

Certificate Course on Energy Management in Lighting (Proposed - Equivalent to 12 Credits)

Table A – Certificate Course on Energy Management in Lighting – Total 12 Credits

Module s	Topics	Credit s
Module 1	Language Of Light & Lighting <ul style="list-style-type: none"> • Light & Lighting, • Light & Vision, • Light & Colour • Light & Health • Basic Concepts and Units, * Photometry and Measurement * Quantity and Quality of Lighting 	2
Module 2	Hardware of Energy Efficient Lighting Systems <ul style="list-style-type: none"> • Energy Efficient Light Sources • CELMA classifications of CFL & TL Ballasts • Accessories & Ballast for HID Lamps, • Energy Efficient Luminaires • Understanding & Using Lamp & Luminaire Data • Lighting Product Standards • High Power LEDs & Systems • Lighting Control products and Systems for Indoor & outdoor Lighting Systems 	3
Module 3	Energy Efficient Lighting Design Calculations & Simulation <ul style="list-style-type: none"> • Interior Lighting Design Practices & Calculations • Interior Lighting Design Calculations - Check list, Data Collection, Design Tools, Lumen Method, & Point by Point Method, • Daylight availability and electric lighting use with control • Exterior Lighting Design Practice & Calculations • Use of Computers in Lighting Design –Indoor & Outdoor • Electrical systems design for Lighting installation • Interior & Exterior Lighting Power Allowance, Building & Area Method , Space-by-Space Method • Lighting system Installation & Maintenance • Energy management in lighting, 	3
Module 4	Energy Efficient Lighting Management <ul style="list-style-type: none"> • Building Energy Codes - Programme of Bureau of Electrical Energy (BEE) Department of Energy, Ministry of Power, India. • Energy Efficient Design and LEED Accreditation • ANSI/ASHRAE/IESNA Standards on Energy • Energy Star® Products programme 	4

	<ul style="list-style-type: none"> • Building Regulations & Incentives • Energy Audit for Lighting – data collection, analysis & Reporting & recommendations • Lighting Economics, Energy Cost, Budget, Payback Period, Options, etc. * Optimization of Lighting Design using Technologies, Strategies, Products and Systems, Energy use Analysis, Energy Performance Criteria, Measurement, Verification, Energy Code Compliance, Lighting parameter Compliance, etc. for various applications like <ul style="list-style-type: none"> - Office Areas - Industrial Areas - Retail Areas - Hospitality Areas - Health Areas - Roads - Utility Outdoor Areas <p>* Exercise</p>	
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