KERNKONSEPTE / KEY CONCEPTS/ DIKAKANYOKGOLO

FAKULTEIT / FACULTY/LEGORO: Natuurwetenskappe / Natural Sciences/Disaense tsa Tlhago
SKOOL / SCHOOL SEKOLO: Omgewingswetenskappe GIS / Environmental Sciences GIS/ Disaense tsa Tikologo GIS
KONTAKPERSOON / CONTACT PERSON/IKGOLAGANYE LE: Me L Botha
MODULEKODE EN –NAAM / MODULE CODE AND NAME/KHOUTE LE LEINA LA MODULE: GGFN 312

Kernbegrip in Afrikaans	Definisie/verklaring in Afrikaans	Key concept in English	Definition/explanation in English	Kakanyokgolo mo Setswaneng	Thanolo/Tlhaloso mo Setswaneng
1. Wat is Geografiese Inligtingstelsels (GIS)?	Dit is 'n rekenaarstelsel wat daartoe in staat is om geografiese verwysingsinligting (data-identifisering volgens hulle ligging) te stoor, manipuleer en vertoon. Eenvoudig gestel: 'n GIS kombineer lae inligting i.v.m.'n plek om aan 'n	**1. What is Geographical Information Systems (GIS)?**	It is a computer system capable of assembling, storing, manipulating and displaying geographically referenced information (data identifying according to their location). Simply put, a GIS combines layers of information about a place to provide one with a	**1. Dithulaganyo tsa Tshedimosetso ya Thutafatshe ke eng (DTT)?**	Ke thulaganyo ya khomphiutha e e kgonang go phutha poloko, e tshwara le go bontsha tshedimosetso ya dikaedi tsa thutafatshe (tshedimosetso e e lemogiwang ka ntlha ya lefelo la yona). Ka go baya DTT bonolo

	mens 'n beter begrip van daardie plek te verskaf.		better understanding of that place.		fela llaga e e kopanyang tshedimosetso ka ga lefelo go tlamela motho ka ntlha e e botoka ya go tlhaloganya lefelo leo.
2. Breedtegraad	Dit is 'n ruimtelike verwysingstelsel vir die Aarde se oppervlakte. Breedtegraad is 'n hoekmaat N of S van die ewenaar.	**2. Latitude**	It is a spatial reference system for the Earth's surface. Latitude is an angular measurement N or S of the equator.	**2. Latitšhutu**	Kaedi ya thulaganyo ya sebaka sa boalo jwa lefatshe. Latitšhutu ke tekanyo ya sekhutlo sa N kgotsa S sa mogarafatshe.
3. Lengtegraad	Dit is 'n ruimtelike vewysingstelsel vir die Aarde se oppervlakte. Lengtegraad is 'n hoek-maat O of W van die meridiaan by Greenwich.	**3. Longitude**	It is a spatial reference system for the Earth's surface. Longitude is an angular measurement E or W of the meridian at Greenwich.	**3. Lonkitšhutu**	Ke kaedi ya thulaganyo ya sebaka sa boalo jwa lefatshe. Lonkitšhutu ke tekanyo ya sekhutlo sa E kgotsa W sa merediane kwa Greenwich.
4. Koördinaatstelsel	Dit bestaan uit getalle wat die posisie van 'n punt relatief tot die oorsprong aandui. Cartesiaanse koördinate druk die posisie in twee of drie dimensies uit as die loodregte afstande vanaf twee of drie ortogonale asse.	**4. Co-ordinate system**	It consists of numbers representing the position of a point relative to an origin. Cartesian co-ordinates express the location in two or three dimensions as the perpendicular distances from two or three orthogonal axes.	**4. Thulaganyo ya kopanyo**	E na le dinomoro tse di emelang maemo a ntlha e e tsalanang le a tlhago. Kopanyo ya Cartesian e thadisa lefelo ka ditsela di le pedi kgotsa di le tharo e le sekgala sa mothalotsepa go tswa mo diaseng tse di mo molatsepeng.

5. Projeksie	'n Projeksie is 'n wiskundige metode om inligting van die Aarde se driedimensionele oppervlakte na 'n tweedimensionele medium (papier of 'n rekenaarskerm) oor te dra.	**5. Projection**	A projection is a mathematical means of transferring information from the Earth's three-dimensional surface to a two-dimensional medium (paper or a computer screen).	**5. Ntlhakhutlogo**	Ntlhakhutlogo ke tiriso ya mmetshe ya go fetisa tshedimosetso go tswa mo boalong jwa maphata a mararo a Lefatshe go ya go phetisi ya maphata-mabedi (pampiri kgotsa sefatla sa khomphiutha).
6. Datum	'n Datum is die punt van oorsprong binne 'n projeksie (WGS 84).	**6. Datum**	A datum is the point of origin within a projection (WGS 84).	**6. Datamo**	Datamo ke ntlha ya tshimologo mo teng ga ntlhakhutlogo (WGS 84).
7. Geoverwysing	Die toekenning van ligging aan inligtingsbrokkies	**7. Georeference**	The act of assigning location to atoms of information	**7. Kaelothutafatshe**	
8. Data	Data bestaan uit getalle, teks of simbole wat in 'n sekere sin neutraal en bykans vry van konteks is. Dit is rou, geografiese feite (bv. die temperatuur op 'n spesifieke tydstip en plek).	**8. Data**	Data consist of numbers, text or symbols that are in some sense neutral and almost context-free. They are raw, geographical facts (e.g. the temperature at a specific time and location).	**8. Data**	Data e na le dinomoro, diteng kgotsa matshwao a ka mokgwa mongwe a emetseng thoko e bile a se na bokao bope. Ke dintlha tse di sa fetolwang, tsa thutafatshe (sk. Themphereitšha mo nakong le lefelo le le rileng).
9. Metadata	Metadata is formele	**9. Metadata**	Metadata are formal	**9. Data e e sa**	Data e e sa

	beskrywings van data (data i.v.m. data, bv. wat die projeksie is, wanneer die data ingeneem is, ens.).		descriptions of data (data about data, e.g. what the projection is, when the data was captured, etc.).	**tlwaelegang**	tlwaelegang ke ditlhaloso tse di rulaganeng tsa tshedimosetso (tshedimosetso ka ga tshedimosetso, sk. se ntlhakhutlogo e leng sona, fa tshedimosetso e kwalwa,jj).
10. Raster	'n Datastruktuur wat uit 'n netwerk van selle saamgestel is. Selgroepe verteenwoordig geografiese kenmerke; die waarde in die sel verteenwoordig die eienskap van die kenmerk.	**10. Raster**	A data structure composed of a grid of cells. Groups of cells represent geographical features; the value in the cell represents the attribute of the feature.	**10. Rasetere**	Popego ya tshedimosetso e e dirwang ke keriti ya disele. Setlhopha sa disele se emela ponagalo ya thutafatshe; boleng jo bo leng mo diseleng bo emela dipharologantsho tsa ponagalo eo.
11. Vektor	'n Datamodel wat gebaseer is op die voorstelling van 'n geografiese objek deur Cartesiaanse koördinate, wat gewoonlik gebruik word om lineêre kenmerke voor te stel. Elke kenmerk word deur 'n reeks koördinate voorgestel wat die vorm	**11. Vector**	A data model based on the representation of a geographical object by Cartesian co-ordinates, commonly used to represent linear features. Each feature is represented by a series of co-ordinates, which define its shape and may have linked information. More sophisticated	**11. Beketara**	Mmotlolo wa tshedimosetso o o ikaegileng ka kemedi ya selo sa thutafatshe ka kgokaganyo ya Cartesian, e e tlwaelegileng go dirisiwa go emela diponagalo tsa lethetho. Ponagalo nngwe le nngwe e emelwa ke

	daarvan definieer en ook verwante inligting kan bevat. Meer gesofisti-keerde vektordatamodelle sluit ook topologie in.		vector data models include topology.		tlhatlhamano ya dikgokaganyo, tse di ranolang popego tsa yona mme di ka tswa di na le tshedimosetso e e golagantsweng. Dibeketara tse di tsweletseng di akaretsa thopoloji.
12. Kenmerk	Dit is vektorobjekte van tipe-punt, lyn of poligoon.	12. Feature	Features are vector objects of type point, line or polygon.	12. Pharologantsho	Dipharologantsho ke dilwana tsa beketara tsa mofuta wa ntlha, mola kgotsa khutlontsi.
13. Topologie	Dit is die wetenskap en wiskunde van verhoudinge wat gebruik word om die geometrie van vektor-entiteite te valideer, asook vir bewerkinge soos netwerkopsporing en toetse van poligoonnabyheid.	13. Topology	It is the science and mathematics of relationships used to validate the geometry of vector entities, and for operations such as network tracing and tests of polygon adjacency.	13. Thopoloji	Ke saense le mmetshe wa botsalano o o dirisiwang go tlisa kamogelesego ya jeometeri ya yuniti e e ikemetseng ya beketara, le mo ditirong tse di jaaka go sala dikgokagano ka motlhala le tekeletso ya khutlontsi e e bapileng le yona.
14. Veralgemening	Dit is die proses van beredenering vanaf die aard van 'n monster tot die aard van 'n groter groep.	14. Generalization	It is the process of reasoning from the nature of a sample to the nature of a larger group.	14. Go akaretsa	Ke thulaganyo ya go akanya go tswa mo tlholegong ya sampole go ya mo tlholegong ya setlhopha se se golwane.

15. Afstandswaarneming	Die wetenskap van die verkryging van inligting i.v.m. die Aarde deur instrumente wat ver van die Aarde se oppervlakte is, te gebruik, gewoonlik vanaf vliegtuie of satelliete. Instrumente kan sigbare lig, infrarooi of radar gebruik om data te bekom. Afstandswaarneming bied die moontlikheid om data vir groot areas relatief vinnig waar te neem en te versamel, en is 'n belangrike databron vir GIS.	15. Remote sensing	The science of acquiring information about the Earth, using instruments that are remote to the Earth's surface, usually from aircraft or satellites. Instruments may use visible light, infra-red or radar to obtain data. Remote sensing offers the ability to observe and collect data for large areas relatively quickly, and is an important source of data for GIS.	15. Temosikgakala	Ke saense ya go bona tshedimosetso ka ga Lefatshe, go dirisiwa didiriswa tse di kgakala le boalo jwa Lefatshe, gantsi go tswa mo sefofaneng kgotsa disatalaete. Didiriswa di ka dirisa lesedi le le bonagalang, la infra e khibidu kgotsa rada go bona tshedimosetso. Temosikgakala e abelana ka bokgoni jwa go lemoga le go kokoanya tshedimosetso ya mafelo a magolwane ka bonako, e bile ke motswedi o o botlhokwa wa tshedimosetso wa DTT.
16.Ruimtelike analise	Ruimtelike analise is die proses waartydens analitiese tegnieke op geografies-verwysde datastelle toegepas word om nuwe geografiese inligting te ekstraheer of ontwikkel. Ruimtelike analise kan gebruik word om	16. Spatial analysis	Spatial analysis is the process of applying analytical techniques to geographically-referenced data sets to extract or generate new geographical information. Spatial analysis may be used to model complex geographical	16. Tshekatsheko ya sebaka	Tshekatsheko ya sebaka ke thulaganyo ya go dirisa dithekeniki mo diseteng tsa tshedimosetso tse di kaetsweng ka thutafatshe go ntsha kgotsa go tlhola tshedimosetso e ntšhwa ya thutafatshe.

	komplekse geografiese interaksies te modelleer en is handig in die ondersoek van terreingeskiktheid en om toekomstige gebeure te voorspel. Hoewel die totale analitiese tegniek kompleks kan wees, is dit gewoonlik 'n kombinasie van eenvoudige tegnieke wat in die juiste volgorde toegepas is.		interactions, and is useful for investigating site suitability and predicting future events. Although the overall analytical technique may be complex, it is usually a combination of simple techniques applied in the appropriate order.		Tshekatsheko ya sebaka e ka dirisetswa go supa dikgokagano tse di marara tsa thutafatshe e bile e mosola mo go tlhatlhobeng bomaleba jwa lefelo le go fopholetsa ditiragalo tsa isago. Le fa thekeniki ya tshekatsheko ka kakaretso e ka nna marara, go le gantsi ke kgolagano ya dipharologantsho tse di bonolo tse di dirisitsweng mo thulaganyong e e maleba.
17. Globale Posisionering-stelsel (GPS)	'n Stelsel wat ligging bepaal deur gebruik te maak van radio-ontvangstoestelle om seine van vier of meer spesiale satelliete (daar is 24 in omwenteling) op te vang en WGS-koördinate vir die ontvanger bereken. Akkuraatheid hang van die gesofistikeerdheid van die prosessering, sowel as van die tyd wat	**17. Global Positioning System (GPS)**	A position-finding system which uses radio receivers to pick up signals from four or more special satellites (there are 24 in orbit) and computes WGS co-ordinates for the receiver. Accuracy depends on the sophistication of processing and the time available for reception. Real-time navigation	**17. Thulaganyo ya Kemo ya Kanamisotshwano (TKK)**	Thulaganyo ya go batla kemo e e dirisang dikamogelo tsa melaetsa ka radio go tsaya ditsibosi go tswa mo disatalaeteng tse di kgethegileng di ka nna nne kgotsa go feta (go na le tse 24 mo modikong) le go balelela moamogedi dikgokagano tsa WGS. Nepo e ikaegile ka mararaane a go e

	vir ontvangs beskikbaar is, af. Reële-tydnavigasie wat GPS op vliegtuie en skepe gebruik, kan akkuraat wees tot nader as 100 m. Geprosesseerde data van etlike ure se waarnemings kan relatiewe posisies verskaf wat akkuraat is tot op 'n paar sentimeter.		using GPS on aircraft and ships can be to better than 100 m. Processed data from several hours' observations can provide relative positions accurate to a few centimetres.		diragatsa le nako e e leng teng ya go e amogela. Go tsamaya mo nakotiragalong o dirisa TKK mo sefofaneng le dikepe go ka nepagala botoka go fitlha go 100m. Tshedimosetso e e fetotsweng go tswa mo ditemogong tsa diura di le mmalwa e ka tlamela kemo e e siameng e e nepagetseng go ya go disentimetara di se kae.
18. Databasis	Dit is 'n geïntegreerde stel data oor 'n bepaalde onderwerp.	18. Database	It is an integrated set of data on a particular object.	18. Sefalanatshedimosetso	Ke sete e e lotaganeng ya tshedimosetso mo selwaneng se se rileng.
19.Eienskap	Dit is 'n teksitem, getalwaarde of teken wat kenmerkend is van 'n spesifieke ruimtelike entiteit.	19. Attribute	It is an item of text, a numeric value or an image that is a characteristic of a particular spatial entity.	19. Ponagalo	Ke ntlhana ya diteng, boleng jwa ntlha ya dipalo kgotsa setshwantsho se e leng pharologantsho ya yuniti ya sebaka e e rileng.
20. SQL	Dit is die standaard-databasisnavraagtaal en is uitgebrei deur die	20. SQL	It is the standard database query language and it has been extended	20. SQL	Ke sefalanatshedimosetso se se tlhomameng se

	byvoeging van geografiese vermoëns.		with geographical capabilities.		se bonang diphoso tsa puo e bile e katolositswe ka dikgono tsa thutafatshe.