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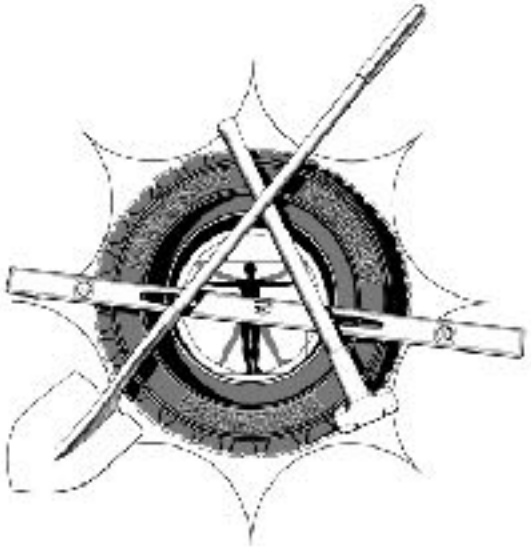
BIOTECTURE



EARTHSHIP ACADEMY SYLLABUS

COURSE TITLE: History and Evolution of the Earthship Concept

INSTRUCTOR: Michael Reynolds
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This course is taught by an architect with 45 years of experience. This course covers the long battle for eco construction and experimentation with sustainable buildings. It shows the beginning of Earthship Biotecture and the initial process of simply building with cans to limit the production of waste. Early beer can buildings were the first use of repurposed materials that inspired decades of further research and development. A timeline shows that early design failures led to new innovations and improved construction techniques. The "discovery" of thermal mass as a temperature battery for buildings evolved into the primary structural building component of the modern Earthship, the rammed-earth tires. This course shows how the design of houses evolved according to the needs of humans. This evolution encompasses trying to encounter natural phenomena and copy nature for a more efficient type of architecture. Earthships fulfill the 6 basic human needs, proving it is possible to have these needs within one home.

LEARNING OBJECTIVES:
- The 6 inherent principles of Earthships and how they are incorporated into the building design.
- The abundance of urban waste on this planet can result in humans attempting to eliminate it in unethical ways. Using this waste for building allows humans to view it as a resource.
- Constant evolution or is the key to success.
- Using nature as a guide and observing human needs to build accordingly is pertinent to better architecture.

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
SUPPLEMENTARY READING: Earthship Journey Volume 1 (by Michael Reynolds)

FORMAT AND ORGANIZATION: 2 hour lecture with slideshows containing historical pictures.
EVALUATION AND GRADING: One question on the final exam about the first step Michael Reynolds took towards the construction of Earthships.

COURSE TITLE: Thermal/Solar Heating and Cooling

INSTRUCTOR: Phil Basehart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
Michael Reynolds explains the necessity to be independent with your own energy and introduces the concept of tapping into the stable earth temperature below the frostline to provide a thermal baseline. This course examines the ideal wall composition for a passive solar house, compares thermal mass and insulation, explains solar sun angles and their relation to the angle of the greenhouse framing in theory and in practice. Mr. Reynolds covers the subject of thermal buffer zones, their discovery, importance and performance, as well as showing basic design configurations relating to achieving a comfortable temperature in different climates. Also discussed is why tires are ideal construction materials to build these type of housing.

LEARNING OBJECTIVES:
- Understand the basic physics concept of thermal mass
- Recognize the importance of insulation
- Learn how to use thermal mass and insulation in construction techniques.
- Know the 10 reasons why Earthships use tires in building.

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: Earthship Engineer Report (Evaluation of the seismic performance of alternative construction materials in New Mexico.)
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows containing pictures and schematics.
EVALUATION AND GRADING: One question on the final exam concerning the importance of thermal mass and the orientation of the building.

COURSE TITLE: Building with Natural and Repurposed Materials

INSTRUCTOR: Phil Basehart
CLASS LOCATION: Taos, New Mexico or online.

TIME FRAME: 2 hours

COURSE DESCRIPTION:
This course defines the difference between waste materials. Waste can be classified in different categories, that are: reused, recycled, repurposed, remanufactured, up-cycled and down-cycled. Phil Basehart covers current local waste management strategies and recycling systems, or lack thereof. He further explains the rationale and environmental benefits behind the use of scrap tires in construction.

LEARNING OBJECTIVES:
- The difference between conventional versus re-purposed materials
- Identify risks and advantages when working with unconventional materials
- Use of natural and local materials whenever available
- Advantages of using re-purposed materials
- Advantages of using natural materials
- Learn to use unconventional materials in creative ways

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows containing pictures and schematics.
EVALUATION AND GRADING: Two questions on the final exam.

COURSE TITLE: Solar and Wind Electric Systems in Earthships

INSTRUCTOR: Phil Basehart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
The class explores wind and sun energy systems, and the difficulties of being dependent on the grid. Phil Basehart clarifies where the energy we are widely using in conventional homes is coming from and also the inefficiencies of how energy is transported to homes. Phil Basehart explains in details why lobbies make it difficult to stop this World current paradigm. This class then walks the students through the history and evolution of solar panels and batteries. As well as for lightening and the evolution of light bulbs and LED and other appliances efficiency. Finally, this course explores solar fridges and ways to store food in a more energy efficient way.

LEARNING OBJECTIVES:
- Comprehension of not depending of the grid
- Conceive the necessity to manage individual energy
- Major differences between solar and wind power

- Evolution and newest technologies concerning solar and wind power.

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows containing pictures and schematics.
EVALUATION AND GRADING: One question on the final exam concerning solar/wind electricity.

COURSE TITLE: Earthship Operations

INSTRUCTOR: Rory Morlan
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION: Classroom walk-through of an Earthship's construction, with accompanying 3D model of the steps involved in building and enclosing the structural shell of a Global Model Earthship.

Operation 1: Tires, Cisterns, Thermal Wrap, Cooling Tubes
Operation 2: Concrete work, Bond Beam, Buttresses, VerticalGreenhouse, Footing
Operation 3: Inner Vertical Greenhouse, Vigas and Decking
Operation 4: Outer Sloped Greenhouse, Trusses and End walls
Operation 5: Roofing, Insulation, Mullions, Flashing, Building Envelope

LEARNING OBJECTIVES:
- Recognize the different steps in the construction process
- Grasp the basic information involved in each operation
- Know the major objectives of each operation

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour class with interactive 3D movie
EVALUATION AND GRADING: One question on the final exam regarding the steps in each operation.

COURSE TITLE: How to Read Earthship Construction Drawings

INSTRUCTOR: Phil Basehart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
The instructor walks the students through different Earthship plans, explaining the basics of architectural drawings. This course provides the definition of the five main types of architectural tools: drawings, plans, sections, elevation, details and perspectives. Phil explains the details of the plans and their differences such as floor plans, footing plans, roofing plans, and layout plans. The different type of architectural plans and the meaning of main symbols and codes are then examined. During the last 1/4 of the class the homework assignment is discussed. The assignment consists of creating a precise materials list using architectural drawings.

LEARNING OBJECTIVES:
- Recognize different conventional architectural drawings
- Distinguish between different types of plans and how to use them
- Understand the different architectural symbols and codes
- Create a precise and viable materials list from architectural drawings

PREREQUISITES TO THE COURSE: Earthship Operations Course (Instructor: Rory Morlan)
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: One hour and a half of lecture in class and 30 minutes of assignment instruction. Students are split into groups and given architectural drawings and have one week to create a materials list.
EVALUATION AND GRADING: Creating a materials list assignment. A bonus question on the final exam about drawing the section plan of one of the Earthship model.

COURSE TITLE: Earthship Types 1 and 2

INSTRUCTOR: Phil Baseheart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 4 hours

COURSE DESCRIPTION:
This course is a recount of the evolution of different types of Earthships and how the 6 design principles evolved simultaneously. It started with a simple "pit house," with one course of tires and a log roof. Then evolved into replicable designs, with improved thermal performance. The "U" module appears in the "Earthship: How to Build Your Own" book and is now a wide spread

feature of Earthships. This class also explains how much Earthships can vary and which ones are most suited for each individual.

LEARNING OBJECTIVES:
- Identify the different models of Earthships
- Understand the differences between models
- Select the most suitable type of Earthship for different land/climate/purpose

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: Earthship: How to Build Your Own (by Michael Reynolds)
FORMAT AND ORGANIZATION: 2 classes of 2 hour lectures with slideshows.
EVALUATION AND GRADING: Two questions in the final exam about the different models of Earthships.

COURSE TITLE: Earthship Finishing Options and Techniques

INSTRUCTOR: Phil Basehart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This class covers the different material options available when you build an Earthship, the approximate costs, installation methods, longevity, and aesthetics. The different Earthship finishes give options for: ceilings, walls, floors, plaster, tile, stone, bottle walls and others. This course extensively explains the importance and precision required for finishes. The methods used to achieve the best results according to the time frame, budget, climate and other configurations are also discussed.

LEARNING OBJECTIVES:
- Comprehend the importance of finishes and how integral finishes are to the wholeness of a house.
- Elect the right materials for the right places
- How to incorporate re-purposed, local or/and natural materials
- Conceptualize finishes and estimate costs

PREREQUISITES TO THE COURSE: Building with Natural and Repurposed Materials Course (Instructor: Phil Basehart)
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows containing pictures.

EVALUATION AND GRADING: Two questions about possible finishes options in Earthships on the final exam.

COURSE TITLE: Water Harvesting

INSTRUCTOR: Gunnar Meiers
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This is an in-depth explanation of the rationale behind water harvesting including identifying the threats to our current fresh water supplies. The function of this class is to understand the math needed to determine the size and design for a roof water harvesting system. This course also details the option for different roof membranes and the corresponding costs, the durability, potability, and flexibility,. This class compares the different types of gutters and the path of water on the roof and how to maximize water collection. Michael Reynolds retraces the history of silt catch method, the first filtration before the storage tank, as well as a great overview of the different types of cisterns, sizes, advantages and characteristics. Finally, this class shows the plumbing details from the path of the cistern into the house.

LEARNING OBJECTIVES:
- Estimate your water consumption
- Map out and calculate your roof surface for water harvesting
- Electing your roofing materials appropriately for water harvesting purposes
- Understand the differences in cisterns

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: Water from the sky (by Michael Reynolds)
FORMAT AND ORGANIZATION: 2 hour class
EVALUATION AND GRADING: Two question on the final exam regarding the roof structure and the amount of water that can be harvested.

COURSE TITLE: The Water Organizing Module (WOM)

INSTRUCTOR: Lou Maiolica
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This class is about the design and operation of the Water Organizing Module (WOM), a specialized unit that manages water from the cisterns by filtering it, pumping it, and sending it to the water heater and pressure tank, preparing it for household use in the sinks and showers. This in-depth technical course covers specific components of the WOM: pre-filter, pump, pressure switch, additional filters, drinking water filter, shut off valves, and their functions, as well as their specific plumbing connections.

LEARNING OBJECTIVES:
- Definition of the WOM
- Different names and functions of the components of the Water Organizing Module.
- Location of components on the WOM
- Know how to clean or replace components

PREREQUISITES TO THE COURSE: Water Harvesting Course (Instructor: Michael Reynolds)
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour lecture
EVALUATION AND GRADING: Draw a WOM during the final exam, with all components labeled and placed correctly in the drawing.

COURSE TITLE: Contained Sewage Treatment

INSTRUCTOR: James Bechard
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This class identifies the separation between gray water and blackwater. This course covers the explanation of the options for the initial filtration step in a gray water system: worm box vs. grease and particle filter. During this two hour course, the instructor explains the sizing, design, and placement of the interior botanical cells, as well as the path of water in the cells. This class details the function of plant roots in the oxygenation, use, and filtration of gray water. Finally, this course is also an introduction to the pump panel. Students will know about the different areas of treatment in the exterior black water treatment system as well as the recommended plants for both systems.

LEARNING OBJECTIVES:
- Understand the function of evaporation and transpiration in both the gray water and blackwater systems.
- Comprehending contained sewage treatment and the different techniques Earthship Biotecture uses to treat contained sewage.
- Defining the depth of a well at the end of a botanical cell

- How to set a pump and the purpose and function of the recirculation system.
- The function of rock bulbs relative to water flow in the cell

PREREQUISITES TO THE COURSE: Water Harvesting Course (Instructor: Michael Reynolds)
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: Water from the sky (by Michael Reynolds)
FORMAT AND ORGANIZATION: Two hour lecture
EVALUATION AND GRADING: One question on the final exam

COURSE TITLE: How to Build Gray and Black Water Systems

INSTRUCTOR: Lou Maiolica
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This class shows the technical specifications on how to construct both contained gray and black water systems, including details on materials for lining the cells and how to create water-tight seals around the plumbing connections between cells.

LEARNING OBJECTIVES:
- Student are expected to learn how to construct both contained gray and black water systems.

PREREQUISITES TO THE COURSE: The Water Organizing Module Course (Instructor: Lou Mailolica) and Contained Sewage Treatment Course (Instructor: Michael Reynolds)
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour lecture
EVALUATION AND GRADING: One question on the final exam.

COURSE TITLE: Basics of Earthship Construction Techniques

INSTRUCTOR: Dan Schmidt
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This is a brief classroom introduction to Earthship-specific construction techniques that will be practiced in the field during the session. This course includes how to select and place the proper size tire for compaction, filling, and ramming techniques, leveling, battering, and proper spacing. Techniques for making glass bottle bricks: cutting, cleaning, taping, and color selections are also discussed in this course. Building can and bottle walls are an integral part in construction techniques including: layout, footers, placement, spacing, guide strings, use of level to maintain plumb.

LEARNING OBJECTIVES:
- How to use Earthship specific building materials such as cans, bottles, tires
- Understand where and when to use these materials and their structural capacities
- Know why we use them and how to source these materials

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
ESSENTIAL READING: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows, explanations, and demonstrations.
EVALUATION AND GRADING: Informal check by instructors on the construction site

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COURSE TITLE: Food Production in Earthships

INSTRUCTOR: Dan Dynan
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 4 hours

COURSE DESCRIPTION:
Michelle is unveiling all her secrets about indoor plant growing, especially within Earthship greenhouses. Michelle goes into details about what kind of plants can be productive and produce a maximum of food to be able to make Earthship inhabitants autonomous. From mushrooms to tomatoes to bananas, Michelle explains how to plant them, what care they require, and how to take care of them all year round. She shows how certain plants grow well together and which plants to avoid planting side by side. Michelle provides lists of different plants that you should add into your gray water botanical cells and ones you can plant in your blackwater cells. The Earthship also uses aquabotanical systems, explained in this course. Finally, Michelle covers the most common pests in Earthships and how to get rid of them naturally without hurting the botanical cells or your greenhouse environment.

LEARNING OBJECTIVES:
- What plants perform well inside a greenhouse
- What plants should not be planted in blackwater cells

- What plants should be planted together or which combinations should be avoided
- The most common pests or diseases within artificial environments
- How to get rid of pests/diseases naturally
- How to grow food in suspended buckets
- How to collect and preserve seeds.
- How to produce a maximum of food in a minimal space

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: 2 lectures of 2 hours, with slideshows and graphics
EVALUATION AND GRADING: Several questions on the final exam.

COURSE TITLE: Basics of Electricity

INSTRUCTOR: Nels Johnson
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This class aims to teach the basic of electricity, starting with the essential health and safety advisories for electric supply systems, the electrical formulae, and precise explanation of what is electricity and how to measure it. This course will then explore in depth the way solar panels work, and how to optimize their use. Students will learn how to do basic wiring, the different cable types, and general equipment identification. Instruction of lighting and power circuit installation, and safe isolation, especially within solar configuration.

LEARNING OBJECTIVES:
- Being able to define what is electricity
- Being able to measure electricity
- Precautions necessary when working with electricity
- General operation of solar panels
- How to wire a simple electrical system

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows, explanations and demonstrations
EVALUATION AND GRADING: Questions in the final test

COURSE TITLE: The Power Organizing Module (POM)

INSTRUCTOR: Nels Johnson
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION: This course shows students the creation of the Power Organizing Module (POM), a panel of electrical organization that we developed in at our Earthship Headquarters. The POM is specifically adapted to Earthships and houses equipped with solar panels. The POM is able to monitor all the energy consumption in your house. This class will detail the POM, which includes several components, interacting with each other. This system requires a special place in the house, as well as little maintenance, also reviewed in this course.

LEARNING OBJECTIVES:
- Identify functions and components of the POM
- How Earthships produce their energy
- How to wire the POM
- Where to find the components

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows, visual graphics, schematics, and demonstrations.
EVALUATION AND GRADING: Several questions on the final exam.

COURSE TITLE: Earthship Disaster Relief and Humanitarian Projects

INSTRUCTOR: Phil Basehart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This course explores the differences between building in different countries, with different economies and cultural backgrounds. Cultural differences are extremely important to consider when traveling and building in other countries. The company has developed different teaching techniques depending on the location. Students will learn how Earthship has covered the finances of most of the poverty relief projects. Building abroad in different countries has allowed for different types of building experiments. This class covers the importance of the adaptation to different materials in different countries, for example using cow excrement instead of Adobe.

Earthship evolved on many occasions while abroad. All of these efforts led to the creation of a separate branch of Earthship strictly for poverty relief project: Biotecture Planet Earth.

LEARNING OBJECTIVES:
- Comprehension of the major differences between building in developed countries VS underdeveloped areas
- The evaluation of the efficiency of the poverty relief builds, defined by the use of the building afterwards
- How to adapt to different culture and building materials
- What is BPE and how to get involved in poverty relief projects

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows, explanations, and demonstrations
EVALUATION AND GRADING: None

COURSE TITLE: The Owner/Builder Earthship Experience

INSTRUCTOR: Phil Basehart & Casey Crayton
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours

COURSE DESCRIPTION:
Two amazing teachers and members of Earthship community talk about their experience as owner builders. Kirsten first details her experience as a young owner builder, but also emphasize on the challenges of being a woman working in construction. She explains how building your own house becomes part of your identity. Then, Ron recounts his own building experience as a novice first and then as a professional. He started to build multiple Earthships and now has many properties.

LEARNING OBJECTIVES: This courses shows you the challenges of building your own house and engaging in construction work.

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows and personal experiences.
EVALUATION AND GRADING: None

COURSE TITLE: Academy Independent Study Overview for Proposals

INSTRUCTOR: Lauren Anderson
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 1 hour

COURSE DESCRIPTION:
Kirsten, the Earthship Academy director, explains to the students the order of the Earthship Academy, and how to achieve graduation. The last step of the Earthship Academy is usually an independent study. The independent study needs to follow rigorous guidelines and fit the frame defined in the section of the program. Kirsten explains what is expected from students when they reach their final step towards graduation and gives numerous examples of other independent projects undertaken by previous students and validated by Earthship Biotecture.

LEARNING OBJECTIVES:
- What is an independent study
- What are the requirements for the independent study
- To what extent the company can help students fulfill their independent study
- When to seek support during the independent study process and what is next.

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: Kirsten presents the independent study and passes on example of books or constructed models made by previous students that successfully graduated from the program.
EVALUATION AND GRADING: None

COURSE TITLE: Earthship Community Assignment

INSTRUCTOR: Phil Baseheart
CLASS LOCATION: Taos, New Mexico or online.
TIME FRAME: 2 hours (1h teaching, 1h interactive activity)

COURSE DESCRIPTION:
Phil details his experience in the Greater World, living there for 25 years. He was a member of the board of directors for 10 years and recounts the successes and challenges of living and working within this community. He gives example of mission statement and laws of the Earthship community that students can reflect upon. The Earthship community has unique rules and other laws necessary to successfully achieve a sustainable life for the entire community. Phil shows the students the necessary steps that need to be taken in order to prepare to manage and organize everything before starting a community.

LEARNING OBJECTIVES:
- The importance of planning when building communities
- The importance of organization and rules
- Details to consider before building a community

PREREQUISITES TO THE COURSE: Earthship Village Ecologies, Test Sites and Colonies Course (Instructor: Michael Reynolds)
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: Active teaching for 1 hour and then group activity. Students create their own ideal community, with other students and present this in front of the class.
EVALUATION AND GRADING: Informal review of the different group presentations of their potential community rules in front of the class

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COURSE TITLE: Power Tool Safety

INSTRUCTOR: Earthship Crew (4 instructors)
CLASS LOCATION: Taos, New Mexico
TIME FRAME: 4 hours

COURSE DESCRIPTION:
Instructors walk the students through the proper operation of commonly used power tools on an Earthship construction site. Earthship sets up five different stations with tools such as: Table saw, skill saw, impact driver, wet tile saw, grinder and more. Students rotate through the different stations where the Earthship crew explains to each group of students how to operate the tools and be safe around them.

LEARNING OBJECTIVES:
- How to confidently approach tools
- Knowing the basic safety around power tools
- How to operate major power tools

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: Protective gear: gloves, closed-toed shoes, eye protection, and face mask.
FORMAT AND ORGANIZATION: Students are separated into 5 groups, each group spends about 30 minutes on every station with a power tool.
EVALUATION AND GRADING: Every student gets to operate every tools, one by one, under the supervision of an instructor.

COURSE TITLE: Building Permit Process for Earthships

INSTRUCTOR: Amy Duke
CLASS LOCATION: Taos, New Mexico
TIME FRAME: 2 hours

COURSE DESCRIPTION: Andressa Malaga walks the students through the long process of applying for a building permit and planning permission to make Earthships legal housing units. Different permissions are necessary according to different specific features of Earthship. She shows the documents that need to be filled out and explains what are the other support documents people need if they want to build an Earthship.

LEARNING OBJECTIVES:
- Legal process when obtaining a building permit
- Responsible authorities
- Documents necessary to submit a planning permit

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: 2 hour lecture with slideshows and example documents
EVALUATION AND GRADING: Multiple questions about permitting in the final test

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COURSE TITLE: WOM Lab

INSTRUCTOR: Lou Maiolica
CLASS LOCATION: Taos, New Mexico
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This is a LAB, where students have to manipulate and build a WOM, under the supervision of their instructor.

LEARNING OBJECTIVES:
- Building a WOM
- Connecting a WOM
- Maintenance of the WOM

PREREQUISITES TO THE COURSE: The Water Organising Module (WOM) Course (Instructor: Lou Maiolica)
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: Interactive: Instructors demonstrate to the students how to build a WOM and then let them practice assembling the WOM.
EVALUATION AND GRADING: None

COURSE TITLE: Solar Electric Wiring Lab

INSTRUCTOR: Nels Johnson
CLASS LOCATION: Taos, New Mexico
TIME FRAME: 2 hours

COURSE DESCRIPTION:
This is a LAB, where students have to manipulate and build electrical circuit and components of the POM, under the supervision of their instructor.

LEARNING OBJECTIVES:
- Building a POM
- Connecting a POM
- Maintenance of the POM

PREREQUISITES TO THE COURSE: The Power Organizing Module- POM Course (Instructor: Kris Wallen)
LIST REQUIRED MATERIALS: None
FORMAT AND ORGANIZATION: Interactive: Instructors demonstrate to the students how to create a basic electrical circuit and wiring and then let them practice wiring a simple circuit.
EVALUATION AND GRADING: None

COURSE TITLE: Maintenance Lab

INSTRUCTOR: Marcus Sisk
CLASS LOCATION: Taos, New Mexico
TIME FRAME: 2 hours

COURSE DESCRIPTION: Ron explains in detail what maintenance is needed in Earthships, as they are "vassals" and need to be regularly checked. Ron goes through the essentials in maintenance especially of the solar panels, batteries, water systems, POM, and WOM, as well as cleaning of particular Earthship features.

LEARNING OBJECTIVES:
- Identify the systems that need maintenance in an Earthship
- Knowing how to do basic maintenance
- Knowing the tools necessary for maintenance

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: None

FORMAT AND ORGANIZATION: Interactive class where students are shown the components inside a functioning Earthship.
EVALUATION AND GRADING: One question in the final exam.

COURSE TITLE: Layout Lab

INSTRUCTOR: Gunnar Meiers (+3 other instructors)
CLASS LOCATION: Taos, New Mexico
TIME FRAME: 2 hours

COURSE DESCRIPTION:
Phil Basehart and Jennifer Weibel take the students in the field to show them how to layout a building according to architectural drawings. Students are given a set of drawings and are shown how to do a basic layout, that is well oriented and square.

LEARNING OBJECTIVES:
- How to identify the main lines on a construction drawings
- How to straighten the reference lines to layout a house

PREREQUISITES TO THE COURSE: None
LIST REQUIRED MATERIALS: Tape measure
FORMAT AND ORGANIZATION: Interactive: Instructors demonstrate to the students how to do layout and then let the students practice.
EVALUATION AND GRADING: None

CLASSROOM / COURSE POLICIES:
Students need to attend at least 90% of the classes

FEDERAL PRIVACY LAW: All of the contact information of students is strictly confidential and never shared with third parties.