Universiteit van Pretoria Jaarboek 2017

BIngHons Vervoeringenieurswese (12240112)

Duur van studie	1 jaar
Totale krediete	128

Programinligting

Die leergang word in oorleg met die betrokke departementshoofde bepaal. 'n Student moet in modules met 'n totaal van minstens 128 krediete slaag.

Die graad word slegs op grond van eksamens toegeken.

Toelatingsvereistes

Behoudens die bepalings van Algemene Regulasies G.1.3 en G.54, word 'n BIng-graad of 'n gelykwaardige kwalifikasie vir toelating vereis.

Eksamens en slaagvereistes

i. Die eksamen in elke module wat die student volg, word in die eerste normale eksamentydperk na afsluiting van klasse (dit wil sê Oktober/November of Mei/Junie) afgeneem.
ii. 'n Student vir die honneursgraad moet sy of haar studie in die geval van voltydse studente binne twee jaar, en in die geval van na-uurse studente, binne drie jaar na eerste registrasie vir die graad voltooi, met dien verstande dat die Dekaan, op aanbeveling van die departementshoof, in buitengewone omstandighede 'n vasgestelde beperkte verlenging van die tydperk kan goedkeur.
iii. 'n Student moet in elke module minstens 50% in die eksamen behaal waar 'n semester- of jaarpunt nie vereis word nie. 'n Module mag net een maal herhaal word.
iv. In gevalle waar daar wel 'n semester- of jaarpunt toegeken word, word 'n minimum eksamenpunt van 40% en 'n finale punt van 50% vereis.
v. Geen her- of spesiale eksamens word op nagraadse vlak toegestaan nie.

Slaag met lof

'n Student slaag met lof as hy of sy 'n geweegde gemiddelde van minstens 75% behaal het in die eerste 128 krediete waarvoor geregistreer is (modules wat betyds gestaak is, uitgesluit). Indien die student enige module druip (modules wat betyds gestaak is, uitgesluit), kan die graad nie met lof behaal word nie.

Kurrikulum: Finale jaar

Minimum krediete: 128

Kernmodules

Siviele navorsing 780 (SSC 780)

Modulekrediete	32.00
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

* Hierdie is 'n verpligte module.

The course will require all honours students to conduct research in an appropriate field of civil engineering, linked to the main discipline in which the student specializes for their honours degree.

Toegepaste statistiese metodes en optimering 798 (SHC 798)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

The course will apply some of the basics theories and methodologies in statistics and operations research to solve common civil engineering problems. The course seeks to demonstrate the use and application in the civil engineering field. Each of the applications seeks to determine how best to design and operate a system, usually under conditions requiring the allocation of scarce resources. Emphasis will be on the applications of these methods in common civil engineering practice. Some of the applications will include; optimum network design, maximum flow problem, project scheduling, queuing theory, probabilistic analysis, Markov chain applications, etc.

Keusemodules

Numeriese metodes en eindige elementtoepassings in Siviele Ingenierswese 790 (SIK 790)

Modulekrediete	24.00

Kontaktyd	40 kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

In the first part of this course, numerical procedures and some underlying theory for solving systems of equations, eigenvalue problems, integration, approximation and boundary value problems will be discussed. The second part of the course covers general finite element theory, discretization aspects related to geometry, nodes and numbering, element type and shape, interpolation functions, formulation of element characteristic matrices and vectors for elasticity problems, assembly and solution of the finite element equations, modelling procedures and results processing. The student will use Finite Element software to apply the theory that was covered in the course for solving typical Civil Engineering problems.

Betontegnologie 794 (SGC 794)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

Properties of concrete and concrete mixes. Characteristics of Portland cement and supplementary cementitious materials. Aggregates, admixtures and practical design of mixes. Manufacture, curing and testing, including non-destructive methods. Statistical approach to quality control. Time-dependent behaviour and durability of concrete. The principles for appropriate selection of materials and techniques for repair, maintenance and strengthening of civil engineering structures. Investigation and diagnosis. Corrosion of reinforcement. Alkali-aggregate reaction, sulphate attack. Physical degradation. Repair materials. Protective systems. Systems for repair.

Vervoer spesiaal 791 (SVC 791)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing

Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

Basic transportation relationships, land use, data collection and surveys. Four step transportation model, trip generation, trip distribution, modal split, trip assignment, advanced modelling approaches. Introduction to discrete choice models, econometrics, and stated preference analysis. Role of transport modelling in developmental context.

Geometriese ontwerp en veiligheid 791 (SVV 791)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

Rural/Peri-urban road networks: transportation policy, standards and safety, environmental quality, capacity, design, interchanges. Urban street networks: functional classes, town planning considerations, capacities, environment, safety, standards design, evaluation of road networks.
Traffic safety in global and national content, Road Safety Engineering and the assessment and interpretation of accident information, reactive and proactive identification of remedial measures, traffic safety strategies: 3E model and Haddon matrix.

Infrastruktuur-bestuur 790 (SSI 790)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

This module will cover the following topics: Asset Management principles, Maintenance Management principles, Maintenance strategies and philosophies, Condition based Maintenance, Reliability Centred Maintenance (RCM), Resource Management, Maintenance Management Systems, Total Productive Maintenance (TPM) and Risk Management. Maintenance management of the following disciplines will be studied in detail: Road infrastructure, Railway infrastructure, Airport infrastructure, Buildings and other structures, Water resources and water supply.

Plaveiselontwerp 793 (SGC 793)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

Design philosophy in First and Third World environments; characterising and use of pavement materials; drainage; systems approach to layout, geometric and pavement design; stresses and strains in pavements; mechanistic design methods and elasto-plastic behaviour; economic analysis; designing pavements for streets, gravel and paved roads, runways, and industrial areas. Report writing.

Multimodale vervoer 788 (SVV 788)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

The role of public transport in cities; theory and principles of public transport network design, scheduling and operations; terminals; public transport modes; costs, fares and subsidies; contemporary issues and approaches to public transport restructuring and formalisation in South Africa, including Bus Rapid Transit (BRT). Planning and designing for non-motorised transport, including pedestrians, bicyclists, and animal-drawn transport.

Padhersteltegnologie 797 (SGC 797)

Modulekrediete	24.00
Voorvereistes	Geen voorvereistes.
Kontaktyd	40 Kontakure
Onderrigtaal	Module word in Engels aangebied
Akademiese organisasie	Siviele Ing
Aanbiedingstydperk	Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

A research term paper will be prepared.

Development of road management systems and application to existing street and road networks. Evaluation of, and measurements on existing facilities. Maintenance management. Recycling of materials. Design methods for upgrading, re-construction and strengthening of the existing road infrastructure. Prerequisite: Pavement Design SGC 793.