بسم الله الرحمن الرحيم

AECENAR Administration

Planning & Controlling 2015

Last update:

Wednesday, December 16, 2015

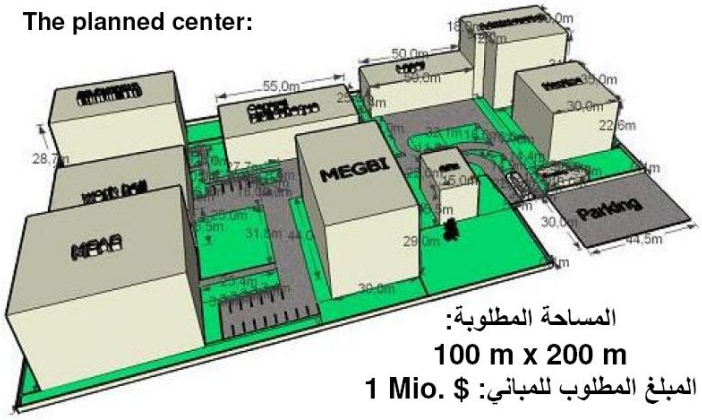
Author:

Samir Mourad

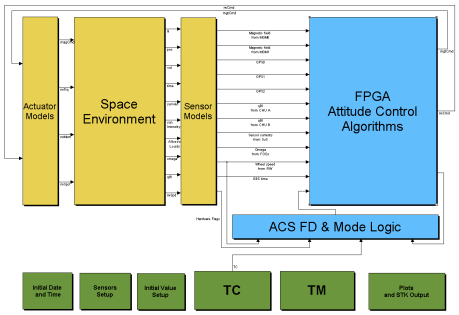
Content

1 Strategic goals in 2015-2016 to move on the project of a AECENAR applied research and startup-companies center

The planned center:

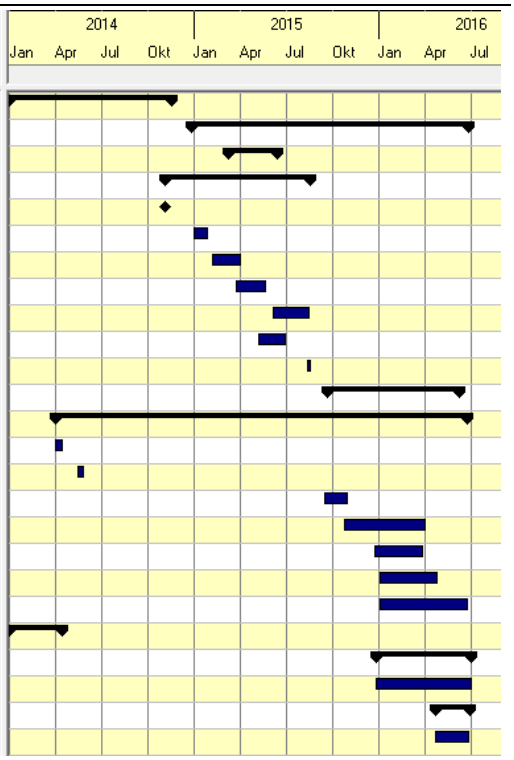


1.1 Planned for 2015

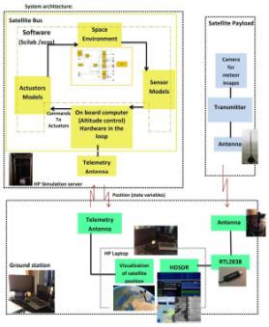
	Projects	Labs
MEAE	Commercializing TEMO-IPP (NLAP)	Automation Lab 
MEGBI	Completing MEGBI-VPP (High Priority) 	
IAP	Mission Simulation (High Priority after July 2015)	Scilab Simulation Lab, HIL Test rig 

Strategic goals in 2015-2016 to move on the project of a AECENAR applied research and startup-companies center

ID	Name	Start	Finish
MEAE	TEMO-IPP with LASeR	03.01.201	19.11.201
NLAP	Initial. of North Lebanon Altern. Power (bureau at LASeR?)	29.12.201	28.06.201
	BSBN (Planning of Tripoli Incineration Plant)	11.03.201	15.06.201
MEGBI	MEGBI-VPP	06.11.201	21.08.201
250 $, A	Specification (Excellist as TEMO-STPP offer attachment to LASER)	06.11.2014	06.11.2014
	Design Purification Machine (as AKTA process) (mech+electr.)	03.01.2015	30.01.2015
34T $ M.	Prototype Chromatogr. Process Device (mech)	08.02.2015	03.04.2015
AJ, 4 T$	Prototype Chromatogr. Process Device(autom)	26.03.2015	22.05.2015
	DNA Lab (HBSAg DNA im Dez. besorgen): Transfer in S.ceriv.	07.06.2015	17.08.2015
	Bioreactor integration (mech.+autom.)	09.05.2015	30.06.2015
	upstream downstream (-> presentation film)	14.08.2015	21.08.2015
LGBiot	Initial. of LGBiotech vaccine production	23.09.201	10.06.201
IAP	IAP-SAT	01.04.201	25.06.201
	1. mock-up model	01.04.2014	17.04.2014
	Specification Prototype (FCS+Surv.Sensor)	17.05.2014	29.05.2014
	2. mock-up model of surv. IAP-SAT	17.09.2015	02.11.2015
	prototype (Surv.-Sensor - BoardCPU - COM)	27.10.2015	03.04.2016
	prototype (FCS) intergration from alt. Lotte system	26.12.2015	29.03.2016
	MPD propulsion system simple prototype	06.01.2016	28.04.2016
	SAT Ground Station: Migration from IAP_ECS (parabol antenna)	06.01.2016	25.06.2016
	IAP_SRWDA Ground Station	30.12.201	18.04.201
Admini	AECENAR Building	29.12.201	04.07.201
	Searching for partners in North Lebanon	29.12.2015	04.07.2016
ISSIR	ISSIR Zeitschrift 2nd Ed.	24.04.201	01.07.201
	Zeitschrift	24.04.2016	28.06.2016



1.2 Achieved in 2015 alhamdulillah

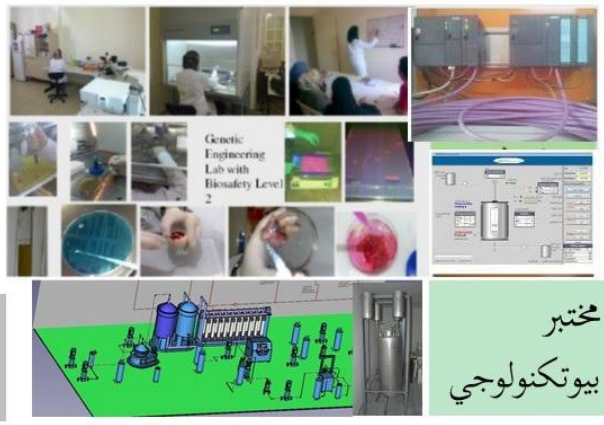
	Projects	**Labs**	
MEAE	Commercializing TEMO-IPP (-> NLAP Officially Founded)	Toolchain for design: CAD, FEM, CFD Mechanical Power Plant Prototype Manufactoring Lab	
MEGBI	Completing MEGBI-VPP - MECH model and AUT in production scale (manufactoring still open) - MECH model in simplified version	Automation Lab 	Upstream-Downstream Lab  (actually under final work)
IAP	Mission Simulation, IAP-SAT specification film	Scilab Simulation Lab, HIL Test rig 	

1.3 Actual status (December 2015)

1.3.1 AECENAR Institutes & Laboratories

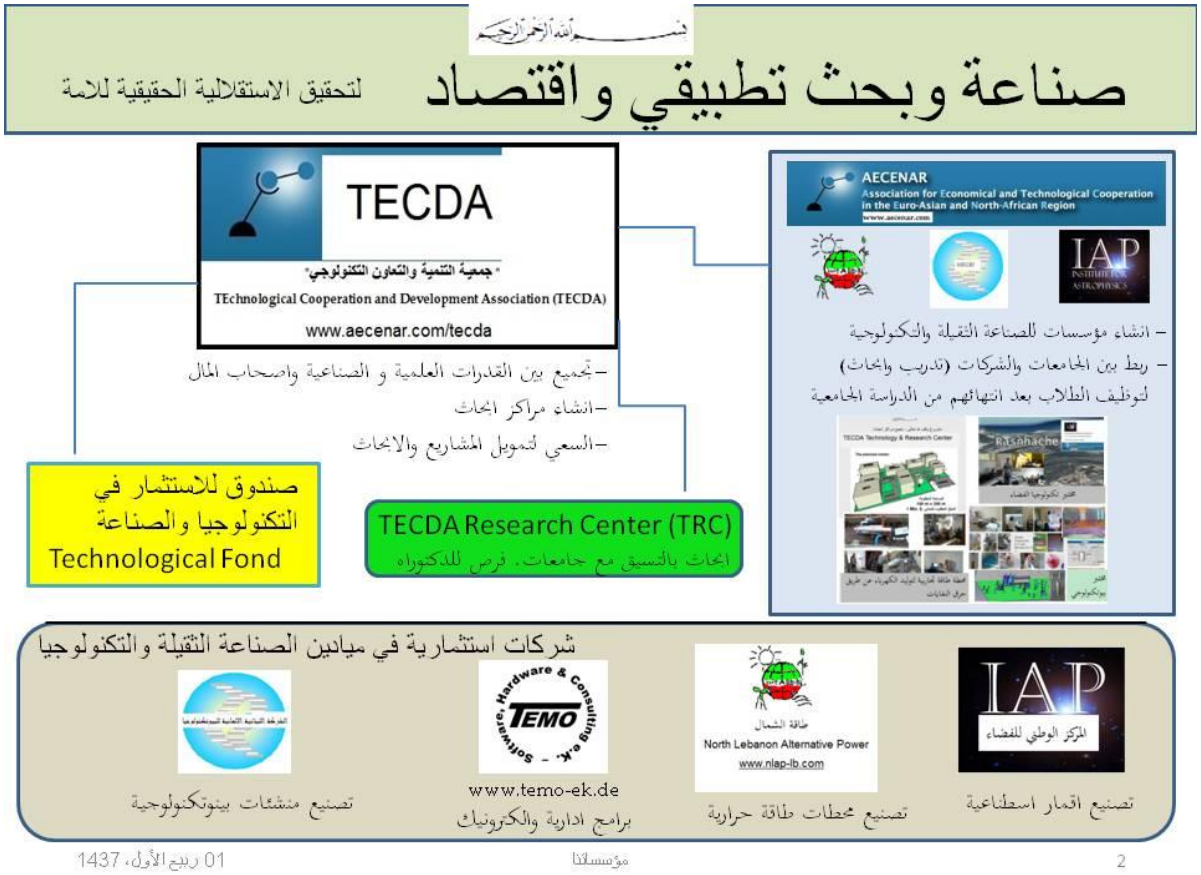
محطة طاقة تجاربية لتوليد الكهرباء عن طريق حرق النفايات

مختبر تكنولوجيا الفضاء



مختبر بيوتكنولوجي

1.3.2 AECENAR as Member of TECDA

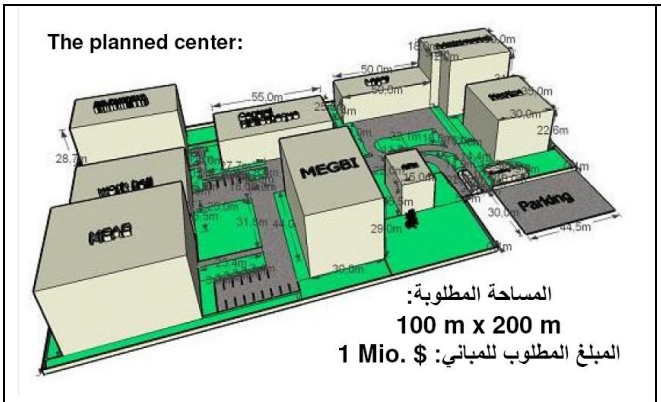


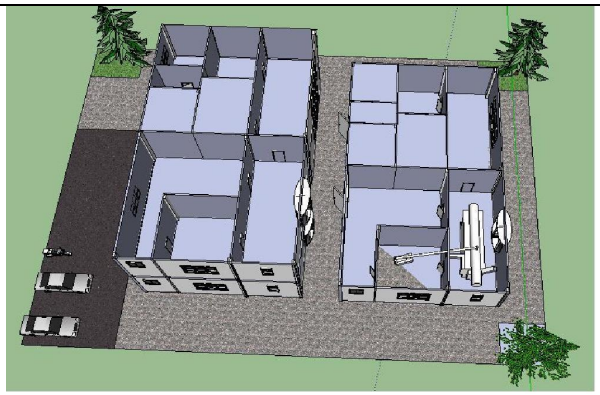
1.3.3 AECENAR embedded in the academical&industrial oragnization structure

1.4 Planned for 2016: Completing AECENAR as as Applied Research & Start-Up Companies Center

	Projects	Labs
MEAE		
MEGBI	Commercializing MEGBI-VPP-> LG Biotech (simple using of MEGBI-VPP)	
IAP	Completing IAP-SAT (Completing Prototype)	
TECDA Technological Fond	Initializing	
NLAP	Ras Nhache Kassara TEMO-IPP	
TEMO	Islamic Kernel & Online Banking System	
LG Biotech		

1.5 Planned for 2017: AECENAR Building





2 Review 2008 - 2015

	Kernel Institute Project	**Laboratories**	**Staff**	**Academic / Industrial Connection**	**Remark**
2008		MEGBI Genetic Eng Lab Planning		Connection with Kuwait	
2009		MEGBI Genetic Eng Lab Installation	MEGBI: Students Trained in Genetic Eng.		
2010			Fault: MEGBI Research without basic reengineered project was done (was too early) (waste of money and time)		
2011	MEAE: Clarified that TEMO STPP is not sustainable (high installation costs)	MEAE Mech. Lab initialized		LU Fac. Of Science Tripoli (Biology): first master student	
2012	TEMO IPP planned and started non-professionally. MEGBI VPP Upstream	IAP Simulation Installed	TEMO IPP: Mechanical Experience made	Fault: TEMO IPP started without enough detailed design and financing (waste of money and time)	
2013	MEGBI VPP Downstream Planned	IAP HW/SW Installed	MEGBI: Students Trained in Genetic Eng. IAP Internal Staff	Connection with Doctoral School in Tripoli (-80C freezer)	first experience with requirements of male employees in Lebanon
2014	TEMO IPP completed			TEMO-IPP) is now ready for commercialization in a start-up company.	Financing from LASeR was essential to finish the project
2015	IAP SAT finally specified and prototype partly simulated MEGBI VPP: MECH and AUT	MEAE: Tools Chain for FEM, CFD IAP: scilab, HIL testrig MEGBI: Automation Lab	Former Master Students work partly after their thesis	Several Master Students of Science Faculty TECDA with Universtiy Teachers Founded (Leadership widened) (AECENAR now clear a applied research center and member of TECDA)	MEGBI-VPP finally designed in detail simplified to finish MEGBI-VPP at least at simplified version

سير المشاريع في الفترة 2008 – 2015

	المشروع/المؤسسة	المختبرات	العاملون	الجهـــات الأكاديميـــة والصناعية التي تم التنسيق معها	ملاحظات
2008		التخطـــيط لمختـــبر MEGBIGeneti c Eng Lab		التعامـل مـع طـرف مـن الكويت	
2009		تنفيـــذ مختـــبر MEGBI Genetic Eng Lab	MEGBI: تـدريب طـلاب علـــــى ال Genetic Eng		
2010				الخطأ: لقد تم البحث دون تخطيط مسبق للمشروع (بدأنا مبكراً بالبحث) (الخسارة كانت في الوقت والمال)	
2011	MEAE:التوصل إلى ان مشروع TEMO STPPغير مستدام (تكلفة التنفيذ عالية جدا)	تنفيذ المختبر الميكانيكي لMEAE		كلية العلوم في الجامعة اللبنانية فرع طرابلس . اول طالب ماستر في المشروع	
2012	التخطـــيط لمشـــروع TEMO IPPوالبدء بالعمل بطريقة غير متقنة. TEMO VPP Upstream	تنفيذ مجسم مصغر عن مشروع IAP	TEMOIPP : ميكانيك تجارب تصنيع		الخطأ: بدء العمل بالمشروع دون تخطيط مفصل عنه وعن التمويل(إضاعة وقت ومال)
2013	التخطيط ل MEGBI VPP Downstream	تنفيـذ IAP HW/SW	MEGBI: تـدريب طـلاب على Genetic Eng موظفـــــون خاصون IAP	تعامل مع Doctoral School في طرابلس	اول تجربة العاملين الذكور في لبنان ومتطلباتهم
2014	إتمام TEMO IPP			إن مشـروع TEMO IPP أصبح الآن جـاهزاً لتسـويقه كشركة مستقلة	ان التمويل عن طريق جمعية LASERكان أساسيا وضروريا لإنهاء المشروع.
2015	IAP SAT finally specified and prototype partly simulated MEGBI VPP: MECH and AUT	MEAE: Tools Chain for FEM, CFD IAP: scilab, HIL testrig MEGBI: Automation Lab	Former Master Students work partly after their thesis	Several Master Students of Science Faculty TECDA with Universtiy Teachers Founded (Leadership widened) (AECENAR now clear a applied research center and member of TECDA)	MEGBI-VPP finally designed in detail simplified to finish MEGBI-VPP at least at simplified version

3 AECENAR Facility

3.1 Concept for AECENAR Applied Research Center & Start-Up Companies Complex Building

Needed Place:

IAP:

MEAE: place for experimental incineration power plant

MEGBI: DNA Lab (4 rooms of flat), hall for upstream downstream (5x5)

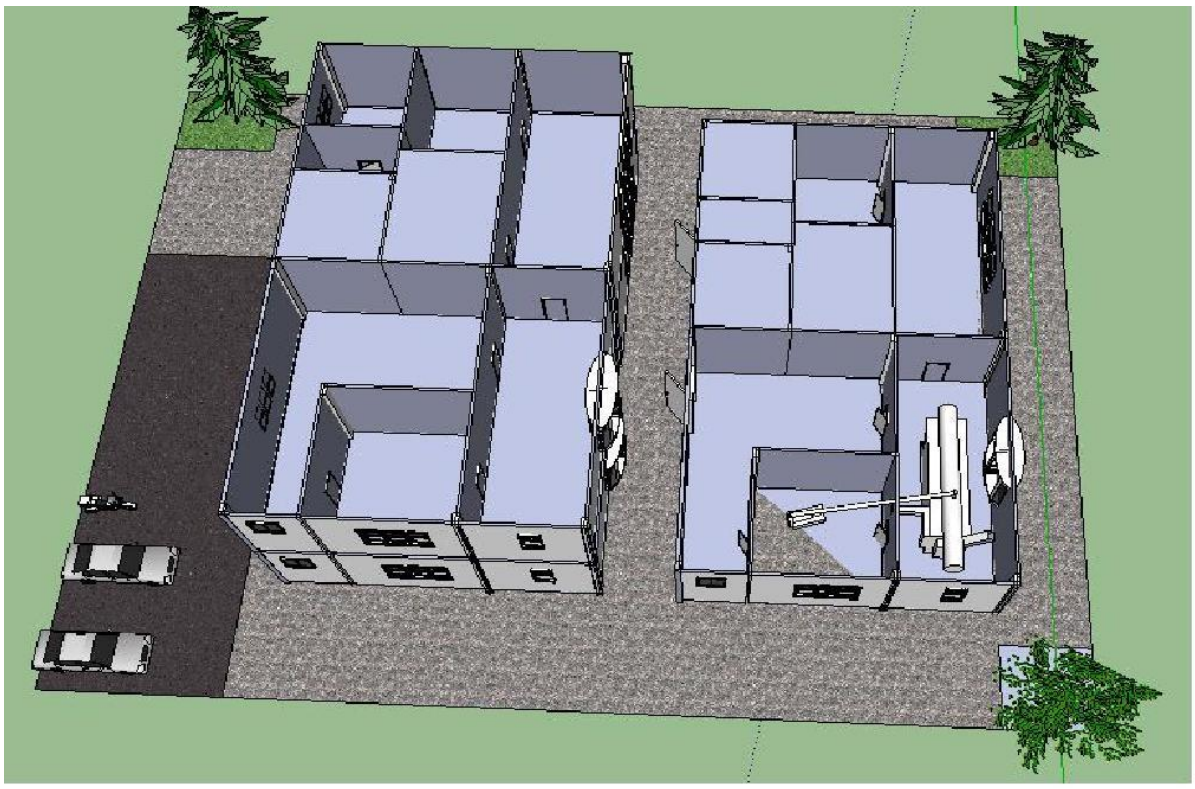
Common Meeting Room

Common Cafeteria

Option 2 (MEAE building, IAP+MEGBI building (2 floors)): 500.000 $

الاحتمالات	1. احتمال	2.احتمال	3.احتمال
مساحة الارض	700	1575	2275
مساحة البناء	375	1125	1125
سعر الارض	105000	236250	341250
سعر البناء	93750	281250	281250
السعر الاجمالي	198750	517500	622500
سعر متر الارض بالدولار	150		
سعر متر البناء بالدولار	250		

الاحتمال الثاني



3.2 Inventory 2014

3.2.1 Furniture

AECENAR
Inventar Stand Dez 2012

Möbel Listen

Institut	aktuelle Örtlichkeit	Geplante Örtlichkeit Umzugs-datum	Gegenstands-beschreibung	Firmen/ Typenbezeichnung	Inventarnummer	geschätz-ter Wert (in USD)
MEGBI	AECENAR		4 Tische a-f	a- b- c- d e-	AECENAR.M.1.a-e	$400
Verkauft an SM Okt 14			Besprechungstisch			80$
	AECENAR		Ecktisch		AECENAR.M.2	$400
Verkauft an SM 14.8.13 Rückgekauft Jan 14	IAP		hp-Laptop	hp	AECENAR.M.3	$200
	Wohnung		Telefonapparat	Microtel	AECENAR.M.4	$15
	Wohnung		Faxgeraet	HP Officejet All-in-one	AECENAR.M.5	$100
	Wohnung		Telefonaschrank		AECENAR.M.6	$20
Verkauft an SM 14.8.13 Rückgekauft Jan 14	Wohnung		Drucker	Samsung CLP-315	AECENAR.M.7	$80
	Wohnung		3 Drehstuehle a-c	a-blau b-blau c-braun	AECENAR.M.8 a-c	$50
	Wohnung		9 Plastikstuehle	beige	AECENAR.M.9	$36
	Wohnung		3 Kommoden mit Schiebetueren a-c	b-a- beige c- Grau	AECENAR.M.10 a-c	$300
	Wohnung		4 Kommoden mit Schubladen a-d	a- b- c- d-	AECENAR.M.11 a-d	$80
Verkauft an SM 14.8.13	Wohnung		2 Ventilatoren a-b	a- schwarz b- beige	AECENAR.M.12 a-b	$40
	Wohnung		2 kleine Plastiktische a-b	a- beige b- beige	AECENAR.M.13a-b	$10
Verkauft an SM 14.8.13	Wohnung		schwarzer Sessel	Leder	AECENAR.M.14	$70
	Wohnung		3 Chefsessel a-c	a-c Schwarze Drehstühle	AECENAR.M.15a-c	100
Verkauft an SM 14.8.13	Wohnung		Herd mit Gasflasche	klein, weiß, 3 Augen	AECENAR.M.16	$60

	Wohnung		Heizung, elektro und gaz	Delonghimatic	AECENAR.M.17	$50
	Wohnung		Kommode	klein, weiß, 3 Schubladen	AECENAR.M.18	$10
Verkauft an SM 14.8.13	Wohnung		Garderobe	metall mit 5 Haken	AECENAR.M.19	$20
	Wohnung		Wanduhr	metall und rund	AECENAR.M.20	$5
Verkauft an SM 14.8.13	Wohnung		3er Couch	schwarz, Leder	AECENAR.M.21	$200
Verkauft an SM 14.8.13	Wohnung		Kommode mit Spiegel	helles Holz und 4 Schubladen	AECENAR.M.22	$30
Verkauft an SM 14.8.13	Wohnung		Wohnzimmer-tisch	helles Holz, 4 eckig	AECENAR.M.23	$10
	Wohnung		2er Couch	schlafcouch, schwarz, Leder	AECENAR.M.24	$50
	Wohnung		Bücherregal	schwarz	AECENAR.M.25	$30
Verkauft an SM 14.8.13	Wohnung		Teppiche a-b	a- rot b- blau	AECENAR.M.26a-b	$60
Verschenkt an syr. Flüchtlinge 06/13	~~Wohnung~~		~~Matrazen~~	~~lang und dünn~~	~~AECENAR.M.26~~	~~$20~~
	Wohnung		Staubsauger		AECENAR.M.27	$30
	Bibliothek		2 schwarze Tische	a- b- nur von eine Seite offen	AECENAR.M.28a-b	$150
	Bibliothek		8 Plastikstühle in grün		AECENAR.M.29	$24
	Bibliothek		4 chefsesseln	a-d Drehstühle in schwarzem Leder	AECENAR.M.30a-d	$280
	Bibliothek		2 Holztische	schwarz und klein	AECENAR.M.31	$40
	Bibliothek		2 Schreibtishe	a- mit beige Oberfläche b- helles Holz	AECENAR.M.32a-b	$80
	Bibliothek		Wanduhr	metall und rund	AECENAR.M.33	$5
	Bibliothek		2 Stühle	schwarz mit melall Armlehnen	AECENAR.M.34	$20
	Bibliothek		4 Mülleimer	a-grün b-blau c-braun d-schwarz und groß	AECENAR.M.35a-d	$8
	Bibliothek		Ecktisch		AECENAR.M.36	$300
	Bibliothek		2 türige Schrank	beige, metall	AECENAR.M.37	$50
	Bibliothek		2er Couch	schwarz, Leder	AECENAR.M.38	$50
	Bibliothek		Couchtisch	schwarz, Holz	AECENAR.M.39	$20
	E-Werk-statt		großer schwarzer Schreibtisch	holz, L form	AECENAR.M.40	$50
	Biotech-nikum		3 Tische	beige metall	AECENAR.M.41	$150
	Biotech-nikum		Spüle	stainless	AECENAR.M.42	$5
	Biotech-nikum		Ledersessel	schwarz	AECENAR.M.43	$50
	Biotech-nikum		2 Stühle	schwarz und metall	AECENAR.M.44	30

	E-Werk-statt		Drehstuhl	schwarzes Leder	AECENAR.M.45	$50
	Biotech-nikum		Regal	metall mit geschlossem Rücken	AECENAR.M.46	$30
	Biotech-nikum		2 Blumen Ständer	schwarzes Holz	AECENAR.M.47	$10
	E-Werk-statt		Kommode	Schiebetüren, metall beige	AECENAR.M.48	$30
	Biotech-nikum		2 Regale	mit offenem Rücken	AECENAR.M.49	$20
					total	**$3.958**

…. 14.8.13 furniture for 720 USD was saled to Samir Mourad (AECENAR temporal Administrationin his house)

Bemerkung (Stand 4.Jan 2015): einige Gegenstaende wurden wieder nach AECENAR zurückgeführt (teilweise getauscht gegen andere). Ergebnis: AECENAR schuldet Samir Mourad disbezüglich 100 EUR.

3.2.2 Devices

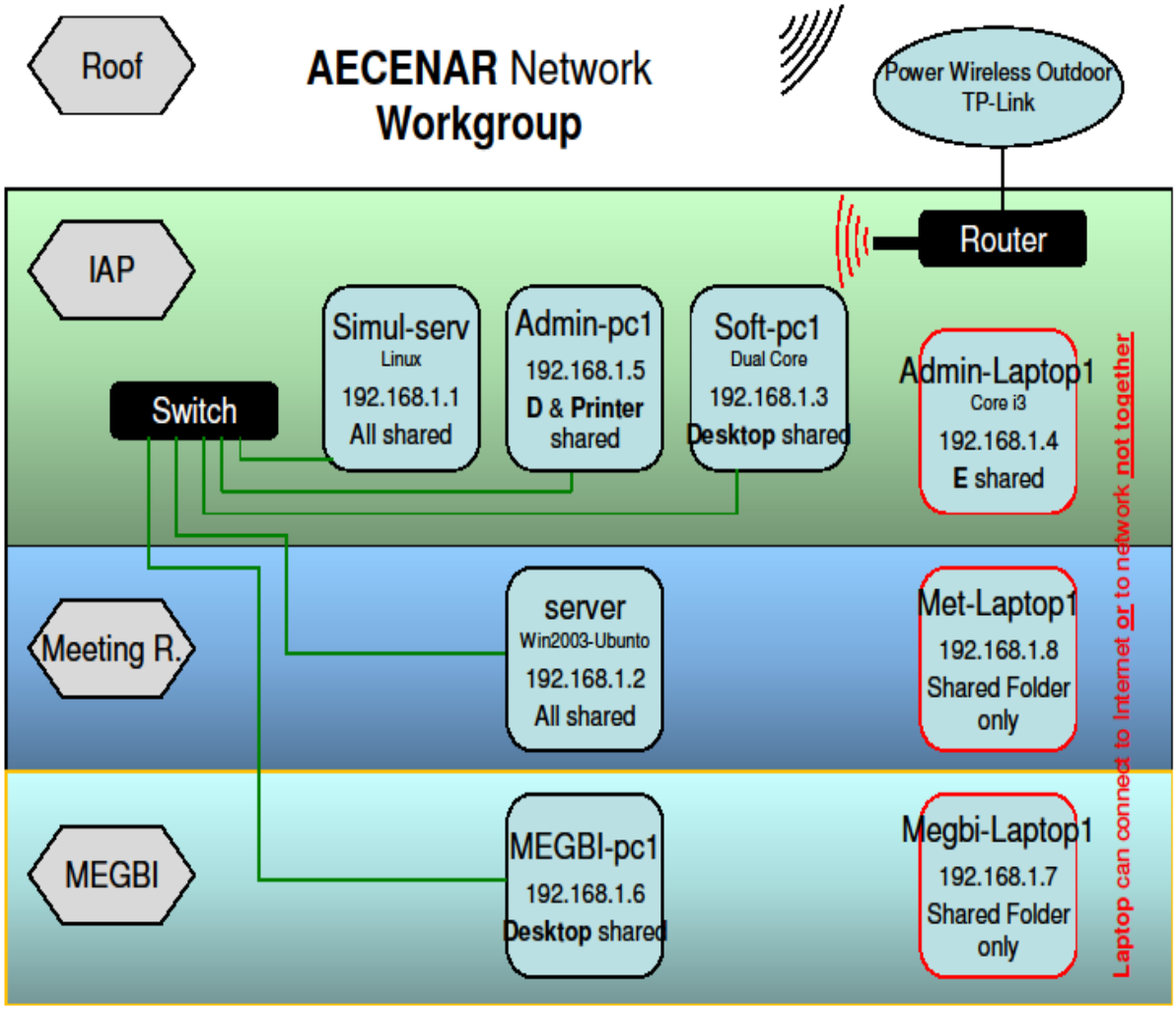
AECENAR Inventar
Stand Jan 2013 (teilw. Upgedated Jan 15)
Geraete Listen

Institut	Remark	Gegenstands-beschreibung	Firmen/ Typenbezeichnung	Inventarnummer	geschätz-ter Wert (in US-Dollar)
MEGBI		Safety Cabinet	Chemocell LRCX- UV	AEC.MEG.G.1	$6.500
		magnetrührer	VMS-C4	AEC.MEG.G.2	$3.000
		PCR-Maschine	Primus 25	AEC.MEG.G.3	$2.500
		Gelelektrophoresis-Einheit mit Power Supply	OWLA1 und EC3000XL	AEC.MEG.G.4a et b	$1.000
		Schüttelinkubator	ES-20	AEC.MEG.G.5	$2.500
		Magnetrührer, schwar	Magnetsitrrer	AEC.MEG.G.6	$500
		Tischzentrifuge	IEC MicroCL 17R	AEC.MEG.G.7	$4.000
		Fluoreszens-mikroskop mit Zubehoer	L2001	AEC.MEG.G.8	$3.000
		Wasserbad	Aqua bath	AEC.MEG.G.9	$1.000
		Prezisionswaage	VICON	AEC.MEG.G.10	$450
		Mikroskop, schwarz	Olympus	AEC.MEG.G.11	$70
		Stromversorgung	Power Supply	AEC.MEG.G.12	$50
		Ofen	binder	AEC.MEG.G.13	$200
		5 Finnpipette	Autoclavable	AEC.MEG.G.14 a- e	$380
		Ruettelmischer	Biovortex V1	AEC.MEG.G.15	$170
		Kuehlschrank	BEKO	AEC.MEG.G.16	$250
		Eisschrank -6 °c	LR25B Laboratory	AEC.MEG.G.17	$3.000
		Centrifuge- klein	80-1	AEC.MEG.G.18	$200
		Abzugsrohr von dem Safety Cabinet	Tubes Flexibles	AEC.MEG.G.19	
		Bioreaktor		AEC.MEG.G.20	$6.000
		Eisschrank	-85°C	AEC.MEG.G.21a	$5.000
MEAE		Teststand	Temo STPP	AEC.MEA.G.22	$150.000
		Metallständer	groß mit Glasrohr	AEC.MEA.G.23	$550,00
		Compressor			$150
		Elektroschweissgeraet			$200
		Hydrogenschweissgeraet			$120
IAP		Server_ groß und schwarz	LG super multi	AEC.IAP.G.24	$2.000
		Serverschrank	schwarz und groß aus Metall	AEC.IAP.G.25	$1.000
				total	**$193.790**

3.2.3 Other Devices and Materials

Due to the TEMO-IPP project several new mechanical manufactoring devices and materials were buyed. A detailed inventory still has to be done.

3.3 IT Infrastructure



3.3.1 Specifications:

- Internet at one isolated PC each at MEGBI, IAP and Central Library, wireless router at Central Library floor
- All other computers are connected via non-wireless intranet to server at Central Library
- MEGBI: 1 internet PC, 2 work stations
- IAP: HP Server, 2 work stations, 1 internet PC
- AECENAR Administration and Central Library: Small Server, 1 internet PC
- MEAE: 1 internet PC, 2 work stations

Total: 2 Servers, 3 internet computer, 7 working stations (PC or laptop)

3.3.2 IT Resources

2 Servers

3 PCs (DualCore, XP, Schwarz-silber)

2 Laptops

Institute	PC	Laptop	Server
MEGBI	Schwarz/Silber (Internet)		
Central Library			Windows Server
IAP	Dual Core		HP (for simulation)
MEAE	XP		

3.3.3 Electrical Power Requirements

	lightening [W]	computers [W]	devices [W]	
IAP	144	600	200	
Stairs	400			
MEGBI	520		600	
Meeting Room	144	200	200	
MEAE				
sum	1208	800	1000	

Costs		
installation	lamps	PV installation
$100	$40	
$50		
		$1.000

AECENAR all	**3008 W**	**$1.190**

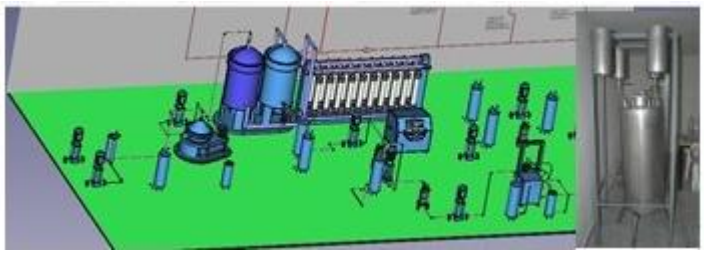
4 Laboratories

4.1 MEGBI

Automation of biotechnological Upstream&Downstream Devices

Under final construction:

Biotechnological Upstream&Downstream Processing Unit

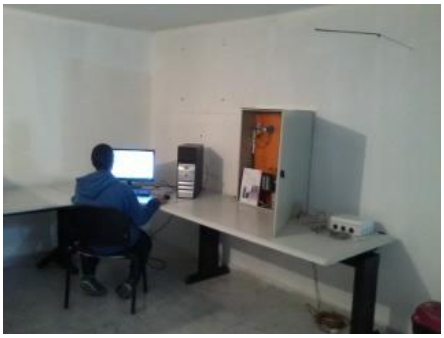


4.2 MEAE

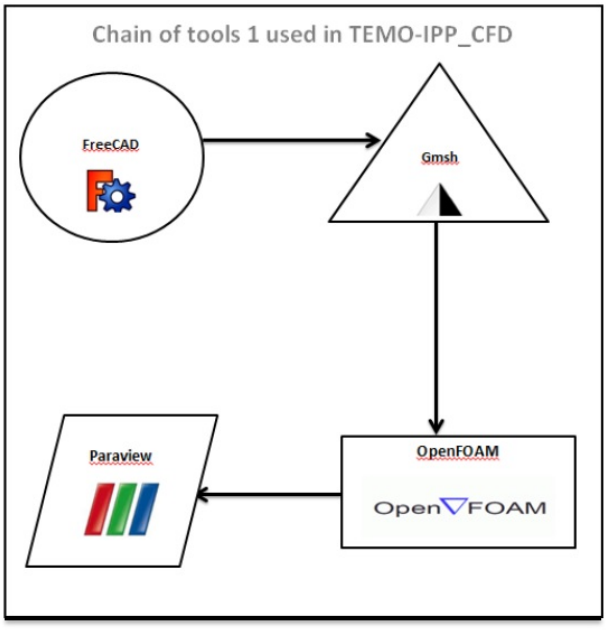
4.2.1 Mechanical Laboratory, Incineration Demonstration Power Plant

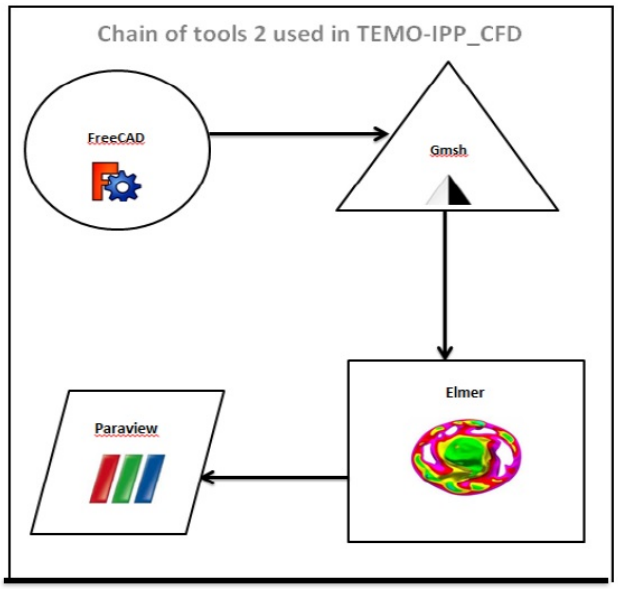






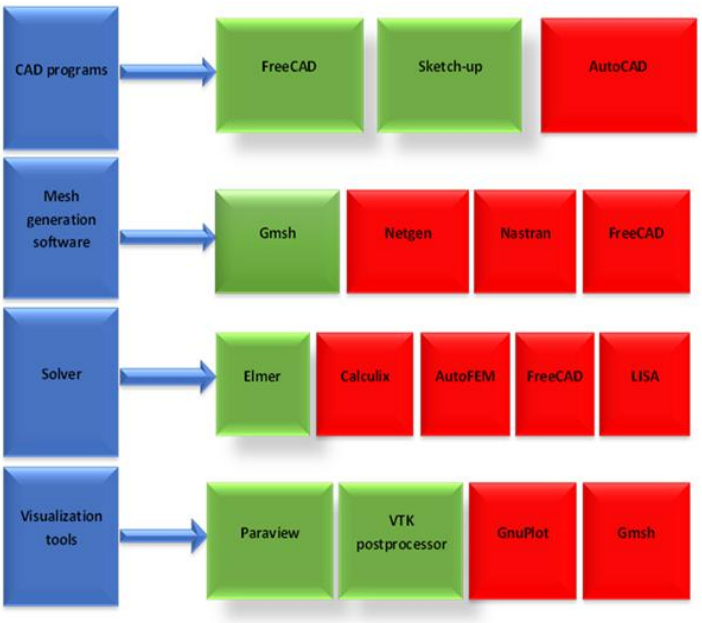
4.2.2 Tool chains used for CFD Analysis

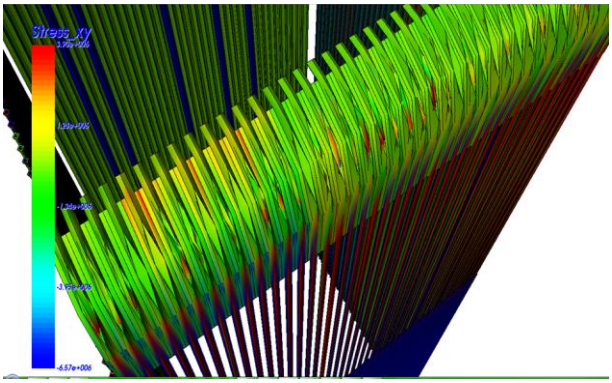




Further details see Master Thesis of Fatima Hamed [FatimaHamed].

4.2.3 Tool chains used for FEM mechanical stress Analysis





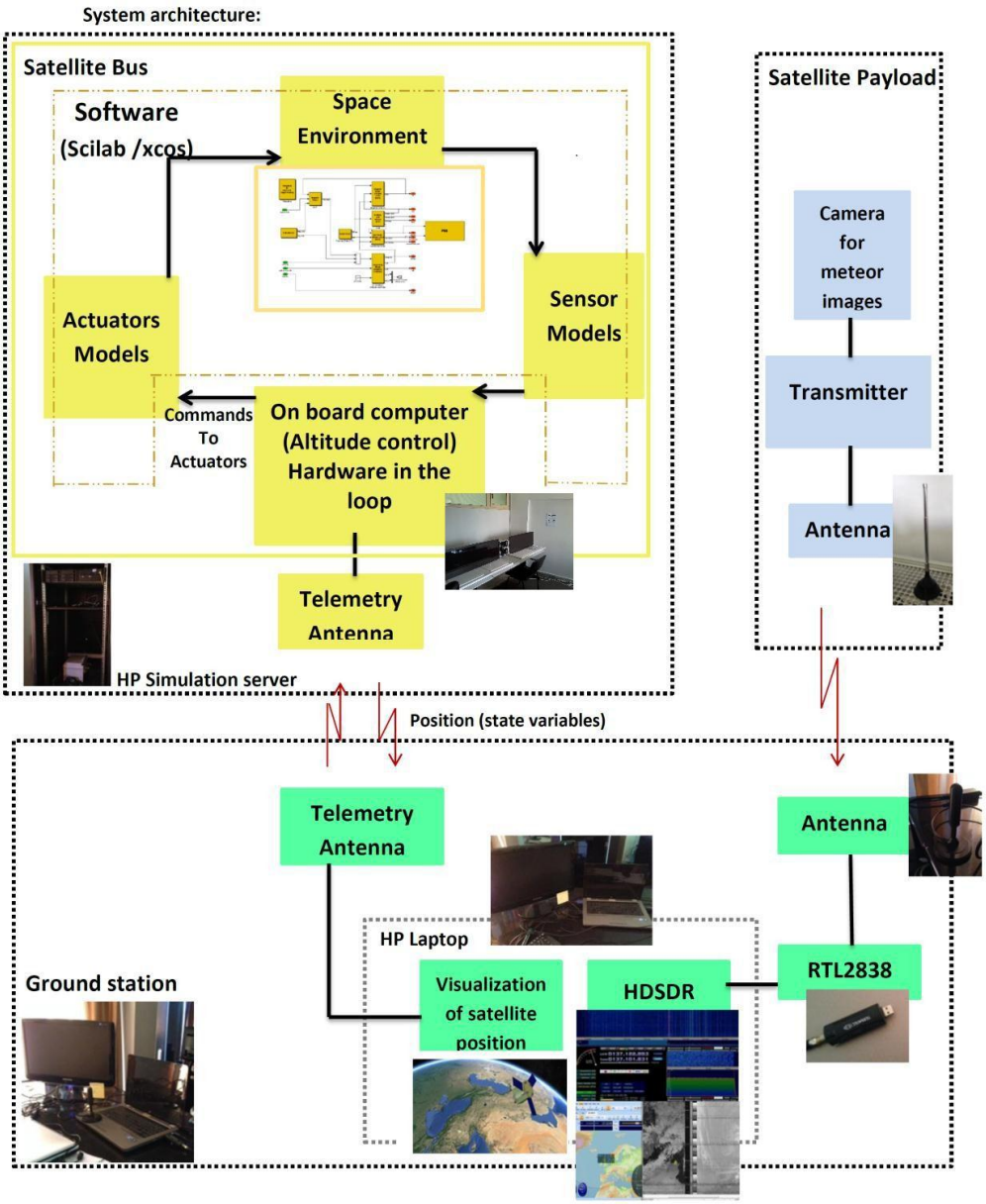
Further details see Master Thesis of Banan Kerdi [BananKerdi].

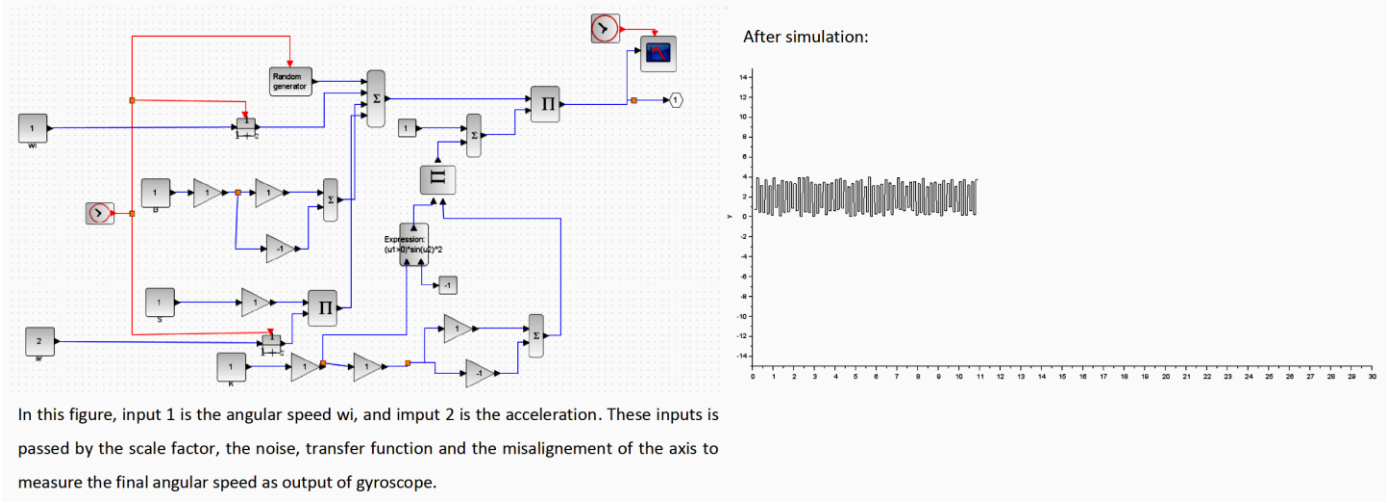
FreeCAD

4.3 IAP

4.3.1 Hardware Development Laboratory, Software Development Laboratory, Simulation Server

4.3.2 Scilab Simulation Lab, HIL Test rig





Further details see Master Thesis of Fatima Al Chaar [Fatima Al Chaar].

5 Staff

5.1 Overview

Institute	Staff	Costs
Administration	Samir (160 h/month)	No personal costs
MEAE	2 Master Students, Practicant	No personal costs
MEGBI	Master Student, 4 Practicants	No personal costs
IAP	Master Student, Practicant	No personal costs

5.2 Contracts

Practicants and Master Thesis Contracts.

6 Budget: Income / Expenditure 2015

6.1 Debits

Status at Beginning of 2015 (20 Jan 15): AECENAR has to pay 12.500 EUR to Diyab Dabschah

Status at End of 2015 Status (15 Dec 15): AECENAR has to pay 6.000 EUR to Diyab Dabschah,

AECENAR has to pay 1000 EUR to Samir Mourad

Diyab Dabschah hat 2.500 EUR Anteile am Kraftwerksprojekt gekauft

6.2 Expenditure

6.2.1 Planned at beginning of 2015 (to complete AECENAR projects)

AECENAR Business Plan 2015/16

Finanzbedarf Jan-Jun 2015	
5.000 €	Schulden Fatih (MEGBI-VPP Analyse)
12.500 €	Schulden Diyab (Anteil MEGBI Lab)
15.000 €	Geräte MEGBI-VPP DSP
12.000 €	Mrz-Aug Projektleitung MEGBI-VPP
15.000 €	Mietzahlung MEGBI Lab Aufbau (3 Jahre)
59.500 €	Total in EUR
$71.400	**Total in USD**
	zu Finanzieren über LASeR-Beteiligung an MEGBI-VPP

Finanzbedarf Jul15-Jun16	
12.000 €	Personalkosten 1 Ing. (Sep 15- Aug 16)
12.500 €	Material Mechanik
15.000 €	Material Elektronik
24.000 €	Projektleitung IAP-SAT (15/16)
15.000 €	Mietzahlung IAP-SAT/TEMO-IPP
78.500 €	Total in EUR
$94.200	**Total in USD**
	zu Finanzieren über LASeR-Beteiligung an IAP-SAT

6.2.2 In fact

			Total
AECENAR Facility			-
MEGBI			
MEAE			-
IAP			-
Debits return			4000 EUR
New Debits			1000 EUR

6.3 Income

Item	Date	Amount
From MEGBI-VPP project with LASeR		-
From IAP-SAT project with LASeR		-
Aus Kaufverträgen TEMO-AECENAR 2011, 2013 und 2014		**About 3000 EUR (exact amount to be cleared)**

6.3.1 Aus Kaufverträgen TEMO-AECENAR 2011, 2013 und 2014

TEMO Kto.abfrage:

08.06.2015	08.06.2015	ONLINE-UEBERWEISUNG AECENAR e.V. Rate f. Kaufvertrag v. 12/11 100 EUR, 12/12 200 EUR u. 12/14 284EUR(noch 11000 EUR von urspr. 12000 EUR offen) DATUM 06.0 6.2015, 16.52 UHR1.TAN 912616	-584,00 EUR
27.05.2015	27.05.2015	ONLINE-UEBERWEISUNG AECENAR e.V. Kaufvertrag v. Dez. 14 (6.Rate, noch 11284 EUR von urspr. 12000 EUR offen) DATUM 27.05.2015, 14.23 UHR1.TAN 462527	-7,00 EUR

not complete!

7 Projects

7.1 Documentation

7.1.1 AECENAR Reports in General

To manage the administration and projects work at AECENAR there are the following documents:

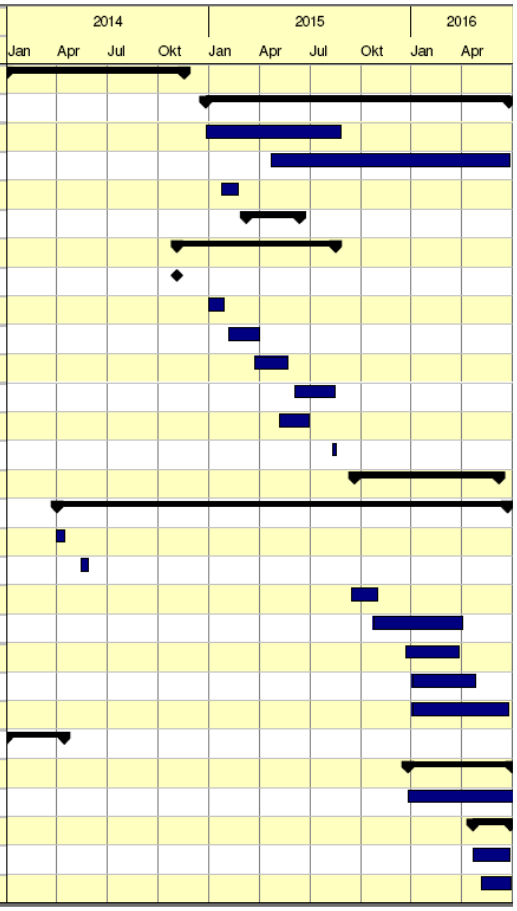
<table>
<tr><th>Institution</th><th colspan="2">Document (with short description)</th><th>Frequency of appearence</th><th>Remarks</th></tr>
<tr><td>AECENAR Administration</td><td colspan="2">- Planning (time, costs, staff)
- Rough project planning for each institute
Language: whole document in English and Arabic
جميع التقرير بالغتين العربية الانجليزية</td><td>At the end of each year</td><td>This is the current planning&controlling document
(at the end of the year the time and costs are final)</td></tr>
<tr><td>MEGBI</td><td rowspan="3">- Project report for every project at the institute
Language: abstract in Arabic, whole document in English
تلخيص بالغة العربية و التقرير الكامل بالغة الانجليزية
- Master Theses</td><td>actually MEGBI Vaccine Pilot Plant</td><td rowspan="3">At the end of each year</td><td rowspan="3">All technical details needed to undergo the project at another place</td></tr>
<tr><td>MEAE</td><td>actually TEMO-IPP</td></tr>
<tr><td>IAP</td><td>actually IAP_SAT</td></tr>
</table>

7.1.2 Other documents&publications (e.g. master thesises in AECENAR projects)

Master Theses, see References

7.2 Timeline Overview AECENAR Applied Research Institute (2014-2016)

ID	Name	Start	Finish
MEAE	**TEMO-IPP with LASeR**	**03.01.2014**	**19.11.2014**
NLAP	**Initial. of North Lebanon Altern. Power (bureau at LASeR?)**	**29.12.2014**	**28.06.2016**
	operational working of incineration plant at Ras Nhache	29.12.2014	27.08.2015
	Commercial Project in Tripoli	24.04.2015	28.06.2016
	Photovoiltaik: Water electrolysis:Long time eletricity storage with hy	26.01.2015	24.02.2015
	BSBN (Planning of Tripoli Incineration Plant)	**11.03.2015**	**15.06.2015**
MEGBI	**MEGBI-VPP**	**06.11.2014**	**21.08.2015**
250 $, AJ	Specification (Excellist as TEMO-STPP offer attachment to LASER	06.11.2014	06.11.2014
	Design Purification Machine (as AKTA process) (mech+electr.)	03.01.2015	30.01.2015
34T$ M.+ 6T$ P.	Prototype Chromatogr. Process Device (mech)	08.02.2015	03.04.2015
AJ, 4 T$	Prototype Chromatogr. Process Device(autom)	26.03.2015	22.05.2015
	DNA Lab (HBSAg DNA im Dez. besorgen): Transfer in S.cerlv.	07.06.2015	17.08.2015
	Bioreactor integration (mech.+autom.)	09.05.2015	30.06.2015
	upstream downstream (-> presentation film)	14.08.2015	21.08.2015
LGBiotech	**Initial. of LGBiotech vaccine production**	**23.09.2015**	**10.06.2016**
IAP	**IAP-SAT**	**01.04.2014**	**25.06.2016**
	1. mock-up model	01.04.2014	17.04.2014
	Specification Prototype (FCS+Surv.Sensor)	17.05.2014	29.05.2014
	2. mock-up model of surv. IAP-SAT	17.09.2015	02.11.2015
	prototype (Surv.-Sensor - BoardCPU - COM)	27.10.2015	03.04.2016
	prototype (FCS) intergration from alt. Lotte system	26.12.2015	29.03.2016
	MPD propulsion system simple prototype	06.01.2016	28.04.2016
	SAT Ground Station: Migration from IAP_ECS (parabol antenna)	06.01.2016	25.06.2016
	IAP_SRWDA Ground Station	**30.12.2013**	**18.04.2014**
Administration	**AECENAR Building**	**29.12.2015**	**04.07.2016**
	Searching for partners in North Lebanon	29.12.2015	04.07.2016
ISSIR	**ISSIR Zeitschrift 2nd Ed.**	**24.04.2016**	**01.07.2016**
	Zeitschrift	24.04.2016	28.06.2016
	Vortragsreihe	09.05.2016	01.07.2016



08.11.14 1/1

Last updated: 8 Nov 2014

7.3 Budget Planning, last update: Jan 2014

AECENAR
Aims+Basic Costs

2014
D:\AECENAR\Administration\Planning\2014\AECENAR

Personal Specific Costs	1MM
Student	$0
Specialized Worker	$500
Engineer	$2.000

		Engineer need (MM)	Specialized Worker/Facharbeiter (MM)	Student (1/2 MM)	Personnel Costs	Material Costs	Duration (months)	Needed Staff
MEGBI-VPP	ProE Model Purification Machine (as AKTA process)			1			1	1 Student (A2)
	ProE Model upstream downstream (-> presentation film)			0,5			0,5	1 Student (A2)
	Prototype Chromatogr. F	5	5	5	$12.500	$13.000	5	1 Engineer (medical devices/biotech, automation) 1 Specialized Worker 1 Student (A2)
	Prototype Chromatogr. Process Device(autom)	3		3	$6.000	$2.500	3	1 Engineer (medical devices/biotech, automation) 1 Student (A2)
TEMO-STPP	establishing steady place for demo plant							
	integration of demo plant at new place				all in costs:	$34.250		
	incineration integration to demo plant							
	Photovoltaik: Elektrolyse				$4.000	$3.000		
IAP_SRWDA-SAT	mock-up model				$1.000	$300	1	1 Student (A1)
	specification prototype				$1.000		1	1 Student (A1)
	prototype (COM, FCS) aus ECS u. alt.Lotte übernehmen				$4.000	$1.200	6	1 Master Student (electrical engineering) 1 Student (A1)
	mission simulation				$2.000		1	1 Student (A1)
	Specification MPD propulsion system				$1.000		3	1 Student (A1)
	MPD propulsion system				$5.000	$2.000		
IAP_SRWDA-SAT Ground Station	Migration from IAP_SRWDA Ground Station				$3.000	$1.000	1	1 Student (A1)
IAP_SRWDA Ground Station	Integration Ground Station Prototype					$1.000	3	1 Master Student (electrical engineering)
Adminstration IT								1 Student
Administration AECENAR Building	Searching for partners in North Lebanon							
					Sum Personal	Sum Material		
					$39.500	$58.250		

AECENARBudget Need $97.750

7.4 MEGBI Hepatitis Vaccine Pilot Plant (MEGBI-VPP)

7.4.1 Project Planning and Control in Jan 2014

Chromatographic Process Device
MECH
Akta process Sensors and actuators 13.12.13

Teil	Anzahl	Item Price	Price
Air trap	1		
Filter	1	50	
Filter vent valve	1		
Capsule filter bottom manual val	1		
Capsule filter top manual valve	1		
System pump	2		
Sample pump	1		
Pressure control valve	2		
Buffer A inlet valves	10		
Buffer B inlet valves	6		
Sample connection valve	1		
Sample inlets valves	2		
Air trap inlet valve	1		
Air trap bypass valve	1		
Air trap vent valve	1		
Air trap outlet valve	1		
Filter inlet valve	1		
Filter bypass valve	1		
Filter outlet valve	1		
System connection valve	1		
Column 1 top inlet valve	1		
Column 1 bottom inlet valve	1		
Column 1 top valve	1		
Column 1 bottom valve	1		
Column 1 top outlet valve	1		
Column 1 bottom outlet valve	1		
Column 2 top inlet valve	1		
Column 2 bottom inlet valve	1		
Column 2 top valve	1		
Column 2 bottom valve	1		
Column 2 top outlet valve	1		
Column 2 bottom outlet valve	1		
Outlet valves	9		
Air trap drain valve	1		
Filter drain valve	1		
CIP / AxiChrom manifold	1		
Buffer inlet air sensor	1		
Pre-column air sensor	1		
Post-column pH-meter	1		
Post-column UV-meter	1		
Pre-column conductivity meter	1		
Post-column conductivity	1		
System flow meter	1		
Air trap high level meter	1		
Air trap low level meter	1		
Pre-filter pressure meter	1		
Pre-column pressure meter	1		
Sample pump pressure meter	1		
PCV pressure meter, A inlets	1		
PCV pressure meter, B inlets	1		

Sum

First Estimation Material MECH

Sensors &Actuators	$7.000
2 Columns	$2.000
Stainless Material	$4.000
	Sum
	$13.000

Personal Ressources Needed MECH	
Working Period	5 months
Engineer	5 MM
Specialized Worker	5 MM

Upstream + Downstream

1. Option: Bioreaktor selber bauen		Gesamtprojektkosten			$15.380				
Materialkosten					Personalkosten				
System	Einzelteile	Anzahl	Preis/st	Gesamtpreis	Aufgabe	MM	Qualifikation	Lohn/MM	Gesamtlohn
Behälter (130l Stainless)		1	$600	$600	Integration Mechanik	1	Ingenieur	$2.000	$2.000
	Behälter	2	$50	$100	Integration Automatisierungs System	1	Ingenieur	$2.000	$2.000
	Abdeckwolle	1	$100	$100	Ansteuerungssystem Programierung	1	Ingenieur	$2.000	$2.000
	Blech	1	$120	$120	AECENAR Projektleitung	3	Ingenieur	$1.000	$3.000
	Pumpe	1	$80	$80	Gesamtpersonalkosten				$9.000
Temperiersystem	Beheizungsrad	1	$60	$60					$0
Aut. Valve		2	$200	$400					$0
Temp.Sensor		1	$20	$20					
PH Sensor		1	$100	$100					
PO_2 Sensor		1	$1.200	$1.200					
Ausfluß	Aut.Valve	1	$200	$200					
	Aut.Valve	1	$200	$200					
Medium Einfluß	Behälter	1	$50	$50					
	Behälter	2	$50	$100					
PH Regulierung	Aut.Valve	2	$200	$400					
	Behälter	1	$50	$50					
Beimpfungsreinigung	Aut.Valve	1	$200	$200					
	S7	1	$1.500	$1.500					
Ansteuerungsystem	PC	1	$500	$500					
Gesamtteilekosten				$5.980					

2.Option: Bioreaktor kaufen Gesamtprojektkosten: 125.000 USD

In this project phase the following steps had to be done in 2013 (Planning)

Item	**Achieved?**
Carrying out the transfer of EngerixHBSAg to S. Cerivisae at lab level for further production in a fermenter	No
Continuing Manufacturing of the 130 L fermenter (Mounting a S7 control system)	No
ProE Model and Cardboard Model of the whole pilot plant (Upstream and Downstream Processing)	Yes (done in 2015)
Detailed ProE Model and Cardboard Model of a Chromatographic Device (AKTA Process)	Yes (done in 2015)

7.4.2 Offer to LASeR in Oct 2014 (non-commercial investment budget 120 000 Mio. USD)

MEGBI-VPP
DNA Vaccine Pilot Plant for production of Hepatitis B virus
2014

Last Update: 29 Oct 2014

DNA Transfer Laboratory

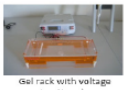
device	price
Safety Cabinet B2	$8.000
centrifuge	$5.000
Shake incubator	$2.500
Thermocycler	$2.500
blood freezer	$3.500
Gel rack with voltage	$1.500
Precision Balance	$800
Minus 80°C freezer	$10.000
UV Machine	$1.100
vortex	$300
precision pipettes	$500
molecular biological reagences	$4.000
chemicals	$2.000
laboratory materials	$1.500
laboratory tables	$1.500
IT	$1.000
fluorescence microscope	$3.000


Shaker Incubator
حاضنة مع محرك


Centrifuge / نابذة


Thermocycler(PCR)
تفاعل البلمرة المتسلسل


Precision Balance
ميزان دقيق


Gel rack with voltage supply: حامل فلتر

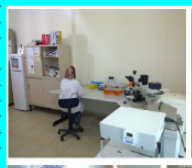

UV machine: آلة الأشعة ما فوق البنفسجية


Water bath / حوض...تسخين

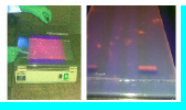

Agitator machine (with heating possibility) / آلة خلط (مع إمكانية إستخدام الحرارة)


Vortex / دوامة


Scalpel / مشرط خلايا



Genetic Engineering Lab with Biosafety Level 2



Total Laboratory $48.700

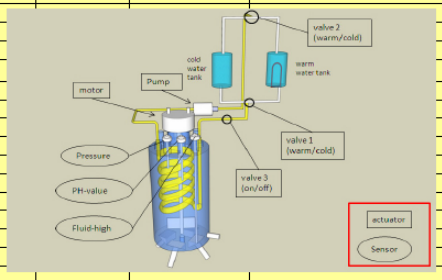
Upstream Processing (Bioreactor)

Material Costs

System	Piece	#	Piece price	Total
Behälter (130l Stainless)		1	$600	$600
Temperiersystem	Behälter	2	$50	$100
	Abdeckwolle	1	$100	$100
	Blech	1	$120	$120
	Pumpe	1	$80	$80
	Beheizungsrad	1	$60	$60
Aut. Valve		2	$200	$400
Temp.Sensor		1	$20	$20
PH Sensor		1	$100	$100
PO_2 Sensor		1	$1.200	$1.200
Ausfluß	Aut.Valve	1	$200	$200
Medium Einfluß	Aut.Valve	1	$200	$200
	Behälter	1	$50	$50
PH Regulierung	Behälter	2	$50	$100
	Aut.Valve	2	$200	$400
Beimpfungsreinigung	Behälter	1	$50	$50
	Aut.Valve	1	$200	$200
Control System	Siemens S7 PLC	1	$1.500	$1.500
	PC	1	$500	$500
			Sum Material	$5.980

Personnel Costs

Task	duration (months)	Qualification	price / month	Total
Integration Mechanics	1	Eng.	$2.000	$2.000
Integration Automation System	1	Eng.	$2.000	$2.000
Programming Control	1	Eng.	$2.000	$2.000
AECENAR Project Managing	3	Eng.	$2.000	$6.000
			Sum Personnel Costs	$12.000



Total Upstream Processing Unit (Bioreactor) $17.980

Downstream Processing		Engineer need (MM)	Specialized Worker/Fachar beiter (MM)	Student (1/2 MM)	Personnel Costs	Material Costs	Duration (months)	Needed Staff
	ProE Model Purification Machine (as AKTA process)			1			1	1 Student (A2)
	ProE Model upstream downstream (-> presentation film)			0,5			0,5	1 Student (A2)
	Prototype Chromatogr. Process Device (mech)	5	5	5	$15.000	$13.000	5	1 Engineer (medical devices/biotech, automation) 1 Specialized Worker 1 Student (A2)
	Prototype Chromatogr. Process Device(autom)	3		3	$6.000	$2.500	3	1 Engineer (medical devices/biotech, automation) 1 Student (A2)
	Ultrafiltration Unit	1,5	1,5		$4.500	$2.500		
	Ultracentrifuge (used)					$4.000		
							Sum Personnel Costs	Sum Material
							$25.500	$22.000

Total Downstream Processing Unit $47.500

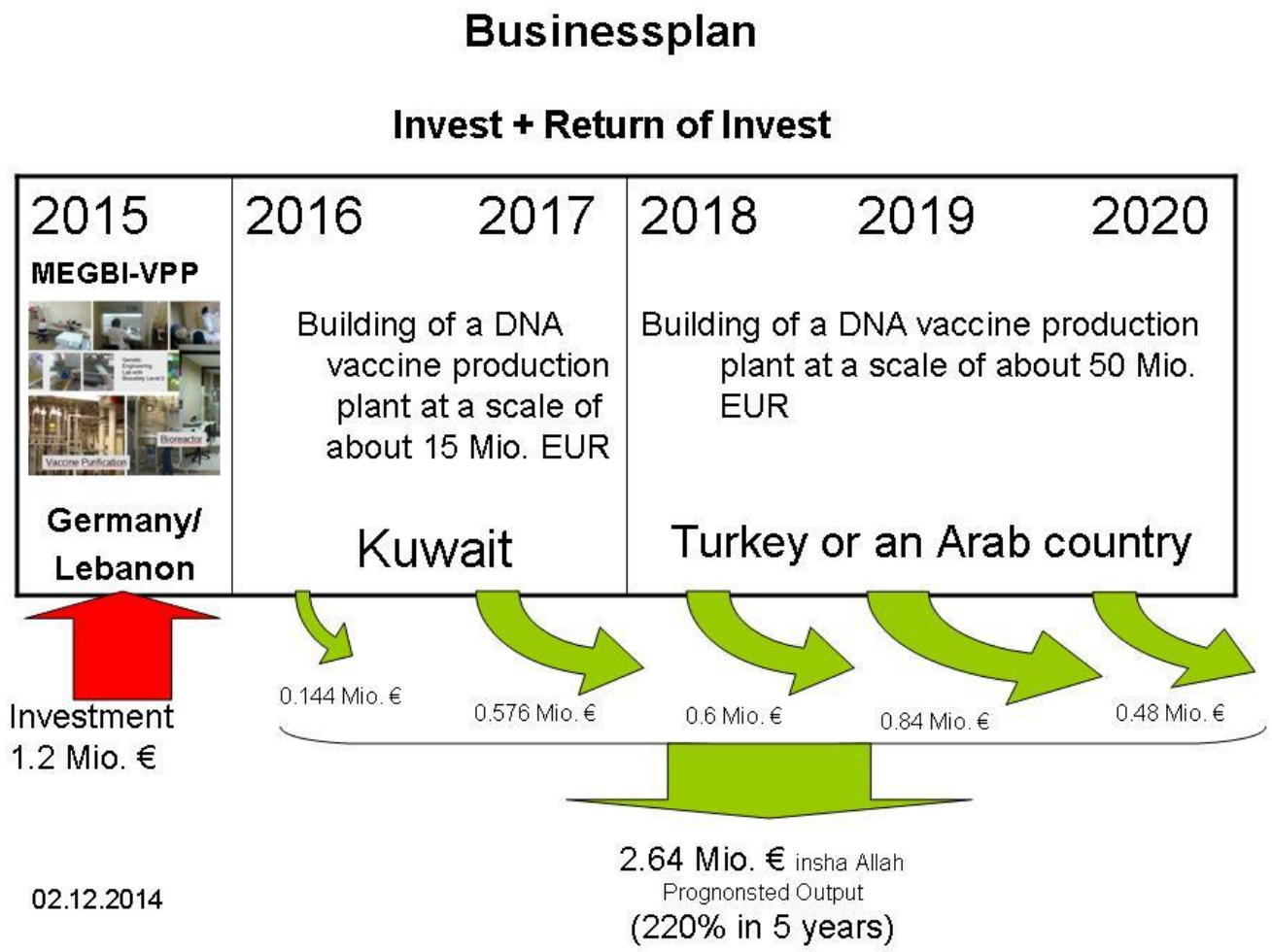
Project Management

Program Managing over 5 months	$4.000	
Documentation	$2.000	Total Project Management $6.000

Total MEGBI-VPP $120.180

planned project duration: Nov. 2014 - April 2015

7.4.3 In Nov.14: Project Administration was given to TEMO Biotechnology - medium scale pilot plant (commercial investment budget 1.2 Mio. EUR)



Übersicht der Investoren am MEGBI-VPP

Stand: **31.12.2014**

Investoren

Gesamtentwicklungswert **1.200.000 €**

Investor	Höhe des Investitionswertes	Anteile am Gewinn (Entwicklung) bis April 2011	Bemerkung/Datum der Investition
Amine Bouafif	100,25 €	0,0083542%	Investion bezahlt (Überweisung ca. 11.12.14)
Nasser Al Araimi	1.200 €	0,1000000%	Investition bezahlt (Überweisung 27.12.14)
David Yildiz	600 €	0,0500000%	Investion bezahlt (bar ca. 8.12.14)
AECENAR	133.000 €	11,0833333%	DNA Labor 130TEUR, Miete Jan-Jun 15 3TEUR
Summe:	134.900 €	11,2416875%	
Restentwicklungsanteile TEMO	1.065.100 €	88,76%	

derzeit ist der größte Teil der Projektdokumente öffentlich zugänglich und hier einsehbar:

http://temo-ek.de/8.html

TEMO Soft-, Hardware & Consulting e.K.
Inh.: Dipl.-Ing. Dipl.-Inf. Samir Mourad
Im Klingenbühl 2a, D-69123 Heidelberg
http://www.temo-ek.de
email: info@temo-ek.de
Handelsregistereintragung: HRA 104902, Handelreg. A, Amtsgericht Mannheim
St.nr. 32304/47983, Finanzamt Heidelberg

بسم الله الرحمن الرحيم

Bismillah

Contractor: 1. TEMO e.K.
2. Nasser Ali Al Araimi, Oman .....
ناصر بن علي بن ثابت العريمي
طالب الدكتوراه بجامعة بورتو بجمهورية البرتغال
0096899844497
00351917042568
nsralaraimi@gmail.com
nsralaraimi@cibio.up.pt
(referred to below as investor)

Contract of Participation of Nasser Ali Al Araimi on MEGBI VPP (Vaccine Pilot Plant)

§ 1 Project and Framework for the project

The project MEGBI VPP has the following contents:
Create a Vaccine Pilot Plant (planned 1-9 / 2015). Then customers will be won to build similar systems of TEMO Biotechnology leave (planned 2016-2020). This should be the profit (return on investment).

§ 2 Investment conditions

You can purchase the corresponding share of profits from an investment amount of 120 EUR.
It has MEGBI VPP a total value of EUR 1.2 million. That when, for example, 1200 EUR invested, you get 0.1% profit share. The profit shares to be distributed annually at the end of each year to participating investors (from end 2016 to end of 2020). Under the current plan is the profit of 2016-2020 a total of 2.64 million EUR, i.e. 220% of the investment. This profit is to be distributed to all shareholders.

§ 3 Capital redemption rights for the investor

The investor has the right to make with a 4-month notice until September 2015 to cancel the investment contract. Then he the total invest amount will be returned to him.

§ 4 Amount of investment and profit shares

Naser Al-Araimi invests 1200 EUR. In return, he receives 0,1 % of the profit. For details, see §2.

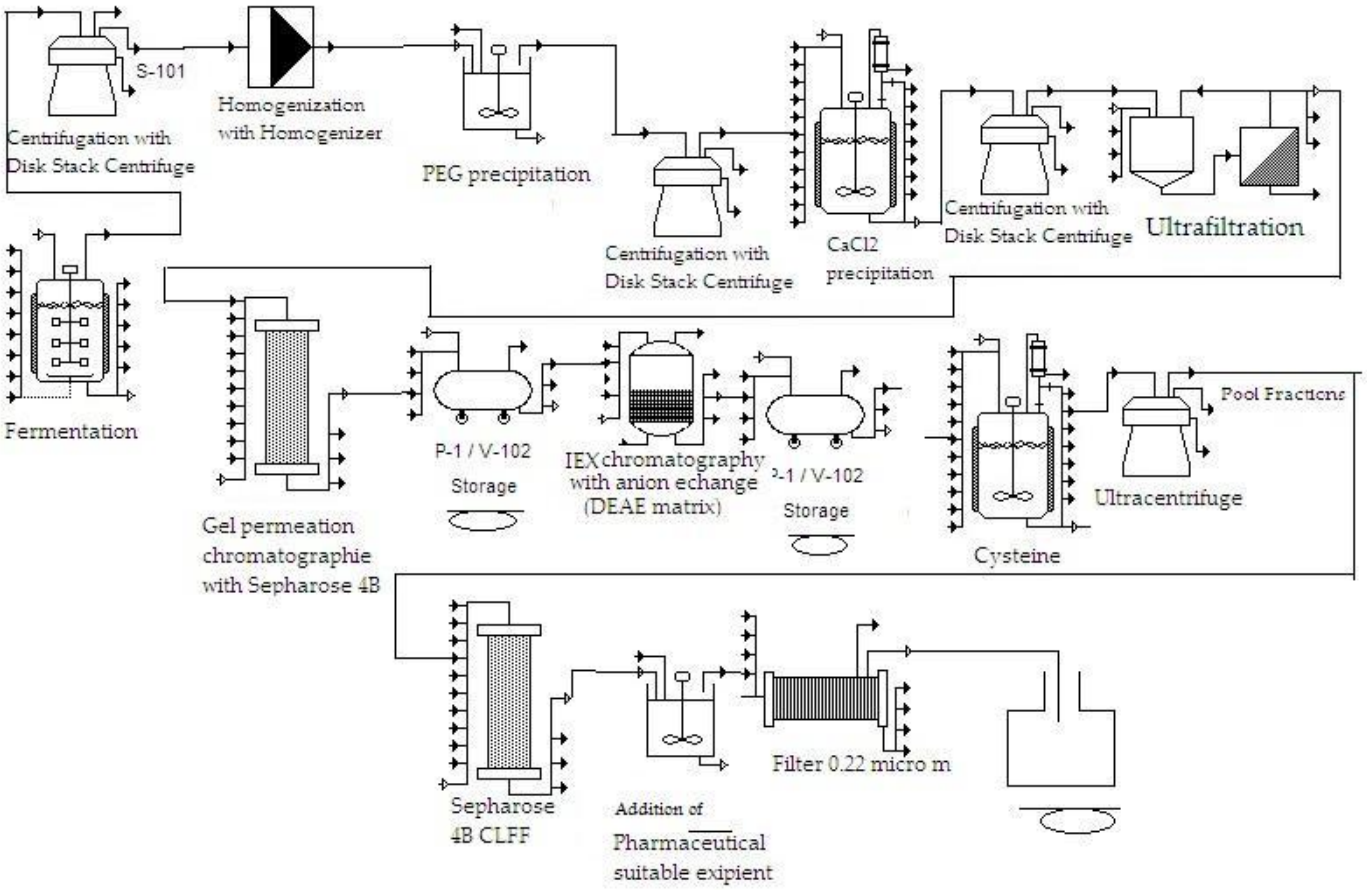
Date: 4.12.2014

Samir Mourad
(CEO TEMO e.K.)

Nasser Ali Al Araimi

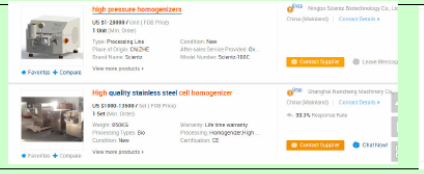
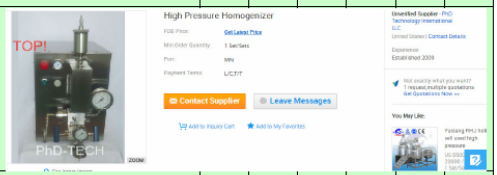
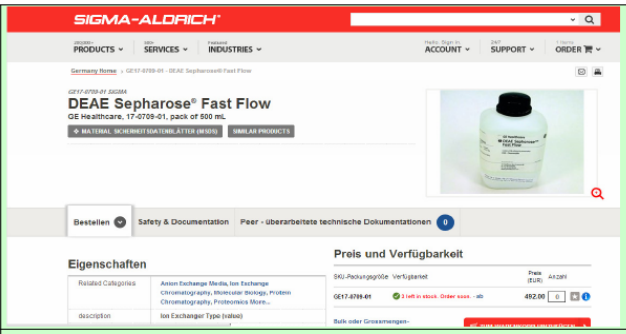
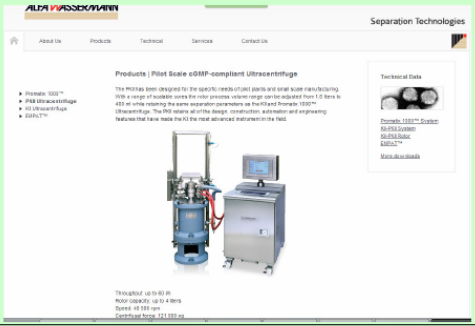
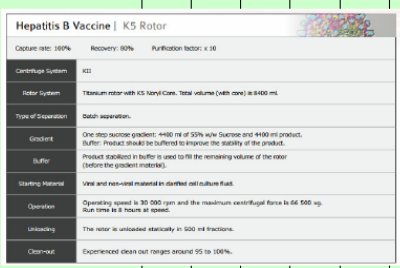
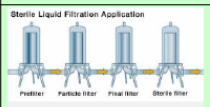
Banking account:
TEMO e.K., IBAN DE46672500200009214763 , SWIFT-BIC SOLADES1HDB,
Bank: Sparkasse Heidelberg, Germany

7.4.4 Design of HBV production pilot plant (Dez. 14 / Jan 15)



7.4.5 Calculation of Downstream Process (DSP) of Design of Dez. 14 / Jan 15

Last update: 24.12.2014

Device No.	Device Name	Price including transport & customs	Specification	Supplier/image
1	Disc Stack Centrifuge 1	$25.000		
2	Homogenizer	$10.000		 
3	Storage Tank/ PEG Precipitation mixing tank 100L	$2.000		
4	Disc Stack Centrifuge 2	$25.000		
5	Storage Tank/ CaCl2 Precipitation mixing tank 100L	$2.000		
6	Ultrafiltration Device	$500		 nach Tripoli gehen, in Water Treatment Laden gehen
7	Storage Tank 100L for UF	$2.000		
8	20 L Chromatography column	$3.000		
9	20 L Sepharose 4B	$18.000		
10	Storage Tank 100L	$2.000		
11	20 L Chromatography column	$3.000		
12	10 L DEAE matrix DFF100 DEAE-Sepharose® Fast Flow (Sigma Aldrich)	$17.000		
13	Storage Tank 100L	$2.000		
14	Ultracentrifugation CsCl	$150.000		 
15	20 L Chromatography column	$3.000		
16	20 L Sepharose 4BCLFF	$18.000		
17	Storage Tank 100L	$2.000		
18	sterile filtration 0.22 Mikrometer	$500		
19	Chemicals	5000		
20	Engineering 6 man months	18000		
21	Project Management 6 man months	24000		
	Total	$332.000		

7.5 TEMO-STPP/IPP

Project Status Nov 2014: المحطة ولدت كهرباء عن طريق حرق خشب

Status: Completed for AECENAR Applied Research Center

December 2015: Foundation of North Lebanon Alternative Power Plant NLAP (طاقة الشمال), www.nlap-lb.com

7.5.1 Anteile am Kraftwerksprojekt

1. Entwicklungsinvestoren

Gesamtentwicklungswert (Schätzung 3/07-7/07): 74.710.000 €
Gesamtentwicklungswert (Schätzung ab 8/07): 120.000.000 €
Gesamtentwicklungswert (Schätzung ab 11/07): 150.000.000 €
Gesamtentwicklungswert (Schätzung ab 11/11): 18.000.000 €

Investor	Höhe des Investitionswertes	Anteile am Gewinn (Entwicklung) bis April 2011	Bemerkung/Datum der Investition
Mourad Heddad	100 €		
Dr. Sami Sattar	350 €		
Akramullah Aminy	200 €		
Engin Aslan	50 €		ca. Febr. 2011 Engin im Zug getroffen, 50 EUR übertragen aus Bauskastenproj.
Senol	80 €		Mai 2011 (100 von Bausk. Abgekauft, 80 zum STPP-Projekt)
Fatih Erol	200 €		100 EUR am 3.12.07
Amine Bouzida	2.110 €		2000 EUR übertragen vom TEMO-Baukasten im April 2010
Emrah Yazici	554 €		
Enver Krasnici	4.400 €		
Alexander Mourad	1.000 €		
Patrick Weiss	600 €		600 EUR am 29.4.08 (DA April)
Dirk Oldendorf	300 €		300 EUR vom TEMO-Bauskasten übertragen am 10.6.2008
Mirko Holzer (Pythago)	1.000 €		1000 EUR vom TEMO-Bauskasten übertragen am 13.6.2008
Halil Ibrahim Koruca	300 €		300 EUR vom TEMO-Bauskasten übertragen am 23.6.2008
Amin Bouzida	2.000 €		
Nasiem Abdel-Haqq	1.000 €		1000 EUR vom TEMO-Baukasten (Mai 2010, vorher vereinbart)
Nebil Messaoudi	400 €		400 EUR vom TEMO-Baukastenproj. (Okt. 2011, mit email v. 28.10.11 mitgeteilt)
Mustafa Albayraktar	100 €		überschrieben vom TEMO-Baukastenprojekt 20.11.11 (bei Treffen bei Ihsans Kebabladen bei Anwesenheit von Imran Schröter mitgeteilt)
Diyab Dabschah (u. Frau)	2.500 €		AECENAR hatte 20.000 EUR Schulden bei Diyab. 2015 hat er davon 2.500 EUR ins Müllkraftwerk investiert
Summe:	17.244 €		
Restentwicklungsanteile TEMO	17.982.756 €	100,00%	

Entscheidung am 10.11.07: da der geschätzte Wert sich ändert, sind die prozentualen Anteile nicht mehr gültig. Es zählt allein die Höhe des Investitionswertes. Dies ist gerechter.

Investment from LASER: 52690 USD (details see AECENAR Administration Report 2014)

Remark: June/July 2015: Diyab Dabschah has invested 2500 EUR

7.6 IAP_SAT

7.6.1 Project Planning (last update Feb 14)

Personal Specific Costs	1MM
Engineer	$1.000
Specialized Worker	$500
Student	$0

			Engineer need (MM)	Specialized Worker/Facharbeiter (MM)	Personnel Cost	Material Costs	Duration (months)	Needed Staff
IAP	IAP_SRWDA-SAT	mock-up model	0,5	1	$1.000	$300	1	1 Student
		specification prototype	1		$1.000		1	1 Student
		prototype (COM, FCS) aus ECS u. alt.Lotte uebernehmen	4		$4.000	$1.200	6	1 Master Student (electrical engineering) 1 Student
		mission simulation	2		$2.000		1	1 Student
		Specification MPD propulsion system	1		$1.000		3	1 Student
		MPD propulsion system	5		$5.000	$2.000		
	IAP_SRWDA-SAT Ground Station	Migration from IAP_SRWDA Ground Station and IAP_ECS	3		$3.000	$1.000	1	1 Student
	IAP_SRWDA Ground Station	Integration Ground Station Prototype				$1.000	3	1 Master Student (electrical engineering)
		Sum	16,5		$17.000	$5.500		

7.6.2 Status of project May 2014

Figure 25 Mock up model

7.6.3 Main goals achieved 2014

- Specification of SAT clear: scientific surveillance as Dubai-SAT & radio astronomy SAT
- Radio astronomy sensor
- Communication system partly developed (Software designed radio in IAP_SRWDA)

7.6.4 IAP-SAT 2015

WP No.	Working package content	Time span, costs	Development environment (HW, SW)	Responsible	Status
1	Specification, Cost Analysis. Result: Presentation Film	Mar-Apr 2015 (2 man months)	FreeCAD, Gpredict, OpenSat	Master Student Fatima Al Chaar	finished
2	Hardware-in-the-Loop test rig without adaption to board	May-Aug 2015 (4 man	Scicos, ubuntu, C	Master Student Fatima Al Chaar	Finished

	computer	months)	compiler		
3	Concept for Propulsion Unit	July/August 20015 (1 man month)		Practical Student Ibrahim Ghanem	finished
4	Implementation of control algorithm at On-Board-Computer and Closed-Loop-Integration of HIL				open
5	Visualization of satellite movement in orbit based on scilab simulation data				open
6	Specification of battery system			Practical Student Ibrahim Ghanem	finished
7	Specification, Design of star camera and algorithm			Practical Student Houssam Barbara	Partly finished

8 Supervision of Master Theses

Date of beginning of master thesises: Tue, 10th March 2015

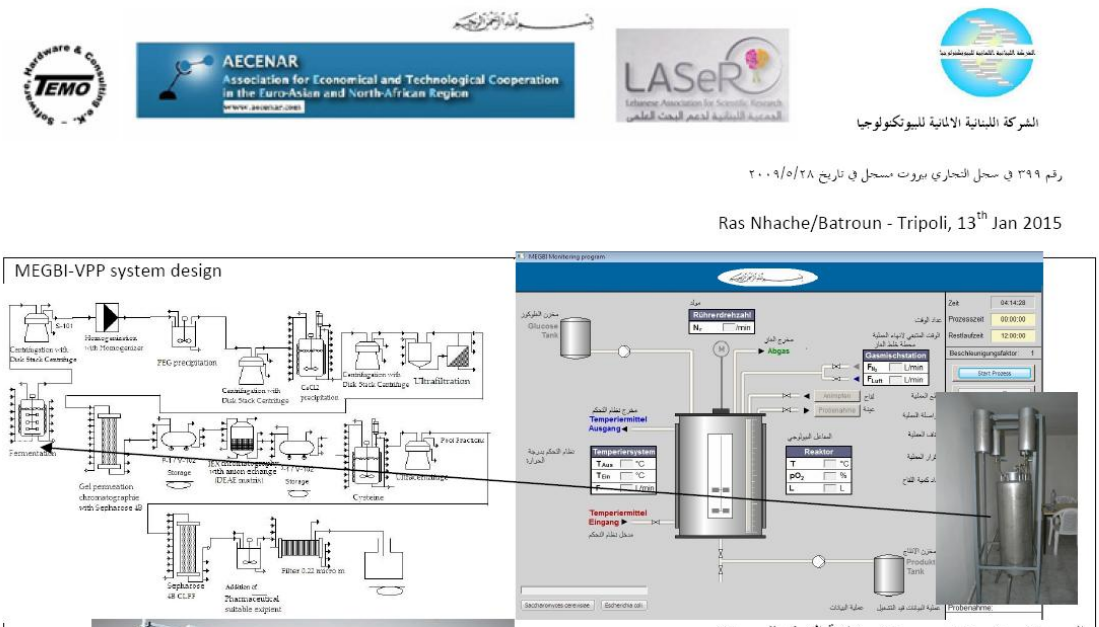
Preparation of labs for students

8.1 Students Data

Abbreviation of Thesis	**Name, Tel., email, address of Student, Master 1**	**Other involved tasks and staff**
MEGBI-VPP AUT	Haitham Hindi, 76955487, Al-Mina hayss_12@hotmail.com Master 1: Energetic Physics	Mech. Modelling and Integration of Devices (B)
TEMO-IPP CFD	Fatima Hamed, 70471415, Tripoli, Qubba, fatum-91@outlook.com Master 1: Energetic Physics	
TEMO-IPP MECH ANA (FEM)	Banan el-Kerdi, 06360740, 76655639, al-Borj, Akkar, banankerdi@hotmail.com Master 1: Fundamental Physics	
IAP-SAT MIS HIL	Fatima al-Chaar, 71623397, Tripoli, Qubba, fatima.chaar@hotmail.com Master 1: Fundamental Physics	

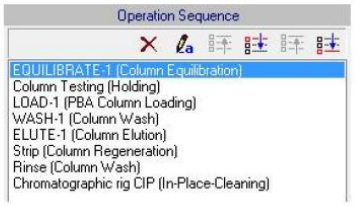
8.2 Master Thesis Tasks

8.2.1 MEGBI-VPP AUT



Downstream System (Purification) from Solaris Group (in this way MEGBI-VPP downstream processing shall be developed)

Operation sequence of ion exchange chromatography device (to be automated)



PLC System for MEGBI-VPP downstream processing system: Siemens S7-300 with PROFIBUS

Master Thesis

Automation of measurement of temperature, pressure and pH data and automation of fluid flow of a biotechnological production plant

- Design of Software (State machines) for Homogenizer, Disc Stack Centrifuge in including CIP/SIP functional elements, Process Scale Gel Permeation and ion exchange chromatographic devices, Process Scale Ultrafiltration Device (6 weeks)
- Graphical User Interface for the automation of MEGBI-VPP downstream processing (DSP) unit (4 weeks)
- Adaptation of a Graphical User Interface to a Siemens S7 PLC system (6 weeks)
- Documentation (3 weeks)

Keywords: measurement of temperature, pressure and pH data, Automation of fluid flow, PLC, Siemens S7, Programming, User Interface, C++/Java, Biotechnology

8.2.2 TEMO-IPP CFD

بسم الله الرحمن الرحيم

AECENAR
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www.aecenar.com

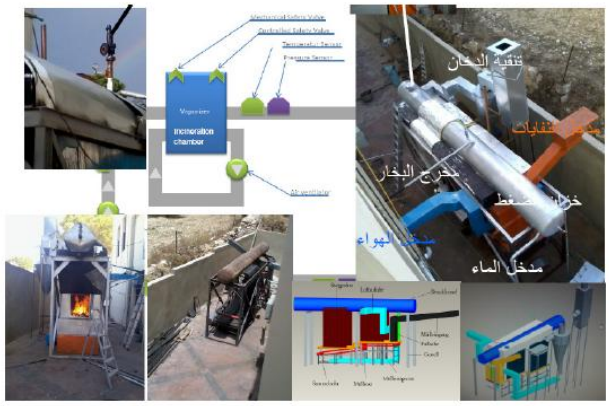
LASeR
Lebanese Association for Scientific Research
الجمعية اللبنانية لدعم البحث العلمي

Hardware & Consulting – Software
TEMO
www.temo-ek.de

MEAE – *A member of AECENAR Applied Research Center*
www.aecenar.com/institutes/meae

Ras Nhache/Batroun - Tripoli, 11th Jan 2015

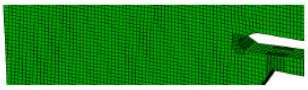
TEMO-IPP Incineration Demonstration Plant Ras Nhache/Batroun, Lebanon



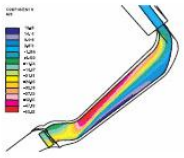
Vaporizer of TEMO-IPP incineration demonstration plant at Ras Nhache/Batroun

Upscaled vaporizer train element (TEMO-IPP has to be upscaled in such a way) (picture is from Dr.-Ing. M. Franz, "Dampferzeuger", www.axpo-holz.ch/Dampferzeuger.pdf)

CFD Analysis step 1: Upscaling CAD Model of vaporizer (to be done by student working on Master Thesis *Mechanical Analysis of an upscaled version of the Vaporizer (pressure vessel and circulation tubes) of the incineration pilot power plant TEMO-IPP*)



CFD Analysis step 2: Grid generation



CFD Analysis step 3: Calculated water/steam flow

Master Thesis

Computational Fluid Dynamics (CFD) Analysis for Water/Steam flow in an upscaled version of the vaporizer of incineration power plant TEMO-IPP

To be able to upscale the TEMO-IPP incineration plant to a commercial incineration plant (about 40 MW) in Tripoli or otherwhere in North Lebanon critical components shall be verified by Computational Fluid Dynamics with the tool Abaqus. The main critical component is the pressure vessel with about 100 bar pressure difference. Working packages:

1. CAD Modeling	2. Mesh Generation	3. Solver	4.Visualization	5.Documen-tation
Upscaling CAD Model with ProE (to be done by other student –see above)	A mesh generation C++ code shall be taken from the open source code OpenFoam and migrated to TEMO_IPP-CFD tool.	A finite difference and a finite volume C++ code shall be taken from the open source code OpenFoam and migrated to TEMO_IPP-CFD tool.	Shall be done with the tool Paraview	
	4 weeks	6 weeks	4 weeks	3 weeks

Keywords: Alternative Energy, Steam Generation in power plant, Computational Fluid Dynamics (CFD), OpenFoam, C++

Contact: Samir Mourad, Email: samir.mourad@aecenar.com

8.2.3 TEMO-IPP MECH ANA (FEM)

بسم الله الرحمن الرحيم

AECENAR
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LASeR
Lebanese Association for Scientific Research
الجمعية اللبنانية لدعم البحث العلمي

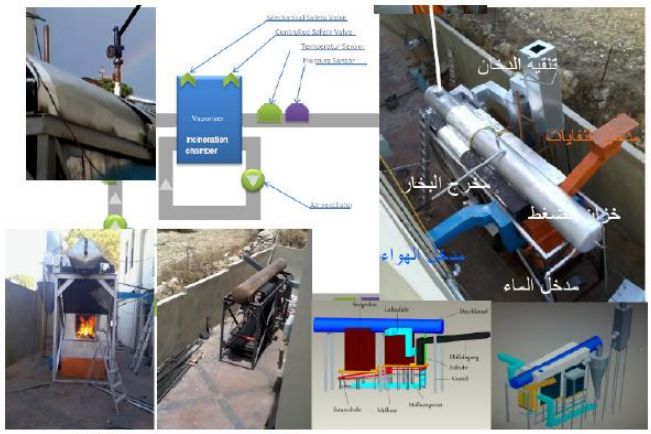
Software, Hardware & Consulting
TEMO
www.temo-ek.de

MEAE – *A member of AECENAR Applied Research Center*
www.aecenar.com/institutes/meae

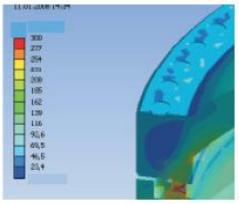
Ras Nhache/Batroun - Tripoli, 11th Jan 2015

TEMO-IPP Incineration Demonstration Plant Ras Nhache/Batroun, Lebanon

Vaporizer of TEMO-IPP incineration demonstration plant at Ras Nhache/Batroun



Upscaled vaporizer train element (TEMO-IPP has to be upscaled in such a way) (picture is from Dr.-Ing. M. Franz, "Dampferzeuger", www.axpo-holz.ch/Dampferzeuger.pdf)



Stress distribution (FEM Analysis) at vaporizer

Master Thesis

Mechanical Analysis of an upscaled version of the Vaporizer (pressure vessel and circulation tubes) of the incineration pilot power plant TEMO-IPP

To be able to upscale the TEMO-IPP incineration plant to a commercial incineration plant in Tripoli (about 40 MW) critical components shall be verified by Finite Element Analysis with the tool Abaqus. The main critical component is the pressure vessel with about 100 bar pressure difference. Working packages:

- Upscaling the CAD model of vaporizer with CAD tool ProE (2 weeks)
- Mechanical Behavior (Stress Analysis, Fatigue Analysis, Thermal Strain Analysis) with the tool Abaqus (6 weeks)
- Thermal Loads (Dimensionless Numbers, Overall Heat Transfer, Heat Transfer for Concentric Annular Gaps, Heat Transfer for Free Convection on Vertical Surfaces) with the tool Abaqus (4 weeks)
- Documentation (3 weeks)

Keywords: Alternative Energy, Incineration Power Plant, Mechanical Analysis, Finite Element Analysis (FEA), CAD

Contact: Samir Mourad, Email: samir.mourad@aecenar.com

8.2.4 IAP-SAT Mission simulation

AECENAR
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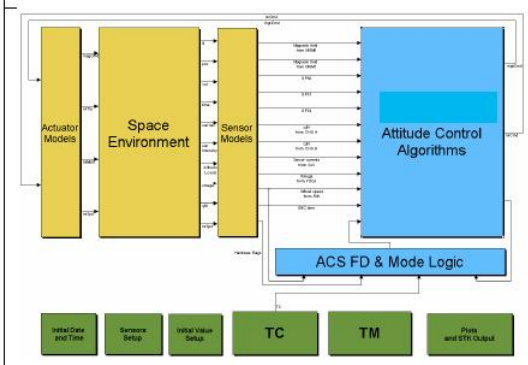
www.aecenar.com

IAP INSTITUTE FOR ASTROPHYSICS

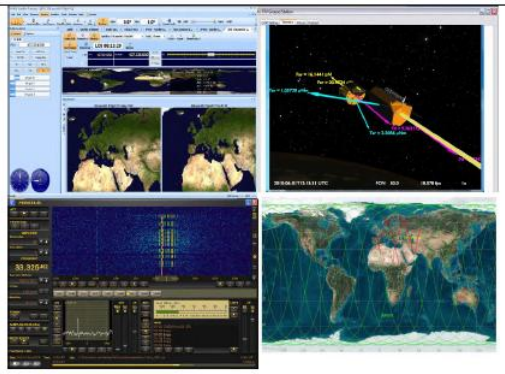
Bismillah

Ras Nhache/Batroun
www.aecenar/institutes/iap
12.2.2015

IAP Laboratory at Ras Nhache/Batroun, Lebanon



Simulation Environment



In such a way the Graphical User Interface shall be

Master Thesis

Simulation of the system and of the operational flight of IAP-SAT to take meteorological data to monitor and estimate the energy supply potential of large scale photovoltaic energy plants to control a national alternative energy supply program

Detailed description and working plan

Modeling of actual IAP-SAT hardware and software components in octave	8 weeks
Modeling of IAP-SAT mechanical components with ProE	3 weeks
Integration to a operation flight model and visualization in IAP-ECS environment	3 weeks
Documentation	3 weeks

Keywords: Control of national energy mix programs, large scale photovoltaic plants, meteorological data, *Low Earth Orbit Satellite, Flight Mechanics&Dynamics, Matlab Simulink/Scilab*

Contact: Samir Mourad, Email: samir.mourad@aecenar.com, Mobile +961 76341526

8.3 Important Issues for first session with students

Main Goals:

- Ikhlas

- Each student has to complete a working package such that the project is going foreward (only on AECENAR computers)

- Documentation (on own laptop possible)

8.4 Introductional Reading Material

11.3.2015 Webmail (242)

for introductional reading for your master thesis
11. März 2015 | 14:29 | 4 KB

Von: Samir Mourad <samir.mourad@aecenar.com>

An: hayss_12@hotmail.comfatum-91@outlook.combanankerdi@hotmail.comfatima.chaar@hotmail.com

Cc: h_elkhatib68@yahoo.com'Ammar Assoum' <a_assoum@yahoo.fr>

Bcc: Samir Mourad <smourad69@googlemail.com>Roula Mourad <r.mourad@aecenar.com>

As-Salamu alaikum, dear students

the following documents are important for you to read (please take a look on it) - please copy the link and paste it into the webbrowser:

http://www.aecenar.com/downloads/doc_download/129-megbi-vpp-report2-part-i
http://www.aecenar.com/downloads/doc_download/130-megbi-vpp-report2-part-ii
http://www.aecenar.com/downloads/doc_download/25-siemens-s7-300
http://www.aecenar.com/downloads/doc_download/127-temo-stpp-report4-part-ii-process-control-system
(Haitham)

http://www.aecenar.com/downloads/doc_download/88-temo-stpp-project-report3-as-pdf-engl
(Fatima Hamed, Banan)

http://www.aecenar.com/downloads/doc_download/24-computational-fluid-dynamics-cfd
(Fatima Hamed)

http://www.aecenar.com/downloads/doc_download/140-iap-sat-2nd-project-report-2014
(Fatima al-Chaar)

http://www.aecenar.com/downloads/doc_download/141-iap-sat-1st-project-report-2012-2013
(Fatima al-Chaar)

Wassalam

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Association for Technological and Economical Cooperation in the Euro-Asian and North-African Region (AECENAR) e.V.

8.5 Working Places, Ressources

Students Room / Software Development Bureau (2nd floor - behind the wood wall)

For introductional reading

8.5.1 MEGBI-VPP AUT

Hardware

PC

Software

Wxphython

8.5.2 TEMO-IPP CFD

Hardware

Server

Software

Ubuntu, FreeCAD, ...

8.5.3 TEMO-IPP Mechanical Analysis

Hardware

Server

Software

FreeCAD, ...

8.5.4 IAP-SAT Mission simulation

8.5.4.1 Hardware

Ubuntu PC (Dual Core)

8.5.4.2 Software

OS: Redhat 5, scilab, gpredict

8.6 Weekly Meetings, Controlling

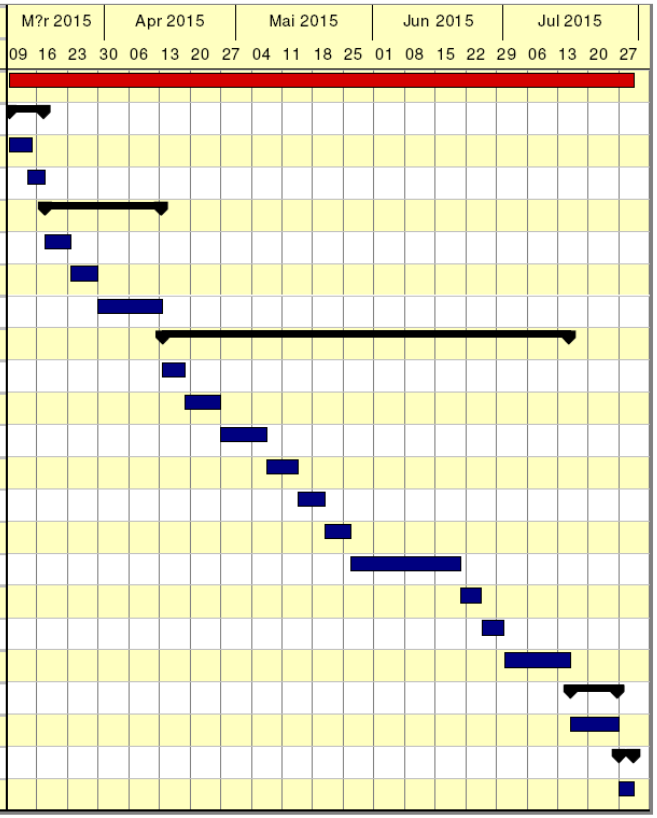
Every Monday every student has to make a ten minutes' presentation of the work of the last week and give the actual status. Every day every student puts is actual files on the server (Windows Server).

Figures: Meeting at 23 Mar 2015

8.7 Time Plans

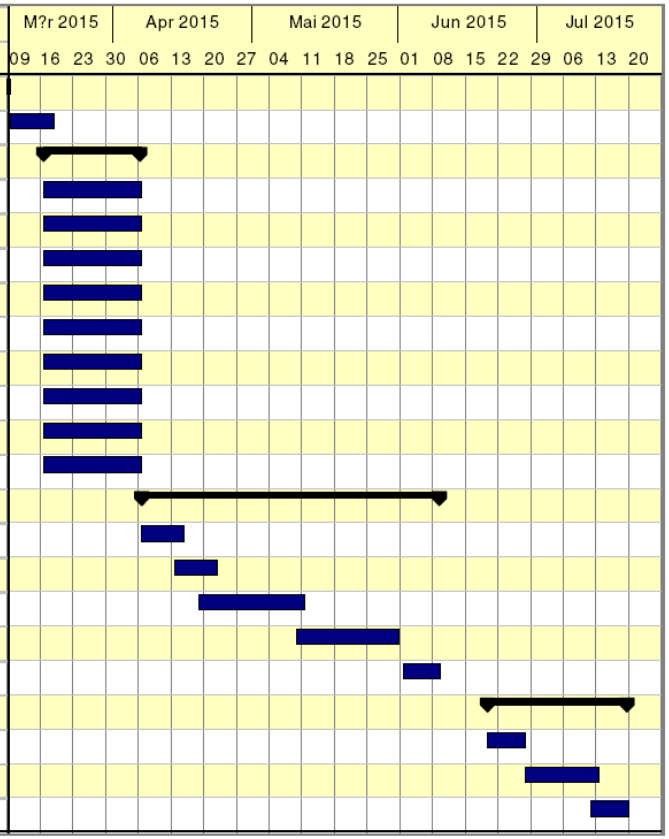
TEMO-IPP_FEM - Gantt Chart

ID	Name	Start	Finish
Master 2 PNRJ C		10.03.2015	30.07.2015
Chapter 0	**Introduction**	**10.03.2015**	**17.03.2015**
	contact with the Lohrmann company to find a steam turbine (30 MW)	10.03.2015	14.03.2015
	Upscaling the mini waste incineration to a commercial incineration plant in Tripoli	14.03.2015	17.03.2015
Chapter 1	**Basics**	**18.03.2015**	**13.04.2015**
	Calculation of pipe thikness using physics formula	18.03.2015	23.03.2015
	Required heat transfer area	24.03.2015	29.03.2015
	* Designing and construction of Tripoli-VPP using FreeCAD	30.03.2015	13.04.2015
Chapter 2	**Contribution using FEM & Abaqus**	**14.04.2015**	**15.07.2015**
2.1	steel properties	14.04.2015	18.04.2015
	Axial compression of single walled pipe	19.04.2015	26.04.2015
	Axial compression of lined pipe	27.04.2015	07.05.2015
	Pure banding of single walled pipe	08.05.2015	14.05.2015
	Stress analysis	15.05.2015	20.05.2015
	Fatigue analysis	21.05.2015	26.05.2015
	creation of structure grid using Abaqus	27.05.2015	20.06.2015
2.2	Overall heat transfer	21.06.2015	25.06.2015
	heat transfer for free convection on vertical surfaces	26.06.2015	30.06.2015
	creation of thermal grid using Abaqus	01.07.2015	15.07.2015
Chapter 3	**Results & discussion**	**16.07.2015**	**26.07.2015**
	Results about the structure and the thermal loads	16.07.2015	26.07.2015
Chapter 4	**Conclusion and perspectives**	**27.07.2015**	**30.07.2015**
	solution for the waste problems in Tripoli & in chaa'allah in all the the country	27.07.2015	30.07.2015



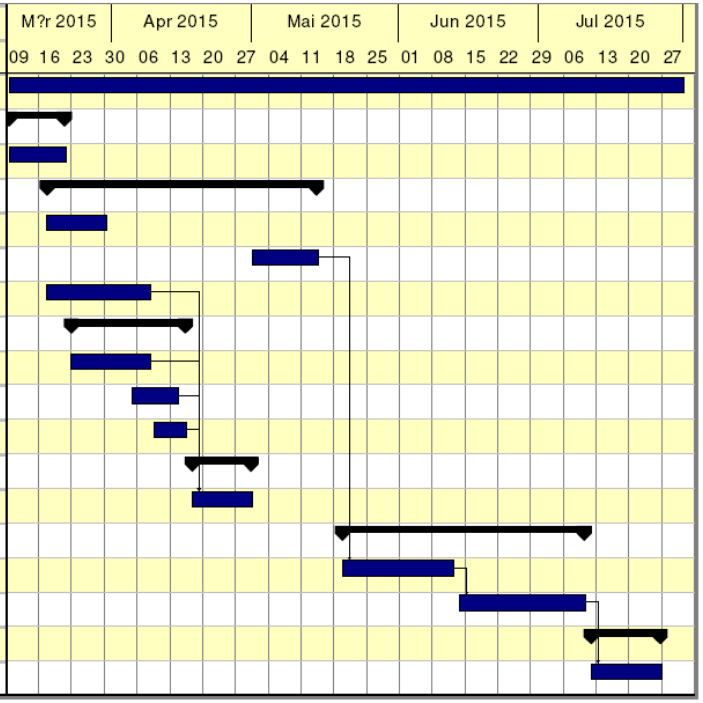
TEMO-IPP_CFD - Gantt Chart

ID	Name	Start	Finish
MSThesis Ch.		09.03.2015	09.03.2015
Ch1: Intro	The incineration piltot plant TEMO-IPP and planned Tripoli-IPP	10.03.2015	18.03.2015
Ch2:Basics	**CFD method description (وضع الكتاب)**	**17.03.2015**	**06.04.2015**
2.1	short description of FreeCAD	17.03.2015	06.04.2015
2.2	Fluid Dynamics Eq.s (Navier-Stokes, Euler Eq.)	17.03.2015	06.04.2015
2.3	visualization with paraview	17.03.2015	06.04.2015
2.4	description of PDE	17.03.2015	06.04.2015
2.5	discretization	17.03.2015	06.04.2015
2.6	Grid transformation	17.03.2015	06.04.2015
2.7	finite-difference solver (7.1)	17.03.2015	06.04.2015
2.8	finite volume solver	17.03.2015	06.04.2015
2.9	finite element solver	17.03.2015	06.04.2015
Ch3:Contributio	**Development of the program TEMO-IPP_CFD**	**07.04.2015**	**09.06.2015**
3.1	Specification of program TEMO-IPP_CFD	07.04.2015	15.04.2015
3.2	VC++ User Interface for Program TEMO-IPP_CFD	14.04.2015	22.04.2015
3.3	Implementation of grid creation using OpenFOAM packages	19.04.2015	11.05.2015
3.4	implementation of FV solver using OpenFOAM packages	10.05.2015	31.05.2015
3.5	visualisation module (script calling of Paraview)	02.06.2015	09.06.2015
Ch 4: Results	**Testing the program TEMO-IPP_CFD (مثل تطبيقي في الكتاب)**	**20.06.2015**	**19.07.2015**
4.1	Design of Tripoli-IPP vaporizer using FreeCAD	20.06.2015	27.06.2015
4.2	Computing FD of Tripoli-IPP vaporizer (init.param. for normal operating state of Tripoli-IPP)	28.06.2015	13.07.2015
Ch 5: Conclusion	Discussion of results (how to improve the vaporizer)	12.07.2015	19.07.2015



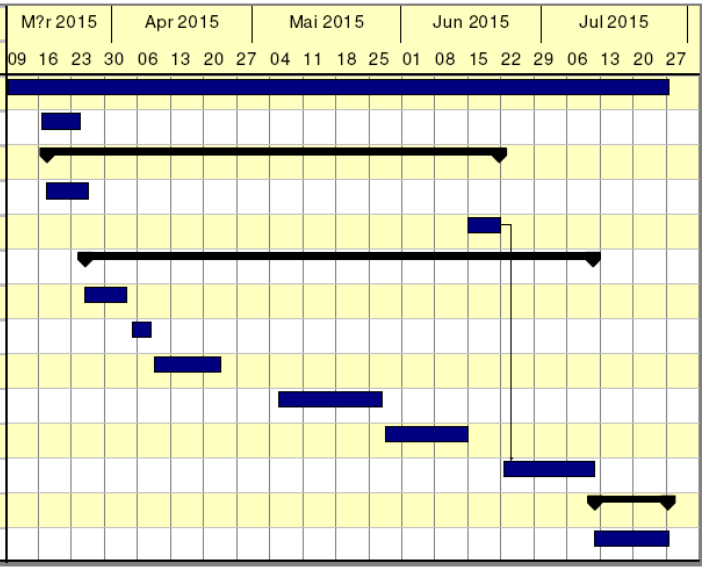
IAP-SAT_MIS_HIL - Gantt Chart

ID	Name	Start	Finish
Master 2		10.03.2015	31.07.2015
Ch.1: Intro	**Introduction**	**10.03.2015**	**21.03.2015**
	The project IAP-SAT, description of task	10.03.2015	21.03.2015
Ch.2: Basics	**Basics**	**18.03.2015**	**14.05.2015**
	Meteorology, orbits, LEO	18.03.2015	30.03.2015
	signals&blocks, signal processing, control blocks	01.05.2015	14.05.2015
	satellite bus,meteorological satellites, payload for meteor. satellites, costs	18.03.2015	08.04.2015
Ch.3.1	**IAP_SAT Mission simulation (IAP-SAT_MIS)**	**23.03.2015**	**16.04.2015**
3.1.1	Specification of orbit parameters of IAP-SAT(meteorological data)	23.03.2015	08.04.2015
3.1.2	Visualization of ground track of only IAP-SAT with gpredict	05.04.2015	14.04.2015
3.1.3	Modeling of IAP_SAT in FreeCAD	10.04.2015	16.04.2015
Ch.4.1	**Presentation film**	**18.04.2015**	**30.04.2015**
	Meorological sats, FreeCAD model of IAP-SAT, ground track of IAP-SAT with gpredict	18.04.2015	30.04.2015
Ch.3.2	**IAP_SAT Hardware in the loop test in rig (IAP-SAT_HIL)**	**20.05.2015**	**10.07.2015**
	System Design of Simulated Blocks and Real HW (Accel. Sensor, Gyros'Board) in scilab	20.05.2015	12.06.2015
	Implementation:Simulated Blocks (e.g. Space Environment Model) in scilab	14.06.2015	10.07.2015
Ch. 4.2	**Documentation film of long enduring SIL test**	**12.07.2015**	**26.07.2015**
	IAP-SAT_HIL operation and Testing (Full operation in orbit simulation) (diagrams as MS S	12.07.2015	26.07.2015



MEGBI-VPP_AUT - Gantt Chart

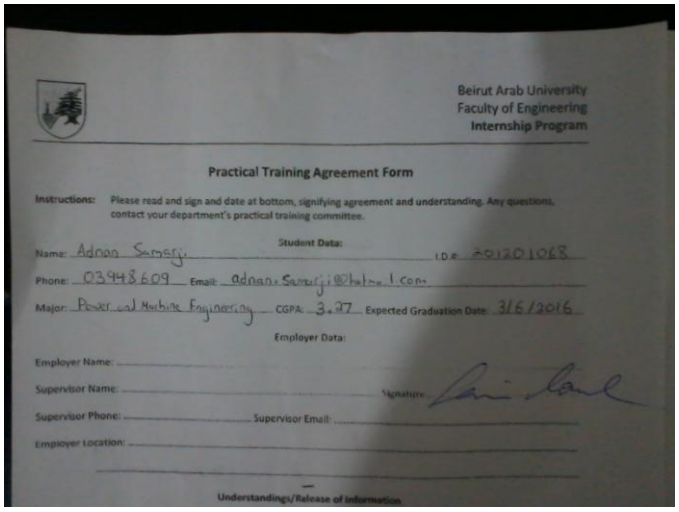
ID	Name	Start	Finish
MSThesis Ch.		10.03.2015	27.07.2015
Ch.1	Introduction	17.03.2015	24.03.2015
Ch.2	**Basics**	**18.03.2015**	**21.06.2015**
2.1	Siemens S7 300	18.03.2015	26.03.2015
2.2	Adaptation of Siemens S7 to Graphical User Interface (GUI)	15.06.2015	21.06.2015
Ch3:Contribution	**Automation system for the DNA Vaccine Production Plant MEGBI-VPP**	**26.03.2015**	**11.07.2015**
3.1	Sensor /actuator list	26.03.2015	03.04.2015
3.2	CAD Model (with free CAD) of sensors & actuators and integration into plant CAD mo	05.04.2015	08.04.2015
3.3	GUI specification	10.04.2015	23.04.2015
3.4	S7 layout (with SIEMENS STEP7)	06.05.2015	27.05.2015
3.5	Migration of TEMO-IPP GUI to MEGBI-VPP GUI	29.05.2015	14.06.2015
3.6	Adaptation of GUI to S7	23.06.2015	11.07.2015
Ch.4: Results	**Presentation film**	**12.07.2015**	**27.07.2015**
4.1	Documentation of Full operation test in a film	12.07.2015	27.07.2015



9 Supervision of practicants

9.1 June/July 2015

3 practicants from BAU



Beirut Arab University
Faculty of Engineering
Internship Program

Practical Training Agreement Form

Instructions: Please read and sign and date at bottom, signifying agreement and understanding. Any questions, contact your department's practical training committee.

Student Data:

Name: Adnan Samarji I.D.# 20120168

Phone: 03943609 Email: adnan.samarji@hotmail.com

Major: Power and Machine Engineering CGPA: 3.27 Expected Graduation Date: 3/6/2016

Employer Data:

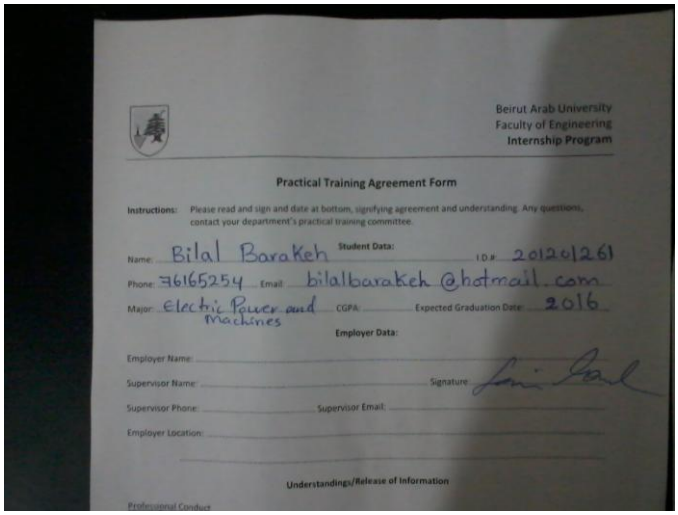
Employer Name:

Supervisor Name: Signature

Supervisor Phone: Supervisor Email:

Employer Location:

Understandings/Release of Information



Beirut Arab University
Faculty of Engineering
Internship Program

Practical Training Agreement Form

Instructions: Please read and sign and date at bottom, signifying agreement and understanding. Any questions, contact your department's practical training committee.

Student Data:

Name: Bilal Barakeh I.D.# 20120261

Phone: 76165254 Email: bilalbarakeh@hotmail.com

Major: Electric Power and Machines CGPA: Expected Graduation Date: 2016

Employer Data:

Employer Name:

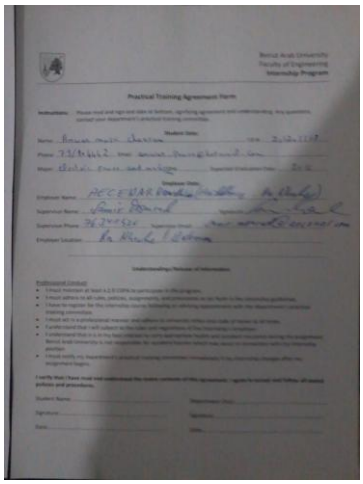
Supervisor Name: Signature

Supervisor Phone: Supervisor Email:

Employer Location:

Understandings/Release of Information

Professional Conduct



Came only 2 days

4 practicants from Beirut Arab University (BAU)

Worked well on MEGBI-VPP Mechanical Models of Devices (see 3rd MEGBI-VPP Project Report (2015). Product MEGBI-VPP Film from Jihad Samarji. Jihad, Zaher, Ibrahim, Fadi.

9.2 July-August 2015

1 practicant from Istanbul Technical University

AECENAR
Association for Economical and Technological Cooperation in the Euro-Asian and North-African Region

T.C
İstanbul Teknik Üniversitesi
Makine Fakültesi Dekanlığı

İstanbul Teknik Üniversitesi Makine Mühendisliği Bölümü öğrencisi İbrahim Ghanem, numaralı 030120916'ın firmamızda (22.7.2015 – 22.8.2015) tarihleri arasında, haftada 5 gün, staj yapması uygun görülmüştür.

Bilgilerinize

Saygılarımızla

Samir Mourad, Director

AECENAR Center Lebanon
Ras Nhache, Qubaisi Building, Main Road, District: Batroun – North Lebanon, **Lebanon**
رأسنحاش، مركز القبيسي جانب مسجد القبيسي – قضاء البترون – لبنان الشمالي - **لبنان**

Contact
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Mobile Germany ++49 (0)176 93516187
Email: samir.mourad@aecenar.com

AECENAR Bureau Germany
Hermann-Treiber-Str. 17, 69123 Heidelberg, **Germany**
Email: info@aecenar.com
Website: www.aecenar.com

İ.T.Ü.
Makina Fakültesi

Fotoğraf

STAJ DEFTERİ

Öğrencinin;

Adı ve Soyadı : **Ibrahim Ghanem**

Numarası : **030120916**

Program/Yarıyıl : **Mechanical engineering / 5**

STAJ YAPILAN

KURUMUN ADI : **AECENAR**

BÖLÜM	YAPILAN İŞ	TARİH		GÜN SAYISI	BÖLÜM SORUMLUSU
		Başlangıç	Bitiş		
General	Acquainting with company's projects	27/7	28/7	2	Samir Mourad
Control	Helping in feedback system	29/7	7/8	8	Samir Mourad
Design	PPT FreeCad desgin	10/8	14/8	5	Samir Mourad
Desgin	Battery SolidWorks desgin	17/8	21/8	5	Samir Mourad

(Firma Kaşesi/Mührü)

YAPILAN İŞ:

YAPILAN İŞ: **İŞ YERİ**

KURUMUN ADI : **AECENAR**

BÖLÜM : **IAP-SAT**

STAJYER ÖĞRENCİNİN DEĞERLENDİRİLMESİ (İş yeri yetkilileri tarafından doldurulacak)
1: Zayıf.....5: Mükemmel şeklinde notlandırınız.

İŞ YERİNE UYUM	: 5
ÇALIŞKANLIK	: 5
YETERLİLİK	: 4
KARAR VERME	: 4
İŞ DİSİPLİNİ	: 4.5
TAKIM ÇALIŞMASINA YATKINLIK	: 4.5

DÜŞÜNCE VE ÖNERİLER (VARSA):

ابراهيم غانم عمل جيدا ما طلبناه منه ونتمنى له كل خير وندعوا الله ان يستعمله لافادة البشرية.
ونامل ان يرجع عندنا مرة اخرى

(Firma Kaşesi/Mührü)

Tarih

.....28./..10..../..2015.....

SORUMLUNUN;
ADI ve SOYADI : Samir Mourad
ÜNVANI : Qubaisi Building, Main Road, Ras Nhache/Batroun, North Lebanon, Lebanon
İMZASI :

9.3 Oct-Dec 2015, Students Data

Abbreviation of Thesis	**Name, Tel., email, address of Student, Master 1**	**Time planned on site**
TEMO-IPP	Wendy Estephan, 76185521, Dahr al-Ain, estephanwendy@gmail.com	Tue 8-14
IAP-SAT	Houssam Barbara, Tel. 71753801, Tripoli al-Bahsas, houssam.barbara@gmail.com	Mo 8-14 Tue 8-14

10 Visits

Azhar Tripoli Students and friends, 13.4.15

25.4.2015: Looking for LU Master Thesis Students

11.5.2015: Candidates for practicant students from Beirut Arab University (BAU).

11 Founding of Lebanese Association TECDA on 13 June 2015

Photos of Foundation Meeting 13 June 2015, 10-13 o'clock at AECENAR facility

Further details see TECDA Report 2015.

12 References

[BananKerdi] Master Thesis, see www.aecenar.com/publications

بسم الله الرحمن الرحيم

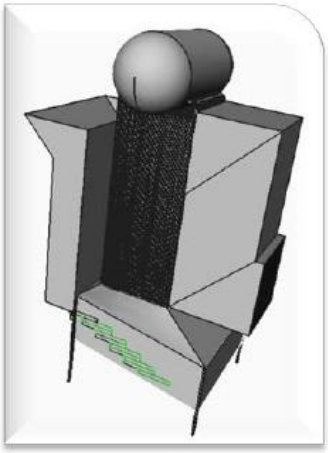
MEAE – Middle East Institute for Alternative Energy

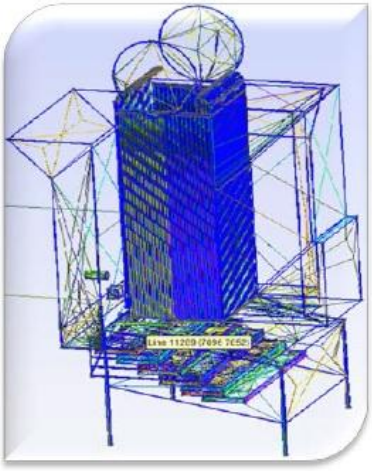
AECENAR
Association for Economical and Technological Cooperation in the Euro-Asian and North-African Region
www.aecenar.com

الجامعة اللبنانية
كلية العلوم

TECDA Research Center

Mechanical analysis of an upscaled version of the vaporizer of the incineration power plant TEMO-IPP





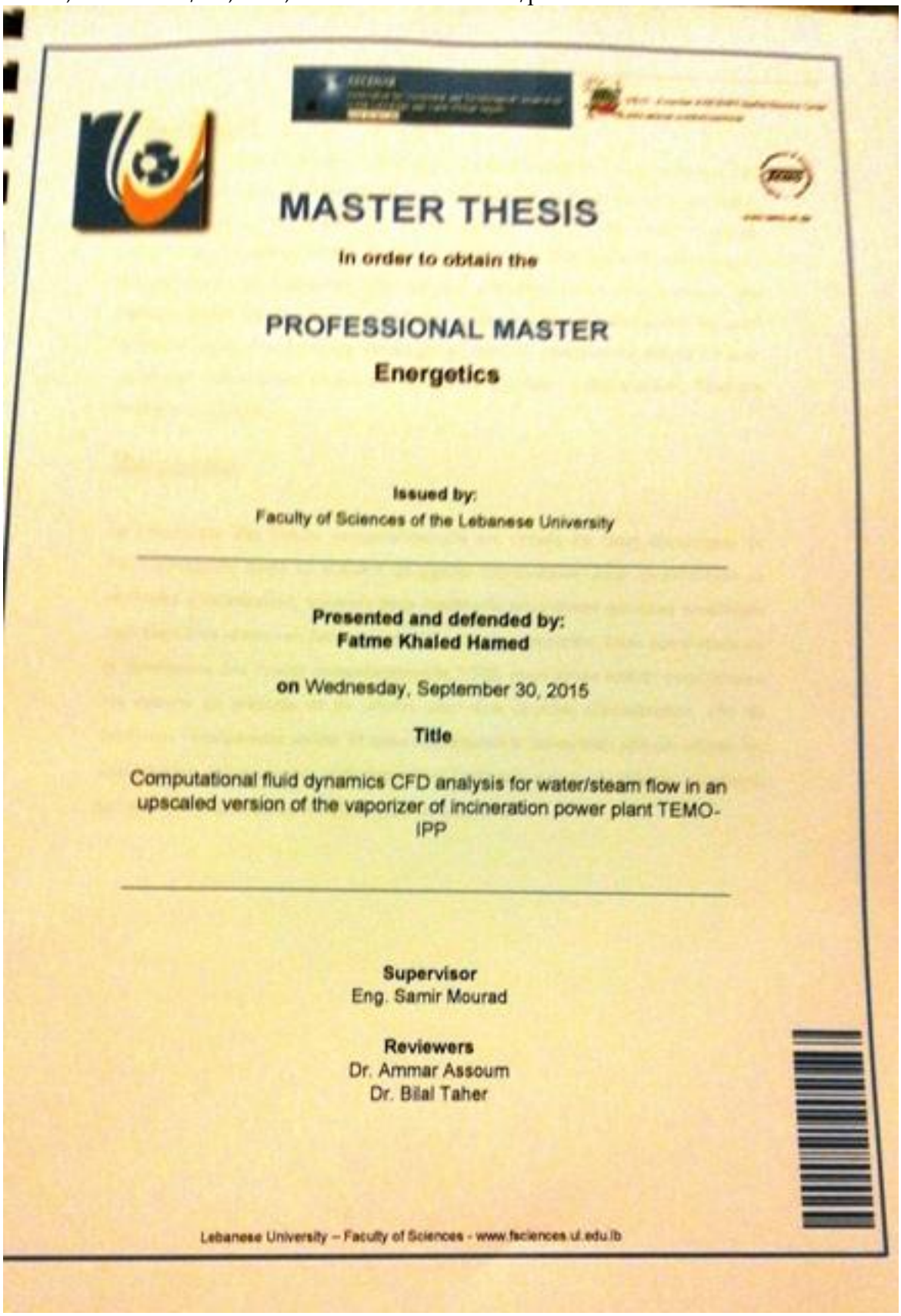
Master Thesis

Prepared by: Banan ELKERDI

Directed by: Eng. Samir Mourad

From 10 March to 10 August 2015

[FatimaHamed] Fatima Hamed, "Computational fluid dynamics CFD analysis for water/steam flow in an upscaled version of the vaporizer of incineration power plant TEMO-IPP" Master Thesis, AECENAR/LU, 2015, see www.aecenar.com/publications



MASTER THESIS

In order to obtain the

PROFESSIONAL MASTER

Energetics

Issued by:
Faculty of Sciences of the Lebanese University

Presented and defended by:
Fatme Khaled Hamed

on Wednesday, September 30, 2015

Title

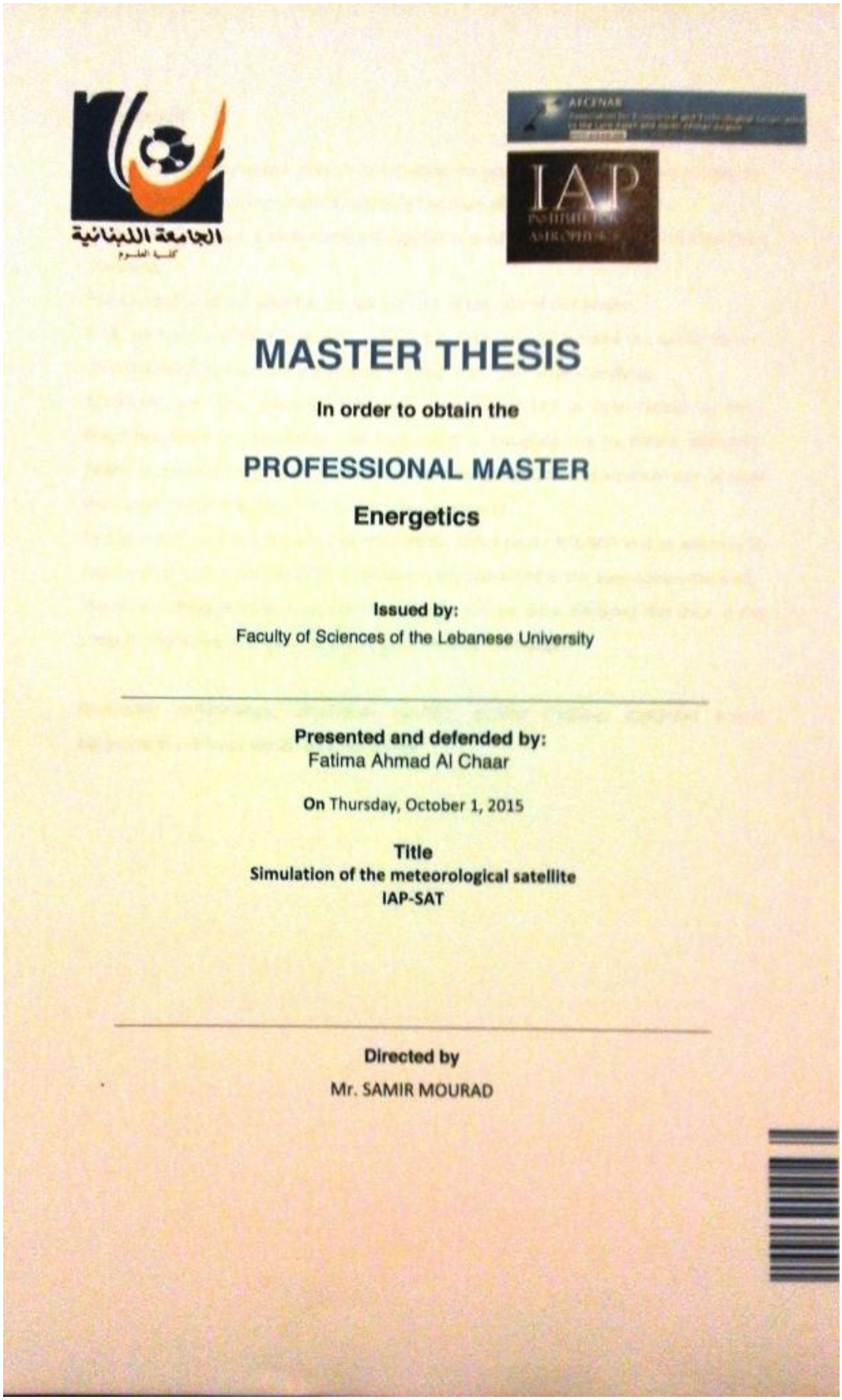
Computational fluid dynamics CFD analysis for water/steam flow in an upscaled version of the vaporizer of incineration power plant TEMO-IPP

Supervisor
Eng. Samir Mourad

Reviewers
Dr. Ammar Assoum
Dr. Bilal Taher

Lebanese University – Faculty of Sciences - www.fsciences.ul.edu.lb

[FatimaAlChaar] Fatima Al Chaar, "Simulation of the meteorological satellite IAP-SAT", Master Thesis, AECENAR/LU, 2015, see www.aecenar.com/publications



الجامعة اللبنانية
كلية العلوم

AECENAR

IAP

MASTER THESIS

In order to obtain the

PROFESSIONAL MASTER

Energetics

Issued by:
Faculty of Sciences of the Lebanese University

Presented and defended by:
Fatima Ahmad Al Chaar

On Thursday, October 1, 2015

Title
Simulation of the meteorological satellite IAP-SAT

Directed by
Mr. SAMIR MOURAD

[HaissamHindy]

AECENAR
Association for Economical and Technological Cooperation in the Euro-Asian and North-African Region

MASTER THESIS

In order to obtain the

PROFESSIONAL MASTER

Energetics

Issued by:
Faculty of Sciences of the Lebanese University

Presented and defended by:
Hayssam Mohamad Hindy

on Thursday, October 1, 2015

Title

Automation of measurement of temperature, pressure and PH data and automation of fluid flow of a biotechnological production plant

---

Supervisor
Mr.Samir Mourad

Reviewers
Dr.Akil Jrad
Dr.Ammar Assoum

Lebanese University – Faculty of Sciences - www.fsciences.ul.edu.lb

Appendix A: Contact data of specialists (مع لم), workers, ...

Specialist for / price	Name	Address	Phone
Aluminium, 80$/qm	عمر	بعبدة - عكار	70 140828
Electricity 25 USD/day	Abdullah (from Syria), brother of Ibrahim (Mustafa knows him)		
Sanitary 25 USD/day	Abdullah (from Syria), brother of Ibrahim (Mustafa knows him)		
Painting 25 USD/day	Abdullah and Ibrahim (from Syria) (Mustafa knows them)		
Bilat	Mustafa (from Halab)	Ras Nhache	76 493901
Eisenschweißer	Muhammad Qammah	Mina	70 339875
Stainlessschweißer	Bilal Naouchi	bilalnaoushi@hotmail.com	03 446027
Wärme u. Kälte technik u.s.w.	Khidr Balita	Mina	03 232088

Appendix B: To do Lists

Initial Date	Task	Responsible/ Time	Costs
21.01.2015	**MEGBI-VPP: Development Lab Automation einrichten**		
	Gasheizung Mitte Feb - Mitte Apr	Samir/1h	$100
	Arbeitsplatz CAD (schwarzer PC, mit Misfit)	Samir/1h	
	Arbeitsplatz Automation (PC mit Step SW, S7 HW) (weisser PC)	Samir/1h	
	Waschbecken reparieren		$40
	Teppich unter PCs Internetkabel MEGBI unten einrichten		$60
21.01.2015	**IAP-SAT: Development Simulation Lab einrichten**		
	Arbeitsplatz für Server (kleiner ehem. SRWDA Tisch) (evtl. Verlängerungskabel für Tastatur, Maus, Bildschirm)		$20
	Elektroheizung oben Mitte Feb - Mitte Apr		$100
		Total	**$320**