Die Departement Logistiek is een van verskeie departemente binne die Universiteit Stellenbosch se Fakulteit Ekonomiese en Bestuurswetenskappe, en is ook die oudste tersiêre akademiese departement in Suid-Afrika wat opleiding in vervoer en logistiek bied.  Die departement huisves die vakrigtings Kwantitatiewe Bestuur, Logistieke Bestuur, Operasionele Navorsing en Vervoerekonomie, asook twee moderne nagraadse navorsingslaboratoriums vir M- en PhD-studente. Dit is die enigste departement aan ‘n Suid-Afrikaanse universiteit wat die onderskeie vakrigtings volledig en geïntegreerd vanuit een departement aanbied.  Hierdie vakke kan in verskeie BComm- en BSc-programme gevolg word. Die vier hoofvakke, naamlik Kwantitatiewe Bestuur, Logistieke Bestuur, Operasionele Navorsing en Vervoerekonomie, word almal op tweedejaars-, derdejaars- en nagraadse vlak aangebied.

*The Logistics Department is one of several departments within Stellenbosch University’s Faculty of Economic and Management Sciences, and is also the oldest tertiary academic department in South Africa to provide training in transport and logistics. The department houses the disciplines of Quantitative Management, Logistics Management, Operations Research and Transport Economics, as well as two modern postgraduate research laboratories for M and PhD students. It is the only department at a South African university fully offering the various disciplines integrated in one department. Subjects can be followed in several BComm and BSc programmes. The four major subjects, namely Quantitative Management, Logistics Management, Operations Research and Transport Economics are all offered at second-year, third-year and postgraduate level.*

**Afdeling: Operasionele Navorsing**

Operasionele navorsing, as ‘n formele akademiese dissipline, se oorsprong lê in die wiskundige tegnieke wat deur spanne wetenskaplikes ontwikkel is vir militêre beplanning gedurende die Tweede Wêreldoorlog. In die dekades ná die oorlog is die tegnieke toegepas op ‘n wyer verskeidenheid besigheids-, bedryfs- en gemeenskapsprobleme. Vandag word operasionele navorsing gebruik in feitlik elke besigheid en regering regoor die wêreld, en dit is steeds ‘n aktiewe akademiese veld.

Die afdeling Operasionele Navorsing aan die Departement Logistiek by die Universiteit Stellenbosch is een van die grootste van sy soort in Suid-Afrika. Die eerste formele opleiding in Operasionele Navorsing het in 2001 op tweedejaarsvlak begin, en is mettertyd uitgebrei om volledige opleiding in Operasionele Navorsing op beide voorgraadse en nagraadse vlak te kan aanbied. Bykomend tot die voorgraadse opleiding in Operasionele Navorsing in die breë graadprogramme van die Fakulteite Ekonomiese en Bestuurswetenskappe en Natuurwetenskappe, lewer die gefokusde nagraadse Honneurs- en M-kursusse in Operasionele Navorsing ‘n groot bydrae tot die opleiding van operasionele navorsers in Suid-Afrika. Studente met ‘n sterk onderbou in Wiskunde en Statistiek kan inskryf vir hierdie programme. Die afdeling spog vandag met ‘n moderne navorsingslaboratorium vir M- en PhD-studente waarin elke student ‘n toegewyde werkstasie ontvang, met al die nodige rekenaarfasiliteite tot hul beskikking om hul navorsing te ondersteun en fasiliteer. Navorsing binne die afdeling sluit in (maar is nie beperk tot) gevorderde lineêre programmering, nie-lineêre en heelgetal-programmering, kombinatoriese optimering, vooruitskatting, simulasie, differensiaalvergelykings, metaheuristieke en meervoudigekriteria-besluitnemingsanalise. Hierdie navorsing vind toepassings in onder andere pakhuise, produksieskedulering, volhoubaarheid en die omgewing, landbou, die plasing van fasiliteite, roetebepaling, padvervoer, sny- en verpakkingsprobleme. Die afdeling Operasionele Navorsing is ook nou betrokke by die Operasionele Navorsingsvereniging van Suid-Afrika (ONSA). Personeel uit die afdeling dien op die uitvoerende komitee van dié vereniging, en studente uit die afdeling wen gereeld pryse tydens die vereniging se jaarlikse nasionale studentekompetisie. Die afdeling bied ook voorgraadse en nagraadse opleiding in Kwantitatiewe Bestuur, wat toegespits is op die gebruik (eerder as die ontwikkeling) van wiskundige modelle om bestuursbesluite te neem en te ondersteun.

***Division: Operations Research***

*The origins of operations research, as a formal academic discipline, lie in the mathematical techniques developed by teams of scientists for military planning during the Second World War. In the decades after the war, the techniques were applied to a wider range of business, industry and community problems. Today, operations research is used in virtually every business and government around the world and is still an active academic field.*

*The Operations Research division at the Department of Logistics at Stellenbosch University is one of the largest of its kind in South Africa. The first formal training in Operations Research started in 2001 at second-year level, and was later expanded to offer complete training in Operations Research at both undergraduate and postgraduate level. In addition to undergraduate studies in Operations Research in the general degree programmes of the Faculties of Economic and Management Sciences and Natural Sciences, the division makes a major contribution to the training of operations researchers in South Africa through the focused postgraduate Honours and Master’s courses in Operations Research. Students with a strong foundation in Mathematics and Statistics can enrol in these programmes. The department today boasts a state-of-the-art research laboratory for Master’s and Doctoral students in which each student receives a dedicated workstation with all the necessary computing facilities at their disposal to aid and facilitate their research. Much of the research within the division deals with (but is not restricted to) advanced linear programming, nonlinear and integer programming, combinatorial optimisation, forecasting, simulation, differential equations, metaheuristics and multi-criteria decision analysis. This research has applications in, for example, warehouses, production scheduling, sustainability and the environment, agriculture, the location of facilities, vehicle routing, road transport, cutting and packing problems. The Operations Research division is also involved in the Operations Researchers Society of South Africa (ORSSA). Staff members from the division serve on the society’s executive committee, and students from the division frequently win prizes during the society's annual national student competition. The division also offers undergraduate and postgraduate training in Quantitative Management, which focuses on the use (rather than the development) of mathematical models to make and support management decisions.*

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**Wat is ON?**

Operasionele navorsing (ON) is 'n toegepaste dissipline waarin 'n wetenskaplike benadering gevolg word om werklike probleme op te los. Operasionele navorsers gebruik tegnieke wat tipies oorvleuel met wiskunde, statistiek en rekenaarwetenskap om beste of optimale oplossings te bereken. Die soort probleme wat operasionele navorsers oplos is normaalweg hoogs kompleks, met baie alternatiewe, en bevat soms onsekerheid en teenstrydige doelwitte. ON is 'n kragtige instrument in besluitnemers en bestuurders se hande, want dit stel hul in staat om hoëgehalte-besluite te neem wat wetenskaplik verantwoordbaar is. Sulke besluitneming kom onder andere in fabrieke, besighede, banke, mynbou, die konstruksiebedryf, landbou, ekologie en konsultasie-omgewings voor.

Die benaming *operasionele navorsing* beskryf nie regtig die aard van die dissipline nie. Alternatiewe benamings soos o*perasionele analise*, *kwantitatiewe bestuur*, *bestuurswetenskap* en *besluitnemingswetenskap*, wat dikwels gebruik word in plaas van die wyd aanvaarde term o*perasionele navorsing*, help ook nie regtig nie. Die naam spruit uit die gemeenskaplike oorlogswerk in die Verenigde Koninkryk tydens die Tweede Wêreldoorlog, toe spanne interdissiplinêre wetenskaplikes ingeroep is om die strategiese en taktiese probleme wat verband hou met militêre operasies op te los. Hierdie span wetenskaplikes het gefokus op besluite oor die doeltreffende benutting van beperkte militêre hulpbronne. Die term *operasionele navorsing\* is geskep omdat die span *navorsing* gedoen het oor die lewering van doeltreffende (militêre) *operasionele* bedrywighede.

Ná die oorlog het die suksesvolle gebruik van operasionele navorsingstegnieke tydens die oorlog die aandag getrek van besluitnemers in die sakewêreld en nywerhede. Die moderne omvang van operasionele navorsing is baie wyer as militêre operasies, hoewel dit steeds gemoeid is met doeltreffende stelselbenutting en besluitneming. Dit fokus dikwels op die bepaling van ‘n maksimum (bv. wins of prestasie) of minimum (bv. verlies, risiko of koste). Dit behels ‘n wye verskeidenheid probleemoplossingstegnieke en metodes in die nastrewing van verbeterde besluitneming en doeltreffendheid, soos simulasie, wiskundige optimering, toustaanteorie, statistiek, netwerk-analise en speleteorie. Dit is nie gebaseer op ‘n enkele akademiese rigting nie, en benut onder andere metodes uit die fisiese wetenskappe, logika, toegepaste wiskunde, bedryfsingenieurswese, die sosiale wetenskappe, ekonomie, statistiek, en rekenaarwetenskap. ON is gewoonlik betrokke by besluitnemingsprobleme wat oor verskeie dissiplines strek en poog om deur gepaste metodes probleme uit enige van hierdie bronne op te los. Byna al die tegnieke behels die konstruksie van wiskundige modelle wat poog om die spesifieke probleem wiskundig of logies na te boots.

***What is OR?***

*Operations research (OR) is an applied discipline in which a scientific approach is followed to solve real-life problems. Operations researchers use techniques that typically overlap with mathematics, statistics and computer science to calculate best or optimal solutions. The type of problems that operations researchers solve are usually highly complex, with many alternatives, and sometimes contain uncertainty and conflicting goals. OR is a powerful tool in the hands of decision-makers and managers, since it allows them to make high-quality decisions that are scientifically justified. Such decisions may be found in, for example, factories, businesses, banks, mining, the construction industry, agriculture, ecology and consulting environments.*

*The name*operations research*does not really describe the nature of the discipline. Neither do the alternative names, such as*operational analysis*,*quantitative management*,*management science*or*decision science*, which are often used instead of the widely accepted term*operations research*. The name stems from the collective war effort in the United Kingdom during World War II, when teams of interdisciplinary scientists were called upon to study the strategic and tactical problems associated with military operations. These teams focussed on decisions regarding the effective utilisation of limited military resources. The term* operations research*was coined because the team did*research*on rendering (military)*operations*as effective as possible.*

*After the war, the successful use of* operations research *techniques during the war attracted the attention of decision-makers in business and industry. The modern scope of* operations research *is much wider than military operations, although still concerned with effective system utilisation and decision-making. It is often focussed on determining a maximum (such as profit or performance) or minimum (such as loss, risk or cost). It emcompasses a wide range of problem-solving techniques and methods applied in the pursuit of improved decision-making and efficiency, such as simulation, mathematical optimisation, queuing theory, statistics, network analysis and game theory. It is not based on any single academic discipline, and draws on, among other fields, the physical sciences, logic, applied mathematics, industrial engineering, the social sciences, economics, statistics, and computing. OR is usually concerned with decision problems which cut across several disciplines, and attempts to solve problems using appropriate tools from any of these sources. Nearly all of the techniques involve the construction of mathematical models that attempt to mathematically or logically describe the specific problem at hand.*