Welcome students.

This course is offered to students in the

subject of geology for the 5th semester.

The course code is GEC 107 and the

course title is igneous petrology.

The name of this module is

study of Gabbroic rocks.

I'm Aliston D'Souza, assistant professor

at the College of Arts and Science,

Miramar, Panjim, Goa. In this module,

you're going to learn about Gabbroic rocks.

Dolerites

Basalts at the end of this module.

You will be able to know about mode of

occurrence of platonic hyper vessel and

volcanic equivalents of gabbroic rocks.

Gabbroic rocks are divided into 3 clans,

namely gabbro,

norite and troctolite

Major layered basic intrusives contain

coarse grained aggregates of pyroxene and

olivine in all possible proportions.

Yeah, but like rocks consists

fundamentally of calcic plagioclase with

dominant clinopyroxene.

Norite consists of calcic plagioclase

with dominant orthopyroxene in the form of

hypersthene and subordinate clinopyroxene.

The plagioclase content usually

exceeds the mafic minerals,

thus making up to 60% of the whole rock

With increasing proportion of olivine and

disappearance of pyroxene or two mineral

rock is formed which is called troctolite

And it consists of olivine

and plagioclase

Textures in plutonic basic igneous rocks.

Gabbros and norites usually

show coarse grained, hypidiomorphic

granular texture ophitic

or subophitic texture myrmekitic

intergrowth, cumulate texture.

Troctolites show corona texture.

The minerals.

Such as plagioclase

show subhedral

Outline and are twinned.

They also show platy habit,

alteration to zoisite or

epidote and iron oxide.

Clinopyroxene's contain

inclusions of orthopyroxene's.

Orthopyroxene, usually in the

form of bronzite or hypersthene.

Exhibit exsolution lemellae

low grade metamorphism.

Into amphibole or chloride.

Olivine shows euhedral outline

Replacement by Serpentine

Corona and also reaction rims.

Many gabbros occur as minor

intrusives in stocks and bosses.

Large volumes of gabbro and now

right are developed as conspicuous

member of layered complexes.

Many basic intrusions usually show layering.

dolerite, these are medium

grain equivalents of gabbros and

are made up of calcic plagioclase

near labradorite mineralogy.

And clinopyroxene usually.

Augite.

They should be called micro gabbro but

are called dolerites in America.

They are called diabase

As accessories, they often contain

iron ore minerals like magnetite,

titano-magnetite or ilmenite.

The central type consists of plagioclase

near labradorite in composition.

Clinopyroxene usually ordered

and accessory iron oxide.

Olivine dolerites and quartz

dolerites are common hornblende

is often absent in dolerites

Most characteristic texture in dolerites

is ophitic to sub ophitic

whereas the plagioclase are often

euhedral and randomly arranged.

And closed completely or

partially in clinopyroxene,

which are relatively large

and of irregular shape.

However, not all dolerites are authentic.

Sometimes dolerites may show intergranular

texture where in pyroxene form grains

interstitial to the pleasure place.

The fine grained dolerites

often show porphyritic texture.

Dolerites are the most

dominant in the medium grain.

Hyperbyssal igneous rocks.

This is emphasized by immensely

abundant dyke forms and sill complexes,

which riddle the crust over vast areas.

Normally each dyke extends over

a length of few 10s of meters

with a width of few meters.

Basalt,

the term basalt is used collectively to the

fine grain equivalent of gabbro and norite

Ideally,

basalts consist of plagioclase

usually within the range of labradorite

to bytoiwnite and pyroxene

opaque minerals like magnetite and

ilmanite are usually always present.

Olivine is also present in most.

But not all basalts.

Basalts with accessory olivine

are called olivine basalts plagioclase

is usually of 2 generations

as phenocrysts which are often zoned

and as microlites which are most

sodic in composition in the groundmass.

Also frequently occurs as phenocrysts

and groundmass hornblende is rare in

basaltic rocks, but biotite is common.

Structures. Some basalts are vesicular,

and these vesicles maybe gas

filled in the course of time.

Secondary minerals like chalcedony,

agate,

calcite and specially zeolites may

be precipitated in this vesicles.

Textures in basalts textures in

basalts may vary from completely

glassy to low crystalline texture.

A glassy basalt is called tachylite

Most of the crystalline basalts

are porphyritic with penetration of

any or all minerals of constituent.

Minerals.

Various other textures seen in

basalt include intergranular.

Where in the interstices between

plagioclase are filled by glassy material.

Glomeroporphyritic

Variolytic texture is also common in

the Basalts where in the plagioclase and less

commonly pyroxene occur as fibers

radially disposed around a point.

Search texture is common in pillow lavas

Here are the references.

Thank you.