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FORMAZIONE

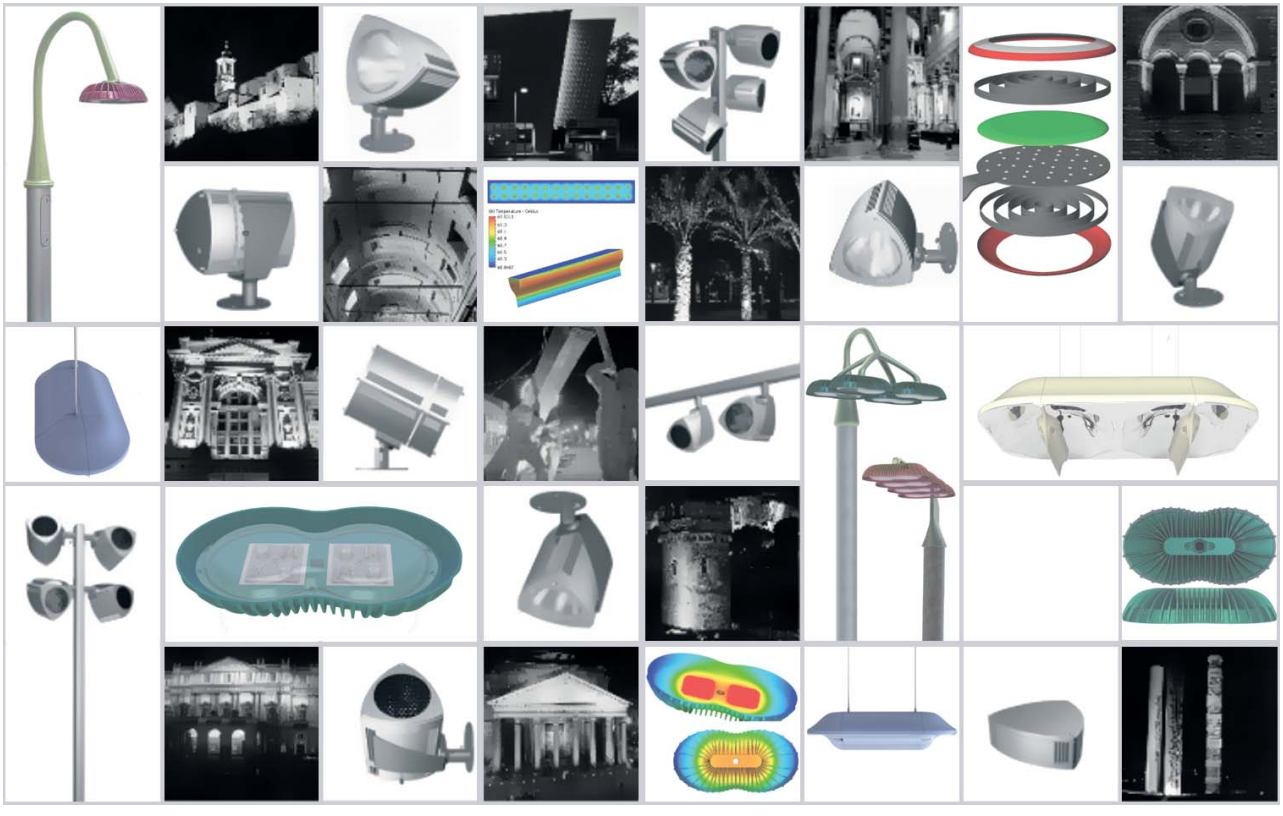
POLI.DESIGN
Consorzio del Politecnico di Milano

HIGH TRAINING COURSE

LIGHTING PRODUCT DESIGN

Introductory course on lighting fixture design

I EDITION



DURATION OF THE COURSE
60 hours

AWARDING BODY
Laboratorio LUCE
Design dept. Politecnico di Milano
Direction: Prof. Maurizio Rossi
Info: Dr. Andrea Siniscalco
Phone: +39 02 2399 5696
Mail: lab.luce@polimi.it

MANAGEMENT
Poli.Design Consortium
formazione@polidesign.net

COURSE PERIOD
09 - 23 September 2014

WEBSITE
www.luce.polimi.it

COURSE FACULTY
Maurizio Rossi, Fulvio Musante, Daria Casciani
Politecnico di Milano
Cinzia Ferrara
President of APIL
Pietro Palladino
Studio Ferrara Palladino e Associati
Danilo Paleari, Diego Quadrio
Studio Quantis
Piero Castiglioni
Studio Castiglioni
Giuseppe Migale
IMQ
Marco Angelini
Fraen
Paolo Ceccherini
Philips
Patrick Van Der Meulen
Xicato
Chris Normanshire
Zemax

REGISTRATION FEE
Total cost of the course is € 1180 (VAT 22%). For registration details and more information about the content, please contact lab.luce@polimi.it.
Reduction of 50% for regular students of Politecnico di Milano and APIL members.
Reduction of 15% for regular members of AIDI and GdC-AIC.
10 scholarships of € 700 available for the former students of the Lighting Design master of Politecnico di Milano.

PRE-REQUIREMENTS
Basic knowledge of electrical engineering (voltage, electric power, electrical resistance, electric current, etc.) and illuminating engineering (luminous flux, illuminance, luminance, inverse-square law, etc.).

CONTENT
Fundamentals
Radiometry and colorimetry. Chromatic quality of LEDs in relation to color rendering, gamut area, d(u,v).
Construction structure, functioning and different families of LEDs in various applications, electrical, thermal and luminous parameters for their characterization. Binning, electrical parameters and different solutions by the manufacturers. White light generation with LED and evaluation. Techniques for dynamic white generation.
Optics
Principles of optics: law of specular reflection, refraction. Reflectors starting from conics and their properties. Flat faceted reflectors and other light control systems.
Design of optical systems for LED light sources, using semi-finished products: creation of partial photometry in order to obtain specific overall light distribution. Ray tracing simulation to evaluate the closing screen, mutual irradiation between the lenses, obstructions from the MCPCB or support structure. Reflection, refraction, diffusion and emission in ray trace programs.
Design of an asymmetric and rotosymmetrical optic system for COB light sources. TIR collimators for power LEDs. Free form lenses for power LEDs.
Power supply
LED luminaires power supply: constant voltage vs constant current, filters. Main configuration of switching power packs. PWM dimming system. Control system interfaces, most used sensors. Reliability of power supply systems.
Luminaires
IEC/CEI standards for the respect to the aspects of electrical safety. Dimensioning of the thermal cooling system. Case studies with CF-Design software. Life span of the product (decay of the luminous flux) in function of junction temperature. Photometric measurement and performance of the luminaire. Photobiological hazard. Materials and material processing.
Case studies

RegioneLombardia
Corso nell'ambito del progetto - NEW LIGHT VISION - MIUR, ID 30170343
Progetti di ricerca industriale e sviluppo sperimentale nei settori strategici di regione Lombardia e del ministero dell'istruzione, dell'università e della ricerca di cui al decreto n.7128 del 29 luglio 2011

IN COLLABORATION WITH
APIL
Associazione Professionisti dell'illuminazione

WITH THE PATRONAGE OF
AIDI Associazione Italiana di Illuminazione
GRUPPO DEL COLORE ASSOCIAZIONE ITALIANA COLORE