Logistics

Course catalogue Logistics Engineering (ILN)

Year 2018-2019

DISCOVER YOUR WORLD

Breda University
OF APPLIED SCIENCES

Foreword

This course catalogue gives you an overview of your study programme. You will find the following content:
• the annual schedule, examination periods, holidays, etc;
• an overview of all the study components, including workload;
• learning objectives and content for all the study components;
• an overview of the competences;
• an explanation of the competences and the three levels.

Teaching methods

In your study programme, you will be exposed to four teaching methods: projects, courses, training sessions, and mentoring.
• In the ***projects/labs*** you will work together with fellow students in a project group on a large professional assignment. You will acquire knowledge and learn to apply this knowledge in a professional context, operating as a professional in training. The lecturer will coach the groups of students as a project leader.
• In the ***courses*** you will acquire profession-relevant knowledge by attending lectures and actively working on assignments. The lecturer will have the role of teacher and expert supervisor.
• In the ***training sessions*** you will acquire skills. These sessions are held in smaller groups, in which the lecturer will act as instructor and expert.
• Your ***mentor*** will be your personal coach. He or she will keep track of your academic development. You will have regular contacts with your mentor.

Years 1 and 2

The first year is called the propaedeutic phase and it consists of three trimesters of twelve weeks each. The trimesters are usually filled with 1 project and several courses and training sessions. Each academic year comprises sixty ECs study credits.

The main phase of the study programme will start in year 2. This year too consists of 3 trimesters of twelve weeks each. This year will further prepare you for the third and fourth years, which is when learning in practice will be an important component.

Years 3 and 4

The third year of study consists of three trimesters. As a third-year student you will switch between working in practice and studying at SLM. Two out of the three trimesters you will be doing a work placement. During the other trimester you will attend classes.
You are to find a work placement yourself. Obviously, you will be supported in this process by the placement coordinator. More detailed information can be found in the placement handbook.

The fourth year consists of two semesters. The first semester will be your chosen minor. In the second semester you will work on a graduation project for an industry client. This project is also something that you need to acquire yourself. More detailed information can be found in the graduation handbook.

TER

All relevant rules can be found in the Teaching and Examination Regulations (TER) 2018-2019. In the academic year of 2018-2019, a transitional arrangement will apply. This transitional arrangement will be announced after the board of examiners has approved and officially adopted this arrangement. The transitional arrangement will apply to students who started a project, a course, etc. last year, but have not yet completed it.

We wish you an enjoyable and successful year!

On behalf of the management team of the SLM Academy,

Debbie Dermout – Director of the SLM Academy
This Course catalogue is part of the Teaching and Examination Regulations (TER) 2018-2019

Jaarplanning IB 2018-2019

Week			Year 1 class:		Year 2 class:		Year 3 class:		Year 4 regular class:		Year 4 not regular class:			Week
	Monday	Friday										Monday	Friday	
33	13-8-2018	17-8-2018	Summer holiday		Summer holiday		Summer holiday		Summer holiday		Summer holiday	13-8-2018	17-8-2018	33
34	20-8-2018	24-8-2018	Intro college 24-8		Intro lecture 24-8 (lateral)		Summer holiday		Exam August		Summer holiday	20-8-2018	24-8-2018	34
35	27-8-2018	31-8-2018	Introduction		Summer holiday		Internship 1		Summer holiday		Graduation Internship week 1	27-8-2018	31-8-2018	35
36	3-9-2018	7-9-2018	Academic week 1	Register tests	Academic week 1	Register tests	Internship 2		Academic week 1		Graduation Internship week 2	3-9-2018	7-9-2018	36
37	10-9-2018	14-9-2018	Academic week 2	Register tests	Academic week 2	Register tests	Internship 3		Academic week 2	Register teste minor	Graduation Internship week 3	10-9-2018	14-9-2018	37
38	17-9-2018	21-9-2018	Academic week 3		Academic week 3		Internship 4		Academic week 3	Register teste minor	Graduation Internship week 4	17-9-2018	21-9-2018	38
39	24-9-2018	28-9-2018	Academic week 4		Academic week 4		Internship 5		Academic week 4		Graduation Internship week 5	24-9-2018	28-9-2018	39
40	1-10-2018	5-10-2018	Academic week 5		Academic week 5		Internship 6		Academic week 5		Graduation Internship week 6	1-10-2018	5-10-2018	40
41	8-10-2018	12-10-2018	Logistics in practice		International fieldtrip		Internship 7		Academic week 6		Graduation Internship week 7	8-10-2018	12-10-2018	41
42	15-10-2018	19-10-2018	Autumn Holidays		Autumn Holidays		Internship 8		Autumn Holidays		Graduation Internship week 8	15-10-2018	19-10-2018	42
43	22-10-2018	26-10-2018	Academic week 6		Academic week 6		Internship 9		Academic week 7		Graduation Internship week 9	22-10-2018	26-10-2018	43
44	29-10-2018	2-11-2018	Academic week 7		Academic week 7		Internship 10		Academic week 8		Graduation Internship week 10	29-10-2018	2-11-2018	44
45	5-11-2018	9-11-2018	Academic week 8		Academic week 8		Internship 11		Academic week 9		Graduation Internship week 11	5-11-2018	9-11-2018	45
46	12-11-2018	16-11-2018	Academic week 9		Academic week 9		Internship 12		Academic week 10		Graduation Internship week 12	12-11-2018	16-11-2018	46
47	19-11-2018	23-11-2018	Academic week 10		Academic week 10		Internship 13		Academic week 11 / TEST WEEK		Graduation Internship week 13	19-11-2018	23-11-2018	47
48	26-11-2018	30-11-2018	TEST WEEK		TEST WEEK		Internship 14		Academic week 12	Register resits	Graduation Internship week 14	26-11-2018	30-11-2018	48
49	3-12-2018	7-12-2018	TEST WEEK		TEST WEEK		Presentations		Academic week 13	Register resits	Graduation Internship week 15	3-12-2018	7-12-2018	49
50	10-12-2018	14-12-2018	Academic week 1	Register tests	Academic week 1	Register tests	Academic week 1	Register tests	Academic week 14		Graduation Internship week 16	10-12-2018	14-12-2018	50
51	17-12-2018	21-12-2018	Academic week 2	Register tests	Academic week 2	Register tests	Academic week 2	Register tests	Academic week 15		Graduation Internship week 17	17-12-2018	21-12-2018	51
52	24-12-2018	28-12-2018	Christmas Holidays		Christmas Holidays		Christmas Holidays		Christmas Holidays		Christmas Holidays	24-12-2018	28-12-2018	52
1	31-12-2018	4-1-2019	Christmas Holidays		Christmas Holidays		Christmas Holidays		Christmas Holidays		Christmas Holidays	31-12-2018	4-1-2019	1
2	7-1-2019	11-1-2019	Academic week 3	Register resits	Academic week 3	Register resits	Academic week 3		Academic week 16 /RESIT WEEK		Graduation Internship week 18/preperation	7-1-2019	11-1-2019	2
3	14-1-2019	18-1-2019	Academic week 4	Register resits	Academic week 4	Register resits	Academic week 4		Academic week 17 / project final		Exam January	14-1-2019	18-1-2019	3
4	21-1-2019	25-1-2019	Academic week 5		Academic week 5		Academic week 5		Academic week 18 / project final			21-1-2019	25-1-2019	4
5	28-1-2019	1-2-2019	Academic week 6	Resits trim 1 /Yr 1	Academic week 6	Resits trim 1 /Yr 2	Academic week 6		Academic week 19 / project final			28-1-2019	1-2-2019	5
6	4-2-2019	8-2-2019	Academic week 7	Resits trim 1 /Yr 1	Academic week 7	Resits trim 1 /Yr 2	Academic week 7		Graduation Internship week 1			4-2-2019	8-2-2019	6
7	11-2-2019	15-2-2019	Academic week 8	Resits trim 1 /Yr 2	Academic week 8	Resits trim 1 /Yr 3	Academic week 8		Graduation Internship week 2			11-2-2019	15-2-2019	7
8	18-2-2019	22-2-2019	Academic week 9		Academic week 9		Academic week 9		Graduation Internship week 3			18-2-2019	22-2-2019	8
9	25-2-2019	1-3-2019	Academic week 10		Academic week 10		Academic week 10		Graduation Internship week 4			25-2-2019	1-3-2019	9
10	4-3-2019	8-3-2019	Spring Break		Spring Break		Spring Break		Graduation Internship week 5			4-3-2019	8-3-2019	10
11	11-3-2019	15-3-2019	TEST WEEK		TEST WEEK		TEST WEEK		Graduation Internship week 6			11-3-2019	15-3-2019	11
12	18-3-2019	22-3-2019	TEST WEEK		TEST WEEK		TEST WEEK		Graduation Internship week 7			18-3-2019	22-3-2019	12
13	25-3-2019	29-3-2019	Academic week 1	Register tests	Academic week 1	Register tests	Internship 1		Graduation Internship week 8			25-3-2019	29-3-2019	13
14	1-4-2019	5-4-2019	Academic week 2	Register tests	Academic week 2	Register tests	Internship 2		Graduation Internship week 9			1-4-2019	5-4-2019	14
15	8-4-2019	12-4-2019	Academic week 3	Register resits	Academic week 3	Register resits	Internship 3	Register resits	Graduation Internship week 10			8-4-2019	12-4-2019	15
16	15-4-2019	19-4-2019	Academic week 4	Register resits	Academic week 4	Register resits	Internship 4	Register resits	Graduation Internship week 11			15-4-2019	19-4-2019	16
17	22-4-2019	26-4-2019	Academic week 5		Academic week 5		Internship 5		Graduation Internship week 12			22-4-2019	26-4-2019	17
18	29-4-2019	3-5-2019	May Holiday		May Holiday		Internship 6		Graduation Internship week 13			29-4-2019	3-5-2019	18
19	6-5-2019	10-5-2019	Academic week 6	Resits trim 2 /Yr 1	Academic week 6	Resits trim 2 /Yr 2	Internship 7	Resits trim 2 /Yr 3	Graduation Internship week 14			6-5-2019	10-5-2019	19
20	13-5-2019	17-5-2019	Academic week 7	Resits trim 2 /Yr 1	Academic week 7	Resits trim 2 /Yr 2	Internship 8	Resits trim 2 /Yr 3	Graduation Internship week 15			13-5-2019	17-5-2019	20
21	20-5-2019	24-5-2019	Academic week 8	Resits trim 2 /Yr 2	Academic week 8	Resits trim 2 /Yr 3	Internship 9	Resits trim 2 /Yr 4	Graduation Internship week 16			20-5-2019	24-5-2019	21
22	27-5-2019	31-5-2019	Academic week 9		Academic week 9		Internship 10		Graduation Internship week 17			27-5-2019	31-5-2019	22
23	3-6-2019	7-6-2019	Academic week 10		Academic week 10		Internship 11		Graduation Internship week 18/preperation			3-6-2019	7-6-2019	23
24	10-6-2019	14-6-2019	TEST WEEK		TEST WEEK		Internship 12		Exam June			10-6-2019	14-6-2019	24
25	17-6-2019	21-6-2019	TEST WEEK		TEST WEEK		Internship 13		Exam June			17-6-2019	21-6-2019	25
26	24-6-2019	28-6-2019	Study week	Register resits	Study week	Register resits	Internship 14		Exam June			24-6-2019	28-6-2019	26
27	1-7-2019	5-7-2019	RESIT WEEK		RESIT WEEK		Presentations					1-7-2019	5-7-2019	27
28	8-7-2019	12-7-2019	Week for finalization		RESIT WEEK		Presentations		11/7 diploma uitreiking			8-7-2019	12-7-2019	28
29	15-7-2019	19-7-2019	Summer holiday		Summer holiday		Summer holiday					15-7-2019	19-7-2019	29
30	22-7-2019	26-7-2019	Summer holiday		Summer holiday		Summer holiday					22-7-2019	26-7-2019	30
31	29-7-2019	2-8-2019	Summer holiday		Summer holiday		Summer holiday					29-7-2019	2-8-2019	31
32	5-8-2019	9-8-2019	Summer holiday		Summer holiday		Summer holiday					5-8-2019	9-8-2019	32
33	12-8-2019	16-8-2019	Summer holiday		Summer holiday		Summer holiday					12-8-2019	16-8-2019	33
34	19-8-2019	23-8-2019	Summer holiday		Summer holiday		Summer holiday		Exam August			19-8-2019	23-8-2019	34
35	26-8-2019	30-8-2019	Introduction		Summer holiday		Internship 1					26-8-2019	30-8-2019	35
36	2-9-2019	6-9-2019	Academic week 1		Academic week 1		Internship 2					2-9-2019	6-9-2019	36

Logistics Engineering 2018- 2019: year 1

Trimester 1

Name	Osiris-code	ECTS	Page
Starting Project	BIP1.STARTPR-18P	4	10
Introduction into Logistics	BIP1.INTLOG-18C	3	11
Statistics	BIP1.STATIS-18C	3	12
Cross Cultural Management	BIP1.CROS-18C	3	13
Introduction into Economics	BIP1.INTRECO-18C	3	14
Excel	BIP1.EXCEL-18T	2	15
Mentoring 1	B1.MENTOR1-18	2	156
	Subtotal	**20**	

Trimester 2

Name	Osiris-code	ECTS	Page
Blokko	BIP1.BLOKKO-18P	5	18
Warehousing	BILG1.WHOUSE-18C	2	19
Inventory Management	BILG1.INV-18C	2	20
Mathematics	BIP1.MATHS-18C	3	21
Management Accounting	BIP1.MGTACC-18C	3	23
Service Operations Management	BILG1.SOM-18C	2	24
Choice of English depends on level		3	
English Cambridge A	BIP1.CAMPA-18T	''	25
Professional English 1	BIP1.ENGPRO1-18C	''	26
	Subtotal	**20**	

Trimester 3

Name	Osiris-code	ECTS	Page
Warehousing	BIP1.WAREH-18P	6	28
Transport Management	BILG1.TRMGT-18C	3	29
Global Economics	BIP1.GLECO-18C	3	30
Basic Principles of Law	BIP1.LAW1-18C	2	31
Material Handling	BILG1.MATHAN-18C	3	32
Choice of English depends on level		3	
English Cambridge B	BIP1.CAMPB-18T	''	33
Professional English 2	BIP1.ENGPRO2-18C	''	34
	Subtotal	**20**	
	Total	**60**	

Logistics Engineering 2018- 2019: year 2

Trimester 1

Name	Osiris-code	ECTS	Page
Intermodal Transport	BIP2.MULTI-18P	5	39
ICT & Logistics 1	BIP2.ICTLOG1-18C	3	40
Procurement Management	BIP2.CINKMG-18C	3	41
Choice of English depends on level		3	
English Cambridge 4 Advanced	BIP2.ENCAM4A-18T	''	42
English Cambridge 4 Proficiency	BIP2.ENCAM4P-18T	''	43
Professional Writing and Com.	BILG2.PCW-18C	2	44
Operations Management	BIP2.COPMGT-18C	2	45
	Subtotal	**18**	

Trimester 2

Name	Osiris-code	ECTS	Page
Aurora	BIP2.AURORA-18P	5	47
Production Management	BIP2.PRMA-18C	3	48
Research Methods	BIP2.MTO-18C	3	49
Mentoring 2	B2.MENTOR2-18*	3	50
Physical Distribution & ICT	BIP2.ICT-18C	2	51
Financial Accounting & ABCosting	BIP2.FINACC-18C	2	52
Import & Export Management	BIP2.IMEXMT-18C	2	53
Management & Organisation	BIP2.MTORG-18C	2	54
	Subtotal	**22**	

Trimester 3

Name	Osiris-code	ECTS	Page
External Project	BIP2.EXPRO-18P	5	56
Operations Research	BIP2.COR-18C	3	57
Trade & Transport Law	BIP2.HVRE-18C	3	58
Choice of English depends on level		3	
English Cambridge 5 Advanced	BIP2.ENCAM5A-18T	''	59
English Cambridge 5 Proficiency	BIP2.ENCAM5P-18T	''	60
Supply Chain Management	BIP2.SCM-18C	2	61
Automation Technology	BIP2.AUTOM-18C	2	62
Free elective 1	BIP2.FREE1-01	1	63
Free elective 2	BIP2.FREE2-01	1	64
	Subtotal	**20**	
	Total	**60**	

Logistics Engineering 2018- 2019: year 3

Trimester 1

Name	Osiris-code	ECTS	Page
Internship 1	BIP3.IS1-18	20	68
	Subtotal	**20**	

Trimester 2

Name	Osiris-code	ECTS	Page
Network Logistics	BIP3.NETLOG-18C	3	70
E-Logistics	BIP3.ELOG-18C	3	71
Entrepreneurship	BIP3.ENT-18C	3	72
Quality Management	BIP3.QUAMG-18C	3	73
Port Logistics	BIP3.PORTL-18C	3	74
ICT & Logistics 2	BIP3.ICTLOG2-18C	3	75
Simulation	BIP3.SIM-18C	2	76
	Subtotal	**20**	

Trimester 3

Name	Osiris-code	ECTS	Page
Internship 2	BIP3.IS2-18	20	78
	Subtotal	**20**	
	Total	**60**	

Logistic Engineering 2018-2019: year 4

Semester 1

Name	Osiris-code	ECTS	Page
Minor The Modern Supply Chain			
Case: Dynamics of The Modern Supply Chain	BLG4.CASESC-18C	10	80
Supply Chain Risk Management	BLG4.SCRM-18C	4	81
Strategy & Innovation	BLG4.STIN-18C	4	82
Choose 3 of the following 4-EC courses		12	
Supply Chain Finance	BLG4.SUCF-18C	''	83
Operations Research	BLG4.OR-18C	''	84
Air Cargo Supply Chain	BLG4.ACSC-18C	''	85
Control Towers	BLG4.CT-18C	''	86
Modern Business in a Changing World	AMBC.18MINOR	30	87
Retrofitting the sprawled city			
Retrofitting Phase I - initiate	BBE4.INIT-18T	10	88
Retrofitting Phase II - Integrate	BBE4.INTE-18T	10	89
Retrofitting Phase III - Communicate	BBE4.COMM-18T	10	90
Minor Smart City, Color your Future	BSCCF.18MINOR	30	91
External Minor	BEXT.18MINOR	30	--

Semester 2

Name	Osiris-code	ECTS	Page
Graduation Thesis	B4.SC-18	30	93
	Total	**60**	

Logistics Engineering

Year 1

	Developing policy 1	Developing policy 2	Developing policy 3	Supervising activities 1	Supervising activities 2	Supervising activities 3	Supervising activities 4	Implementing 1	Implementing 2	Implementing 3	Social and communicative subcompetencies	Social and communicative subcompetencies	Social and communicative subcompetencies	Self-directing subcompetency 2	Self-directing subcompetency 2	Self-directing subcompetency 3	Self-directing subcompetency 4
Trimester 1																	
Starting Project	1	1		1							1	1	1	1	1	1	1
Introduction into Logistics	1	1				1					1	1	1	1	1	1	1
Statistics	1	1															
Cross Cultural Management	1										1	1	1	1	1	1	1
Introduction into Economics	1				1			1	1								
Excel	1				1	1	1		1	1							1
Mentoring 1											1		1	1			
Trimester 2																	
Blokko	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Warehousing	1	1	1	1	1	1		1	1	1							
Inventory Management	1	1	1	1	1	1		1	1	1							
Mathematics	1					1						1					
Management Accounting	1			1	2			1	1								
Service Operations Management	1	1				1		1	1	1	1	1	1	1	1	1	1
English Cambridge A												1	1	1			1
Professional English 1												1	1	1			1
Trimester 3																	
Warehousing	1	1	1		1	1					1	1	1	1	1	1	1
Transport Management	1	1	1	1	1	1		1	1	1							
Global Economics	1							1									
Basic Principles of Law		1	1		1	1			1		1					1	
Material Handling	1	1		1	1	2	1	1	1	1		1					
English Cambridge B												2	1	2			1
Professional English 2												2	3	2			1

Logistics Engineering

Year 1

Trimester 1

OSIRIS-code:	BIP1.STARTPR-18P
Course name:	Starting Project
Study load:	4 EC (=112 hours)
Coordinator:	Emelie Bral
Lecturer(s):	Emelie Bral, Sijbren Hogewerf, Simone Jacobs, Raechel Torner, Letty Zhu
Learning objective(s):	Upon completion of this study component you are able to: - have effective meetings, collaborate with each other and to define tasks to achieve a final product; - write a comprehensive and understandable report (according to the requirements of good reporting); - give a presentation; - show initiative and effort; - provide constructive feedback.
Content description:	In this study component, the following content is covered : - Belbin and project roles; - meeting structure; - introduction to logistic themes; - plan of approach; - literature research; - reporting; - collaborate in a structured way; - peer evaluation.
Language:	EN
Teaching activity:	Project
Examination:	Group assignment 50% Individual assignment 50% Process (obligatory) 0%
Mark:	Marks, F, MO
Required literature:	R. Grit. Project management : a practical approach. 4e druk. Noordhoff Uitgevers (ISBN 9789001850548),
Required other materials:	--

OSIRIS-code:	BIP1.INTLOG-18C
Course name:	Introduction into Logistics
Study load:	3 EC (=84 hours)
Coordinator:	Bram Havekes
Lecturer(s):	Jan van Elderen, Bram Havekes, Luuk Koopman
Learning objective(s):	Upon completion of this study component you are able to: - solve simple practice problems by means of the basic principles of logistics; - do a practical logistical analysis of a company or supply chain; - to participate in the second trimester project BLOKKO.
Content description:	In this study component, the following content is covered : - logistics within a supermarket; - distribution channel and modality choice; - transport; - purchase and stock control; - warehouses and repositories; - transport policy and places of business; - MRP I / MRP II planning.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 50% Group assignment 50%
Mark:	Marks, F, MO
Required literature:	Visser and van Goor. Logistics: Principles and Practice : a demand and supply chain management approach. Heruitgave. eigen uitgave (ISBN 9789081649117),
Required other materials:	--

OSIRIS-code:	BIP1.STATIS-18C
Course name:	Statistics
Study load:	3 EC (=84 hours)
Coordinator:	Elly Khademi
Lecturer(s):	Elly Khademi, Irma Lenselink
Learning objective(s):	Upon completion of this study component you are able to: - apply and interpret the basic concepts of descriptive statistics; - apply the basic concepts of probabiltity; - distinguish between and apply discrete and continuous probability distributions; - apply binomial, Poisson, and normal distributions to calculate probabilities; - apply and interpret correlation and regression analysis using Excel; - apply forecasting techniques.
Content description:	In this study component, the following content is covered : - descriptive Statistics/ data analysis including graphical presentations, measures for average, dispersion, and shape for probability distributions; - probability calculations; - expected values and combinatorial theory; - binomial distribution; - poisson distribution; - normal distribution; - forecasting including trend curves, correlation and regression.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 80% Individual assignment 20%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Other, Graphic calculator (not mandatory),

OSIRIS-code:	BIP1.CROS-18C
Course name:	Cross Cultural Management
Study load:	3 EC (=84 hours)
Coordinator:	Raechel Torner
Lecturer(s):	Raechel Torner, Letty Zhu
Learning objective(s):	Upon completion of this study component you are able to: - understand the importance of cross-cultural management, and the relationship between culture, organisations, and management; - identify the effect cultural values have on various managerial processes; - apply Erin Meyer's eight scale tool to perform more effectively within intercultural groups; - use Trompenaars' dimensions to compare dilemmas between cultures; - apply Hofstede's dimensions to identify and articulate some of the similarities and differences between various cultures; - identify various ways of developing cross-cultural competences; - explain the benefits and challenges of having a multicultural workforce to others; - recognise aspects of your own culture that shape the way you view the world and interact with others; - relate themes and concepts learned in class to other courses in the ILE/ILN curriculum; - explain the interaction between culture and verbal and non-verbal communication.
Content description:	In this study component, the following content is covered : This course aims to provide students with an overview of the concepts, theories, and tools necesary to understand the complexities of culturally diverse societies and organisations. The meaning of culture will be explored as well as the influence of culture on a wide array of management practices. Emerging challenges related to globalisation and international management will be discussed, and students will reflect upon ways in which they can improve their own intercultural communication skills.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Individual assignment 60% Group assignment 40%
Mark:	Marks, F, MO
Required literature:	Meyer, Erin. The Culture Map. Ingram Publisher Services US (ISBN 9781610392501),
Required other materials:	Handouts, articles, magazines, , Published on CumLaude Learning

OSIRIS-code:	BIP1.INTRECO-18C
Course name:	Introduction into Economics
Study load:	3 EC (=84 hours)
Coordinator:	Sijbren Hogewerf
Lecturer(s):	Sijbren Hogewerf
Learning objective(s):	Upon completion of this study component you are able to: - calculate (taxation on) added value and work from the circular flow of income; - distinguish between economic and structural developments; - identify different business characteristics, changes in the supply chain and business processes; - process simple financial facts in the ledger and process this into an eight-column financial statement; - prepare the financial statements of a business plan.
Content description:	In this study component, the following content is covered : - types of companies as for size, legal entity, line of business, etc.; - added value in a production, trade and service company; - financial and non-financial objectives; - ledger accounts and the Eight column financial statements; - business plan (e.g. Investment- and financing plan and forecast income statement); - dupont chart; - the circular flow of income; - economic growth and the business cycle.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	Hulleman and Marijs. Economics and business environment.. Noordhoff Uitgevers (ISBN 9789001889432),
Required other materials:	Various handouts on financial management and financial accounting

OSIRIS-code:	BIP1.EXCEL-18T
Course name:	Excel
Study load:	2 EC (=56 hours)
Coordinator:	Peter Kole
Lecturer(s):	Peter Kole, Luuk Koopman
Learning objective(s):	Upon completion of this study component you are able to: - design spreadsheets; - use basic functions to perform calculations within a spreadsheet; - create and format charts.
Content description:	In this study component, the following content is covered : - open, edit, save and print a spreadsheet; - create a spreadsheet with text, numbers and formulas; - format cells; - use the basic functions; - understand and use relative and absolute cell referencing; - create, format and print charts; - solving simple problems with a spreadsheet; - use of a pivot table; - Excel 2016 is key part of the Microsoft Office suite 2016 applications. This spreadsheet application is one of the most popular microcomputer applications to date. It features calculation, graphing tools, pivot tables and a macro programming language. Excel has great tools for manipulating, analyzing, sorting, organizing, and charting all kinds of data.
Language:	EN
Teaching activity:	Training
Examination:	Computer exam 100%
Mark:	Marks, F, MO
Required literature:	Ben Groenendijk. Excel 2016. Boom Uitgevers Amsterdam (ISBN 9789024418893),
Required other materials:	Training exercises and answers

OSIRIS-code:	B1.MENTOR1-18
Course name:	Mentoring 1
Study load:	2 EC (=56 hours)
Coordinator:	Ilse Hens
Lecturer(s):	Ilse Hens
Learning objective(s):	Upon completion of this study component you are able to: - reflect on your academic career and on yourself as a starting professional; - understand that you are responsible for your own course of study; - use the right study approach and study skills.
Content description:	In this study component, the following content is covered : - introduction to the study programme and the professional field; - excursion week; - acquaintance with the professional field; - better insight into your qualities and your areas for improvement; - feedback; - independance; - study progress; - planning activities; - learn to study; - self directness; - individual meetings (also non-study related matters); - evaluations.
Language:	EN
Teaching activity:	Training, Fieldtrip
Examination:	Individual assignment 100%
Mark:	P, F, MO
Required literature:	--
Required other materials:	--

Logistics Engineering

Year 1

Trimester 2

OSIRIS-code:	BIP1.BLOKKO-18P
Course name:	Blokko
Study load:	5 EC (=140 hours)
Coordinator:	Bram Havekes
Lecturer(s):	Bram Havekes, Sijbren Hogewerf, Simone Jacobs, Natasja Lutovinova, Raechel Torner
Learning objective(s):	Upon completion of this study component you are able to: - determine the basis structure of a production proces, it's control system and the logistic consequences of those decisions; - create financial and operational plannings for a simple logistics company; - translate customer requests and orders to logistical consequenses for the company; - reflect on the planning and company results in the BLOKKO game.
Content description:	In this study component, the following content is covered : - introduction production logistics; - introduction operations management; - customer requests; - conpetition; - organisation of a (virtual) company; - financial and operational company results. - you are an employee of the competitor of the 'Blokko turrets®' company. The market for this project is since years a stable one Your company wants to gain a vast share of the total market. To do so your company has to be designed as a fast and flexible turrets production unit, which is able to satisfy the customers demand. The results of all the preparations to establish a competitve company, will be tested in a 'game' situation. During the game, the different companies will play against each other to achieve the best company results.
Language:	EN
Teaching activity:	Project
Examination:	Group assignment 50% Individual assignment 50% Process (obligatory) 0%
Mark:	Marks, F, MO
Required literature:	Visser, H.M. and A.R. van Goor. Logistics: Principles and Practice : a demand and supply chain management approach. Heruitgave. Wolters-Noordhoff (ISBN 9789081649117),
Required other materials:	--

OSIRIS-code:	BILG1.WHOUSE-18C
Course name:	Warehousing
Study load:	2 EC (=56 hours)
Coordinator:	Irma Lenselink
Lecturer(s):	Irma Lenselink
Learning objective(s):	Upon completion of this study component you are able to: - indicate what different storage and handling methods are used in warehouses; - choose the best option(s) for a warehouse operation; - perform the basic steps to design a warehouse according to a structured approach.
Content description:	In this study component, the following content is covered : - introduction to warehousing: Warehouse function and types; - introduction to Distribution network studies; - location selection; - warehouse processes; - warehouse storage methods; - material handling equipment; - pick strategies; - warehouse design; - warehouse costing; - performance management; - warehouse management system.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Handouts, articles, magazines, The slides used for the lecture plus relevant articles and assignments, Published on CumLaude Learning

OSIRIS-code:	BILG1.INV-18C
Course name:	Inventory Management
Study load:	2 EC (=56 hours)
Coordinator:	Hans Brink
Lecturer(s):	Hans Brink
Learning objective(s):	Upon completion of this study component you are able to: - understand, remember and describe the relevant choices that have to be made with regard to operational inventory management and you will learn how to apply this knowledge in real life situations; - assess and if necessary improve the operational inventory management of a company.
Content description:	In this study component, the following content is covered : - types of inventory; - demand patterns; - assortment decisions; - selection of pull inventory management methods (Reorder point, Periodic Review, Min-Max); - application of inventory management methods on a database; - allocation of inventory in the supply chain.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Work book with assignments, Published on CumLaude Learning; Handouts, articles, magazines, Handouts lectures, Published on CumLaude Learning

OSIRIS-code:	BIP1.MATHS-18C
Course name:	Mathematics
Study load:	3 EC (=84 hours)
Coordinator:	Elly Khademi
Lecturer(s):	Elly Khademi
Learning objective(s):	Upon completion of this study component you are able to: - conduct basic arithmetic with constants (numerical values) and variables; - solve linear and nonlinear equations with one variable analytically; - solve two linear equations with two unknowns; - find derivatives of different functions using formula sheet and rules; - find the tangent line to the graph of a function at a certain point using the derivative; - create, from a practical problem description, a mathematical model with appropriate variables and solve this problem to find a solution.
Content description:	In this study component, the following content is covered : - important number systems and basic operations; - neutral element and inverse of a number; - rules for compound calculations; - algebra for numbers and letters (variables); - calculations with fractions and powers; - algebra: special products; - equality versus equation; - linear eqations; - working with percentages; - linear equations with two unknowns; - quadratic equations; - functions in general and special functions (Linear, Quadratic, Polynomial, Rational, Powers, Roots, Exponential, Logarithms); - analysis of functions; - derivative (definition and meaning); - tangent line; - derivatives of standard functions; - rules of differentiation; - inflection points; - asymptotes; - mathematics' application in Logistics.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	Jan van de Craats & Rob Bosch. All you need in Maths!. Pearson Education (ISBN 9789043032858),

Required other materials:	Reader, e-book, , Published on CumLaude Learning; Graphic calculator (not mandatory),

OSIRIS-code:	BIP1.MGTACC-18C
Course name:	Management Accounting
Study load:	3 EC (=84 hours)
Coordinator:	Sijbren Hogewerf
Lecturer(s):	Peter Ballemans, Sijbren Hogewerf
Learning objective(s):	Upon completion of this study component you are able to: - compute calculations regarding the integrated unit cost and the break-even analysis; - apply absorption costing and direct costing in cost and profit calculations; - use different methods to allocate indirect costs in order to calculate the unit costs of a good or service; - analyze budget variances by means of a variance analysis; - calculate the effect of various depreciation methods.
Content description:	In this study component, the following content is covered : - cost structures within the organization; - standard unit costs; - fixed and variable costs; - direct costing and absorption costing; - break-even analysis; - direct and indirect costs; - allocation methods for indirect costs (cost center method and surcharge method); - budgeting, the master budget and variance analysis; - selection of the most suitable cost calculation technique in a given situation; - bottleneck analysis; - depreciation methods; - financial statements within the business plan (e.g. cash flow and income statement). Based on this: investment selection, based on cash flows and pay-back period.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	E-book Management Accounting (available via Edumundo), more information will follow later

OSIRIS-code:	BILG1.SOM-18C
Course name:	Service Operations Management
Study load:	2 EC (=56 hours)
Coordinator:	Justin van de Pas
Lecturer(s):	Diana van Dijk, Justin van de Pas
Learning objective(s):	Upon completion of this study component you are able to: recognize logistic aspects of the services sector and understand logistic principles.
Content description:	In this study component, the following content is covered : - gaining an insight into different aspects of logistic processes in the services sector for example events and healthcare; - recognizing and presenting examples of services; - classifying principles within the services sector; - describing types of services aimed at people and resources in relation to quality, time and costs; - an introduction to waiting time theory.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 70% Individual assignment 30%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Choice (advanced or professional) depends on level:

OSIRIS-code:	BIP1.CAMPA-18T
Course name:	English Cambridge A
Study load:	3 EC (=84 hours)
Coordinator:	To be announced
Lecturer(s):	To be announced
Learning objective(s):	Upon completion of this study component you are able to: - apply the offered grammar rules; - use a wider range of vocabulary; - use more expressions; - create a professional CV.
Content description:	In this study component, the following content is covered : - a wider knowledge of the important grammar tenses; - vocabulary and expressions on specific themes; - a professional CV in English with which to apply; - expressing yourself properly on particular topics.
Language:	EN
Teaching activity:	Training
Examination:	Written exam 90% Individual assignment 10%
Mark:	Marks, F, MO
Required literature:	Martin Hewings. Advanced Grammar in Use with answers. CUP (ISBN 9781107539303), Objective Proficiency Student's Book with Answers with CD-ROM. CUP (ISBN 97811076437-7), Objective Proficiency Workbook with Answers with Audio CD. [Objective]. CUP (ISBN 9781107619203-2)
Required other materials:	--

OSIRIS-code:	BIP1.ENGPRO1-18C
Course name:	Professional English 1
Study load:	3 EC (=84 hours)
Coordinator:	Leigh Stevens
Lecturer(s):	Leigh Stevens
Learning objective(s):	Upon completion of this study component you are able to: - understand the main ideas of complex articles and texts related to the field of logistics without serious misunderstanding; - identify and proactively use resources available to help you further improve your reading, writing, speaking, and listening skills in English; - give a clear presentation on a familiar topic, and answer predictable or factual questions; - scan texts for relevant information, and understand detailed instructions or advice; - relate themes and concepts learned in class to other courses in the ILE and ILN curriculum.
Content description:	In this study component, the following content is covered : This training develops English language skills through an interactive learning format. Students will develop their reading, writing, speaking, and listening skills via a variety of in-class activities and self-study exercises.
Language:	EN
Teaching activity:	Training
Examination:	Group assignment 50% Individual assignment 50%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Logistics Engineering

Year 1

Trimester 3

OSIRIS-code:	BIP1.WAREH-18P
Course name:	Warehousing
Study load:	6 EC (=168 hours)
Coordinator:	Luuk Koopman
Lecturer(s):	Jan van Elderen, Luuk Koopman, Letty Zhu
Learning objective(s):	Upon completion of this study component you are able to: - select an appropriate location for a warehouse; - design a warehouse for your customer based on, amongst others, article and sales characteristics; - select an appropriate inventory management concept and calculate the impact of the chosen concept on the inventory levels and associated costs.
Content description:	In this study component, the following content is covered : - location selection; - warehouse lay-out; - inventory management; - performance quick scan of an existing warehouse.
Language:	EN
Teaching activity:	Project
Examination:	Group assignment 50% Individual assignment 50% Process (obligatory) 0%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Project description, Published on CumLaude Learning;

OSIRIS-code:	BILG1.TRMGT-18C
Course name:	Transport Management
Study load:	3 EC (=84 hours)
Coordinator:	Frans de Jong
Lecturer(s):	Sannie van Boxtel, Frans de Jong
Learning objective(s):	Upon completion of this study component you are able to: - to choose the right logistic units and mode of transport related to product characteristics, requirements of the shipper and consignee and the characteristics of the various modes of transport. This all within an unimodal or multimodal network; - analyse and discuss the various kind of freight transport within different chains and markets and can recognize and nominate the different levels of steering above these kind of networks.
Content description:	In this study component, the following content is covered : - standardization and normalization; - function and qualities of the following logistic units like loading units, loading equipment, transport units and mode of transport units; - the influence of the choice on the cost structure and sustainable management; - the influence of the choice of logistic units for organisations and steering departments; - market transparancy within the chain and the consequences for transport; - secure of cargo; - perishable transport; - base principles of Dangerous Goods related to transport and storage; - the (dis)advantages of the different modes of transport; - first acquaintance with possible combinations of various modes of transport; - the organisation within the transport chain; - the choice of the mode of transport; - micro, meso and macro level within transport; - a sustainable composition of transport chains by using more clean fuels, more efficient engines.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Reader F. de Jong, Published on CumLaude Learning;

OSIRIS-code:	BIP1.GLECO-18C
Course name:	Global Economics
Study load:	3 EC (=84 hours)
Coordinator:	Jan Verhey
Lecturer(s):	Jan Verhey
Learning objective(s):	Upon completion of this study component you are able to: - calculate elasticities and market equilibrium, based on supply and demand function; - apply Porter's five forces model and other market analysis models in a elementary setting; - analyze the business cycle and determine the impact on company policy; - explain the effect of input costs (wages and commodities) for a company; - analyze interest rate and currency movements and, based on this determine business policies. - analyze reasons and effects of protectionism
Content description:	In this study component, the following content is covered : - business environment and market power; - Porter's Five Forces model; - price, cross price and income elasticity; - market equilibrium and price mechanism; - business cycles, business cycle indicators and company policies; - energy prices, commodities, wages and company policies; - interest rates, inflation and their effect on costs; - company's susceptibility to exchange rates and corresponding company approach; - protectionism vs free trade
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 60% Group assignment 40%
Mark:	Marks, F, MO
Required literature:	Hulleman and Marijs. Economics and business environment.. Noordhoff Uitgevers (ISBN 9789001889432),
Required other materials:	--

OSIRIS-code:	BIP1.LAW1-18C
Course name:	Basic Principles of Law
Study load:	2 EC (=56 hours)
Coordinator:	Aline de Jong
Lecturer(s):	Aline de Jong
Learning objective(s):	Upon completion of this study component you are able to: analyse basic legal cases with regard to the topics mentioned below.
Content description:	In this study component, the following content is covered : - the relevance of law for the logistic profession; - a company's legal / regulatory environment; - EU's influence on national regulatory environments; - property law as a foundation of trade; - contract law as a foundation of commercial relationships; - the characteristics of Sales and Services contracts; - the legal forms of companies; - the balance between creating value and legal rules.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 90% Group assignment 10%
Mark:	Marks, F, MO
Required literature:	Jansen, M.A.. Law & self-regulation : legal and business perspectives. Legalmarketing.nl (ISBN 9789053832028),
Required other materials:	--

OSIRIS-code:	BILG1.MATHAN-18C
Course name:	Material Handling
Study load:	3 EC (=84 hours)
Coordinator:	Irma Lenselink
Lecturer(s):	Irma Lenselink, Rien Smalheer
Learning objective(s):	Upon completion of this study component you are able to: - indicate which factors can be of importance to projects within warehousing; both within the logistics domain and related domains of facilities, IT, and HSE; - translate above mentioned factors into concrete recommendations / requirements for a warehouse operation; - make a drawing of a partially designed warehouse in AutoCAD.
Content description:	In this study component, the following content is covered : - Introduction of project management aspects within the warehouse environment; - Material handling equipment & automated systems; - Building requirements; - Security requirements; - Health, Safety, environment requirements; - IT requirements; - Introduction into technical drawing in AutoCAD.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 50% Group assignment 30% Group assignment 20%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Handouts, articles, magazines, Various articles, (lecture) slides, relevant movies and assignments, Published on CumLaude Learning

Choice of English (Cambridge B or Professional) depends on level:

OSIRIS-code:	BIP1.CAMPB-18T
Course name:	English Cambridge B
Study load:	3 EC (=84 hours)
Coordinator:	To be announced
Lecturer(s):	To be announced
Learning objective(s):	Upon completion of this study component you are able to: - apply the offered grammar rules; - use a wider range of vocabulary in speaking and writing; - use more expressions; - give a professional presentation comprising techniques, personal appearance and language; - write at proficiency level along structured exam guidelines.
Content description:	In this study component, the following content is covered : - further knowledge of the important grammar tenses and expressions at C2 level; - extended vocabulary on specific themes; - execution of a professional English presentation in appearance and techniques; - proficiency worthy portfolio writings along exam standards.
Language:	EN
Teaching activity:	Training
Examination:	Written exam 60% Individual assignment 25% Individual assignment 15%
Mark:	Marks, F, MO
Required literature:	Martin Hewings. Advanced Grammar in Use with answers. CUP (ISBN 9781107539303), Objective Proficiency Student's Book with Answers with CD-ROM. CUP (ISBN 97811076437-7), Objective Proficiency Workbook with Answers with Audio CD. [Objective]. CUP (ISBN 9781107619203-2)
Required other materials:	--

OSIRIS-code:	BIP1.ENGPRO2-18C
Course name:	Professional English 2
Study load:	3 EC (=84 hours)
Coordinator:	Leigh Stevens
Lecturer(s):	Leigh Stevens
Learning objective(s):	Upon completion of this study component you are able to: - understand the main ideas of complex articles and texts related to the field of logistics without serious misunderstanding; - identify and proactively use resources available to help you further improve your reading, writing, speaking, and listening skills in English; - give a clear presentation on a familiar topic, and answer predictable or factual questions; - scan texts for relevant information, and understand detailed instructions or advice; - relate themes and concepts learned in class to other courses in the ILE and ILN curriculum.
Content description:	In this study component, the following content is covered : This training develops English language skills through an interactive learning format. Students will develop their reading, writing, speaking, and listening skills via a variety of in-class activities and self-study exercises.
Language:	EN
Teaching activity:	Training
Examination:	Individual assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Logistics Engineering

Year 2

	Developing policy 1	Developing policy 2	Developing policy 3	Supervising activities 1	Supervising activities 2	Supervising activities 3	Supervising activities 4	Implementing 1	Implementing 2	Implementing 3	Social and communicative subcompetencies	Social and communicative subcompetencies	Social and communicative subcompetencies	Self-directing subcompetency 2	Self-directing subcompetency 2	Self-directing subcompetency 3	Self-directing subcompetency 4
Trimester 1																	
Intermodal Transport	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ICT & Logistics 1	2	2	2	1	2	1	1		1	1	1	1					
Procurement Management	3	2	2		2	2					2	2					
English Cambridge 4 Advanced												2	2	2			2
English Cambridge 4 Proficiency												2	2	2			2
Professional Writing and Com.												2	2	2	2	2	2
Operations Management	2	2	1	2	2	2	2	2	2	2							
Trimester 2																	
Aurora	2	2	2		2	2		2	2	2	2	2	2	2	2	2	2
Production Management	2	2	1			2	1	2	2	2	2	2	1	2			
Research Methods	2	2				2			2		2	2	2	2	2	2	2
Mentoring 2											2	2	2	2			
Physical Distribution & ICT		1	2	1		2		2		1				2	1		1
Financial Accounting & ABCosting	1		1		1		1		2								1
Import & Export Management	2	2		1		2		1					1		1		
Management & Organisation	1				1		1							1		1	

Trimester 3

External Project	2	2	2		2	2	1	1	1	1	2	2	1		2	2	2
Operations Research	2	2				2				2							
Trade & Transport Law		2	2			2			2		2						
English Cambridge 5 Advanced												3	3	3			3
English Cambridge 5 Proficiency												3	3	3			3
Supply Chain Management	2	2	1			2			1			2					
Automation Technology	2	2			2	2		2	2		1			2			
Free elective 1														2	2	2	2
Free elective 2														2	2	2	2

Logistics Engineering

Year 2

Trimester 1

OSIRIS-code:	BIP2.MULTI-18P
Course name:	Intermodal Transport
Study load:	5 EC (=140 hours)
Coordinator:	Natasja Lutovinova
Lecturer(s):	Frans de Jong, Natasja Lutovinova, Semi Torun, Letty Zhu
Learning objective(s):	Upon completion of this study component you are able to: - determine the economic feasibility of the intermodal transport chains; - determine the logistics feasibility of the intermodal transport networks; - draw up the accompanying analyses; - compile a business plan; - implement DESTEP for an intermodal terminal; - set-up proposals.
Content description:	In this study component, the following content is covered : - the project will be preceded by 10 lectures, in which the theory will be discussed. The project is carried out by order of the customer. Elements of competition and play have been incorporated into the project for the project groups. Subsequently, the following parts are dealt with; - elaboration on the offer of the intermodal terminal's services with a determination of an area and destination origin; - making a set-up proposal for an inland terminal; - making a business plan for the inland terminal; - compiling a commercial offer from a perspective of a logistics service provider from a designated country of origin to various ports in the Westen Europe.
Language:	EN
Teaching activity:	Project
Examination:	Group assignment 50% Individual assignment 50% Process (obligatory) 0%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Reader Frans de Jong, Published on CumLaude Learning

OSIRIS-code:	BIP2.ICTLOG1-18C
Course name:	ICT & Logistics 1
Study load:	3 EC (=84 hours)
Coordinator:	Irene Meeuwesen
Lecturer(s):	Irene Meeuwesen
Learning objective(s):	Upon completion of this study component you are able to: - understand the possibilities which logistic software solutions (amongst all ERP) offer in improving the effectiveness of information availability in organisations; - describe the steps which a company takes to select and implement logistic software solutions; - recognize in public articles the phase an organization is in and can tell what the critical success factors and risks are; - execute purchasing, sales and warehouse transactions in a logistical application (specifically in an ERP environment); - understand how methodical process design helps to formulate process requirements; - demonstrate that the use of business process management standards (BPMn and APICS) contributes to achieving logistic goals in an organization; - draw proces schemes with help of the international standard BPMn; - explain how the use of logistical software solutions creates better alignment of processes and therefor has a positive impact on KPI's.
Content description:	In this study component, the following content is covered : - the role and use of ICT in companies; - the design, function and use of logistic software systems by purchasers, salesmen and warehouse employees; - the various types of order flows in an ERP system; - selection and implementation of logistic software systems; - ICT projects.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Computer exam 100%
Mark:	Marks, F, MO
Required literature:	Visser and van Goor. Logistics: Principles and Practice : a demand and supply chain management approach. Heruitgave. eigen uitgave (ISBN 9789081649117),
Required other materials:	--

OSIRIS-code:	BIP2.CINKMG-18C
Course name:	Procurement Management
Study load:	3 EC (=84 hours)
Coordinator:	Natasja Lutovinova
Lecturer(s):	Sijbren Hogewerf, Natasja Lutovinova
Learning objective(s):	Upon completion of this study component you are able to: - identify the core procurement strategies, make a difference between procurement, purchasing and supply chain management; - advise how to establish an effective purchasing system; - advise how to identify the best suppliers; - identify the major cost drivers and advise to add value and reduce costs; - advise how procurement activities should be performed best; - identify how procurement activities may impact profitability.
Content description:	In this study component, the following content is covered : - procurement scope and development; - strategic aspects of purchasing; - procurement, structure and organization; - the purchasing and supply environment; - key considerations: Quality, Quantity, Time, Source decision making, Price; - purchasing negotiations; - international purchasing; - capital goods; - purchasing for resale; - purchasing systems; - people in Procurement; - research into Procurement and Supply.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Individual assignment (an essay): 50% Group presentation: 50%
Mark:	Marks, F, MO
Required literature:	Baily, P., Farmer, D. etc.. Procurement, Principles & Management. 11th Revised edition. Pearson (ISBN 9781292016016),
Required other materials:	--

Choice of English (Advanced or Professional) depends on level:

OSIRIS-code:	BIP2.ENCAM4A-18T
Course name:	English Cambridge 4 Advanced
Study load:	3 EC (=84 hours)
Coordinator:	Leigh Stevens
Lecturer(s):	Leigh Stevens
Learning objective(s):	Upon completion of this study component you are able to: - apply the offered grammar rules; - broaden your English vocabulary; - use more expressions; - pass a Cambridge advanced level listening test; - write a good letter of application for your internship.
Content description:	In this study component, the following content is covered : - wider knowledge of the important grammar tenses and expressions; - extended your vocabulary on specific themes; - professional letter for your internship at C1; - listening for the correct information at C1 level.
Language:	EN
Teaching activity:	Training
Examination:	Written exam 65% Individual assignment 15% Individual assignment 20%
Mark:	Marks, F, MO
Required literature:	Objective Advanced Student's with answers with CD-ROM. CUP (ISBN 978110765755-7), Objective Advanced Workbook with Answers with Audio CD. [Objective]. CUP (ISBN 9781107632028), Raymond Murphy. English Grammar in Use with Answers and CD-ROM: A Self
Required other materials:	--

OSIRIS-code:	BIP2.ENCAM4P-18T
Course name:	English Cambridge 4 Proficiency
Study load:	3 EC (=84 hours)
Coordinator:	Leigh Stevens
Lecturer(s):	Leigh Stevens
Learning objective(s):	Upon completion of this study component you are able to: - apply the offered grammar rules; - broaden your English vocabulary; - use more expressions; - pass a proficiency level listening test; - write a C2 level letter of application for your internship
Content description:	In this study component, the following content is covered : - wider knowledge of the important grammar tenses and expressions; - extended vocabulary on specific themes; - professional letter for your internship at C2 level; - listening for the correct information at C2 level.
Language:	EN
Teaching activity:	Training
Examination:	Written exam 65% Individual assignment 15% Individual assignment 20%
Mark:	Marks, F, MO
Required literature:	Martin Hewings. Advanced Grammar in Use with answers. CUP (ISBN 9781107539303), Objective Proficiency Student's Book with Answers with CD-ROM. CUP (ISBN 97811076437-7), Objective Proficiency Workbook with Answers with Audio CD. [Objective]. CUP (ISBN 9781107619203-2)
Required other materials:	--

OSIRIS-code:	BILG2.PCW-18C
Course name:	Professional Writing and Com.
Study load:	2 EC (=56 hours)
Coordinator:	Diana van Dijk
Lecturer(s):	Diana van Dijk
Learning objective(s):	Upon completion of this study component you are able to: - to write a professional literature study on a logistic topic; - discuss logistic topics in a professional way.
Content description:	In this study component, the following content is covered : - the structure of a literature study based on different perspectives; - the use of reliable sources; - the use of academic vocabulary (The Manchester Academic Phrasebank); - preparing relevant discussion questions and input; - practising different roles: chairman, discussion member and observer.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Individual assignment 60% Individual assignment 40%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Handouts, articles, magazines, Handout materials related to assignments, Published on CumLaude Learning

OSIRIS-code:	BIP2.COPMGT-18C
Course name:	Operations Management
Study load:	2 EC (=56 hours)
Coordinator:	André Gijsberts
Lecturer(s):	André Gijsberts
Learning objective(s):	Upon completion of this study component you are able to: - know the principles of the three most important manufacturing philosophies; - have an overview regarding Operations Management; - solve related practice problems.
Content description:	In this study component, the following content is covered : - operations management is the activity of managing the resources which are devoted to the production and delivery of products and services. We use a broad definition of operations, which includes the processes in hospitals, banks and airlines besides the more classic one focused on manufacturing companies only; - we start with an introduction in the field of OM and focus mainly on planning and control, with a slight touch on design of products and processes.In the second part of the course manufacturing philosophies MRP and ERP, TOC, Lean and JIT are discussed; - the course uses Introduction into Logistics as a foundation.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	E. Goldratt. The Goal: A Process of Ongoing Improvement. 3rd. Novel, every edition is allright (ISBN 9780884271956),
Required other materials:	--

Logistics Engineering

Year 2

Trimester 2

OSIRIS-code:	BIP2.AURORA-18P
Course name:	Aurora
Study load:	5 EC (=140 hours)
Coordinator:	Irene Meeuwesen
Lecturer(s):	Natasja Lutovinova, Irene Meeuwesen, Letty Zhu
Learning objective(s):	Upon completion of this study component you are able to: use the theoretical background in Operations Management for an advice in a practical case study.
Content description:	In this study component, the following content is covered : - aurora has several problems in its operations at different companies; - you are asked in your role as consultant to analyze these problems and invent solution strategies. These solutions are presented by your consultancy agency at the end of the project (group product); - further on: there will be an assignment to choose a company, contact and interview the operations manager and make an analysis of this company. This will result in a report (individual product); - the project uses the course Operations Management as a foundation.
Language:	EN
Teaching activity:	Project
Examination:	Group assignment 50% Individual assignment 50% Process (obligatory) 0%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Project Description & Excel Files, Published on CumLaude Learning

OSIRIS-code:	BIP2.PRMA-18C
Course name:	Production Management
Study load:	3 EC (=84 hours)
Coordinator:	André Gijsberts
Lecturer(s):	André Gijsberts
Learning objective(s):	Upon completion of this study component you are able to: use different techniques from Operations Management.
Content description:	In this study component, the following content is covered : - rehearsal concepts of OM; - planning on different levels: from S&OP, workforce planning to machine planning - scheduling on differnet levels (with LEKIN); - guest lectures(if possible) - jobbing & project production (with network planning & MS-project); - queuing theory
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 75% Group assignment 25%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	assignments

OSIRIS-code:	BIP2.MTO-18C
Course name:	Research Methods
Study load:	3 EC (=84 hours)
Coordinator:	Hans Brink
Lecturer(s):	Hans Brink, Justin van de Pas
Learning objective(s):	Upon completion of this study component you are able to: - understand, remember and describe how to design and conduct an applied research project such as - an internship assignment; - apply a selected number of research methods in real life situations.
Content description:	In this study component, the following content is covered : - the research process and making a research plan; - research design; - types of research and relation with the handling cycle; - research techniques; - data collection and corresponding plans; - sampling and reliability intervals.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 55% Group assignment 45%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Workbook provided during lectures, Published on CumLaude Learning; Handouts, articles, magazines, lecture sheets, Published on CumLaude Learning

OSIRIS-code:	B2.MENTOR2-18*
Course name:	Mentoring 2
Study load:	3 EC (=84 hours)
Coordinator:	Ilse Hens
Lecturer(s):	Ilse Hens
Learning objective(s):	Upon completion of this study component you are able to: - learn about skills and interests; - learn about strong and weak points; - see possibilities and constraints; - make a well considered choice for a work placement; - give feedback; - share experiences.
Content description:	In this study component, the following content is covered : - feedback; - PDP; Personal Development Plan; - identify ambitions, goals and capacities; - international excursion; - guest lectures from the workfield (only ISD, attendance rate 85%); - workplacement preperations; - individual meetings; - placement workshops.
Language:	EN
Teaching activity:	Training, Fieldtrip
Examination:	Individual assignment 100%
Mark:	P, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BIP2.ICT-18C
Course name:	Physical Distribution & ICT
Study load:	2 EC (=56 hours)
Coordinator:	Jan van Elderen
Lecturer(s):	Jan van Elderen, Frans de Jong
Learning objective(s):	Upon completion of this study component you are able to: - recognize the role of ICT within a (distribution) organization and understand the implications involved; - solve a (complex) route and route planning issue using specific software solutions; - name and interpret the relationships between different software solutions (ERP, FMS, TMS, WMS) within a distribution environment; - recognize and continue the process of the selection process and implementation of performance indicators within a distribution environment; - describe the current developments (innovations) within ICT & distribution and provide advice on the practical applicability of these developments in distribution logistics.
Content description:	In this study component, the following content is covered : - role of ICT within distribution; - trip- and Routeplanning; - transportmanagement Systems; - fleet Management Systems; - automatic Identification; - performance Indicators within Distribution; - innovation in Distribution (&ICT); - ICT and distribution in practice: Casestudy/Examples.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Computer exam 70% Computer exam 30%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Sheets from Session, including links, Cases Trip planning Software

OSIRIS-code:	BIP2.FINACC-18C
Course name:	Financial Accounting & ABCosting
Study load:	2 EC (=56 hours)
Coordinator:	Jan Verhey
Lecturer(s):	Peter Ballemans, Jan Verhey
Learning objective(s):	Upon completion of this study component you are able to: - read financial overviews and analyze financial statements; - interpret financial reports; - choose between and apply financial sources; - compose and analyze the basics of Activity Based Costing.
Content description:	In this study component, the following content is covered : - financial planning; - the financial structure; - capital budgeting; - working capital management; - reverse factoring and other methods of Supply Chain Finance; - capital structure; - financial statement analysis; - activity based costing (basics).
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	M.P. Brouwers & W.Koetzier. Basics of financial management.. Noordhoff Uitgevers (ISBN 9789001839147), W. Koetzier, M.P. Brouwers & O.A. Leppink. Exercises. Basics of financial management.. Noordhoff Uitgevers (ISBN 9789001839123),
Required other materials:	--

OSIRIS-code:	BIP2.IMEXMT-18C
Course name:	Import & Export Management
Study load:	2 EC (=56 hours)
Coordinator:	Natasja Lutovinova
Lecturer(s):	Natasja Lutovinova
Learning objective(s):	Upon completion of this study component you are able to: - obtain an insight on import management; - get a principle of export management; - analyse on operational, tactical and strategic levels export-import operations; - discuss trade facilitation in a glance; - define HS-codes; - give a description of imported items for the customs purposes; - calculate customs duties and import duties.
Content description:	In this study component, the following content is covered : - logistic aspects of import and export; - customs aspects of import and export; - financial aspects of import and export; - an import/export plan; - WTO; - HS-codes.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 50% Group assignment 25% Individual assignment 25%
Mark:	Marks, F, MO
Required literature:	Jimenez G.C.. ICC Guide to Export/Import: Global Standards for International trade. ICC Services, Publications Department (ISBN 9789284201334),
Required other materials:	--

OSIRIS-code:	BIP2.MTORG-18C
Course name:	Management & Organisation
Study load:	2 EC (=56 hours)
Coordinator:	Erik van Diffelen
Lecturer(s):	Erik van Diffelen
Learning objective(s):	Upon completion of this study component you are able to: - describe foundation concepts and theories in the field of Management & Organization; - to analyze practical organizational processes through a theoretical lens; - explicate effective behavior in future work-related situations.
Content description:	In this study component, the following content is covered : - job satisfaction; - perception and decision making; - motivation; - group behavior; - leadership; - organization structure; - change management.
Language:	EN
Teaching activity:	Lecture
Examination:	Individual assignment 0% Written exam 100%
Mark:	Marks, F, MO
Required literature:	Robbins & Judge. Essentials of Organizational Behavior. Pearson (ISBN 9781292221410),
Required other materials:	--

Logistics Engineering

Year 2

Trimester 3

OSIRIS-code:	BIP2.EXPRO-18P
Course name:	External Project
Study load:	5 EC (=140 hours)
Coordinator:	Pauline van Beusekom
Lecturer(s):	Pauline van Beusekom, Natasja Lutovinova, Letty Zhu
Learning objective(s):	Upon completion of this study component you are able to: - analyse a logistic problem in an actual project in the field of transport and traffic; - give recommendations for logistic improvements.
Content description:	In this study component, the following content is covered : - professional behavior; - contact with commissionar; - preparation for the first internship; - report writing; - literature study.
Language:	EN
Teaching activity:	Project
Examination:	Group assignment 50% Individual assignment 50% Process (obligatory) 0%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BIP2.COR-18C
Course name:	Operations Research
Study load:	3 EC (=84 hours)
Coordinator:	André Gijsberts
Lecturer(s):	André Gijsberts
Learning objective(s):	Upon completion of this study component you are able to: building, solving and analyzing linear programming and network models.
Content description:	In this study component, the following content is covered : - formulation of Linear Programming (LP) models; - graphical method for solving small LP-problems; - building, solving and analyzing models with the Excel Solver; - using algorithms for certain types of network problems (Shortest path, TSP, MST, CPP et cetera); - able to connect both areas to problems in production and distribution.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 75% Group assignment 25%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Reader LP & Reader Network Theory, Published on CumLaude Learning

OSIRIS-code:	BIP2.HVRE-18C
Course name:	Trade & Transport Law
Study load:	3 EC (=84 hours)
Coordinator:	Aline de Jong
Lecturer(s):	Aline de Jong
Learning objective(s):	Upon completion of this study component you are able to: analyse basic cases with regard to contract law (Dutch), trade law and transportation law.
Content description:	In this study component, the following content is covered : - breach of contract and remedies; - applicability of the CISG; - obligations of buyer and seller deriving from an international contract of sale; - transfer of risk between buyer and seller in context of an international contract of sale; - incoterms; - applicability of CMR, CMNI, Hague Visby Rules and Montreal Convention; - obligations of carriers, consignors, and consignees; - liability of carriers; - restrictions and limitations on liability of carriers; - customs; - documents.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	Jansen, M.A.. Law & self-regulation : legal and business perspectives. Legalmarketing.nl (ISBN 9789053832028), Wevers, H.. A basic guide to international business law. 4e druk. Noordhoff Uitgevers (ISBN 9789001862732),
Required other materials:	--

Choice of English (advanced of proficiency) depends on level:

OSIRIS-code:	BIP2.ENCAM5A-18T
Course name:	English Cambridge 5 Advanced
Study load:	3 EC (=84 hours)
Coordinator:	To be announced
Lecturer(s):	To be announced
Learning objective(s):	Upon completion of this study component you are able to: - apply the known grammar rules; - further broaden your English vocabulary; - use more expressions; - produce a Cambridge Advanced level review and proposal; - successfully pass the Advanced Cambridge reading test.
Content description:	In this study component, the following content is covered : - wider knowledge of expressions; - extended vocabulary on specific themes; - C1 level review and proposal based on a set novel; - passing a Cambridge Advanced level reading test.
Language:	EN
Teaching activity:	Training
Examination:	Written exam 40% Written exam 20% Individual assignment 40%
Mark:	Marks, F, MO
Required literature:	Objective Advanced Student's with answers with CD-ROM. CUP (ISBN 978110765755-7),
Required other materials:	--

OSIRIS-code:	BIP2.ENCAM5P-18T
Course name:	English Cambridge 5 Proficiency
Study load:	3 EC (=84 hours)
Coordinator:	To be announced
Lecturer(s):	To be announced
Learning objective(s):	Upon completion of this study component you are able to: - apply the known grammar rules; - further broaden your English vocabulary; - be able to use more expressions; - produce a Proficiency level review and proposal; - successfully pass a Cambridge Prof level reading test.
Content description:	In this study component, the following content is covered : - wider knowledge of expressions; - extende vocabulary on specific themes; - professional review and article based on the a set novel; - passing a Cambridge Proficiency reading test.
Language:	EN
Teaching activity:	Training
Examination:	Written exam 40% Written exam 20% Individual assignment 40%
Mark:	Marks, F, MO
Required literature:	Objective Proficiency Student's Book with Answers with CD-ROM. CUP (ISBN 97811076437-7),
Required other materials:	--

OSIRIS-code:	BIP2.SCM-18C
Course name:	Supply Chain Management
Study load:	2 EC (=56 hours)
Coordinator:	Sjef de Jong
Lecturer(s):	Pauline van Beusekom, Eric Hopstaken, Sjef de Jong
Learning objective(s):	Upon completion of this study component you are able to: - analyse the control side of logistic chains; - declare the risks in a supply chain; - use different supply chain concepts; - understand the effects of SRM and CRM.
Content description:	In this study component, the following content is covered : - chain integration; - ECR (efficient consumer response); - efficient replenisment; - supply chain concepts; - supply chain risks; - SRM (supplier relationship management); - CRM (customer relationship management);
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	Martin Christopher. Logistics & Supply Chain Management. Pearson education (ISBN 9781292083797),
Required other materials:	--

OSIRIS-code:	BIP2.AUTOM-18C
Course name:	Automation Technology
Study load:	2 EC (=56 hours)
Coordinator:	Hans Brink
Lecturer(s):	Hans Brink, Jan van Elderen
Learning objective(s):	Upon completion of this study component you are able to: understand, remember and describe the fundamentals and basic components of a modern automated process and its application in different situations, so that you are a competent discussion and project partner of the engineer in current and future automation procedures in your future working environment.
Content description:	In this study component, the following content is covered : - automation of logistic and production systems; - solving a technical control problem with the help of a sequential function diagram; - usage of sensors; - usage and the possibilities of Programmable Logic Controllers.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Written exam 60% Individual assignment 20% Individual assignment 20%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Introduction to automation technology

OSIRIS-code:	BIP2.FREE1-01
Course name:	Free elective 1
Study load:	1 EC (=28 hours)
Coordinator:	Ilse Hens
Lecturer(s):	Ilse Hens
Learning objective(s):	Upon completion of this study component you are able to: - make a choice for an activity for your personal development; extra on your CV; - develop your skills on a self-chosen topic; - write a plan for your development on self-chosen learning objective.
Content description:	In this study component, the following content is covered : - the design and planning of your free electives, under two conditions; 1. for each credit, you must choose an activity that requires 28 hours of work; 2. you have to be able to explain why the activity is a valuable addition to your curriculum. What will you learn and which competencies will you develop Examples; - course at an other education in- or outside Breda University of Applied Sciences (if you are on ISD you can follow a course at ILT); - assignments and / or study trips, organized by teachers / employees from the Breda University of Applied Sciences; - Dutch speaking students can also choose courses of the Dutch Free Electives. For more information, see CumLaude Learning, Info Sources.
Language:	EN
Teaching activity:	--
Examination:	Individual assignment 100%
Mark:	P, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BIP2.FREE2-01
Course name:	Free elective 2
Study load:	1 EC (=28 hours)
Coordinator:	Ilse Hens
Lecturer(s):	Ilse Hens
Learning objective(s):	Upon completion of this study component you are able to: - make a choice for an activity for your personal development; extra on your CV; - develop your skills on a self-chosen topic; - write a plan for your development on self-chosen learning objective.
Content description:	In this study component, the following content is covered : - the design and planning of your free electives, under two conditions; 1. for each credit, you must choose an activity that requires 28 hours of work; 2. you have to be able to explain why the activity is a valuable addition to your curriculum. What will you learn and which competencies will you develop?. Examples; - course at an other education in- or outside Breda University of Applied Sciences (if you are on ISD you can follow a course at ILT); - assignments and / or study trips, organized by teachers / employees from the Breda University of Applied Sciences; - Dutch speaking students can also choose courses of the Dutch Free Electives. For more information, see CumLaude Learning, Info Sources.
Language:	EN
Teaching activity:	--
Examination:	Individual assignment 100%
Mark:	P, F, MO
Required literature:	--
Required other materials:	--

Logistics Engineering

Year 3

Logistics Engineering
2018- 2019: year 3

	Developing policy 1	Developing policy 2	Developing policy 3	Supervising activities 1	Supervising activities 2	Supervising activities 3	Supervising activities 4	Implementing 1	Implementing 2	Implementing 3	Social and communicative subcompetencies	Social and communicative subcompetencies	Social and communicative subcompetencies	Self-directing subcompetency 2	Self-directing subcompetency 2	Self-directing subcompetency 3	Self-directing subcompetency 4
Trimester 1																	
Internship 1	2	2	2	1	2	2	2	1	1	1	2	2	2	2	2	2	2
Trimester 2																	
Network Logistics	3	2	3		3	3		2	2	2	2	3	2		2	2	2
E-Logistics			3			3											
Entrepreneurship	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Quality Management	1	3	3	2	3	3	2	2	3	2	2	2	3	2	2	3	2
Port Logistics	3	3	3	2	2	3	3	3	3	2							
ICT & Logistics 2	2	3	3			3	1			2							
Simulation	3	3				3	3		3	2							
Trimester 3																	
Internship 2	2	2	2	2	2	2	2	2		2	2	2	2	2	2	2	2

Logistics Engineering

Year 3

Trimester 1

OSIRIS-code:	BIP3.IS1-18
Course name:	Internship 1
Study load:	20 EC (=560 hours)
Coordinator:	Sjef de Jong
Lecturer(s):	Sjef de Jong
Learning objective(s):	Upon completion of this study component you are able to: - tackle a practical problem- with control and feedback- to report and present; - admission for internship; - you have to arrange your own internship, bearing in mind that the internship and assignment have to be approved by the internship coordinator. The terms and conditions to be admitted to the internship are mentioned in the Teaching and Examination Regulations SLM.
Content description:	In this study component, the following content is covered : - you will be working on the job during 14 weeks and carry out an assignment for the company or institution; - you report the results in a report and explain these results during graduation; - you mention your learning experiences in a process report. Coordinators; ILE / ILN: Sjef de Jong / Irene Meeuwesen; ISD: Leigh Stevens.
Language:	EN
Teaching activity:	Internship
Examination:	Individual assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Internship manual, Published on CumLaude Learning

Logistics Engineering

Year 3

Trimester 2

OSIRIS-code:	BIP3.NETLOG-18C
Course name:	Network Logistics
Study load:	3 EC (=84 hours)
Coordinator:	Sjef de Jong
Lecturer(s):	Pauline van Beusekom, Sjef de Jong, Peter Kole, Rik Ligthart
Learning objective(s):	Upon completion of this study component you are able to: - citically discuss and analyse the control side of logistic chains and networks; - critically discuss and analyse the aspects connected with the management and organization of chain and network integration; - analyse data and to develop a logistic network with reference to social economical and technical trends.
Content description:	In this study component, the following content is covered : - location and allocation of stock points in logistic chains; - SRM (supplier relationship management); - horizontal partnerships; - corporate Social Responsibility and sustainability.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 70% Group assignment 30%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BIP3.ELOG-18C
Course name:	E-Logistics
Study load:	3 EC (=84 hours)
Coordinator:	Peter Kole
Lecturer(s):	Paul Bolier, Peter Kole
Learning objective(s):	Upon completion of this study component you are able to: - reflect on historical and future developments of E-Logistics, the demands of consumers and the impact of E- logistics on the Supply Chain and logistic concepts; - you will be able to generate logistic solutions for online retail.
Content description:	In this study component, the following content is covered : - E-business, E-commerce & M-commerce: What is it and how are they connected? Online selling and processes: understanding of the unique functionalities in case of digital selling and processing goods; - online consumers: What do they want and which supply chain barriers do they recognize to prevent them from buying?; - internet and business models: How did internet change existing business models and processes?; - supply Chain: What is the impact of E-commerce on the total Supply Chain, stock, returns, cross border logistics and CO2 emission?; - warehousing: What are the differences between B2B, B2C and Multi-Channel warehouse opererations?; - the Last Mile: Where does the last mile start, where does it end and what are the challenges?; - logistic developments and Webshops: Which services, liability and accuracy do the offer and what are the developments?; - case study: To generate and present solutions for a given E-commerce logistic Case study.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 70% Group assignment 30%
Mark:	Marks, F, MO
Required literature:	Visser, H.M. and A.R. van Goor. Logistics: Principles and Practice : a demand and supply chain management approach. Heruitgave. Wolters-Noordhoff (ISBN 9789081649117),
Required other materials:	Handouts, articles, magazines, Published on CumLaude Learning

OSIRIS-code:	BIP3.ENT-18C
Course name:	Entrepreneurship
Study load:	3 EC (=84 hours)
Coordinator:	Semi Torun
Lecturer(s):	Erik van Diffelen, Semi Torun
Learning objective(s):	Upon completion of this study component you are able to: - set up a business plan based on thinking up new concepts that are related to the logistical knowledge domain; - discover and identify all aspects related to starting up new business; - how to manage a company on a financial, logistic, commercial, legal, human resource and international way; - integrate management, marketing, production and financial knowledge in relation to entrepreneurship; - discover and develop personal intra/entrepreneurial skills in a team and individually (awareness).
Content description:	In this study component, the following content is covered : - introduction to entrepreneurship / intrapreneurship; - concept development, idea creation, market exploration; - setting up a business plan, based on Lean canvas / Business Model Canvas; - becoming acquainted with The Lean Startup-methode; - entrepreneurship and legal aspects; - management game T-Challenge. This is an online simulation game in which you experience to manage a fruit juice company with disappointing results. The factory produces and sells ice tea and sports drinks. You will be challenged with your team to turn in into a successful company, in competition with other teams.
Language:	EN
Teaching activity:	Lecture, Project
Examination:	Group assignment 80% Individual assignment 20%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BIP3.QUAMG-18C
Course name:	Quality Management
Study load:	3 EC (=84 hours)
Coordinator:	Eric Hopstaken
Lecturer(s):	Sannie van Boxtel, Eric Hopstaken
Learning objective(s):	Upon completion of this study component you are able to: - use a business case and withgoing dataset and turn it into a concrete project-charter or Kaizen-form and execute this project based on the Lean- or Six Sigma-methodology in a project team; - learn from concrete projects during filed-trips to companies where lean and/or six sigma prijects are run/implemented - follow the right sequential steps according slide-information and literature study, know how to utilize and apply the linked tools from the LSS toolset in order to get to the required results step-by-step; - identify, present and implement improvements to get to the agreed results (in project-charter or Kaizen-form) in a professional way in a team-setting (incl. a control- and hand-over plan).
Content description:	In this study component, the following content is covered : - historical perspective and evolution of Quality Management; - background of Lean and Six Sigma; - phases and tools per phase within a Lean- or Six Sigma project.
Language:	EN
Teaching activity:	Project, Lecture, Fieldtrip
Examination:	Group assignment 60% Written exam 40%
Mark:	Marks, F, MO
Required literature:	Morgan.j & Brenig-Jones. M. Lean Six Sigma voor dummies, 3e editie.. BBNC Uitgevers (ISBN 9789045351896),
Required other materials:	Handouts, articles, magazines, ppt-slides from lectures, Published on CumLaude Learning

OSIRIS-code:	BIP3.PORTL-18C
Course name:	Port Logistics
Study load:	3 EC (=84 hours)
Coordinator:	Frans de Jong
Lecturer(s):	Frans de Jong
Learning objective(s):	Upon completion of this study component you are able to: - master the transshipment and storage of multimodal bulk freight flows within a port. Both on economic and engineerings level; - recognize the organization structures of a port and also in a broader perspective; - recognize the different kind of competition on both public and private level; - define the role of port authorities.
Content description:	In this study component, the following content is covered : - technical features for storage and transshipment of multimodal bulk freight flows; - the economic knowledge of the use of these technical features within a logistic chain; - economic trade-off (ETO) and social pros and cons of an existing or new port in a broader perspective with central focus on the port; - the powerplay within the triptych of shipping companies, terminals and port authorities; - the different forms of government of a port authority; - the economic importance for seaports in the fields of containers, dry and liquid bulk; - the economic importance of a seaport in the field of energy, freight flows and fuels.
Language:	EN
Teaching activity:	Lecture
Examination:	Written exam 100%
Mark:	Marks, F, MO
Required literature:	Dong-wook song and others. Maritime logistics: a guide to contemporary shipping and port management. (ISBN 9780749472689),
Required other materials:	--

OSIRIS-code:	BIP3.ICTLOG2-18C
Course name:	ICT & Logistics 2
Study load:	3 EC (=84 hours)
Coordinator:	Irene Meeuwesen
Lecturer(s):	Irene Meeuwesen
Learning objective(s):	Upon completion of this study component you are able to: - advise about design and requirements, selection and use of information and operating systems for logistic application in companies. The advice pays attention to managerial, organisation and technological aspects; - understand the possibilities of types of different applications and understand the business rules that belong to MRP, production and warehouse management, and know how to apply them; - link theory and practise through assignments in SAP Business One.
Content description:	In this study component, the following content is covered : - the role, use and developments of information thechnology in companies; - an introduction to systems used in supply chain management; - material Requirements Planning; demand forecast and generating purchase and production proposals; - production Order Management; the production order life cycle and operating systems; - marketing and Service (CRM), management information (BI).
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Computer exam 100%
Mark:	Marks, F, MO
Required literature:	Visser and van Goor. Logistics: Principles and Practice : a demand and supply chain management approach. Heruitgave. eigen uitgave (ISBN 9789081649117), R. Grit. Project management : a practical approach. 4e druk. Noordhoff Uitgevers (ISBN 9789001850548
Required other materials:	--

OSIRIS-code:	BIP3.SIM-18C
Course name:	Simulation
Study load:	2 EC (=56 hours)
Coordinator:	André Gijsberts
Lecturer(s):	Jan van Elderen, André Gijsberts
Learning objective(s):	Upon completion of this study component you are able to: to do a simulation study on a simple logistical problem.
Content description:	In this study component, the following content is covered : - recognition of a simulation problem; - analyzing a system regarding capacity, utilization, bottleneck, waiting and throughput times; - building the problem in simulation software Flexsim; - executing a complete simulation study with regard to validation, design of experiments, analyzing results and writing a report.
Language:	EN
Teaching activity:	Training, Lecture
Examination:	Group assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Tutorial Flexsim & Cases, Published on CumLaude Learning

Logistics Engineering

Year 3

Trimester 3

OSIRIS-code:	BIP3.IS2-18
Course name:	Internship 2
Study load:	20 EC (=560 hours)
Coordinator:	Sjef de Jong
Lecturer(s):	Sjef de Jong
Learning objective(s):	Upon completion of this study component you are able to: - after the internship you are able to tackle a practical problem- with control and feedback- to report and present; - admission for internship: - you have to arrange your own internship, bearing in mind that the internship and assignment have to be approved by the internship coordinator. The terms and conditions to be admitted to the internship are mentioned in the Teaching and Examination Regulations SLM.
Content description:	In this study component, the following content is covered : - you will be working on the job during 14 weeks and carry out an assignment for the company or institution; - you report the results in a report and explain these results during graduation; - you mention your learning experiences in a process report. Coordinators; ILE / ILN: Sjef de Jong / Irene Meeuwesen; ISD: Leigh Stevens.
Language:	EN
Teaching activity:	Internship
Examination:	Individual assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Internship manual, Published on CumLaude Learning

Logistics Engineering

Year 4

Semester 1

Minor: the modern Supply Chain

OSIRIS-code:	BLG4.CASESC-18C
Course name:	Case: Dynamics of The Modern Supply Chain
Study load:	10 EC (=280 hours)
Coordinator:	Eric Hopstaken
Lecturer(s):	Pauline van Beusekom, Erik van Diffelen, Jan van Elderen, Eric Hopstaken, Luuk Koopman, Justin van de Pas, Jan Willem Proper, Jan Verhey
Learning objective(s):	Upon completion of this study component you are able to: - work together with collegues in a professional multinational business environment (devide/take responsibilities, report out to management, provide and receive coaching); - define and formulate project goals in a 'SMART' way; - collect data and information, set priorities and distinguish the vitally important from the trivial many; - deduct integral concepts of a new or changed supply chain, based on innovative ideas; - apply concepts in developing new end-to-end supply chains; - perform literature studies around developing new/renewed supply chains.
Content description:	In this study component, the following content is covered : - Supply Chain innovation and change; - Samsung-case (internal: project explanation; external: customer visit @ Samsung); - effective team-work: representing fellow-students at different levels in the project organization; - project management (working hours, project hours, meetings); - interviewing skills, reporting and presentations; - intermediate team evaluation sessions and feedback sessions;
Language:	EN
Teaching activity:	Project, Lecture, Fieldtrip
Examination:	Group assignment 60% Individual assignment 20% Process (obligatory) 20%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Handouts, articles, magazines, all from previous years @ Breda University of Applied Sciences; handouts/slides

OSIRIS-code:	BLG4.SCRM-18C
Course name:	Supply Chain Risk Management
Study load:	4 EC (=112 hours)
Coordinator:	Pauline van Beusekom
Lecturer(s):	Pauline van Beusekom, Jan Willem Proper
Learning objective(s):	Upon completion of this study component you are able to: make a risk management analysis for the Samsung minor case based on theories, models, tools and data from Samsung and other supply chain environments.
Content description:	In this study component, the following content is covered : - risk management and supply chain design; - risk management and related risk management assessment models; - risk management and incident management; - risk management and inventory management; - risk management and forecasting; - risk management and resilience.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Group assignment 100%
Mark:	Marks, F, MO
Required literature:	D. Waters. Supply chain risk management. Kogan Page, Londen (ISBN 9780749463939),
Required other materials:	Handouts, articles, magazines, , Published on CumLaude Learning

OSIRIS-code:	BLG4.STIN-18C
Course name:	Strategy & Innovation
Study load:	4 EC (=112 hours)
Coordinator:	Jan Willem Proper
Lecturer(s):	Jan Willem Proper
Learning objective(s):	Upon completion of this study component you are able to: - audit logistics companies on their strategic choices; - manage and control the process of developing a strategy; - develop innovative initiatives - develop the communication plan and the implementation process.
Content description:	In this study component, the following content is covered : - strategy development as a process; - pitfalls and successes when developing a SWOT; - SWOT; confrontation; - Strategy process evaluation; - Red and blue ocean concepts; - Business Model Canvas; - Implemenation plan; - Company and network alignment.
Language:	EN
Teaching activity:	Training, Training
Examination:	Group assignment 100% Group assignment 0%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Papers and literature., Published on CumLaude Learning;

Choose 3 of the following 4-EC courses

OSIRIS-code:	BLG4.SUCF-18C
Course name:	Supply Chain Finance
Study load:	4 EC (=112 hours)
Coordinator:	Jan Verhey
Lecturer(s):	Semi Torun, Jan Verhey
Learning objective(s):	Upon completion of this study component you are able to: - analyse financial processes in a company (O2C en P2P); - analyse financial reports; - express the importance of gearing the activities of management roles to one another; - determine as a team the strategy and to take and coordinate the corresponding tactical & operational decisions; - map out financial costs and risks in the supply chain and possible ways to reduce them; - express the potential of supply chain finance instruments for both the buyers and the suppliers; - work as a team.
Content description:	In this study component, the following content is covered : - working capital management; - O2C and P2P processes; - cash conversion cycle; - reverse factoring; - dynamic discounting; - financial reports; - transfer pricing - management game: The Cool Connection.
Language:	EN
Teaching activity:	Lecture
Examination:	Group assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BLG4.OR-18C
Course name:	Operations Research
Study load:	4 EC (=112 hours)
Coordinator:	André Gijsberts
Lecturer(s):	André Gijsberts
Learning objective(s):	Upon completion of this study component you are able to: invent and apply methods on a number of quantitive problems.
Content description:	In this study component, the following content is covered : - introduction to the Harvard Business Method; OR; - introducing the assignments on distribution, production, container terminals etcetera (the choice of problems varies each year!); - repeating background knowledge in LP, MIP and Simulation; - software Tools like the Excel Solver and Flexsim.
Language:	EN
Teaching activity:	Training
Examination:	Group assignment 25% Group assignment 25% Group assignment 50%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Handouts, articles, magazines, Assignments, sheets, background papers, Published on CumLaude Learning

OSIRIS-code:	BLG4.ACSC-18C
Course name:	Air Cargo Supply Chain
Study load:	4 EC (=112 hours)
Coordinator:	Eric Hopstaken
Lecturer(s):	Eric Hopstaken
Learning objective(s):	Upon completion of this study component you are able to: analyse and understand the air cargo supply chain and the air cargo markets.
Content description:	In this study component, the following content is covered : - the developments within the air cargo market; - macro-economic and institutional developments influencing the air cargo market; - the organisation and handling of air cargo (the market participants in the air cargo supply chain and the documents, operations and handling in the air cargo supply chain); - the demand for airfreight; - the economical relations between the market participants on the air cargo market; - revenue management; - the logistical relations between the market participants in the air cargo market; - these subjects are discussed and applied in relation to the central case of the minor.
Language:	EN
Teaching activity:	Lecture, Fieldtrip
Examination:	Group assignment 75% Individual assignment 25%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Handouts, articles, magazines, Divers, Published on CumLaude Learning

OSIRIS-code:	BLG4.CT-18C
Course name:	Control Towers
Study load:	4 EC (=112 hours)
Coordinator:	Marcel Wouterse
Lecturer(s):	Rik Ligthart, Marcel Wouterse
Learning objective(s):	Upon completion of this study component you are able to: - gain insight in the history, use and future of control towers within supply chains; - understand the different types and functions of Control Tower in the Supply Chain; - assess the impact of Control Towers on the cost-structure and revenue-models; - evaluate the impact on future job resources and job demands, being given practical insights of the 'Supply Chain professions of tomorrow'; - appreciate the importancy and consequences of the rising levels of collaboration in the Supply Chain.
Content description:	In this study component, the following content is covered : - small group and personal assignments; - e-learnings; - blogs; - serious gaming; - role-plays; - state of the art cases; - guest lectures from Control Tower professionals.
Language:	EN
Teaching activity:	Lecture, Training
Examination:	Individual assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Minor: Modern Business in a Changing World

OSIRIS-code:	AMBC.18MINOR
Course name:	Modern Business in a Changing World
Study load:	30 EC (=840 hours)
Coordinator:	Rik Ligthart
Lecturer(s):	Sannie van Boxtel, Erik van Diffelen, Bas Groot, Rik Ligthart, Natasja Lutovinova, Jan Willem Proper
Learning objective(s):	Upon completion of this study component you are able to: - successfully plan, execute, and evaluate change initiatives
Content description:	In this study component, the following content is covered : - Change Management - Project Management - Learning & Development - Strategy & Innovation - Behavior
Language:	EN
Teaching activity:	Project, Lecture, Training
Examination:	Group assignment 50% Individual assignment 50%
Mark:	Marks, F, MO
Required literature:	J. Kotter. Leading Change. Harvard Business School Publishing (ISBN 9781422186435),
Required other materials:	--

Minor: Retrofitting the sprawled city

OSIRIS-code:	BBE4.INIT-18T
Course name:	Retrofitting Phase I - initiate
Study load:	10 EC (=280 hours)
Coordinator:	Paul van de Coevering
Lecturer(s):	Paul van de Coevering, Robert van Dongen, Ed Ravensbergen, Ineke Spapé
Learning objective(s):	Upon completion of this study component you are able to: - act as a student consultancy firm together with your team members and write a professional project proposal; - assess the current situation in your international case study area with the STEEP and SWOT analysis tools; - create integrated concepts with hardware, software and orgware interventions for the redevelopment and revitalization of your case study area which are grounded in theory and are alligned with the results of your SWOT analysis; - explain the mechanisms through wich these interventions contribute to the aims of curbing urban sprawl and reduce car dependency.
Content description:	In this study component, the following content is covered : - writing a professional project proposal; - in depth analysis of a case study area in North America; - differences in land use and transportation networks between European and Northern American cities; - societal challenges related to urban sprawl and a car dependent culture; - hardware, software and orgware measures and their synergies.
Language:	EN
Teaching activity:	Training
Examination:	Group assignment 50% Individual assignment 50%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBE4.INTE-18T
Course name:	Retrofitting Phase II - Integrate
Study load:	10 EC (=280 hours)
Coordinator:	Paul van de Coevering
Lecturer(s):	Paul van de Coevering, Robert van Dongen, Ed Ravensbergen, Ineke Spapé
Learning objective(s):	Upon completion of this study component you are able to: - create a detailled integrated plan to tackle societal issues related to urban sprawl and car dependency in your case study area; - provide additional theoretical backing for these plans grounded in theory and best practices from around the world; - provide a coherent storyline from the SWOT analysis to concepting and the specific measures; - conduct targeted Urban Guerilla tactics in practice.
Content description:	In this study component, the following content is covered : - designing and planning from masterplan to detailed street designs; - systems thinking to identify cause and effect relationships; - urban Guerilla tactics and connection with hardware, software orgware measures; - creating movie clips from start to finish.
Language:	EN
Teaching activity:	Training
Examination:	Group assignment 50% Individual assignment 50%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBE4.COMM-18T
Course name:	Retrofitting Phase III - Communicate
Study load:	10 EC (=280 hours)
Coordinator:	Paul van de Coevering
Lecturer(s):	Paul van de Coevering, Robert van Dongen, Ed Ravensbergen, Ineke Spapé
Learning objective(s):	Upon completion of this study component you are able to: - adjust your concept plans based on feedback from the project sponsors; - create a targeted and convincing plan and storyline; - effectively communicatie your final plans to the project sponsors and target groups.
Content description:	In this study component, the following content is covered : - effective presentation skills; - poster presentations; - creating brochures; - any other means of conveying your message.
Language:	EN
Teaching activity:	Training
Examination:	Group assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Minor: Smart city, Color your Future

OSIRIS-code:	BSCCF.18MINOR
Course name:	Minor Smart City, Color your Future
Study load:	30 EC (=840 hours)
Coordinator:	Peter Kole
Lecturer(s):	Pauline van Beusekom, Hans Brink, Paul van de Coevering, Don Guikink, Ruud Hornman, Peter Kole, Nina Nesterova, Marcel van Wietingen
Learning objective(s):	Upon completion of this study component you are able to: create a integral future proof vision on a city / urban area, where knowledge and ideas around spatial development and planning-, mobility- and logistics get applied, analyzed and evaluated jointly.
Content description:	In this study component, the following content is covered : - basics of spatial development and planning, mobility and logistics, - Smart City, -Mobility and -City Logistics, - future trends and developments related to spatial development and planning- smart mobility and smart logistics, - change management and behavioral change.
Language:	EN
Teaching activity:	Project, Lecture, Training
Examination:	Group assignment 70% Individual assignment 30% Process (obligatory)
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Logistics Engineering

Year 4

Semester 2

OSIRIS-code:	B4.SC-18
Course name:	Graduation Thesis
Study load:	30 EC (=840 hours)
Coordinator:	Sjef de Jong
Lecturer(s):	Sjef de Jong
Learning objective(s):	Upon completion of this study component you are able to: to tackle, to report and to present a practical problem as a starting professional.
Content description:	In this study component, the following content is covered : you have to arrange your own internship and assignment. The internship coordinator measures the assignment on size, complexity and draft. During the graduation process you will work on location; Coordinators; ILE/ILN: Sjef de Jong / André Gijsberts; BE: Monique van Herpen.
Language:	EN
Teaching activity:	Thesis
Examination:	Individual assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	Reader, e-book, Graduation manual, Published on CumLaude Learning

Description competences

A1	**Developing policy 1** Conducts research based on analysis and translates external and internal developments into consequences for the organisation and its stakeholders.
A2	**Developing policy 2** Formulates policy in one or more logistics domains.
A3	**Developing policy 3** Contributes to the development of business relations, chains and networks in conjunction with economic developments.
B1	**Steering activities 1** Manages the execution of processes within the logistics domains.
B2	**Steering activities 2** Is able to set up, control and improve logistics processes,
B3	**Steering activities 3** Applies management techniques.
B4	**Steering activities 4** Provides support in the development, implementation and evaluation of change processes within organisations.
C1	**Implementing 1** Plans logistics operations and ensures that they are implemented.
C2	**Implementing 2** Identifies problems within logistics operations, makes diagnoses and determines corrective actions, and ensures that these actions are implemented.
C3	**Implementing 3** Monitors performance in all logistics domains.
D1	**Social and communicative subcompetencies 1** Cooperates with others in a professional setting and contemplates, together with others, the objectives and structure of the organisation, in which multidisciplinarity, interdisciplinarity, collegiality and leadership are key characteristics.
D2	**Social and communicative subcompetencies 2** Communicates effectively and in a business-like manner in the current corporate language and in relevant professional situations on all levels.
D3	**Social and communicative subcompetencies 3** Takes into account (inter)national cultural differences.

E1	**Self-directing subcompetency 1** Manages and regulates his/her own development in terms of learning.

E2	**Self-directing subcompetency 2** Has a professional attitude

E3	**Self-directing subcompetency 3** Operates in a professionally, ethically and socially responsible manner.

E4	**Self-directing subcompetency 4** Contributes to the development of his or her future profession, in all aspects.

Description of the competence levels

Level	Character of assignment	Character of context	Degree of dependency
I	- Simple - Structured - Applies well-known methods	- Familiar - Simple - Monodisciplinary	- Steering guidance
II	- Complex - Structured - Uses well-known in varying situations	- Familiar - Complex - Monodisciplinary practice-based	- Coaching guidance
III	- Complex - Unstructured - Uses methods in new situations	- Unfamiliar - Complex - Multidisciplinary practice-based	- Independent - Guidance for coaching if necessary

Games

Media

Hotel

Facility

Built Environment

Logistics

Tourism

Leisure & Events

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