**Detailed Syllabii**

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| **Subject Code** | 15B11EC211 | **Semester(specify Odd/Even)** | **Semester** Even **Session** 2016-2017  **Month from** January **to** June |
| **Subject Name** | Electrical Science -2 | | |
| **Credits** | 4 | **Contact Hours** | 4 |

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| **Faculty (Names)** | **Coordinator(s)** | 1. Dr. Madhu Jain |
| **Teacher(s) (Alphabetically)** | 1. Ms. Shruti Sabharwal 2. Ms. Bhawna Gupta 4. Ms. Monika 5. Mr. Atul Srivastava 6. Mr. Mandeep Narula 7. Mr. Kirmender 8 Ms. Shradha Saxena /Ms. Jasmine 9. Ms. Parul Puri / Garima Kapur 10. Mr. K P Pradhan 11. Mr. Dharmendra Jhariya |

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| **Module No.** | **Subtitle of the Module** | **Topics** | **No. of Lectures** |
| 1. | Transient Analysis | First order network analysis, sequential switching, Differential equation approach for DC and Non constant source, second order network analysis using differential equation approach for DC and non-constant source. | 8 |
| 2. | Operational Amplifiers | Introduction to Operational Amplifiers, Basic Concepts and their Applications like Comparators, Inverting and Non-inverting Amplifier, Subtractor, Adder, Integrator and Differentiator circuits. | 6 |
| 3. | Basics of digital electronics | Introduction to Boolean algebra, logic circuits and logic gates, multiplexers and decoders. Introduction to Flip-flops. | 10 |
| 4. | Introduction of Signals and Systems | Basic overview of Signals and Systems, Signal types and their representation- Time Domain, Frequency Domain. | 4 |
| 5. | Introduction of Communications | Basics of digital communication and analogue communication. | 3 |
| 6. | Machines | Introduction to dc motors and dc generators, three phase and single phase induction motors. | 3 |
| 7. | Single Phase Transformer | Principle of operation, construction, e.m.f. equation, equivalent circuit, power losses, efficiency (simple numerical problems), introduction to auto transformer. | 4 |
| 8. | Analogous Electrical and Mechanical Systems | Analogy between mechanical and electrical quantities: Analogous quantities, Analogous equations. Conversion between systems: electrical to mechanical and mechanical to electrical systems. | 3 |
| **Total number of Lectures** | | | 41 |

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| **Recommended Reading** (Books/Journals/Reports/Websites etc.: Author(s), Title, Edition, Publisher, Year of Publication etc. in IEEE format) | |
| 1. | Dorf, R.C. and Svoboda, J.A., 2010. *Introduction to electric circuits*. John Wiley & Sons. |
| 2. | Mano, M.M., 2002. *Digital design*. Pearson Education Asia. |
| 3. | Oppenheim, A.V., Willsky, A.S. and Nawab, S.H., 1983. *Signals and systems*. Prentice-Hall. |