | 2          | 2          | -          | -        | 2          | -          |
| CO8            | K2 | 3          | -        | 1          | 1          | 2          | 2          | 2          | 2          | -          | -        | 2          | -          |
| CO9            | K2 | 2          | -        | -          | -          | 2          | -          | 2          | 2          | 2          | -        | 2          | -          |
| CO10           | K3 | 2          | -        | -          | -          | 2          | -          | -          | 2          | 2          | -        | 2          | -          |
| <b>Average</b> |    | <b>1.8</b> | <b>-</b> | <b>0.2</b> | <b>0.2</b> | <b>2.0</b> | <b>0.6</b> | <b>1.8</b> | <b>2.0</b> | <b>0.8</b> | <b>-</b> | <b>1.0</b> | <b>0.2</b> |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;

G. Prof  
4.7.2019  
(Dr. A. JAGANMOHAN)



S. Robinson  
4/7/19  
Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**

**REGULATION 2017**

**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name            | Course Outcome(CO)<br>Students will be able to                                                  | Knowledge Level |
|-------------|------------------------|-------------------------------------------------------------------------------------------------|-----------------|
| EC8551      | Communication Networks | CO1: Identify the components required to build different types of networks                      | K1              |
|             |                        | CO2: Understand the different kinds of error detection and correction techniques                | K2              |
|             |                        | CO3: Compute the division of network functionalities into layers                                | K2              |
|             |                        | CO4: Identify solution for each functionality at each layer                                     | K2              |
|             |                        | CO5: Apply the flow control and congestion control algorithms in various communication networks | K3              |
|             |                        | CO6: Understand Data link Control and Media access control protocols                            | K2              |
|             |                        | CO7: Classify the different kinds of transport layer protocols                                  | K2              |
|             |                        | CO8: Design unicast and multicast routing algorithm                                             | K3              |
|             |                        | CO9: Infer the flow of information from one node to another node in the network                 | K3              |
|             |                        | CO10: Understand the different kinds of application layer protocols                             | K2              |

**CO-PO MAPPING**

| COs            |    | POs      |            |            |            |          |     |     |     |            |      |      |      |
|----------------|----|----------|------------|------------|------------|----------|-----|-----|-----|------------|------|------|------|
|                |    | PO1      | PO2        | PO3        | PO4        | PO5      | PO6 | PO7 | PO8 | PO9        | PO10 | PO11 | PO12 |
|                |    | K3       | K4         | K5         | K5         | K3/K5/K6 |     |     |     |            |      |      |      |
| CO1            | K1 | 2        | 1          | -          | -          | 2        | -   | -   | -   | -          | -    | -    | -    |
| CO2            | K2 | 2        | 1          | -          | -          | 2        | -   | -   | -   | -          | -    | -    | -    |
| CO3            | K2 | 2        | 1          | -          | -          | 2        | -   | -   | -   | 3          | -    | -    | -    |
| CO4            | K2 | 2        | 1          | -          | -          | 2        | -   | -   | -   | 3          | -    | -    | -    |
| CO5            | K3 | 3        | 2          | 1          | 1          | 3        | -   | -   | -   | -          | -    | -    | -    |
| CO6            | K2 | 2        | 1          | -          | -          | 2        | -   | -   | -   | -          | -    | -    | -    |
| CO7            | K2 | 2        | 1          | -          | -          | 2        | -   | -   | -   | -          | -    | -    | -    |
| CO8            | K3 | 3        | 2          | 1          | 1          | 3        | -   | -   | -   | -          | -    | -    | -    |
| CO9            | K3 | 3        | 2          | 1          | 1          | 3        | -   | -   | -   | -          | -    | -    | -    |
| CO10           | K2 | 2        | 1          | -          | -          | 2        | -   | -   | -   | -          | -    | -    | -    |
| <b>Average</b> |    | <b>2</b> | <b>1.3</b> | <b>0.3</b> | <b>0.3</b> | <b>2</b> | -   | -   | -   | <b>0.6</b> | -    | -    | -    |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;

R. Intt  
3/1/19



*S. Robinson*

Dr. S. ROBINSON, M.E., Ph.D.,  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name              | Course Outcome(CO)                                                                                                | Knowledge Level |
|-------------|--------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|
| ORO551      | Renewable Energy Sources | CO1: Understanding the physics of solar radiation.                                                                | K5              |
|             |                          | CO2: Describe the renewable energy measures to Ameliorate pollution while aiding their economies.                 | K4              |
|             |                          | CO3: Ability to classify the solar energy collectors and methodologies of storing solar energy.                   | K3              |
|             |                          | CO4: Describe the possible to meet the world's energy, development and environmental needs.                       | K2              |
|             |                          | CO5: Knowledge in applying solar energy in a useful way.                                                          | K2              |
|             |                          | CO6: Design the types of solar panel.                                                                             | K3              |
|             |                          | CO7: Knowledge in wind energy and biomass with its economic aspects.                                              | K3              |
|             |                          | CO8: Demonstrate the resources they devote to funding sustainable energy.                                         | K3              |
|             |                          | CO9: Knowledge in capturing and applying other forms of energy sources like wind, biogas and geothermal energies. | K2              |
|             |                          | CO10: Design the ocean energy and utilization.                                                                    | K3              |

**CO-PO MAPPING**

| COs     |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 |     |     |     |     |      |      |      |
| CO1     | K5 | 2   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2     | K4 | 3   | 3   | 3   | 2   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K3 | 3   | 3   | 2   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K2 | 2   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K2 | 2   | 2   | 1   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO6     | K3 | 3   | 3   | 2   | 1   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO7     | K3 | 3   | 3   | 2   | 1   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8     | K3 | 3   | 3   | 2   | 1   | 1        | -   | -   | -   | -   | -    | -    | -    |
| CO9     | K2 | 3   | 3   | 2   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10    | K3 | 3   | 3   | 2   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| Average |    | 2.7 | 2.4 | 1.8 | 1.1 | 0.8      | -   | -   | -   | -   | -    | -    | -    |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;



*[Handwritten Signature]*

Dr. S. ROBINSON, M.E., Ph.D.,  
Head of the Department,  
Department of ECE,  
Mount Zion College of Engg & Tech.,  
Pudukkottai - 622 507.

**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name           | Course Outcome(CO)<br>Students will be able to                                                       | Knowledge Level |
|-------------|-----------------------|------------------------------------------------------------------------------------------------------|-----------------|
| EC8501      | DIGITAL COMMUNICATION | CO1: Describe the fundamentals of channel coding.                                                    | K2              |
|             |                       | CO2: Design channel coding schemes using Shannon, Fano and Huffman codes.                            | K3              |
|             |                       | CO3: Inferring the principles of sampling and Quantization                                           | K2              |
|             |                       | CO4: Describe the various waveform coding schemes and their performance                              | K2              |
|             |                       | CO5: Explain the line coding and techniques for eliminating ISI in digital communication system.     | K2              |
|             |                       | CO6: Design and implement baseband transmission schemes and their noise performance.                 | K3              |
|             |                       | CO7: Analyze the spectral characteristics of band pass signaling schemes and their noise performance | K4              |
|             |                       | CO8: Design and implement band pass signaling schemes                                                | K3              |
|             |                       | CO9: Design error control coding schemes and performance.                                            | K3              |
|             |                       | CO10: Detect and correct the errors introduced in the channel using error control coding schemes     | K5              |

**CO-PO MAPPING**

| COs     |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1     | K2 | 2   | 1   | -   | -   | -        | -   | -   | 2   | -   | -    | -    | -    |
| CO2     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO6     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO7     | K4 | 3   | 3   | 2   | 2   | 1        | -   | -   | -   | 2   | -    | 1    | -    |
| CO8     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO9     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10    | K5 | 3   | 3   | 3   | 3   | 2        | -   | -   | -   | 3   | -    | 2    | -    |
| Average |    | 2.6 | 1.8 | 0.9 | 0.9 | 0.3      | -   | -   | -   | 0.5 | -    | 0.3  | -    |

\*3-High correlation; 2-Medium correlation ; 1-Low correlation;



*S. Robinson*  
**Dr. S. ROBINSON, M.E., Ph.D.,**  
 Head of the Department,  
 Department of ECE,  
 Mount Zion College of Engg & Tech.,  
 Pudukkottai - 622 507.

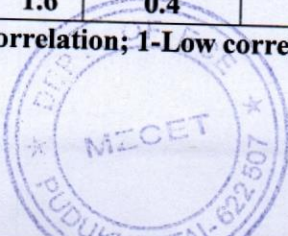
**MOUNT ZION COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ECE**  
**REGULATION 2017**  
**B.E ECE - COURSE OUTCOMES (CO)**

| Course Code | Course Name                      | Course Outcome(CO)<br>Students will be able to                                                                                                      | Knowledge Level |
|-------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| EC8561      | COMMUNICATION SYSTEMS LABORATORY | CO1: Design the various types of continuous signal and discrete signal.                                                                             | K3              |
|             |                                  | CO2: Compute the line coding and channel coding schemes to improve the noise performance of communication systems through simulations.              | K2              |
|             |                                  | CO3: Design and verify the sampling and TDM circuits                                                                                                | K3              |
|             |                                  | CO4: Design and verify the AM, FM and its demodulation circuits.                                                                                    | K3              |
|             |                                  | CO5: Demonstrate the working of PCM, DM, ADM and demodulation circuits                                                                              | K4              |
|             |                                  | CO6: Demonstrate band pass digital signaling schemes through simulation of FSK, PSK, QPSK and QAM techniques.                                       | K4              |
|             |                                  | CO7: Simulate & validate the various functional modules of a communication system                                                                   | K5              |
|             |                                  | CO8: Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system | K3              |
|             |                                  | CO9: Demonstrate their knowledge in base band signaling schemes through implementation FSK, PSK and DPSK                                            | K4              |
|             |                                  | CO10: Simulate end-to-end Communication Link                                                                                                        | K5              |

**CO-PO MAPPING**

| COs     |    | POs |     |     |     |          |     |     |     |     |      |      |      |
|---------|----|-----|-----|-----|-----|----------|-----|-----|-----|-----|------|------|------|
|         |    | PO1 | PO2 | PO3 | PO4 | PO5      | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         |    | K3  | K4  | K5  | K5  | K3/K5/K6 | K4  | K2  | K3  | K3  | K2   | K3   | K3   |
| CO1     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO2     | K2 | 2   | 1   | -   | -   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO3     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO4     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO5     | K4 | 3   | 3   | 2   | 2   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO6     | K4 | 3   | 3   | 2   | 2   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO7     | K5 | 3   | 3   | 3   | 3   | 2        | -   | -   | -   | -   | -    | -    | -    |
| CO8     | K3 | 3   | 2   | 1   | 1   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO9     | K4 | 3   | 3   | 2   | 2   | -        | -   | -   | -   | -   | -    | -    | -    |
| CO10    | K5 | 3   | 3   | 3   | 3   | 2        | -   | -   | -   | -   | -    | -    | -    |
| Average |    | 2.9 | 2.4 | 1.6 | 1.6 | 0.4      |     |     |     |     |      |      |      |

\*3-High correlation; 2-Medium correlation; 1-Low correlation;



*[Signature]*

ROBINSON, M.E., Ph.D.  
Dr. S. Robinson  
Head of the Department