University of Applied Sciences and Arts
of Southern Switzerland

SUPSI

msfi   competence centre
sustainable mobility and railways
innovation

The RSM Program

SUPSI Advanced Studies in Railways & Sustainable Mobility

An integrated approach for the
next generation of mobility professionals.

With the support of

SBB CFF FFS   **SWISSRAIL** Industry Association

SUPSI Advanced Studies
The Railways and Sustainable Mobility Program RSM
RSM is part of the SUPSI Continuing Education Courses.

Transportation is becoming a multisector and interdisciplinary industry, with continuously new products and concepts coming to the market. New pioneering approaches are urgently required to tackle the challenges of the next decades.

The understanding, the management, and the development of a sustainable mobility: a key factor for corporate and industrial success.

Therefore, preparing the next generation mobility experts is becoming the central aspect for a flourishing economy.

As a holder of a degree of the Railways and Sustainable Mobility (RSM) Program, you are a recognized specialist in this discipline. You have a proven ability to master complexity and you are equipped with the fundamentals for further professional development.

With RSM you grow to new dimensions: not a mobility manager, a mobility and technical leader!

An investment of 2 part-time years.

RSM, exploring mobility.

Advanced Studies SUPSI
Railways and Sustainable Mobility RSM

Introduction

The Program on Railways and Sustainable Mobility (RSM) trains both technical and management leaders, intended for careers in the transportation industry and in the public/private sectors of mobility & transportation.

RSM is a part-time program that allows for work-life balance and professional development. The six independent CAS are aligned to build a complete MAS. Students need to complete 5 CAS and a Master Thesis to obtain the MAS in Railways and Sustainable Mobility RSM.

Objectives

Students acquire the skills needed for careers in departments such as research and development, production, consultancy, and public institutions and are capable of taking responsibility to lead teams, to strategize concepts, and to manage complex interdisciplinary projects.

> Understand and apply the concepts of integrated mobility
> Acquire the latest skills and competencies in the mobility sector
> Immediately apply the new acquired competencies in the respective area
> Be familiar with the technical standards of railways and transportation system
> Understand, and apply the latest technologies applicable to the mobility sector

Students will also be able to bring back innovative approaches to problem solving and technical challenges. Furthermore, the RSM program wants to:

> Create a network and establish a common platform of professionals
> Promote an engineering mobility innovation thinking
> Provide opportunities of workshops/intern positions in Swiss and European organizations (operators, manufacturers, maintainers)
> Be recognized as a mobility expert

Intended Audience

The RSM program is devoted to managers and experienced employees from the railways and mobility sector as well as to people interested to work in this sector through the acquisition of the knowhow provided by this course.

Application Requirements

Bachelor Graduates from Engineering Programs, Management, or other Technical and Scientific faculties. Non-graduates Professionals and Manager from the fields Railways and Mobility with at least 3 years of experience. The Master is held in English (lessons and documentations) therefore good command of English is required.

Certificates

Master of Advanced Studies SUPSI in Railways and Sustainable Mobility RSM (60 ECTS). The University of Applied Sciences and Arts of Southern Switzerland (SUPSI) has university status in accordance with Article 2, Para 2, Let. b), is accredited in accordance with Article 28, Para 1, Let. a) of the Federal Act on the Funding and Coordination of the Higher Education Sector (HEdA) of 30 September 2011and is recognized by the Confederation and by the Cantons.

Program

The course is subdivided into 6 specializations, each of which constitutes a Certificate of Advanced Studies (CAS):

1. Mobility Management (MoMa)
2. Operation Management (OMa)
3. Mobility Advanced Technologies (MAT)
4. Railway Vehicles Technology (RVT)
5. Integrated Technology (InTech)
6. Infrastructure & Controls (InCo)

CAS Programs can also be offered as SUPSI "Summer School" during the months of June, July and August in weekly blocks.

Upon completion of 5 CAS and a Master Thesis, the attendee will receive a Master of Advanced Studies (MAS) SUPSI in Railways and Sustainable Mobility RSM.

Structure
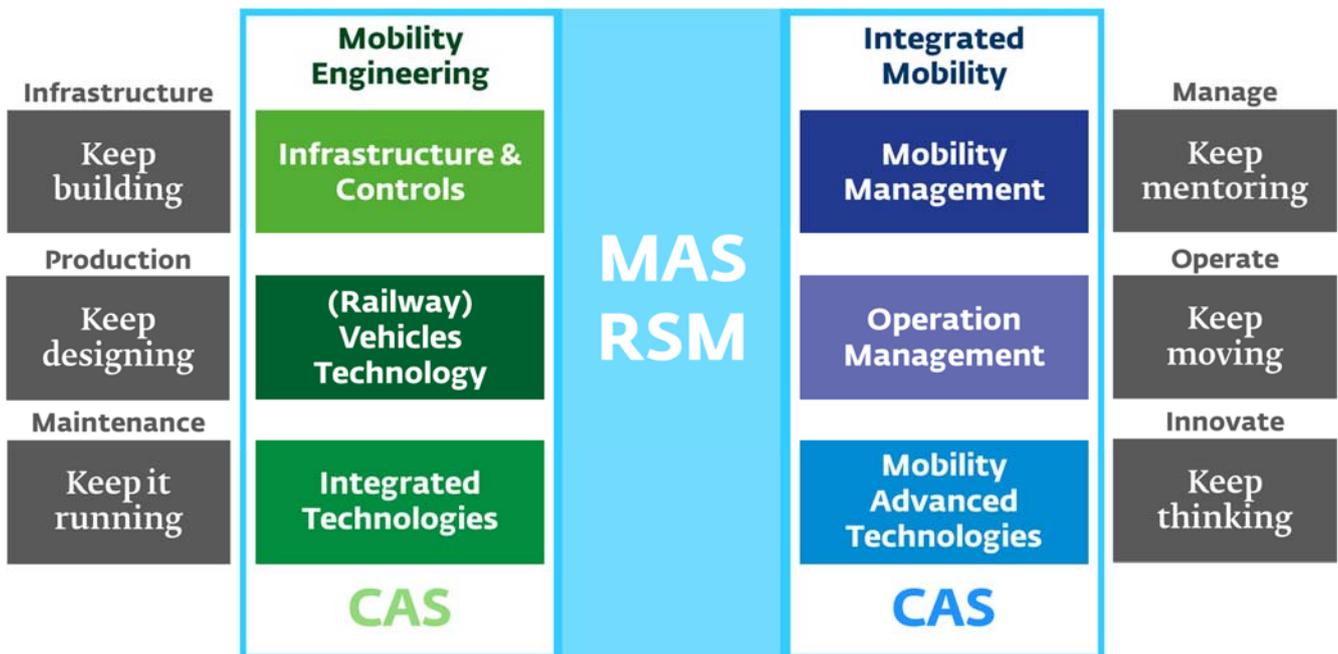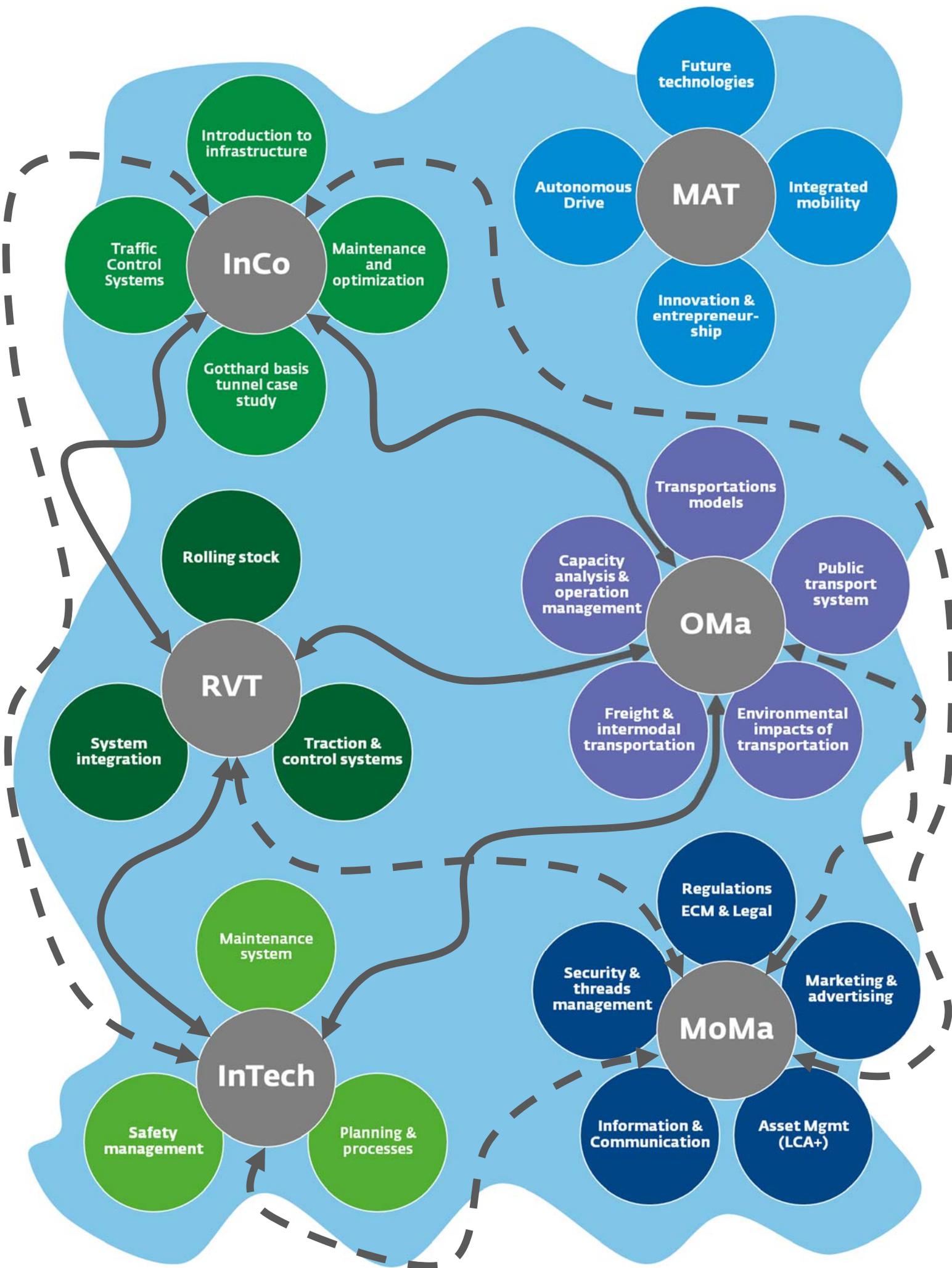
Duration

Each CAS is 132 hours of lessons, which accounts for 11 ECTS.

For the MAS, at least 660 hours of lessons and approximately 300 hours for the Master Thesis. The overall engagement is 67 ECTS.

Teachers / Lecturer

Industrial experts and academic specialists in the topics covered by the specific certificates modules.

Responsibles

Luca Diviani
Head of the Mechanical Engineering Lab

SUPSI - University of Applied Sciences and Arts of Southern Switzerland
MEMTi - Mechanical Engineering and Materials Technology Institute

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Managing Director msfi

Competence centre msfi
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www.msfi.ch / rsm.msfi.ch

Lessons plan

Extended Weekends +		Weekly Block *	
Friday	09:30 – 18:30	Monday to	08:00 – 12:45
Saturday	09:30 – 18:30	Thursday	13:30 – 18:30

* option available if requested by a specific organization or as SUPSI Summer School
+ times may differ in selected days

Dedicated RSM website: rsm.msfi.ch

See details of lessons on SUPSI Advanced Studies websites:
www.supsi.ch/fc/offerta-formativa/advanced-studies/mas
www.supsi.ch/fc/offerta-formativa/advanced-studies/cas
https://fc-catalogo.app.supsi.ch/Home/Welcome

Dates overview

Year	2018				2019						
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
MoMa	███	██	██								
RVT				██	██	██					
MAT							██	██	██	██	
InTech											██
OMa											
InCo											

Year	2019					2020				
Month	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
MoMa										
RVT										
MAT										
InTech	██	██								
OMa			██	██						
InCo						██	██	██		

Location/Place

At the "Officine FFS" in Bellinzona (5 minutes walking from the station).

Costs

CHF 6'100.– for a single CAS

CHF 14'500.- for a DAS (include three CAS)

CHF 21'500.– for the entire MAS

Registration

Online applications are accepted from May 2018. A minimum number of applicants for each CAS (8-10 Students) is required.

If you wish to attend the course in another language, please mention it during registration and select between Italian and German. The Course could be held in another language if there are at least 8 participants.

Mobility Management (MoMa)

B	#	Start	Finish	2018 Sep 07 Fri	2018 Sep 08 Sat	2018 Sep 21 Fri	2018 Sep 22 Sat	2018 Oct 05 Fri	2018 Oct 06 Sat	2018 Oct 19 Fri	2018 Oct 20 Sat	2018 Oct 26 Fri	2018 Oct 27 Sat	2018 Nov 09 Fri	2018 Nov 10 Sat	2018 Nov 23 Fri	2018 Nov 24 Sat
	1	07:45	08:30														
	2	08:30	09:15														
	X	09:15	09:30														
	3	09:30	10:15	STM	MB2	ICO		STR	LCA	ICO	LCA		MB2	LCA	STM	REL	MB2
	4	10:15	11:00	STM	MB2	ICO		STR	LCA	ICO	LCA		MB2	LCA	STM	REL	MB2
	X	11:00	11:15														
	5	11:15	12:00	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2	LCA	STM	REL	MB2
	6	12:00	12:45	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2	LCA	STM	REL	MB2
	L	12:45	13:30														
	7	13:30	14:15	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2	ICO	STM	REL	STM
	8	14:15	15:00	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2	ICO	STM	REL	STM
	X	15:00	15:15														
	9	15:15	16:00	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2	ICO	STM	REL	STM
	10	16:00	16:45	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2	ICO	STM	REL	STM
	X	16:45	17:00														
	11	17:00	17:45	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2		STM	REL	
	12	17:45	18:30	STM	MB2	ICO	STR	STR	LCA	ICO	LCA	REL	MB2		STM	REL	
	X	18:30	18:45														
	13	18:45	19:30														
	14	19:30	20:15														

Strategy basics & Regulations — STR/REL
Asset Management (LCA+) — LCA
Information & communication — ICO
Security & threads management — STM
Marketing & advertising — MB2

Railway Vehicles Technology (RVT)

D	#	Start	Finish	2018 Nov 30 Fri	2018 Dec 01 Sat	2018 Dec 14 Fri	2018 Dec 15 Sat	2018 Dec 21 Fri	2018 Dec 22 Sat	2019 Jan 18 Fri	2019 Jan 19 Sat	2019 Feb 01 Fri	2019 Feb 02 Sat	2019 Feb 15 Fri	2019 Feb 16 Sat	2019 Mar 01 Fri	2019 Mar 02 Sat
	1	07:45	08:30														
	2	08:30	09:15										SYI		SYI		
	X	09:15	09:30														
	3	09:30	10:15	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		TCS
	4	10:15	11:00	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		TCS
	X	11:00	11:15														
	5	11:15	12:00	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		TCS
	6	12:00	12:45	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		TCS
	L	12:45	13:30														
	7	13:30	14:15	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		TCS
	8	14:15	15:00	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		TCS
	X	15:00	15:15														
	9	15:15	16:00	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		SYI
	10	16:00	16:45	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		SYI
	X	16:45	17:00														
	11	17:00	17:45	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		SYI
	12	17:45	18:30	ROS	ROS	SYI	TCS	ROS	TCS	ROS	ROS	TCS	SYI	ROS	SYI		SYI
	X	18:30	18:45														
	13	18:45	19:30														
	14	19:30	20:15														

Rolling stock — ROS
Traction & control systems — TCS
System integration — SYI

Mobility Advanced Technologies (MAT)

C	#	Start	Finish	2019 Mar 15 Fri	2019 Mar 16 Sat	2019 Mar 29 Fri	2019 Mar 30 Sat	2019 Apr 12 Fri	2019 Apr 13 Sat	2019 May 10 Fri	2019 May 11 Sat	2019 May 24 Fri	2019 May 25 Sat	2019 Jun 07 Fri	2019 Jun 08 Sat	2019 Jul 05 Fri	2019 Jul 06 Sat
	1	07:45	08:30														
	2	08:30	09:15														
X		09:15	09:30														
	3	09:30	10:15	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	INE	ADR	ADR	FUT	ADR
	4	10:15	11:00	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	INE	ADR	ADR	FUT	ADR
X		11:00	11:15														
	5	11:15	12:00	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	INE	ADR	ADR	FUT	ADR
	6	12:00	12:45	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	INE	ADR	ADR	FUT	ADR
L		12:45	13:30														
	7	13:30	14:15	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	IMO	ADR	ADR	FUT	ADR
	8	14:15	15:00	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	IMO	ADR	ADR	FUT	ADR
X		15:00	15:15														
	9	15:15	16:00	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	IMO	ADR	ADR	FUT	ADR
	10	16:00	16:45	INE	FUT	FUT	IMO	INE	IMO	ADR	ADR	FUT	IMO	ADR	ADR	FUT	ADR
X		16:45	17:00														
	11	17:00	17:45	INE		FUT	IMO	INE	IMO	ADR	ADR	FUT		ADR	ADR		
	12	17:45	18:30	INE		FUT	IMO	INE	IMO	ADR	ADR	FUT		ADR	ADR		
X		18:30	18:45														
	13	18:45	19:30														
	14	19:30	20:15														

Innovation & entrepreneurship — INE
Integrated mobility — IMO
Future technologies — FUT
Autonomous Drive (technical & concepts) — ADR

Integrated Technology (InTech)

E	#	Start	Finish	2019 Jul 12 Fri	2019 Jul 13 Sat	2019 Jul 26 Fri	2019 Jul 27 Sat	2019 Aug 09 Fri	2019 Aug 10 Sat	2019 Aug 23 Fri	2019 Aug 24 Sat	2019 Sep 06 Fri	2019 Sep 07 Sat	2019 Sep 20 Fri	2019 Sep 21 Sat	2019 Sep 27 Fri	2019 Sep 28 Sat
	1	07:45	08:30														
	2	08:30	09:15		MXS		PLP		SAM		MXS		SAM		PLP		
X		09:15	09:30														
	3	09:30	10:15	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	SAM	PLP	PLP	SAM	
	4	10:15	11:00	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	SAM	PLP	PLP	SAM	
X		11:00	11:15														
	5	11:15	12:00	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	SAM	PLP	PLP	SAM	
	6	12:00	12:45	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	SAM	PLP	PLP	SAM	
L		12:45	13:30														
	7	13:30	14:15	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	MXS	PLP	PLP	SAM	
	8	14:15	15:00	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	MXS	PLP	PLP	SAM	
X		15:00	15:15														
	9	15:15	16:00	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	MXS	PLP		SAM	
	10	16:00	16:45	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	MXS	PLP		SAM	
X		16:45	17:00														
	11	17:00	17:45	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	MXS	PLP		SAM	
	12	17:45	18:30	SAM	MXS	PLP	PLP	MXS	SAM	PLP	MXS	MXS	MXS	PLP		SAM	
X		18:30	18:45														
	13	18:45	19:30														
	14	19:30	20:15														

Planning & processes — PLP
Maintenance system — MXS
Safety management — SAM

Operation Management (OMa)

A	#	Start	Finish	Sep 27 Fri	Sep 28 Sat	Oct 11 Fri	Oct 12 Sat	Oct 25 Fri	Oct 26 Sat	Nov 08 Fri	Nov 09 Sat	Nov 22 Fri	Nov 23 Sat	Nov 29 Fri	Nov 30 Sat	Dec 13 Fri	Dec 14 Sat
				2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
	1	07:45	08:30														
	2	08:30	09:15			RPP			EIT	COM			FIT		EIT		
	X	09:15	09:30														
	3	09:30	10:15		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	FIT	EIT	EIT	FIT	COM
	4	10:15	11:00		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	FIT	EIT	EIT	FIT	COM
	X	11:00	11:15														
	5	11:15	12:00		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	FIT	EIT	EIT	FIT	COM
	6	12:00	12:45		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	FIT	EIT	EIT	FIT	COM
	L	12:45	13:30														
	7	13:30	14:15		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	COM	EIT	RPP	FIT	COM
	8	14:15	15:00		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	COM	EIT	RPP	FIT	COM
	X	15:00	15:15														
	9	15:15	16:00		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	COM	EIT	RPP	FIT	COM
	10	16:00	16:45		TXM	RPP	COM	TXM	EIT	RPP	COM	FIT	COM	EIT	RPP	FIT	COM
	X	16:45	17:00														
	11	17:00	17:45		TXM	RPP	COM	TXM			COM	FIT	COM	EIT	RPP	FIT	COM
	12	17:45	18:30		TXM	RPP	COM	TXM			COM	FIT		EIT			COM
	X	18:30	18:45														
	13	18:45	19:30	TXM	TXM			TXM									
	14	19:30	20:15	TXM													

A = Operation Management

Transportations models — TXM
Rail passenger transport & public transportation — RPP
Freight & intermodal transportation — FIT
Capacity analysis & operation management — COM
Environmental impacts of transportation systems — EIT

Infrastructure & Controls (InCo)

F	#	Start	Finish	Jan 17 Fri	Jan 18 Sat	Jan 31 Fri	Feb 01 Sat	Feb 14 Fri	Feb 15 Sat	Feb 21 Fri	Feb 22 Sat	Mar 13 Fri	Mar 14 Sat	Mar 27 Fri	Mar 28 Sat	Apr 03 Fri	Apr 04 Sat
				2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
	1	07:45	08:30														
	2	08:30	09:15														
	X	09:15	09:30														
	3	09:30	10:15	RI1	TRC	GCS	RI1	MAO	TRC	RI1	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	4	10:15	11:00	RI1	TRC	GCS	RI1	MAO	TRC	RI1	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	X	11:00	11:15														
	5	11:15	12:00	RI1	TRC	GCS	RI1	MAO	TRC	RI1	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	6	12:00	12:45	RI1	TRC	GCS	RI1	MAO	TRC	RI1	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	L	12:45	13:30														
	7	13:30	14:15	RI1	TRC	GCS	RI1	MAO	TRC	MAO	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	8	14:15	15:00	RI1	TRC	GCS	RI1	MAO	TRC	MAO	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	X	15:00	15:15														
	9	15:15	16:00	RI1	TRC	GCS	RI1	MAO	TRC	MAO	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	10	16:00	16:45	RI1	TRC	GCS	RI1	MAO	TRC	MAO	GCS	MAO	GCS	GCS	TRC	MAO	TRC
	X	16:45	17:00														
	11	17:00	17:45	RI1	TRC	GCS	RI1	MAO	TRC	MAO		MAO		GCS		MAO	
	12	17:45	18:30	RI1	TRC	GCS	RI1	MAO	TRC	MAO		MAO		GCS		MAO	
	X	18:30	18:45														
	13	18:45	19:30														
	14	19:30	20:15														

F = Infrastructure & Control

Introduction to infrastructure — RI1
Maintenance & optimization — MAO
Gotthard basis tunnel case study — GCS
Traffic Control Systems — TRC

A unique program conceived with and by the mobility industry.