Illuminating ENGINEERING SOCIETY

District 6
2021 Fundamentals of Lighting Course

Course Overview: This five-week virtual in-person course provides participants with an introduction to the fundamentals of illumination. It gives a comprehensive overview of basic lighting principles, lamp and luminaire types, lighting calculations, and controls, as well as functional and aesthetic applications best practices. This course is ideal for architects, engineers, designers, contractors, sales reps, customer service reps, manufacturers, distributors, and students. Find full description for each module below.

Participating Sections: Anchorage, Calgary, Edmonton, Portland, Seattle, Saskatoon, Vancouver, Winnipeg

Dates: April 20th, 2021-May 20th, 2021 on Tuesday & Thursday Nights

Times: Winnipeg 6:00 PM – 8:00 PM CST

3:00 PM-5:30 PM AKST	4:00 PM-6:30 PM PST	5:00 PM-7:30 PM MST	6:00 PM-8:30 PM CST

Format: Each module will include 2 hours of instruction followed by an Online Quiz and Q&A Session

Location: IES Zoom Room (will receive link after registration)

CEUs: 25 CEUs, 25 LU-HSW approved based on course completion (does not qualify for NCQLP CEUs)

Pricing:
US: $300 USD for members, $180 USD EPs (free 1 year EP membership when pass course), $400 USD non-members, $100 USD Students[1]; All course participants must also purchase their own course materials from the IES.

Canada: $380 CD for members, $230 CD EPs (free 1 year EP membership when pass course), $505 CD non-members, $125 CD Students[1]; All course participants must also purchase their own course materials from the

To Register: Contact Walter Gretschmann at walter.gretschmann@efficiencyMB.ca or 204-799-3303

[1]Students = currently enrolled in college, university, or trade program

Module Schedule:

Module 1: Tuesday, April 20th – ***History, Professional Practice, Defining Light, Vision, Color, Light & Health*** taught by **Naomi Miller (Portland).** In this introductory presentation we will cover the history of light and lighting, define light through both physics and metrics, illustrate the four components of vision and discuss various aspects of color theory from color mixing to the color rendering index.

Module 2: Thursday, April 22nd – ***Electric Light Sources and Auxiliary Devices*** taught by **Ryan Sonnenberg and Josh Bornia (Edmonton).** Light sources including filament, gas discharge and solid state (LED) will be presented. Lamp applications, equipment necessary to power these sources and other considerations will also be reviewed.

Module 3: Tuesday, April 27th – ***Daylighting*** taught by **Krysten Ernst & Victoria Yong-Hing (Regina/Saskatoon).** This session will introduce daylight as a light source in buildings, including design considerations, daylight delivery systems, control methods, performance, and metrics.

Module 4: Thursday, April 29th – ***Luminaires*** taught by **Doug Prusky (Calgary) & Jay Kuypers (Winnipeg).** Luminaire forms and optics are introduced along with classifications by application, distribution, and mounting method. We will discuss additional luminaire attributes relating to performance and maintenance.

Module 5: Tuesday, May 4th – ***Controls*** taught by **Shaun Darragh** (Seattle). Lighting control types, strategies, methods, and protocols are introduced in this session. In addition, integrating lighting controls with other building systems and a discussion of controls applications is included.

Module 6: Thursday, May 6th – ***Photometry, Metrics & Computer Calculations*** taught by **Jennifer Jaques (Austin).** The elements of photometric testing and reporting will be presented. The role of lighting design calculation as part of the design process is reviewed and calculation methods, including the Lumen Method for average illuminance and the point method for illuminance at a point will be presented and applied. Computer calculations and rendering techniques are also discussed.

Module 7: Tuesday, May 11th – ***Codes & Standards, Economics*** taught by **Jeff Schwartz (Portland) and Sunil Nakai (Edmonton).** In this session, safety and Energy codes and standards are introduced. Trends in energy management and strategies to achieve energy saving goals are discussed, along with the role of economic analysis as part of an overall lighting design. Methods for economic analysis including Life Cycle Cost Benefit Analysis are modeled and applied.

Module 8: Thursday, May 13th – ***Lighting Design Process and Techniques, Sustainability & Commissioning*** taught by **Dan Salinas (Seattle).** The lighting design process, from programming through construction is reviewed in depth. We will discuss factors for design decisions and application considerations as part of the overall design process. Industry ratings for sustainability including LEED and building commissioning practices are also covered.

Module 9: Tuesday, May 18th – ***Lighting for Interiors*** taught by **Walter Gretschmann (Winnipeg)** & **Trina Larsen (Edmonton).** The art and craft of interior lighting applied in various building and space types is a make-or-break factor in an overall interior design. Examples of designs are shown and the role of lighting within the well-designed interior is discussed. We will also discuss research relating to human perception and reaction to interior environments and the important role of lighting within those findings.

Module 10: Thursday, May 20th – ***Lighting for Exteriors*** taught by **Ian Martens (Calgary).** Great lighting effects are not just for the indoors. Exterior lighting methods and applications from public spaces to roadways to sports lighting are discussed. The effect of lighting on the exterior environment and exterior lighting controls techniques are also included.