

## PHYS-308 Lecture Schedule

### Analog Electronics

| Topics                                                                                                                                                                                                                                  | Week     |
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| <b>Diodes</b><br>Physics and Working Principle. Diode Circuits.                                                                                                                                                                         | <b>1</b> |
| <b>Diodes and Applications</b><br>Rectification. Regulation. Clamping. Clipping.<br>Power Supply Design.                                                                                                                                | <b>2</b> |
| <b>Transistors</b><br>Physics and Working Principle. Transistor<br>Characteristics and Circuits. Transistor Biasing and<br>Stability.                                                                                                   | <b>3</b> |
| <b>Transistors and Applications</b><br>Transistor Amplifiers. Frequency Response. Transfer<br>Function. Input and output Impedances. Transistor<br>Switching.                                                                           | <b>4</b> |
| <b>Feedback</b><br>Series-Parallel Feedback. Effect of Feedback on Input<br>and Output Impedances. Frequency Response. Gain-<br>Bandwidth Product. Stability.                                                                           | <b>5</b> |
| <b>Operational Amplifiers</b><br>Working Principle. Feedback and Operational<br>Amplifiers. Gain and Bandwidth. Input and Output<br>Impedances. Basic Operational Amplifier Circuits.<br>Operational Amplifiers Types and Applications. | <b>6</b> |
| <b>Oscillators</b><br>Sinusoidal Oscillators. Phase-Shift Oscillator. Wien-<br>Bridge Oscillator. Colpitts and Hartley Oscillators.<br>Crystal Oscillators. Function Generator.                                                         | <b>7</b> |

### Digital Electronics

| Topics                                                                                                | Week      |
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| <b>Digital Logic</b><br>Binary Numbers. Binary Arithmetic. Digital Logic<br>Circuits. Boolean Algebra | <b>8</b>  |
| <b>Logic Design</b><br>Combinational Logic. MSI and LSI Design.<br>Sequential Logic                   | <b>9</b>  |
| <b>Digital Devices</b><br>Counters. Registers. Memories. Digital Information<br>Processing            | <b>10</b> |
| <b>Programmable Logic Devices</b><br>Hardware. Software                                               | <b>11</b> |
| <b>Logic Interfacing</b>                                                                              | <b>12</b> |
| <b>Digital meets Analog</b>                                                                           | <b>13</b> |
| <b>Computers, Controllers and Data Links</b>                                                          | <b>14</b> |
| <b>Microcontrollers</b>                                                                               | <b>15</b> |