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| **Lectures Number** | **Content** | **Reference** | **Signature** |
|   | **UNIT-I****Principles of Electro-mechanical Energy Conversion** |  |  |
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| 2 | Review of magnetic system | 1 |  |
| 3 | Energy in Magnetic system | 1 |  |
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| 5 | Energy balance equation  | 1 |  |
| 6 | Energy conversion via electrical field | 1 |  |
| 7 | Energy in a singly excited system | 1 |  |
| 8 | Determination of the Force and Torque from energy and co-energy | 1 |  |
| 9 | Generation of EMF in Machines | 1 |  |
| 10 | Torque in machine with cylindrical air gap | 1 |  |
|  | **UNIT-II****DC Machines** |  |  |
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| 13 | Armature winding (Concentrated and Distributed) | 1 |  |
| 14 | Winding Factor of dc machine | 1 |  |
| 15 | Armature reaction in dc machine | 1 |  |
| 16 | Commutation in dc machine | 1 |  |
| 17 | Interpoles and compensating windings | 1 |  |
| 18 | Performance characteristics of DC generator | 1 |  |
| 19 | Performance characteristics of DC generator | 1 |  |
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|  | **UNIT-III****DC Machines (Contd.)** |  |  |
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| 22 | Performance characteristics of DC motor | 1 |  |
| 23 | Starting of DC motor | 1 |  |
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| 29 | Voltage control (Ward Leonard method) | 1 |  |
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| 31 | Hopkinson's Test | 1 |  |
| 32 | Swinburne's Test, application | 1 |  |
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|  | **UNIT-IV****Single Phase Transformer** |  |  |
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| 37 | Efficiency and voltage regulation | 1 |  |
| 38 | Efficiency and voltage regulation | 1 |  |
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| 40 | Excitation phenomenon and harmonics in transformers | 1 |  |
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| 44 | Single phase autotransformer | 1 |  |
| 45 | Three phase autotransformer | 1 |  |
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|  | **UNIT-V****Three Phase Transformers** |  |  |
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| 51 | Phasor groups and their connections | 1 |  |
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| 53 | Three phase to 2 phase and their applications | 1 |  |
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| 56 | Parallel operation of three phase transformer | 1 |  |
| 57 | load sharing | 1 |  |
|  |  | 1 |  |
|  |  | 1 |  |

**Reference**- 1- Ashfaq Husain, “ Electric machines”.

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