



3 – 7 December 2012
Safety Harbor Spa & Resort
Clearwater, Florida

IBE 312

ADVANCED ELECTROMAGNETIC RADIATION SEMINAR



**BRINGING TOGETHER TECHNOLOGY AND DESIGN
METHODS TO PROVIDE THE INFORMATION
NEEDED TO CREATE HEALTHY HOMES AND
WORKPLACES**

2012

The International Institute for Bau-Biologie™ & Ecology (IBE)

SEMINAR SYLLABUS

IBE 312

ADVANCED ELECTROMAGNETIC RADIATION SEMINAR

EXPOSURE, DETECTION and MITIGATION

3 December through 7 December 2012

Safety Harbor Spa & Resort

Clearwater, Florida

IBE 312 ADVANCED ELECTROMAGNETIC RADIATION SEMINAR is a continuation of IBE 212 ELECTROMATIC RADIATION SEMINAR. Only students that have successfully completed IBE 212 are qualified to take the advance class. Exceptions are made on a case-by-case basis for candidates with professional experience. This seminar will benefit professional Building Biologists interested in offering advanced EMR mitigation services for homes and businesses.

"... It has been scientifically demonstrated that at a fraction of this [allowable] RF radiation level [ten million microwatts/square meter] the blood-brain barrier opens, EEG patterns change, tumors increase, cellular defects occur, nerves are damaged, blood cells clump together, the immune system is compromised, etc."

~ Wolfgang Maes, January 2008



PLEASE DIRECT ALL INQUIRIES TO:

outreach@buildingbiology.net or (866) 960-0333

Click [Here](#) for more information on Building Biology

SEMINAR SYLLABUS

The focus of the **IBE 312 Advanced EMR Seminar** is applying **Building Biology Standards** to electromagnetic radiation (EMR) mitigation in homes and offices. The fundamentals of electromagnetics will be taught as related to human health along with measurement & mitigation protocols for common electromagnetic radiation exposure risks, the result of poor power quality, static and time varying electric and magnetic fields and radio frequency emissions.

TOPICS INCLUDE:

- Electromagnetic fundamentals
- Natural sources of electromagnetic radiation
- How electromagnetic fields couple to and affect the human body
- Building Biology and other International EMF exposure standards
- Measurement principles, instrumentation capabilities and limitations
- Applying Building Biology methodology to conduct assessments, surveys, troubleshooting and mitigation
- Application of protocols to accurately measure sources
- Applying shielding principles, products and mitigation techniques to reduce exposures to meet Building Biology or other international standards

RESOURCES: IBE 312 Manual

TIME REQUIREMENT: 5 days (successful completion of a written exam is required)

PREREQUISITE ONLINE COURSES: IBE 212 Electromagnetic Radiation Seminar

SEMINAR OBJECTIVES: Upon completion of this seminar, the students will be able to:

- ✓ Conduct an advanced electromagnetic survey for a home or office
- ✓ Conduct a power quality survey
- ✓ Conduct an area survey for RF, ELF/static electric & magnetic fields
- ✓ Apply effective shielding practices to mitigate magnetic, electric and RF electromagnetic fields
- ✓ Report findings and propose mitigation solutions
- ✓ Perform a Building Biology *Healthy Home Standard* "EMF Checklist"
- ✓ Use online search tools to identify local wireless sources/services & determine exposure risk according to Building Biology, FCC or SC6 standards
- ✓ Accurately use the following meters: gauss, electric field strength, power density, power quality, current clamp, DVM, air ion counter, magnetometer and Geiger counter
- ✓ Identify internal and external AD/DC electric, magnetic and radio frequency sources
- ✓ Measure and mitigate common wiring errors in homes and offices
- ✓ Measure and mitigate radiofrequency radiation from internal and external sources
- ✓ Measure and mitigate power quality corruption from internal and external sources
- ✓ Measure and mitigate ground currents
- ✓ Apply low-EMF building best practices
- ✓ Apply Earthing best practices
- ✓ Apply sleep canopy best practices
- ✓ Select the best shielding material based on attenuation and shielding effectiveness parameters
- ✓ Hardwire a house with Cat 6 cabling
- ✓ Develop a fundamental understanding on to detect, identify and mitigate electromagnetic hazards

SEMINAR DAILY SCHEDULE

Day One, Monday, 3 December:

ELECTROMAGNETIC FUNDAMENTALS

- Chapters 1 - 5
- IBE 312 Seminar Introduction
- IBE 212 Review
- Waves, Spectrum & Fields
- Natural Electromagnetic Fields
- EMF Interaction with the Human Body
- Building Biology EMF Standards
- *Measurements Lab*

Day Two, Tuesday, 4 December:

MEASUREMENT & AC POWER

- Chapters 6 - 8
- Building Biology Methodology
- Measurement Theory
- Instrumentation Specifications & Usage
- Assessments & Surveys
- Reports & Proposals
- Test Equipment
- Troubleshooting Building Wiring
- Grounding
- *Power Quality Lab*

Day Three, Wednesday, 5 December:

POWER QUALITY & WIRELESS

- Chapters 9 - 10
- Power Quality Fundamentals, Survey, Mitigation
- Power Conditioning Equipment
- Building Biology Power Quality Protocols
- Cellular Communications
- Smart Meters & Appliances
- Wireless Local Area Networks (LAN)
- Cordless Phones
- Baby Monitors
- Living Room of the Future
- *Shielding Lab*

Day Four, Thursday, 6 December:

SHIELDING

- Chapters 11 - 12
- Shielding Concepts & Mitigation
- EMF Interaction with Materials
- Shielding Effectiveness & Attenuation
- Shielding Materials & Specifications
- Solution Proposals & Bidding
- Earthing: Concept, Products, Best Practices, Issues
- *Advanced Assessment*

Day Five, Friday, 7 December:

IBE 312 REVIEW & FINAL EXAM

- Appendix A
- Q&A
- Building Biology Protocols
- IBE 312 Seminar Review

- **Please note:** This schedule is approximate dependent on location, weather conditions, and availability of suitable building(s) for on-site observational practice, assessment, testing.

MEET THE INSTRUCTORS

IBE 312: Advanced Electromagnetic Radiation Seminar



Spark Burmaster, BBEC, is an Electrical Engineer and Building Biology Environmental Consultant. Spark developed Electromagnetic Education materials for IBE and taught IBE seminars starting in 1991. He has 25 years experience in solving Electrical and Electromagnetic problems for the Electrical Sensitive, having first gotten into the discipline via Stray Voltage issues on dairy farms. (Spark is from Wisconsin, the dairy state.) Currently, Spark is a consultant to Organic Valley for the development of protocols to mitigate Stray Voltage. Way back when, he worked in circuit design for Collins Radio, in Richardson, Texas. Along the way he put up / worked on about 150 Aerometer Water Pumping Windmills, many of them for the Amish. He presents an Electromagnetic Exposure Workshop, annually, at the Midwest Renewable Energy Fair, in Wisconsin. He is a co-founder of the ULEME project. To contact Spark, email: eoptions@mwt.net.



Tom Wilson holds an Electrical Engineering degree and is a veteran of the communications industry with over 35 years of experience in carrier-class networking, telecommunications, wireless network and satellite systems design, development, deployment, sales and marketing. Tom began his career working on the Space Shuttle's Launch Processing System and has held positions as a design engineer, systems engineer, project director, and most recently, as president of a satellite communications company since 2002. Specializing in wireless communications, Tom has deployed dozens of networks throughout the world and is an expert in 'last-mile' technologies. Tom is now focused on electromagnetic radiation mitigation as an independent EMF consultant. To contact Tom, email tomwilson@emfengineering.net.

CONTRIBUTING INSTRUCTORS



Larry Gust is an electrical engineer. Mr. Gust has been teaching classes and seminars for IBE since 1996, and conducting on-site assessments/improvements of the electromagnetic issues environment since 1993. To contact Larry, visit: www.healbuildings.com



Rob Metzinger is an Electronics Engineering Technologist, Certified Electromagnetic Radiation Safety Advisor (CERSA) Consultant, President of Safe Living Technologies Inc., and one of Canada's top EMR Technical Experts. To contact Rob, visit: <http://www.slt.co>.