

ECE 2040  
 Course Outline  
 Spring Semester 2000

| No. | Date | Topic   | Notes                  | Text                          |
|-----|------|---|------------------------|-------------------------------|
| 1   | 1/7  | Introduction; Voltages and currents; Ideal resistors, inductors, and capacitors       | 1.1, 1.2<br>1.3,       | 1.1, 1.2,<br>2.1,<br>5.1, 5.2 |
| 2   | 1/10 | Independent sources; Kirchoff's current law   | 1.3, 1.4.1             | 2.2                           |
| 3   | 1/12 | Kirchoff's voltage law; solution methodology; elements in series and parallel         | 1.4.2, 1.4.3           | 2.3, 2.4                      |
| 4   | 1/14 | Finding equilibrium solutions; dependent sources; examples                            | 1.5                    | 2.7                           |
|     | 1/17 | Holiday (no class)  |                        |                               |
| 5   | 1/19 | Using Matlab to solve linear equations  | Appendix A             |                               |
| 6   | 1/21 | Basic networks, writing sufficient KCL and KVL equations; including dependent sources | 2.1.1, 2.1.2<br>2.1.3  |                               |
| 7   | 1/24 | Sufficient sets of equations; source superposition                                    | 2.1.4, 2.1.5           | 4.1, 4.2                      |
| 8   | 1/26 | Node method   | 2.2                    | 3.1                           |
|     | 1/28 | School closed (no class)  |                        |                               |
| 9   | 1/31 | Mesh method   | 2.3                    | 3.2                           |
|     | 2/2  | Quiz #1 (Lectures 1—7)  |                        |                               |
| 10  | 2/4  | Two-terminal networks; determining v-i relations                                      | 3.1                    |                               |
| 11  | 2/7  | Resistors in series and parallel  | 3.2.1, 3.2.2           | 2.5                           |
| 12  | 2/9  | Thevenin and Norton equivalents   | 3.2.3, 3.2.4,<br>3.2.5 | 4.4                           |
| 13  | 2/11 | Source substitution; operational amplifiers   | 4.1, 4.2               | 3.3                           |

|       |      |  |              |                    |
|-------|------|--|--------------|--------------------|
| 14    | 2/14 | Examples of operational amplifiers                                       | 4.3          | 3.3                |
| 15    | 2/16 | Summing amplifiers; Intro to Laplace transforms                          | 5.3, 5.4     | 13.1, 13.3<br>13.4 |
| 16    | 2/18 | Computing inverse Laplace transforms; partial fraction expansions        | 5.5.1        | 13.5               |
| <hr/> |      |  |              |                    |
| 17    | 2/21 | Inverse Laplace transforms with singularity functions and repeated roots | 5.5.2, 5.5.3 | 13.2               |
| 18    | 2/23 | KCL, KVL and element relations in the Laplace domain                     | 6.1          | 14.1, 14.2<br>14.3 |
|       | 2/25 | Quiz # 2 (Lectures 8—15)   |              |                    |
| <hr/> |      |  |              |                    |