Hello students, today we will be

covering a topic from course titled

Introduction and Scope of Microbiology

from Unit 8 Ecology and Ecosystem.

Module name is concept of ecosystem type,

structure and function of

ecosystem and solution a shape.

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The outline of my presentation

is introduction to ecosystem,

concept of ecosystem types of ecosystem,

structure of ecosystem and

function of ecosystem.

Upon completing this module,

the students will be able to

explain the concept of ecosystem,

describe the types of ecosystem,

describe the structure of ecosystem

and describe the function of.

Ecosystem, all the living organisms on Earth.

They cannot live in isolation.

They have to interact with their

nonliving environment and the

nonliving environment provides

material as well as energy for

the living organisms to survive.

This interaction of biotic

community with itself and the

environment is known as ecosystem.

This ecosystem is a stable system,

and it is a naturally.

Self sufficient,

you need ecosystems are part of nature.

While living organisms interact

among themselves and with

their physical environment.

The term ecosystem was coined by

a English botanist AG Tensley.

In the year of 1935,

the ecosystem is defined as the

structural and functional Unit of

ecology that is nature and encompassing

complex interaction between the.

Biotic that is leaving and a biotic that

is non living, nonliving components.

Now examples of ecosystem,

our pond ecosystem, desert ecosystem,

grassland ecosystem, forest ecosystem,

etc.

Now under the concept of Ecosystem 3,

major components,

false one is type of ecosystem,

secondary structure of ecosystem

and 3rd is function of ecosystem

under the type of ecosystem we have

to dry ecosystem forest, grassland,

desert and aquatic ecosystem.

Under the structure of ecosystem we

have biotic and a biotic component

under the function of ecosystem we

have energy flow, food, chain, food, web.

And biogeochemical cycles.

Now type of ecosystem, plants,

animals, microorganisms, rocks,

soil, water,

sunlight.

They are the major components

of any ecosystem now.

Ecosystems are categorized into two types,

aquatic and terrestrial.

Ecosystem terrestrial ecosystems

are the land based ecosystem,

whereas aquatic ecosystem are water based.

Now, terrestrial ecosystem differs

from the aquatic ecosystem.

The main factors which differentiate

the terrestrial and aquatic ecosystem

is the relative shortage of water

in the terrestrial ecosystem.

Another factor.

Is the availability of light

and the main type of terrestrial

ecosystems are the forest ecosystem,

desert ecosystem, grassland ecosystem,

and finally the mountain ecosystem,

which is also known as tundra ecosystem.

First one is the forest ecosystem.

Forest ecosystem is the has the abundant

flora and fauna in their ecosystem.

It is highly densed with living Organism.

They are classified on basis of.

The climatic condition into

tropical Evergreen forest.

Tropical Decidious forest,

temperate,

Evergreen forest and temperate deciduous

forests and also tiger region.

Now rainforest ecosystem is the most diverse.

Flora has the most diverse flora and

fauna than any other region on the Earth.

The rainforest ecosystem is warm,

moisture laden environment that

is why the trees.

Are growing tall with a dense and

lush foliage in which the species are

growing happily in the temperate zone.

The forest ecosystem can be

decidious or Connie ferrous or

mixture of both certain traits.

Trees will shed their leaves each fall,

while others will remain

Evergreen throughout the year.

Coming towards the grassland ecosystem,

they do not have any long trees.

Whereas these are the areas mostly

comprising of the Gracies and little

number of shrubs and smaller trees.

Now grazing animals insect.

If voters and herbivores are the types of

organisms which are found in the grassland,

it provides an ideal environment

for the grazing animal.

There are three types of grassland ecosystem,

primary savannahs and steeps.

They share a common characteristic.

That is,

all of these three grasslands

are semiarid in nature.

Now trees are not present here and

they are typically found in the

tropical region or temperate region.

The grass lane,

which is found in tropical region are

called as Savannah and the grassland,

which is found in temperate.

Other priories savannahs are dry

seasonally and they have large number

of predators and grazers coming.

Priorities are divided into 3 subtypes.

That is mixed grass,

tallgrass and shortgrass.

Prairies do not have large shrubs and

trees coming towards the desert ecosystem.

It has low precipitation,

low,

lesser than 25 centimeter or

10 inches per year,

but about 17% of the land on the earth

is occupied with the desert ecosystem,

the flora.

And founder found in this ecosystem

are not developed and they have to

sustain high temperature intense UV

rays and low availability of water.

The main vegetation which is

found here are shrubs,

bushes and few grasses and trees.

The stems and leaves of these plants

have been developed in such a way to

conserve the water as much as possible.

Camels,

reptiles and certain insects.

And birds are the creatures which

are found in this region.

Not all deserts are hot desert ecosystem.

There are certain.

Headsets which are found in the Arctic

but regardless of the latitude,

all the deserts are windy.

Some deserts contain sand dune,

whereas other desserts will be mostly rocky.

Coming towards the Tundra ecosystem,

which is also known as mountain ecosystem,

it has harsh environmental conditions

and the soil is frozen all year and

this condition is called as permafrost.

Now the mountain ecosystem is the

most scattered and diverse in terms

of their habitat and a large number of

animals and plant plants are found here.

Now the condition at a very high

altitude is not allowing a lot of plants.

To grow only certain vegetations

will be grown,

and those are called as Alpine vegetation.

Now animals which live here they

have a thick fur.

In order to protect themselves

against the harsh cold environment,

and they usually.

Hibernate throughout the winter.

Now the slopes at a low altitude are

generally covered with the coniferous

forest during summer and spring the

snow will melt and it forms a pond near.

It forms a point point which

will attract a lot of migrants,

such as waterfowl sometimes

during spring and summer,

certain like Kerns and even

small flowers will be visible.

Now.

The term tundra it refers to the

polar areas at a lower altitude,

but certain tundra like communities

you can find at a higher elevation and

those are called as Alpine tundras.

Now next is the aquatic ecosystem.

Now waterbodies our term, sorry.

The ecosystem which has water

bodies are aquatic ecosystem.

They are divided into two types,

freshwater ecosystem and

marine water ecosystem.

First we will see marine ecosystem.

Marine ecosystem is the

biggest ecosystem on Earth.

It covers about 70% of the Earth's

surface and about 97% of the total

water is a marine water now high.

Amount of minerals and salts

are present in the marine water.

Now Marine ecosystem differs

from the freshwater ecosystem.

Since marine water has marine water

is a saltwater which will support

a different kinds of species.

Marine ecosystem consists of the open

ocean floor surface and tidal zone estuaries,

salt marshes, saltwater swamps,

mangroves and coral reefs.

Coming towards the freshwater ecosystem.

They are very small in magnitude as

compared to the marine ecosystem.

There is only zero point 8% of the

Earth's surface is covered with fresh

water and the .009% of their total

water of Earth is the freshwater.

The freshwater ecosystems are

divided into three types.

Lentic ecosystem,

Lotic ecosystem and wetland ecosystem.

Lentic ecosystem is the water

body which is slowly moving.

Or a steelwater such as pond or

lake and Lotic ecosystem are the

water bodies which are fast moving,

such as river and stream.

The wetlands are those system which has

soil which is saturated throughout the year.

Many different species of reptiles.

Amphibians are found in the freshwater

ecosystem and about 41% of worlds

fish are present in the freshwater.

The fast moving water.

Contains more dissolved oxygen,

hence they have great greater diversity.

The planktons,

which are part of the freshwater ecosystem,

forms the smallest living part

of the food web that is eaten,

eaten up by the fish and other

small creatures.

Coming towards the structure of ecosystem,

there are two Type 2 components

to the structure of ecosystem.

One is biotic and one is a biotic

by a biotic.

Component is is made up

of nonliving components,

and they are categorized into two types,

climatic and and.

Climatic and Efik in the climatic

factor we have rain, temperature,

light, wind,

humidity and in end if we have

soil pH topography, mineral etc.

In the biotic component,

the living organisms such as plant animal,

microorganisms,

false biotic components are

divided into 3 categories,

one is producer,

second is consumer and 3rd is decomposers.

Under producer we have green plant

that has chlorophyll which helps trap

the solar energy and change it into

chemical energy of carbohydrate.

Using inorganic compounds such as water.

When carbon dioxide this process

is called as photosynthesis.

Now green plant are example of the

producers and they are called as autotrophs.

Auto represents to self and

troughs are feeders.

This chemical energy stored by

the producer is utilized by the

producer for their growth and

survival and the remaining is

stored in the plant for future use.

The consumers are the animals

which will lack the chlorophyll.

And they utilizes the sorry.

Consumers are the animals which do

not have chlorophyll and they are

unable to synthesize their own food.

They depend on the producer for their

food source and they are called as herb.

Sorry.

They are called as heterotrophs hetero

meaning other and troughs meaning feeders.

The consumers are divided into four types.

The primary consumers,

which is also known as first

order consumers or Herbie words.

These are the animals that feeds

on the plant or the producers.

They are called as herbivores and

the example for it are rabid deer,

goat, cattle etc.

In the secondary consumer it is

also called as secondary order

consumer or primary carnivores.

They are the Organism which feed on

the herbivores. The examples are.

Cat, foxes, snakes, etc.

In the tertiary consumer we

have larger carnivores
such as wolves in the tertiary consumers
we have carnivores which feed on the
tertiary consumers and they are not
being eaten up by any other Organism.
Examples are lion and tiger.
Decomposers are also known as reducers.
The bacteria and fungi belongs
to the decomposers family.
They breakdown the dead organic
material of producers and consumers
for their food and releases inorganic
and organic substances into the
environment that are produced as
byproducts from their metabolism.
These simple substances are again
reused by the producers resulting
in a cyclic exchange of material.
Between Biotic and a biotic
components the decomposers are
also known as separate troughs.
Cipro represents to rotten and
troughs meaning feeders coming towards
the function of the ecosystem.

As we know that ecosystem are complex

dynamic system there are various functions

of ecosystem such as productivity,

decomposition,

physical flow that is energy flow,

biological, that is food, chain,

food, web or ecological succession.

And we have biochemical processes,

food, chain, food,

web and energy flow and nutrient cycles

will be covered in the later modules.

Productivity,

a constant input from a solar energy,

is the basic requirement of the

ecosystem to function and to sustain now.

Primary production is defined

as the amount of the biomass or

organic matter which is produced

per unit area over a time period

by plants during photosynthesis.

It is expressed in terms of weight

that is gram power minus two,

or energy that is kilo calories.

Perimeter Square the rate of
biomass production is called as the
productivity it is expressed in terms
of gram power minus two per year or
kilocalories per meter square per year.
To compare the productivity
of different ecosystems.
Productivity is divided into two types,
gross primary productivity,
which is referred as GP and
net primary productivity,
which is referred as NPP.
Now gross primary productivity in
an ecosystem is the rate of the
production of organic matter during
the process of photosynthesis,
a considerable amount of GP is
utilized by plant during respiration,
so the gross primary productivity
minus the respiration.
Is your net primary productivity
that is NPP coming towards
the decomposition process?
It is done by the animal known

as decomposers.

Decomposers will breakdown

the complex organic matter.

They also helps in loosening the soil.

Example is earthworm.

It is referred as farmers friend.

The decomposers breaking down complex

organic matter into inorganic

substances like carbon dioxide water.

Nutrients this process is known

as decomposition.

Dead plant remains such as leaves,

barks,

flowers or even the dead remains of animals,

including the fecal matter.

They constitute constitute Detroiters,

which is a raw material for

the decomposition.

Now the important steps that is required

in the process of decomposition.

Tsar fragmentation leaching catabolism,

humification,

and.

Mineralisation detrivores will
breakdown the detrius into smaller
particles and this process is
known as fragmentation.
Leaching is a process where in the
water soluble inorganic nutrients
will Co down into the soil horizon
and it gets precipitated and it
will become an unavailable salt.
Decomposition is an oxygen based process.
It requires oxygen catabolism.
Process is done by bacteria and fungi.
They will produce enzymes that
will degrade the Detroiters into
smaller inorganic substances.
Humification process is the accumulation
of the dark colored amorphous
substance which is known as humours.
This humus is resistant to any
microbial action and the decomposition
rate is extremely slow it.
Serves as a reservoir for nutrients.
The humor is further degraded by some
microorganisms and certain inorganic

nutrients are released into the environment.
This is called as mineralisation.
The rate of decomposition is controlled
by chemical composition of Detroiters and
climatic factors in certain climatic factors.
Decomposition rate is very slow and
if the Detroiters is rich in lignin.
Then tighten the process of
decomposition will be slower.
Process of decontamination will be faster
if the Detroiters is rich in nitrogen
and water soluble substances like sugar,
temperature and soil moisture are the
most important climatic factors that will
regulate the process of decomposition.
Warm and moist environment
favors the decomposition,
whereas low temperature or north aerobic,
aerobic,
warm and moist environment
favors the decomposition.
Whereas low temperature and less of
oxygen or no oxygen will inhibit

the process of decomposition and

it will result in building up

the organic matter on the Earth.

This is my reference,

thank you.