Course Descriptions None 2020-2021

Course Title	Modelling and Solver Technology
Course Code	EBC4051
ECTS Credits	6,5
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
4	1-2-2021	26-3-2021		X		X	

Level	Advanced
Coordinator	Christof Defryn For more information:c.defryn@maastrichtuniversity.nl
Language of instruction	English
Goals	After this course, the student is able to model (hard) optimisation problems as mathematical programs and knows several techniques to solve these problems. Moreover, the student can use general purpose software tools to solve these problems.
Description	PLEASE NOTE THAT THE INFORMATION ABOUT THE TEACHING AND ASSESSMENT METHOD(S) USED IN THIS COURSE IS WITH RESERVATION. THE INFORMATION PROVIDED HERE IS BASED ON THE COURSE SETUP PRIOR TO THE CORONAVIRUS CRISIS. AS A CONSEQUENCE OF THE CRISIS, COURSE COORDINATORS MAY BE FORCED TO CHANGE THE TEACHING AND ASSESSMENT METHODS USED. THE MOST UP-TO-DATE INFORMATION ABOUT THE TEACHING/ASSESSMENT METHOD(S) WILL BE AVAILABLE IN THE COURSE SYLLABUS. This course is devoted to mathematical modelling of hard optimisation problems. We focus on integer programming techniques to solve these optimisation problems. During this course techniques as branch and bound, cutting panes and column generation will be discussed as well as the theory needed to understand these techniques. Furthermore, partially by using LP and ILP solvers, some of these techniques will be implemented.
Literature	Selected papers. Lecture notes. Recommended background literature : L.A. Wolsey, "Integer Programming", 1998, ISBN 0-471-28366-5.
Prerequisites	Linear programming (including the simplex method), duality, basics in integer programming, combinatorial optimisation, graph theory, C++, Java (or some other programming language). Exchange students need to have obtained a Bachelor degree and an advanced level in mathematics. An advanced level of English
Teaching methods	PBL / Presentation / Lecture / Assignment / Papers / Groupwork
Assessment methods	Attendance / Participation / Assignment / Presentation
Evaluation in previous academic year	For the complete evaluation of this course please click http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM

This course belongs to the following programme / specialisation

Master Business Research - No specialisation	Year 2 Methodology Elective(s)
Master Business Research - Operations Research	Year 1 Compulsory Course(s)
Master Business Research - Operations Research	Year 1 Elective Course(s)
Master Business Research - Operations Research	Year 2 Elective Course(s)
Master Econometrics and Operations Research	E&OR Electives
SBE Exchange Master	Master Exchange Courses
SBE Non Degree Courses	Master Courses