



### Attainment of Program Outcomes and Program Specific Outcomes:

#### PO/PSO Attainment through Direct Assessment Methods:

| Assessment Method/POs       | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Direct Assessment(A)</b> | <b>2.31</b> | <b>1.86</b> | <b>1.81</b> | <b>1.23</b> | <b>0.87</b> | <b>1.05</b> | <b>0.50</b> | <b>0.76</b> | <b>0.81</b> | <b>0.92</b> | <b>0.95</b> | <b>1.24</b> | <b>1.90</b> | <b>1.61</b> |

#### PO/PSO Attainment through Indirect Assessment Methods:

| Sl. No.                               | Indirect Method                                  | Weightage | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|---------------------------------------|--|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1                                     | Employer Survey                                  | 5         | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | --          | --          |
| 2                                     | Alumni Survey                                    | 15        | 3.00        | 2.17        | 2.16        | 2.14        | 2.55        | 2.16        | 2.19        | 2.20        | 2.29        | 2.23        | 2.44        | 2.34        | --          | --          |
| 3                                     | Senior Exit Survey                               | 15        | 2.91        | 2.77        | 2.77        | 2.74        | 2.83        | 2.74        | 2.83        | 2.83        | 2.80        | 2.86        | 2.97        | 2.77        | 2.83        | 2.74        |
| 4                                     | Activity Feedback                                | 35        | 2.57        | 0.00        | 0.00        | 0.00        | 0.00        | 2.57        | 0.00        | 2.61        | 2.59        | 2.62        | 0.00        | 2.60        | 2.62        | 2.62        |
| 5                                     | Course Exit Survey                               | 15        | 2.41        | 1.91        | 1.82        | 1.21        | 0.85        | 0.98        | 0.59        | 0.82        | 0.75        | 0.93        | 0.93        | 1.26        | 2.08        | 1.72        |
| 6                                     | Placement, Higher Education and Entrepreneurship | 15        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        | 1.36        |
| <b>Overall Indirect Attainment(B)</b> |  |           | <b>2.50</b> | <b>1.38</b> | <b>1.37</b> | <b>1.27</b> | <b>1.29</b> | <b>2.14</b> | <b>1.20</b> | <b>2.15</b> | <b>2.14</b> | <b>2.17</b> | <b>1.31</b> | <b>2.22</b> | <b>2.22</b> | <b>2.11</b> |



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**NBA**

**Assessment  
Methods**

**2020-21**

### PO/PSO Attainment through Direct and Indirect Assessment Methods:

| Assessment Method/POs         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO1  | PO11 | PO12 | PSO1 | PSO2 |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Direct Assessment(A)</b>   | 2.31 | 1.86 | 1.81 | 1.23 | 0.87 | 1.05 | 0.50 | 0.76 | 0.81 | 0.92 | 0.95 | 1.24 | 1.90 | 1.61 |
| <b>Indirect Assessment(B)</b> | 2.50 | 1.38 | 1.37 | 1.27 | 1.29 | 2.14 | 1.20 | 2.15 | 2.14 | 2.17 | 1.31 | 2.22 | 2.22 | 2.11 |
| <b>AVG(0.8*A+0.2*B)</b>       | 2.35 | 1.76 | 1.72 | 1.24 | 0.95 | 1.27 | 0.64 | 1.04 | 1.08 | 1.17 | 1.02 | 1.44 | 1.96 | 1.71 |

  
**Criteria Coordinator**

  
**Programme Coordinator**

  
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**Program Level Course-PO and PSO Attainment matrix (2017 Batch)**

| Course | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C101   | 2.39 | 1.59 | 0.80 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.80 | ---  | ---  |
| C102   | 2.56 | ---  | 1.71 | ---  | 0.85 | ---  | ---  | 0.85 | ---  | 0.85 | ---  | 0.85 | ---  | ---  |
| C103   | 1.73 | 1.73 | 1.16 | 1.16 | ---  | 0.58 | ---  | 0.58 | ---  | ---  | 0.58 | 1.16 | ---  | ---  |
| C104   | 2.33 | 1.56 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  |
| C105   | 2.36 | 1.57 | 1.57 | ---  | ---  | ---  | ---  | 0.79 | ---  | ---  | 0.79 | ---  | ---  | ---  |
| C106   | 2.67 | 1.67 | 3.00 | 1.33 | ---  | 3.00 | ---  | 3.00 | 2.00 | 2.00 | 3.00 | 2.50 | ---  | ---  |
| C107   | 2.89 | ---  | ---  | ---  | 0.96 | ---  | ---  | 0.85 | -    | ---  | ---  | ---  | ---  | ---  |
| C109   | 1.82 | 1.21 | ---  | 0.61 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.61 | ---  | ---  |
| C110   | 2.33 | 1.86 | 1.55 | ---  | ---  | 1.40 | ---  | ---  | ---  | ---  | ---  | 0.78 | ---  | ---  |
| C111   | 1.60 | 1.60 | 1.07 | 1.07 | ---  | 0.53 | ---  | 0.53 | ---  | ---  | 0.53 | 1.07 | ---  | ---  |
| C112   | 0.83 | ---  | ---  | ---  | 1.66 | ---  | ---  | 0.83 | ---  | 2.49 | ---  | ---  | ---  | ---  |
| C113   | 1.80 | 1.80 | 1.80 | 1.20 | ---  | 0.60 | ---  | ---  | ---  | ---  | ---  | 1.20 | ---  | ---  |
| C114   | 2.81 | 2.81 | 1.87 | 1.87 | ---  | 0.94 | ---  | 0.94 | ---  | ---  | 0.94 | 1.87 | ---  | ---  |
| C115   | 2.95 | 2.95 | 2.95 | ---  | ---  | 1.97 | ---  | ---  | ---  | ---  | ---  | 0.98 | ---  | ---  |
| C116   | 2.68 | 1.78 | 1.78 | ---  | ---  | 1.78 | 1.78 | 0.89 | ---  | ---  | 0.89 | 0.89 | ---  | ---  |
| C201   | 1.81 | 1.21 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | ---  | ---  |
| C202   | 1.93 | 1.29 | 1.29 | 1.29 | 0.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.29 | 0.64 | 1.28 | 0.64 |
| C203   | 2.61 | 1.39 | 2.08 | 1.04 | 0.00 | 0.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.87 | 1.1  | 0.82 |
| C204   | 2.59 | 2.59 | 2.59 | 1.73 | 1.21 | 1.73 | 0.86 | 0.86 | 1.29 | 0.86 | 1.38 | 1.29 | 2.59 | 0.86 |
| C205   | 1.76 | 1.76 | 0.59 | 0.59 | 0.00 | 0.00 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.59 | 0.82 | 0.64 |
| C206   | 1.64 | 1.09 | 0.55 | --   | --   | --   | --   | --   | --   | 0.55 | --   | 0.55 | 1.09 | 0.55 |
| C207   | 2.94 | 2.94 | 2.94 | 1.27 | 0.98 | 0.00 | 0.00 | 0.00 | 0.98 | 1.96 | 0.00 | 0.98 | 1.98 | 1.98 |
| C208   | 2.31 | 1.92 | 2.31 | 0.96 | 0.96 | 0.96 | 0.00 | 0.00 | 0.96 | 0.96 | 0.96 | 0.96 | 1.73 | 1.15 |
| C209   | 2.36 | 1.58 | 0.79 | --   | --   | --   | --   | --   | --   | --   | --   | 0.79 | --   | --   |
| C210   | 2.40 | 2.40 | 2.40 | 0.80 | 0.00 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 1.60 | 0.8  |
| C211   | 2.22 | 1.92 | 2.22 | 1.72 | 1.48 | 0.00 | 0.00 | 0.74 | 0.00 | 0.00 | 0.00 | 0.74 | 0.74 | 0.74 |
| C212   | 1.46 | 1.46 | 1.46 | 0.78 | 0.49 | 0.00 | 0.00 | 0.49 | 0.00 | 0.00 | 0.49 | 0.49 | 0.97 | 0.49 |

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| Course | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C213   | 2.05 | 0.73 | 1.90 | 0.73 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.73 | 2.20 | 1.46 |
| C214   | 1.46 | 0.83 | 1.25 | 0.94 | 1.35 | 1.04 | 0.83 | 0.00 | 0.00 | 0.00 | 0.52 | 0.52 | 1.14 | 1.46 |
| C215   | 1.46 | 0.83 | 1.25 | 0.94 | 1.35 | 1.04 | 0.83 | 0.00 | 0.00 | 0.00 | 0.52 | 0.52 | 1.14 | 1.46 |
| C216   | 2.40 | 2.00 | 2.40 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 2.00 | 2.00 |
| C301   | 0.82 | 0.82 | 0.82 | 0.82 | 0.00 | 0.82 | 0.00 | 0.82 | 2.30 | 1.64 | 2.46 | 0.82 | 0.82 | 0.82 |
| C302   | 2.42 | 2.42 | 1.62 | 1.62 | 0.00 | 0.81 | 0.00 | 0.81 | 0.00 | 0.00 | 0.81 | 1.62 | 1.94 | 1.62 |
| C303   | 2.43 | 1.46 | 2.11 | 1.14 | 1.62 | 0.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.81 | 1.79 | 1.42 | 0.71 |
| C304   | 2.46 | 1.97 | 1.64 | 1.47 | 0.00 | 1.64 | 1.64 | 0.00 | 1.64 | 2.46 | 1.64 | 2.46 | 2.46 | 0.82 |
| C305   | 2.66 | 2.17 | 2.41 | 1.45 | 1.21 | 1.45 | 0.00 | 0.00 | 0.97 | 0.97 | 1.93 | 1.45 | 1.86 | 1.86 |
| C306   | 2.45 | 1.40 | 2.10 | 1.58 | 2.28 | 1.75 | 1.40 | 0.00 | 0.00 | 0.00 | 1.05 | 1.75 | 1.93 | 2.45 |
| C307   | 2.89 | 2.89 | 1.92 | 1.92 | 0.00 | 0.96 | 0.00 | 0.96 | 0.00 | 0.00 | 0.96 | 1.92 | 2.33 | 1.48 |
| C308   | 2.66 | 2.17 | 2.41 | 1.45 | 1.21 | 1.45 | 0.00 | 0.00 | 0.97 | 0.97 | 1.93 | 1.45 | 2.66 | 1.69 |
| C309   | 3.00 | 3.00 | 2.60 | 2.40 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 2.00 | 2.00 | 3.00 | 2.60 |
| C310   | 2.40 | 2.00 | 2.40 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 2.0  | 2.0  |
| C311   | 1.58 | 1.98 | 0.99 | 0.00 | 0.00 | 0.99 | 0.99 | 0.99 | 0.00 | 0.00 | 0.99 | 0.99 | 1.98 | 1.98 |
| C312   | 3.00 | 3.00 | 2.80 | 2.40 | 2.60 | 2.40 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 2.80 | 2.4  | 2.4  |
| C313   | 3.00 | 2.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 2.80 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| C314   | 2.57 | 1.38 | 1.78 | 0.99 | 1.98 | 0.00 | 0.00 | 0.99 | 0.99 | 0.00 | 0.00 | 0.99 | 1.58 | 1.78 |
| C315   | 2.86 | 2.29 | 2.48 | 1.91 | 1.91 | 1.53 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.53 | 2.95 | 1.57 |
| C316   | 3.00 | 3.00 | 2.50 | 1.75 | 2.25 | 1.50 | 1.00 | 1.00 | 1.00 | 1.50 | 2.00 | 2.00 | 2.95 | 2.21 |
| C401   | 0.82 | 0.82 | 0.82 | 0.82 | 0.00 | 0.82 | 0.00 | 0.82 | 2.29 | 1.63 | 2.45 | 0.82 | 0.81 | 0.81 |
| C402   | 2.89 | 1.74 | 1.54 | 1.74 | 1.54 | 1.74 | 0.00 | 0.96 | 0.00 | 1.93 | 1.93 | 1.54 | 1.9  | 1.9  |
| C403   | 1.91 | 1.03 | 1.32 | 0.73 | 0.73 | 0.00 | 0.00 | 0.73 | 0.55 | 0.00 | 0.00 | 0.73 | 1.17 | 1.32 |
| C404   | 2.51 | 2.17 | 2.17 | 2.00 | 1.34 | 1.25 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 2.00 | 1.42 | 0.71 |
| C405   | 2.79 | 1.86 | 1.86 | 0.93 | 0.93 | 0.93 | 0.00 | 0.00 | 0.00 | 0.93 | 0.93 | 0.93 | 1.76 | 1.76 |
| C406   | 3.00 | 3.00 | 2.00 | 2.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 2.33 | 1.48 |
| C407   | 3.00 | 2.00 | 2.00 | --   | 3.00 | 1    | 1.00 | --   | 1    | 1    | --   | 1    | 2.00 | 3.00 |
| C408   | 3.00 | 2.00 | 3.00 | 2.00 | 2.00 | 1.00 | 2.00 | 2.00 | 3.00 | 3.00 | 3.00 | 1.00 | 3    | 3.00 |
| C409   | 2.74 | 1.83 | 1.83 | 0.91 | 0.00 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.00 | 0.91 | 1.76 | 1.76 |

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| Course | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C410   | 2.70 | 2.70 | 2.34 | 1.80 | 0.00 | 1.80 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 1.80 | 2.70 | 1.98 |
| C411   | 1.88 | 1.88 | 1.88 | 0.94 | 0.00 | 1.88 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 1.88 | 1.89 | 1.89 |
| C412   | 1.88 | 1.88 | 1.88 | 0.94 | 0.00 | 1.88 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 1.88 | 1.88 | 1.88 |
| C413   | 2    | 2    | 2    | 1    | 2    | 1    | 2    | 3    | 3    | 3    | 2    | 2    | 3    | 3    |
| C414   | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 3.00 | 1.00 | 3.00 | 1.00 | 1.00 | 3    | 3    |
| C415   | 2.00 | 2.00 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 3.00 | 3.00 | 3.00 | 2.00 | 2.00 | 3    | 3    |
| Avg.   | 2.31 | 1.86 | 1.81 | 1.23 | 0.87 | 1.05 | 0.50 | 0.76 | 0.81 | 0.92 | 0.95 | 1.24 | 1.90 | 1.61 |

  
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FCAR

2019-20(Odd)

## FACULTY COURSE ASSESSEMENT REPORT (FCAR)

**Course Coordinator: Prof: S. S. Ittannavar** **Class Strength:35**  
**Semester: V** **Code: 17EC52**  
**Subject: Digital Signal Processing**

### I. **Program Outcomes (POs):** Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to

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|              |
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| 2019-20(Odd) |

engage in independent and life-long learning in the broadest context of technological change.

**II. Program Specific Outcomes (PSOs):**

|       |   |
|-------|---|
| PSO1: | An ability to understand the concepts of Basic Electronics and Communication Engineering and to apply them to various areas like Signal Processing, VLSI, Embedded Systems, Communication Systems and Digital & Analog Devices. |
| PSO2: | An ability to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive at cost effective and appropriate solutions.                   |

**III. Course outcomes (COs):** The student, after successful completion of the course, will be able to:

| CO      | Description   |
|---------|---|
| C302.1: | Define DSP and compute DFT and IDFT of various signals using its properties.                                |
| C302.2: | Apply the knowledge of DFT to find the computational complexity and convolution for long duration sequence. |
| C302.3: | Apply fast and efficient algorithms for computing DFT and IDFT of a given sequence.                         |
| C302.4: | Design and Analyze the structures of IIR filters.   |
| C302.5: | Design and Analyze the structures of FIR filters.   |


**IV. Mapping of Course Outcomes (Cos) to Program Outcomes (Pos):**

| POs<br>Cos | 1 | 2 | 3 | 4  | 5  | 6 | 7  | 8 | 9  | 10 | 11 | 12 |
|------------|---|---|---|----|----|---|----|---|----|----|----|----|
| C302.1     | 3 | 3 | 2 | NA | NA | 1 | NA | 1 | NA | NA | 1  | 2  |
| C302.2     | 3 | 3 | 2 | NA | 0  | 1 | NA | 1 | 0  | 0  | 1  | 2  |
| C302.3     | 3 | 3 | 2 | 2  | NA | 1 | NA | 1 | NA | NA | 1  | 2  |
| C302.4     | 3 | 3 | 2 | 2  | NA | 1 | 0  | 1 | NA | NA | 1  | 2  |
| C302.5     | 3 | 3 | 2 | NA | NA | 1 | NA | 1 | NA | NA | 1  | 2  |
| AVG        | 3 | 3 | 2 | 2  | 0  | 1 | 0  | 1 | 0  | 0  | 1  | 2  |

**V. Mapping of Course Outcomes (Cos) to Program Specific Outcomes (PSOs):**

| PSOs<br>Cos | PSO1 | PSO2 |
|-------------|------|------|
| C302.1      | 2    | 2    |
| C302.2      | 2    | 2    |
| C302.3      | 3    | 2    |
| C302.4      | 2    | 2    |
| C302.5      | 3    | 2    |
| AVG         | 2.4  | 2    |



|   |  |                     |
|---|--|---------------------|
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|   |  | <b>FCAR</b>         |
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## VI. Justification of CO-PO Mapping:

| Mapping                  | Justification  |
|--------------------------|--|
| C302.1-5 TO PO1          | A high correlation since explaining the concept require a certain level of knowledge of mathematics and engineering sciences.  |
| C302.1-5 TO PO2          | A high correlation since explaining the concept require a certain level of problem analysis skills based on literature research. However, first principles of mathematics, science are required.   |
| C302.1-5 TO PO3          | A medium correlation since explaining the concept require a certain level of knowledge on designing / developing solutions considering public safety and environmental issues.   |
| C302.3-PO4<br>C302.4-PO4 | A medium correlation since a higher level of knowledge such as research-based and research methods is not essential to give conclusions on the problems solved.  |
| C302.1-5 TO PO5          | Not using any modern tools to understand the concepts of operating systems.  |
| C302.1-5 TO PO6          | How better we can develop a DSP system that has less effect on health and security issues and how legal DSP can be developed.  |
| C302.1-5 TO PO7          | Good impact on society and environment are not included.   |
| C302.1-5 TO PO8          | Low correlation with Ethical values, team work and communication concepts are included.  |
| C302.1-5 TO PO9,10       | Team work and communication concepts are not included.   |
| C302.1-5 TO PO11         | A low correlation with demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. |
| C302.1-5 TO PO12         | A student working in DSP domain can apply the concepts studied in this course throughout his carrier.  |

## VII. Justification of CO-PSO Mapping (Digital Signal Processing – 17EC52):

| Mapping            | Justification  |
|--------------------|--|
| C302.1,2,4 TO PSO1 | A medium correlation with understand the concepts of Basic Electronics and Communication Engineering and to apply them to various areas like Signal Processing, VLSI, Embedded Systems, Communication Systems and Digital& Analog Devices. |
| C302.3,5 TO PSO1   | A strong correlation with understand the concepts of Basic Electronics and Communication Engineering and to apply them to various areas like Signal Processing, VLSI, Embedded Systems, Communication Systems and Digital& Analog Devices. |
| C302.1-5 TO PSO2   | A medium correlation to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive at cost effective and appropriate solutions.                    |

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## MEASUREMENT OF COs, POs & PSOs ATTAINMENT

### Teaching Methodology:

- Lecture by Teacher
- PPT or Online demo etc.

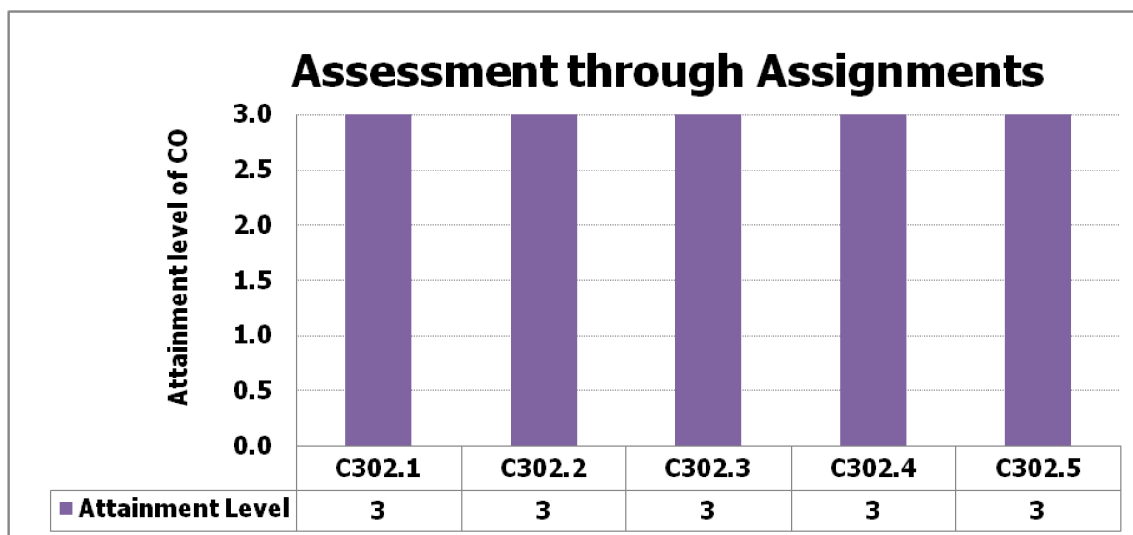
### Assessment Tools:

- Continuous assessment
- Laboratory experiments
- End semester exam

### I. Assessment through Assignment:

A: Appeared    R: Reached    Low =1 (50-60 %)    Medium =2 (61-70 %)    High =3 (above 70 %)

| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Attainment level of CO | Mapped PO                  |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|------------------------|----------------------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                        |                            |
| C302.1 | 35           | 35 |              |    |              |    |              |    |              |    | 100.00                               | 3                      | PO1,PO3,PO6,PO8, PO11-PO12 |
| C302.2 |              |    | 35           | 35 |              |    |              |    |              |    | 100.00                               | 3                      | PO1,PO3,PO6,PO8, PO11-PO12 |
| C302.3 |              |    |              |    | 35           | 35 |              |    |              |    | 100.00                               | 3                      | PO1,PO3,PO6,PO8, PO11-PO12 |
| C302.4 |              |    |              |    |              |    | 35           | 35 |              |    | 100.00                               | 3                      | PO1,PO3,PO6,PO8, PO11-PO12 |
| C302.5 |              |    |              |    |              |    |              |    | 35           | 35 | 100.00                               | 3                      | PO1,PO3,PO6,PO8, PO11-PO12 |



(Table & Bar Chart from Assignment Assessment Excel Sheet)

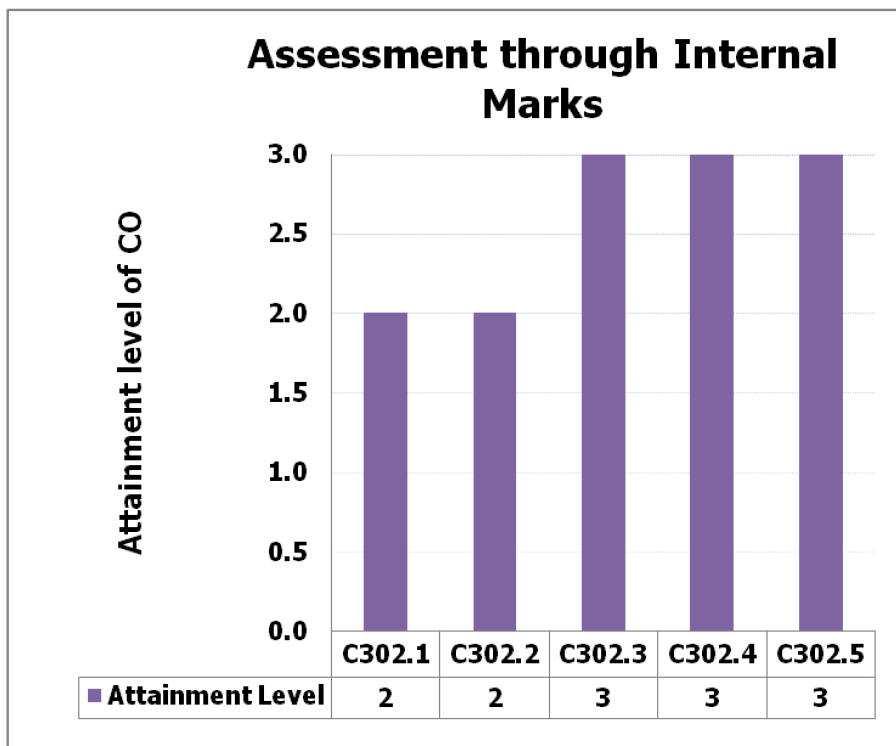


|              |
|--------------|
| ECE Dept.    |
| NBA          |
| FCAR         |
| 2019-20(Odd) |

## II. Assessment through Internal Marks:

**A: Appeared    R: Reached    Low =1 (50-60 %)    Medium =2 (61-70 %)    High =3 (above 70 %)**

| COs    | IA Test-1          |    |                    |    | IA Test -2         |    |                    |    | IA Test -3         |    |                    |    | Attainment level of CO | Mapped PO                  |
|--------|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|------------------------|----------------------------|
|        | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    |                        |                            |
|        | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  |                        |                            |
|        | C302.1             | 35 | 34                 | 35 | 23                 |    |                    |    |                    |    |                    |    |                        | 2                          |
| C302.2 |                    |    |                    |    | 35                 | 24 |                    |    |                    |    |                    |    | 2                      | PO1- PO3,PO6,PO8,PO11-PO12 |
| C302.3 |                    |    |                    |    |                    |    | 35                 | 35 |                    |    |                    |    | 3                      | PO1- PO4,PO6,PO8,PO11-PO12 |
| C302.4 |                    |    |                    |    |                    |    |                    |    | 35                 | 31 |                    |    | 3                      | PO1- PO4,PO6,PO8,PO11-PO12 |
| C302.5 |                    |    |                    |    |                    |    |                    |    |                    |    | 35                 | 29 | 3                      | PO1- PO3,PO6,PO8,PO11-PO12 |



(Table & Bar Chart from IA Assessment Excel Sheet)



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### III. Semester End Exam Assessment Based on VTU Exam Results:

COs Attainment Levels:

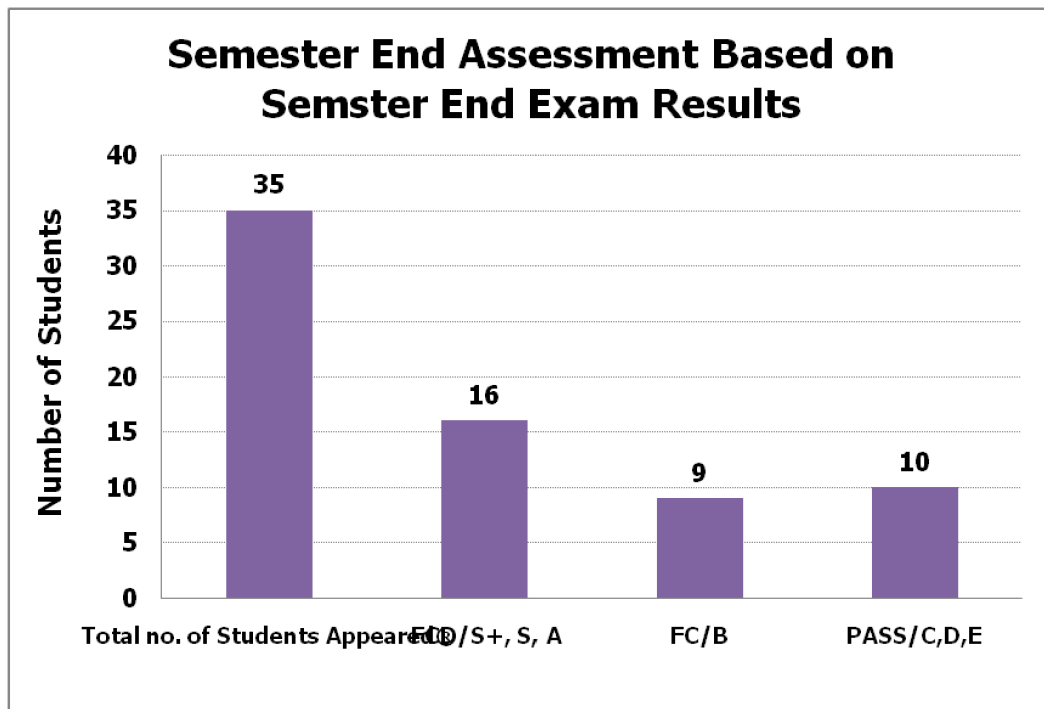
FCD: S+, S, & A = 16;

FC (B) = 9;

Pass: C, D, & E = 10;

Fail = 0

| Total no. of Students Appeared→ | 35                       |  |
|---------------------------------|--------------------------|--|
| Class/Grade↓                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD/S+, S, A                    | 16                       | 48   |
| FC/B                            | 9                        | 18   |
| PASS/C,D,E                      | 10                       | 10   |
| Total Percentage of Passing     | 100.00%                  | 2.17   |



(Table & Bar chart from SEE\_Assessment Excel Sheet)

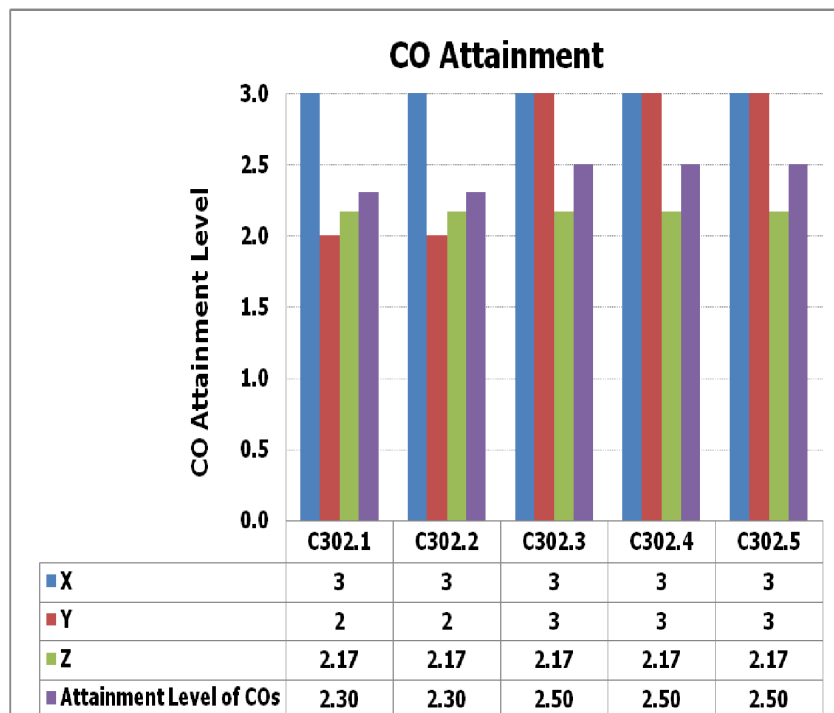
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**IV. CO Attainment:**

| COs   | Attainment Through Assignment(X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO | Mapped POs                 |
|---|----------------------------------|-------------------------------|---|------------------------|----------------------------|
|   |                                  |                               |   | $[0.2(X+Y)/2]+0.8Z$    |                            |
| C302.1  | 3                                | 2                             | 2.17                                    | 2.30                   | PO1- PO3,PO6,PO8,PO11-PO12 |
| C302.2  | 3                                | 2                             | 2.17                                    | 2.30                   | PO1- PO3,PO6,PO8,PO11-PO12 |
| C302.3  | 3                                | 3                             | 2.17                                    | 2.50                   | PO1- PO4,PO6,PO8,PO11-PO12 |
| C302.4  | 3                                | 3                             | 2.17                                    | 2.50                   | PO1- PO4,PO6,PO8,PO11-PO12 |
| C302.5  | 3                                | 3                             | 2.17                                    | 2.50                   | PO1- PO3,PO6,PO8,PO11-PO12 |
| <b>Average</b>  |                                  |                               |   | <b>2.42</b>            |                            |
| Indirect Course attainment through Course Exit Survey |                                  |                               |   | <b>2.7</b>             |                            |

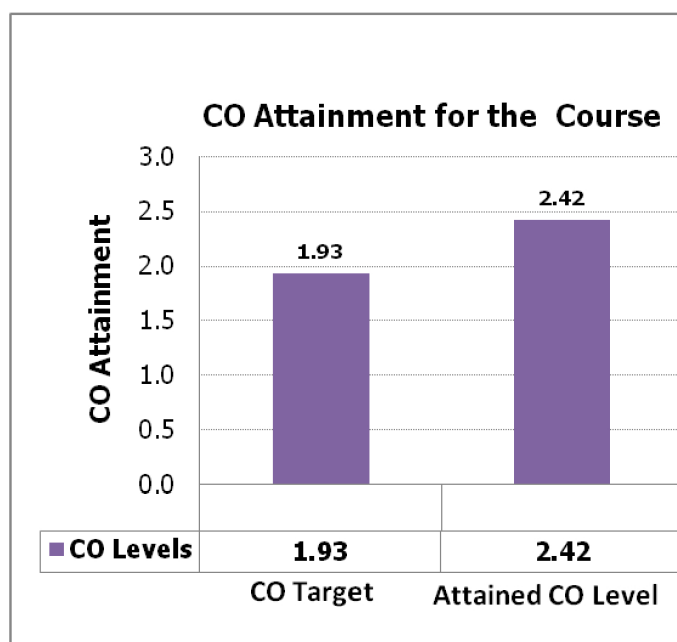


(Table & Bar Chart from CO Assessment Excel Sheet)



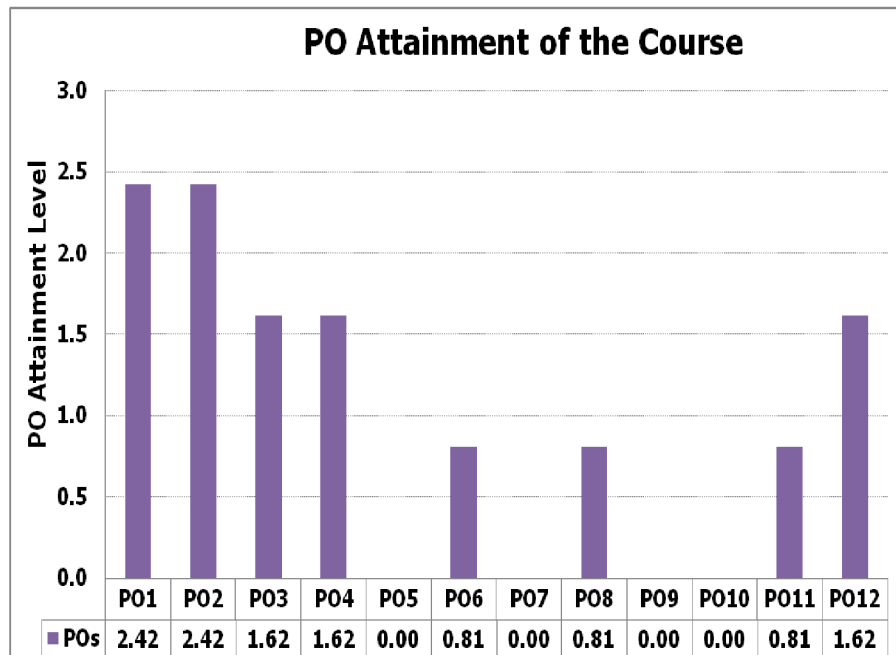
|                     |
|---------------------|
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| <b>NBA</b>          |
| <b>FCAR</b>         |
| <b>2019-20(Odd)</b> |

| <b>CO Attainment for the Course</b> |      |
|-------------------------------------|------|
| <b>Target CO Level</b>              | 1.5  |
| <b>Attained CO Level</b>            | 2.42 |



**v. PO Attainment for the Entire Course:**

| CO/PO       | PO1  | PO2  | PO3  | PO4  | PO5 | PO6  | PO7 | PO8  | PO9 | PO10 | PO11 | PO12 |
|-------------|------|------|------|------|-----|------|-----|------|-----|------|------|------|
| <b>C302</b> | 2.42 | 2.42 | 1.62 | 1.62 | --  | 0.81 | --  | 0.81 | --  | --   | 0.81 | 1.62 |

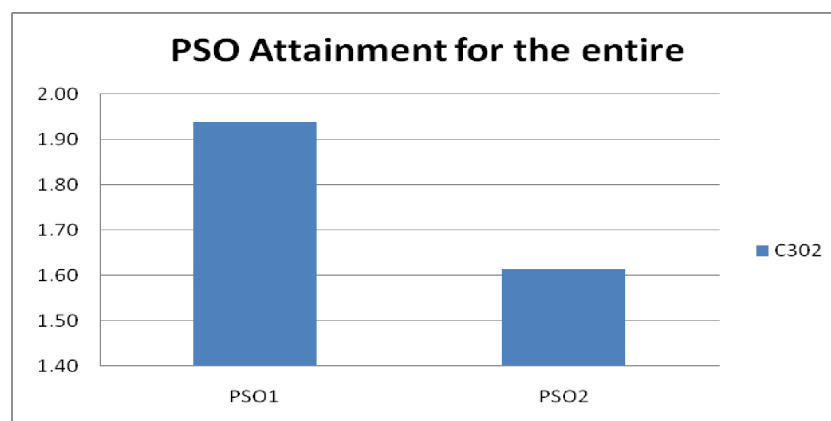


(Table & Bar Chart from PO Assessment Excel Sheet)

**POs attainment value for the present course = (Mapped value \* CO attainment average)/3**  
 Note: Mapped value is available in section 4.

#### VI. PSO Attainment for the Entire Course:

| CO    | PSO1 | PSO2 |
|-------|------|------|
| CO302 | 1.94 | 1.62 |



(Table & Bar chart from PSO Assessment Excel Sheet)

**PSOs attainment value for the present course = (Mapped value \* CO attainment average)/3**  
 Note: Mapped value is available in section 5 given above.





### VII. Course Coordinator Remarks:

| S. No. | Observations                 | Comments   |
|--------|------------------------------|--|
| 1      | Impact of Delivery Methods   | <b>Delivery implemented is better and acceptable.</b>  |
| 2      | Course Outcome Attainment    | <b>Attainment level is less than target level set, student's performance in internal exams and semester end exam has to be improved.</b> |
| 3      | Scope for Improvement        | <b>Additional lectures /seminar has to be conducted to cover the Pos not attained through course content.</b>                            |
| 4      | Additional Comments (if any) | <b>NIL</b>   |

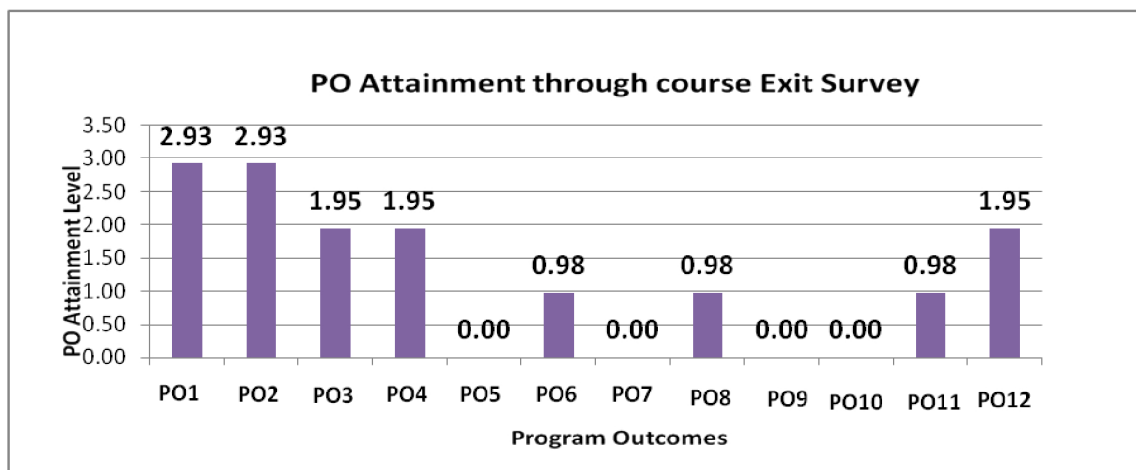
### VIII. Attainment Through indirect Methods

#### PO Attainment through Course Exit Survey

|   |              |             |
|---|--------------|-------------|
| CO Attainment Value through Course Exit Survey: | <b>97.56</b> | <b>2.93</b> |
|---|--------------|-------------|

| CO                    | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>C302.1</b>         | 3    | 3    | 2    | NA   | NA   | 1    | NA   | 1    | NA   | NA   | 1    | 2    |
| <b>C302.2</b>         | 3    | 3    | 2    | NA   | 0    | 1    | NA   | 1    | 0    | 0    | 1    | 2    |
| <b>C302.3</b>         | 3    | 3    | 2    | 2    | NA   | 1    | NA   | 1    | NA   | NA   | 1    | 2    |
| <b>C302.4</b>         | 3    | 3    | 2    | 2    | NA   | 1    | 0    | 1    | NA   | NA   | 1    | 2    |
| <b>C302.5</b>         | 3    | 3    | 2    | NA   | NA   | 1    | NA   | 1    | NA   | NA   | 1    | 2    |
| <b>Average</b>        | 3    | 3    | 2    | 2    | 0    | 1    | 0    | 1    | 0    | 0    | 1    | 2    |
| <b>CES Attainment</b> | 2.93 | 2.93 | 1.95 | 1.95 | 0.00 | 0.98 | 0.00 | 0.98 | 0.00 | 0.00 | 0.98 | 1.95 |

POs/PSOs attainment value for the present course = (Mapped value \* CO Attainment Value through Course Exit Survey)/3



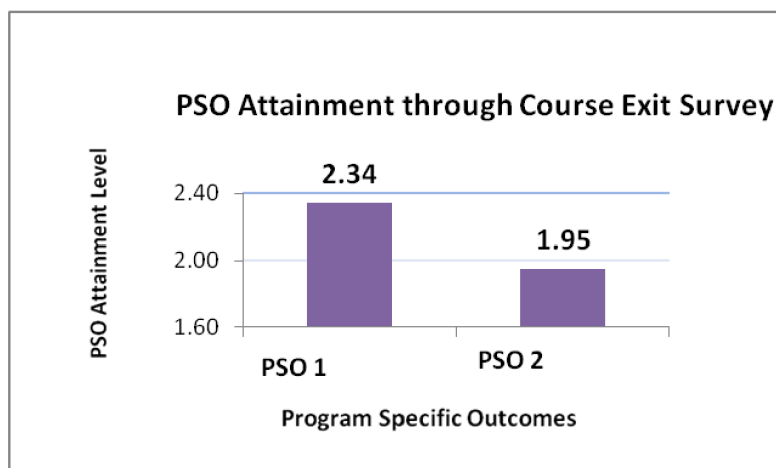
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### PSO Attainment through Course Exit Survey

| CO             | PSO 1 | PSO 2 |
|----------------|-------|-------|
| C302.1         | 2     | 2     |
| C302.2         | 2     | 2     |
| C302.3         | 3     | 2     |
| C302.4         | 2     | 2     |
| C302.5         | 3     | 2     |
| Average        | 2.4   | 2     |
| CES Attainment | 2.34  | 1.95  |



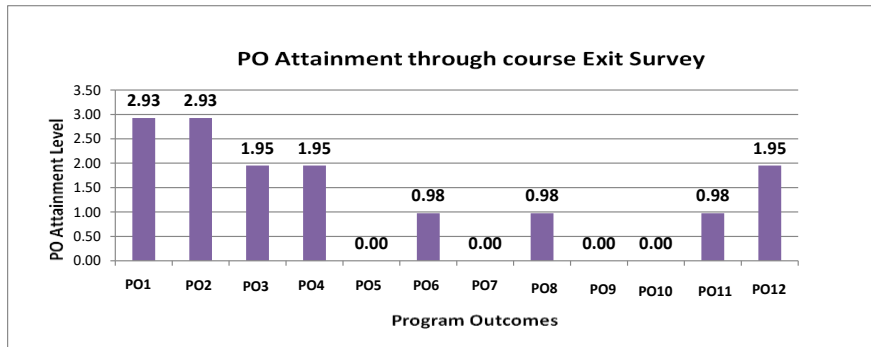
|  |   |   |
|--|---|---|
| <br><b>Prof. S. S. Ittannavar</b> | <br><b>HOD</b> | <br><b>HOD</b> |
| Name & Signature of Course Coordinator   | Name & Signature of Module Coordinator  | HOD   |

**PO/PSO Attainment through Course Exit Survey**

|   |       |      |
|---|-------|------|
| CO Attainment Value through Course Exit Survey: | 97.56 | 2.93 |
|---|-------|------|

| CO                    | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C302.1                | 3           | 3           | 2           | NA          | NA          | 1           | NA          | 1           | NA          | NA          | 1           | 2           |
| C302.2                | 3           | 3           | 2           | NA          | 0           | 1           | NA          | 1           | 0           | 0           | 1           | 2           |
| C302.3                | 3           | 3           | 2           | 2           | NA          | 1           | NA          | 1           | NA          | NA          | 1           | 2           |
| C302.4                | 3           | 3           | 2           | 2           | NA          | 1           | 0           | 1           | NA          | NA          | 1           | 2           |
| C302.5                | 3           | 3           | 2           | NA          | NA          | 1           | NA          | 1           | NA          | NA          | 1           | 2           |
| <b>Average</b>        | <b>3</b>    | <b>3</b>    | <b>2</b>    | <b>2</b>    | <b>0</b>    | <b>1</b>    | <b>0</b>    | <b>1</b>    | <b>0</b>    | <b>0</b>    | <b>1</b>    | <b>2</b>    |
| <b>CES Attainment</b> | <b>2.93</b> | <b>2.93</b> | <b>1.95</b> | <b>1.95</b> | <b>0.00</b> | <b>0.98</b> | <b>0.00</b> | <b>0.98</b> | <b>0.00</b> | <b>0.00</b> | <b>0.98</b> | <b>1.95</b> |

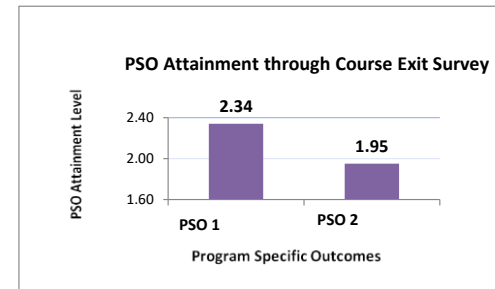
POs attainment value for the present course = (Mapped value \* CO Attainment Value through Course Exit Survey)/3



**PSO Attainment through Course Exit Survey**

| CO                    | PSO 1       | PSO 2       |
|-----------------------|-------------|-------------|
| C302.1                | 2           | 2           |
| C302.2                | 2           | 2           |
| C302.3                | 3           | 2           |
| C302.4                | 2           | 2           |
| C302.5                | 3           | 2           |
| <b>Average</b>        | <b>2.4</b>  | <b>2</b>    |
| <b>CES Attainment</b> | <b>2.34</b> | <b>1.95</b> |

PSOs attainment value for the present course = (Mapped value \* CO Attainment Value through Course Exit Survey)/3



# Hirasugar Institute of Technology, Nidasoshi-591236

## Course Outcome/Program Outcome Assessment

COURSE COORDINATOR: Mr. S. S. Ittannavar

A.Y: 2019-20

SEM: V

CO Code: C302

PROGRAM: ECE

DIV:

COURSE: Digital Signal Processing

COURSE CODE: 17EC52

### Mapping of Course Outcomes (COs) to Program Outcomes (POs)

| POs→    | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| COs↓    |     |     |     |     |     |     |     |     |     |      |      |      |
| C302.1  | 3   | 3   | 2   | NA  | NA  | 1   | NA  | 1   | NA  | NA   | 1    | 2    |
| C302.2  | 3   | 3   | 2   | NA  | 0   | 1   | NA  | 1   | 0   | 0    | 1    | 2    |
| C302.3  | 3   | 3   | 2   | 2   | NA  | 1   | NA  | 1   | NA  | NA   | 1    | 2    |
| C302.4  | 3   | 3   | 2   | 2   | NA  | 1   | 0   | 1   | NA  | NA   | 1    | 2    |
| C302.5  | 3   | 3   | 2   | NA  | NA  | 1   | NA  | 1   | NA  | NA   | 1    | 2    |
| Average | 3   | 3   | 2   | 2   | 0   | 1   | 0   | 1   | 0   | 0    | 1    | 2    |

### Mapping of Course Outcomes (COs) to Program Specific Outcomes (PSOs)

| PSOs    | PSO 1 | PSO 2 |
|---------|-------|-------|
| COs     |       |       |
| C302.1  | 2     | 2     |
| C302.2  | 2     | 2     |
| C302.3  | 3     | 2     |
| C302.4  | 2     | 2     |
| C302.5  | 3     | 2     |
| Average | 2.4   | 2     |

### Mapping of IA Questions to COs

| IA Test-1                       |                  | IA Test -2       |                  | IA Test -3       |                  |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|
| Q.No.1 OR Q.No.2                | Q.No.3 OR Q.No.4 | Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 |
| C302.1                          | C302.1           | C302.2           | C302.3           | C302.4           | C302.5           |
| Maximum Marks for Each Question |                  |                  |                  |                  |                  |
| 15                              | 15               | 15               | 15               | 15               | 15               |

### Mapping of Assignment Questions to COs

| ASSIGNMENTS                       |         |         |         |         |
|-----------------------------------|---------|---------|---------|---------|
| ASSGN-1                           | ASSGN-2 | ASSGN-3 | ASSGN-4 | ASSGN-5 |
| C302.1                            | C302.2  | C302.3  | C302.4  | C302.5  |
| Maximum Marks for Each Assignment |         |         |         |         |
| 25                                | 25      | 25      | 25      | 25      |

Target Level Set for the Attainment of Course: 1.93

#### Instructions:

1. The course coordinator should manually enter correlated IA questions with mapped COs
2. The course coordinator should manually enter correlated assignments with mapped COs
3. Based on the previous three assessment years course coordinator/faculty has to set the target level for course attainment.
4. Mapped POs must be entered manually in IA Assessment Sheet, Assignment Assessment Sheet and CO Attainment Sheet.

## COURSE OUTCOME ASSESSMENT DATA ENTRY SHEET

| Sl.No                                | Student Name           |            | IA Test -1       |                  |             | IA Test -2       |                  |             | IA Test -3       |                  |             | Assignments |         |         |         |         | Semster End Exam |         |
|--------------------------------------|------------------------|------------|------------------|------------------|-------------|------------------|------------------|-------------|------------------|------------------|-------------|-------------|---------|---------|---------|---------|------------------|---------|
|                                      |                        |            | Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Total Marks | Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Total Marks | Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Total Marks | Assgn-1     | Assgn-2 | Assgn-3 | Assgn-4 | Assgn-5 | PO1-PO4, PO6-PO9 |         |
|                                      |                        |            | MAX MARKS→       | 15               | 15          | 30               | 15               | 15          | 30               | 15               | 15          | 30          | 25      | 25      | 25      | 25      | 25               | GRADES  |
|                                      |                        |            | COs→<br>USN↓     | C302.1           | C302.1      |                  | C302.2           | C302.3      |                  | C302.4           | C302.5      |             | C302.1  | C302.2  | C302.3  | C302.4  | C302.5           | CO1-C08 |
| 1                                    | ABHISHEK S. MALGONDKAR | 2HN17EC001 | 0                | 8                | 8           | 12               | 13               | 25          | 2                | 11               | 13          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 2                                    | ADARSH MADIHALLI       | 2HN17EC002 | 12               | 14               | 26          | 15               | 11               | 26          | 15               | 9                | 24          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 3                                    | AISHWARYA N.PATIL      | 2HN17EC003 | 14               | 8                | 22          | 15               | 12               | 27          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 4                                    | AKSHATA C. SHIVANAVAR  | 2HN17EC004 | 7                | 7                | 14          | 10               | 13               | 23          | 10               | 15               | 25          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 5                                    | AMOGH DADDI            | 2HN17EC005 | 15               | 15               | 30          | 14               | 8                | 22          | 8                | 15               | 23          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 6                                    | ARPITA BHAJANTRI       | 2HN17EC006 | 8                | 11               | 19          | 15               | 13               | 28          | 12               | 15               | 27          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 7                                    | ASHWINI R. KORI        | 2HN17EC007 | 14               | 15               | 29          | 15               | 13               | 28          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 8                                    | AVINASH SUNTHE         | 2HN17EC008 | 3                | 9                | 12          | 14               | 14               | 28          | 9                | 15               | 24          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 9                                    | DANAMMA IRAPPA NERLI   | 2HN17EC009 | 15               | 15               | 30          | 15               | 15               | 30          | 15               | 11               | 26          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 10                                   | KIRAN KELAGINAMANI     | 2HN17EC010 | 13               | 15               | 28          | 15               | 15               | 30          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 11                                   | LAXMI PATIL            | 2HN17EC011 | 12               | 15               | 27          | 15               | 13               | 28          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 12                                   | MALLIKARJUN S. PARANDI | 2HN17EC012 | 1                | 4                | 5           | 14               | 10               | 24          | 3                | 5                | 8           | 25          | 25      | 25      | 25      | 25      | C                |         |
| 13                                   | MEENAKSHI B.PATIL      | 2HN17EC013 | 15               | 15               | 30          | 15               | 15               | 30          | 9                | 11               | 20          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 14                                   | NIKHITA S. MANE        | 2HN17EC014 | 15               | 11               | 26          | 15               | 15               | 30          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 15                                   | NISARGA BAGALKOT       | 2HN17EC015 | 15               | 10               | 25          | 14               | 13               | 27          | 9                | 6                | 15          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 16                                   | NITYASHREE P.PATIL     | 2HN17EC016 | 6                | 2                | 8           | 15               | 10               | 25          | 15               | 12               | 27          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 17                                   | PAVITRA S. RANJANAGI   | 2HN17EC017 | 9                | 12               | 21          | 9                | 15               | 24          | 2                | 13               | 15          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 18                                   | PRAJAKTA MARADI        | 2HN17EC019 | 7                | 3                | 10          | 13               | 10               | 23          | 15               | 8                | 23          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 19                                   | PRAVEENKUMAR ANKAD     | 2HN17EC020 | 4                | 9                | 13          | 15               | 11               | 26          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 20                                   | PREETI MASODAGE        | 2HN17EC021 | 11               | 15               | 26          | 14               | 11               | 25          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 21                                   | PRIYANKA TELAGADE      | 2HN17EC022 | 10               | 7                | 17          | 9                | 11               | 20          | 12               | 11               | 23          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 22                                   | SANGEETA RAGHA         | 2HN17EC023 | 3                | 8                | 11          | 15               | 14               | 29          | 10               | 8                | 18          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 23                                   | SAPNA T. YEGAPPAGOL    | 2HN17EC024 | 12               | 13               | 25          | 13               | 12               | 25          | 13               | 7                | 20          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 24                                   | SHIVANI U. KANERKAR    | 2HN17EC025 | 15               | 13               | 28          | 14               | 14               | 28          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | S+               |         |
| 25                                   | SHRADDHA. S. MURADUNDE | 2HN17EC026 | 12               | 7                | 19          | 14               | 11               | 25          | 13               | 13               | 26          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 26                                   | SHRUTI S. MURADUNDE    | 2HN17EC027 | 15               | 15               | 30          | 15               | 14               | 29          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 27                                   | SNEHA BANNURI          | 2HN17EC028 | 13               | 11               | 24          | 15               | 12               | 27          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 28                                   | SNEHAL GURAV           | 2HN17EC029 | 10               | 11               | 21          | 15               | 12               | 27          | 13               | 11               | 24          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 29                                   | SUNITA R. HAMIDWADE    | 2HN17EC030 | 14               | 15               | 29          | 15               | 12               | 27          | 11               | 6                | 17          | 25          | 25      | 25      | 25      | 25      | B                |         |
| 30                                   | SUPRIYA D.KULKARNI     | 2HN17EC031 | 8                | 8                | 16          | 15               | 15               | 30          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 31                                   | SUREKHA HUBBALLI       | 2HN17EC032 | 15               | 15               | 30          | 15               | 15               | 30          | 15               | 15               | 30          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 32                                   | VAISHALI N.MUCHANDI    | 2HN17EC033 | 9                | 12               | 21          | 14               | 12               | 26          | 11               | 15               | 26          | 25          | 25      | 25      | 25      | 25      | S                |         |
| 33                                   | VEENA PATIL            | 2HN17EC035 | 3                | 6                | 9           | 14               | 11               | 25          | 9                | 11               | 20          | 25          | 25      | 25      | 25      | 25      | C                |         |
| 34                                   | VINAY HIREKODI         | 2HN17EC036 | 3                | 12               | 15          | 15               | 12               | 27          | 9                | 15               | 24          | 25          | 25      | 25      | 25      | 25      | A                |         |
| 35                                   | VINAYAK TUPPAROTTI     | 2HN17EC037 | 15               | 15               | 30          | 15               | 15               | 30          | 10               | 15               | 25          | 25          | 25      | 25      | 25      | 25      | C                |         |
| ***END OF RECORDS***                 |                        |            |                  |                  |             |                  |                  |             |                  |                  |             |             |         |         |         |         |                  |         |
| Apeared                              |                        |            | 35               | 35               |             | 35               | 35               |             | 35               | 35               |             | 35          | 35      | 35      | 35      | 35      | 35               |         |
| Absent                               |                        |            | 0                | 0                |             | 0                | 0                |             | 0                | 0                |             | 0           | 0       | 0       | 0       | 0       | 0                |         |
| Reached                              |                        |            | 23               | 24               |             | 35               | 34               |             | 31               | 29               |             | 35          | 35      | 35      | 35      | 35      | 16               |         |
| Attainment level of CO in Percentage |                        |            | 65.71            | 68.57            |             | 100.00           | 97.14            |             | 88.57            | 82.86            |             | 100.00      | 100.00  | 100.00  | 100.00  | 100.00  | 9                |         |
| Attainment level of CO               |                        |            | 2                | 2                |             | 3                | 3                |             | 3                | 3                |             | 3           | 3       | 3       | 3       | 3       | 10               |         |
|                                      |                        |            |                  |                  |             |                  |                  |             |                  |                  |             |             |         |         |         |         | 1.00             |         |

55 40-44 E  
57 45-49 D  
68 50-59 C  
55 60-69 B  
72 70-79 A  
61 80-89 S  
87 90-99 S+

|                          |        |    |
|--------------------------|--------|----|
| FCD                      | S+,S,A | 16 |
| FC                       | B      | 9  |
| PASS                     | C,D,E  | 10 |
| Fail                     | F      | 0  |
| AB                       |        | 0  |
| Total number of Students |        | 35 |

### Attainment Level set for IA Tests

**Attainment Level 1:** Students scoring more than 60% of maximum marks allotted to each question.

### Attainment Level set for Semester End Examination(SEE)

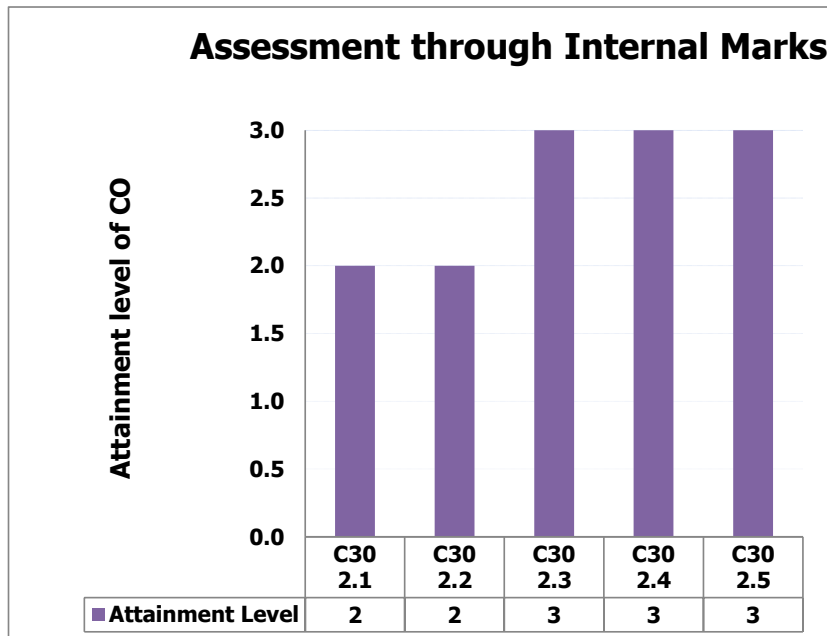
- Attainment 3(High):** students scoring more than 70% marks
- Attainment 2(Medium):** students scoring more than or equal to 60% to less than 70% Marks
- Attainment 1(Low):** students scoring more than or equal to 50% to less than 35% Marks

### Assessment through Internal Marks

Calculate

A: Appeared R: Reached Low =1 (50-59 %) Medium =2(60-69 %) High =3 (>=70 %)

| COs    | IA Test-1    |    |              |    | IA Test-2    |    |              |    | IA Test-3    |    |              |    | Attainment level of CO | Mapped PO                  | Mapped PSO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|------------------------|----------------------------|------------|
|        | Q.No.1 OR Q. |    | Q.No.3 OR Q. |    | Q.No.1 OR Q. |    | Q.No.3 OR Q. |    | Q.No.1 OR Q. |    | Q.No.3 OR Q. |    |                        |                            |            |
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                        |                            |            |
|        | C302.1       | 35 | 34           | 35 | 23           |    |              |    |              |    |              |    |                        |                            |            |
| C302.2 |              |    |              |    | 35           | 24 |              |    |              |    |              |    | 2                      | PO1- PO3,PO6,PO8,PO11-PO12 | PSO1,PSO2  |
| C302.3 |              |    |              |    |              |    | 35           | 35 |              |    |              |    | 3                      | PO1- PO4,PO6,PO8,PO11-PO12 | PSO1,PSO2  |
| C302.4 |              |    |              |    |              |    |              |    | 35           | 31 |              |    | 3                      | PO1- PO4,PO6,PO8,PO11-PO12 | PSO1,PSO2  |
| C302.5 |              |    |              |    |              |    |              |    |              |    | 35           | 29 | 3                      | PO1- PO3,PO6,PO8,PO11-PO12 | PSO1,PSO2  |

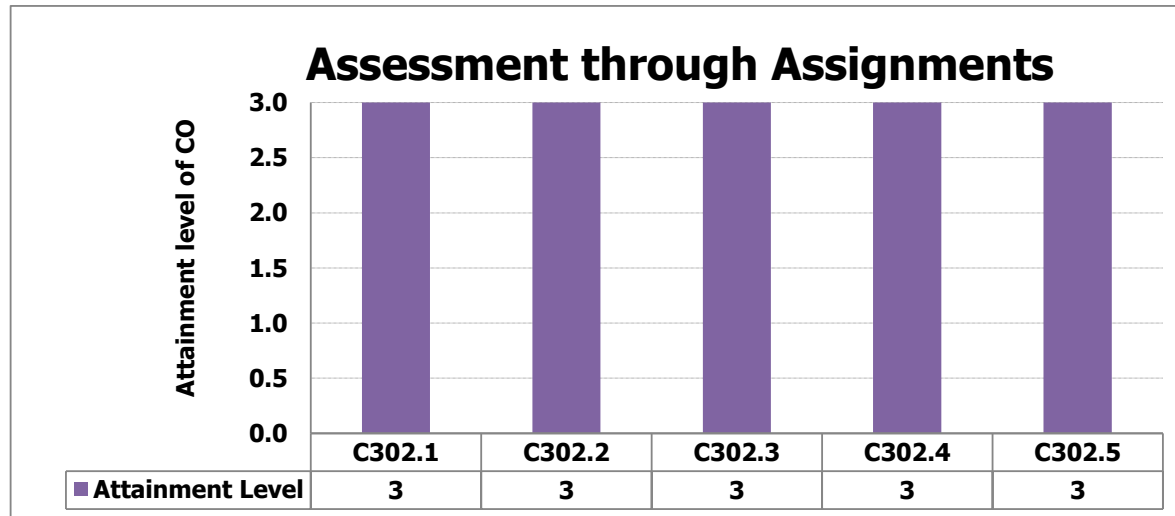




## Assessment through Assignment

A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)

| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Attainment level of CO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|------------------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                        |
| C302.1 | 35           | 35 |              |    |              |    |              |    |              |    | 100.00                               | 3                      |
| C302.2 |              |    | 35           | 35 |              |    |              |    |              |    | 100.00                               | 3                      |
| C302.3 |              |    |              |    | 35           | 35 |              |    |              |    | 100.00                               | 3                      |
| C302.4 |              |    |              |    |              |    | 35           | 35 |              |    | 100.00                               | 3                      |
| C302.5 |              |    |              |    |              |    |              |    | 35           | 35 | 100.00                               | 3                      |

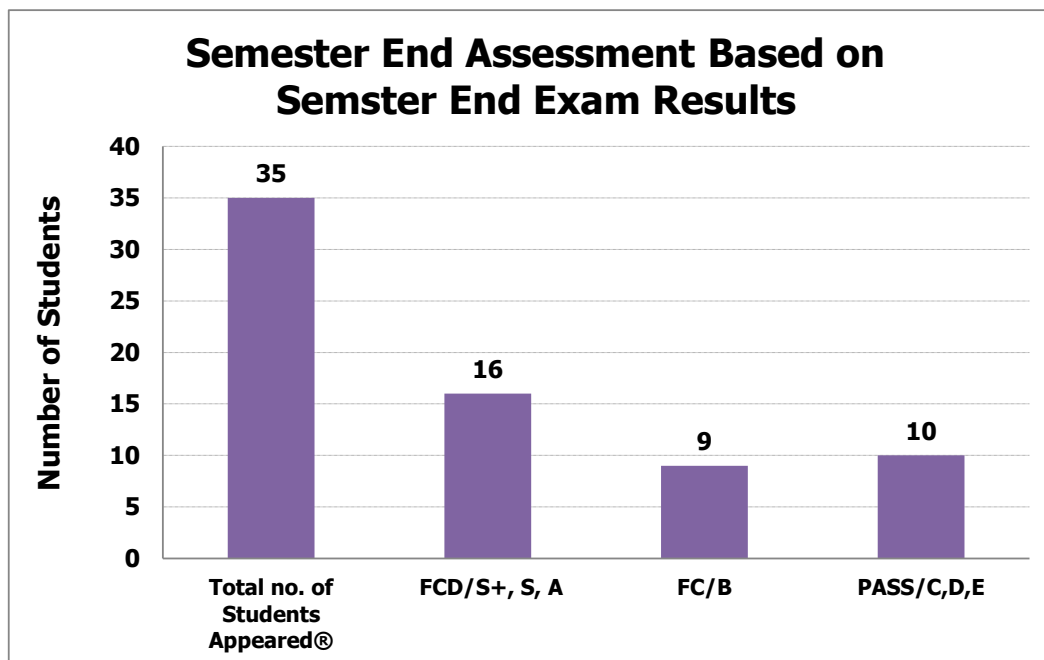


| <b>Mapped PO</b>           | <b>Mapped PSO</b> |
|----------------------------|-------------------|
| PO1- PO3,PO6,PO8,PO11-PO12 | PSO1, PSO2        |
| PO1- PO3,PO6,PO8,PO11-PO12 | PSO1, PSO2        |
| PO1- PO4,PO6,PO8,PO11-PO12 | PSO1, PSO2        |
| PO1- PO4,PO6,PO8,PO11-PO12 | PSO1, PSO2        |
| PO1- PO3,PO6,PO8,PO11-PO12 | PSO1, PSO2        |

## Semester End Assessment Based on Semester End Exam Results

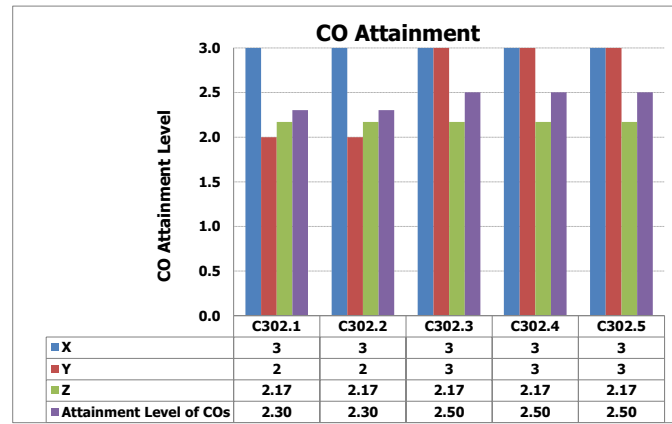
(Cos Attainment Levels for: FCD (S+, S,A) = 3, FC (B) = 2, SC(C,D,E) = 1 and Fail = 0)

| Total no. of Students Appeared→ | 35                       |  |
|---------------------------------|--------------------------|--|
| Class/Grade↓                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD/S+, S, A                    | 16                       | 48   |
| FC/B                            | 9                        | 18   |
| PASS/C,D,E                      | 10                       | 10   |
| Total Percentage of Passing     | 100.00%                  | 2.17   |

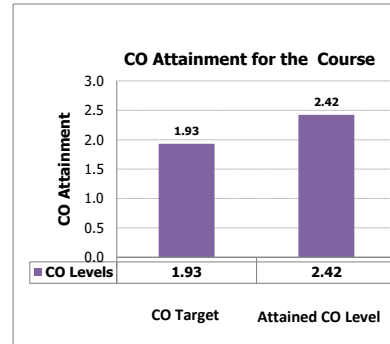


**CO Attainment**

| COs     | Attainment Through Assignment(X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO | Mapped POs        |
|---------|----------------------------------|-------------------------------|---|------------------------|-------------------|
|         |                                  |                               |   | $[0.4(X+Y)/2]+0.6Z$    |                   |
| C302.1  | 3                                | 2                             | 2.17                                    | 2.30                   | PO1-PO4, PO6-PO12 |
| C302.2  | 3                                | 2                             | 2.17                                    | 2.30                   | PO1-PO4, PO6-PO12 |
| C302.3  | 3                                | 3                             | 2.17                                    | 2.50                   | PO1-PO4, PO6-PO12 |
| C302.4  | 3                                | 3                             | 2.17                                    | 2.50                   | PO1-PO4, PO6-PO12 |
| C302.5  | 3                                | 3                             | 2.17                                    | 2.50                   | PO1-PO4, PO6-PO12 |
| Average |                                  |                               |   | 2.42                   |                   |



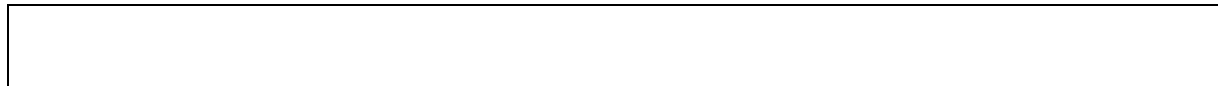
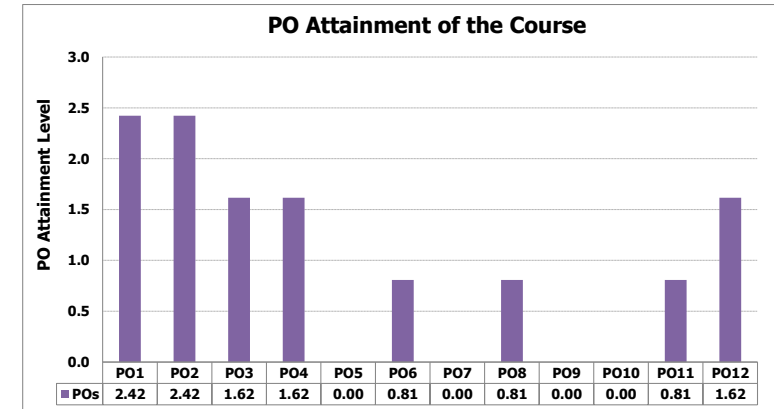
| CO Attainment for the Course |      |
|------------------------------|------|
| Target CO Level              | 1.93 |
| Attained CO Level            | 2.42 |



**PO Attainment for the Course**

| CO/PO | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| C302  | 2.42 | 2.42 | 1.62 | 1.62 | 0.00 | 0.81 | 0.00 | 0.81 | 0.00 | 0.00 | 0.81 | 1.62 |

POs attainment value for the present course = (Mapped value \* CO attainment average)/3



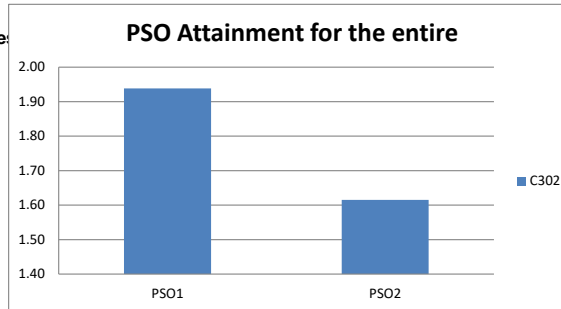
**PSO Attainment**

| COs     | ATTAINMENT THROUGH RELEVANT COURSES MAPPED | ATTAINMENT THROUGH RELEVANT ACTIVITIES MAPPED | ANY OTHER ACTIVITIES | Attainment Level of CO | Mapped PSOs |
|---------|--|---|----------------------|------------------------|-------------|
| C302.1  |  |   |                      | 2.30                   | PSO1, PSO2  |
| C302.2  |  |   |                      | 2.30                   | PSO1, PSO2  |
| C302.3  |  |   |                      | 2.50                   | PSO1, PSO2  |
| C302.4  |  |   |                      | 2.50                   | PSO1, PSO2  |
| C302.5  |  |   |                      | 2.50                   | PSO1, PSO2  |
| Average |  |   |                      | 2.42                   |             |

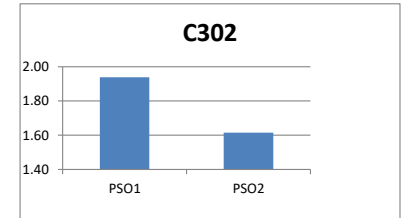
**PSO Attainment for the entire course**

| CO   | PSO1 | PSO2 |
|------|------|------|
| C302 | 1.94 | 1.62 |

NOTE: Department has to frame PSOs & map them to relevant Course



attainment





### Attainment of Program Outcomes and Program Specific Outcomes:

#### PO/PSO Attainment through Direct Assessment Methods:

| Assessment Method/POs       | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Direct Assessment(A)</b> | <b>2.07</b> | <b>1.62</b> | <b>1.56</b> | <b>1.09</b> | <b>0.72</b> | <b>0.85</b> | <b>0.43</b> | <b>0.68</b> | <b>0.68</b> | <b>0.78</b> | <b>0.83</b> | <b>1.02</b> | <b>1.72</b> | <b>1.48</b> |

#### PO/PSO Attainment through Indirect Assessment Methods:

| Sl. No.                               | Indirect Method                                  | Weightage | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|---------------------------------------|--|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1                                     | Employer Survey                                  | 5         | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | --          | --          |
| 2                                     | Alumni Survey                                    | 15        | 2.54        | 2.33        | 2.27        | 2.26        | 2.56        | 2.30        | 2.33        | 2.30        | 2.43        | 2.33        | 2.38        | 2.27        | --          | --          |
| 3                                     | Senior Exit Survey                               | 15        | 2.88        | 2.69        | 2.71        | 2.67        | 2.60        | 2.74        | 2.76        | 2.71        | 2.76        | 2.74        | 2.88        | 2.60        | 2.79        | 2.67        |
| 4                                     | Activity Feedback                                | 35        | 2.60        | 2.73        | 2.80        | 2.80        | 2.79        | 2.58        | 2.75        | 2.55        | 2.57        | 2.59        | 2.80        | 2.61        | 2.58        | 2.61        |
| 5                                     | Course Exit Survey                               | 15        | 2.41        | 1.94        | 1.82        | 1.28        | 0.81        | 0.92        | 0.54        | 0.69        | 0.76        | 0.93        | 0.87        | 1.22        | 1.99        | 1.70        |
| 6                                     | Placement, Higher Education and Entrepreneurship | 15        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        |
| <b>Overall Indirect Attainment(B)</b> |  |           | <b>2.35</b> | <b>2.27</b> | <b>2.27</b> | <b>2.18</b> | <b>2.14</b> | <b>2.07</b> | <b>2.08</b> | <b>2.02</b> | <b>2.06</b> | <b>2.08</b> | <b>2.17</b> | <b>2.10</b> | <b>2.04</b> | <b>1.94</b> |





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## Hirasugar Institute of Technology, Nidasoshi

*Inculcating Values, Promoting Prosperity*

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**Accredited at 'A' Grade by NAAC**

**Programmes Accredited by NBA: CSE, ECE, EEE & ME.**

**ECE Dept.**

**NBA**

**Assessment  
Methods**

**2019-20**

### PO/PSO Attainment through Direct and Indirect Assessment Methods:

| Assessment Method/POs         | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO1         | PO11        | PO12        | PSO1        | PSO2        |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Direct Assessment(A)</b>   | <b>2.07</b> | <b>1.62</b> | <b>1.56</b> | <b>1.09</b> | <b>0.72</b> | <b>0.85</b> | <b>0.43</b> | <b>0.68</b> | <b>0.68</b> | <b>0.78</b> | <b>0.83</b> | <b>1.02</b> | <b>1.72</b> | <b>1.48</b> |
| <b>Indirect Assessment(B)</b> | <b>2.35</b> | <b>2.27</b> | <b>2.27</b> | <b>2.18</b> | <b>2.14</b> | <b>2.07</b> | <b>2.08</b> | <b>2.02</b> | <b>2.06</b> | <b>2.08</b> | <b>2.17</b> | <b>2.10</b> | <b>2.04</b> | <b>1.94</b> |
| <b>AVG(0.8*A+0.2*B)</b>       | <b>2.13</b> | <b>1.75</b> | <b>1.70</b> | <b>1.31</b> | <b>1.00</b> | <b>1.09</b> | <b>0.76</b> | <b>0.95</b> | <b>0.96</b> | <b>1.04</b> | <b>1.10</b> | <b>1.24</b> | <b>1.78</b> | <b>1.57</b> |

  
Criteria Coordinator

  
Programme Coordinator

  
HOD  
HOD  
Electronics & Communication Engg.  
Hirasugar Institute of Technology,  
Nidasoshi-591 236



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ECE Dept.

NBA

**Compliance  
Report**

**2019-20**

**Program Level Course-PO, PSO Attainment matrix (2016 Batch)**

| Course | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C101   | 2.20 | 1.47 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.73 | ---  | ---  |
| C102   | 2.10 | ---  | 1.40 | ---  | 0.70 | ---  | ---  | 0.70 | ---  | 0.70 | ---  | 0.70 | ---  | ---  |
| C103   | 1.51 | 1.51 | 1.01 | 1.01 | ---  | 0.50 | ---  | 0.50 | ---  | ---  | 0.50 | 1.01 | ---  | ---  |
| C104   | 1.69 | 1.41 | ---  | ---  | ---  | 0.43 | 0.28 | ---  | ---  | ---  | ---  | 1.29 | ---  | ---  |
| C105   | 1.34 | 1.34 | 0.39 | ---  | ---  | 0.20 | ---  | 0.20 | ---  | ---  | 0.20 | ---  | ---  | ---  |
| C106   | 2.55 | 1.59 | 2.88 | 1.28 | ---  | 2.88 | ---  | 2.88 | 1.92 | 1.92 | 2.88 | 2.40 | ---  | ---  |
| C107   | 2.31 | 1.18 | 1.54 | 0.78 | 0.38 | 0.39 | ---  | 0.39 | ---  | ---  | 0.39 | 1.16 | ---  | ---  |
| C108   | ---  | ---  | ---  | ---  | ---  | 1.12 | ---  | 0.75 | ---  | ---  | ---  | ---  | ---  | ---  |
| C109   | 1.74 | 1.16 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.58 | ---  | ---  |
| C110   | 1.77 | 1.42 | 1.18 | ---  | ---  | 1.06 | ---  | ---  | ---  | ---  | ---  | 0.59 | ---  | ---  |
| C111   | 1.68 | 1.34 | 1.46 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.26 | ---  | ---  |
| C112   | 0.86 | ---  | ---  | ---  | 1.72 | ---  | ---  | 0.29 | ---  | 2.58 | ---  | ---  | ---  | ---  |
| C113   | 2.10 | 2.10 | 2.10 | 1.40 | ---  | 0.70 | ---  | ---  | ---  | ---  | ---  | 1.51 | ---  | ---  |
| C114   | 2.66 | 2.66 | 2.66 | ---  | ---  | ---  | ---  | ---  | 2.66 | ---  | 2.66 | ---  | ---  | ---  |
| C115   | 2.75 | 2.75 | 2.75 | ---  | ---  | 1.83 | ---  | ---  | ---  | ---  | ---  | 0.92 | ---  | ---  |
| C116   | 2.31 | 1.54 | 1.54 | ---  | 0.00 | 1.54 | 1.54 | 0.77 | ---  | ---  | 0.77 | 0.77 | ---  | ---  |
| C201   | 1.88 | 1.25 | 0.63 | --   | --   | --   | --   | --   | --   | --   | --   | 0.63 | ---  | --   |
| C202   | 2.02 | 1.35 | 1.35 | 1.35 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.35 | 0.67 | 1.35 | 0.67 |
| C203   | 2.76 | 1.47 | 2.20 | 1.10 | 0.00 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.92 | 1.29 | 1.65 |
| C204   | 1.91 | 1.91 | 0.64 | 0.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.64 | 1.27 | 0.95 |
| C205   | 2.36 | 1.57 | 0.79 | --   | --   | --   | --   | --   | --   | 0.79 | --   | 0.79 | 1.57 | 0.79 |
| C206   | 1.59 | 1.06 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 0.00 | 0.00 | 0.00 | 0.51 | 1.02 | 0.51 |
| C207   | 2.73 | 2.73 | 2.73 | 1.18 | 0.91 | 0.00 | 0.00 | 0.00 | 0.91 | 1.82 | 0.00 | 0.91 | 1.82 | 1.82 |
| C208   | 2.10 | 1.75 | 2.10 | 0.88 | 0.88 | 0.88 | 0.00 | 0.00 | 0.88 | 0.88 | 0.88 | 0.88 | 1.58 | 1.05 |
| C209   | 2.16 | 1.30 | 2.02 | 1.01 | 0.86 | 0.86 | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | --   | --   |
| C210   | 2.16 | 1.30 | 2.02 | 1.01 | 0.86 | 0.86 | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 1.08 | 0.72 |
| C211   | 1.61 | 1.40 | 1.61 | 1.25 | 1.07 | 0.00 | 0.00 | 0.54 | ---  | ---  | ---  | 0.54 | 0.54 | 0.54 |





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**2019-20**

| Course | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C212   | 1.57 | 1.05 | 1.05 | --   | 0.00 | --   | --   | --   | --   | 0.52 | 0.00 | 0.51 | 1.05 | 0.51 |
| C213   | 1.28 | 1.28 | 1.28 | 0.68 | 0.43 | 0.00 | 0.00 | 0.43 | 0.00 | 0.00 | 0.43 | 0.43 | 2.53 | 1.69 |
| C214   | 1.66 | 0.59 | 1.54 | 0.59 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 1.78 | 1.19 |
| C215   | 1.38 | 1.35 | 1.38 | 1.35 | 1.38 | 1.35 | 1.38 | 1.35 | 1.38 | 1.35 | 1.38 | 1.35 | 1.38 | 1.35 |
| C216   | 2.84 | 1.89 | 1.14 | 0.94 | 0.00 | 0.94 | 0.00 | 0.94 | 0.94 | 0.94 | 0.00 | 0.94 | 2.84 | 0.94 |
| C301   | 0.75 | 0.75 | 0.75 | 0.75 | 0.00 | 0.75 | 0.00 | 0.75 | 2.11 | 1.51 | 2.26 | 0.75 | 0.75 | 0.75 |
| C302   | 1.93 | 1.93 | 1.28 | 1.28 | 0.00 | 0.64 | 0.00 | 0.64 | 0.00 | 0.00 | 0.64 | 1.28 | 1.54 | 1.29 |
| C303   | 2.09 | 1.26 | 1.81 | 0.98 | 1.40 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 1.54 | 1.42 | 0.71 |
| C304   | 1.73 | 1.73 | 1.73 | 0.92 | 0.58 | 0.00 | 0.00 | 0.58 | 0.00 | 0.00 | 0.58 | 0.58 | 1.16 | 0.58 |
| C305   | 1.36 | 0.68 | 0.68 | 0.68 | 0.00 | 0.68 | 1.09 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 1.6  | 1.6  |
| C306   | 1.92 | 1.10 | 1.64 | 1.23 | 1.78 | 1.37 | 1.10 | 0.00 | 0.00 | 0.00 | 0.82 | 1.37 | 1.51 | 1.92 |
| C307   | 2.63 | 2.63 | 1.75 | 1.75 | 0.00 | 0.88 | 0.00 | 0.88 | 0.00 | 0.00 | 0.88 | 1.75 | 2.63 | 2.63 |
| C308   | 2.33 | 1.90 | 2.11 | 1.27 | 1.06 | 1.27 | 0.00 | 0.00 | 0.85 | 0.85 | 1.69 | 1.27 | 2.33 | 1.48 |
| C309   | 1.83 | 1.83 | 1.59 | 1.63 | 0.00 | 0.61 | 0.00 | 0.61 | 0.00 | 1.22 | 1.22 | 1.22 | 1.8  | 1.6  |
| C310   | 2.11 | 1.69 | 1.83 | 1.69 | 0.70 | 1.13 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.84 | 2.11 | 1.41 |
| C311   | 2.47 | 1.65 | 0.82 | -    | 0.82 | --   | 0.82 | -    | -    | 0.82 | -    | 0.82 | 1.65 | 1.65 |
| C312   | 1.68 | 1.68 | 1.57 | 1.34 | 1.45 | 1.34 | 0.00 | 0.56 | 0.00 | 0.00 | 0.00 | 1.57 | 1.8  | 1.8  |
| C313   | 2.33 | 2.33 | 0.78 | 0.78 | 0.00 | 0.78 | 0.00 | 0.78 | 2.18 | 1.55 | 0.78 | 0.78 | 0.78 | 0.78 |
| C314   | 1.31 | 0.70 | 0.90 | 0.50 | 1.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.00 | 0.50 | 0.81 | 0.91 |
| C315   | 2.95 | 2.36 | 2.55 | 1.96 | 1.96 | 1.57 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 1.57 | 2.95 | 1.57 |
| C316   | 2.50 | 2.50 | 1.67 | 0.00 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 1.67 | 1.66 | 1.66 |
| C401   | 0.62 | 0.62 | 0.62 | 0.62 | 0.00 | 0.62 | 0.00 | 0.62 | 1.72 | 1.23 | 1.85 | 0.62 | 0.61 | 0.61 |
| C402   | 2.55 | 1.53 | 1.36 | 1.53 | 1.36 | 1.53 | 0.00 | 0.85 | 0.00 | 1.70 | 1.70 | 1.36 | 1.76 | 1.76 |
| C403   | 1.59 | 0.85 | 1.10 | 0.61 | 0.61 | 0.00 | 0.00 | 0.61 | 0.61 | 0.00 | 0.00 | 0.61 | 0.98 | 1.10 |
| C404   | 2.57 | 1.71 | 1.71 | 0.86 | 0.86 | 0.86 | 0.00 | 0.00 | 0.00 | 0.86 | 1.71 | 1.71 | 1.71 | 0.86 |
| C405   | 2.57 | 1.71 | 1.71 | 0.86 | 0.86 | 0.86 | 0.00 | 0.00 | 0.00 | 0.86 | 1.71 | 1.71 | 1.56 | 1.56 |
| C406   | 3.00 | 3.00 | 2.00 | 2.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.98 | 2.99 | 2.99 |
| C407   | 2.91 | 1.94 | 1.94 | --   | 2.91 | 0.97 | 0.97 | --   | 0.97 | 0.97 | --   | 0.97 | 1.94 | 2.91 |

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Report


2019-20

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C408 | 2.95 | 2.95 | 1.97 | 1.97 | 0.00 | 0.98 | 0.00 | 0.98 | 0.00 | 0.00 | 0.00 | 0.98 | 2.95 | 2.95 |
| C409 | 1.87 | 1.24 | 1.24 | 0.62 | 0.00 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.00 | 0.62 | 1.56 | 1.56 |
| C410 | 2.11 | 2.11 | 1.83 | 1.40 | 0.00 | 1.40 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 1.40 | 2.11 | 1.55 |
| C411 | 2.35 | 1.34 | 2.01 | 1.40 | 2.10 | 1.68 | 1.26 | 0.84 | 0.00 | 0.00 | 0.84 | 1.68 | 0.94 | 1.19 |
| C412 | 1.82 | 1.82 | 1.82 | 0.91 | 0.00 | 1.82 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 1.82 | 1.87 | 1.87 |
| C413 | 3.0  | 2.0  | 3.0  | 2.0  | 2.0  | 1.0  | 2.0  | 2.0  | 3.0  | 3.0  | 3.0  | 1.0  | 3.0  | 3.0  |
| C414 | 3.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 3.0  | 1.0  | 3.0  | 1.0  | 1.0  | 3.0  | 3.0  |
| C415 | 2.00 | 2.00 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 3.00 | 3.00 | 3.00 | 2.00 | 2.00 | 3    | 3    |
| Avg. | 2.07 | 1.62 | 1.56 | 1.09 | 0.72 | 0.85 | 0.43 | 0.68 | 0.68 | 0.78 | 0.83 | 1.02 | 1.72 | 1.48 |

  
Criteria Coordinator

  
Programme Coordinator

  
HOD  
HOD  
Electronics & Communication Engg.  
Hirasugar Institute of Technology,  
Nidasoshi-591 236

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|   |  | <b>FCAR</b>           |
|   |  | <b>2018-19 (Even)</b> |

## FACULTY COURSE ASSESSEMENT REPORT (FCAR)

**Course Coordinator: Prof: S. S. Kamate** **Class Strength:45**  
**Semester: VI** **Code: 15EC63**  
**Subject: VLSI DESIGN**


### I. Program Outcomes (POs): Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to

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|   |   | <b>NBA</b>            |
|   |   | <b>FCAR</b>           |
|   |   | <b>2018-19 (Even)</b> |

engage in independent and life-long learning in the broadest context of technological change.

## II. Program Specific Outcomes (PSOs):

|       |  |
|-------|--|
| PSO1: | An ability to understand the concepts of basic Electronics & Communication Engineering and to apply them to various areas like Signal processing, VLSI, Embedded systems, Communication Systems, Digital & Analog Devices. |
| PSO2: | An ability to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions                  |

## III. Course outcomes (COs): The student, after successful completion of the course, will be able to:

| CO            | Description  |
|---------------|--|
| <b>C311.1</b> | Demonstrate understanding of MOS transistor theory, CMOS fabrication flow and technology scaling. ... L1,L2          |
| <b>C311.2</b> | Draw the basic gates using the stick and layout diagrams with the knowledge of physical design aspects. ... L1,L2,L3 |
| <b>C311.3</b> | Interpret Memory elements along with timing considerations. ... L1,L2,L3   |
| <b>C311.4</b> | Demonstrate knowledge of FPGA based system design. ... L1,L2,L3  |
| <b>C311.5</b> | Interpret testing and testability issues in VLSI Design. ... L1,L2,L3  |
| <b>C311.6</b> | Analyze CMOS subsystems and architectural issues with the design constraints. ... L1,L2,L3                           |

## IV. Mapping of Course Outcomes (Cos) to Program Outcomes (Pos):

| POs<br>Cos     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------------|---|---|---|---|---|---|---|---|---|----|----|----|
| <b>C311.1</b>  | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |
| <b>C311.2</b>  | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |
| <b>C311.3</b>  | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |
| <b>C311.4</b>  | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |
| <b>C311.5</b>  | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |
| <b>C311.6</b>  | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |
| <b>Average</b> | 3 | 2 | 1 | - | 1 | - | 1 | - | - | 1  | -  | 1  |


## V. Mapping of Course Outcomes (Cos) to Program Specific Outcomes (PSOs):

| PSOs<br>Cos   | PSO1 | PSO2 |
|---------------|------|------|
| <b>C311.1</b> | 2    | 2    |
| <b>C311.2</b> | 2    | 2    |
| <b>C311.3</b> | 2    | 2    |
| <b>C311.4</b> | 2    | 2    |
| <b>C311.5</b> | 2    | 2    |
| <b>C311.6</b> | 2    | 2    |
| <b>AVG</b>    | 2    | 2    |

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|   |   | <b>FCAR</b>           |
|   |   | <b>2018-19 (Even)</b> |

#### VI. Justification of CO-PO Mapping:

|                |   |
|----------------|---|
| CO311-PO1      | Strong correlation as explaining the concepts of the VLSI and requires good knowledge of mathematics and engineering sciences.  |
| CO311-PO2      | Strong and medium correlation since understanding and solving the course problems and derivations need better problem analysis skills and first principles of mathematics, science. |
| CO311-PO3      | Weak correlation since explaining and solving some problems require certain level of knowledge of designing solutions considering public safety and environmental issues.           |
| CO311-PO4      | As we are not carrying out any research method or design experiments analysis and interpretation of data and synthesis throughout the course we can't correlate here.               |
| CO311-PO5      | As we are demonstrating some concepts using cadence modern tools or IT tools for the course hence we correlate to low level.  |
| CO311-PO6      | No correlation since this course doesn't discuss directly the societal, safety issues relevant to professional practice.  |
| CO311-PO7      | As one of the basic course in the domain of electronics and communication certainly has the impact on professional engineering solutions but to the weak level.                     |
| CO311-PO8      | As we follow ethics in our behavior, while delivering the lecture, maintenance in classrooms conducting exams everywhere so, definitely we cultivate professionalism.               |
| CO311-PO9&PO11 | As we don't deal with Individual, teamwork, communication in relation to complex engineering problems and project management we can't correlate.                                    |
| CO311-PO10     | Weak correlation as communication on subject related concepts takes place through exams and discussions.  |
| CO311-PO12     | Weak correlation as one needs to have the knowledge of behavior of charges and some concepts.   |

#### VII. Justification of CO-PSO Mapping (VLSI Design– 15EC63):

| Mapping    | Justification  |
|------------|--|
| CO311-PSO1 | As the course deals with the basic concepts of Electronics and communication we have given medium correlation. |
| CO311-PSO2 | Medium correlation as the course doesn't expose to much to latest hardware and software tools.                 |

### MEASUREMENT OF COs, POs & PSOs ATTAINMENT

#### Teaching Methodology:

- Lecture by Teacher
- PPT or Online demo etc.

#### Assessment Tools:

- Continuous assessment
- End semester exam



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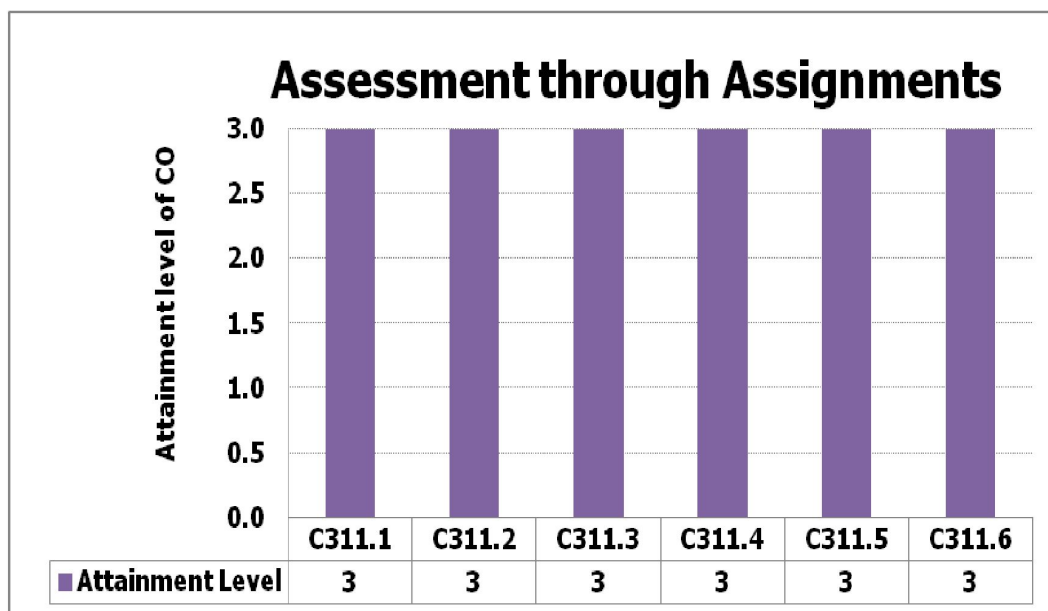
**FCAR**

**2018-19 (Even)**

**I. Assessment through Assignment:**

**A: Appeared    R: Reached    Low =1 (50-60 %)    Medium =2 (61-70 %)    High =3 (above 70 %)**

| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Attainment level of CO | Mapped PO                    | Mapped PSO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|------------------------|------------------------------|------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                        |                              |            |
| C311.1 | 45           | 45 |              |    |              |    |              |    |              |    | 100.00                               | 3                      | PO1 -PO3,PO5, PO7,PO10, PO12 | PSO1, PSO2 |
| C311.2 |              |    | 45           | 45 |              |    |              |    |              |    | 100.00                               | 3                      | PO1 -PO3,PO5, PO7,PO10, PO12 | PSO1, PSO2 |
| C311.3 |              |    |              |    | 45           | 45 |              |    |              |    | 100.00                               | 3                      | PO1 -PO3,PO5, PO7,PO10, PO12 | PSO1, PSO2 |
| C311.4 |              |    |              |    |              |    | 45           | 45 |              |    | 100.00                               | 3                      | PO1 -PO3,PO5, PO7,PO10, PO12 | PSO1, PSO2 |
| C311.5 |              |    |              |    |              |    |              |    | 45           | 45 | 100.00                               | 3                      | PO1 -PO3,PO5, PO7,PO10, PO12 | PSO1, PSO2 |
| C311.6 |              |    |              |    |              |    |              |    | 45           | 45 | 100.00                               | 3                      | PO1 -PO3,PO5, PO7,PO10, PO12 | PSO1, PSO2 |



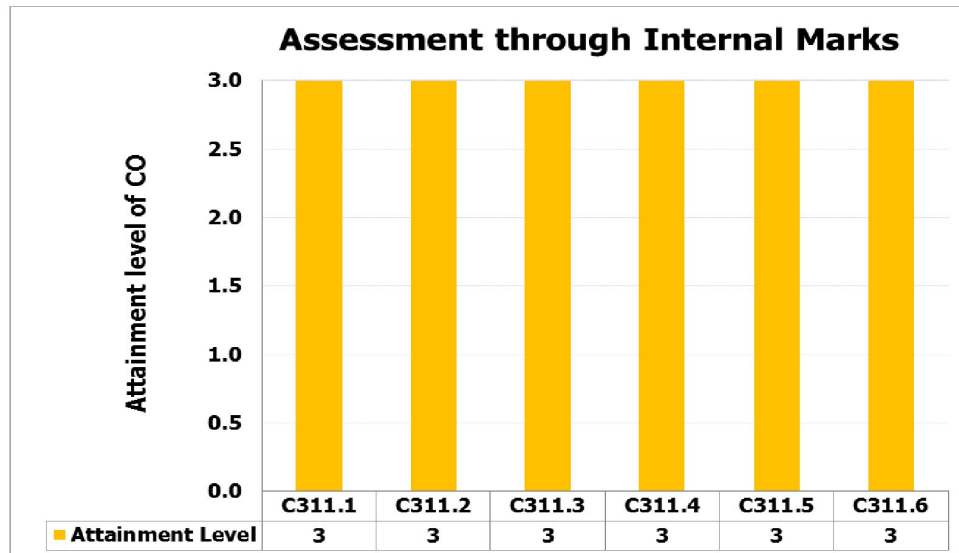




## II. Assessment through Internal Marks:

**A: Appeared    R: Reached    Low =1 (50-60 %)    Medium =2 (61-70 %)    High =3 (above 70 %)**

| COs    | IA Test-1          |    |                    |    | IA Test -2         |    |                    |    | IA Test -3         |    |                    |   | Attainment level of CO | Mapped PO               | Mapped PSO |
|--------|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|---|------------------------|-------------------------|------------|
|        | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |   |                        |                         |            |
|        | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R |                        |                         |            |
|        |                    |    |                    |    |                    |    |                    |    |                    |    |                    |   |                        |                         |            |
| C311.1 | 43                 | 35 | 43                 | 35 |                    |    |                    |    |                    |    |                    |   | 3                      | PO1 -PO3, PO5-PO7, PO12 | PSO1, PSO2 |
| C311.2 |                    |    |                    |    | 38                 | 31 | 38                 | 31 |                    |    |                    |   | 3                      | PO1 -PO3, PO6-PO7, PO12 | PSO1, PSO2 |
| C311.3 |                    |    |                    |    |                    |    |                    |    | 29                 | 29 |                    |   | 3                      | PO1 -PO3, PO6-PO7, PO12 | PSO1, PSO2 |
| C311.4 |                    |    |                    |    |                    |    |                    |    |                    |    | 5                  | 5 | 3                      | PO1 -PO3, PO6-PO7, PO12 | PSO1, PSO2 |
| C311.5 |                    |    |                    |    |                    |    |                    |    |                    |    | 5                  | 5 | 3                      | PO1 -PO3, PO6-PO7, PO12 | PSO1, PSO2 |
| C311.6 |                    |    |                    |    |                    |    |                    |    |                    |    | 2                  | 2 | 3                      | PO1 -PO3, PO6-PO7, PO12 | PSO1, PSO2 |



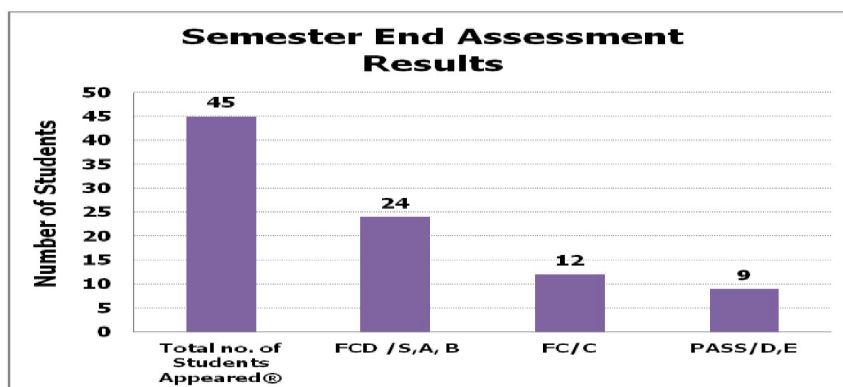


### III. Semester End Exam Assessment Based on VTU Exam Results:

COs Attainment Levels:

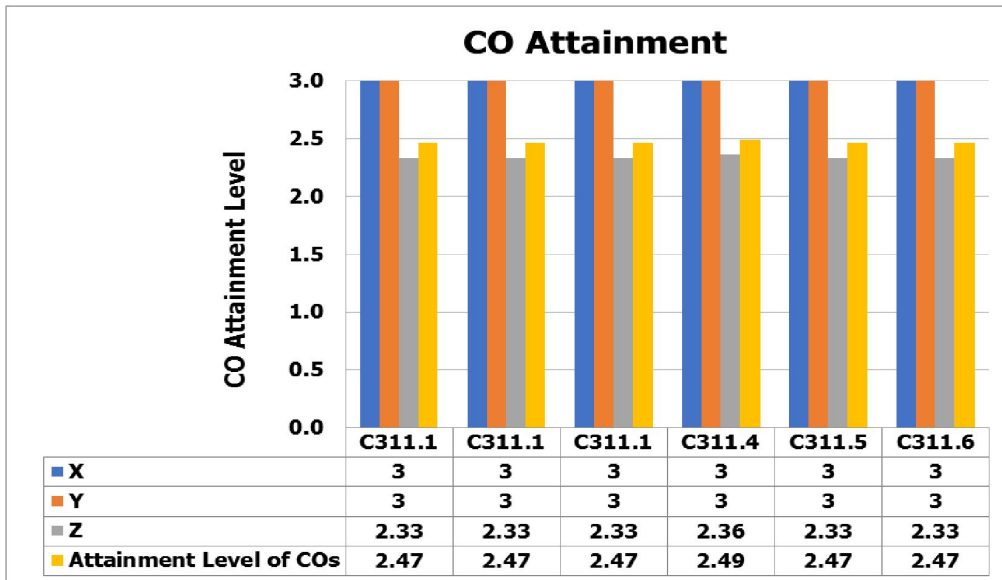
**FCD: S+, S, & A = 3;      FC (B) = 2;      Pass: C, D, & E = 1;      Fail = 0**

|                                 |                          |  |
|---------------------------------|--------------------------|--|
| Total no. of Students Appeared→ | <b>45</b>                |  |
| Class/Grade↓                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD /S,A, B                     | 24                       | 72   |
| FC/C                            | 12                       | 24   |
| PASS/D,E                        | 9                        | 9  |
| Total Percentage of Passing     | <b>100.00%</b>           | <b>2.33</b>  |



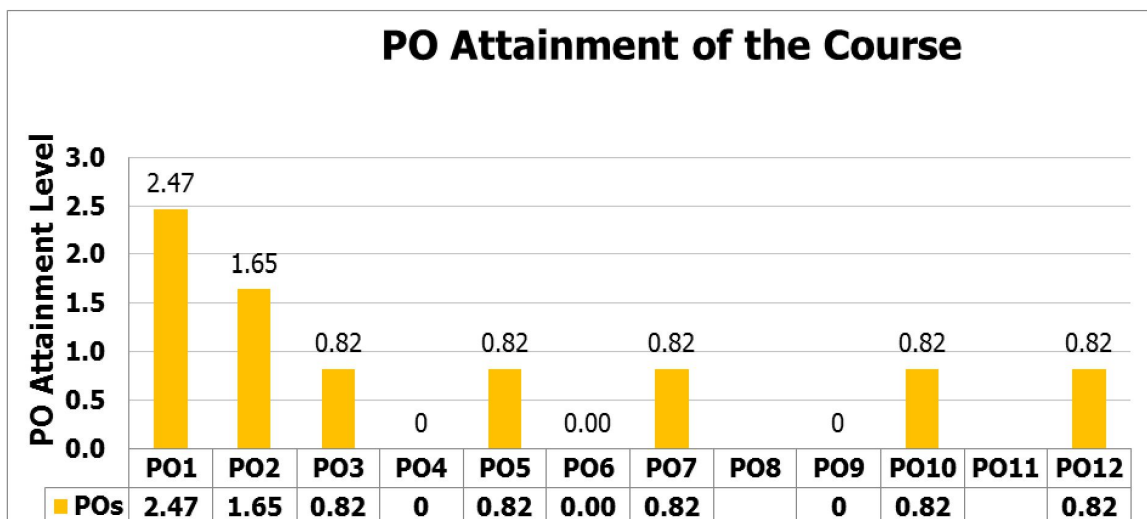
### IV. CO Attainment:

| COs            | Attainment Through Assignment(X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO | Mapped POs            |
|----------------|----------------------------------|-------------------------------|---|------------------------|-----------------------|
|                |                                  |                               |   | $[0.2(X+Y)/2]+0.8Z$    |                       |
| C311.1         | 3                                | 3                             | 2.33                                    | 2.47                   | PO1 -PO3,PO5-PO7,PO12 |
| C311.2         | 3                                | 3                             | 2.33                                    | 2.47                   | PO1 -PO3,PO6-PO7,PO12 |
| C311.3         | 3                                | 3                             | 2.33                                    | 2.47                   | PO1 -PO3,PO6-PO7,PO12 |
| C311.4         | 3                                | 3                             | 2.36                                    | 2.49                   | PO1 -PO3,PO6-PO7,PO12 |
| C311.5         | 3                                | 3                             | 2.33                                    | 2.47                   | PO1 -PO3,PO5-PO7,PO12 |
| C311.6         | 3                                | 3                             | 2.33                                    | 2.47                   | PO1 -PO3,PO6-PO7,PO12 |
| <b>Average</b> |                                  |                               |   | <b>2.47</b>            |                       |



**I. PO Attainment for the Entire Course:**

| CO/PO | PO1  | PO2  | PO3  | PO4 | PO5  | PO6 | PO7  | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------|------|------|------|-----|------|-----|------|-----|-----|------|------|------|
| C311  | 2.47 | 1.65 | 0.82 | -   | 0.82 | --  | 0.82 |     | -   | 0.82 |      | 0.82 |



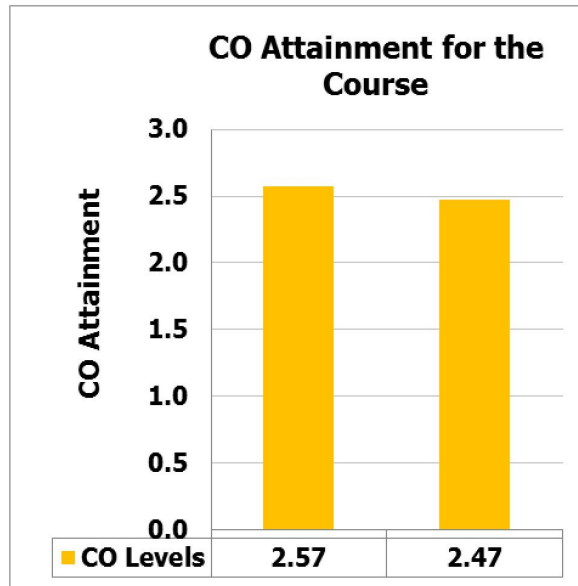
POs attainment value for the present course = (Mapped value \* CO attainment average)/3  
 Note: Mapped value is available in section 4.



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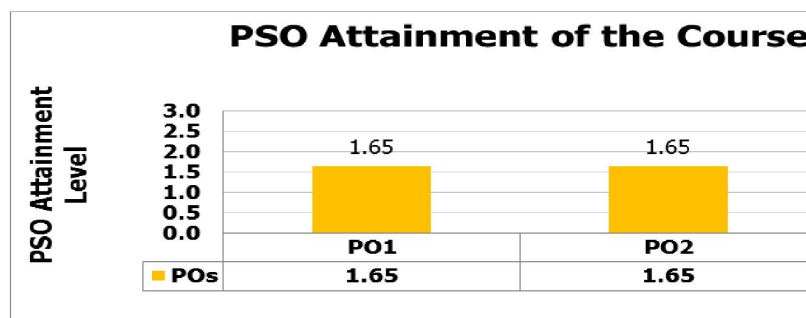
|                       |
|-----------------------|
| <b>ECE Dept.</b>      |
| <b>NBA</b>            |
| <b>FCAR</b>           |
| <b>2018-19 (Even)</b> |

| CO Attainment for the Course |      |
|------------------------------|------|
| Target CO Level              | 2.57 |
| Attained CO Level            | 2.47 |




## II. PSO Attainment for the Entire Course:

| CO   | PSO1 | PSO2 |
|------|------|------|
| C205 | 1.65 | 1.65 |



PSOs attainment value for the present course = (Mapped value \* CO attainment average)/3

**Note:** Mapped value is available in section 5 given above.

|   |   |                       |
|---|---|-----------------------|
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|   |   | <b>NBA</b>            |
|   |   | <b>FCAR</b>           |
|   |   | <b>2018-19 (Even)</b> |

### Course Coordinator Remarks:

| S. No. | Observations                 | Comments  |
|--------|------------------------------|---|
| 1      | Impact of Delivery Methods   | <b>The course delivery methods are acceptable and they can be continued in future</b> |
| 2      | Course Outcome Attainment    | <b>The attainment level is 2.47(good) against the set target of 2.57</b>              |
| 3      | Scope for Improvement        | <b>Some lectures/ seminars/ projects have to be carried out to cover other POs</b>    |
| 4      | Additional Comments (if any) | --  |

### I. PO Attainment through Course Exit Survey:

#### PO/PSO Attainment through Course Exit Survey

|   |       |      |
|---|-------|------|
| CO Attainment Value through Course Exit Survey: | 79.87 | 2.40 |
|---|-------|------|

| CO/PO                 | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>C311.1</b>         | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>C311.2</b>         | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>C311.3</b>         | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>C311.4</b>         | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>C311.5</b>         | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>C311.6</b>         | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>Average</b>        | 3    | 2    | 1    | -    | 1    |      | 1    | -    | -    | 1    | -    | 1    |
| <b>CES Attainment</b> | 2.40 | 1.60 | 0.80 | 0.00 | 0.80 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 0.00 | 0.80 |

POs attainment value for the present course = (Mapped value \* CO Attainment Value through Course Exit Survey)/3



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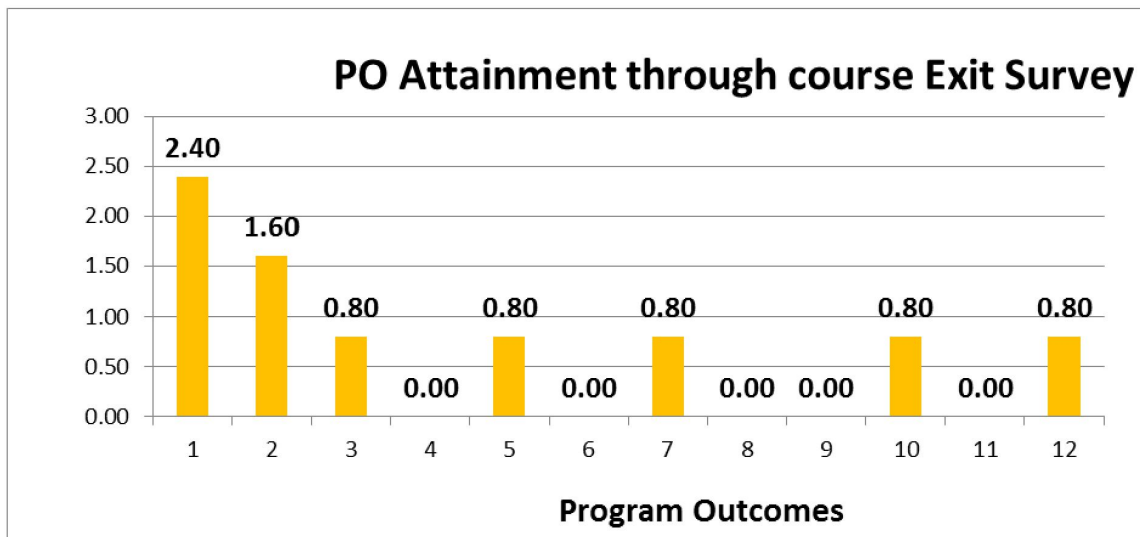
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ECE Dept.

NBA

FCAR

2018-19 (Even)



### PSO Attainment through Course Exit Survey

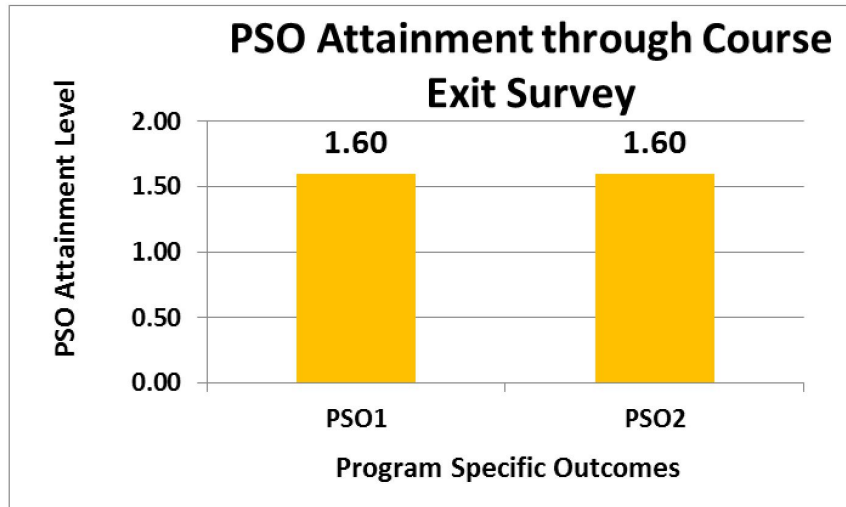
| CO/PSO                | PSO1 | PSO2 |
|-----------------------|------|------|
| C311.1                | 2    | 2    |
| C311.2                | 2    | 2    |
| C311.3                | 2    | 2    |
| C311.4                | 2    | 2    |
| C311.5                | 2    | 2    |
| C311.6                | 2    | 2    |
| Average               | 2    | 2    |
| <b>CES Attainment</b> | 1.60 | 1.60 |





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|                       |
|-----------------------|
| <b>ECE Dept.</b>      |
| <b>NBA</b>            |
| <b>FCAR</b>           |
| <b>2018-19 (Even)</b> |



|  |  |     |
|--|--|-----|
|  |  |     |
| Name & Signature of Course Coordinator | Name & Signature of Module Coordinator | HOD |

**HOD**  
Electronics & Communication Engg.  
Hirasugar Institute of Technology,  
Nidasoshi-591 236

# Hirasugar Institute of Technology, Nidasoshi-591236

## Course Outcome/Program Outcome Assessment

COURSE COORDINATOR: Mrs. S. S. KAMATE

A.Y: 2018-19

SEM: VI

CO Code: C311

PROGRAM: ECE

DIV:

COURSE:VLSI DESIGN

COURSE CODE:15EC63

### Mapping of Course Outcomes (COs) to Program Outcomes (POs)

| POs→    | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| COs↓    |     |     |     |     |     |     |     |     |     |      |      |      |
| C311.1  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.2  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.3  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.4  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.5  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.6  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| Average | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |

### Mapping of Course Outcomes (COs) to Program Specific Outcomes(PSOs)

| PSOs    | PSO 1 | PSO 2 |
|---------|-------|-------|
| COs     |       |       |
| C311.1  | 2     | 2     |
| C311.2  | 2     | 2     |
| C311.3  | 2     | 2     |
| C311.4  | 2     | 2     |
| C311.5  | 2     | 2     |
| C311.6  | 2     | 2     |
| Average | 2     | 2     |

### Mapping of IA Questions to COs

| IA Test-1        |                  | IA Test -2                  |        | IA Test -3      |        |          |         | ASSIGNMENTS                              |         |         |         |         |
|------------------|------------------|-----------------------------|--------|-----------------|--------|----------|---------|--|---------|---------|---------|---------|
| Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Q.No.1 OR Q.No.2 and Q.No.3 | Q.No.4 | Q.No.1 & Q.No.3 | Q.No.2 | Q.No. 4a | Q.No.4b | ASSGN-1                                  | ASSGN-2 | ASSGN-3 | ASSGN-4 | ASSGN-5 |
| C311.1           | C311.1           | C311.2                      | C311.2 | C311.3          | C311.6 | C311.4   | C311.4  | C311.1                                   | C311.2  | C311.3  | C311.4  | C311.5  |
| <b>Maximum</b>   |                  |                             |        |                 |        |          |         | <b>Maximum Marks for Each Assignment</b> |         |         |         |         |
| 25               |                  | 25                          |        | 12              | 12     | 6        | 7       | 5  | 5       | 5       | 5       | 5       |

### Mapping of Assignment Questions to COs

**Target Level Set for the Attainment of Course:** 1.5

#### Instructions:

1. The course coordinator should manually enter correlated IA questions with mapped COs
2. The course coordinator should manually enter correlated assignments with mapped COs
3. Based on the previous three assessment years course coordinator/faculty has to set the target level for course attainment.
4. Mapped POs must be entered manually in IA Assessement Sheet, Assignment Assessement Sheet and CO Attainment Sheet.

## COURSE OUTCOME ASSESSMENT DATA ENTRY SHEET

| Sl.No | Student Name                         | Q.No.1 OR Q.No.2 | IA Test -1      |             | IA Test -2                  |             | IA Test -3      |        |          |         |             | Assignments |         |         |         |         | Semster End Exam      |        |        |         |
|-------|--------------------------------------|------------------|-----------------|-------------|-----------------------------|-------------|-----------------|--------|----------|---------|-------------|-------------|---------|---------|---------|---------|-----------------------|--------|--------|---------|
|       |                                      |                  | Q.No.1 & Q.No.2 | Total Marks | Q.No.1 OR Q.No.2 and Q.No.3 | Total Marks | Q.No.1 & Q.No.3 | Q.No.2 | Q.No. 4a | Q.No.4b | Total Marks | Assgn-1     | Assgn-2 | Assgn-3 | Assgn-4 | Assgn-5 | PO1-PO4, PO8-PO9,PO12 |        |        |         |
|       |                                      |                  | MAX MARKS→      | 25          | 0                           | 25          | 25              | 0      | 25       | 12      | 12          | 6           | 7       | 25      | 5       | 5       | 5                     | 5      | 5      | GRADES  |
|       |                                      |                  | COs→            | C311.1      |                             |             | C311.2          |        |          | C311.3  | C311.6      | C311.4      | C311.5  |         | C311.1  | C311.2  | C311.3                | C311.4 | C311.5 | CO1-CO8 |
| USN↓  |                                      |                  |                 |             |                             |             |                 |        |          |         |             |             |         |         |         |         |                       |        |        |         |
| 1     | SANKET B. PIMPALE                    | 2HN15EC031       | 8               |             | ab                          |             |                 | 11     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | D      |        |         |
| 2     | ABHISHEK KHADAKBHAVI                 | 2HN16EC001       | 21              |             | ab                          |             |                 | 11     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 3     | AISHWARYA V. HAMBAR                  | 2HN16EC002       | 15              |             | 21                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 4     | AISHWARYA B. PATIL                   | 2HN16EC003       | 24              |             | 21                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 5     | AISHWARYA JADHAV                     | 2HN16EC004       | 23              |             | 16                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 6     | AKSHAY PRAKASH POWAR                 | 2HN16EC005       | 25              |             | 21                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 7     | AMRUTA M. HUNASHYALI                 | 2HN16EC006       | ab              |             | 18                          |             |                 | 12     |          | 6       | 6           |             | 5       | 5       | 5       | 5       | 5                     | S      |        |         |
| 8     | ANUPAMA MURUGODE                     | 2HN16EC007       | 14              |             | 21                          |             |                 | 12     |          | 6       | 7           |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 9     | ANUSHA J. BOLLARAPU                  | 2HN16EC008       | 19              |             | 20                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 10    | ARCHANA B. PATIL                     | 2HN16EC009       | 11              |             |                             |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | A      |        |         |
| 11    | ASHWINI M. SHETTIMANI                | 2HN16EC010       | 25              |             | 20                          |             |                 | 13     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 12    | BHAGYASHREE S. PATIL                 | 2HN16EC011       | 24              |             | 19                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 13    | CHAITRA VIRAKTAMATH                  | 2HN16EC012       | 21              |             | 16                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 14    | DALAWAI LAXMI DUNDAPPA               | 2HN16EC013       | 25              |             | 24                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 15    | DAMMAKKA J. PANDAV                   | 2HN16EC014       | 24              |             | 13                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | E      |        |         |
| 16    | GANGADHAR MARUTI GIRAGAVE            | 2HN16EC015       | 24              |             | 19                          |             |                 | 12     | 12       |         |             |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 17    | GOMATESH S. PATIL                    | 2HN16EC016       | 17              |             | ab                          |             |                 | 13     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 18    | KAVERI N. DADDIMANI                  | 2HN16EC017       | 16              |             | 24                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 19    | KAVITA DILIP PATIL                   | 2HN16EC018       | 25              |             | 21                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | D      |        |         |
| 20    | LAXMI AIGALI                         | 2HN16EC020       | 18              |             | 21                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | S      |        |         |
| 21    | MADHUMATI HAVAL                      | 2HN16EC022       | 18              |             | 16                          |             |                 | 11     | 12       |         |             |             | 5       | 5       | 5       | 5       | 5                     | A      |        |         |
| 22    | MOUSEEN A. RANGAPUR                  | 2HN16EC023       | 16              |             | 13                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | D      |        |         |
| 23    | MOUSEEN BAGWAN                       | 2HN16EC024       | 25              |             | 25                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 24    | PAVAN DESHPANDE                      | 2HN16EC025       | 25              |             | 13                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 25    | PRIYANKA R. DANOLLI                  | 2HN16EC026       | 20              |             | 20                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | D      |        |         |
| 26    | SACHIN NINGANUR                      | 2HN16EC028       | 11              |             | 15                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | E      |        |         |
| 27    | SANA M. ATTAR                        | 2HN16EC030       | 22              |             | 23                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 28    | SEEMA G. GANI                        | 2HN16EC031       | 11              |             | 20                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | E      |        |         |
| 29    | SHRADDHA M. HIPPARAGI                | 2HN16EC032       | 17              |             | 10                          |             |                 | 12     |          | 6       | 6           |             | 5       | 5       | 5       | 5       | 5                     | A      |        |         |
| 30    | SHWETA V. SANTANAVAR                 | 2HN16EC033       | 15              |             | 22                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 31    | SOUMYA M. METAGUDLI                  | 2HN16EC034       | 19              |             | 20                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | A      |        |         |
| 32    | SOUNDRYA B. PATIL                    | 2HN16EC035       | 21              |             | 21                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | E      |        |         |
| 33    | SUNITA N. KARABASANAVAR              | 2HN16EC036       | 25              |             | 24                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 34    | SUPREETA D HIRARAPPAGOL              | 2HN16EC037       | 25              |             | 18                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 35    | SUPRIYA K. CHOUGALA                  | 2HN16EC038       | 23              |             | ab                          |             |                 | 12     |          | 6       | 6           |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 36    | SURESH MUNJE                         | 2HN16EC039       | 20              |             | 12                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | A      |        |         |
| 37    | SUSHMITA S. MARADI                   | 2HN16EC041       | 21              |             | 16                          |             |                 | ab     | ab       | ab      | ab          |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 38    | VEENASHRI BORAGALLI                  | 2HN16EC042       | 24              |             | 25                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | B      |        |         |
| 39    | VIDYA P SHETTI                       | 2HN16EC043       | 17              |             | 24                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | D      |        |         |
| 40    | DEEPAK KARNE                         | 2HN16EC403       | 12              |             | AB                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | S      |        |         |
| 41    | LINGANGOUDA PATIL                    | 2HN16EC405       | 23              |             | AB                          |             |                 | 12     |          | 6       | 6           |             | 5       | 5       | 5       | 5       | 5                     | S      |        |         |
| 42    | REVANSIDDAYYA V. MATHAPATI           | 2HN16EC411       | 23              |             | 4                           |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 43    | SANGAMESH KODEKALMATH                | 2HN16EC413       | 9               |             | 20                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| 44    | SANTOSH SHEDABAL                     | 2HN16EC415       | 12              |             | 0                           |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | A      |        |         |
| 45    | SHITAL KHEMANAVAR                    | 2HN16EC416       | AB              |             | 18                          |             |                 | 12     |          |         |             |             | 5       | 5       | 5       | 5       | 5                     | C      |        |         |
| ***   | END OF RECORDS***                    |                  |                 |             |                             |             |                 |        |          |         |             |             |         |         |         |         |                       |        |        |         |
|       | Apeared                              |                  | 43              | 0           |                             | 38          | 0               |        | 29       | 2       | 5           | 5           |         | 45      | 45      | 45      | 45                    | 45     | 45     |         |
|       | Absent                               |                  | 2               | 0           |                             | 6           | 0               |        | 16       | 16      | 0           | 16          |         | 0       | 0       | 0       | 0                     | 0      | 0      |         |
|       | Reached                              |                  | 35              | 0           |                             | 31          | 0               |        | 29       | 2       | 5           | 5           |         | 45      | 45      | 45      | 45                    | 45     | 24     |         |
|       | Attainment level of CO in Percentage |                  | 81.40           | #DIV/0!     |                             | 81.58       | #DIV/0!         |        | 100.00   | 100.00  | 100.00      | 100.00      |         | 100.00  | 100.00  | 100.00  | 100.00                | 100.00 | 12     |         |
|       | Attainment level of CO               |                  | 3               | #DIV/0!     |                             | 3           | #DIV/0!         |        | 3        | 3       | 3           | 3           |         | 3       | 3       | 3       | 3                     | 3      | 9      |         |
|       |                                      |                  |                 |             |                             |             |                 |        |          |         |             |             |         |         |         |         |                       |        | 1.00   |         |

|                          |         |    |
|--------------------------|---------|----|
| FCD                      | S, A, B | 24 |
| FC                       | C       | 12 |
| PASS                     | D,E     | 9  |
| Fail                     | F       | 0  |
| AB                       |         | 0  |
| Total number of Students |         | 45 |

Attainment Level set for IA Tests

**Attainment Level 1:** Students scoring more than 60% of maximum marks allotted to each question.

**Attainment Level set for Semester End Examination(SEE)**

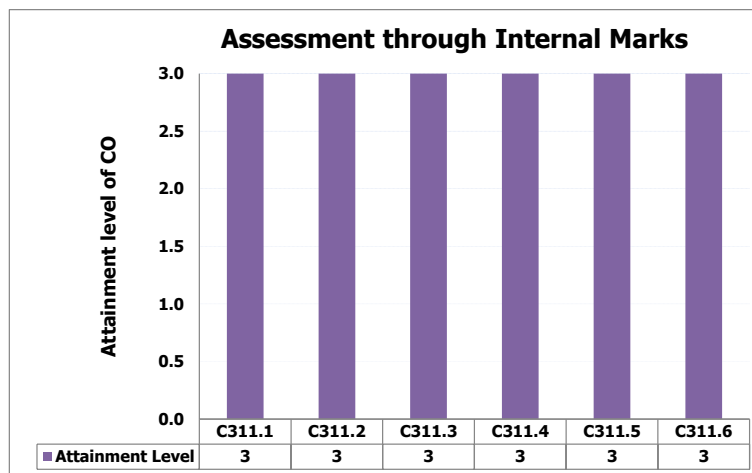
1. **Attainment Level 1:** students scoring more than 70% marks
2. **Attainment Level 2:** students scoring more than or equal to 60% to less than 70% Marks
3. **Attainment Level 3:** students scoring more than or equal to 50% to less than 35% Marks

Assessment through Internal Marks

Calculate

A: Appeared R: Reached Low =1 (50-59 %) Medium =2(60-69 %) High =3 (>=70 %)

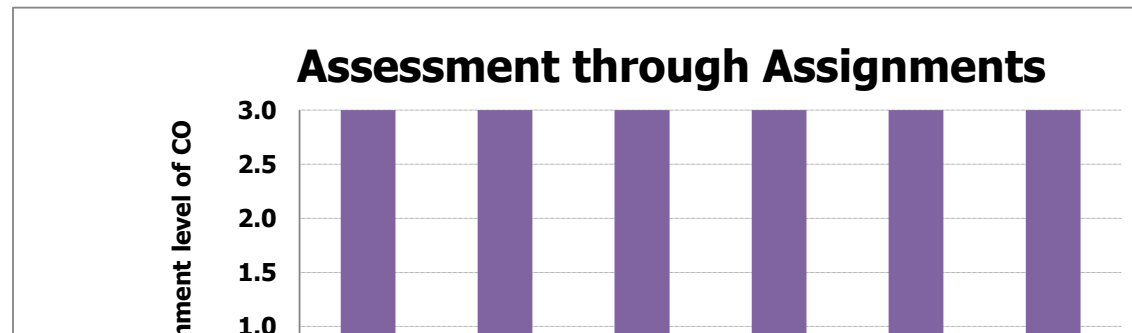
| COs    | IA Test-1          |    |                    |    | IA Test -2         |    |                    |    | IA Test -3         |    |                    |   | Attainment level of CO | Mapped PO                  | Mapped PSO |
|--------|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|---|------------------------|----------------------------|------------|
|        | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 3 |    | Q.No.2 OR Q. No. 4 |   |                        |                            |            |
|        | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R |                        |                            |            |
|        | C311.1             | 43 | 35                 | 43 | 35                 |    |                    |    |                    |    |                    |   |                        |                            |            |
| C311.2 |                    |    |                    |    | 38                 | 31 | 38                 | 31 |                    |    |                    |   | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.3 |                    |    |                    |    |                    |    |                    |    | 29                 | 29 |                    |   | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.4 |                    |    |                    |    |                    |    |                    |    |                    |    | 5                  | 5 | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.5 |                    |    |                    |    |                    |    |                    |    |                    |    | 5                  | 5 | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.6 |                    |    |                    |    |                    |    |                    |    |                    |    | 2                  | 2 | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |



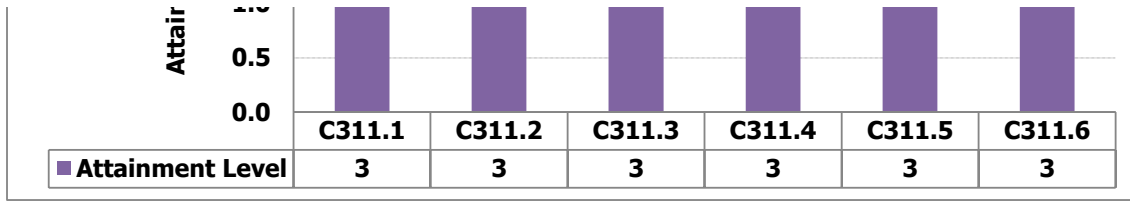
## Assessment through Assignment

A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3

| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Attainment level of CO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|------------------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                        |
| C311.1 | 45           | 45 |              |    |              |    |              |    |              |    | 100.00                               | 3                      |
| C311.2 |              |    | 45           | 45 |              |    |              |    |              |    | 100.00                               | 3                      |
| C311.3 |              |    |              |    | 45           | 45 |              |    |              |    | 100.00                               | 3                      |
| C311.4 |              |    |              |    |              |    | 45           | 45 |              |    | 100.00                               | 3                      |
| C311.5 |              |    |              |    |              |    |              |    | 45           | 45 | 100.00                               | 3                      |
| C311.6 |              |    |              |    |              |    |              |    | 45           | 45 | 100.00                               | 3                      |







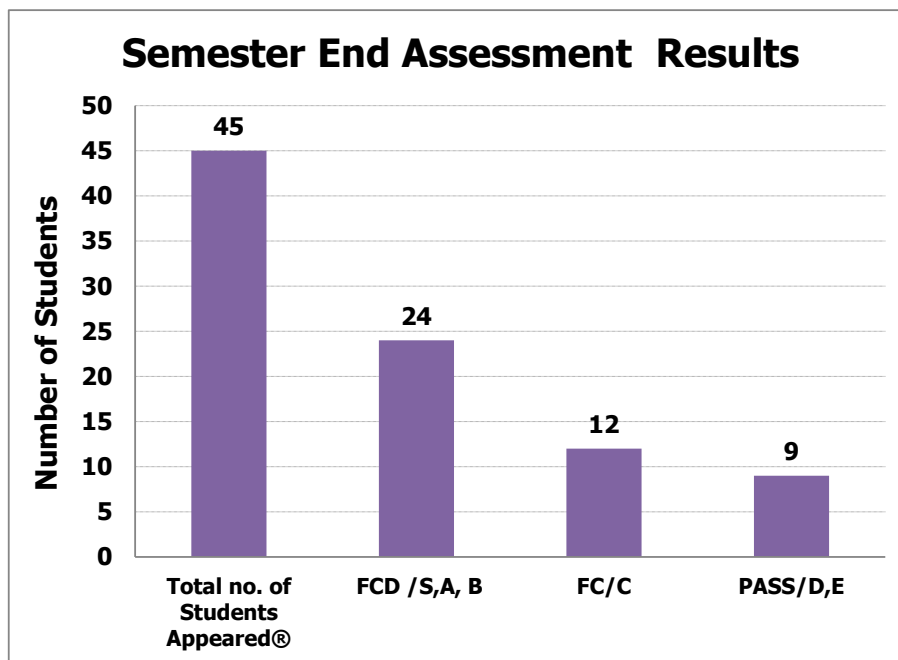
(above 70 %)

| <b>Mapped PO</b>           | <b>Mapped PSO</b> |
|----------------------------|-------------------|
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |

## Semester End Assessment Based on Semester End Exam Results

(COs Attainment Levels for: FCD (S,A,B) = 3, FC (C) = 2, SC(D,E) = 1 and Fail = 0)

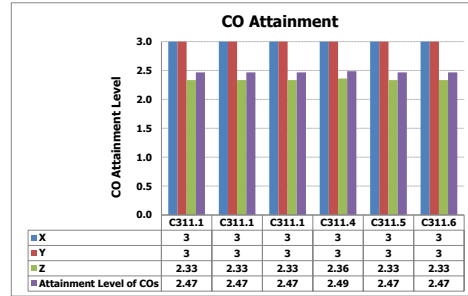
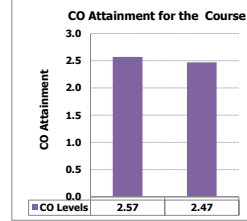
| Total no. of Students Appeared→ | 45                       |  |
|---------------------------------|--------------------------|--|
| Class/Grade↓                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD /S,A, B                     | 24                       | 72   |
| FC/C                            | 12                       | 24   |
| PASS/D,E                        | 9                        | 9  |
| Total Percentage of Passing     | 100.00%                  | 2.33   |



CO Attainment

| COs     | Attainment Through Assignment(X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO<br>[0.2(X+Y)/2]+0.8Z | Mapped POs |
|---------|----------------------------------|-------------------------------|---|---|------------|
| C311    | 3                                | 3                             | 2.33                                    | 2.47  | PO1 -      |
| C311    | 3                                | 3                             | 2.33                                    | 2.47  | PO1        |
| C311    | 3                                | 3                             | 2.33                                    | 2.47  | PO1        |
| C311    | 3                                | 3                             | 2.33                                    | 2.47  | PO1        |
| C314    | 3                                | 3                             | 2.36                                    | 2.49  | PO1        |
| C315    | 3                                | 3                             | 2.33                                    | 2.47  | PO1        |
| C316    | 3                                | 3                             | 2.33                                    | 2.47  | PO1        |
| Average |                                  |                               |   | 2.47  |            |

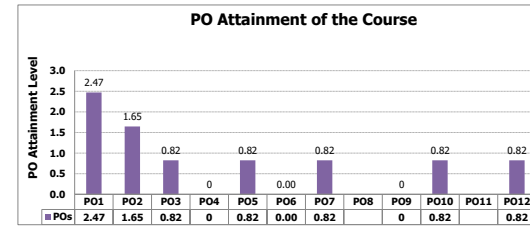
| CO Attainment for the Course |      |
|------------------------------|------|
| Target CO Level              | 2.57 |
| Attained CO Level            | 2.47 |



PO Attainment for the Course

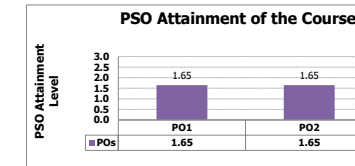
| CO/PO | PO1  | PO2  | PO3  | PO4 | PO5  | PO6 | PO7  | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------|------|------|------|-----|------|-----|------|-----|-----|------|------|------|
| C311  | 2.47 | 1.65 | 0.82 | -   | 0.82 | -   | 0.82 |     | -   | 0.82 |      | 0.82 |

POs attainment value for the present course = (Mapped value \* CO attainment average)/3



PSO Attainment for the Course

| CO/PSO | PSO1 | PSO2 |
|--------|------|------|
| C311   | 1.65 | 1.65 |

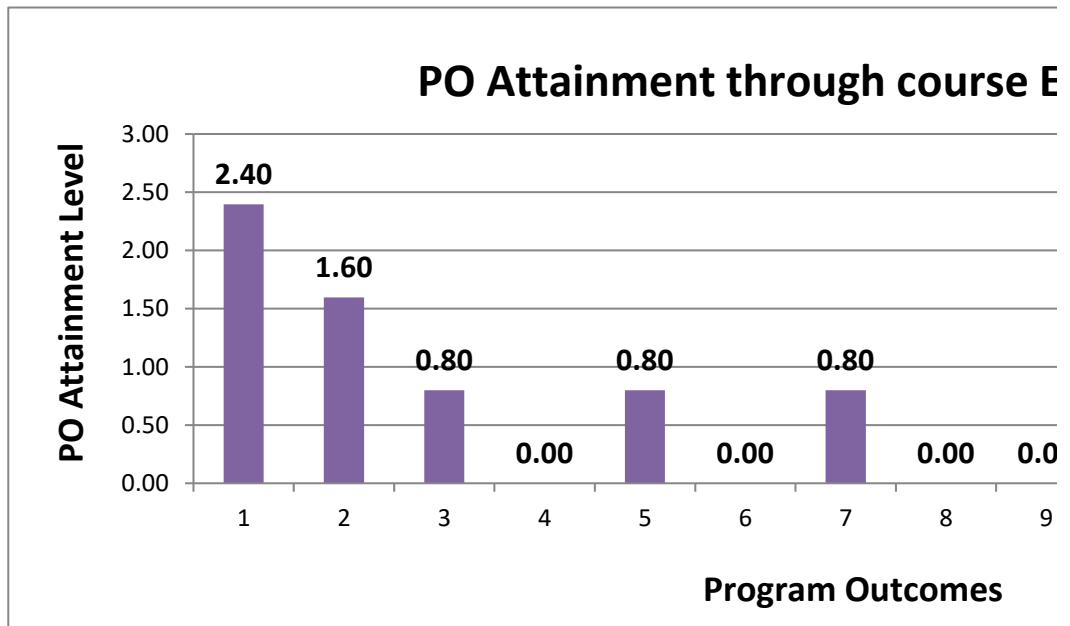


### PO/PSO Attainment through Course Exit Survey

|   |       |      |
|---|-------|------|
| CO Attainment Value through Course Exit Survey: | 79.87 | 2.40 |
|---|-------|------|

| CO/PO                 | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  |
|-----------------------|------|------|------|------|------|------|------|
| C311.1                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.2                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.3                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.4                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.5                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.6                | 3    | 2    | 1    | -    | 1    |      | 1    |
| Average               | 3    | 2    | 1    | -    | 1    |      | 1    |
| <b>CES Attainment</b> | 2.40 | 1.60 | 0.80 | 0.00 | 0.80 | 0.00 | 0.80 |

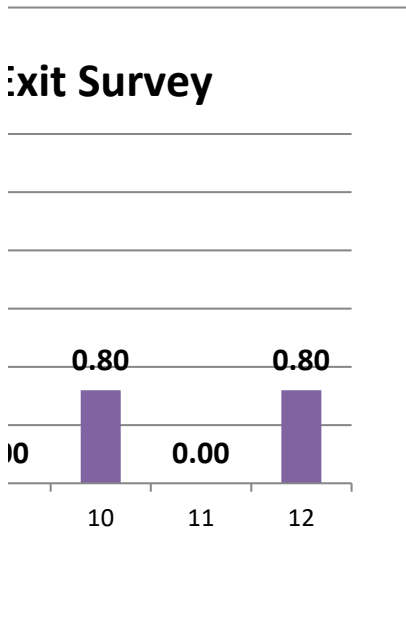
POs attainment value for the present course = (Mapped value \* CO Attainment Value thr



| PO8  | PO9  | PO10 | PO11 | PO12 |
|------|------|------|------|------|
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| 0.00 | 0.00 | 0.80 | 0.00 | 0.80 |

PSUS attainment

ough Course Exit Survey)/3

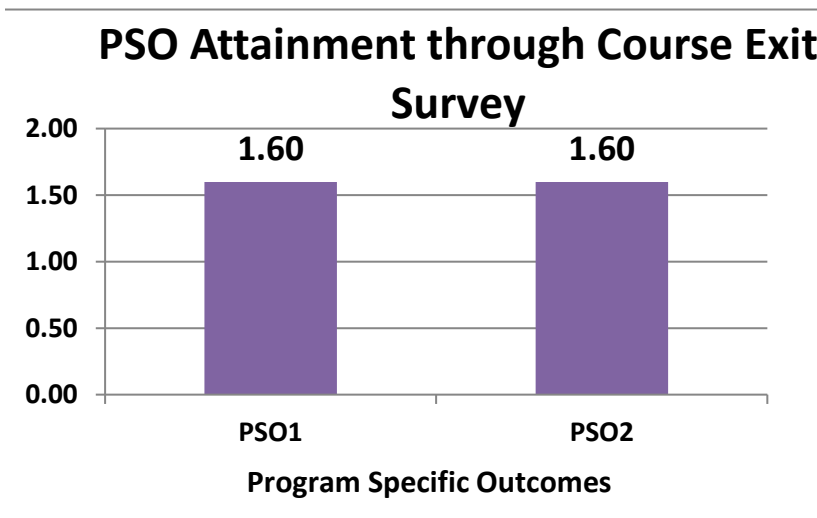


PSO Attainment Level



## PSO Attainment through Course Exit Survey

| CO/PSO         | PSO1 | PSO2 |
|----------------|------|------|
| C311.1         | 2    | 2    |
| C311.2         | 2    | 2    |
| C311.3         | 2    | 2    |
| C311.4         | 2    | 2    |
| C311.5         | 2    | 2    |
| C311.6         | 2    | 2    |
| Average        | 2    | 2    |
| CES Attainment | 1.60 | 1.60 |



# Hirasugar Institute of Technology, Nidasoshi-591236

## Course Outcome/Program Outcome Assessment

COURSE COORDINATOR: Mrs. S. S. KAMATE

A.Y: 2018-19

SEM: VI

CO Code: C311

PROGRAM: ECE

DIV:

COURSE:VLSI DESIGN

COURSE CODE:15EC63

### Mapping of Course Outcomes (COs) to Program Outcomes (POs)

| POs→    | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| COs↓    |     |     |     |     |     |     |     |     |     |      |      |      |
| C311.1  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.2  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.3  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.4  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.5  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| C311.6  | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |
| Average | 3   | 2   | 1   | -   | 1   |     | 1   | -   | -   | 1    | -    | 1    |

### Mapping of Course Outcomes (COs) to Program Specific Outcomes(PSOs)

| PSOs    | PSO 1 | PSO 2 |
|---------|-------|-------|
| COs     |       |       |
| C311.1  | 2     | 2     |
| C311.2  | 2     | 2     |
| C311.3  | 2     | 2     |
| C311.4  | 2     | 2     |
| C311.5  | 2     | 2     |
| C311.6  | 2     | 2     |
| Average | 2     | 2     |

### Mapping of IA Questions to COs

| IA Test-1        |                  | IA Test -2                  |        | IA Test -3      |        |          |         | ASSIGNMENTS                              |         |         |         |         |
|------------------|------------------|-----------------------------|--------|-----------------|--------|----------|---------|--|---------|---------|---------|---------|
| Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Q.No.1 OR Q.No.2 and Q.No.3 | Q.No.4 | Q.No.1 & Q.No.3 | Q.No.2 | Q.No. 4a | Q.No.4b | ASSGN-1                                  | ASSGN-2 | ASSGN-3 | ASSGN-4 | ASSGN-5 |
| C311.1           | C311.1           | C311.2                      | C311.2 | C311.3          | C311.6 | C311.4   | C311.4  | C311.1                                   | C311.2  | C311.3  | C311.4  | C311.5  |
| <b>Maximum</b>   |                  |                             |        |                 |        |          |         | <b>Maximum Marks for Each Assignment</b> |         |         |         |         |
| 25               |                  | 25                          |        | 12              | 12     | 6        | 7       | 5  | 5       | 5       | 5       | 5       |

### Mapping of Assignment Questions to COs

**Target Level Set for the Attainment of Course:** 1.5

#### Instructions:

1. The course coordinator should manually enter correlated IA questions with mapped COs
2. The course coordinator should manually enter correlated assignments with mapped COs
3. Based on the previous three assessment years course coordinator/faculty has to set the target level for course attainment.
4. Mapped POs must be entered manually in IA Assessement Sheet, Assignment Assessement Sheet and CO Attainment Sheet.

## COURSE OUTCOME ASSESSMENT DATA ENTRY SHEET

| Sl.No | Student Name                         | Q.No.1 OR Q.No.2 | IA Test -1 |             | IA Test -2                  |             | IA Test -3      |        |          |         |             | Assignments |         |         |         |         | Semster End Exam      |         |
|-------|--------------------------------------|------------------|------------|-------------|-----------------------------|-------------|-----------------|--------|----------|---------|-------------|-------------|---------|---------|---------|---------|-----------------------|---------|
|       |                                      |                  | Q.No.1     | Total Marks | Q.No.1 OR Q.No.2 and Q.No.3 | Total Marks | Q.No.1 & Q.No.3 | Q.No.2 | Q.No. 4a | Q.No.4b | Total Marks | Assgn-1     | Assgn-2 | Assgn-3 | Assgn-4 | Assgn-5 | PO1-PO4, PO8-PO9,PO12 |         |
|       |                                      |                  | 25         | 0           | 25                          | 0           | 25              | 12     | 12       | 6       | 7           | 25          | 5       | 5       | 5       | 5       | 5                     | GRADES  |
|       |                                      |                  | COs→       | C311.1      |                             | C311.2      |                 | C311.3 | C311.6   | C311.4  | C311.5      |             | C311.1  | C311.2  | C311.3  | C311.4  | C311.5                | CO1-CO8 |
| USN↓  |                                      |                  |            |             |                             |             |                 |        |          |         |             |             |         |         |         |         |                       |         |
| 1     | SANKET B. PIMPALE                    | 2HN15EC031       | 8          |             | ab                          |             | 11              |        |          |         | 5           | 5           | 5       | 5       | 5       | D       |                       |         |
| 2     | ABHISHEK KHADAKBHAVI                 | 2HN16EC001       | 21         |             | ab                          |             | 11              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 3     | AISHWARYA V. HAMBAR                  | 2HN16EC002       | 15         |             | 21                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 4     | AISHWARYA B. PATIL                   | 2HN16EC003       | 24         |             | 21                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 5     | AISHWARYA JADHAV                     | 2HN16EC004       | 23         |             | 16                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 6     | AKSHAY PRAKASH POWAR                 | 2HN16EC005       | 25         |             | 21                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 7     | AMRUTA M. HUNASHYALI                 | 2HN16EC006       | ab         |             | 18                          |             | 12              |        | 6        | 6       | 5           | 5           | 5       | 5       | 5       | S       |                       |         |
| 8     | ANUPAMA MURUGODE                     | 2HN16EC007       | 14         |             | 21                          |             | 12              |        | 6        | 7       | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 9     | ANUSHA J. BOLLARAPU                  | 2HN16EC008       | 19         |             | 20                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 10    | ARCHANA B. PATIL                     | 2HN16EC009       | 11         |             |                             |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | A       |                       |         |
| 11    | ASHWINI M. SHETTIMANI                | 2HN16EC010       | 25         |             | 20                          |             | 13              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 12    | BHAGYASHREE S. PATIL                 | 2HN16EC011       | 24         |             | 19                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 13    | CHAITRA VIRAKTAMATH                  | 2HN16EC012       | 21         |             | 16                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 14    | DALAWAI LAXMI DUNDAPPA               | 2HN16EC013       | 25         |             | 24                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 15    | DAMMAKKA J. PANDAV                   | 2HN16EC014       | 24         |             | 13                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | E       |                       |         |
| 16    | GANGADHAR MARUTI GIRAGAVE            | 2HN16EC015       | 24         |             | 19                          |             | 12              | 12     |          |         | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 17    | GOMATESH S. PATIL                    | 2HN16EC016       | 17         |             | ab                          |             | 13              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 18    | KAVERI N. DADDIMANI                  | 2HN16EC017       | 16         |             | 24                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 19    | KAVITA DILIP PATIL                   | 2HN16EC018       | 25         |             | 21                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | D       |                       |         |
| 20    | LAXMI AIGALI                         | 2HN16EC020       | 18         |             | 21                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | S       |                       |         |
| 21    | MADHUMATI HAVAL                      | 2HN16EC022       | 18         |             | 16                          |             | 11              | 12     |          |         | 5           | 5           | 5       | 5       | 5       | A       |                       |         |
| 22    | MOUSEEN A. RANGAPUR                  | 2HN16EC023       | 16         |             | 13                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | D       |                       |         |
| 23    | MOUSEEN BAGWAN                       | 2HN16EC024       | 25         |             | 25                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 24    | PAVAN DESHPANDE                      | 2HN16EC025       | 25         |             | 13                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 25    | PRIYANKA R. DANOLLI                  | 2HN16EC026       | 20         |             | 20                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | D       |                       |         |
| 26    | SACHIN NINGANUR                      | 2HN16EC028       | 11         |             | 15                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | E       |                       |         |
| 27    | SANA M. ATTAR                        | 2HN16EC030       | 22         |             | 23                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 28    | SEEMA G. GANI                        | 2HN16EC031       | 11         |             | 20                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | E       |                       |         |
| 29    | SHRADDHA M. HIPPARAGI                | 2HN16EC032       | 17         |             | 10                          |             | 12              |        | 6        | 6       | 5           | 5           | 5       | 5       | 5       | A       |                       |         |
| 30    | SHWETA V. SANTANAVAR                 | 2HN16EC033       | 15         |             | 22                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 31    | SOUMYA M. METAGUDLI                  | 2HN16EC034       | 19         |             | 20                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | A       |                       |         |
| 32    | SOUNDRYA B. PATIL                    | 2HN16EC035       | 21         |             | 21                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | E       |                       |         |
| 33    | SUNITA N. KARABASANAVAR              | 2HN16EC036       | 25         |             | 24                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 34    | SUPREETA D HIRARAPPAGOL              | 2HN16EC037       | 25         |             | 18                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 35    | SUPRIYA K. CHOUGALA                  | 2HN16EC038       | 23         |             | ab                          |             | 12              |        | 6        | 6       | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 36    | SURESH MUNJE                         | 2HN16EC039       | 20         |             | 12                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | A       |                       |         |
| 37    | SUSHMITA S. MARADI                   | 2HN16EC041       | 21         |             | 16                          |             | ab              | ab     | ab       | ab      | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 38    | VEENASHRI BORAGALLI                  | 2HN16EC042       | 24         |             | 25                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | B       |                       |         |
| 39    | VIDYA P SHETTI                       | 2HN16EC043       | 17         |             | 24                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | D       |                       |         |
| 40    | DEEPAK KARNE                         | 2HN16EC403       | 12         |             | AB                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | S       |                       |         |
| 41    | LINGANGOUDA PATIL                    | 2HN16EC405       | 23         |             | AB                          |             | 12              |        | 6        | 6       | 5           | 5           | 5       | 5       | 5       | S       |                       |         |
| 42    | REVANSIDDAYYA V. MATHAPATI           | 2HN16EC411       | 23         |             | 4                           |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 43    | SANGAMESH KODEKALMATH                | 2HN16EC413       | 9          |             | 20                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| 44    | SANTOSH SHEDABAL                     | 2HN16EC415       | 12         |             | 0                           |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | A       |                       |         |
| 45    | SHITAL KHEMANAVAR                    | 2HN16EC416       | AB         |             | 18                          |             | 12              |        |          |         | 5           | 5           | 5       | 5       | 5       | C       |                       |         |
| ***   | END OF RECORDS***                    |                  |            |             |                             |             |                 |        |          |         |             |             |         |         |         |         |                       |         |
|       | Apeared                              |                  | 43         | 0           |                             | 38          | 0               |        | 29       | 2       | 5           | 5           |         | 45      | 45      | 45      | 45                    | 45      |
|       | Absent                               |                  | 2          | 0           |                             | 6           | 0               |        | 16       | 16      | 0           | 16          |         | 0       | 0       | 0       | 0                     | 0       |
|       | Reached                              |                  | 35         | 0           |                             | 31          | 0               |        | 29       | 2       | 5           | 5           |         | 45      | 45      | 45      | 45                    | 45      |
|       | Attainment level of CO in Percentage |                  | 81.40      | #DIV/0!     |                             | 81.58       | #DIV/0!         |        | 100.00   | 100.00  | 100.00      | 100.00      |         | 100.00  | 100.00  | 100.00  | 100.00                | 100.00  |
|       | Attainment level of CO               |                  | 3          | #DIV/0!     |                             | 3           | #DIV/0!         |        | 3        | 3       | 3           | 3           |         | 3       | 3       | 3       | 3                     | 3       |
|       |                                      |                  |            |             |                             |             |                 |        |          |         |             |             |         |         |         |         |                       | 1.00    |

|                          |         |    |
|--------------------------|---------|----|
| FCD                      | S, A, B | 24 |
| FC                       | C       | 12 |
| PASS                     | D,E     | 9  |
| Fail                     | F       | 0  |
| AB                       |         | 0  |
| Total number of Students |         | 45 |

Attainment Level set for IA Tests

**Attainment Level 1:** Students scoring more than 60% of maximum marks allotted to each question.

**Attainment Level set for Semester End Examination(SEE)**

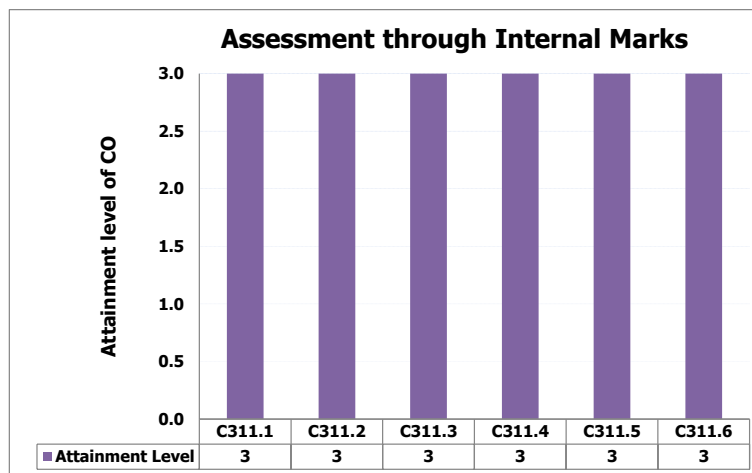
1. **Attainment Level 1:** students scoring more than 70% marks
2. **Attainment Level 2:** students scoring more than or equal to 60% to less than 70% Marks
3. **Attainment Level 3:** students scoring more than or equal to 50% to less than 35% Marks

Assessment through Internal Marks

Calculate

A: Appeared R: Reached Low =1 (50-59 %) Medium =2(60-69 %) High =3 (>=70 %)

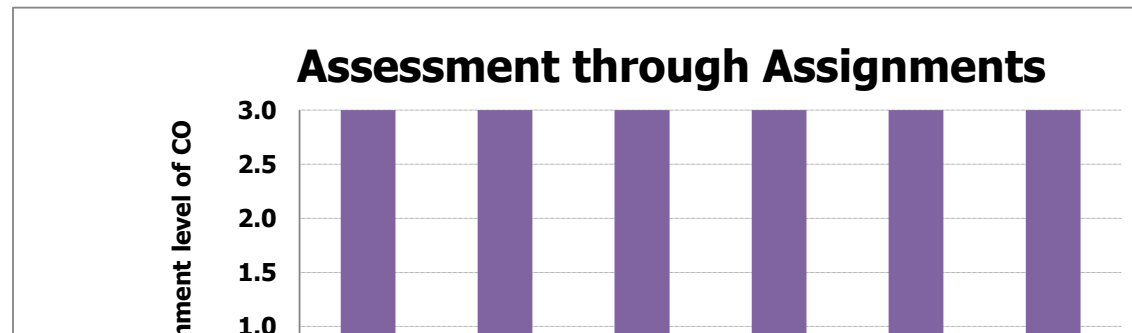
| COs    | IA Test-1          |    |                    |    | IA Test -2         |    |                    |    | IA Test -3         |    |                    |   | Attainment level of CO | Mapped PO                  | Mapped PSO |
|--------|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|---|------------------------|----------------------------|------------|
|        | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 3 |    | Q.No.2 OR Q. No. 4 |   |                        |                            |            |
|        | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R |                        |                            |            |
|        |                    |    |                    |    |                    |    |                    |    |                    |    |                    |   |                        |                            |            |
| C311.1 | 43                 | 35 | 43                 | 35 |                    |    |                    |    |                    |    |                    |   | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.2 |                    |    |                    |    | 38                 | 31 | 38                 | 31 |                    |    |                    |   | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.3 |                    |    |                    |    |                    |    |                    |    | 29                 | 29 |                    |   | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.4 |                    |    |                    |    |                    |    |                    |    |                    |    | 5                  | 5 | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.5 |                    |    |                    |    |                    |    |                    |    |                    |    | 5                  | 5 | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |
| C311.6 |                    |    |                    |    |                    |    |                    |    |                    |    | 2                  | 2 | 3                      | PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1,PSO2  |

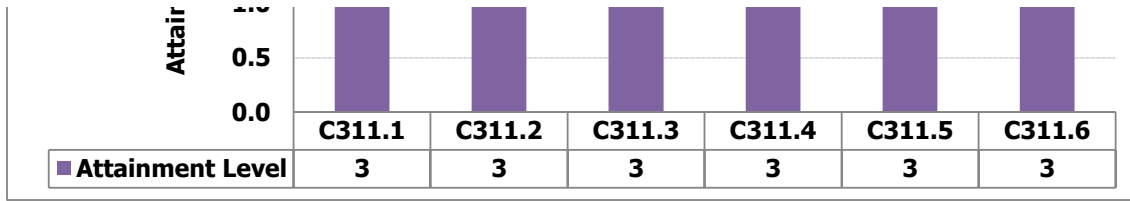


## Assessment through Assignment

A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3

| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Attainment level of CO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|------------------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                        |
| C311.1 | 45           | 45 |              |    |              |    |              |    |              |    | 100.00                               | 3                      |
| C311.2 |              |    | 45           | 45 |              |    |              |    |              |    | 100.00                               | 3                      |
| C311.3 |              |    |              |    | 45           | 45 |              |    |              |    | 100.00                               | 3                      |
| C311.4 |              |    |              |    |              |    | 45           | 45 |              |    | 100.00                               | 3                      |
| C311.5 |              |    |              |    |              |    |              |    | 45           | 45 | 100.00                               | 3                      |
| C311.6 |              |    |              |    |              |    |              |    | 45           | 45 | 100.00                               | 3                      |







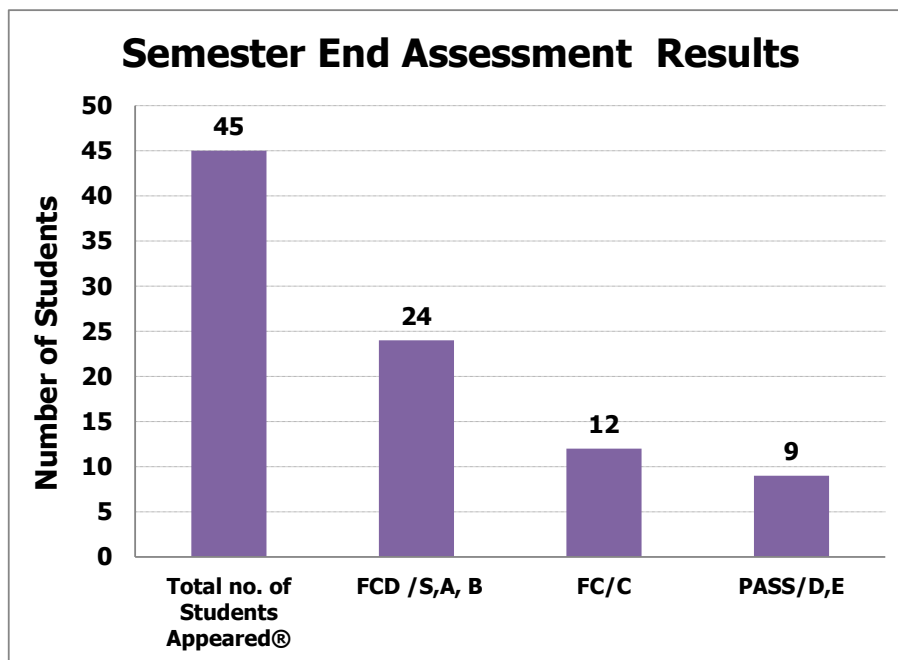
(above 70 %)

| <b>Mapped PO</b>           | <b>Mapped PSO</b> |
|----------------------------|-------------------|
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |
| PO1 -PO3,PO5,PO7,PO10,PO12 | PSO1, PSO2        |

## Semester End Assessment Based on Semester End Exam Results

(COs Attainment Levels for: FCD (S,A,B) = 3, FC (C) = 2, SC(D,E) = 1 and Fail = 0)

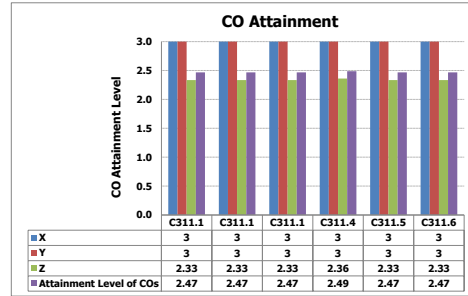
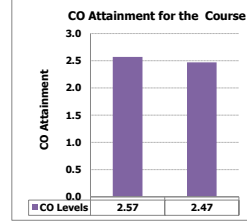
| Total no. of Students Appeared→ | 45                       |  |
|---------------------------------|--------------------------|--|
| Class/Grade↓                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD /S,A, B                     | 24                       | 72   |
| FC/C                            | 12                       | 24   |
| PASS/D,E                        | 9                        | 9  |
| Total Percentage of Passing     | 100.00%                  | 2.33   |



CO Attainment

| COs  | Attainment Through Assignment(X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO<br>[0.2(X+Y)/2]+0.8Z | Mapped POs |
|------|----------------------------------|-------------------------------|---|---|------------|
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO1 -      |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO2        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO3        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO4        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO5        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO6        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO7        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO8        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO9        |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO10       |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO11       |
| C311 | 3                                | 3                             | 2.33                                    | 2.47  | PO12       |
|      |                                  |                               | Average                                 | 2.47  |            |

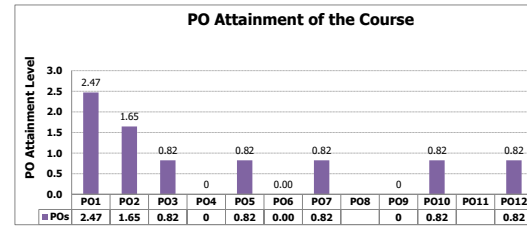
| CO Attainment for the Course |      |
|------------------------------|------|
| Target CO Level              | 2.57 |
| Attained CO Level            | 2.47 |



PO Attainment for the Course

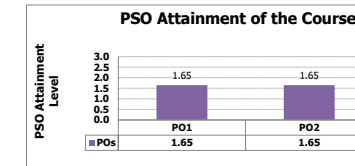
| CO/PO | PO1  | PO2  | PO3  | PO4 | PO5  | PO6 | PO7  | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------|------|------|------|-----|------|-----|------|-----|-----|------|------|------|
| C311  | 2.47 | 1.65 | 0.82 | -   | 0.82 | -   | 0.82 |     | -   | 0.82 |      | 0.82 |

POs attainment value for the present course = (Mapped value \* CO attainment average)/3



PSO Attainment for the Course

| CO/PSO | PSO1 | PSO2 |
|--------|------|------|
| C311   | 1.65 | 1.65 |

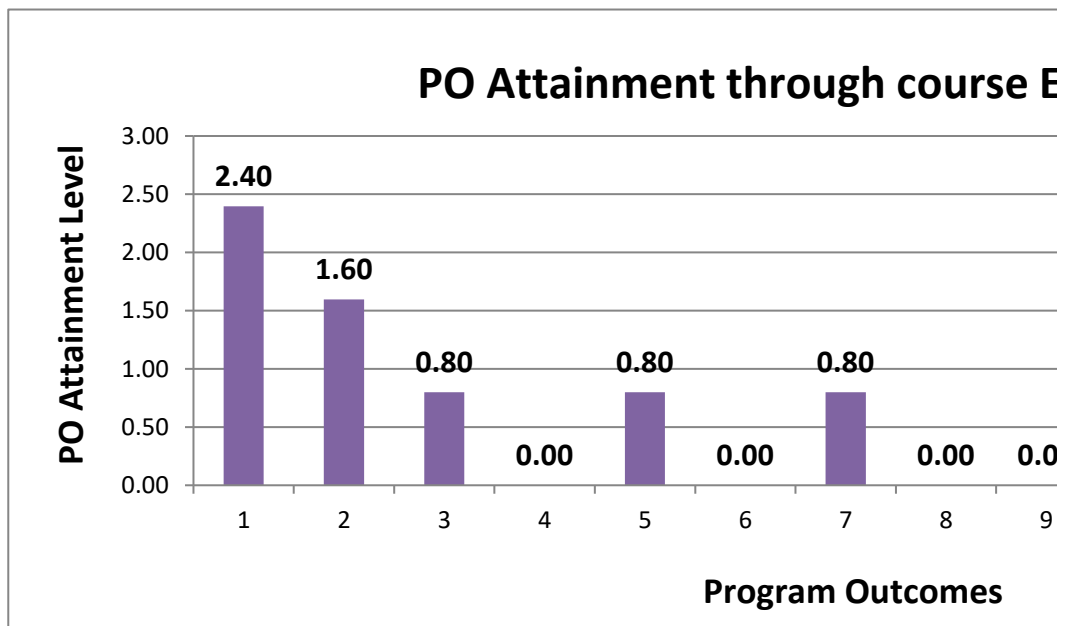


### PO/PSO Attainment through Course Exit Survey

|   |       |      |
|---|-------|------|
| CO Attainment Value through Course Exit Survey: | 79.87 | 2.40 |
|---|-------|------|

| CO/PO                 | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  |
|-----------------------|------|------|------|------|------|------|------|
| C311.1                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.2                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.3                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.4                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.5                | 3    | 2    | 1    | -    | 1    |      | 1    |
| C311.6                | 3    | 2    | 1    | -    | 1    |      | 1    |
| Average               | 3    | 2    | 1    | -    | 1    |      | 1    |
| <b>CES Attainment</b> | 2.40 | 1.60 | 0.80 | 0.00 | 0.80 | 0.00 | 0.80 |

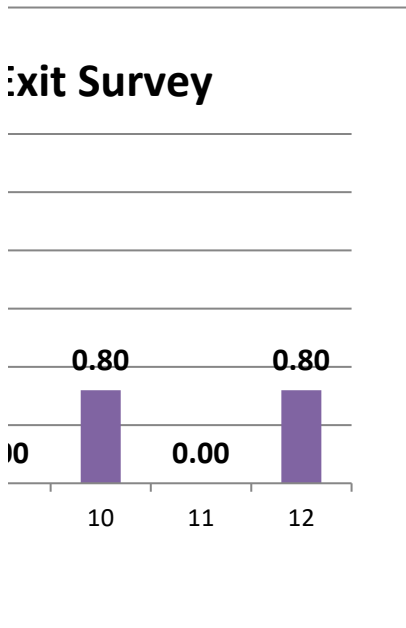
POs attainment value for the present course = (Mapped value \* CO Attainment Value thr



| PO8  | PO9  | PO10 | PO11 | PO12 |
|------|------|------|------|------|
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| -    | -    | 1    | -    | 1    |
| 0.00 | 0.00 | 0.80 | 0.00 | 0.80 |

PSUS attainment

ough Course Exit Survey)/3

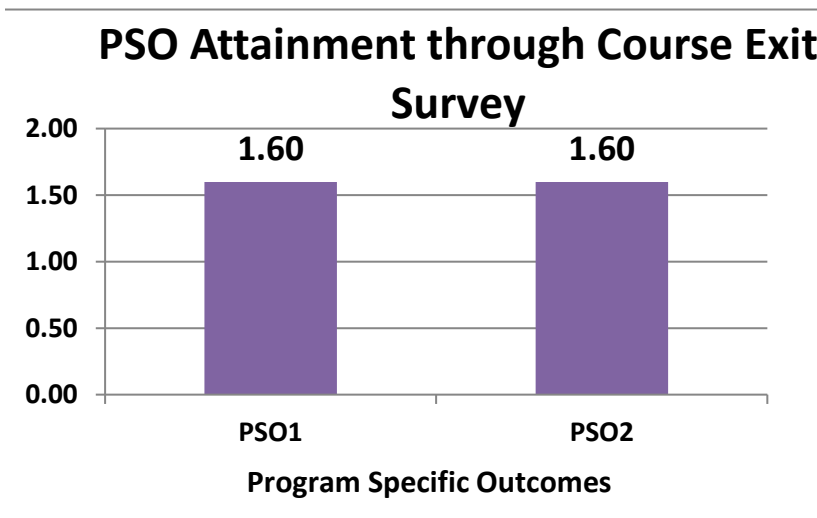


PSO Attainment Level



## PSO Attainment through Course Exit Survey

| CO/PSO         | PSO1 | PSO2 |
|----------------|------|------|
| C311.1         | 2    | 2    |
| C311.2         | 2    | 2    |
| C311.3         | 2    | 2    |
| C311.4         | 2    | 2    |
| C311.5         | 2    | 2    |
| C311.6         | 2    | 2    |
| Average        | 2    | 2    |
| CES Attainment | 1.60 | 1.60 |





### Attainment of Program Outcomes and Program Specific Outcomes:

#### PO/PSO Attainment through Direct Assessment Methods:

| Assessment Method/POs       | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Direct Assessment(A)</b> | <b>2.07</b> | <b>1.62</b> | <b>1.56</b> | <b>1.09</b> | <b>0.72</b> | <b>0.85</b> | <b>0.43</b> | <b>0.68</b> | <b>0.68</b> | <b>0.78</b> | <b>0.83</b> | <b>1.02</b> | <b>1.72</b> | <b>1.48</b> |

#### PO/PSO Attainment through Indirect Assessment Methods:

| Sl. No.                               | Indirect Method                                  | Weightage | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|---------------------------------------|--|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1                                     | Employer Survey                                  | 5         | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | 3           | --          | --          |
| 2                                     | Alumni Survey                                    | 15        | 2.54        | 2.33        | 2.27        | 2.26        | 2.56        | 2.30        | 2.33        | 2.30        | 2.43        | 2.33        | 2.38        | 2.27        | --          | --          |
| 3                                     | Senior Exit Survey                               | 15        | 2.88        | 2.69        | 2.71        | 2.67        | 2.60        | 2.74        | 2.76        | 2.71        | 2.76        | 2.74        | 2.88        | 2.60        | 2.79        | 2.67        |
| 4                                     | Activity Feedback                                | 35        | 2.60        | 2.73        | 2.80        | 2.80        | 2.79        | 2.58        | 2.75        | 2.55        | 2.57        | 2.59        | 2.80        | 2.61        | 2.58        | 2.61        |
| 5                                     | Course Exit Survey                               | 15        | 2.41        | 1.94        | 1.82        | 1.28        | 0.81        | 0.92        | 0.54        | 0.69        | 0.76        | 0.93        | 0.87        | 1.22        | 1.99        | 1.70        |
| 6                                     | Placement, Higher Education and Entrepreneurship | 15        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        |
| <b>Overall Indirect Attainment(B)</b> |  |           | <b>2.35</b> | <b>2.27</b> | <b>2.27</b> | <b>2.18</b> | <b>2.14</b> | <b>2.07</b> | <b>2.08</b> | <b>2.02</b> | <b>2.06</b> | <b>2.08</b> | <b>2.17</b> | <b>2.10</b> | <b>2.04</b> | <b>1.94</b> |



S J P N Trust's

## Hirasugar Institute of Technology, Nidasoshi

*Inculcating Values, Promoting Prosperity*

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**Accredited at 'A' Grade by NAAC**

**Programmes Accredited by NBA: CSE, ECE, EEE & ME.**

**ECE Dept.**

**NBA**

**Assessment  
Methods**

**2019-20**

### PO/PSO Attainment through Direct and Indirect Assessment Methods:

| Assessment Method/POs         | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO1         | PO11        | PO12        | PSO1        | PSO2        |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Direct Assessment(A)</b>   | <b>2.07</b> | <b>1.62</b> | <b>1.56</b> | <b>1.09</b> | <b>0.72</b> | <b>0.85</b> | <b>0.43</b> | <b>0.68</b> | <b>0.68</b> | <b>0.78</b> | <b>0.83</b> | <b>1.02</b> | <b>1.72</b> | <b>1.48</b> |
| <b>Indirect Assessment(B)</b> | <b>2.35</b> | <b>2.27</b> | <b>2.27</b> | <b>2.18</b> | <b>2.14</b> | <b>2.07</b> | <b>2.08</b> | <b>2.02</b> | <b>2.06</b> | <b>2.08</b> | <b>2.17</b> | <b>2.10</b> | <b>2.04</b> | <b>1.94</b> |
| <b>AVG(0.8*A+0.2*B)</b>       | <b>2.13</b> | <b>1.75</b> | <b>1.70</b> | <b>1.31</b> | <b>1.00</b> | <b>1.09</b> | <b>0.76</b> | <b>0.95</b> | <b>0.96</b> | <b>1.04</b> | <b>1.10</b> | <b>1.24</b> | <b>1.78</b> | <b>1.57</b> |

  
Criteria Coordinator

  
Programme Coordinator

  
HOD  
HOD  
Electronics & Communication Engg.  
Hirasugar Institute of Technology,  
Nidasoshi-591 236



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ECE Dept.

NBA

Compliance  
Report

2018-19

**Program Level Course-PO, PSO Attainment matrix(2015 Batch)**

| Course | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2  |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| C101   | 1.40 | 0.93 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.47 | --   | --    |
| C102   | 1.66 | ---  | 1.10 | ---  | 0.55 | ---  | ---  | 0.55 | ---  | 0.55 | ---  | 0.55 | --   | --    |
| C103   | 1.43 | 1.43 | 0.95 | 0.95 | ---  | 0.48 | ---  | 0.48 | ---  | ---  | 0.48 | 0.95 | --   | --    |
| C104   | 2.71 | 1.80 | ---  | ---  | ---  | ---  | 0.90 | ---  | ---  | ---  | ---  | ---  | --   | --    |
| C105   | 1.18 | 1.18 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | --   | --    |
| C106   | 2.66 | 1.66 | 3.00 | 1.33 | ---  | 3.00 | ---  | 3.00 | 2.00 | 2.00 | 3.00 | 2.50 | --   | --    |
| C107   | 2.33 | ---  | ---  | ---  | 0.78 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | --   | --    |
| C108   | ---  | ---  | ---  | ---  | ---  | 1.12 | ---  | 0.75 | ---  | ---  | ---  | ---  | ---  | --    |
| C109   | 1.79 | 1.19 | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 0.60 | --   | --    |
| C110   | 1.65 | 1.32 | 1.10 | ---  | ---  | 0.99 | ---  | ---  | ---  | ---  | ---  | 0.55 | --   | --    |
| C111   | 1.63 | 1.30 | 1.41 | ---  | ---  | ---  | 1.09 | 1.09 | ---  | 1.09 | ---  | ---  | --   | --    |
| C112   | 0.81 | ---  | ---  | ---  | 1.62 | ---  | ---  | ---  | ---  | 2.43 | ---  | ---  | --   | --    |
| C113   | 1.11 | 0.74 | 0.96 | 0.59 | 0.74 | 1.11 | ---  | ---  | 0.74 | 0.96 | 0.59 | 1.11 | --   | --    |
| C114   | 2.96 | 2.96 | 2.96 | ---  | ---  | ---  | ---  | ---  | 2.96 | ---  | 2.96 | ---  | --   | --    |
| C115   | 2.65 | 2.65 | 2.65 | ---  | ---  | 1.77 | ---  | ---  | ---  | ---  | ---  | 0.88 | --   | --    |
| C116   | 2.18 | 1.46 | 1.46 |      |      | 1.46 | 1.46 | 0.73 | 0.00 | 0.00 | 0.73 | 0.73 | --   | --    |
| C201   | 1.80 | 1.20 | 0.60 | --   | --   | --   | --   | --   | --   | --   | --   | 0.60 |      |       |
| C202   | 2.33 | 1.55 | 2.33 | 2.33 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.55 | 0.78 | 1.55 | 1.55  |
| C203   | 1.43 | 0.76 | 1.14 | 0.57 | 0.00 | 0.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.48 | 0.66 | 0.85  |
| C204   | 2.06 | 2.06 | 0.69 | 0.69 | 0.00 | 0.00 | 0.00 | 0.69 | 0.00 | 0.00 | 0.00 | 0.69 | 1.23 | 0.95  |
| C205   | 1.66 | 0.83 | 1.07 | 0.59 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 1.18 |      |       |
| C206   | 1.36 | 0.91 | 0.45 | 0.00 | 0.00 | 0.00 | 0.51 | 0.45 | 0.00 | 0.45 | 0.00 | 0.57 | 0.91 | 0.45  |
| C207   | 2.82 | 2.82 | 2.82 | 1.31 | 0.94 | 0.00 | 0.00 | 0.00 | 0.94 | 1.88 | 0.00 | 0.94 | 1.87 | 1.876 |
| C208   | 2.37 | 1.89 | 2.60 | 0.95 | 0.95 | 0.95 | 0.00 | 0.00 | 0.95 | 0.95 | 0.95 | 0.95 | 2.84 | 2.84  |
| C209   | 1.82 | 1.22 | 0.61 | --   | --   | --   | --   | --   | --   | --   | --   | 0.61 |      |       |
| C210   | 1.26 | 0.75 | 1.09 | 0.63 | 0.42 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.63 | 1.1  | 0.83  |
| C211   | 0.73 | 0.65 | 0.57 | 0.49 | 0.00 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.81 | 1.22  |

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Accredited at "A" Grade by NAAC

Programmes Accredited by NBA: CSE, ECE, EEE &amp; ME.

Recognized Under Section 2(f) of UGC Act, 1956

ECE Dept.

NBA

Compliance  
Report

2018-19

| Course   | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1  | PSO2 |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|
| C212     | 1.22 | 0.81 | 0.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 | 0.41 | 0.81  | 0.41 |
| C213     | 1.91 | 1.76 | 1.76 | 1.76 | 0.00 | 0.00 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.73 | 1.4   | 1.46 |
| C214     | 1.34 | 0.48 | 1.25 | 0.48 | 0.00 | 0.48 | 0.00 | 0.48 | 0.00 | 0.00 | 0.00 | 0.48 | --    | --   |
| C215     | 2.52 | 1.80 | 2.34 | 2.40 | 1.58 | 1.08 | 0.00 | 0.00 | 0.00 | 1.35 | 0.90 | 1.80 | --    | --   |
| C216     | 2.70 | 1.80 | 1.05 | 0.90 | 0.00 | 0.90 | 0.00 | 0.90 | 0.90 | 0.90 | 0.00 | 0.90 | --    | --   |
| C301     | 0.66 | 0.66 | 0.66 | 0.66 | --   | 0.66 | --   | 0.66 | 1.86 | 1.33 | 1.99 | 0.66 | 0.66  | 0.66 |
| C302     | 2.22 | 2.22 | 1.48 | 1.48 | --   | 0.74 | --   | 0.74 | --   | --   | 0.74 | 1.48 | 1.48  | 1.48 |
| C303     | 2.14 | 1.28 | 1.85 | 1.07 | 1.07 | 0.71 | --   | --   | --   | --   | 0.36 | 1.43 | 1.24  | 0.71 |
| C304     | 1.65 | 1.65 | 1.65 | 0.88 | 0.55 | --   | --   | 0.55 | --   | --   | 0.55 | 0.55 | 1.10  | 0.55 |
| C305     | 1.36 | 0.68 | 0.68 | 0.68 | 0.00 | 0.68 | 1.09 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 1.36  | 1.36 |
| C306     | 1.66 | 1.07 | 1.54 | 1.07 | 1.54 | 1.19 | 0.95 | --   | 1.19 | 0.95 | 0.71 | 1.19 | 1.78  | 1.78 |
| C307     | 2.58 | 2.58 | 1.72 | 1.72 | --   | 0.86 | --   | 0.86 | --   | --   | 0.86 | 1.72 | 2.58  | 2.58 |
| C308     | 2.66 | 2.17 | 2.42 | 1.45 | 1.21 | 1.45 | --   | --   | 0.97 | 0.97 | 1.93 | 1.45 | 2.66  | 1.69 |
| C309     | 2.13 | 2.13 | 1.85 | 1.89 | --   | --   | --   | 0.71 | --   | 1.42 | 1.42 | 1.42 | 2.13  | 1.84 |
| C310     | 2.11 | 1.69 | 1.83 | 1.69 | 0.70 | 1.13 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.84 | 2.11  | 1.41 |
| C311     | 2.55 | 1.70 | 0.85 | -    | -    | -    | -    | -    | -    | 0.85 | -    | 0.85 | 1.70  | 1.70 |
| C312     | 1.35 | 1.35 | 0.90 | 0.90 | --   | 0.45 | --   | 0.45 | --   | --   | 0.45 | 0.90 | 0.90  | 1.35 |
| C313     | 2.58 | 2.58 | 0.86 | 0.86 | 0.00 | 0.86 | 0.00 | 0.86 | 2.40 | 1.72 | 0.86 | 0.86 | 0.86  | 0.86 |
| C314     | 1.64 | 0.88 | 1.14 | 0.63 | 1.26 | --   | --   | 0.63 | 0.63 | --   | --   | 0.63 | 1.10  | 1.14 |
| C315     | 2.95 | 2.36 | 2.55 | 1.96 | 1.96 | 1.57 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 1.57 | 2.95  | 1.57 |
| C316     | 2.91 | 2.91 | 1.94 | --   | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 1.94 | 1.94  | 1.94 |
| C401     | 0.63 | 0.63 | 0.63 | 0.63 | 0.00 | 0.63 | 0.00 | 0.63 | 1.76 | 1.26 | 1.89 | 0.63 | 0.63  | 0.63 |
| C402     | 2.52 | 1.51 | 1.34 | 1.51 | 1.34 | 1.51 | 0.00 | 0.84 | 0.00 | 1.68 | 1.68 | 1.34 | 1.68  | 1.68 |
| C403     | 1.35 | 0.73 | 0.93 | 0.52 | 0.52 | 0.00 | 0.00 | 0.52 | 0.52 | 0.00 | 0.00 | 0.52 | 1.013 | 1.14 |
| C404     | 1.97 | 1.97 | 1.31 | --   | --   | 0.66 | --   | 0.66 | --   | --   | 1.31 | 1.31 | 1.97  | 1.21 |
| C404     | 2.34 | 2.03 | 2.03 | 1.87 | 1.25 | 1.17 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 1.87 | 1.42  | 0.71 |
| C405(B)  | 1.64 | 1.13 | 1.26 | 0.88 | 1.13 | 1.38 | 1.01 | 0.63 | 1.01 | 1.26 | 0.94 | 1.13 | 1.13  | 1.26 |
| C405(C3) | 2.65 | 1.77 | 1.77 | 0.88 | 0.88 | 0.88 | --   | --   | --   | 0.88 | 1.77 | 1.77 | 1.76  | 0.88 |

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**ECE Dept.**

**NBA**

**Compliance  
Report**

**2018-19**

| Course      | PO1         | PO2         | PO3         | PO4         | PO5         | PO6         | PO7         | PO8         | PO9         | PO10        | PO11        | PO12        | PSO1        | PSO2        |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| C406        | 3.00        | 3.00        | 2.00        | 2.00        | 0.00        | 1.00        | 0.00        | 1.00        | 0.00        | 0.00        | 0.00        | 0.98        | 3           | 3           |
| C407        | 2.95        | 2.95        | 1.97        | 1.97        | --          | 0.98        | --          | 0.98        | --          | --          | --          | 0.98        | 2.95        | 2.95        |
| C408        | 3           | 3           | 2           | 2           | --          | 1           | --          | 1           | --          | --          | --          | 1           | 3           | 3           |
| C409        | 2.36        | 1.57        | 1.57        | 0.79        | 0.00        | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        | 0.00        | 0.79        | 1.56        | 1.56        |
| C410        | 2.04        | 2.04        | 2.04        | 1.36        | 0.68        | 0.68        | 0.68        | 0.00        | 0.00        | 0.00        | 0.68        | 0.00        | 2.85        | 0.95        |
| C411        | 2.74        | 2.74        | 2.37        | 0.00        | 0.00        | 0.91        | 0.00        | 0.91        | 0.00        | 0.00        | 0.91        | 1.82        | 2.74        | 2.37        |
| C412        | 1.98        | 1.98        | 1.98        | 0.99        | 0.00        | 1.98        | 0.99        | 0.99        | 0.99        | 0.99        | 0.99        | 1.98        | 1.98        | 1.98        |
| C413        | 3.00        | 2.00        | 3.00        | 2.00        | 2.00        | 1.00        | 2.00        | 2.00        | 3.00        | 3.00        | 3.00        | 1.00        | 3           | 3           |
| C414        | 3.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 1.00        | 3.00        | 1.00        | 3.00        | 1.00        | 1.00        | 3           | 3           |
| C415        | 2.00        | 2.00        | 2.00        | 1.00        | 2.00        | 1.00        | 2.00        | 3.00        | 3.00        | 3.00        | 2.00        | 2.00        | 3           | 3           |
| <b>AVG.</b> | <b>2.03</b> | <b>1.64</b> | <b>1.55</b> | <b>1.11</b> | <b>0.69</b> | <b>0.86</b> | <b>0.51</b> | <b>0.76</b> | <b>0.80</b> | <b>0.91</b> | <b>0.88</b> | <b>1.01</b> | <b>1.78</b> | <b>1.57</b> |

  
Criteria Coordinator

  
Programme Coordinator

  
**HOD**  
**HOD**  
Electronics & Communication Engg.  
Hirasugar Institute of Technology,  
Nidasoshi-591 236





## FACULTY COURSE ASSESSEMENT REPORT (FCAR)

**Course Coordinator:** Prof: S S Kamate                      **Class Strength:**65  
**Semester:** III    **Subject:** Engg. Electromagnetics                      **Code:** 15EC36

**I. Program Outcomes (POs):** Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.





## II. Program Specific Outcomes (PSOs):

The graduates of the program will be able to;

|       |       |  |
|-------|-------|--|
| PSO1: | PSO1: | An ability to understand the concepts of basic Electronics & Communication Engineering and to apply them to various areas like Signal processing, VLSI, Embedded systems, Communication Systems, Digital & Analog Devices. |
| PSO2: | PSO2: | An ability to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions                  |

## III. Course Outcomes (COs): The student, after successful completion of the course, will be able to:

| CO     | Description  | Mapped POs                 | RBTL |
|--------|--|----------------------------|------|
| C206.1 | Explain basic concepts of Electric Fields and solve the problems in a given co-ordinate system.                      | PO1,PO2,PO3, PO8,PO10,PO12 | L2   |
| C206.2 | Illustrate and verify Gauss divergence theorem and concept of potential and current density.                         | PO1,PO2,PO3, PO8,PO10,PO12 | L3   |
| C206.3 | Solve the problems related to Laplace's equations and basic concepts of magnetic fields.                             | PO1,PO2,PO3, PO8,PO10,PO12 | L3   |
| C206.4 | Solve problems related to stokes theorem and Magnetic forces.  | PO1,PO2,PO3, PO8,PO10,PO12 | L3   |
| C206.5 | Derive Maxwell's equations for varying fields and solve the wave propagation problems for free space and conductors. | PO1,PO2,PO3, PO8,PO10,PO12 | L3   |

## IV. Mapping of Course Outcomes (COs) to Program Outcomes (POs):

| POs<br>COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| C206.1     | 3   | 2   | 1   | --  | --  | --  | --  | 1   | --  | 1    | --   | 1    |
| C206.2     | 3   | 2   | 1   | --  | --  | --  | --  | 1   | --  | 1    | --   | 1    |
| C206.3     | 3   | 2   | 1   | --  | --  | --  | --  | 1   | --  | 1    | --   | 1    |
| C206.4     | 3   | 2   | 1   | --  | --  | --  | --  | 1   | --  | 1    | --   | 1    |
| C206.5     | 3   | 2   | 1   | --  | --  | --  | --  | 1   | --  | 1    | --   | 1    |
| Average    | 3   | 2   | 1   | --  | --  | --  | --  | 1   | --  | 1    | --   | 1    |

## V. Mapping of Course Outcomes (COs) to Program Specific Outcomes (PSOs):

| PSOs<br>COs | PSO 1 | PSO 2 |
|-------------|-------|-------|
| C206.1      | 2     | 1     |
| C206.2      | 2     | 1     |
| C206.3      | 2     | 1     |
| C206.4      | 2     | 1     |
| C206.5      | 2     | 1     |
| Average     | 2     | 1     |





## VI. Justification of CO-PO Mapping:

|             |   |
|-------------|---|
| C206.1-PO1  | Strong correlation is given, as explaining and solving Electric Field related problems in a given co-ordinate system requires good knowledge of mathematics and engineering sciences.   |
| C206.2.-PO1 | Strong correlation is given, as explaining the concepts of Gauss law, divergence theorem and potential concepts require good knowledge of mathematics and engineering sciences.   |
| C206.3-PO1  | Strong correlation is given, as explaining the concepts of Laplace's and poisson's equations and basic concepts of potential, volume charge require good knowledge of mathematics and engineering sciences.                               |
| C206.4-PO1  | Strong correlation is given, as solving problems related to stokes theorem and Magnetic forces requires good knowledge of mathematics and engineering sciences.   |
| C206.5-PO1  | Strong correlation is given, as explaining the concepts of Maxwell's equations for varying fields and solve the equations of wave propagation requires good knowledge of mathematics and engineering sciences.                            |
| C206.1-PO2  | Medium correlation is given, since understanding and solving the Electric Field problems in a given co-ordinate system and their derivations need better problem analysis skills and first principles of mathematics and science.         |
| C206.2-PO2  | Medium correlation is given, since understanding and solving Gauss divergence theorem potential need better problem analysis skills and first principles of mathematics and science.  |
| C206.3-PO2  | Medium correlation is given, since understanding and solving the problems related to Laplace's equations and basic concepts of magnetic fields need better problem analysis skills and first principles of mathematics and science.       |
| C206.4-PO2  | Medium correlation is given, since understanding and solving problems related to stokes theorem and Magnetic forces need better problem analysis skills and first principles of mathematics and science.                                  |
| C206.5-PO2  | Medium correlation is given, since understanding and solving Maxwell's equations for varying fields and the wave propagation derivations need better problem analysis skills and first principles of mathematics and science.             |
| C206.1 -PO3 | Weak correlation is given, since explaining and solving Electric Field related problems in a given co-ordinate system require certain level of knowledge of designing solutions considering public safety and environmental issues.       |
| C206.2 -PO3 | Weak correlation is given, since explaining and solving Gauss divergence theorem and potential some problems require certain level of knowledge of designing solutions considering public safety and environmental issues.                |
| C206.3 -PO3 | Weak correlation since explaining and solving problems related to Laplace's equations and basic concepts of magnetic fields require certain level of knowledge of designing solutions considering public safety and environmental issues. |
| C206.4 -PO3 | Weak correlation is given, since explaining and solving problems related to stokes theorem and Magnetic forces require certain level of knowledge of designing solutions considering public safety and environmental issues.              |
| C206.5-PO3  | Weak correlation is given, since explaining and solving some problems require certain level of knowledge of designing solutions considering public safety and environmental issues.   |
| C206-PO8    | A weak correlation is given, as we follow ethics in our behavior, while delivering the  |





|           |  |
|-----------|--|
|           | lecture, maintenance in classrooms conducting exams etc. so, definitely we cultivate professionalism indirectly.   |
| C206-PO10 | As communication in relation to complex engineering problems is done through exams and continuous evaluations of the course hence correlated to weak level as only syllabus related concepts are communicated. |
| C206-PO12 | Weak correlation as one needs to have the knowledge of behavior of charges, fields and wave propagation.   |

### VII. Justification of CO-PSO Mapping :

| Mapping     | Justification   |
|-------------|---|
| C206.1-PSO1 | A medium correlation is given, as understanding of concepts of charges, force and electric field and applying them to various areas like communication, Digital & analog devices will enhance the basics of Electronics & Communication Engineering.  |
| C206.2-PSO1 | A medium correlation is given, as to understand the concepts of gauss law, divergence of electrostatics and applying them to various areas like communication, Digital & analog devices will enhance the basics of Electronics & Communication Engineering.   |
| C206.3-PSO1 | A medium correlation is given, as to understand the concepts of potential, Laplace's equation, Poisson's equation and applying them to various areas like VLSI, communication, Digital & analog devices will enhance the basics of Electronics & Communication Engineering.   |
| C206.4-PSO1 | A medium correlation is given, as to understand the concepts of magnetostatics and forces applying them to various areas like communication, Digital & analog devices will enhance the basics of Electronics & Communication Engineering.   |
| C206.5-PSO1 | A medium correlation is given, as to understand the concepts of time varying fields and wave propagation and applying them to various areas like communication, Digital & analog devices will enhance the basics of Electronics & Communication Engineering.  |
| C206.1-PSO2 | A weak correlation is given, as understanding of concepts of charges, force and electric field and applying them to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions happens in some projects only.                  |
| C206.2-PSO2 | A weak correlation is given, as to understand the concepts of gauss law, divergence of electrostatics and applying them to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions happens in some projects only.           |
| C206.3-PSO2 | A weak correlation is given, as to understand the concepts of potential, Laplace's equation, Poisson's equation and applying them to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions happens in some projects only. |
| C206.4-PSO2 | A weak correlation is given, as to understand the concepts of magnetostatics and forces applying them to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions happens in some projects only.                             |
| C206.5-PSO2 | A weak correlation is given, as to understand the concepts of time varying fields and   |





|      |  |
|------|--|
| PSO2 | wave propagation and applying them to solve complex Electronics and Communication Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions happens in some projects only. |
|------|--|

### VIII. Bench Mark Setting

| VTU Result(CIE+SEE)                     |                   |  |                   |   |                   |
|---|-------------------|--|-------------------|---|-------------------|
| January/February 2013<br>Max. Marks:125 |                   | January/February 2014<br>Max. Marks: 125 |                   | January/February<br>2015<br>Max. Marks: 125 |                   |
| USN                                     | Marks<br>Obtained | USN                                      | Marks<br>Obtained | USN   | MARKS<br>Obtained |
| 2HN12EC002                              | 50                | 2HN12EC010                               | 43                | 2HN14EC001                                  | 49                |
| 2HN12EC003                              | 68                | 2HN13EC001                               | 77                | 2HN14EC002                                  | 87                |
| 2HN12EC004                              | 52                | 2HN13EC002                               | 61                | 2HN14EC003                                  | 65                |
| 2HN12EC005                              | 65                | 2HN13EC003                               | 83                | 2HN14EC004                                  | 71                |
| 2HN12EC006                              | 71                | 2HN13EC004                               | 76                | 2HN14EC006                                  | 67                |
| 2HN12EC007                              | 59                | 2HN13EC005                               | 99                | 2HN14EC007                                  | 91                |
| 2HN12EC008                              | 58                | 2HN13EC006                               | 72                | 2HN14EC008                                  | 88                |
| 2HN12EC009                              | 78                | 2HN13EC007                               | 110               | 2HN14EC009                                  | 66                |
| 2HN12EC011                              | 67                | 2HN13EC008                               | 60                | 2HN14EC010                                  | 115               |
| 2HN12EC012                              | 61                | 2HN13EC009                               | 55                | 2HN14EC011                                  | 77                |
| 2HN12EC013                              | 50                | 2HN13EC010                               | 83                | 2HN14EC012                                  | 87                |
| 2HN12EC014                              | 50                | 2HN13EC011                               | 87                | 2HN14EC013                                  | 99                |
| 2HN12EC015                              | 54                | 2HN13EC012                               | 97                | 2HN14EC014                                  | 80                |
| 2HN12EC016                              | 42                | 2HN13EC013                               | 100               | 2HN14EC017                                  | 57                |
| 2HN12EC017                              | 52                | 2HN13EC014                               | 97                | 2HN14EC018                                  | 39                |
| 2HN12EC018                              | 50                | 2HN13EC015                               | 81                | 2HN14EC019                                  | 69                |
| 2HN12EC019                              | 41                | 2HN13EC016                               | 65                | 2HN14EC020                                  | 50                |
| 2HN12EC020                              | 59                | 2HN13EC017                               | 71                | 2HN14EC021                                  | 58                |
| 2HN12EC021                              | 38                | 2HN13EC018                               | 60                | 2HN14EC022                                  | 85                |
| 2HN12EC022                              | 26                | 2HN13EC019                               | 52                | 2HN14EC023                                  | 58                |
| 2HN12EC023                              | 40                | 2HN13EC020                               | 37                | 2HN14EC024                                  | 41                |
| 2HN12EC024                              | 57                | 2HN13EC021                               | 57                | 2HN14EC025                                  | 76                |
| 2HN12EC025                              | 61                | 2HN13EC022                               | 62                | 2HN14EC026                                  | 53                |
| 2HN12EC026                              | 50                | 2HN13EC023                               | 66                | 2HN14EC027                                  | 92                |
| 2HN12EC027                              | 76                | 2HN13EC024                               | 67                | 2HN14EC028                                  | 84                |
| 2HN12EC028                              | 50                | 2HN13EC025                               | 53                | 2HN14EC030                                  | 53                |
| 2HN12EC029                              | 43                | 2HN13EC026                               | 101               | 2HN14EC031                                  | 107               |
| 2HN12EC030                              | 42                | 2HN13EC027                               | 79                | 2HN14EC032                                  | 66                |
| 2HN12EC031                              | 51                | 2HN13EC028                               | 86                | 2HN14EC033                                  | 88                |
| 2HN12EC032                              | 40                | 2HN13EC029                               | 51                | 2HN14EC034                                  | 50                |





**S J P N Trust's**  
**Hirasugar Institute of Technology, Nidasoshi**  
Approved by AICTE, Recognized by Govt. of Karnataka and Affiliated to VTU Belagavi.  
**Accredited at 'A' Grade by NAAC**  
**Programmes Accredited by NBA: CSE, ECE, EEE & ME.**

ECE Dept.  
ACADEMICS  
FCAR  
AY:2016-17

|               |             |            |             |            |           |
|---------------|-------------|------------|-------------|------------|-----------|
| 2HN12EC033    | 82          | 2HN13EC030 | 67          | 2HN14EC035 | 73        |
| 2HN12EC034    | 42          | 2HN13EC031 | 83          | 2HN14EC036 | 56        |
| 2HN12EC035    | 50          | 2HN13EC032 | 61          | 2HN14EC037 | 87        |
| 2HN12EC036    | 47          | 2HN13EC033 | 75          | 2HN14EC038 | 80        |
| 2HN12EC037    | 61          | 2HN13EC034 | 63          | 2HN14EC039 | 56        |
| 2HN12EC038    | 53          | 2HN13EC035 | 58          | 2HN14EC040 | 51        |
| 2HN12EC039    | 33          | 2HN13EC036 | 83          | 2HN14EC041 | 65        |
| 2HN12EC040    | 50          | 2HN13EC037 | 58          | 2HN14EC042 | 50        |
| 2HN12EC041    | 41          | 2HN13EC038 | 75          | 2HN14EC043 | 50        |
| 2HN12EC042    | 51          | 2HN13EC039 | 80          | 2HN14EC044 | 83        |
| 2HN12EC043    | 32          | 2HN13EC040 | 53          | 2HN14EC045 | 58        |
| 2HN12EC045    | 62          | 2HN13EC041 | 53          | 2HN14EC046 | 72        |
| 2HN12EC046    | 39          | 2HN13EC042 | 68          | 2HN14EC047 | 87        |
| 2HN12EC047    | 70          | 2HN13EC043 | 61          | 2HN14EC048 | 90        |
| 2HN12EC048    | 77          | 2HN13EC044 | 70          | 2HN14EC049 | 56        |
| 2HN12EC049    | 47          | 2HN13EC045 | 58          | 2HN14EC050 | 54        |
| 2HN12EC050    | 42          | 2HN13EC046 | 53          | 2HN14EC051 | 80        |
| 2HN12EC051    | 78          | 2HN13EC047 | 75          | 2HN14EC052 | 82        |
| 2HN12EC052    | 57          | 2HN13EC048 | 90          | 2HN14EC053 | 82        |
| 2HN12EC053    | 86          | 2HN13EC049 | 95          | 2HN14EC054 | 80        |
| 2HN12EC054    | 74          | 2HN13EC050 | 80          | 2HN15EC400 | 40        |
| 2HN12EC055    | 55          | 2HN13EC051 | 103         | 2HN15EC401 | 50        |
| 2HN12EC056    | 85          | 2HN13EC052 | 73          | 2HN15EC402 | 50        |
| 2HN13EC400    | 38          | 2HN13EC053 | 90          | 2HN15EC403 | 50        |
| 2HN13EC402    | 42          | 2HN13EC054 | 98          | 2HN15EC404 | 56        |
| 2HN13EC404    | 57          | 2HN13EC056 | 84          | 2HN15EC405 | 56        |
| 2HN13EC405    | 50          | 2HN14EC400 | 63          | 2HN15EC406 | 24        |
| 2HN13EC406    | 51          | 2HN14EC401 | 36          | 2HN15EC407 | 25        |
| 2HN13EC407    | 58          | 2HN14EC402 | 25          | 2HN15EC408 | 36        |
| 2HN13EC408    | 52          | 2HN14EC404 | 15          | 2HN15EC409 | 88        |
| 2HN13EC409    | 61          | 2HN14EC405 | 50          | 2HN15EC410 | 65        |
| 2HN13EC410    | 39          | 2HN14EC406 | 70          | 2HN15EC411 | 58        |
| 2HN13EC411    | 58          | 2HN14EC407 | 57          | 2HN15EC412 | 53        |
| 2HN13EC412    | 39          | 2HN14EC408 | 53          | 2HN15EC413 | 28        |
| 2HN13EC413    | 40          | 2HN14EC409 | 60          | 2HN15EC414 | 53        |
| 2HN13EC415    | 34          | 2HN14EC410 | 69          | 2HN15EC415 | 50        |
| 2HN13EC416    | 43          | 2HN14EC411 | 54          | 2HN15EC416 | 15        |
| 2HN13EC418    | 39          | 2HN14EC412 | 42          | 2HN15EC417 | 77        |
| 2HN13EC403    | 39          | 2HN14EC413 | 34          | 2HN15EC418 | 52        |
| 2HN13EC401    | 53          | 2HN14EC414 | 35          | 2HN15EC419 | 36        |
|               |             | 2HN14EC415 | 64          | 2HN15EC420 | 39        |
|               |             | 2HN14EC416 | 47          |            |           |
| <b>MEDIAN</b> | <b>50.5</b> |            | <b>66.5</b> |            | <b>58</b> |





| Year                  | Median | Median of Medians | Initial Target Value<br>ITV= (Median of Medians)*3/100 |
|-----------------------|--------|-------------------|--|
| January/February 2015 | 50.5   | 58                | 1.74   |
| January/February 2016 | 66.5   |                   |  |
| January/February 2017 | 58     |                   |  |

## IX. DIRECT ASSESSMENT OF COs, POs & PSOs ATTAINMENT

### Teaching Methodology:

- Lecture by Teacher
- PPT or Online demo etc.

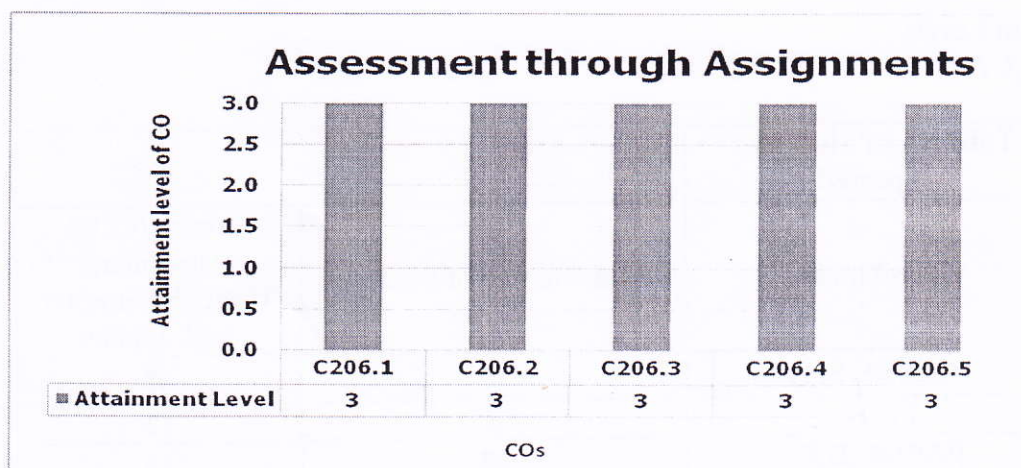
### Assessment Tools:

- Continuous assessment
- Laboratory experiments
- End semester exam

### 1. Assessment through Assignment:

A: Appeared      R: Reached      Low =1 (50-59 %)      Medium =2 (60-69 %)      High =3 (above 70 %)

| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Attainment level of CO | Mapped PO       | Mapped PSO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|------------------------|-----------------|------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                        |                 |            |
| C206.1 | 65           | 65 |              |    |              |    |              |    |              |    | 100.00                               | 3                      | 1,2,3,6,8,10,12 | 1,2        |
| C206.2 |              |    | 65           | 65 |              |    |              |    |              |    | 100.00                               | 3                      | 1,2,3,6,8,11,12 | 1,2        |
| C206.3 |              |    |              |    | 65           | 65 |              |    |              |    | 100.00                               | 3                      | 1,2,3,6,8,11,12 | 1,2        |
| C206.4 |              |    |              |    |              |    | 65           | 65 |              |    | 100.00                               | 3                      | 1,2,3,6,8,11,12 | 1,2        |
| C206.5 |              |    |              |    |              |    |              |    | 65           | 65 | 100.00                               | 3                      | 1,2,3,6,8,11,12 | 1,2        |

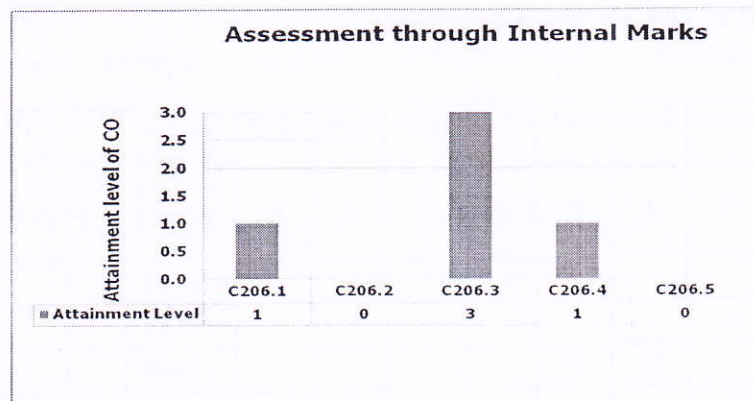




## 2. Assessment through Internal Marks:

A: Appeared    R: Reached    Low =1 (50-59 %)    Medium =2 (60-69 %)    High =3 (above 70 %)

| COs    | IA Test-1          |    |                    |    | IA Test -2         |    |                    |    | IA Test -3         |    |                    |    | Attainment level of CO | Mapped PO       | Mapped PSO |
|--------|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|--------------------|----|------------------------|-----------------|------------|
|        | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    | Q.No.1 OR Q. No. 2 |    | Q.No.3 OR Q. No. 4 |    |                        |                 |            |
|        | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  | A                  | R  |                        |                 |            |
| C206.1 | 62                 | 29 | 59                 | 32 |                    |    |                    |    |                    |    |                    |    | 1                      | 1,2,3,6,8,10,12 | 1.2        |
| C206.2 |                    |    |                    |    | 65                 | 32 |                    |    |                    |    |                    |    | 0                      | 1,2,3,6,8,10,12 | 1.2        |
| C206.3 |                    |    |                    |    |                    |    | 30                 | 19 | 54                 | 50 |                    |    | 3                      | 1,2,3,6,8,10,12 | 1.2        |
| C206.4 |                    |    |                    |    |                    |    |                    |    |                    |    | 49                 | 29 | 0                      | 1,2,3,6,8,10,12 | 1.2        |
| C206.5 |                    |    |                    |    |                    |    |                    |    |                    |    | 4                  | 1  | 0                      | 1,2,3,6,8,10,12 | 1.2        |



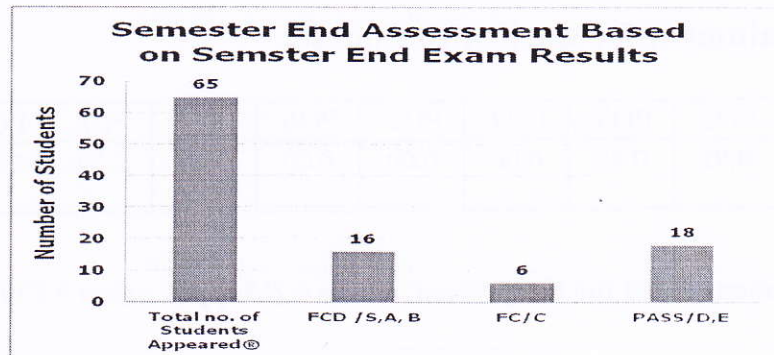
## 3. Semester End Exam Assessment Based on VTU Exam Results:

COs Attainment Levels:

FCD: S+, S, & A = 3;    FC (B) = 2;    Pass: C, D, & E = 1;    Fail = 0

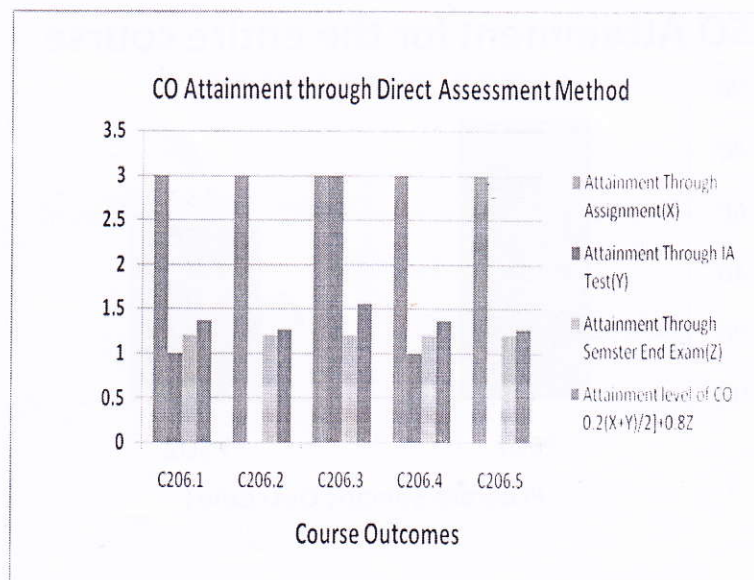
|                                |                          |  |
|--------------------------------|--------------------------|--|
| Total no. of Students Appeared | 65                       |  |
| Class/Grade                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD/S+, S, A                   | 16                       | 48   |
| FC/B                           | 6                        | 12   |
| PASS/C,D,E                     | 18                       | 18   |
| Total Percentage of Passing    | 61.54%                   | 1.20   |





#### 4. CO Attainment:

| COs     | Attainment Through Assignment (X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO | Mapped POs      | Mapped PSOs |
|---------|-----------------------------------|-------------------------------|---|------------------------|-----------------|-------------|
|         |                                   |                               |   | $[0.2(X+Y)/2]+0.8Z$    |                 |             |
| C206.1  | 3                                 | 1                             | 1.20                                    | 1.36                   | 1,2,3,6,8,10,12 | 1.2         |
| C206.2  | 3                                 | 0                             | 1.20                                    | 1.26                   | 1,2,3,6,8,10,12 | 1.2         |
| C206.3  | 3                                 | 3                             | 1.20                                    | 1.56                   | 1,2,3,6,8,10,12 | 1.2         |
| C206.4  | 3                                 | 1                             | 1.20                                    | 1.36                   | 1,2,3,6,8,10,12 | 1.2         |
| C206.5  | 3                                 | 0                             | 1.20                                    | 1.26                   | 1,2,3,6,8,10,12 | 1.2         |
| Average |                                   |                               |   | 1.34                   |                 |             |

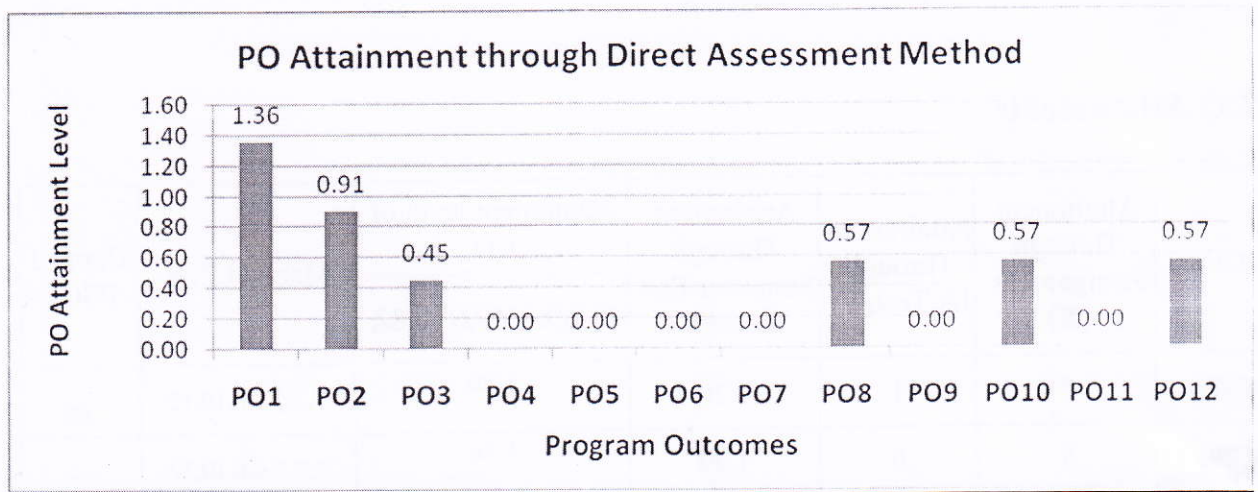




### 5. PO Attainment for the Entire Course:

| CO/PO | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| C206  | 1.36 | 0.91 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.00 | 0.57 | 0.00 | 0.57 |

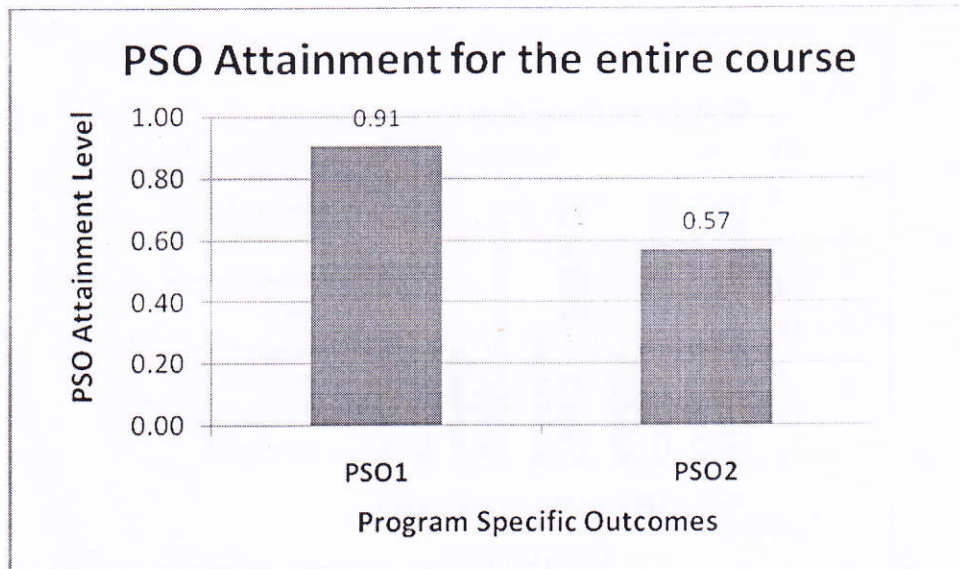
POs attainment value for the present course = (Mapped value \* CO attainment average)/3



### 6. PSO Attainment for the Entire Course:

| CO               | PSO1 | PSO2 |
|------------------|------|------|
| Attainment Level | 0.91 | 0.57 |

PSOs attainment value for the present course = (Mapped value \* CO attainment average)/3



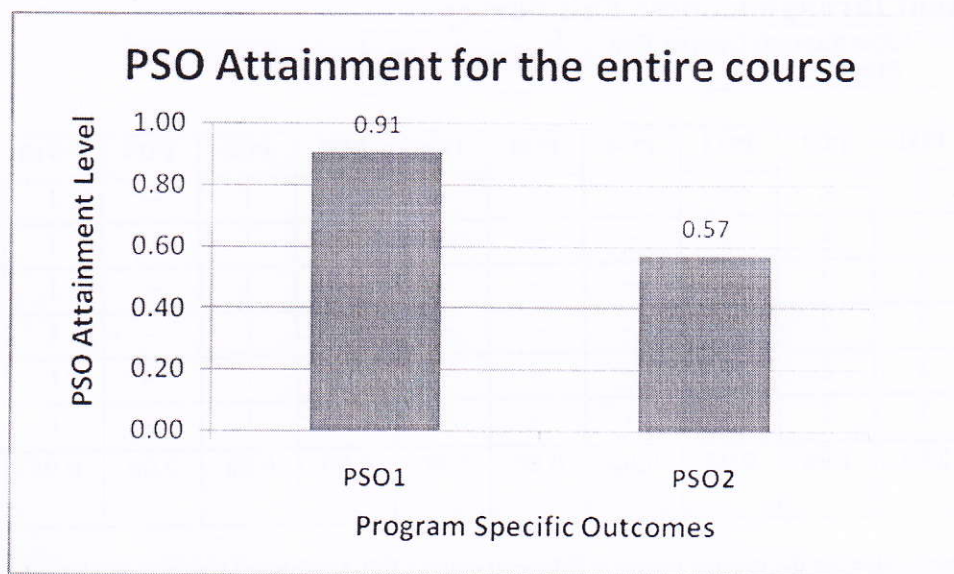




### 7. Target Attainment:

Median of median of previous three years university results of SEE has been taken to set bench mark. If the attained value is greater than or equal to initial target value, then for next subsequent years (2018-19) attained value is taken as the set target. If the attained value is less than set target then the same set target is continued for the next subsequent years.

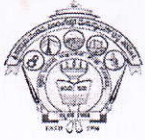
|                                    |      |
|------------------------------------|------|
| Set Target Value (ITV)             | 1.74 |
| Attained Value                     | 1.36 |
| New Target Level for the next Exam | 1.74 |



### 8. Course Coordinator Remarks:

| S. No. | Observations                      | Comments  |
|--------|-----------------------------------|---|
| 1      | <b>Impact of Delivery Methods</b> | Delivery methods are satisfactory. Pedagogy used to deliver lectures is quite satisfactory. But overall attainment of all course outcomes is moderate as it is observed in CO attainment table. More practice problems shall be given as home work on previous question paper problems and some tutorial classes are required to clarify ambiguities of students.   |
| 2      | <b>Course Outcome Attainment</b>  | Overall Attainment of all course outcomes (CIE+SEE) is more than 50% on 1-3 performance scale as observed CO attainment table. But attainment level of COs is less than 2.<br>To improve attainment level course outcomes following activates are to be implemented. <ul style="list-style-type: none"> <li>Tutorial/Remedial classes are to be conducted to explain concepts in simpler way by one to one interaction to weaker/slow learners.</li> <li>Home assignments are to be given to improve hands on experience to solve more numerical so appreciate/understand problem and solution to it. Verification and suggestions of the same in front of the students/slow learners.</li> </ul> |





|          |                                     |   |
|----------|-------------------------------------|---|
| <b>3</b> | <b>Scope for Improvement</b>        | To enhance the attainment below mentioned activities can be suggested. <ul style="list-style-type: none"> <li>Animated videos to clarify concepts of divergence, curl and wave propagation equation can be done.</li> <li>Equations can be displayed in the class room in chart to help students to remember the concepts.</li> </ul> |
| <b>4</b> | <b>Additional Comments (if any)</b> | --  |

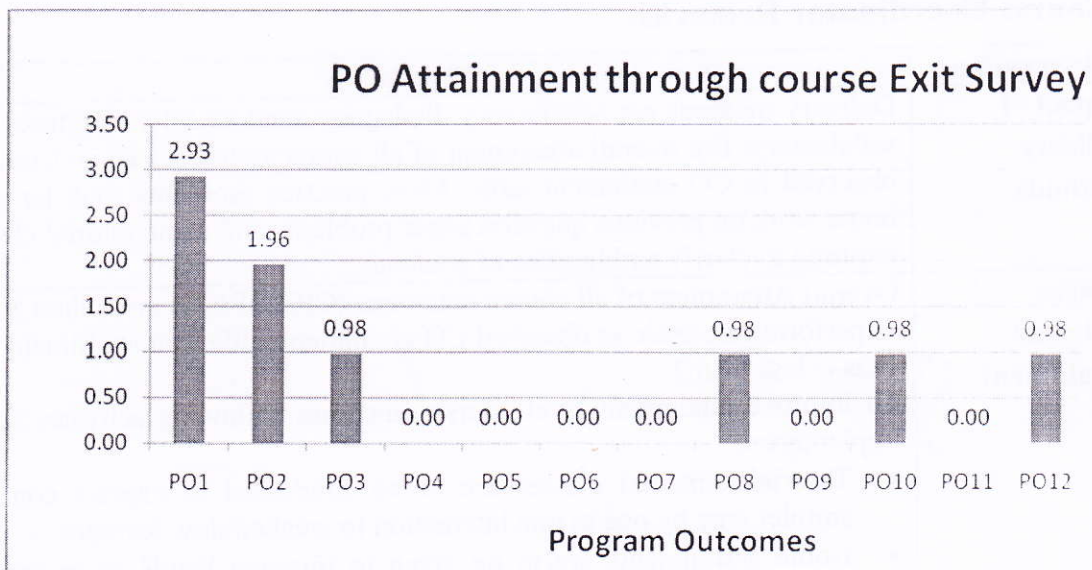
**X. Attainment Through indirect Methods**

**PO Attainment through Course Exit Survey**

|   |              |             |
|---|--------------|-------------|
| CO Attainment Value through Course Exit Survey: | <b>97.76</b> | <b>2.93</b> |
|---|--------------|-------------|

| CO                    | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| C305.1                | 3    | 2    | 1    | --   | --   | --   | --   | 1    | --   | 1    | --   | 1    |
| C305.2                | 3    | 2    | 1    | --   | --   | --   | --   | 1    | --   | 1    | --   | 1    |
| C305.3                | 3    | 2    | 1    | --   | --   | --   | --   | 1    | --   | 1    | --   | 1    |
| C305.4                | 3    | 2    | 1    | --   | --   | --   | --   | 1    | --   | 1    | --   | 1    |
| C305.5                | 3    | 2    | 1    | --   | --   | --   | --   | 1    | --   | 1    | --   | 1    |
| <b>Average</b>        | 3    | 2    | 1    | --   | --   | --   | --   | 1    | --   | 1    | --   | 1    |
| <b>CES Attainment</b> | 2.93 | 1.96 | 0.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.98 | 0.00 | 0.98 | 0.00 | 0.98 |

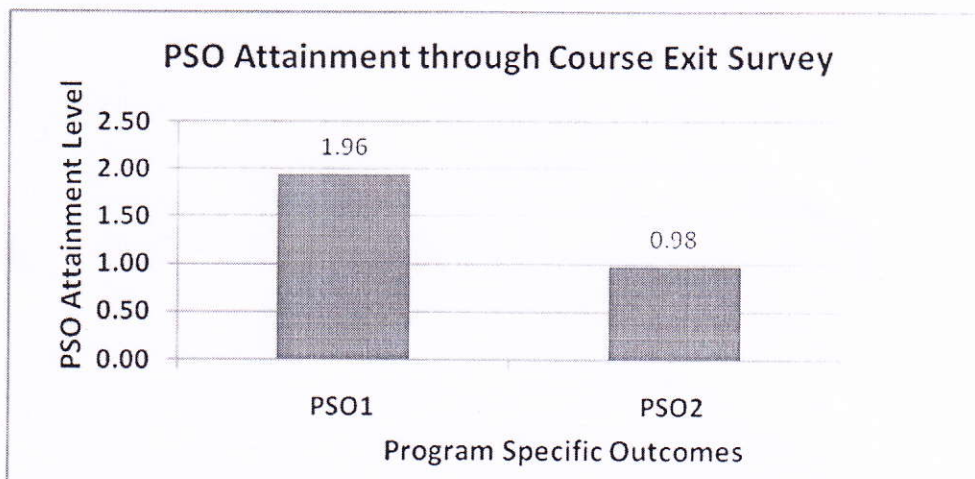
POs/PSOs attainment value for the present course = (Mapped value \* CO Attainment Value through Course Exit Survey)/3





### PSO Attainment through Course Exit Survey

| CO                    | PSO 1 | PSO 2 |
|-----------------------|-------|-------|
| C305.1                | 2     | 1     |
| C305.2                | 2     | 1     |
| C305.3                | 2     | 1     |
| C305.4                | 2     | 1     |
| C305.5                | 2     | 1     |
| <b>Average</b>        | 2     | 1     |
| <b>CES Attainment</b> | 1.96  | 0.98  |



|   |   |   |
|---|---|---|
|  |  |  |
| Name & Signature of Course Coordinator  | Name & Signature of Module Coordinator  | HOD<br>HOD  |

Electronics & Communication Engg.  
Hirasugar Institute of Technology,  
Nidasoshi-591 236



# Hirasugar Institute of Technology, Nidasoshi-591236

## Course Outcome/Program Outcome Assessment

COURSE COORDINATOR: Mrs. S. S. KAMATE  
 A.Y: 2016-17 PROGRAM: ECE  
 SEM: III DIV: C206  
 CO Code: C206

COURSE: ENGG. ELECTROMAGNETICS  
 COURSE CODE: 15EC36

### Mapping of Course Outcomes (COs) to Program Specific Outcomes (PSOs)

| COs    | PSOs  |       |
|--------|-------|-------|
|        | PSO 1 | PSO 2 |
| C206.1 | 2     | 1     |
| C206.2 | 2     | 1     |
| C206.3 | 2     | 1     |
| C206.4 | 2     | 1     |
| C206.5 | 2     | 1     |

### Mapping of Course Outcomes (COs) to Program Outcomes (POs)

| POs →<br>COs ↓ | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| C206.1         | 3   | 2   | 1   | NA  | NA  | 1   | NA  | 1   | NA  | 1    | NA   | 1    |
| C206.2         | 3   | 2   | 1   | NA  | NA  | 1   | NA  | 1   | NA  | 1    | NA   | 1    |
| C206.3         | 3   | 2   | 1   | NA  | NA  | 1   | NA  | 1   | NA  | 1    | NA   | 1    |
| C206.4         | 3   | 2   | 1   | 0   | 0   | 1   | 0   | 1   | 0   | 1    | 0    | 1    |
| C206.5         | 3   | 2   | 1   | NA  | NA  | 1   | NA  | 1   | NA  | 1    | NA   | 1    |
| Average        | 3   | 2   | 1   | 0   | 0   | 1   | 0   | 1   | 0   | 1    | 0    | 1    |

### Mapping of IA Questions to COs

| Q.No.1 OR Q.No.3 OR Q.No.4<br>C206.1 | IA Test-1        |        | IA Test-2        |        | IA Test-3        |        |
|--------------------------------------|------------------|--------|------------------|--------|------------------|--------|
|                                      | Q.No.1 OR Q.No.2 | Q.No.3 | Q.No.1 OR Q.No.2 | Q.No.3 | Q.No.1 OR Q.No.2 | Q.No.3 |
|                                      | C206.1           | C206.2 | C206.3           | C206.4 | C206.5           | C206.5 |
| 10                                   | 10               | 15     | 5                | 10     | 10               | 10     |

Target Level Set for the Attainment of Course: 1.74

#### Instructions:

- The course coordinator should manually enter correlated IA questions with mapped COs
- The course coordinator should manually enter correlated assignments with mapped COs
- Based on the previous three assessment years course coordinator/faculty has to set the target level for course attainment.
- Mapped POs must be entered manually in IA Assessment Sheet, Assignment Assessment Sheet and CO Attainment Sheet

### Mapping of Assignment Questions to COs

| ASSGN-1<br>C206.1 | ASSIGNMENTS       |                   |                   |                   |                                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------|
|                   | ASSGN-2<br>C206.2 | ASSGN-3<br>C206.3 | ASSGN-4<br>C206.4 | ASSGN-5<br>C206.5 | Maximum Marks for Each Assignment |
| 25                | 25                | 25                | 25                | 25                | 25                                |



# COURSE OUTCOME ASSESSMENT DATA ENTRY SHEET

| Sl.No | Student Name                | IA Test-1        |                  | IA Test-2   |                             |        | IA Test-3   |                  |        |           | Assignments |          |          |          |          | Semster End Exam |          |
|-------|-----------------------------|------------------|------------------|-------------|-----------------------------|--------|-------------|------------------|--------|-----------|-------------|----------|----------|----------|----------|------------------|----------|
|       |                             | Q.No.1 OR Q.No.2 | Q.No.3 OR Q.No.4 | Total Marks | Q.No.1 OR Q.No.2 and Q.No.3 | Q.No.4 | Total Marks | Q.No.1 OR Q.No.2 | Q.No.3 | OR Q.No.4 | Total Marks | Assign-1 | Assign-2 | Assign-3 | Assign-4 |                  | Assign-5 |
|       | MAX MARKS →                 | 10               | 10               | 20          | 15                          | 5      | 20          | 10               | 10     | 10        | 20          | 25       | 25       | 25       | 25       | 25               | GRADES   |
|       | COs →                       | C206.1           | C206.1           | C206.2      | C206.2                      | C206.3 | C206.3      | C206.3           | C206.3 | C206.5    | C206.5      | C206.1   | C206.2   | C206.3   | C206.4   | C206.5           | C01-COR  |
|       | USN ↓                       |                  |                  |             |                             |        |             |                  |        |           |             |          |          |          |          |                  |          |
| 1     | JYOTI BANAHATTI             | 4                | 4                | 8           | 6                           | 0      | 6           | 8                | 6      | 13        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 2     | AKSHATA B. NANDAGANVI       | 9                | 9                | 18          | 15                          |        | 15          | 15               | 15     | 30        | AB          | AB       | AB       | AB       | AB       | AB               | F        |
| 3     | AKSHATA JAMAKHANDI          | 8                | 9                | 17          | 15                          |        | 15          | 15               | 15     | 30        | AB          | AB       | AB       | AB       | AB       | AB               | F        |
| 4     | AMRUTHA S. M.               | 5                | 5                | 10          | 12                          |        | 12          | 12               | 12     | 24        | 8           | 8        | 8        | 8        | 8        | 8                | E        |
| 5     | ANURADHA KAREPPAGOL         | 10               | 5                | 15          | 15                          | 5      | 20          | 8                | 4      | 24        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 6     | ARJEVI A.PATIL              | 10               | 10               | 20          | 15                          | 4      | 19          | 7                | 5      | 26        | 5           | 5        | 5        | 5        | 5        | 5                | B        |
| 7     | ARUNA CHOUGALA              | 10               | 10               | 20          | 14                          | 3      | 17          | 10               | 10     | 27        | 10          | 10       | 10       | 10       | 10       | 10               | A        |
| 8     | BHAVANI SHIRALKAR           | 7                | 9                | 16          | 6                           | 2      | 8           | 5                | 8      | 13        | 5           | 5        | 5        | 5        | 5        | 5                | E        |
| 9     | CHAITRA ANGADI              | 10               | 8                | 18          | 4                           | 5      | 9           | 10               | 7      | 17        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 10    | GAYATRI GHARABUDE           | 7                | 10               | 17          | 15                          | 2      | 17          | 17               | 13     | 34        | 6           | 6        | 6        | 6        | 6        | 6                | C        |
| 11    | JAGADEESH MANAGANVI         | 4                | 8                | 12          | 13                          |        | 13          | 6                |        | 19        | 10          | 10       | 10       | 10       | 10       | 10               | B        |
| 12    | JAYASHRI MADANAVAR          | 10               | 9                | 19          | 12                          |        | 12          | 10               |        | 21        | 5           | 5        | 5        | 5        | 5        | 5                | B        |
| 13    | JYOTI CHOUGALA              | 6                | 10               | 16          | 10                          |        | 10          | 10               |        | 20        | 5           | 5        | 5        | 5        | 5        | 5                | B        |
| 14    | KHATKALLI MAHESHWARI        | 9                | 10               | 19          | 15                          |        | 15          | 8                |        | 24        | 8           | 8        | 8        | 8        | 8        | 8                | B        |
| 15    | KOMAL RANBHARE              | 10               | 8                | 18          | 15                          |        | 15          | 7                |        | 23        | 5           | 5        | 5        | 5        | 5        | 5                | B        |
| 16    | KUSHAL BARAGI               | 5                | 2                | 7           | 9                           | 2      | 11          | 9                |        | 20        | 1           | 1        | 1        | 1        | 1        | 1                | F        |
| 17    | LALITA AMBALAZERI           | 7                | 8                | 15          | 4                           | 5      | 10          | 6                |        | 16        | 2           | 2        | 2        | 2        | 2        | 2                | D        |
| 18    | LAXMI MANNIKERI             | 8                | 10               | 18          | 12                          |        | 12          | 7                |        | 19        | 7           | 7        | 7        | 7        | 7        | 7                | B        |
| 19    | MOHAN BASSAPURI             | 4                | 5                | 9           | 9                           |        | 9           | 10               |        | 19        | 7           | 7        | 7        | 7        | 7        | 7                | E        |
| 20    | MUSALE SHREYA RAVINDRA      | 9                | 10               | 19          | 9                           |        | 9           | 13               |        | 22        | 10          | 10       | 10       | 10       | 10       | 10               | B        |
| 21    | MUSTAKIM NIJAM PENDARI      | 7                | 5                | 12          | 6                           |        | 6           | 10               |        | 16        | 10          | 10       | 10       | 10       | 10       | 10               | D        |
| 22    | PATIL RUTUJA                | 9                | 10               | 19          | 14                          |        | 14          | 8                |        | 22        | 5           | 5        | 5        | 5        | 5        | 5                | B        |
| 23    | POOJA PATIL                 | 10               | 10               | 20          | 14                          |        | 14          | 14               |        | 28        | 14          | 14       | 14       | 14       | 14       | 14               | B        |
| 24    | PRAVEEN POTARADDI           | 3                | 1                | 4           | 3                           | 7      | 10          | 13               |        | 26        | 13          | 13       | 13       | 13       | 13       | 13               | E        |
| 25    | RAGHAVENDRA MUSHANAGOL      | 5                | 5                | 10          | 4                           | 5      | 9           | 5                |        | 14        | 5           | 5        | 5        | 5        | 5        | 5                | D        |
| 26    | RAMESH HUDDAR               | 5                | 5                | 10          | 5                           | 2.5    | 7.5         | 10               |        | 17.5      | 6           | 6        | 6        | 6        | 6        | 6                | B        |
| 27    | REKHA DHARMATTI             | 10               | 10               | 20          | 12                          |        | 12          | 10               |        | 22        | 10          | 10       | 10       | 10       | 10       | 10               | A        |
| 28    | SAMMED HULIKOPPE            | 4                | 1                | 5           | 11                          |        | 11          | 10               |        | 21        | 5           | 5        | 5        | 5        | 5        | 5                | A        |
| 29    | SANIYA RAFIK JAGDAL         | 8                | 10               | 18          | 8                           | 0      | 8           | 8                |        | 16        | 8           | 8        | 8        | 8        | 8        | 8                | D        |
| 30    | SAVITA DASANGALI            | 10               | 10               | 20          | 12                          | 0      | 12          | 12               |        | 24        | 12          | 12       | 12       | 12       | 12       | 12               | C        |
| 31    | SHIVAKUMAR PUJARI           | 3                | 2                | 5           | 6                           |        | 6           | 6                |        | 12        | 6           | 6        | 6        | 6        | 6        | 6                | C        |
| 32    | SHIVANGI S SINGH            | 8                | 10               | 18          | 12                          | 5      | 17          | 17               |        | 34        | 17          | 17       | 17       | 17       | 17       | 17               | F        |
| 33    | SHRADDHA KATTI              | 5                | 7                | 12          | 5                           |        | 5           | 10               |        | 15        | 10          | 10       | 10       | 10       | 10       | 10               | D        |
| 34    | SHWETA NAIK                 | 5                | 9                | 14          | 10                          |        | 10          | 5                |        | 15        | 10          | 10       | 10       | 10       | 10       | 10               | E        |
| 35    | SHWETA SPARULEKAR           | 8                | 9                | 17          | 8                           | 3      | 11          | 11               |        | 22        | 11          | 11       | 11       | 11       | 11       | 11               | E        |
| 36    | SNEHA M MAGADUM             | 7                | 7                | 14          | 12                          |        | 12          | 12               |        | 24        | 12          | 12       | 12       | 12       | 12       | 12               | F        |
| 37    | SULOCHANA B BELAVI          | 10               | 10               | 20          | 15                          |        | 15          | 15               |        | 30        | 15          | 15       | 15       | 15       | 15       | 15               | E        |
| 38    | SUVARNA SANGAVE             | 10               | 10               | 20          | 10                          |        | 10          | 10               |        | 20        | 10          | 10       | 10       | 10       | 10       | 10               | B        |
| 39    | SWATI RAJU BOGALKAR         | 4                | 2                | 6           | 6                           | 5      | 11          | 10               |        | 21        | 10          | 10       | 10       | 10       | 10       | 10               | B        |
| 40    | TEJASWINI DIGGEWADI         | 10               | 10               | 20          | 13                          |        | 13          | 10               |        | 23        | 10          | 10       | 10       | 10       | 10       | 10               | E        |
| 41    | UDGERI S SHIVAPPA           | 10               | 10               | 20          | 15                          |        | 15          | 7                |        | 22        | 7           | 7        | 7        | 7        | 7        | 7                | A        |
| 42    | VINOD JADHAV                | 10               | 10               | 20          | 14                          |        | 14          | 8                |        | 22        | 8           | 8        | 8        | 8        | 8        | 8                | S        |
| 43    | SOURABH LOHAR SURESH        | 4                | 5                | 9           | 9                           |        | 9           | 10               |        | 19        | 10          | 10       | 10       | 10       | 10       | 10               | C        |
| 44    | ANUJA T MANE                | 3                | 2                | 5           | 4                           | 0      | 4           | 10               |        | 14        | 10          | 10       | 10       | 10       | 10       | 10               | F        |
| 45    | BAI ESHI NANDER             | 5                | 8                | 13          | 3                           |        | 3           | 6                |        | 9         | 3           | 3        | 3        | 3        | 3        | 3                | F        |
| 46    | CHANDRAKALA BASAPPA TELI    | 5                | 5                | 10          | 4                           |        | 4           | 10               |        | 14        | 5           | 5        | 5        | 5        | 5        | 5                | C        |
| 47    | DEEPAK D KARNE              | 0                | 0                | 0           | 2                           |        | 2           | 10               |        | 12        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 48    | KAVITA SUBBANNAVAR          | 0                | 0                | 0           | 0                           |        | 0           | 4                |        | 4         | 10          | 10       | 10       | 10       | 10       | 10               | F        |
| 49    | LINGANAGUDA PATIL           | 3                | 3                | 6           | 4                           | 3      | 7           | 8                |        | 15        | 8           | 8        | 8        | 8        | 8        | 8                | F        |
| 50    | MANJUNATH ALAGUNDI          | 5                | 6                | 11          | 5                           | 4      | 9           | 10               |        | 19        | 10          | 10       | 10       | 10       | 10       | 10               | E        |
| 51    | PADMAJA BHUPAL SHETTI       | 3                | 3                | 6           | 7                           | 3      | 10          | 10               |        | 16        | 10          | 10       | 10       | 10       | 10       | 10               | E        |
| 52    | PRIYANKA MAGADUM            | 5                | 4                | 9           | 10                          | 5      | 15          | 10               |        | 25        | 10          | 10       | 10       | 10       | 10       | 10               | D        |
| 53    | PRIYANKA PATIL              | 2                | 5                | 7           | 4                           | 2      | 6           | 8                |        | 14        | 6           | 6        | 6        | 6        | 6        | 6                | C        |
| 54    | RANI JOGUR                  | AB               | AB               | AB          | 4                           | 2      | 6           | 6                |        | 12        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 55    | REVA ANASIDDAPPYA MATHAPATI | 3                | 1                | 4           | 5                           |        | 5           | 10               |        | 15        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 56    | SABA SANADI                 | AB               | AB               | AB          | 4                           |        | 4           | 10               |        | 14        | 5           | 5        | 5        | 5        | 5        | 5                | F        |
| 57    | SANGAMESH KODEKALMATHI      | 4                | 3                | 7           | 6                           | 3      | 6           | 7                |        | 17        | 7           | 7        | 7        | 7        | 7        | 7                | F        |



| 58                                   | SANKALP G.PATIL         |       |       |   |       |       |       |       |    |       |       |       |      |      |      |      |      |      |      |      |      |      |
|--------------------------------------|-------------------------|-------|-------|---|-------|-------|-------|-------|----|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 59                                   | SANTOSH SHEDABAL        | 3     | 2     | 2 | 3     | 2     | 3     | 3     | 5  | 6     | 10    | 8     | 18   | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | F    |
| 60                                   | SHITAL KHEMANNAVAR      | 1     | 1     | 6 | 3     | 3     | 3     | 5     | 5  | 7     | 10    | 10    | 13   | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | F    |
| 61                                   | SUPREYA BHIMAPPA HUDDAR | 5     | 1     | 6 | 4     | 4     | 6     | 4     | 16 | 8     | 8     | 5     | 8    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | F    |
| 62                                   | VARADA PRAKASH JOSHI    | 4     | 4     | 9 | 10    | 10    | 6     | 6     | 9  | 4     | 4     | 7     | 11   | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | E    |
| 63                                   | VEENA BAMANALE          | 1     | 1     | 2 | 5     | 4     | 4     | 4     | 8  | 10    | 9     | 9     | 19   | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | E    |
| 64                                   | VISHAL HIREMATH         | 2     | 2     | 4 | 5     | 3     | 3     | 3     | 5  | 10    | 7     | 7     | 17   | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | F    |
| 65                                   | VRUSHALI MALI           | 1     | 1     | 1 | 5     | 5     | 5     | 5     | 5  | 10    | 7     | 7     | 17   | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | F    |
| ***                                  | END OF RECORDS***       |       |       |   |       |       |       |       |    |       |       |       |      |      |      |      |      |      |      |      |      |      |
| Apeared                              |                         | 62    | 59    |   | 65    | 30    | 30    | 0     |    | 54    | 49    | 4     | 65   | 65   | 65   | 65   | 65   | 65   | 65   | 65   | 65   | 65   |
| Absent                               |                         | 2     | 2     |   | 0     | 0     | 0     | 0     |    | 11    | 11    | 11    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reached                              |                         | 29    | 32    |   | 32    | 19    | 19    | 32    |    | 50    | 29    | 1     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 16   |
| Attainment level of CO in Percentage |                         | 46.77 | 54.24 |   | 49.23 | 63.33 | 63.33 | 49.23 |    | 92.59 | 38.67 | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6    |
| Attainment level of CO               |                         | 0     | 1     |   | 0     | 2     | 2     | 0     |    | 3     |       | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 18   |
|                                      |                         |       |       |   |       |       |       |       |    |       |       |       |      |      |      |      |      |      |      |      |      | 0.62 |

### Attainment Level set for IA Tests

Attainment Level 1: Students scoring more than 60% of maximum marks allotted to each question.

### Attainment Level set for Semester End Examination(SEE)

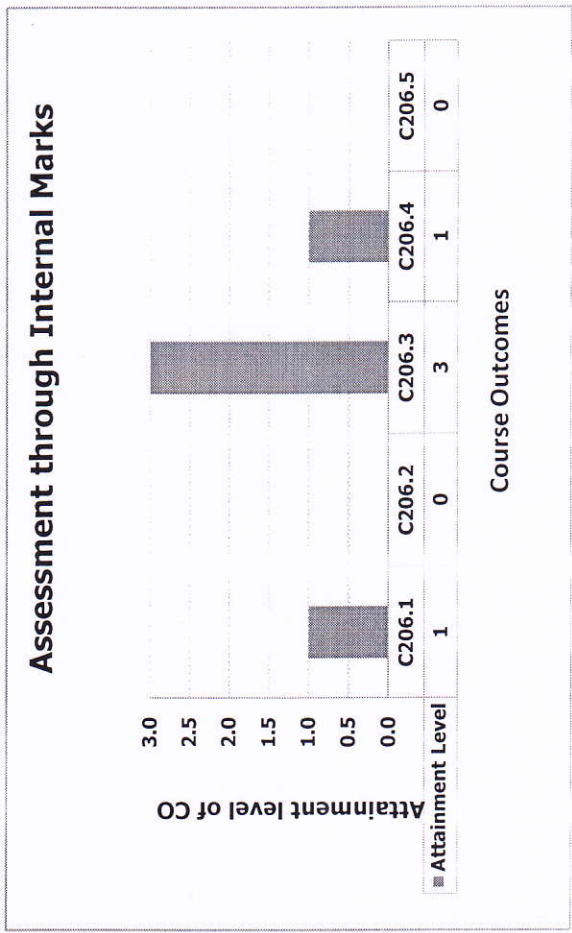
- Attainment Level 1: students scoring more than 70% marks
- Attainment Level 2: students scoring more than or equal to 60% to less than 70% Marks
- Attainment Level 3: students scoring more than or equal to 50% to less than 35% Marks

Assessment through Internal Marks

Calculate

A: Appeared R: Reached Low = I (50-59 %) Medium = 2 (60-69 %) High = 3 (>=70 %)

| COs    | IA Test-1        |    |                  |    |                  |    | IA Test-2        |    |                  |    |                  |    | IA Test-3        |   |                  |   |  |   | Attainment level of CO   | Mapped PO | Mapped PSO |
|--------|------------------|----|------------------|----|------------------|----|------------------|----|------------------|----|------------------|----|------------------|---|------------------|---|--|---|--------------------------|-----------|------------|
|        | Q.No.1 OR Q.No.2 |    | Q.No.3 OR Q.No.4 |    | Q.No.1 OR Q.No.2 |    | Q.No.3 OR Q.No.4 |    | Q.No.1 OR Q.No.2 |    | Q.No.3 OR Q.No.4 |    | Q.No.1 OR Q.No.2 |   | Q.No.3 OR Q.No.4 |   |  |   |                          |           |            |
|        | A                | R  | A                | R  | A                | R  | A                | R  | A                | R  | A                | R  | A                | R | A                | R |  |   |                          |           |            |
| C206.1 | 62               | 29 | 59               | 32 |                  |    |                  |    |                  |    |                  |    |                  |   |                  |   |  | 1 | PO1 -PO3, PO8,PO10, PO12 | 1,2       |            |
| C206.2 |                  |    |                  |    | 65               | 32 |                  |    |                  |    |                  |    |                  |   |                  |   |  | 0 | PO1 -PO3, PO8,PO10, PO12 | 1,2       |            |
| C206.3 |                  |    |                  |    |                  |    | 30               | 19 | 54               | 50 |                  |    |                  |   |                  |   |  | 3 | PO1 -PO3, PO8,PO10, PO12 | 1,2       |            |
| C206.4 |                  |    |                  |    |                  |    |                  |    |                  |    |                  | 49 | 29               |   |                  |   |  | 1 | PO1 -PO3, PO8,PO10, PO12 | 1,2       |            |
| C206.5 |                  |    |                  |    |                  |    |                  |    |                  |    |                  | 4  | 1                |   |                  |   |  | 0 | PO1 -PO3, PO8,PO10, PO12 | 1,2       |            |

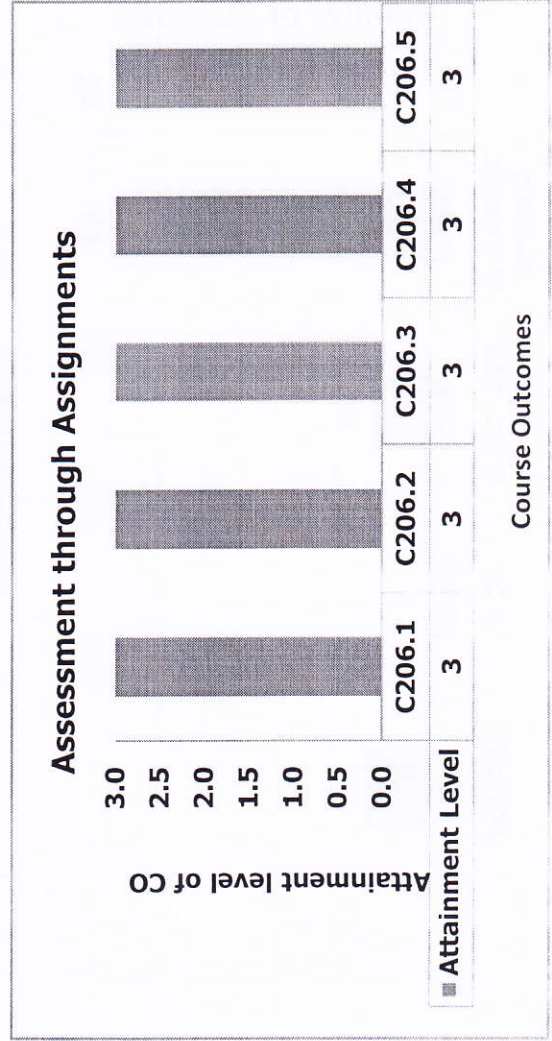




### Assessment through Assignment

A: Appeared R: Reached Low =1 (50-60 %) Medium =2 (61-70 %) High =3 (above 70 %)

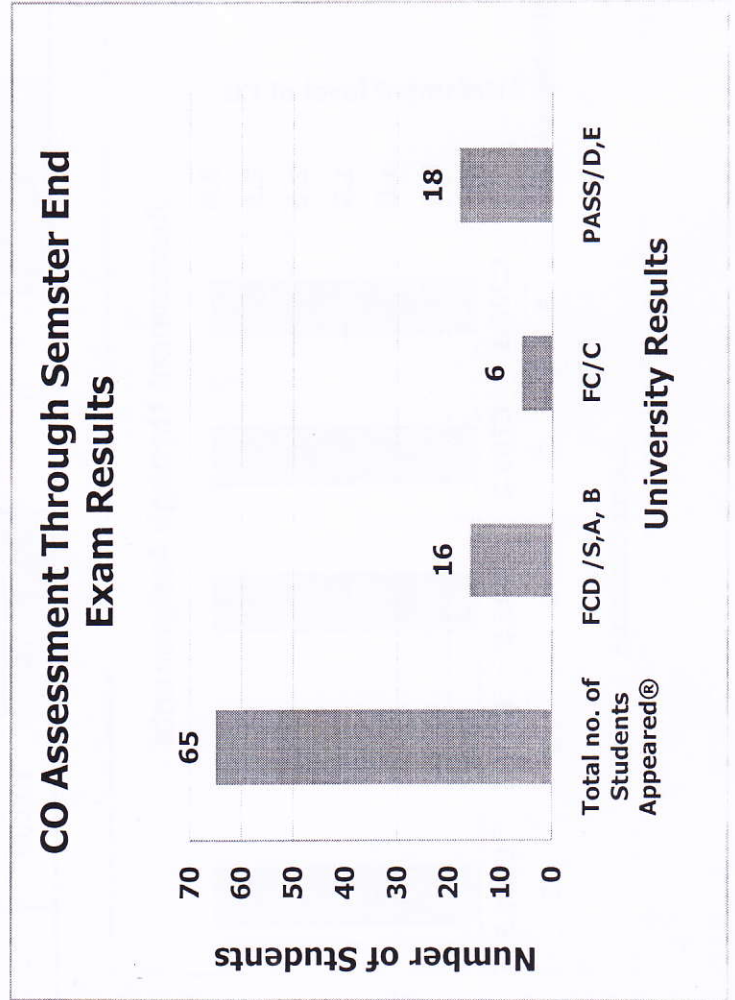
| COs    | Assignment-1 |    | Assignment-2 |    | Assignment-3 |    | Assignment-4 |    | Assignment-5 |    | Attainment level of CO in Percentage | Mapped PO                | Mapped PSO |
|--------|--------------|----|--------------|----|--------------|----|--------------|----|--------------|----|--------------------------------------|--------------------------|------------|
|        | A            | R  | A            | R  | A            | R  | A            | R  | A            | R  |                                      |                          |            |
| C206.1 | 65           | 65 |              |    |              |    |              |    |              |    | 100.00                               | PO1 -PO3, PO8,PO10, PO12 | 1,2        |
| C206.2 |              |    | 65           | 65 |              |    |              |    |              |    | 100.00                               | PO1 -PO3, PO8,PO10, PO12 | 1,2        |
| C206.3 |              |    |              |    | 65           | 65 |              |    |              |    | 100.00                               | PO1 -PO3, PO8,PO10, PO12 | 1,2        |
| C206.4 |              |    |              |    |              |    | 65           | 65 |              |    | 100.00                               | PO1 -PO3, PO8,PO10, PO12 | 1,2        |
| C206.5 |              |    |              |    |              |    |              |    | 65           | 65 | 100.00                               | PO1 -PO3, PO8,PO10, PO12 | 1,2        |



## Semester End Assessment Based on Semester End Exam Results

(COs Attainment Levels for: FCD (S,A,B) = 3, FC (C) = 2, SC(D,E) = 1 and Fail = 0)

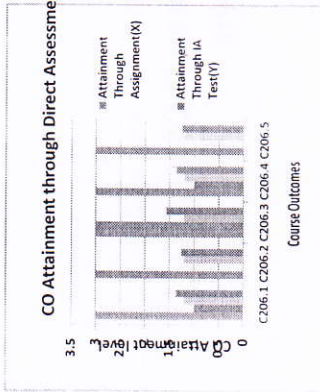
| Total no. of Students Appeared → | 65                       |  |
|----------------------------------|--------------------------|--|
| Class/Grade ↓                    | Total Number of Students | Course (COs) Attainment Through Semester End Exams |
| FCD /S,A, B                      | 16                       | 48   |
| FC/C                             | 6                        | 12   |
| PASS/D,E                         | 18                       | 18   |
| Total Percentage of Passing      | 61.54%                   |  |
|                                  | 1.20                     |  |



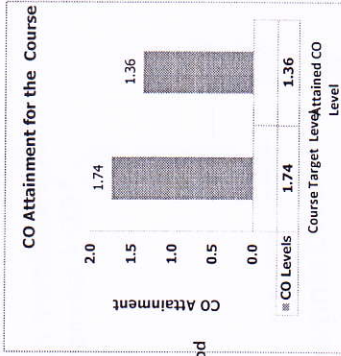


**CO Attainment Through Direct Assessment Method**

| COs    | Attainment Through Assignment(X) | Attainment Through IA Test(Y) | Attainment Through Semester End Exam(Z) | Attainment level of CO | 0.2(X+Y)/2]+0.8Z       | Mapped POs | Mappe d PSOs |
|--------|----------------------------------|-------------------------------|---|------------------------|------------------------|------------|--------------|
| C206.1 | 3                                | 1                             | 1.20                                    | 1.36                   | PO1-PO3,PO8, PO10,PO12 | 1,2        | 1,2          |
| C206.2 | 3                                | 0                             | 1.20                                    | 1.26                   | PO1-PO3,PO8, PO10,PO12 | 1,2        | 1,2          |
| C206.3 | 3                                | 3                             | 1.20                                    | 1.56                   | PO1-PO3,PO8, PO10,PO12 | 1,2        | 1,2          |
| C206.4 | 3                                | 1                             | 1.20                                    | 1.36                   | PO1-PO3,PO8, PO10,PO12 | 1,2        | 1,2          |
| C206.5 | 3                                | 0                             | 1.20                                    | 1.26                   | PO1-PO3,PO8, PO10,PO12 | 1,2        | 1,2          |



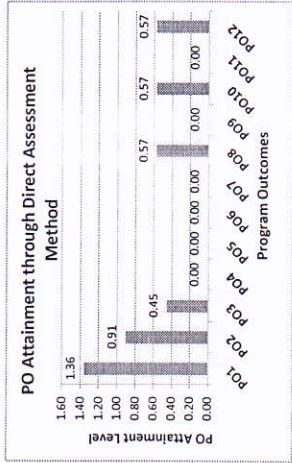
| CO Attainment for the Course |      |
|------------------------------|------|
| Target CO Level              | 1.74 |
| Attained CO Level            | 1.36 |



**PO Attainment through Direct Assessment Method**

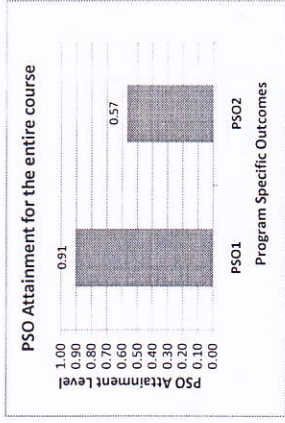
| CO/PO | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| C206  | 1.36 | 0.91 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.00 | 0.57 | 0.00 | 0.57 |

POs attainment value for the present course = (Mapped value \* CO attainment average)/3



**PSO Attainment for the entire course**

| CO   | PSO1 | PSO2 |
|------|------|------|
| C206 | 0.91 | 0.57 |



### PO/PSO Attainment through Course Exit Survey

|                             |       |       |
|-----------------------------|-------|-------|
| CO Attainment Value through | 97.76 | 2.933 |
|-----------------------------|-------|-------|

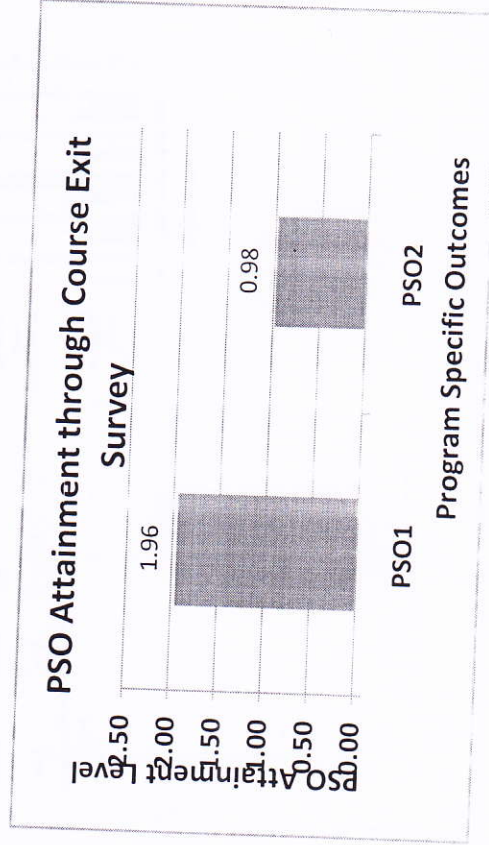
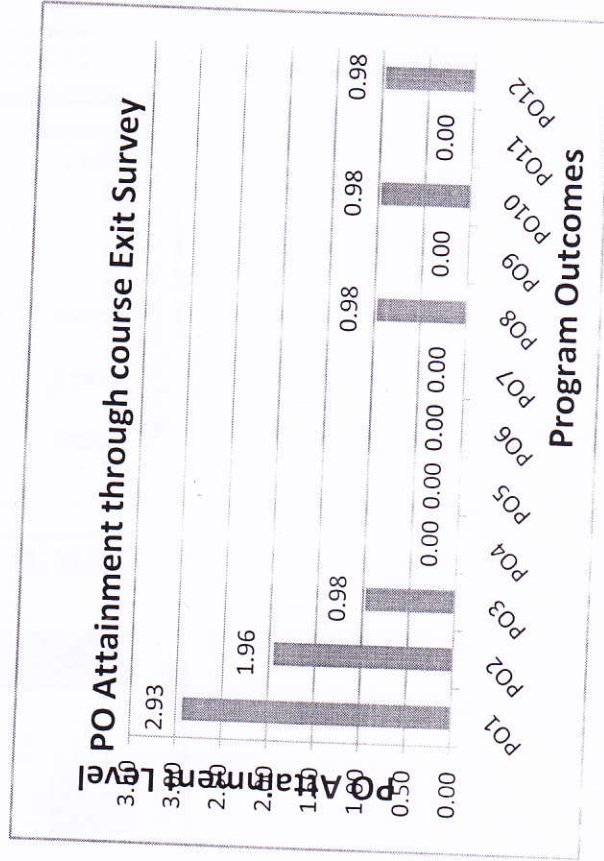
| CO/PO | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| C206  | 2.93 | 1.96 | 0.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.98 | 0.00 | 0.98 | 0.00 | 0.98 |

POs attainment value for the present course = (Mapped value \* CO

### PSO Attainment through Course Exit Survey

| CO/PSO | PSO1 | PSO2 |
|--------|------|------|
| C206   | 1.96 | 0.98 |

PSOs attainment value for the present course = (Mapped value  
\* CO Attainment Value through Course Exit Survey)/3



*[Signature]*  
HOD