

### Course Syllabus

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| <b>Course Code and Name</b>               | <b>EE 26222 – Electric Circuits-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Credit and contact hours</b>           | <b>3 (2, 1, 1) (Lecture, Tutorial, Lab)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Required or Elective</b>               | <b>Required</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Level / Year</b>                       | <b>Level (4) / Year (2)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Course Prerequisite</b>                | <b>PHYS26211 Advanced Physics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Textbook</b>                           | J. Nilsson and S. Riedel, Electric Circuits, Prentice Hall, 2018.                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Course Description</b>                 | This course covers the following topics: Basic concepts and circuit elements -Ohm's law -Kirchhoff's laws (KCL and KVL) -Resistors in series and parallel, voltage and current divisions -Node voltage analysis -Mesh current analysis- Thevenin and Norton equivalent -Maximum power transfer – source transformation – superposition -Capacitors and inductors- Complex numbers -Sinusoids and phasors -Steady state AC circuit analysis -AC power analysis and PF correction. |
| <b>Brief List of Topics to be Covered</b> | <ol style="list-style-type: none"><li>1- Basic concepts and circuit elements</li><li>2- Ohm's law -Kirchhoff's laws</li><li>3- Resistors in series and parallel, voltage and current divisions</li><li>4- Circuit analysis Theorem's</li><li>5- Capacitors and inductors</li><li>6- Sinusoids Steady state circuit analysis</li><li>7- AC power analysis and PF correction</li></ol>                                                                                             |
| <b>Course is prerequisite for</b>         | <ul style="list-style-type: none"><li>• EE26323 Electric Circuits (2)</li><li>• EE26341 Signal Analysis and Systems</li><li>• EE26333 Analog and Digital Electronic Circuits</li></ul>                                                                                                                                                                                                                                                                                           |