IBE 212

Electromagnetic Radiation

2020

Prerequisite reading: IBE 212.1 Electromagnetic Radiation (included in tuition cost), and Black & Decker Advanced Home Wiring, 3rd updated edition (at amazon.com, $10 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:
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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 assistant with every lab group.

Topics include:

- The physics of man-made energies
- EMF and human health issues
- Steady-state (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 (*available 10 May 2019*)

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

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, and effective
- 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, Monday, 31 August 2020

- IBE Introduction
- Electrobiology and Health Issues
- Basics of Electricity
- Basics of Electromagnetic fields
- Static Electromagnetics
- Lab: Measurement/Detection

Day Two, Tuesday, 01 September 2020

- AC Electric Fields
- Overview of the Grid
- Terminology & Common Sources
- Environmental Health Issues
- EMR Inspection Protocol
- Microsurge Electrical Pollution (MEP) / Dirty Electricity
- Lab: Measurement/Detection

Day Three, Wednesday, 02 September 2020

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

Day Four, Thursday, 03 September 2020

- Radio Frequency Fields
- Terminology & Common Sources including Smart Meters
- Environmental Health Issues
- EMR Inspection Protocol
- Lab: Mock home assessment/ remediation planning

Day Five, Friday, 04 September 2020

- Radioactivity/Terrestrial Radiation
- Equipment Recommendations & Specifications
- Review
- 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, and conducting on-site assessments/ improvements of the electromagnetic issues of indoor environment since 1993. Mr. Gust is an Electrical Engineer, BBEC, 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. To 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. and one of Canada's top EMR Technical Experts. He is also a factory certified Gigahertz Solutions Test Equipment Technician and Instructor. Mr. Metzinger's 20 years' experience as an independent corporate electronics field service engineer has yielded him a strong background in electrical and electronic problem solving along with strong customer relation skills. He is considered an authority on all issues related to EMF and RF pollution. Education, Detection and Protection are the three pillars of his business. Rob has taken his 10 years of experience in the field of Electromagnetic Radiation to the next level and has become an educator with IBE. To contact Rob, please visit his website at www.slt.co

Seminar Syllabus, IBE 212

Venue

IHM Retreat & Conference Center
50 Mount Carmel Road, Santa Fe, New Mexico 87505

All students who are not local to Santa Fe, New Mexico are asked to please lodge overnight and dine on campus for the duration of this event. Our on-site caterer stands ready to meet or exceed any extraordinary dietary requests.

IBE arranges your lodging and your food via contracts with two separate vendors, and your contract is with IBE, not with its vendors. 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 serve you 24/7.

We make every effort to ensure that the classroom, dining room, commons areas, and overnight guest rooms at this venue meet Building Biology Standards for a health-supporting environment, and this venue's management joins us in our efforts. The main building, Santa Maria Hall, has no WiFi service. The nearest cellphone tower is nearly a mile away. The few magnetic fields in Santa Maria Hall are very localized, fall off quickly, and do not exceed a level for concern. The secondary residential building, San Miguel Hall, *does* have a WiFi signal that emanates from the Archbishop's residence therein. We house only those students who are not sensitive to WiFi in San Miguel Hall. This WiFi signal of course is password protected, and not available for our guest's use.

Nonetheless, please note that no venue situated "on the grid" is entirely ideal. While we have served more than one hundred IBE students at this venue over the past four years, two of those students did find their guestroom experience incompatible with their environmental sensitivities, and were moved to off-campus accommodations for the remainder of the seminar.

Overview: Tuition and room & board must be paid in advance, please, to the Building Biology Institute. Payment may be arranged online at BBI's website (click here), or by check, or by calling Erik Rosen, our Director of Programs (412-819-5939). To pay by check, please mail your payment to: IBE, P.O. Box 8520, Santa Fe, New Mexico 87504.

You are required to arrive the day before classes begin (Sunday, 30 August) and class ends following your completion of the final exam, at or around 3:00 PM, Friday, 04 September. You may opt to arrive earlier and/or depart later, at an additional cost ($124 per night, USD), dependent upon venue availability. This is a lodging fee only, as meal service is not available for those extraneous days (the nearest restaurants are one or more miles away). Check-in begins at 3:00 PM on Sunday; check-out is 10:00 AM Friday. To arrange early arrival, or an extended departure date, please contact Erik Rosen, not the venue: <erik@buildingbiologyinstitute.org>.

There will be a Meet & Greet Sunday evening, 30 August at 6:30 PM in the venue lobby. At this time, attendees arrange among themselves for an off-site meal or snack, all together or breaking into groups according to their individual dietary and culinary preferences. The nearest restaurant is one mile from the seminar venue. Downtown Santa Fe, with its broad selection of restaurants and cuisines, is situated two miles from the seminar venue. The nearest restaurants are all one or more miles away.

Arrival/departure: Santa Fe is served by two airports: Albuquerque International Sunport and Santa Fe Regional Airport. Groome Transportation serves those arriving at Albuquerque International Sunport with hourly service (8:15 AM to midnight; click here for schedule) with drop off at the IHM Retreat Center's front door. From Santa Fe Regional Airport there is Uber service only to the IHM Retreat Center. Both airports are served by major national rental car companies, on-site.

Rooms: Each student will be provided a private room with private bath. Those who might want to share a two-bed room will save $20 each per room per night. Students wishing to share must alert BBI's programs director at least two weeks in advance, at erik@buildingbiologyinstitute.org. WiFi will be turned off in all guest rooms, as well as the classroom and dining room; the nearest cellphone tower stands nearly a mile away.

NOTE: The 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.

NOTE: The building directly adjacent Santa Maria Hall, to the west, is the private residence of cloistered nuns, and the building directly east of Santa Maria Hall is the private residence of the Archbishop of the Santa Fe. We ask that you please consider all outdoor areas to be a quiet zone.

Meals: All meals are prepared from scratch, on-site using mostly organic and/or locally sourced free-range ingredients. Vegan, vegetarian, carnivore/omnivore, and gluten-free options are available daily. Meal service (breakfast, lunch, dinner, and between-meal snacks) begins with breakfast Monday morning and ends with Friday lunch. All meals will be prepared and served on-site by Piñon Catering of Santa Fe.. Seminar tuition includes daily lunch; breakfast and dinner are included in the room & board charge ($785.00 USD).

Attire: Although Santa Fe is located at a somewhat southerly geographic latitude, it is situated 7,500 feet above sea level. Expect nighttime summer temperatures to drop as low as 55°, Fahrenheit. Average daytime temperature is 82°. Please dress accordingly (layering recommended), and at your own comfort level (as casual as you please).

Rental cars: Students who drive to Santa Fe or opt to rent a car for the duration of their stay are asked to consider volunteering their driving services for transporting their fellow attendees to and from overflow hotel in Santa Fe. If you expect to be volunteering this service, please contact IBE's executive director, Michael Conn, at: michael@buildingbiologyinstitute.org