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| **PROGRAM** | **Master of Business Administration** |
| **SEMESTER** | **IV** |
| **COURSE TITLE** | **Energy Business Management** |
| **COURSE CODE** | **04MB0443** |
| **COURSE CREDITS** | **3** |
| **COURSE DURATION** | **42 Hrs** |

**COURSE OUTCOMES:**

* Awareness and assessment of the importance of energy and its conservation, various energy sources and their significance.
* Understanding the energy storage and distribution and the conversion processes.
* Gaining knowledge on the impact of energy on society, need for sustainable energy, global and Indian energy policies.
* Identification and analysis of various techniques of energy management and conservation.
* Obtaining basic skills of energy accounting and conducting an energy audit.

**COURSE CONTENTS:**

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| Unit No | Unit / Sub Unit | Sessions |
| I | Energy General Principles  Energy resources - Energy uses patterns and scope of conversion Energy conversion processes and devices – Energy conversion plants –Conventional - Thermal, Hydro, Nuclear fission , and Non-conventional – Solar, Wind Biomass, Fuel cells, Magneto Hydrodynamics and Nuclear fusion.  Energy from waste, Energy plantation. | 8 |
| II | Energy Storage  Energy storage and Distribution – Electrical energy route – Load curves – Energy conversion plants for Base load , Intermediate load, Peak load and Energy displacement – Energy storage plants.  Energy Scenario – Global and Indian –Impact of Energy on economy, development and environment, Energy policies, Energy strategy for future. | 9 |
| III | Energy Management and Auditing  Energy Management – Definitions and significance – objectives –Characterizing of energy usage – Energy Management program – Energy strategies and energy planning Energy Audit – Types and Procedure – Optimum performance of existing facilities – Energy management control systems – Computer applications in Energy management. | 8 |
| IV | Energy conservation – Principles – Energy economics – Energy conservation technologies – cogeneration – Waste heat recovery – Combined cycle power generation – Heat Recuperators – Heat regenerators – Heat pipes – Heat pumps – Pinch Technology, Social and Economic Benefits- Energy accounting and analysis- Pollution control impact- Energy management in deregulated environment | 9 |
| V | Energy Conservation in Electric Utility and Industry  Energy Conservation Opportunities – Electrical ECOs – Thermodynamic ECOs in chemical process industry – ECOs in residential and commercial buildings – Energy Conservation Measures. | 8 |

**EVALUATION**:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

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|  | **Component** | **Weightage** |
| A | Continuous Evaluation Component (Assignment/ Quiz/ Class participation/ presentation/ etc., | 20%(C.E.C) |
| B | Internal assessment | 30%(I.A) |
| C | End- Semester Examination | 50% (External assessment) |

**SUGGESTED READINGS:**

Text Books:

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| Sr. No | Author/s | Name of the Book | Publisher | Edition and Year |
| T-01 | Amlan Chakrabarti | Energy Engineering and Management | Prentice Hall India | Latest |
| T-02 | Rai G. D. | Non-conventional Energy Sources | Khanna Publishers | Latest |
| T-03 | Wayne C. Turner & Steve Doty | Energy Management Handbook | CRC Press  Publications 6th Edition | Latest |

**Reference Books:**

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| --- | --- | --- | --- | --- |
| Sr. No | Author/s | Name of the Book | Publisher | Edition and Year |
| R-01 | D.A. Reay | Industrial Energy Conservation: A Handbook for Engineers and Managers | Pergamon Press | Latest |
| R-02 | S.C. Tripathy Utilization and Conservation | Electrical Energy Utilization and Conservation | Tata McGraw-  Hill | Latest |
| R-03 | Albert Thumann P. E. and W. J. Younger | Handbook of Energy Audits | Fairmont Press | Latest |