

SPACE TECHNOLOGY – UiO

FYS 3000 – UiT

Norwegian Centre for Space-related Education (NAROM)

University of Oslo (UiO)

University of Tromsø (UiT)

PROGRAM

Fieldtrip «FYS 3000», 29th October – 3rd November 2006

- Organized by:** University of Tromsø (UiT) and University of Oslo in cooperation with NAROM and Andøya Rocket range (ARR)
- Time:** 29th October – 3rd November 2006
- Place:** ARR/NAROM
- Student group:** 9 students from UiO and 7 students from UiT.
- Lectures:** The program is divided into lectures and exercises
- Accommodation/food:** All students live in double rooms at ARR/hotel part. All meals (breakfast, lunch, dinner) included.
- Groups/project work:** The participants will be divided into 4 different groups:
- Group A: Rocket/Balloon (Jan-Erik Rønningen and Ottar Cleveland)
 - Group B: Experiment (Frank Richard Pettersen)
 - Group C: Payload (Amund Nylund)
 - Group D: Telemetry (Kjetil Henninen)

Lecturers/management/staff:

Educational manager	Antonsen	Jøran	JA	NAROM	Management
Technical leader ALOMAR	Bekkelund	Kolbjørn	KoBe	ARR	Guide at ALOMAR
Head of Rocket and Balloon Division	Bøen	Kjell	KB	ARR	Head of operation
Master of Science	Cleveland	Ottar	OC	NAROM	Group leader
Hostess	Ellingsen	Janne	JE	ARR	ARR staff
Hostess	Grande	Tone	TGr	ARR	ARR staff
Director of NAROM	Hansen	Arne Hjalmar	AHH	NAROM	Management
Reception/secretary	Hanssen	Anita	AH	NAROM	NAROM reseption
Electronics Engineer	Henninen	Kjetil	KH	NAROM	Group leader
Professor II	Hoppe	Ulf-Peter	UPH	UiT / FFI	Lecturer
Associate Professor	Lindem	Torfinn	TL	UiO	Lecturer
Hostess	Nilsen	Aashild	AaN	ARR	ARR staff
Electronics Engineer	Nylund	Amund	AN	NAROM	Group leader
Electronics Engineer	Pettersen	Frank Richard	FRP	ARR	Group leader
Reception/secretary	Raabye	Tone	TRa	ARR	Reception
Engineer	Rønningen	Jan-Erik	JER	Norwegian Rocket Technology	Lecturer/Instructor
Educational Consultant	Strømdal	Hege - Merethe	HMS	NAROM	Management
PSU EE Resarch Assistant	Wheeler	Timothy	TW	UiO	Lecturer

SUNDAY 29th OCTOBER

Time	Activity	Responsible	Place	Note
2015	Arrival ARR/check in	AH	Reception	Transport
2030	Evening meal		Dining room	

MONDAY 30th OCTOBER

Time	A	B	C	D	Activity	Responsible	Place	Note
0800 - 0845	X	X	X	X	Breakfast		Dining room	
0845 - 0930	X	X	X	X	Welcome, Presentation of ARS/NAROM Orientation about the program Safety – rules and regulation	AHH JA PD	Conference room A	
0945 - 1030	X	X	X	X	Information about the Student Rocket Campaign	KH	Conference room A	
1030 - 1045	X	X	X	X	Coffee/tee break		Dining room	
1045 - 1215	X	X	X	X	Guided tour at ARR		ARR	
1215 - 1300	X	X	X	X	Lunch		Dining room	
1300 - 1545	X	X	X	X	Dividing into preferred groups and information about the group work	JER/KH/AN/OC/FRP	Ferdinand/USOC	
1545 - 1615	X	X	X	X	Coffee/tee with waffles and fruit		Dining room	
1615 - 1700	X	X	X	X	Lecture: ”Rockets and how they work – an introduction”	JER	Conference room A	
1715 - 1800	X	X	X	X	Lecture: ”Rocket Aerodynamics and Stability an introduction”	JER	Conference room A	
1815 - 1900	X	X	X	X	Lecture: ”Trajectory Analysis – an introduction”	JER	Conference room A	
1915	X	X	X	X	Dinner		Dining room	
2015	X	X	X	X	Evening gathering	KH	Sitting room	

TUESDAY 31st OCTOBER

Time	A	B	C	D	Activity	Responsible	Place	Note
0800 - 0845	X	X	X	X	Breakfast		Dining room	
0845 - 1030	X	X	X	X	Group work "Student rocket"	JER/KH/AN/FRP/OC	USOC/TM	
1030 - 1045	X	X	X	X	Coffee/tee break		Dining room	
1045 - 1230	X	X	X	X	Group work "Student rocket"	JER/KH/AN/FRP/OC	USOC/TM	
1230 - 1315	X	X	X	X	Lunch		Dining room	
1315 - 1415	X	X	X	X	Group work "Student rocket"	JER/KH/AN/FRP/OC	USOC/TM	
1430 - 1515	X	X	X	X	Lecture: "Sounding rockets and rocket instruments for middle atmosphere research"	UPH	Conference room A	
1530 - 1615	X	X	X	X	Lecture: "Sounding rockets and rocket instruments for middle atmosphere research"	UPH	Conference room A	
1615 - 1645	X	X	X	X	Coffee/tee with waffles and fruit		Dining room	
1645 - 1730	X	X	X	X	Lecture: "ALOMAR instrumentation - lidar, radar, passive ground-based"	UPH	Conference room A	
1745 - 1830	X	X	X	X	Exercise "Aerodynamics, stability, trajectory analysis"	JER	Conference room A	
1900	X	X	X	X	Dinner		Dining room	

WEDNESDAY 1st NOVEMBER

Time	A	B	C	D	Activity	Responsible	Place	Note
0800 - 0845	X	X	X	X	Breakfast		Dining room	
0845 - 0930	X	X	X	X	Lecture: "Where do I fit in this picture?"	TW	Conference room A	
0945 - 1030	X	X	X	X	Lecture: "Reliability"	TW	Conference room A	
1030 - 1045	X	X	X	X	Coffee/tee break		Dining room	
1045 - 1130	X	X	X	X	Lecture: "Rockets as an engineering environment"	TW	Conference room A	
1145 - 1230	X	X	X	X	Lecture: "Building complex projects"	TW	Conference room A	
1230 - 1315	X	X	X	X	Lunch		Dining room	
1315 - 1600	X	X	X	X	Group work "Student rocket"	JER/KH/AN/FRP/OC	USOC/TM	
1600 - 1630	X	X	X	X	Coffee/tee with waffles		Dining room	
1630 - 1900	X	X	X	X	"Rocket and hybrid rocket demonstration, student rocket test and photo session".	JER/KH/AN/FRP/OC	LA	
1900	X	X	X	X	Dinner		Dining room	
1930	X	X	X	X	Evaluate data from the hybrid rocket.	Students	Ferdinand/NIKE/USOC	

THURSDAY 2nd NOVEMBER

Time	A	B	C	D	Activity	Responsible	Place	Note
0800 - 0845	X	X	X	X	Breakfast		Dining room	
0845	X	X			Transport to balloon telemetry	AH	ARR	Transport
0900 - 1000	X	X			Balloon release with PTU	AsE	Balloon telemetry	
1000	X	X			Return to ARR	AH	Balloon telemetry	Transport
0845 - 1015			X	X	Preparation student rocket campaign	JER/KH/AN/FRP/OC	TM/StudTM/LA	
1030 - 1100	X	X	X	X	Pre-flight meeting		Conference room A, B	
1100 - 1230	X	X	X	X	Rocket operation		LC/LA/TM/StudTM	
1230 - 1315	X	X	X	X	Lunch		Dining room	
1315 - 1400	X	X	X	X	Prepare data from the rocket	Students	USOC/NIKE/Ferdinand	
1400 - 1430	X	X	X	X	Post-flight meeting		Ferdinand	
1500			X	X	Transport to balloon telemetry	AH	ARR	Transport
1515 - 1615			X	X	Balloon release with PTU	AsE	Balloon telemetry	
1615			X	X	Return to ARR	AH	Balloon telemetry	Transport
1500 - 1630	X	X			Evaluate data, prepare for presentation	Students	Ferdinand	
1630 - 1700	X	X	X	X	Coffee/tee with waffles		Dining room	
1700-	X	X	X	X	Evaluate data from balloon, Write report/prepare for presentation	Students	Ferdinand/Nike	
1900	X	X	X	X	Dinner		Dining room	

FRIDAY 3rd NOVEMBER

Time	A	B	C	D	Activity	Responsible	Place	Note
0745 - 0830	X	X	X	X	Breakfast		Dining room	Check out before 10!!!
0845	X	X	X	X	Transport to ALOMAR	AH	ARR	Transport
0900 - 0945	X	X	X	X	Lecture "ALOMAR"		ALOMAR	
1000 - 1045	X	X	X	X	Guided tour at ALOMAR		ALOMAR	
1045	X	X	X	X	Return to ARR	AH	ALOMAR	Transport
1100 - 1300	X	X	X	X	Write report/prepare for presentation	Students	Ferdinand/Nike	
1300 - 1330	X	X	X	X	Lunch		Dining room	
1330 - 1345	X				Presentation group A	Students	Conference room A	
1345 - 1400		X			Presentation group B	Students	Conference room A	
1400 - 1415			X		Presentation group C	Students	Conference room A	
1415 - 1430				X	Presentation group D	Students	Conference room A	
1430 - 1500	X	X	X	X	Evaluation of the camp	JA/HMS	Conference room A	
1515	X	X	X	X	Check out departure	AH	ARR	Transport