PINA

Core Curriculum

for the

Permaculture Design Course

Permaculture Institute of North America

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PINA’s Permaculture Design Course Core Curriculum

This outline summarizes essential topics and learning goals for the standard 72-hour Permaculture Design Course, based on criteria described in the *Permaculture Handbook* by Bill Mollison and Andrew Jeeves, 1985.

Instructors present this curriculum using a variety of methodologies, and may include supplemental material appropriate to region and instructor, including integrated whole-systems design examples from temperate, tropical and arid environments. Topics may be covered in any sequence.

Participants are assessed for certification based on full attendance of the 72-hour program, including completion and presentation of the group-based design project.

**Learning Goals for Participants**

Students complete the course with a basic understanding of:

- Permaculture ethics and principles, including sample strategies and techniques for realizing them in design
- Reading landscapes, interpreting all elements and their relationships to each other
- Applying permaculture principles to land and community development in small and large-scale designs
- Methods and tools for adopting these practices in all aspects of their lives

**A. Core Curriculum Topics**

1. **Introduction to Permaculture**
   - Evidence of the state of the world
   - Philosophy, history, and impact of current cultural values

   **Learning Goals**

   - Understand how current cultural values drive the destruction of society and nature
   - Provide a relief valve to move the discussion toward positivism

2. **Ethics and Principles**
   - Earth Care
   - People Care
   - Fair Share (distribution of surplus)
   - Limits Aware (constraints to consumption and population)
   - Positive attitudes and self-responsibility
   - Holmgren’s 12 Principles and their correlation to Mollison’s Principles

   **Learning Goals**

   - Know the permaculture ethics and their applications in culture
   - Understand that values guide design decisions
   - Comprehensive understanding of ecological design principles and how to apply them across cultural domains
3. The Local Ecosystem
- Observation skills
- Principles of ecology
- Reading the landscape

**Learning Goals**
- *Get to know the place where the design comes about*
- *Describe the flow of energy through the system, the cycling of materials within it, and the feedback loops that integrate it*

4. Patterns and Pattern Application
- Visible patterns in nature: Form follows function
- Tools and methods for noticing patterns and interpreting significance: Flows, orders, indicators, anomalies, paradoxes, attractors
- Examples of applying pattern to design
- Edge strategies

**Learning Goals**
- *Recognize and analyze patterns found in the natural world and apply them to landscape design*

5. Climates, Biogeography and Microclimates
- The global climate system, natural history, and climate change
- Characteristics of temperate, tropical, humid and arid climates, and design strategies for each
- Assessment of current and changing climate and adaptations to it
- Biomes, genetic distribution, biodiversity
- Climate near the ground: Aspect, slope, vegetation, surfaces and structures
- Design of windbreaks

**Learning Goals**
- *Gain awareness of species and technologies appropriate for climatic conditions*
- *Understand how permaculture design impacts climate on different scales*
- *Implement strategies that lessen risk of climatic extremes.*

6. Design Methods and Process
- Whole systems thinking; access to both halves of the brain and multiple intelligences
- Observation and enhancing intuition
- Data gathering (including access to public information) and assessment; inventories
- Client interview; goal statements
- Pattern languages and articulating vision
- Analytical methods: Site analysis and patterning; sectors, zones, elevations, slope and orientation; needs-and-yields (niche analysis); limiting factors; design by exclusion
- Mapping concepts and elements; mapping with simple skills and tools using scales from homestead to broad-acre; contours, data overlay
- Conceptual design; bubble diagram
- Sequence and implementation; flow charts; budgets
- Graphical representation; presentation skills; importance of documentation
- Monitoring and feedback
**Learning Goals**

- Understand the practice of design as a discipline
- Evaluate ecological design frameworks and methods for suitable applications
- Observe, analyze, and assess a site to determine resources and constraints
- Draw zone and sector maps and flow diagrams for a site design
- Apply whole systems thinking and problem-solving; integrate elements, principles, relationships, and emergent properties of dynamic systems
- Demonstrate comprehension of the site design verbally and graphically

7. **The Home System**
- Patterns and elements of domestic self-reliant economies
- Distribution of economic function by zone and sector analysis
- Transition from consumer to producer households

**Learning Goals**

- Understand the pivotal role of household capacity in resisting economic predation
- Design an example home system by placing buildings, vegetation, and infrastructure

8. **Water**
- The hydrologic cycle
- Conservation, water’s functions, matching quality to use
- Water harvesting and storage in built containers, in ponds, and in ground
- Tropical, arid, and temperate strategies

**Learning Goals**

- Understand the water cycle and the importance of water
- Determine water flow in landscape and through domestic systems
- Apply conservation measures to one’s own life

9. **Earthworks**
- Keyline design, micro-catchments, gabions, and check dams
- Use of levelling instruments and construction of swales
- Design and construction of earthen dams and ponds

**Learning Goals**

- How to channel and store runoff by proper location and building of these elements

10. **Soils**
- Soil biology and function in the ecosystem
- Soil texture, structure, classification, and testing
- Fertility management and soil repair
11. Trees, Forests, Plants, and Cultivated Ecologies
- Architecture, growth, and function of trees; placement and role of forests
- Guilds and polyculture
- Agroforestry, tree crops, multifunctional hedgerows, and orchard design
- Plant selection and identification; life strategies, succession, and niches
- Plant physiology and propagation
- Design and establishment of vegetable gardens and edible landscapes
- Season extension: Cloches, hoop houses, greenhouses, and other techniques
- Integrated Pest Management
- Seed saving and exchange

Learning Goals
- Read the soil of place and determine what it needs
- Ways to build healthy soil in any environment, including sheet mulch and compost

12. Animals
- Designs that integrate plants and animals (alley cropping, rotational grazing, etc.)
- Roles and habitats of small and large livestock
- General husbandry: Food, hygiene, health care, protection, reproduction
- Breed selections: Needs, yields, and characteristics
- Land management

Learning Goals
- Understand forest succession, plant layers, and diversity within the forest
- Basic botany; identify types of plants and understand their roles
- Propagate four different types of plants
- Understand polycultures and the niches of plants
- Design a small food garden
- Knowledge of decision-making tools to work with pest challenges

13. Aquaculture
- Aquatic ecology: Trophic food web, limiting factors, and design criteria
- Chinampas and other cultivated aquatic ecosystems
- Aquaponics; species choices

Learning Goals
- Apprehend methods of diversifying water bodies on large and small scales
14. The Built Environment
• Siting of structures relative to climatic conditions, elevation, functions
• Building design for comfort and function; appropriate materials; passive solar heating
• Natural building vs. Green building; energy sources and standards
• Energy uses, efficiency, and retrofits
• Examples of different natural building techniques

Learning Goals
• Address design for function: Energy conservation, shape and placement, materials, utility elements and aesthetics

15. Waste and Bioremediation
• Conservation and recycling of materials in households and society
• Reclamation and re-use of greywater, blackwater, and soil and water on toxic sites
• Hygienic capture, treatment, and cycling of human waste
• Closed-loop manufacturing strategies (cradle to cradle)

Learning Goals
• Guidelines to closing soil nutrient loops
• Assess personal practices regarding material use

16. Appropriate Technology
• Holmgren’s Future Scenarios: Relation of energy and technology to social structure
• Low, intermediate, and high technologies
• Examples, sources, and importance of appropriate tools
• Energy sources and energy-conserving technologies
• Renewable energy generation: Solar, wind, hydro

Learning Goals
• What makes technology appropriate, and how to use energy efficiently on a site

17. Design for Catastrophe
• Types of disaster, impacts, risks, planning, and responses
• Analysis, behavior, and mitigation

Learning Goals
• Be able to identify and prevent potential site problems through good design
• Increase resilience by knowing how to prepare for emergencies and disasters

18. Urban Permaculture
• Patterns in human settlement; flows and orders
• Constraints and opportunities in the urban context
• Local food security, energy alternatives and building techniques, waste cycling
**Learning Goals**
• Be able to apply appropriate permaculture strategies in urban areas

19. Broadscale Landscape Design
• Development of Zones 3, 4, and 5
• Practical procedures in property design
• Strategies for farmers
• Wildlife habitat

**Learning Goals**
• Understand imperatives and challenges of rural regeneration, income from acres

20. Design for Invisible Structures
• Types and importance of invisible structures: Hierarchies and networks, information flow
• Strategies in community organizing and development
• Issues of land use and building regulation, law vs. practice, attitude, and mores

**Learning Goals**
• Evaluate health and conviviality of legal and social environments

21. Economic Systems
• Household and community economies: Natural, human, and social capital
• Real wealth: Degenerative, generative, and regenerative assets
• Formal and informal complementary currencies; community lending and banking
• Right livelihood and making a living

**Learning Goals**
• Awareness of examples of non-formal and formal economics
• Familiarity with sustainability-related value systems such as triple bottom line

22. Access to Land
• Trusts: Private and public for housing, farming, forestry
• Group purchase: Co-housing, intentional community, urban community block
• Legal forms of tenure: LLC vs. partnership
• Use of commons, landless movements and strategies

**Learning Goals**
• Revisit the ethics of land care
• Understand some of the benefits and challenges in living in intentional communities
• Know how and where to look for land to grow food

23. Ecovillage and Neighborhood Design
• Working at the political / personal edge to achieve effective land stewardship
• Use of Pc principles: Design, education, planning social and invisible structures
• Infrastructure development and financing
• Defined governance and ownership structure; collective management and adaptation
• Develop and promote a local, ecological, and economic base
• Shared responsibility and predictable challenges
• Intergenerational connections and responsibility; community glue

Learning Goals
• Know how to design physical and invisible structures that encourage and support healthy community interaction

24. Permaculture Scene
• Local, regional, and global networks and organizations: History, mores, needs

Learning Goals
• The local, regional, and global Permaculture networks and how to join them

25. Design Projects and Presentations
• Visioning, action learning, advocacy
• Group intelligence, cooperation, project management

Learning Goals
• Gain insight to the value of collaboration and multiple voices for holistic design

26. Passion Show / Talent • Untalent Show / Cabaret / Party

Learning Goals
• Know how to unleash a group’s collective genius to create entertainment and culture
• Gain experience in presenting to a group
• Get to know and collaborate with coursemates in a playful context

B. Optional Curriculum Topics

Hands-on Interactive Exercises
• Short, interactive design exercises
• Mapping of Zone 1 by triangulation
• Constructing an A-frame level, laying out a contour, then digging a swale
• Designing a sand or dirt pile
• Keyline exercise on a large dirt pile
• Building a pond
• Designing and building a rainwater tank
• Installing irrigation
• Analyzing soil test jars and soil characteristics
• Making a compost pile
• Sheet mulching
• Planting a cover crop
• Understanding botany and identifying plants
• Prepping and planting a garden bed
• Planting a guild
• Planting trees, shrubs or herbs
• Mixing soil for seed flats, starting bedding plants
• Pruning, grafting and other methods of plant propagation
• Preserving food by lactic fermentation, drying, etc.
• Plastering, cob and other natural building techniques
• Designing a business

Additional Topics
• Nature connection: Primitive skills tracking, bird language
• Biochar
• Medicinal herbs
• Mushroom cultivation
• Beekeeping
• Permaculture design for wild lands (Zone 5)
• Pantry design and dietary considerations
• Inner permaculture
• Group process and facilitation
• Community decision-making
• Design charrette using Open Space or World Café process