**MAHINDRA ECOLE CENTRAL**

**EE101 ELECTRICAL ENGINEERING**

**FIRST SEMESTER 2014-2015**

Instructor: Dr. K. R. Sarma

Tutors: Dr. Vipin Kizpheppatt. Dr. Ravi Bollina, Dr. Kondiah P

Lectures: Tuesday 10:30-11:30 Section B Room L1;12:30-13:30Section A Room L1

Friday 10:30-11:30 Section A Room L2;12:30-13:30Section B Room L2

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| **LEC** | **DATE** | **DAY** | **TOPIC** |
| 1 | 05AUG2014 | T | Introduction |
| 2 | 08AUG2014 | F | Lumped models of Electric network elements R L C and M, Kirchoff’s laws |
| 3 | 12AUG2014 | T | Sources and their characteristics, network analysis using KCL , KVL and v-I relationships in differential form |
| 4 | 19AUG2014 | T | Concept of Steady state and transient response, Sinusoidal excitations, why sinusoid, response to sinusoids, frequency dependence |
| 5 | 22AUG2014 | F | Power and energy relations of network elements in time domain for sinusoidal excitations, average power and average stored energies |
| 6 | 26AUG2014 | T | Complex representation of sinusoids, phasors, network analysis in terms of phasors, impedance concept, power relations in terms of phasors, complex power- real and reactive power. Passivity, generalization to complex exponential excitations s plane |
| 7 | 02SEP2014 | T | Network Theorems-linearity and superposition, Thevenin, Norton, Tellegen |
| 8 | 05SEP2014 | F | Tellegen’s theorem continued |
| FIRST MID SEM EXAM 8-10 SEP 2014 | | | |
| 9 | 12SEP2014 | F | Analysis of purely resistive networks under DC and sinusoidal excitations. Application of Thevinin Theorem, star- delta transformation Power relations, |
| 10 | 16SEP2014 | T | Analysis of simple two element kind networks containing RC, RL, Series and parallel connection of RC transient and steady state response Initial conditions and final conditions, time constants, frequency response, derivative and integrating networks using R and C |
| 11 | 19SEP2014 | F | Series and parallel connection of R and L , Transient and steady state response, time constant, initial and final conditions, frequency response, derivative and integrating networks using R and L |
| 12 | 23SEP2014 | T | Series and parallel R. L. C , Resonance, Q and bandwidth, effect of R on Q and bandwidth, Ideal tuned circuits, oscillation |
| 13 | 26SEP2014 | F | One port and two port networks, Tellegen’s theorem revisited, Impedance in terms average power and average stored energies, lossless networks, |
| 14 | 30SEP2014 | T | Two port parameters, Reciprocity |
| 15 | 07OCT2014 | T | Purely inductive circuits, self and mutual inductance, ideal transformer, practical transformer, two port representation, , |
| 16 | 10OCT2014 | F | simplified design and construction ,effect of magnetic core, losses in transformer, transformer testing |
| 17 | 14OCT2014 | T | Single phase and multiphase systems, why multiphase, star delta connection, balanced and unbalanced three phase systems |
| 18 | 17OCT2014 | F | continued |
| SECOND MID SEM EXAM 20-22 OCT 2014 | | | |
| 19 | 24OCT2014 | F | Power transmission and distribution |
| 20 | 28OCT2014 | T | Fundamentals of electromechanical energy conversion |
| 21 | 31OCT2014 | F | Fundamentals of electromechanical energy conversion contd |
| 22 | 07NOV2014 | F | DC Machines |
| 23 | 11NOV2014 | T | DC Machines contd |
| 24 | 14NOV2014 | F | AC Machines |
| 25 | 18NOV2014 | T | contd |
| 26 | 21NOV2014 | F | contd |
| 27 | 25NOV2014 | T | Control systems |
| 28 | 28NOV2014 | F | contd |
| END SEM EXAM 1-5 DEC 2014 | | | |

SUGGESTED BOOKS:

Fitzgerald, Higginbotham, Grabel: Basic Electrical Engineering Tata McGraw Hill 2009

Ralph Smith, Richard Dorf : Circuits, Devices and Systems Wiley (Student) 2007