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B-2030 Antwerpen



Study guide
Master in Marine Engineering

Academic year 2023-2024

Master in Marine Engineering

| Mandatory subjects | Th/Pr | UC |
|---|-------|----|
| Faculty of Marine Engineering | | |
| MECHATRONICS | 24/24 | 4 |
| Titel van de cursus (E)(*) (nog in te vullen) | 24/24 | 5 |
| OPLEIDINGS ONDERDEEL ENGELS (NOG IN TE VULLEN) | -/48 | 3 |
| Titel van de cursus (E)(*) (nog in te vullen) | -/24 | 2 |
| Titel van de cursus (E)(*) (nog in te vullen) | -/24 | 2 |
| OPTIMIZATION AND INNOVATION OF ENERGY SYSTEMS | 24/- | 3 |
| Titel van de cursus (E)(*) (nog in te vullen) | 24/- | 3 |
| DREDGING TECHNIQUES | 24/- | 3 |
| Titel van de cursus (E)(*) (nog in te vullen) | 24/- | 3 |
| MANAGEMENT OF INNOVATION IN MARINE ENGINEERING | 24/- | 3 |
| Titel van de cursus (E)(*) (nog in te vullen) | 24/- | 3 |
| ADVANCED CONTROL TECHNOLOGIES | 24/24 | 4 |
| Titel van de cursus (E)(*) (nog in te vullen) | 24/24 | 4 |
| OFFSHORE FOR ENGINEERS | 24/- | 3 |
| Off-shore Technology for Engineers | 24/- | 3 |
| Nautical Faculty | | |
| CLASSIFICATION AND SURVEY | 24/- | 3 |
| Classification and survey | 24/- | 3 |
| Faculty of Sciences | | |
| MASTER THESIS | -/- | 15 |
| Master thesis | -/- | 15 |
| COMMUNICATION STRATEGIES | 24/- | 3 |
| Group communication in an intercultural environment | 18/- | 2 |
| Maritime Resource Management - case studies | 6/- | 1 |
| Elective subjects | | |
| Faculty of Marine Engineering | | |
| HYDRODYNAMICS OF A VESSEL | 24/- | 3 |
| Titel van de cursus (E)(*) (nog in te vullen) | 24/- | 3 |
| Nautical Faculty | | |
| ADVANCED TANKER TRAINING GAS AND IGF | 18/18 | 3 |
| Advanced tanker training gas & IGF | 18/18 | 3 |
| ADVANCED TANKER TRAINING CHEMICALS | 18/15 | 3 |
| Advanced tanker training chemicals | 18/15 | 3 |
| ADVANCED TANKER TRAINING OIL | 18/18 | 3 |
| Advanced tanker training oil | 18/18 | 3 |
| ADVANCED MARITIME ECOLOGY AND TECHNOLOGY | 24/12 | 3 |
| Advanced maritime ecology and technology | 24/12 | 3 |
| Faculty of Sciences | | |
| INFORMATION AND COMMUNICATION TECHNOLOGY | 24/- | 3 |
| Information and communication technology | 24/- | 3 |
| DATA SCIENCE | 24/- | 3 |
| Data Science | 24/- | 3 |
| ANALYSIS OF SHIPPING MARKETS | 24/- | 3 |
| Analysis of shipping markets | 24/- | 3 |
| PORT MANAGEMENT AND POLICY | 24/- | 3 |
| Port management and policy | 24/- | 3 |
| PORT MANAGEMENT AND POLICY | -/- | 3 |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | MECHATRONICS (4 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Burgerlijk Ingenieur elektromechanica met de nodige relevante ervaring en of experten uit het werkveld. |
| Lecturer in charge | Pascal BOUQUET |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture and practical exercises | | | |
| Other teaching methods | | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 5 | | | |
| Hours of formal lecture/practical exercise | 24/24 | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/6, A-V and A-VI for Electro-Technical Officers (ETO) on seagoing vessels (mastSW-b) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Have advanced understanding of digital system controls and data processing (mastSW-g) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 permanent evaluation with integrated practical test |
| | Second session second session impossible | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. Scientific calculator. Safety clothing. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | OPLEIDINGS ONDERDEEL ENGELS (NOG IN TE VULLEN) (3 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Hoofdwerktuigkundige met vaarbevoegdheid of ... |
| Lecturer in charge | Stefaan BUEKEN / Filip VAN GUTTE |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Practical exercises | | | |
| Other teaching methods | Excursion Group work | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Marine engineer skills training - part 3, seminars - part 1 and multidisciplinary simulator exercises - part 2 | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Strict succession (must have followed and passed) Marine engineer skills training - part 3, seminars - part 1 and multidisciplinary simulator exercises - part 2 | | | |
| Units of credit (UC) | 2 | | | |
| Hours of formal lecture/practical exercise | -/24 | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/6, A-V and A-VI for Electro-Technical Officers (ETO) on seagoing vessels (mastSW-b) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - As responsible engineer officer, lead and competently communicate with an international multicultural team (mastSW-j) - Bear responsibility as an expert in safety and sustainability (mastSW-k) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 permanent evaluation with integrated practical test |
| | Second session practical test | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | OPLEIDINGS ONDERDEEL ENGELS (NOG IN TE VULLEN) (3 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Filip VAN GUTTE |
| Lecturer in charge | Stefaan BUEKEN / Filip VAN GUTTE |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Practical exercises | | | |
| Other teaching methods | | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Marine engineer skills training - part 3, seminars - part 1 and multidisciplinary simulator exercises - part 2 | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Strict succession (must have followed and passed) Marine engineer skills training - part 3, seminars - part 1 and multidisciplinary simulator exercises - part 2 | | | |
| Units of credit (UC) | 2 | | | |
| Hours of formal lecture/practical exercise | -/24 | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - doorgedreven foutopsporing te beheersen, zelfstandig fouten te evalueren en op te treden om deze te corrigeren; - de werking van hoofd- en hulpwerktuigen te beoordelen en af te stellen, daarbij gebruik makend van de uitlezing van gegevens en instructiehandleidingen (t.b.v. een ideale werking voor wat betreft emissie, verbruik en veiligheid); - ondersteuning en advies te geven in alle mogelijke situaties aan boord; - trends en verloop van gegevens te beoordelen en te interpreteren. | | | |
| Course content | De student leert de werking van de volledige machinekamer op een veilige en verantwoordelijke manier verzekeren. Hij ziet hoe daarbij gestreefd wordt naar een ideale en optimale werking van het geheel. | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/6, A-V and A-VI for Electro-Technical Officers (ETO) on seagoing vessels (mastSW-b) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) | | | |
| Examination | Following Module 1.1 permanent evaluation | Following Module 1.2 permanent evaluation | Following Module 2.1 permanent evaluation | Following Module 2.2 permanent evaluation |
| | Second session practical test | | | |
| Caesura measures | | | | |
| Required study material | | | | |
| Recommended preliminary competences | Proficiency in General English is recommended | | | |
| Additional information | | | | |

ECTS Information Package

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|-----------------------|---|
| Programme | Master in Marine Engineering |
| Course | OPTIMIZATION AND INNOVATION OF ENERGY SYSTEMS (3 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Burgerlijk ingenieur met de nodige en relevante ervaring |
| Lecturer in charge | Vincent LEYSEN |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture | | | |
| Other teaching methods | Portfolio | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | | | | |
| Learning outcomes | | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 written exam |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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|-----------------------|---|
| Programme | Master in Marine Engineering |
| Course | DREDGING TECHNIQUES (3 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Burgerlijk ingenieur met de nodige en relevante ervaring en of specialist in vakgebied |
| Lecturer in charge | Kathy SPEELMAN |
| Educational programme | Master in Marine Engineering |

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|--|---|-------------------------------|-------------------------------|--|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | Dutch/French + English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Have an advanced understanding of inspection and survey of ocean-going vessels and maritime installations (mastSW-f) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 written exam |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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|-----------------------|--|
| Programme | Master in Marine Engineering |
| Course | MANAGEMENT OF INNOVATION IN MARINE ENGINEERING (3 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Burgerlijk ingenieur met de nodige en relevante ervaring en of specialisten uit het werkveld |
| Lecturer in charge | Tim COOLS |
| Educational programme | Master in Marine Engineering |

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|--|--|-------------------------------|-------------------------------|--------------------------------------|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - innovatieve technologische ontwikkelingen in de scheepvaart op wetenschappelijk verantwoorde wijze te analyseren en te integreren; - te reflecteren over de designcyclus bij het implementeren van innovatieve technologieën en op basis van eigen reflectie adequate oplossingen voor te stellen. | | | |
| Course content | | | | |
| Learning outcomes | | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 written exam |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | ADVANCED CONTROL TECHNOLOGIES (4 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Burgerlijk ingenieur met de nodige en relevante ervaring |
| Lecturer in charge | Raf MAES |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture and practical exercises | | | |
| Other teaching methods | | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Ship automation - part 2 | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Standard succession (must have followed) Ship automation - part 2 | | | |
| Units of credit (UC) | 4 | | | |
| Hours of formal lecture/practical exercise | 24/24 | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/6, A-V and A-VI for Electro-Technical Officers (ETO) on seagoing vessels (mastSW-b) - Have advanced understanding of digital system controls and data processing (mastSW-g) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 written and permanent evaluation |
| | Second session written and permanent evaluation | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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|-----------------------|---|
| Programme | Master in Marine Engineering |
| Course | OFFSHORE FOR ENGINEERS (3 UC) |
| Course element | Off-shore Technology for Engineers |
| Lecturer(s) | Burgerlijk ingenieur met de nodige en relevante ervaring en of experten uit het werkveld |
| Lecturer in charge | Verantwoordelijke (nog in te vullen) |
| Educational programme | Master in Marine Engineering |

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|--|---|-------------------------------|--|--|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 written exam | Following Module 2.2 written exam |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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|-----------------------|--|
| Programme | Master in Marine Engineering |
| Course | CLASSIFICATION AND SURVEY (3 UC) |
| Course element | Classification and survey |
| Lecturer(s) | Ingenieur |
| Lecturer in charge | Verantwoordelijke (nog in te vullen) |
| Educational programme | Master in Marine Engineering |

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|--|--|--|-------------------------------|-------------------------------|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 12/- | Semester 1, Module 1.2 12/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | <p>The student undergoes familiarization with the technical aspects of a ship, which are directly related to maintenance and damage inspections, including the identification of critical place in the ship's structure.</p> <p>In the first part a distinction is made between failure and damage, after which the different types of inspections are discussed. Different levels of failure and damage are discussed and various causes are illustrated, including crack formation with the identification of regions of increased stresses and weakening of structures. Corrosion as a source of damage is also examined as well as the protection of a ship's hull against corrosion. This is followed by a discussion of measures to prevent damage. Finally, we identify the common critical locations for the failure and collapse of structures on board bulk carriers and tankers.</p> <p>In the second part, we will look at the maintenance and finally the recycling of ships.</p> | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Have an advanced understanding of inspection and survey of ocean-going vessels and maritime installations (mastSW-f) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 written exam | Following Module 2.1 - | Following Module 2.2 - |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |

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| Additional information | <ul style="list-style-type: none"> - AMACORT. (2014). A field study of the effectiveness of sacrificial anodes in ballast tanks of merchant ships. <i>Journal of Marine Science and Technology</i>. DOI: 10.1007/s00773-013-0232-3. - AMACORT. (2017). The Economics of a Long Term Coating. <i>International Journal of Maritime Engineering (IJME)</i>, Transactions RINA, Vol 159, Part A3. DOI No: 10.3940/rina.ijme.2017.a3.416. - Contraros, P.D. (2003). <i>The Domino Effect" Coating Breakdown - Corrosion - Structural Failures Leading to Possible Design Ramifications</i>. MRINA ABS Europe. - European Union. (2009). <i>Regulation (EU) No 1257/2013 of the European parliament and of the council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC, as amended</i>. Brussels, Belgium: European Parliament and Council. - International Association of Classification Societies. (1997). <i>BULK CARRIERS - Guidance and Information on Bulk Cargo Loading and Discharging to Reduce the Likelihood of Over-stressing the Hull Structure</i>. London, UK: IACS. - International Association of Classification Societies. (2002). <i>BULK CARRIERS - guidelines for Surveys, Assessment and Repair of Hull Structures</i>. London, UK: Witherby & Co. ISBN: 1856092232. - International Association of Classification Societies. (2005). <i>Guidelines for coating maintenance and repairs</i>. London, UK: Witherby & Co. ISBN: 1856093085. - International Association of Classification Societies. (2011). <i>Classification Societies - What, Why and How?</i>. London, UK: IACS. - International Association of Classification Societies. (2016). <i>IACS Objectives, Strategy and Action Plan (2016-2017)</i>. London, UK: IACS. - International Association of Classification Societies. (Rev. 2 May 2015). <i>Recommendation 87, Guidelines for coating maintenance & repairs for ballast tanks and combined cargo/ballast tanks on oil tankers</i>. London, UK: IACS. - International Labour Organization. (2004). <i>Safety and health in shipbreaking: Guidelines for Asian countries and Turkey</i>. Geneva, Switzerland: ILO. ISBN: 9221152898. - International Maritime Organization. (2006). <i>Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers RESOLUTION MSC.215(82), as amended</i>. London, UK: IMO. - International Maritime Organization. (2010). <i>International Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (GBS Standards) (resolution MSC.287(87))</i>. London, UK: IMO. - International Maritime Organization. (as amended). <i>Polar Code (A.1024(26) Ships operating in polar waters)</i>. London, UK: IMO. - Lloyd's Register. (2002). <i>A Master's Guide to Hatch Cover Maintenance</i>. London, UK: The Standard. ISBN: 1856092321. - Lloyd's Register. (2014). <i>ESP Guidance booklet for all ship types in preparation for a special survey</i>. London, UK: LR. - Melchers, R.E. (1999). Corrosion uncertainty modelling for steel structures. <i>Journal of Constructional Steel Research</i>, 52, 3-19. Amsterdam, The Netherlands: Elsevier. - Oil Companies International Marine Forum. (1997). <i>Factors influencing accelerated corrosion of cargo oil tanks</i>. London, UK: OCIMF. - Tanker Structure Co-operative Forum. (2010). <i>Guidelines for the inspection and maintenance of double hull tanker structures</i>. Edinburgh, UK: Witherby Seamanship International. ISBN: 9781856090803. |
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ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | MASTER THESIS (15 UC) |
| Course element | Master thesis |
| Lecturer(s) | Promotor |
| Lecturer in charge | Faculteitshoofden |
| Educational programme | Master in Marine Engineering |

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| Other teaching methods | | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Bachelor term paper and scientific research methods | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Standard succession (must have followed) Bachelor term paper and scientific research methods | | | |
| Units of credit (UC) | 15 | | | |
| Hours of formal lecture/practical exercise | -/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: | | | |
| Course content | <p>nog aan te passen aan nieuwe versie</p> <p>The master thesis concludes the master in marine engineering programme and demonstrates the student's ability to apply acquired knowledge, insights and skills at an academic level and to integrate them in a scientific and well structured document, based on personal research.</p> <p>The master thesis is the continuation of the bachelor dissertation (bachelor paper) and can be a theoretical thesis or a research project, preferably related to one of the research domains/projects of HZS.</p> | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - Independently set up and carry out a scientific maritime research project at the level of a beginner researcher; select and correctly apply relevant research methods and techniques; critically process and scientifically report the results of this research (mastSW-i) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 oral and written exam | Following Module 1.2 oral and written exam | Following Module 2.1 oral and written exam | Following Module 2.2 oral and written exam |
| | Second session oral and written exam | | | |
| Caesura measures | | | | |
| Required study material | | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | COMMUNICATION STRATEGIES (3 UC) |
| Course element | Group communication in an intercultural environment |
| Lecturer(s) | Ludwina VAN SON/Christophe COLLARD |
| Lecturer in charge | Ludwina VAN SON |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture | | | |
| Other teaching methods | Portfolio Group work | | | |
| Instruction language | Dutch/French | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | General and intercultural communication | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Standard succession (must have followed) General and intercultural communication | | | |
| Units of credit (UC) | 2 | | | |
| Hours of formal lecture/practical exercise | 18/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: Op het einde van de cursus wordt de student(e) geacht in staat te zijn om: - kritisch te reflecteren over communicatieve situaties en handelingen om zo te kunnen anticiperen op communicatieve misverstanden en deze zo mogelijk te vermijden; - een (multicultureel) team te leiden en hierbij de principes van situationeel leiderschap toe te passen; - technieken te gebruiken om niet-wenselijk of niet-functioneel gedrag van teamleden bij te sturen; - een conflict te herkennen, te analyseren en hierop adequaat te reageren vanuit leidinggevend oogpunt. | | | |
| Course content | De masterstudent Scheepswerktuigkunde krijgt een dieper inzicht aangeboden in alle communicatievormen en communicatieve situaties waarmee hij/zij geconfronteerd wordt bij het uitvoeren van de functie van (hoofd)werktuigkundige. Multiculturaliteit en hiërarchie, aspecten die eigen zijn aan het werken en leven aan boord, komen hierbij ruim aan bod. Aangezien het werken in teamverband een essentieel onderdeel vormt van de functie van leidinggevende, zal de student eveneens kennis maken met de diverse aspecten van groepscommunicatie (groepsfunctioneren, groepsdynamiek en groepsbeïnvloeding). Deze cursus wil de student daarenboven de principes van situationeel leiderschap aanreiken en hem/haar bewustmaken van de complexiteit van de rol van 'verantwoordelijk leider'. Om als officier/hoofdwerktuigkundige leiding te geven, dient de student technieken te beheersen om met problemen en conflicten om te gaan (conflicthantering). Om de reële communicatie aan boord te benaderen waarbij maritiem Engels als werktaal en lingua franca fungeert, krijgt de de student de toepassing van deze technieken in het Engels aangeboden. Om de student de kans te bieden inzicht te verwerven in de verschillende 'leiderschapsstijlen', gaat de cursus ook in op de basiselementen van leiderschap: autoriteit, invloed en macht. | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - As responsible engineer officer, lead and competently communicate with an international multicultural team (mastSW-j) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 permanent evaluation | Following Module 1.2 permanent evaluation | Following Module 2.1 | Following Module 2.2 |
| | Second session oral exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | COMMUNICATION STRATEGIES (3 UC) |
| Course element | Maritime Resource Management - case studies |
| Lecturer(s) | Ynse JANSSENS |
| Lecturer in charge | Ludwina VAN SON |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture | | | |
| Other teaching methods | Group work | | | |
| Instruction language | Dutch/French + English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | General and intercultural communication | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Standard succession (must have followed) General and intercultural communication | | | |
| Units of credit (UC) | 1 | | | |
| Hours of formal lecture/practical exercise | 6/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - situaties te kunnen evalueren en te beoordelen door overleg; - aan een divers en multicultureel team leiding te geven en het team in de machinekamer te motiveren wanneer het wordt geconfronteerd met diverse situaties. | | | |
| Course content | This course explores different aspects of operating within a multicultural environment. It focuses in particular on group communication and on strategies for preventing incidents due to human error. "MRM Case studies" is a modular course. The session is given in one day. | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/6, A-V and A-VI for Electro-Technical Officers (ETO) on seagoing vessels (mastSW-b) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - As responsible engineer officer, lead and competently communicate with an international multicultural team (mastSW-j) - Bear responsibility as an expert in safety and sustainability (mastSW-k) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 permanent evaluation | Following Module 1.2 | Following Module 2.1 | Following Module 2.2 |
| Caesura measures | Second session second session impossible | | | |
| Required study material | Lecturer's course text available. - Swedish Club/ALL Academy. <i>MRM student's workbook</i> . Gothenburg, Sweden: All Academy. Unpublished manuscript. | | | |
| Recommended preliminary competences | | | | |
| Additional information | <ul style="list-style-type: none"> - Lagadec, P. (1993). <i>Preventing chaos in a crisis: Strategies for prevention, control, and damage limitation</i>. New-York, US: McGraw-Hill. ISBN: 978-0077077747. - Roberts, P. (1996). <i>Watchkeeping Safety and Cargo Management in Port: A Practical Guide</i>. London, UK: Nautical Institute. ISBN 9781870077293. | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | HYDRODYNAMICS OF A VESSEL (3 UC) |
| Course element | Titel van de cursus (E)(*) (nog in te vullen) |
| Lecturer(s) | Burgerlijk ingenieur scheepsbouw |
| Lecturer in charge | Burgerlijk ingenieur scheepsbouw |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - mee te denken in het ontwerpproces van een schip; - de mogelijkheden en beperkingen van software analyse te begrijpen; - de mogelijkheden en beperkingen van sleeptesten te begrijpen. | | | |
| Course content | Ondanks voortdurende inspanningen op het gebied van onderzoek en standaardisatie, is een zekere mate van empirie nog steeds nodig, met name in de model-tot-schip correlatie, een methode om de voorspellingsnauwkeurigheid van scheepsweerstand met empirische middelen te verbeteren. Door middel van modeltesten in de sleeptank verwerft de student inzicht in de hydrodynamische prestaties van schepen, die kunnen worden onderverdeeld in de algemene gebieden 'weerstand en voortstuwing', 'zeewaardigheid', 'trillingen' en 'manoeuvrbaarheid'. Door het testen met modellen experimenteert de student op schaal om zo informatie te extraheren die kan worden geschaald naar het volledige schip. De student test digitale modellen in MAXSURF en maakt kennis met de mogelijkheden en beperkingen van deze simulaties. | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 oral and written exam | Following Module 1.2 oral and written exam | Following Module 2.1 oral and written exam | Following Module 2.2 oral and written exam |
| | Second session oral and written exam | | | |
| Caesura measures | | | | |
| Required study material | | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | ADVANCED TANKER TRAINING GAS AND IGF (3 UC) |
| Course element | Advanced tanker training gas & IGF |
| Lecturer(s) | Guido DELVAUX, Werner JACOBS, Anne-Pascale MORNARD |
| Lecturer in charge | Verantwoordelijke (nog in te vullen) |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture and practical exercises | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Basic tanker training (oil, gas, chem and IGF) | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Strict succession (must have followed and passed) Basic tanker training (oil, gas, chem and IGF) | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 18/18 | | | |
| Semester + module(s) | Semester 1, Module 1.1 6/- | Semester 1, Module 1.2 12/- | Semester 2, Module 2.1 -/9 | Semester 2, Module 2.2 -/9 |
| Learning objectives | <p>At the end of the course, the student is expected to be able to:</p> <ul style="list-style-type: none"> - recognise physical and chemical properties of liquid gas cargo/fuel on board ships subject to the IGF Code; - plan, conduct and follow up gas and fuel operations on board ships subject to the IGF Code in a safe manner; - take measures to prevent pollution of the environment by a release of gas/fuel on board ships subject to the IGF Code; - take measures to prevent hazards; - verify and follow up on agreement with the prevailing legislation. | | | |
| Course content | <p>The courses Advanced Tanker training Oil, Advanced Tanker training Gas and IGF, and Advanced Tanker training Chemicals are a continuation and deepening of the module Basic Tanker training for Oil, Chemicals, Gas and IGF. They start with a common theoretical part in which the student first elaborates on the study of cargo calculations on board oil, chemical and gas tankers within more advanced issues. In addition, the student gets acquainted with the phenomenon of hammering and studies the possibilities of static electricity on board liquid cargo ships.</p> <p>In the course Advanced Tanker training Gas and IGF, the physical and chemical properties of liquefied gas are further discussed. Also the possible health effects after contact with the cargo or cargo vapours are explained. In the second chapter the student learns in detail how liquefied gases can be transported on a seagoing vessel, with an emphasis on the different tank designs. The third chapter is a selection of the existing legislation, with the importance for the operator of gas tankers as a leitmotif. The different types of ships are considered as well as the requirements regarding ventilation. In the next chapter the student gets acquainted with the different instruments and equipment specific to a gas tanker or IGF vessel and how to use them. After acquiring this subject matter, the different operations are discussed in detail, both on board an LNG, LPG and IGF ship. Finally, the student learns more about emergency procedures and communication with the shore terminal.</p> <p>The labs take place on the gas simulator. The emphasis is on practising the various operations as discussed in the theory. The student gets the opportunity to carry out the different operations on the simulator of LNG, LPG as well as IGF vessels.</p> | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) | | | |
| Examination | Following Module 1.1 | Following Module 1.2 | Following Module 2.1 permanent evaluation | Following Module 2.2 oral exam with written preparation and permanent evaluation |
| | Second session oral exam with written preparation | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | <ul style="list-style-type: none"> - Clucas, C. (<i>latest ed.</i>). <i>Tanker Safety Training (Liquefied Gas), Specialised Level</i>. London, UK: Witherbys Publishing. - International Maritime Organization. (<i>latest ed.</i>). <i>International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)</i>. London, UK: IMO. - Society of International Gas Tanker and Terminal Operators. (<i>latest ed.</i>). <i>Liquefied Gas Handling Principles on Ships and in Terminals</i>. London, UK: SIGTTO. | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | ADVANCED TANKER TRAINING CHEMICALS (3 UC) |
| Course element | Advanced tanker training chemicals |
| Lecturer(s) | Guido DELVAUX, Inez HOUBEN, Kathy SPEELMAN |
| Lecturer in charge | Kathy Speelman |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture and practical exercises | | | |
| Other teaching methods | Group work | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Basic tanker training (oil, gas, chem and IGF) | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Strict succession (must have followed and passed) Basic tanker training (oil, gas, chem and IGF) | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 18/15 | | | |
| Semester + module(s) | Semester 1, Module 1.1 6/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 12/7.5 | Semester 2, Module 2.2 -/7.5 |
| Learning objectives | <p>At the end of the course, the student is expected to be able to:</p> <ul style="list-style-type: none"> - recognise physical and chemical properties of hazardous liquid substances on board ships subject to the IBC Code; - select and apply correct, safe procedures in carrying out the various parts of cargo handling on chemical tankers in accordance with the IBC Code and Marpol; - identify and work out a solution to operational problems in accordance with relevant IMO legislation; - prepare a loading plan, execute it on a simulator and monitor and report the executed operations in a correct manner in accordance with the Marpol legislation; - take measures to prevent contamination of the environment by chemicals on board ships subject to the IBC Code. | | | |
| Course content | <p>The courses Advanced Tanker training Oil, Advanced Tanker training Gas and IGF, and Advanced Tanker training Chemicals are an advanced continuation of course module Basic Tanker training for Oil, Chemicals, Gas and IGF. They start with a common theoretical part in which the student first elaborates on the study of cargo calculations on board oil, chemical and gas tankers within more advanced issues. In addition, the student gets acquainted with the phenomenon of hammering and studies the possibilities of static electricity on board liquid cargo ships. The Advanced Tanker training Chemicals also includes an advanced training programme that enables the student to create a safety culture on board chemical tankers. In this course, the student learns how to perform and control cargo operations, be familiar with the properties of chemical cargoes, take precautions to prevent hazards, apply health and safety measures, respond to emergencies, take fire safety measures, take precautions to prevent environmental pollution and monitor and verify compliance with legal requirements.</p> <p>The first part aims at students becoming familiar with the equipment, instruments and equipment used to handle the cargo of a chemical tanker. The relevant laws and regulations from the IBC Code and Marpol are discussed in detail. The course then addresses the need for proper planning, the use of safe procedures and checklists for various cargo handling operations. This enables the student to identify, solve and prevent operational problems. Finally, specific cargo handling challenges on chemical tankers are discussed.</p> <p>In the labs the student uses the cargo handling simulator for chemical tankers and can practise the different cargo operations, as discussed in the theory. The student can gain experience in a controlled environment and improve himself/herself in cargo handling on the simulator.</p> <p>The course is in accordance with A-V/1-1-3 of the STCW code.</p> | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) | | | |
| Examination | Following Module 1.1 | Following Module 1.2 | Following Module 2.1 permanent evaluation | Following Module 2.2 oral exam with written preparation and permanent evaluation |
| | Second session oral exam with written preparation | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |

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| Recommended preliminary competences | |
| Additional information | <ul style="list-style-type: none"> - International Chamber of Shipping /OCIMF. (latest ed.). <i>International Safety Guide for Oil Tankers and Terminals (ISGOTT)</i>. Edingburgh, UK: Witherbys Publishing. - International Chamber of Shipping /OCIMF. (latest ed.). <i>Ship to Ship Transfer Guide for Petroleum, Chemicals and Liquefied Gases</i>. Edingburgh, UK: Witherbys Publishing. - International Chamber of Shipping. (latest ed.). <i>Tanker Safety Guide Chemicals</i>. London, UK: Marisec Publications. - International Maritime Organization. (1973-1978). <i>International Convention for the Prevention of Pollution from Ships (MARPOL) 1973-1978, as amended</i>. London, UK: IMO. - International Maritime Organization. (1974). <i>International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended</i>. London, UK: IMO. - International Maritime Organization. (1978). <i>International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978, as amended</i>. London, UK: IMO. - International Maritime Organization. (latest ed.). <i>International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code)</i>. London, UK: IMO. |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | ADVANCED TANKER TRAINING OIL (3 UC) |
| Course element | Advanced tanker training oil |
| Lecturer(s) | Guido DELVAUX, Ynse JANSSENS |
| Lecturer in charge | Ynse JANSSENS |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture and practical exercises | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | Basic tanker training (oil, gas, chem and IGF) | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | Strict succession (must have followed and passed) Basic tanker training (oil, gas, chem and IGF) | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 18/18 | | | |
| Semester + module(s) | Semester 1, Module 1.1 6/- | Semester 1, Module 1.2 12/- | Semester 2, Module 2.1 -/18 | Semester 2, Module 2.2 -/- |
| Learning objectives | <p>At the end of the course, the student is expected to be able to:</p> <ul style="list-style-type: none"> - correctly interpret physical and chemical properties of liquid oil cargoes; - safely plan, carry out and monitor loading, discharging and tank cleaning operations on board oil tankers; - take measures to prevent pollution of the environment by the release of oil or oily products; - take measures to prevent hazards; - check and follow the agreement with the prevailing legislation with emphasis on SOLAS, MARPOL Annex 1, OPA90 and the relevant technical codes and regulations concerning IG & COW; - operate the simulator; - name the different parts of the loading and unloading process; - outline the piping used to load and/or unload a tanker; - completely unload a tanker; - manage tank cleaning; - identify problems/errors and work out solutions/alternatives; - use and interpret the ODME; - act independently in case of alarms. | | | |
| Course content | <p>The courses Advanced Tanker training Oil, Advanced Tanker training Gas and IGF en Advanced Tanker training Chemicals are an advanced continuation of the Basic Tanker training for Oil, Chemicals, Gas, and IGF. They start with a common theoretical part in which the student first elaborates on the study of cargo calculations on board oil, chemical and gas tankers within more advanced issues. In addition, the student gets acquainted with the phenomenon of hammering and studies the possibilities of static electricity on board liquid cargo ships.</p> <p>The course Advanced Tanker training - Oil deals minimum with the issues of storage, handling and transport of crude oil in accordance with the STCW2010 Specialized Training For Oil Tankers". - Model Course 1.02.</p> <p>The topics to be explored are Inert gas, crude oil washing, ullaging and sampling, STS, bunkering and bunker fraud.</p> <p>On the simulator, the student works on the basis of knowledge acquired in the 3rd Bachelor. In the Master the emphasis is on the oil tanker. In the labs, the student gets to know the activities in depth from the moment of arrival into port until the ship is fully unloaded. The following items will be covered: debotomming, ballasting, tank stripping, crude oil washing, internal stripping, ODME, heavy weather ballast, tank cleaning, and oil record book.</p> | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of applied technical sciences (mastSW-d) - Have an advanced understanding of one or more technical specialisations in line with their strengths and interests (mastSW-e) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 permanent evaluation | Following Module 2.2 oral exam with written preparation |
| | Second session oral exam with written preparation | | | |
| Caesura measures | <ul style="list-style-type: none"> - 100% presence in practical sessions mandatory to be evaluated in the first and second exam session; - Obtain a minimum of 10/20 for each part of the exam to pass for this element. | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | Maritime English (part 3) | | | |

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| Additional information | <ul style="list-style-type: none"> - Baptist, C. (2000). <i>Tanker Handbook for Deck Officers</i>. Glasgow, UK: Brown, Son & Ferguson Ltd. - Bruhn, C. (latest ed.). <i>Dr. Verwey's Tank Cleaning Guide</i>. Dassendorf, Germany: ChemServe. - Huber, M. (latest ed.). <i>Tanker operations: A handbook for the person-in-charge</i>. Pennsylvania, US: Schiffer Pub Ltd. - International Chamber of Shipping /OCIMF. (latest ed.). <i>Clean Seas Guide for Oil Tankers</i>, Edingburgh, UK: Witherby Seamanship International. - International Chamber of Shipping /OCIMF. (latest ed.). <i>International Safety Guide for Oil Tankers and Terminals (ISGOTT)</i>. Edingburgh, UK: Witherbys Publishing. - International Chamber of Shipping. (latest ed.). <i>Clean seas guide for oil tankers</i>. London, UK: ISC. - International Chamber of Shipping. (latest ed.). <i>Ship to ship transfer guide</i>. London, UK: ISC. - International Chamber of Shipping. (latest ed.). <i>Tanker Safety Guide Chemicals</i>. London, UK: Marisec Publications. - International Chamber of Shipping. (latest ed.). <i>Tanker Safety Guide Liquified Gas</i>. London, UK: Marisec Publications. - International Maritime Organization. (1973-1978). <i>International Convention for the Prevention of Pollution from Ships (MARPOL) 1973-1978, as amended</i>. London, UK: IMO. - International Maritime Organization. (1974). <i>International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended</i>. London, UK: IMO. - International Maritime Organization. (1990). <i>Inert Gas Systems (IMO-860E)</i>. London, UK: IMO. - International Maritime Organization. (latest ed.). <i>International Code of Safety for Ships using gases or other low-flashpoint fuels (IGF)</i>. London, UK: IMO. - Intertanko. (latest ed.). <i>Effective crude oil washing</i>. Oslo, Norway: Intertanko. - Marton, G. (1992). <i>Tanker Operations: A Handbook for the Ship's Officer</i>. California , US: Cornell Maritime Press. - Solly, R. (2011). <i>Manual for oil tanker operations</i>. Edingburgh, UK: Witherby Seamanship International. |
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ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | ADVANCED MARITIME ECOLOGY AND TECHNOLOGY (3 UC) |
| Course element | Advanced maritime ecology and technology |
| Lecturer(s) | combinatie 2 docenten nautische opleiding, doctor in de wetenschappen |
| Lecturer in charge | Verantwoordelijke (nog in te vullen) |
| Educational programme | Master in Marine Engineering |

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|--|---|-------------------------------|--|---|
| Method of teaching | Formal lecture and practical exercises | | | |
| Other teaching methods | Excursion Group work | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/12 | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | <p>At the end of the course, the student is expected to be able to:</p> <p>The student makes connections between the environmental problems in contemporary society and various economic, social and cultural drivers;</p> <p>The student identifies different ecosystem services and analyzes their role in a given process or ecosystem;</p> <p>The student develops a critical attitude in discussions about technological developments and makes the necessary reflections with regard to their impact on the environment and nature;</p> <p>The student visualizes scientific information in a useful way for communication in a subject-specific, research-driven context.</p> | | | |
| Course content | <p>This course starts with a thorough discussion of sustainable development as a core concept in general environmental theory and philosophy. On the basis of recent environmental reports and publications, the students learn to make connections between economics, ecology and the social fabric of the 21st-century society and to critically approach the processes and drivers behind these processes.</p> <p>The course elaborates on this based on the concept of ecosystem services and applies this in three themes:</p> <ul style="list-style-type: none"> - biodiversity, linked to a discussion of the phenomenon of overfishing. Through this theme, students learn to identify different ecosystem services and explain their importance, - the climate crisis, linked to the global energy challenges. The students also analyze the possible energy transitions in shipping and identify arguments for and against the various options that exist there (LNG, hydrogen, biofuel, ...), - the impact of pollution on life on this planet, from individual organisms (people) to entire ecosystems. The students thus deepen their knowledge of environmental legislation from their bachelor courses. <p>Students then integrate these ecological insights with a number of technical aspects of paint systems (toxicity, usability, inspection requirements) and learn to assess the quality of a paint in function of the ultimate purpose of that paint (anti-corrosion, anti-fouling).</p> <p>The course also provides three practical exercises:</p> <ul style="list-style-type: none"> - the students make a critical analysis of an imposed theme with an ecological and technological nature in small groups and design a scientific poster about it. They also present these posters at a marine or maritime symposium, which immediately introduces the students to state of the art research in the marine and maritime sector, - the students experiment with different paint systems through a number of destructive and non-destructive tests, - the students learn to identify different species from the North Sea through an excursion on board the RV Simon Stevin. | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Independently set up and carry out a scientific maritime research project at the level of a beginner researcher; select and correctly apply relevant research methods and techniques; critically process and scientifically report the results of this research (mastSW-i) - Bear responsibility as an expert in safety and sustainability (mastSW-k) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 permanent evaluation | Following Module 2.2 oral exam with written preparation and permanent evaluation |
| | Second session oral exam with written preparation | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |

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| Additional information | <ul style="list-style-type: none">- International Maritime Organization. (1973-1978). <i>International Convention for the Prevention of Pollution from Ships (MARPOL) 1973-1978, as amended</i>. London, UK: IMO.- Potters, G. (2013). <i>Marine Pollution</i>. bookboon.com- Wilson, L. (2012). <i>The Paint Inspector's Field Guide</i>. Capelle aan den IJssel, The Netherlands: TQC. |
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ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | INFORMATION AND COMMUNICATION TECHNOLOGY (3 UC) |
| Course element | Information and communication technology |
| Lecturer(s) | Doctor in de wetenschappen of gelijkwaardig door ervaring |
| Lecturer in charge | Doctor in de wetenschappen of gelijkwaardig door ervaring |
| Educational programme | Master in Marine Engineering |

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|--|---|-------------------------------|-------------------------------|---|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | <p>At the end of the course, the student is expected to be able to:</p> <ul style="list-style-type: none"> - Een gecompliceerd digitaal netwerk aan boord te onderhouden en optimaliseren. - een werkende computer te construeren, vertrekend van losse onderdelen; - op een verantwoorde wijze onderdelen van een computer te vervangen; - de computer te voorzien van een operating systeem, en dit systeem te configureren en te onderhouden; - een klein lokaal netwerk te bouwen, te configureren en te onderhouden, en kleine problemen met bestaande netwerken te onderzoeken en op te lossen; - gebruik te maken van verschillende netwerkservices en kleine problemen met dergelijke services op te lossen; - de problemen en gevaren van bepaalde types software zoals virussen in te schatten, en technieken voor te stellen om zich tegen deze gevaren te beschermen; - de gevaren, verbonden aan het gebruik van netwerken in te schatten, en technieken voor te stellen om zich tegen enkele van de mogelijke gevaren te beschermen. | | | |
| Course content | <p>In the first part of this course we study the internal structure of a modern computer. We describe the basic components of a computer and the way these components work together to form a computer. We discuss the differences between the available technologies, and compare their advantages and disadvantages.</p> <p>Next, we concentrate on computer networks. We study some of the devices needed to create a network, possible topologies and cabling systems, modems and other communication devices. We also study the TCP/IP protocol, which forms the basis for all forms of communication using the Internet, and describe some of the well-known services available through the Internet (E-mail, www, DNS). We also focus on security issues, both on the level of the local computer and its operating system and the network level.</p> | | | |
| Learning outcomes | <ul style="list-style-type: none"> - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Have advanced understanding of digital system controls and data processing (mastSW-g) | | | |
| Examination | Following Module 1.1 - | Following Module 1.2 - | Following Module 2.1 - | Following Module 2.2 written exam |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | DATA SCIENCE (3 UC) |
| Course element | Data Science |
| Lecturer(s) | Doctor in de wetenschappen |
| Lecturer in charge | Doctor in de wetenschappen |
| Educational programme | Master in Marine Engineering |

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| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - recente technieken uit de brede wereld van data science te beoordelen op hun belang voor de maritieme sector; - de voor- en nadelen van verschillende software te evalueren en op basis daarvan de geschikte software-oplossing te kiezen voor een bepaalde toepassing; - de technische achtergrond van een aantal courante technieken uit de data science voldoende te begrijpen om een software-oplossing te ontwikkelen voor concrete (eenvoudige) problemen; - de resultaten van een analyse te beoordelen in functie van de gestelde onderzoeksvraag. | | | |
| Course content | In deze cursus werkt de student rond 4 thema's: - Thema 1: welke recente technieken voor data science zijn belangrijk in de maritieme sector; - Thema 2: welke software-toepassingen worden gebruikt als hulpmiddel bij data science; - Thema 3: wat is de technische achtergrond van technieken uit data science; - Thema 4: kritische reflectie rond de voordelen en beperkingen van de rol van data science in de (maritieme) praktijk. De student ziet hoe vanuit zijn interesses en die van zijn medestudenten wordt ingespeeld op recente trends op het vlak van data science in de maritieme en bredere samenleving. De vier thema's krijgen een verdere uitdieping voor één of meer deelgebieden van de data science (artificiële intelligentie, machine learning, big data, data visualisatie, etc.) De student maakt gebruik van PowerBI en Python/R. Met deze tools is de student in staat om reproduceerbare analyses uit te voeren en betrouwbare resultaten te overleggen. De cursus wordt opgedeeld in 4 modules om de thema's te behandelen: -Module 1: data architectuur met focus op (big) data, datastructuren en data architectuur - Module 2: Data analyse en engineering met focus op data validatie -Module 3: Data visualisatie met de volgende tools Python/R in combinatie van Power BI -Module 4: Data Mining en Machine learning met focus op de verschillende technieken en diens gebruik (intro machine learning, (un)supervised learning, classificatie en regressie | | | |
| Learning outcomes | - Manage and control complex technical systems on board ships and maritime installations based on a thorough understanding of exact sciences (mastSW-c) - Have advanced understanding of digital system controls and data processing (mastSW-g) | | | |
| Examination | Following Module 1.1 written and permanent evaluation | Following Module 1.2 written and permanent evaluation | Following Module 2.1 written and permanent evaluation | Following Module 2.2 written and permanent evaluation |
| | Second session written and permanent evaluation | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | - Spiegel, M. R., & Stephens, L. J. (1999). <i>Schaum's outline of theory and problems of statistics</i> . New York: McGraw-Hill. | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | ANALYSIS OF SHIPPING MARKETS (3 UC) |
| Course element | Analysis of shipping markets |
| Lecturer(s) | Theo NOTTEBOOM |
| Lecturer in charge | Theo NOTTEBOOM |
| Educational programme | Master in Marine Engineering |

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|--|---|-------------------------------|-------------------------------|--|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - bedrijfskundige en economische vraagstukken met betrekking tot de vier markten in de scheepvaart op wetenschappelijk verantwoorde wijze te analyseren en te integreren; - complexe en actuele problemen in de vier markten te begrijpen en in het juiste kader te plaatsen; - te reflecteren over de werking van de vier markten en op basis van eigen reflectie adequate oplossingen voor te stellen in een onzekere context; - de specifieke concepten en terminologie die samenhangen met de markten in de scheepvaart te gebruiken; - relevante gegevens met betrekking tot de werking van de markten op te zoeken en te interpreteren. | | | |
| Course content | <ul style="list-style-type: none"> Shipowners trade in four different markets: the newbuilding market, the freight market, the sales and purchase market and the demolition market. This course aims to provide students with a thorough understanding on the functioning of the four shipping markets from a practical point of view. The course is composed of four interrelated parts, each focusing on one of the four shipping markets. | | | |
| Learning outcomes | - Act in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) A-III/1, A-V and A-VI, for Engineer Officers on seagoing vessels (mastSW-a) | | | |
| Examination | Following Module 1.1 | Following Module 1.2 | Following Module 2.1 | Following Module 2.2 written exam |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | | | | |

ECTS Information Package

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| Programme | Master in Marine Engineering |
| Course | PORT MANAGEMENT AND POLICY (3 UC) |
| Course element | Port management and policy |
| Lecturer(s) | Theo NOTTEBOOM |
| Lecturer in charge | Theo NOTTEBOOM |
| Educational programme | Master in Marine Engineering |

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|--|---|-------------------------------|-------------------------------|--|
| Method of teaching | Formal lecture | | | |
| Other teaching methods | | | | |
| Instruction language | English | | | |
| Required preliminary credit(s) (first enrolment before 2023-24) | | | | |
| Required preliminary credit(s) (first enrolment from 2023-24) | | | | |
| Units of credit (UC) | 3 | | | |
| Hours of formal lecture/practical exercise | 24/- | | | |
| Semester + module(s) | Semester 1, Module 1.1 -/- | Semester 1, Module 1.2 -/- | Semester 2, Module 2.1 -/- | Semester 2, Module 2.2 -/- |
| Learning objectives | At the end of the course, the student is expected to be able to: - bedrijfskundige en economische vraagstukken met betrekking tot de havenbeheer en -beleid op wetenschappelijk verantwoorde wijze te analyseren en te integreren; - complexe en actuele problemen in havens te begrijpen en in het juiste kader te plaatsen - te reflecteren over de werking van havens en op basis van eigen reflectie adequate oplossingen voor te stellen in een onzekere context; - de specifieke concepten en terminologie die samenhangen met havenoperaties, - beleid en -beheer te gebruiken; - relevante gegevens met betrekking tot de werking van havens op te zoeken en te interpreteren. | | | |
| Course content | This course aims to develop a thorough grasp of different aspects of port activities by providing a detailed understanding of the principles and practices of port management within the framework of global transportation systems. The course also addresses key elements in port policy at the European level and at the level of individual states (both in Europe and outside of Europe). The course is composed of three interrelated parts: (1) the market environment of seaports, (2) port management and (3) port policy. | | | |
| Learning outcomes | - Have an advanced understanding of inspection and survey of ocean-going vessels and maritime installations (mastSW-f) - Independently analyse complex problems in often unpredictable situations and develop and implement meaningful solution strategies (mastSW-h) - Adopt an attitude of lifelong learning and personal and professional development, fuelled by critical reflection on one's own performance and detection of new developments in nautical technical sciences (mastSW-l) | | | |
| Examination | Following Module 1.1 | Following Module 1.2 | Following Module 2.1 | Following Module 2.2 written exam |
| | Second session written exam | | | |
| Caesura measures | | | | |
| Required study material | Lecturer's course text available. | | | |
| Recommended preliminary competences | | | | |
| Additional information | - Notteboom, T. (ed.) (2006). <i>Ports are more than piers</i> . Antwerpen, Belgium: De Lloyd. | | | |

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Required preliminary credits - summary

Master in Marine Engineering

Academic year 2023-2024

Master in Marine Engineering

| Faculty of Marine Engineering | |
|---|--|
| OPLEIDINGS ONDERDEEL ENGELS (NOG IN TE VULLEN) | MARINE ENGINEER SKILLS TRAINING - PART 3, SEMINARS - PART 1 AND MULTIDISCIPLINARY SIMULATOR EXERCISES - PART 2 |
| ADVANCED CONTROL TECHNOLOGIES | SHIP AUTOMATION - PART 2 |
| Faculty of Sciences | |
| MASTER THESIS | BACHELOR TERM PAPER AND SCIENTIFIC RESEARCH METHODS |
| COMMUNICATION STRATEGIES | GENERAL AND INTERCULTURAL COMMUNICATION |
| Nautical Faculty | |
| ADVANCED TANKER TRAINING GAS AND IGF | BASIC TANKER TRAINING (OIL, GAS, CHEM AND IGF) |
| ADVANCED TANKER TRAINING CHEMICALS | BASIC TANKER TRAINING (OIL, GAS, CHEM AND IGF) |
| ADVANCED TANKER TRAINING OIL | BASIC TANKER TRAINING (OIL, GAS, CHEM AND IGF) |

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Required preliminary credits - summary (first enrolment from 2023-24)

Master in Marine Engineering

Academic year 2023-2024

Master in Marine Engineering

| Faculty of Marine Engineering | |
|---|---|
| OPLEIDINGS ONDERDEEL ENGELS (NOG IN TE VULLEN) | Strict succession (must have followed and passed) MARINE ENGINEER SKILLS TRAINING - PART 3, SEMINARS - PART 1 AND MULTIDISCIPLINARY SIMULATOR EXERCISES - PART 2 |
| ADVANCED CONTROL TECHNOLOGIES | Standard succession (must have followed) SHIP AUTOMATION - PART 2 |
| Faculty of Sciences | |
| MASTER THESIS | Standard succession (must have followed) BACHELOR TERM PAPER AND SCIENTIFIC RESEARCH METHODS |
| COMMUNICATION STRATEGIES | Standard succession (must have followed) GENERAL AND INTERCULTURAL COMMUNICATION |
| Nautical Faculty | |
| ADVANCED TANKER TRAINING GAS AND IGF | Strict succession (must have followed and passed) BASIC TANKER TRAINING (OIL, GAS, CHEM AND IGF) |
| ADVANCED TANKER TRAINING CHEMICALS | Strict succession (must have followed and passed) BASIC TANKER TRAINING (OIL, GAS, CHEM AND IGF) |
| ADVANCED TANKER TRAINING OIL | Strict succession (must have followed and passed) BASIC TANKER TRAINING (OIL, GAS, CHEM AND IGF) |