IBE 212

Electromagnetic Radiation

2022

Prerequisite reading: IBE 212.1 Electromagnetic Radiation (included in tuition cost), and Black & Decker Advanced Home Wiring, 5th edition (at amazon.com, $12 and up).

The daily schedule includes lectures and group activities, with practical experience in building science principles, research

Building Biology Institute
The science of healthy buildings

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Please direct all inquiries to:
outreach@buildingbiologyinstitute.org • (866) 960-0333

Seminar Synopsis

This seminar provides techniques for measurement and mitigation of man-made electromagnetic radiation (EMR); EMR is demonstrated with practical examples and case studies based on actual home inspections. Particular emphasis is placed on EMR in the bedroom. The recommended instruments used in the detection procedure are demonstrated, simpler abatement techniques are explained. Students learn by doing measurement in a lab environment. Lab time is approximately 50% of total time. Students are formed into teams. Each team has a complete set of recommended instrumentation. There will be an instructor or Lab Leader with every lab group.

Topics include:

- The physics of man-made energies
- EMF and human health issues (online study not covered in class)
- Static (DC) electric and magnetic fields
- Power system AC electric & magnetic fields
- Power system Microsurge Electrical Pollution
- Radio frequency (RF) radiation and wireless devices
- Assessment procedures & simple abatement for each type of energy

Prerequisite Course: IBE 212.1 Electromagnetic Radiation

Time requirement: Five days (successful completion of a proctored written exam is required)

Seminar Objectives

1) Understand the factors that affect the indoor electro-climate environment
   - Static Electric & Magnetic Fields
   - AC Electric and Magnetic Fields
   - Radio (Communication) Frequency Fields
   - Microsurge Electrical Pollution
   - Radiation and Radioactivity (online study not covered in class)

2) Learn IBE protocols and standards used to investigate electro-climate factors.
   - IBE protocols
   - Instrumentation usage
   - Data analysis and solution
   - Mitigation

3) Learn how to control/avoid EMF to improve health supporting nature of a building (basic mitigation techniques only)
   - Biologically effective: client responds positively
   - Technically sound: available, sustainable, effective and correctly installed
   - Aesthetically acceptable: affordable, family acceptable, sustainable

4) Understand general issues pertinent to Building Biology Environmental Consultancy
   - Information Resources
   - Basic Equipment Specifications and Recommendations
   - Electric code awareness

5) Understand how to educate & assist clients to create a healthier home

Seminar Schedule

Day One, Wednesday, 26 October 2022

- IBE Introduction
- Principles of Building Biology
- Basics of Electricity
- Building Wiring & Electrical Distribution Systems
- Equipment & System Grounds
- Lab: Measurement/Detection

Day Two, Thursday, 27 October 2022

- AC Magnetic Fields
- Terminology & Common Sources
- Environmental Health Issues
- EMR Inspection Protocol
- Smart Meter Technology
- Lab: Measurement/Detection

Day Three, Friday, 28 October 2022

- AC Electric Fields
- Overview of the Grid
- Terminology & Common Sources
- Environmental Health Issues
- EMR Inspection Protocol
- Microsurge Electrical Pollution (MEP) / Dirty Electricity
- 5G Cell System What is it; why is it a problem
- Lab: Measurement/Detection

Day Four, Saturday, 29 October 2022

- Radio Frequency Fields
- Instrumentation 27 MHz to 10 GHz
- EMF Shielding and Materials
- Lab: Mock home assessment/ remediation planning

Day Five, Sunday, 30 October 2022

- Radioactivity/Terrestrial Radiation
- Equipment Recommendations & Specifications
- EMR Inspection Procedure Review
- Business Support Program
- Case Studies from Lab Leaders and Instructors
- Q&A Prior to Exam
- Exam (Finishes at 3:00 pm)

Meet the Instructors

IBE 212: Electromagnetic Radiation

Larry Gust is an electrical engineer. Mr. Gust has been teaching classes and seminars for BBI since 1996. He has been conducting on-site indoor environmental assessments (IAQ & EMF) and recommending remediation strategies since 1993. Mr. Gust holds an MBA and a BS Electrical Engineer from the University of Wisconsin and has been certified by BBI as BBEC and EMRS. For twenty-five years he was a member of management at Dow Chemical and then at the Mobil Corporation, working in manufacturing, product development and total quality management. Larry lives in Ventura California. To schedule a consultation or contact Larry, please visit: www.gustenviro.com

Rob Metzinger is an Electronics Engineering Technologist, Certified Building Biologist, Certified Electromagnetic Radiation Safety Advisor (CERSA) Consultant, President of Safe Living Technologies Inc. He is also a factory certified Gigahertz Solutions Test Equipment Technician and Instructor. Mr. Metzinger's 20 years of experience as an independent corporate electronics field service engineer has yielded him a strong background in electrical and electronic problem solving. Education, Detection and Protection are the three pillars of his business. Rob has taken his 18 years of experience in the field of Electromagnetic Radiation to the next level and has become an educator with BBI. To contact Rob, please visit: www.safelivingtechnologies.com

Seminar Syllabus, IBE 212

Venue

Kanuga Conference & Retreat Center
130 Kanuga Chapel Drive
Hendersonville, North Carolina 28739
https://www.kanuga.org

BBI arranges your lodging and your food via contracts with the seminar venue, and your contract is with BBI, not with its venue. We must ask that any issues, concerns, or needs you may have regarding your room or your food be addressed to Erik Rosen, our Programs Director, who will be on-site and available to you 24/7.

We make every effort to ensure that your lodging room, as well as the classroom, dining room, and commons areas satisfy all Building Biology Standards for a health-supporting environment, and this venue's management joins us in our efforts. Please note, nonetheless, that no venue situated "on the grid" is entirely ideal.

Overview: Please pay your tuition and room & board in advance to the Building Biology Institute. Payment may be arranged online at BBI's website (click here), or by calling IBE's executive director (505-954-1684). To pay by check, please mail your payment to: IBE, P.O. Box 8520, Santa Fe, New Mexico 87504.

Shuttle Services to/from Venue/Ashville Airport: Uber and Lyft services are available for approximately $30 each way. Or, Ashville Airport Shuttle: (828) 231-1053. If you'll be using Ashville Airport Shuttle, we recommend strongly that you reserve your ride well in advance.

Schedule: Classes begin on Monday, 26 October. Please arrive on Sunday, 25 October, and remain through your completion of the final exam, at or around 3:00 PM on Friday, 30 October. There will be a Meet & Greet Sunday evening, 25 October, at 6:30 PM in the venue's lobby.

Lodging: Each student will be provided a private room with private bath. Check-in begins at 3:00 PM on Sunday, 25 October; check-out is 10:00 AM Friday, 30 October. To arrange early arrival, or an extended departure date, please contact our programs director, Erik Rosen, not the venue:< erik@buildingbiologyinstitute.org >.

Meals: Freshly prepared buffet-style meals will be served three times daily in the Kanuga Lake Lodge dining hall. Meals are prepared using local produce, when available, including herbs and vegetables grown in Kanuga's organic garden. Vegetarian or other special dietary requirements will be accommodated upon request.

Attire: Please dress at your own comfort level (as casual as you please). Also please note that, while your leisure time will be limited, Kanuga's property, including its 30 acre lake, offers an impressive tableau of health-related recreational opportunities.

NOTE: Our venue does not permit alcoholic beverages anywhere on their property, and all indoor areas are smoke-free. We ask that all students, in consideration of attendees who may suffer from allergies, to please refrain from using/wearing scented personal products.