Welcome students.

This course is offered for BSc

Students opting for geology

for the 6th semester.

The name of this course

is sedimentary petrology,

and the course code is GEC 108.

The name of this module is basins

of deposition and geosyncline's.

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In this module we are going to

learn about sedimentary basins,

structural basins

Tectonic basins and geosyncline's.

At the end of this module,

a student will be able to define

and describe a sedimentary basins.

How the sedimentary basins form

and identify and differentiate

between sedimentary basins

Sedimentary basins,

or sedimentary,

is in is a depressed area in the earths crust in which sediments tend to accumulate over a long period of time. Sedimentary basins formed when the crust of the earth subsides as a result of changes within Earth resulting from tectonic events or other internal changes or downward warping as sediments are loaded onto the crust. Sedimentary basins can be shaped like bowls or elongate troughs or have irregular shapes. These can be 10s to hundreds of miles in diameter and can contain layers of sediment as thick as 15,000 meter. Much of our interest in this business result from fact that some sedimentary

basins contain economically. Important accumulations of petroleum. The sedimentary basins are. Classified into structural basins and tectonic basins will first learn about structural basins, an area in which the rocks they dip or tilt towards the center of the structure is known as structural basin. Structural basins are big scale forms wherein the bedding dips in all directions towards the center of the structure. The opposite of structural domes. So if we view it in cross section it will look something like this. And the rocks will be. Dipping. Towards the center. Or structural basin. Is analogous to a set of progressively smaller.

Bowls that fit nearly within each other. So if we consider these as different bowls. You will observe that the largest bowl will be at the center, followed by smaller and smaller bowls if. These goals can be correlated to. Sedimentary beds each of these bowl represents a different layer of rock, all symmetrically arranged around a common center. The rocks that make up such always in have been displaced downward at the center of the feature, leaving the flanking rocks with our relatively equal deep in all directions. Most structural basins are from a few miles to hundreds of miles in width. In some cases, the rocks that form the outer limbs of the structural basin might be removed by erosion,

leaving the center of the basin intact and higher than the outside of the basin. Search your feature would be or topographic high. But have the internal structure of a base, and so even if we have. A feature topographic feature like this and if the basins were initially. In the form of a shape of. Bowl. Then even after erosion it would leave away the outline. And this outline would be called a topographic high. Which has the internal structure of a vision. Structural basins may be also sedimentary basins, which are aggregations of sediment that filled up or depression or accumulated in an area. However, many structural basins were formed by tectonic events. Long after. The sedimentary layers were deposited.

Basins appear on geological map as roughly circular or elliptical with concentric layers. If you were to. We all observe it like this on a geological map. And because the strata dip towards the center, they expose traitor in a basin are progressively younger from outside, in with the youngest rocks at the center. Like the previous diagram, the youngest rocks will be towards the center, while the oldest will be towards the periphery. Basins are often large in aerial extent, often hundreds of kilometres across. Structural basins are often important sources of coal, petroleum, and groundwater. Tectonic basins and drift values. These are landforms characterized

by relatively steep,

mountainous sides and flat flows. The steep sides are created by displacement on faults such that valley flows move down relative to the surrounding margins, or conversely, the margins move up relative to the flow. So you're faulting takes place. It takes rocks down. Relative to the rocks. Which are besides it adjacent to it And that is how these tectonic basins form. So differences in the elevations of valley flows and surrounding mountains or plateaus range only several 100 meters to more than 2000 meters in major rift valleys. The width of tectonic valleys and basins vary from as little as 10 kilometer to more than 100 kilometers. Their lengths typically

are hundreds of kilometres. They form basins, which contain a thick body of sedimentary or volcanic strata, which could be deposited because of crustal movement. Antedated or accompanied accumulation of strata. Geosyncline geosyncline is a term used for subsiding linear trough which was caused by accumulation of sedimentary rock strata deposited in a basin and subsequently compressed, deformed, and uplifted into a mountain range with attendant volcanism and plutonism. The filling of a geosyncline with tons of sediments is a component in the late stages of deposition, by folding, crumpling, and faulting of deposits. Intrusion of crystalline igneous

rock and regional uplift along axis of the graph generally complete the history of particular geosyncline. It is then transformed into the belt of folded mountains. Thick volcanic sequences together with graywackes. Which are sandstones rich in rock fragments with muddy matrix cherts and various sediments reflecting deep water deposition or processes or deposited in eugeosynclines. The outer deep water segment of Geosyncline's are divided into my Mio geosynclines and eugeosynclines, depending on types of discernible rock strata of mountain system, a mio geosyncline develops along a continental margin on continental crust. And is composed of sediments with limestone, sandstone and shales.

The occurrence of limestone and well sorted quartz sandstone indicate a shallow water formation. And such rocks form in the inner segment of a geosyncline. The usual syncline consists of different sequences of lithologies, more typical of deep marine environments. eugeosynclinal rocks include thick sequences of greywackes, cherts, slates, tuffs, and submarine lavas. The usual synclinal deposits are typically more deformed, metamorphosed and intruded by small to large igneous plutons. The usual synclines often contain exotic flysch sediments. Here are the references. Thank you.