Permaculture Design Certificate
Course Outline
by Tom Kendall

DAY 1 – Introduction
Housekeeping
Introduction: Who is Tom Kendall
Group Participant Introductions
What crises does the world face today
Permaculture Definitions and Philosophy
Definitions of Wealth and Sustainability
Permaculture Ethics and Philosophy
Permaculture in Landscape and Society
The principles of Permaculture
Integration vs Segregation
Bacteria based and fungal based soils

DAY 2 – Chapter 2 & 3: Concepts, themes and methods of design
Directives, laws and principles
Definition of Resources
Identifying Resources
5 types of Resources
Principle of disorder
Yield in linear vs Yield in cyclic systems
Cultural impediment to Yield
8 Methods of Design
Permaculture vs Most Present Day Design
Guilds and relationships between elements
DAY 3 – Chapter 4: Pattern understanding
Definition of patterns
Orders within patterns
Types of patterns
Working with patterns
Patterns on edge effects
Tribal use of patterns
Pattern creation in nature
Patterns of society
Torrordal Phenomena

DAY 4 – Chapter 5: Climatic factors
Climatic factors: factors that affect the climate
Climate types:
What determines a climate type
Precipitation types
Types of rainfall
Types of condensation
Solar radiation and its effects
Types of incoming radiation waves
Short wave and long wave radiation; light and heat
Heat transfer types
Managing frost
Wind: its measurement and diversion methods
Landscape effects
Process of approach
Classic landscape profile

DAY 5 – Chapter 6: Trees & their energy transactions
Biomass of a tree
Interaction of trees and their environment
Biomass above and below ground
Wind effects on trees
Temperature effects of trees
Trees and precipitation
Tree interaction with rain
Albedo
Forest classes
Legume trees and their function in forests
DAY 6 – Chapter 7: Water
World shaped by water
Heavy particles and acidity in water
Precipitation
Freshwater and where it is stored
The cycle of fresh water
Orographic and forest effects on precipitation
Effects of human interference on precipitation
Holding and slowing down water
Infiltration via earthworks: swales, dams, ponds and earth tanks
Soil storage and how to increase storage in damaged soils
Tank storages
Biological storage
Different dam types and where they fit in the landscape
How to reduce water used in sewage systems
Sewage ponds, septic systems and greywater systems

DAY 7 – Chapter 8: Soils
What is NPK and how did it become the most used fertiliser in the world
Accellerating succession and evolution through soil building
Carbon and Nitrogen in the soil
pH of soil, acidity and alkalinity
The Allbrecht System and the Mulders Chart
Working with nature (animals and plants) to adjust mineral levels in soil
Carbon sequestering
Sources of Nitrogen and effects of too much (direct) Nitrogen
Aeration vs Compaction of soil
Effects of fertiliser on plants
Soil health and classifications
Soil structure and compostion
Humus and humus content of soils
Colloids and soil crumbs
Natural vs synthetic soil conditioners
Soil Biota or the “Soil Food Web”
Fungal based hot compost vs bacterial based worm compost and worm farms
Erosion and salt effects
Average soil
Top soil
Soil Life
Plant interaction
Soil patterns and the biocide cocktail
Feeding the soil
Decomposition Knowledge - Compost
Worm Farm
DAY 8 – Chapter 9: Earthworks & earth resources
Effects of Earthworks on immediate environment
Necessary and ethical earthworks
Importance of planning and surveying before doing any earthworks
Ground cover and planting out as part of earthworks
Slope measurement
Different tools that measure levels
Soil slump control
Drainage for earthworks
Earth constructs and its uses
Earth moving equipment: the right machine for the job
Earth resources: different elements in the earth and their uses
STUDENT DESIGN PROJECT

DAY 9 – Chapter 10: The humid tropics
What is a microclimate
The 3 types of climates in Humid Tropics
Tropical soils and their management
Plants, planting and sources of humus
Earth shaping suitable to Humid Tropics
House Design
Student Design Project

Chapter 12: Humid cool to cold climates
What are Humid cool – cold climates
Land form and Water conservation
Settlement and house design and planning
Wild fire considerations in planning buildings
Student Design Project

DAY 10 – Chapter 11: Dryland strategies
Different climates within the dry climate
Indicators for a dry climate
Water in dry climates
Precipitation in dry climates
Soil and temperature changes
Animals in the dry climate
Soil biota, minerals and organic substances
The desert house and desert settlements
Importance of shade in settlements
Water ways, water retention and water use in the desert
House garden in the desert / dry climate
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DAY 11 – Chapter 13: Aquaculture
Advantages of aquaculture
Elements needed for successful aquaculture
Cultural variations in aquaculture
Canal, channels and chinampas and quantities of fish
Maintaining water quality
Types of environments and what suits aquaculture
Acidity and Alkalinity and its effect on aquaculture
Temperature control
Salt content
Flow of water
Species evaluation
Diversity by configuration and structures
Staging of ponds
Ways to encourage insect population for feeding fish
Compressed air
Aquaculture
Gley
Chinampas
Students Design Project

DAY 12 – Chapter 14: Strategies of an alternative global nation
Why globalisation is not working
Debt and the restrictive practices of governments
Bioregional localisation
Legal entities for property and company protection
Shared property ownership
Errors in setting up a community
Local money trading system
Formal systems
Formal/Informal economy
Local Permaculture Groups
Student Design Projects, Presentations and Finish