بسم الله الرحمن الرحيم

AECENAR Administration

Planning & Controlling 2016

Last update:

Tuesday, November 08, 2016

Author:

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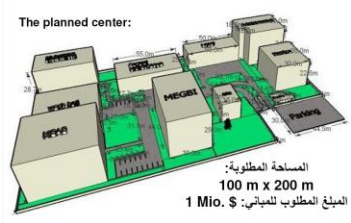
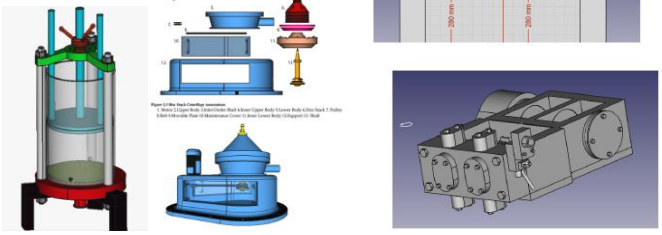
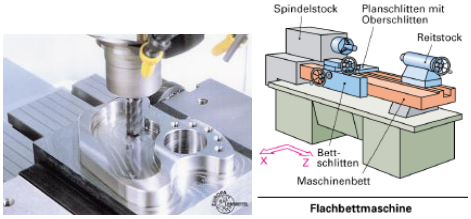
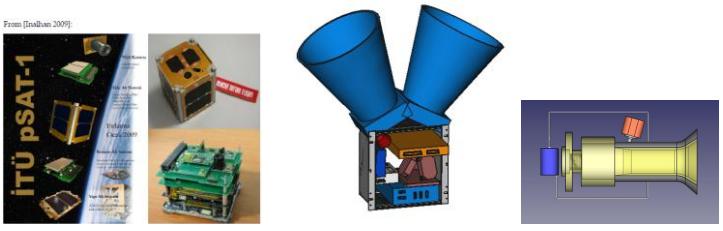
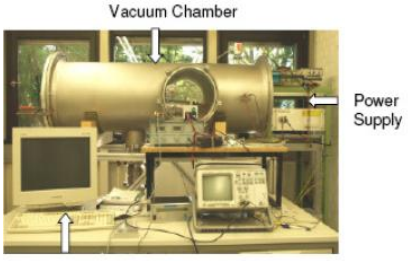
Content

1 Strategic goals in 2016 to complete AECENAR Applied Research Center



1.1 Originally Planned for 2016

	Projects	**Labs**
MEGBI	Completing MEGBI-VPP: Manufactoring 2 Chromatographic devices, Disc Stack Centrifuge, Homoginizer  Budget: 2x500$+800$+1200$=3000$ Integration  Budget: 500$(Piping)+1500$(Automation)=2000$	Building Manufactoring Site (Fine Mechanics) with connection to S7:   CNC milling maschine, CNC Drehmaschine Budget: 2x4.500$+1000$=10.000$
IAP	Completing IAP-SAT Prototype  Budget: 5000$	Building Experimental Rig for Electrical Satellite Propulsion Unit  **Figure 3. One of the I-MPD Test Facilities** Budget: 1500$
Total required budget: 21.500$		

AECENAR Applied Research Center & Startup Companies Complex 2014-17 - Gantt Chart

ID	Name	Start	Finish
MEAE	TEMO-IPP with LASeR	03.01.2014	19.11.2014
NLAP	Initial. of North Lebanon Altern. Power NLAP	08.12.2015	20.12.2016
	Foundation of NLAP	08.12.2015	08.12.2015
	operational working of incineration plant at Ras Nhache	17.01.2016	20.12.2016
	BSBN (Planning of Tripoli Incineration Plant)	07.03.2015	29.03.2016
MEGBI	MEGBI-VPP	06.11.2014	28.07.2016
	Specification (Excellist as TEMO-STPP offer attachment to L	06.11.2014	06.11.2014
	Different Specifications Offered to Azm, LASeR, Small Invest	06.12.2014	04.03.2015
Practicants	Modelling MEGBI-VPP MECH Production Scale	26.05.2015	29.08.2015
Practicant	MEGBI-VPP presentation film	17.09.2015	17.09.2015
MasterThesis	MEGBI-VPP Automation System	16.03.2015	16.10.2015
	MEGBI-VPP MECH Simplified Version	01.12.2015	20.12.2015
$500Mat+250Pers.	Manufactoring MEGBI-VPP Simplified Version (without DSC)	21.12.2015	27.12.2015
	Integrating Automation System	01.01.2016	30.01.2016
	DNA Lab (HBSAg DNA im Dez. besorgen): Transfer in S.ceri	29.03.2016	07.06.2016
	Bioreactor integration (mech.+autom.), DSC	08.06.2016	28.07.2016
LGBiotech	Initial. of LGBiotech vaccine production	26.03.2017	13.12.2017
IAP	IAP-SAT	01.04.2014	05.09.2017
	1. mock-up model	01.04.2014	17.04.2014
IAP-SAT_MIS	Specification Prototype (Mission Simulation)->Presentation Fi	10.03.2015	25.04.2015
	Presentation Film presented at TECDA founding meeting	22.06.2015	22.06.2015
IAP-SAT_HIL	Hardware-in-the-loop test rig (space model, board computer)	13.05.2015	31.08.2015
	design of MPD propulsion system simple prototype	17.08.2015	08.09.2015
Practicant-0	star tracking camera	23.10.2015	10.12.2015
Hiwi 300$	sensors (GPS, Gyro, Acceleration)	18.12.2015	31.03.2016
Master Thesis	propulsion system, integration, camera	31.03.2016	29.09.2016
Employee	vibration studies, payload in shuttle system	09.10.2016	29.12.2016
PhD/Employee	shuttle system	14.10.2016	05.09.2017
	IAP_SRWDA Ground Station	30.12.2013	18.04.2014
Administration	AECENAR Building	09.01.2017	18.12.2017
ISSIR	ISSIR	02.10.2015	28.11.2017

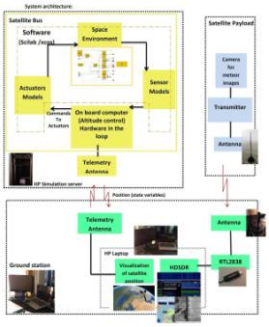
16.12.15 1/1

1.2 Planning Update July 2016 (for finishing AECENAR Research Center Project)

ID	Name	Start	Finish
MEGBI	MEGBI-APP	29.03.201	06.09.2017
Lab	producing natural penicillin in fermenter	29.03.2016	17.10.2016
	manufactoring devices for systethic step nat. penicillin->ampicilli	19.09.2016	08.11.2016
	integrating (piping, ...) mechanical devices	13.11.2016	13.01.2017
	Integrating Automation System	10.01.2017	31.03.2017
	MEGBI-APP Pilot Plant Running	30.03.2017	06.09.2017
IAP	IAP-SAT	21.07.201	23.09.2017
A1M	IAP-SAT FOG	21.07.2016	30.09.2016
A2	design of MPD propulsion system simple prototype, test rig	17.08.2016	03.10.2016
A1	ACS integration	24.08.2016	11.10.2016
	integration of prototype	27.05.2017	13.09.2017
	solar system for IAP-SAT	31.03.2017	23.09.2017
MasterThesis,!-	shuttle system, detailed mission simulation, payload in shuttle sys	11.08.2016	21.03.2017

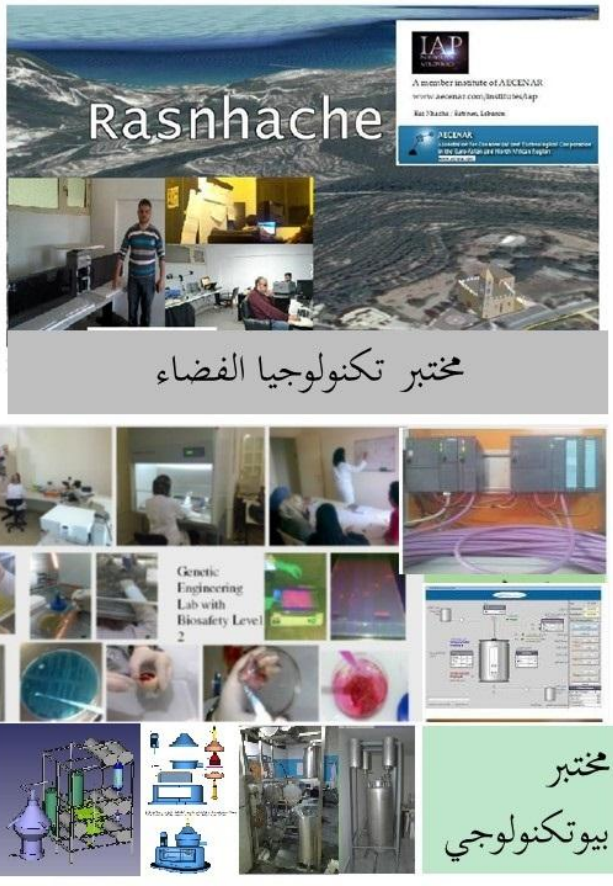
1.3 Achieved in 2015 alhamdulillah

	Projects	**Labs**
MEAE	Commercializing TEMO-IPP (-> NLAP Officially Founded)	Toolchain for design: CAD, FEM, CFD Mechanical Power Plant Prototype Manufactoring Lab

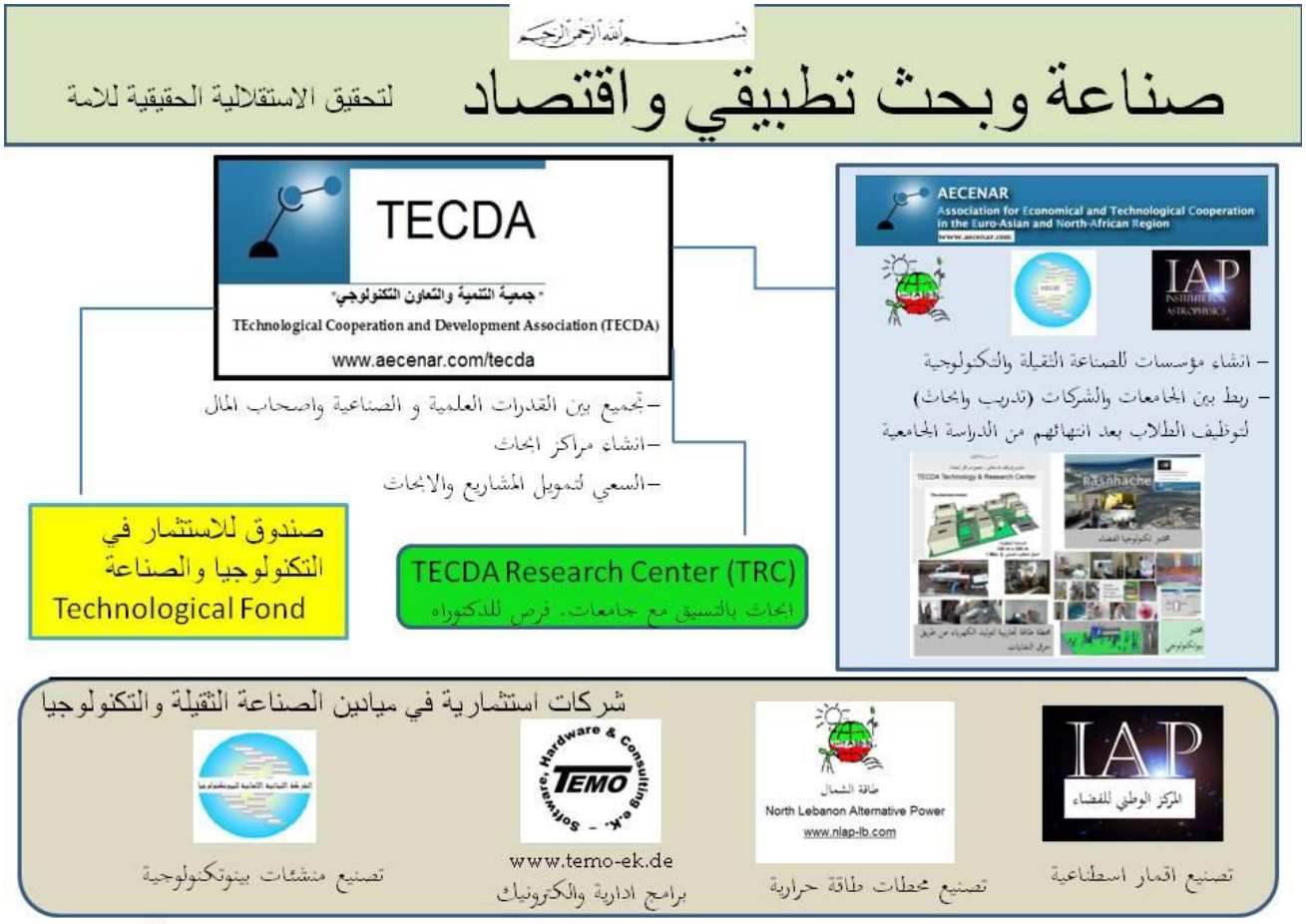
MEGBI	Completing MEGBI-VPP - MECH model and AUT in production scale (manufactoring still open) - MECH model in simplified version	Automation Lab 	Upstream-Downstream Lab  (actually under final work)
IAP	Mission Simulation, IAP-SAT specification film	Scilab Simulation Lab, HIL Test rig 	

1.4 Actual status (January 2016)

1.4.1 AECENAR Institutes & Laboratories



1.4.2 AECENAR as Member of TECDA



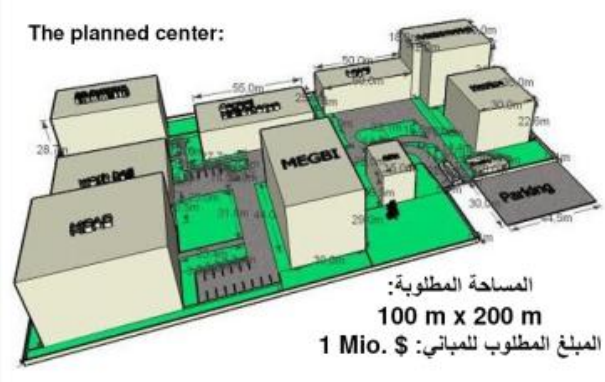
1.4.3 AECENAR embedded in the academical&industrial oragnization structure

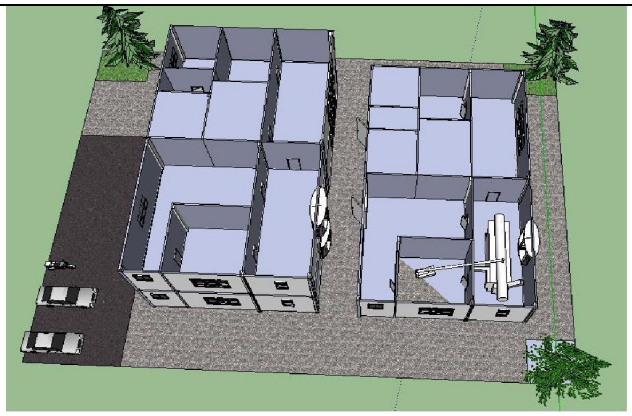
1.5 Planned for 2016: Completing AECENAR as Applied Research & Start-Up Companies Center

	Projects	Labs
MEAE		
MEGBI	Completing MEGBI-APP	
IAP	Completing IAP-SAT Prototype (FOG Testing Rig, Electrical Propulsion Testing Unit)	
TECDA Technological Fond		
NLAP	Mobile TEMO-IPP Demonstration Plant Operation, Ras Nhache NLAP Production Facility Ras Nhache	
TEMO		
LG Biotech		

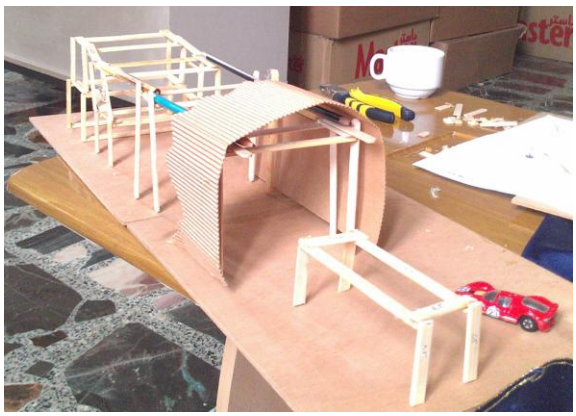
1.6 Planned for 2017: Completing AECENAR and AECENAR Building

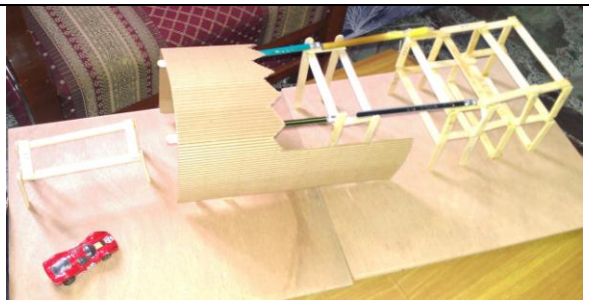
	Projects	Labs
MEAE		
MEGBI		
IAP		
TECDA Technological Fond	Initializing	
NLAP	First commercial plant 1.5 MW	
TEMO		
LG Biotech		





NLAP Sep 16 - Dec 18





- Ground of Steel based Building 150 qm (6m x 25m)
- Bureau space 2x45 qm = 90 qm
- Way to facility: بـ هس

2 Review 2008 – 2016

	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

2016	MEGBI-APP:	IAP Lab, MEAE working tools in containers Planning of AECENAR in container houses	Concrete Plan: Former Master Students working permanently in commercialized project (NLAP) IAP Head: Concrete Plan for leadership change to younger people MEGBI Head: As IAP	Trainee program Nov-Dec stablished for Master 2 Energetics students	

سير المشاريع في الفترة 2008 – 2015

	المشروع/المؤسسة	المختبرات	العاملون	الجهات الأكاديمية والصناعية التي تم التنسيق معها	ملاحظات
2008		التخطيط لمختبر MEGBIGeneti c Eng Lab		التعامل مع طرف من الكويت	
2009		تنفيذ مختبر MEGBI Genetic Eng Lab	MEGBI: تدريب طلاب على 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	التخطيط لمشروع 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	تنفيذ IAP HW/SW	MEGBI: تدريب طلاب على Genetic Eng موظفون خاصون IAP	تعامل مع Doctoral School في طرابلس	اول تجربة العاملين الذكور في لبنان ومتطلباتهم
2014	إتمام TEMO IPP			إن مشروع TEMO IPP أصبح الآن جاهزاً لتسويقه 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 Planned for Nov,Dec2016/2017

3.1 MEGBI

MEGBI-APP in MEGBI container

3.2 IAP

Finishing IAP-SAT and transporter.

3.3 Sonderforschungsbereiche (SFB)/*collaborative research centres (CRC)* (as German DFG programs)

3.3.1 CRC Environment

- Desalting unit of incineration power plant NLAP-IPP
- Metal recovery of incineration power plant NLAP-IPP

3.3.2 CRC Space Technology

- Waste gas (Methane) based power plant
- IAP-SAT

3.4 Student works

Actual student research project and practical training opportunities (last update: 06 Nov 2016)

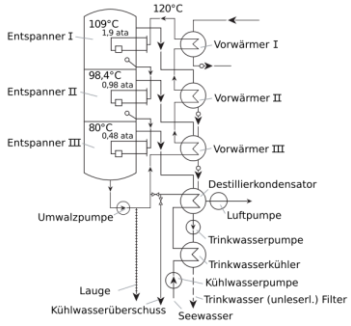
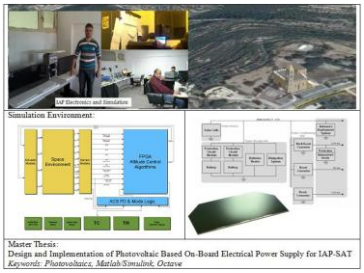
3.4.1 Trainee programs 2016/2017

Title	Keywords	Preferred Faculty/ Student Profile	Project
طاقة كهربائية عن طريق حرقالنفايات •معالجة بقايا الحرقبعد المحرقة	residual waste handling,transmission of electrical energy,	Energetics (trainee project)	NLAP mobile incineration plant
Temperature and pressure control at turbine inlet/outlet	temp./pressure measurement, arduino, electronics, condensing	Energetics (trainee project)	NLAP mobile incineration plant
Construction of a gas turbine including control system for a waste power plant	CAD	Energetics (trainee project)	MEAE Project: Methane Gas from Waste
ربط المحطة بالشبكة الكهربائية • تقدير البنيى التحتية الحالية لتغزية	Electricity infrastructure, waste handling infrastructure	Energetics (trainee project)	NLAP incineration plants

الكهربائية في عكار والضنية في شمال لبنان			
gas turbine based system for a waste power plant on mobile platform	methane gas from waste,	Energetics	MEAE Methane Gas from Waste
Development of a star tracking camera system for a meteorological satellite		Electronics, Informatics (trainee)	IAP-SAT
Integration of GPS and star tracking to multisensor attitude control system for a meteorological satellite		Electronics (trainee)	IAP-SAT
Development of a PPT propulsion unit for attitude control for a meteorologicalsatellite		Electronics/ Mechanical Engineering (trainee)	IAP-SAT
Study (including vibration) and Planning of bringing a meteorologicalsatellite into orbit		Mechanical Engineering (trainee)	IAP-SAT
Development and implementation of a imaging&communication system for meteorological data transfer		Electronics (trainee)	IAP-SAT
Integration of automation system to mechnical devices of a biotechnological plant		Electronics (trainee)	MEGBI-VPP
Planning and Detailed Design of the buildings for a technology center		Civil Engineering (trainee)	AECENAR Administration

3.4.2 Topics for Master Thesises 2017

Title	Keywords, additional information	Preferred Faculty/ Student Profile	Project
pressure tube based overheater unit for incineration power plant NLAP-IPP on mobile platform	Rankine cycle, materials	Energetics	mobile incineration power plant platform NLAP-IPP
FEM & CFD simulations for a gas turbine including control	Gas turbine, CFD, FEM	Energetics (trainee project)	MEAE Project: Methane Gas from

system for a waste power plant			Waste
desalting unit for cooling cycle of mobile incineration power plant platform NLAP-IPP	 تحلية المياه	Energetics	mobile incineration power plant platform NLAP-IPP
Integration of photovoltaics power supply to IAP-SAT on board system	photovoltaics 	Energetics	IAP-SAT
Sensitivity Determination of Process Intermediate Products of the MEGBI Antibiotics Pilot Plant (MEGBI-APP)		Biology	MEGBI-APP
Photovoltaics based energy system for mobile incineration power plant platform NLAP-IPP			mobile incineration power plant platform NLAP-IPP

3.4.3 Topics for PhD Thesis at TECDA Research Center

Title	Keywords	Preferred Faculty/ Student Profile	AECENAR Project
PhD Thesis: Measurement of interaction of IAP-SAT PPT with a laboratory Van Allen belt environment			IAP-SAT
PhD Thesis: CFD Simulation of interaction of IAP-SAT PPT with Van Allen magnetic field			IAP-SAT

4 AECENAR Facility

4.1 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)

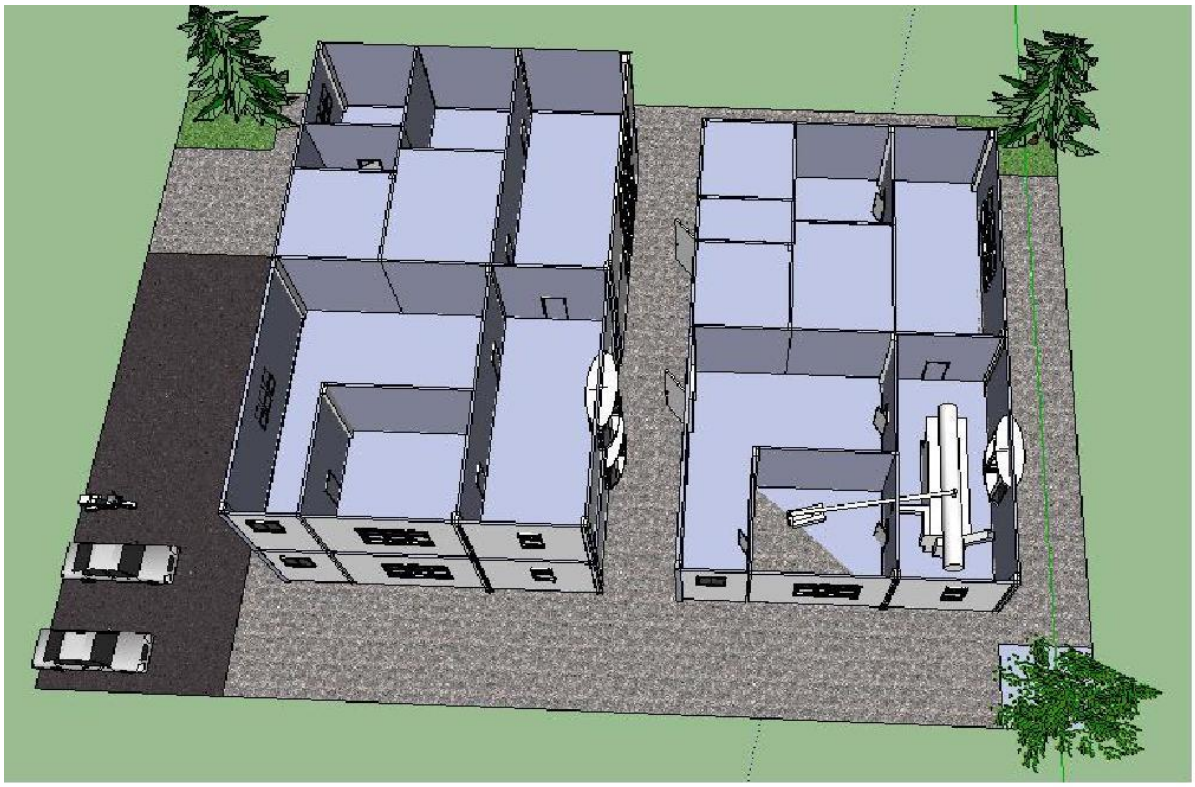
Common Meeting Room

Common Cafeteria

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

الاحتمالات	1. احتمال	2.احتمال	3.احتمال
الارض مساحة	700	1575	2275
البناء مساحة	375	1125	1125
الارض سعر	$105.000	$236.250	$341.250
البناء سعر	$93.750	$281.250	$281.250
الاجمالي السعر	$198.750	$517.500	$622.500
بالدولار الارض متر سعر	$150		
بالدولار البناء متر سعر	$250		

الاحتمال الثاني



4.2 Inventory 2014

4.2.1 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.

4.2.2 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**

4.2.3 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.

4.3 Inventory 2016

4.3.1 IAP

SW Lab

HW

4.3.2 MEGBI

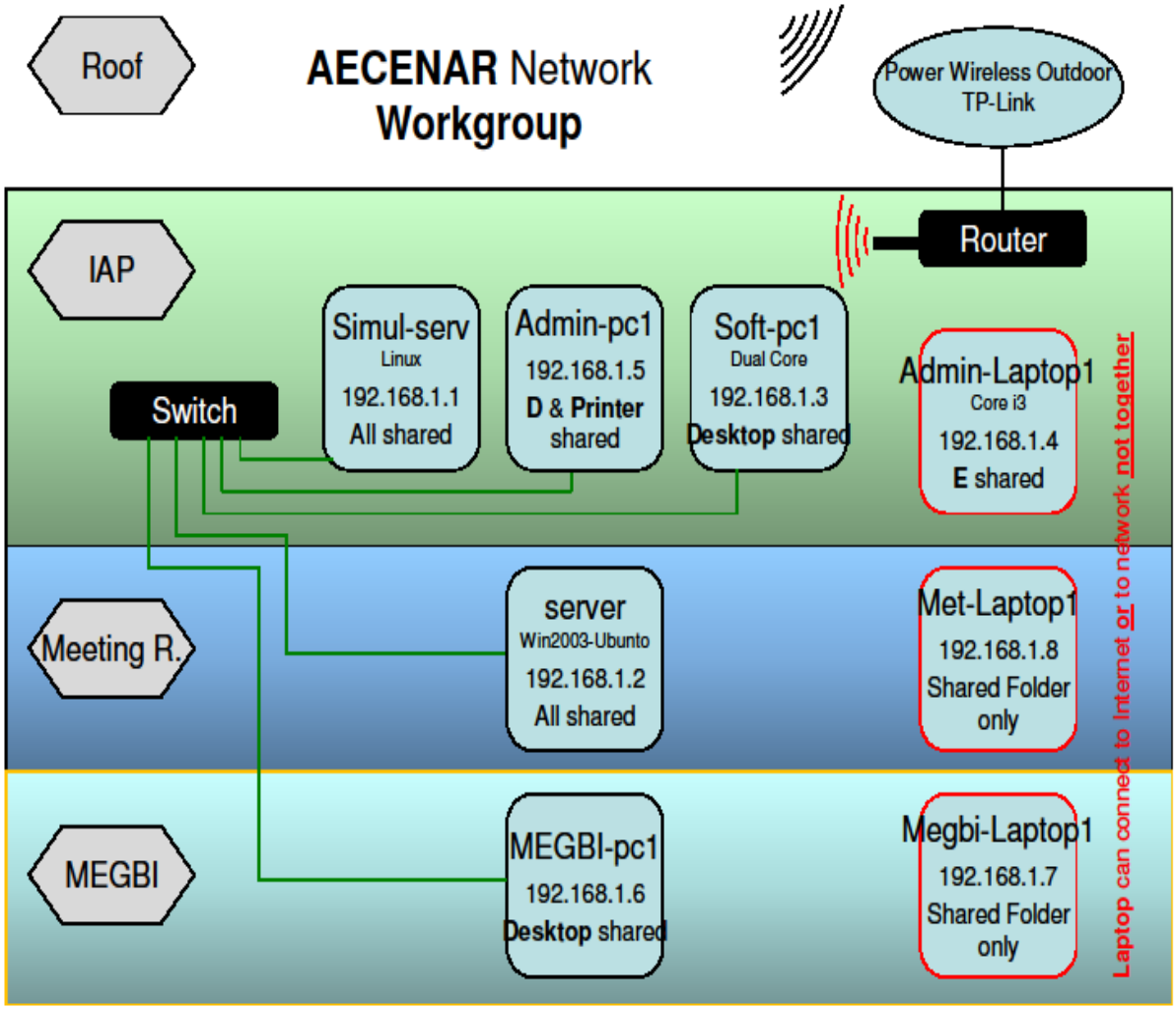
4.3.3 MEAE

...

4.3.4 Administration

...

4.4 IT Infrastructure



4.4.1 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)

4.4.2 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		

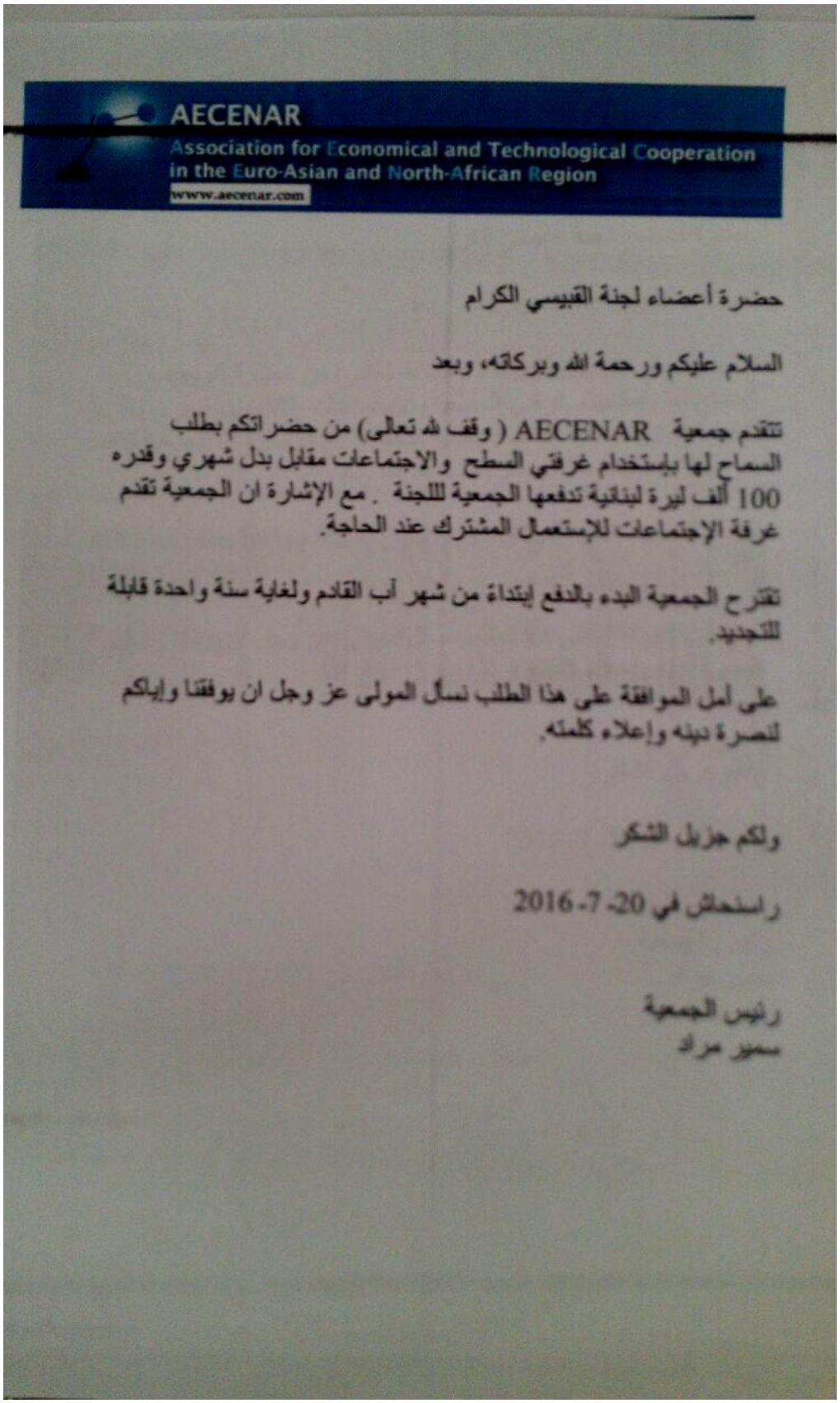
4.4.3 Electrical Power Requirements

	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**

4.5 Relation to Qubaisi Center after July 2016



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

حضرة أعضاء لجنة القبيسي الكرام

السلام عليكم ورحمة الله وبركاته، وبعد

تتقدم جمعية AECENAR (وقف لله تعالى) من حضراتكم بطلب السماح لها بإستخدام غرفتي السطح والاجتماعات مقابل بدل شهري وقدره 100 ألف ليرة لبنانية تدفعها الجمعية للجنة . مع الإشارة ان الجمعية تقدم غرفة الإجتماعات للإستعمال المشترك عند الحاجة.

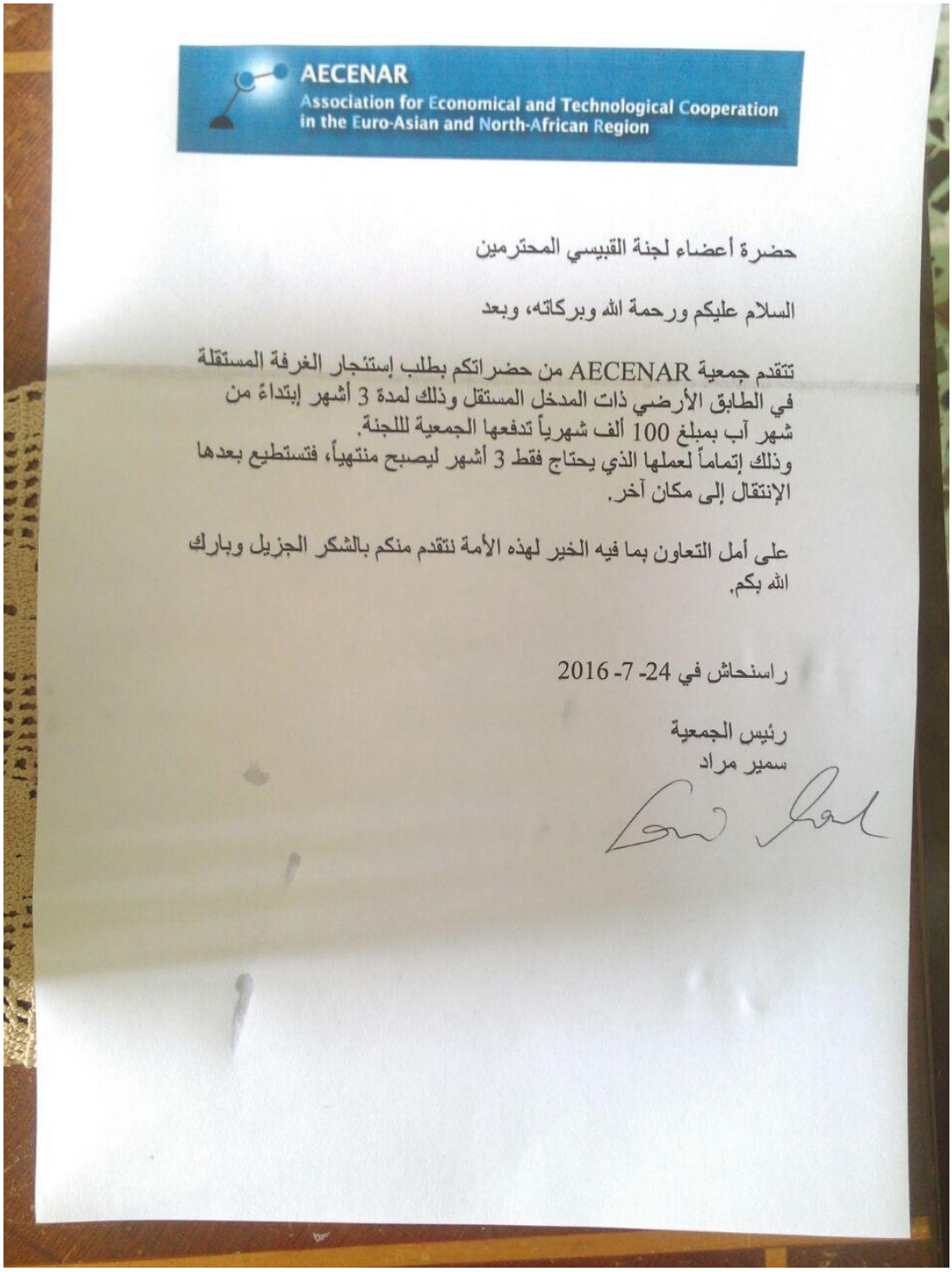
تقترح الجمعية البدء بالدفع إبتداءً من شهر آب القادم ولغاية سنة واحدة قابلة للتجديد.

على أمل الموافقة على هذا الطلب نسأل المولى عز وجل ان يوفقنا وإياكم لنصرة دينه وإعلاء كلمته.

ولكم جزيل الشكر

راسنحاش في 20-7-2016

رئيس الجمعية
سمير مراد



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

حضرة أعضاء لجنة القبيسي المحترمين

السلام عليكم ورحمة الله وبركاته، وبعد

تتقدم جمعية AECENAR من حضراتكم بطلب إستئجار الغرفة المستقلة في الطابق الأرضي ذات المدخل المستقل وذلك لمدة 3 أشهر إبتداءً من شهر آب بمبلغ 100 ألف شهرياً تدفعها الجمعية للجنة.
وذلك إتماماً لعملها الذي يحتاج فقط 3 أشهر ليصبح منتهياً، فتستطيع بعدها الإنتقال إلى مكان آخر.

على أمل التعاون بما فيه الخير لهذه الأمة نتقدم منكم بالشكر الجزيل وبارك الله بكم.

راسنحاش في 24- 7- 2016

رئيس الجمعية
سمير مراد

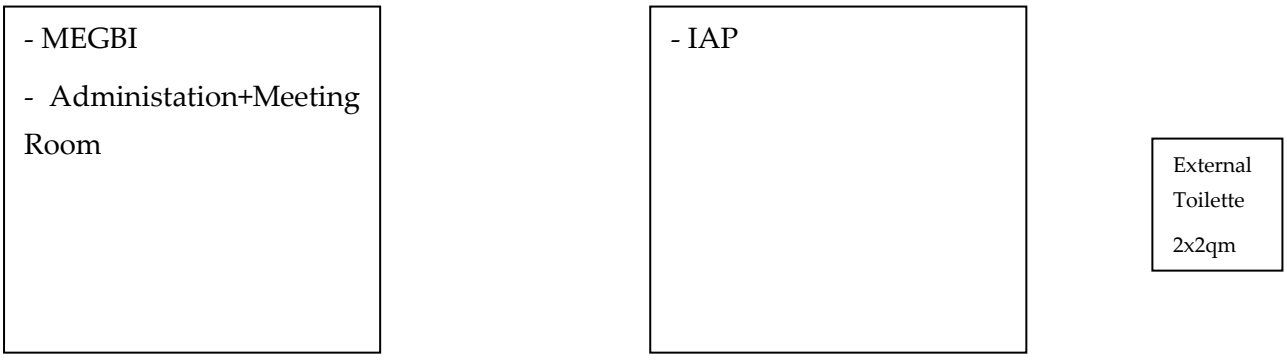
Both rejected from idara.

4.6 Intermediate AECENAR facility October 2016 until Sep 2019

4.6.1 Requirements

Institute	Lab	Place requirement		
		length [m]	width [m]	Total place [qm]
MEGBI	*Genetic Engineering Lab with Biosafety Level 2*	6	2,5	15
	Biotechnological Upstream&Downstream Processing Unit (Penicillin Production Pilot Plant)	6	2,5	15
MEAE	*Mechanical Laboratory, Incineration Demonstration Power Plant*	NLAP		
	Tool chains used for CFD Analysis	3	2,5	7,5
	Tool chains used for FEM mechanical stress Analysis	3	2,5	7,5
IAP	*Hardware Development Laboratory, Software Development Laboratory*	6	2,5	15
	Scilab Simulation Lab, HIL Test rig	3	2,5	7,5
	Satellite Integration	3	2,5	7,5
	FOG test rig	IAP Container		
	Satellite propulsion test rig	IAP Container		
				75
Toilette 1		2	2	4
Toilette 2		2	2	4

4.6.2 Hangar Design Option 1



EG 6x6 qm

1.OG. 6x6 qm

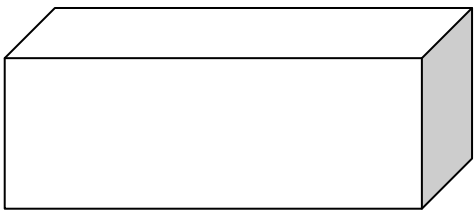
4.6.3 Option 2

Containerhouse: 1 Container = 15qm => 5 Container + Toilette house

Below: Containerhouse (8 Containers)

Costs

	#Container	Price per Container	Total
IAP	2	$1.200	$2.400
MEGBI	2	$1.200	$2.400
MEAE	1	$1.200	$1.200
Toilette house	2	$600	$1.200
			$7.200



4.6.4 Land

Small road from NLAP to AECENAR

Place for AECENAR hangar:

Place for NLAP hangar:

4.6.5 Inventory stored in this intermediate period

5 Laboratories

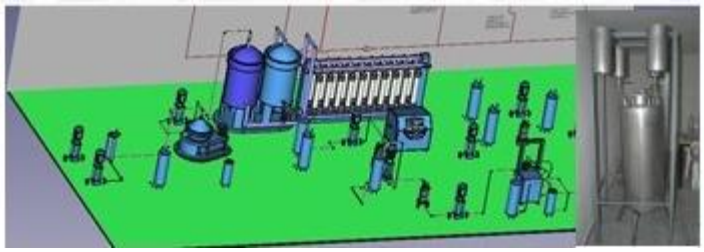
5.1 MEGBI

5.1.1 Genetic Engineering Lab with Biosafety Level 2

Automation of biotechnological Upstream&Downstream Devices

Under final construction:

5.1.2 Biotechnological Upstream&Downstream Processing Unit (Penicillin Production Pilot Plant)

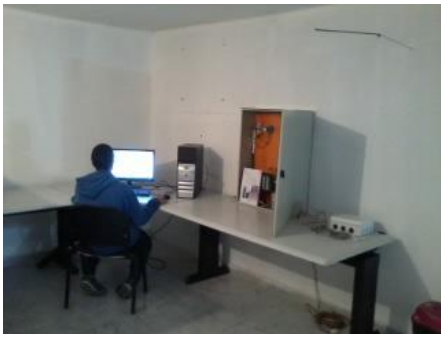


5.2 MEAE

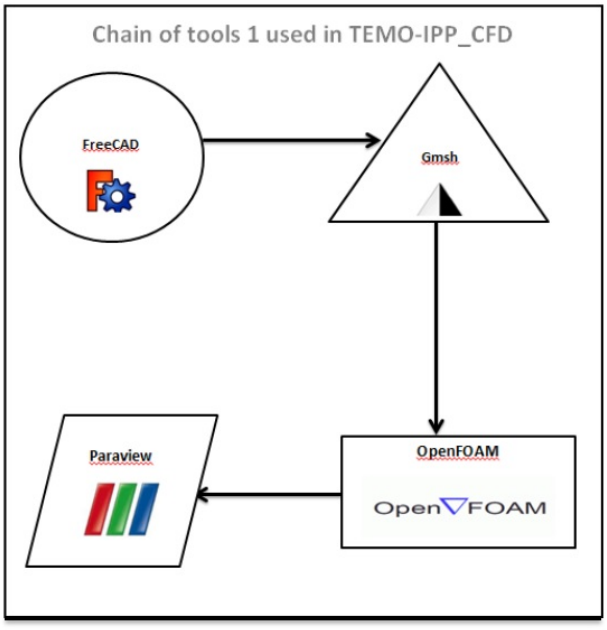
5.2.1 Mechanical Laboratory, Incineration Demonstration Power Plant

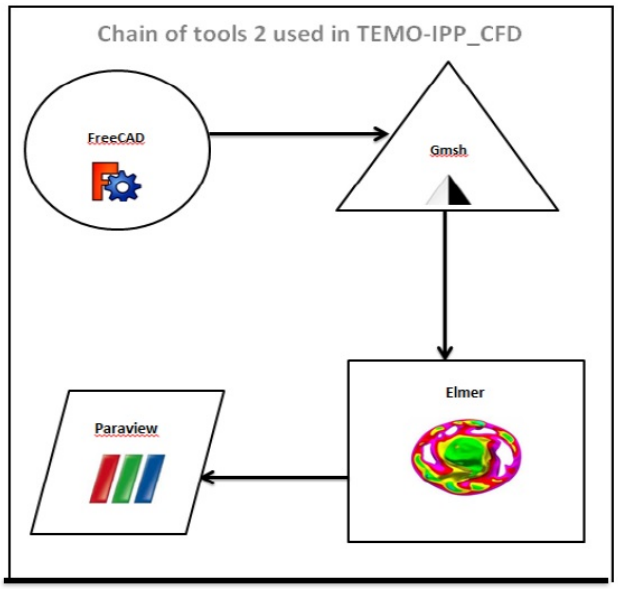






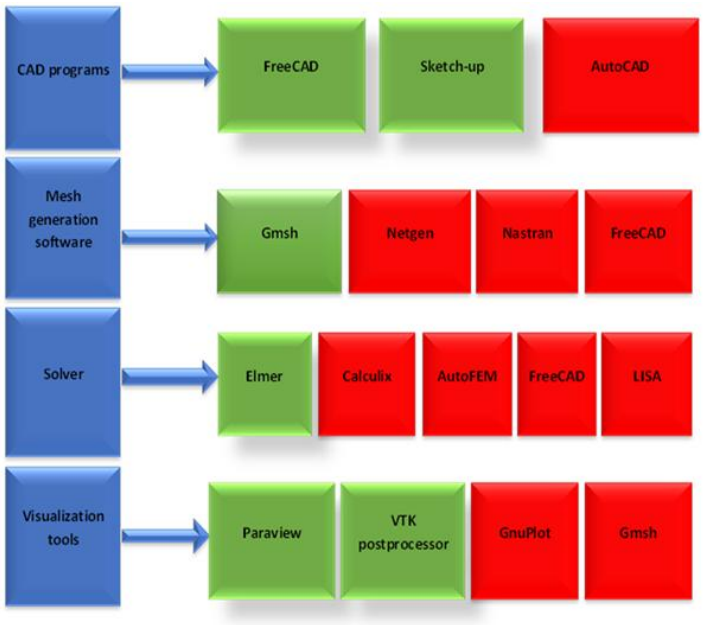
5.2.2 Tool chains used for CFD Analysis

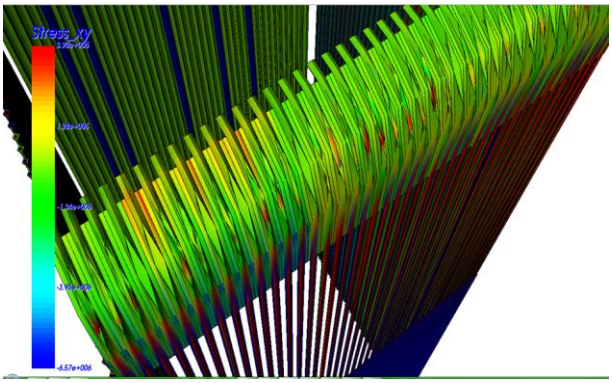




Further details see Master Thesis of Fatima Hamed [FatimaHamed 2015].

5.2.3 Tool chains used for FEM mechanical stress Analysis





Further details see Master Thesis of Banan Kerdi [BananKerdi 2015].

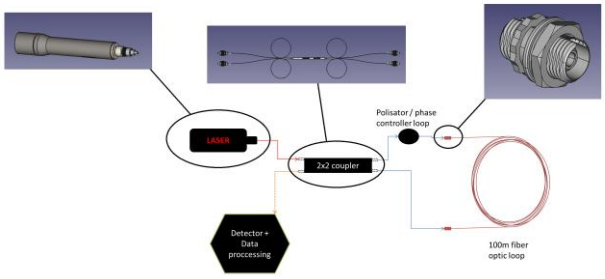
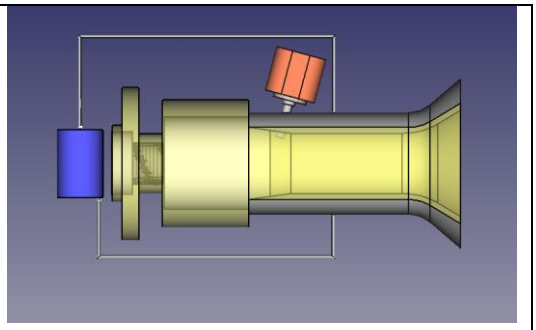
FreeCAD

5.3 IAP

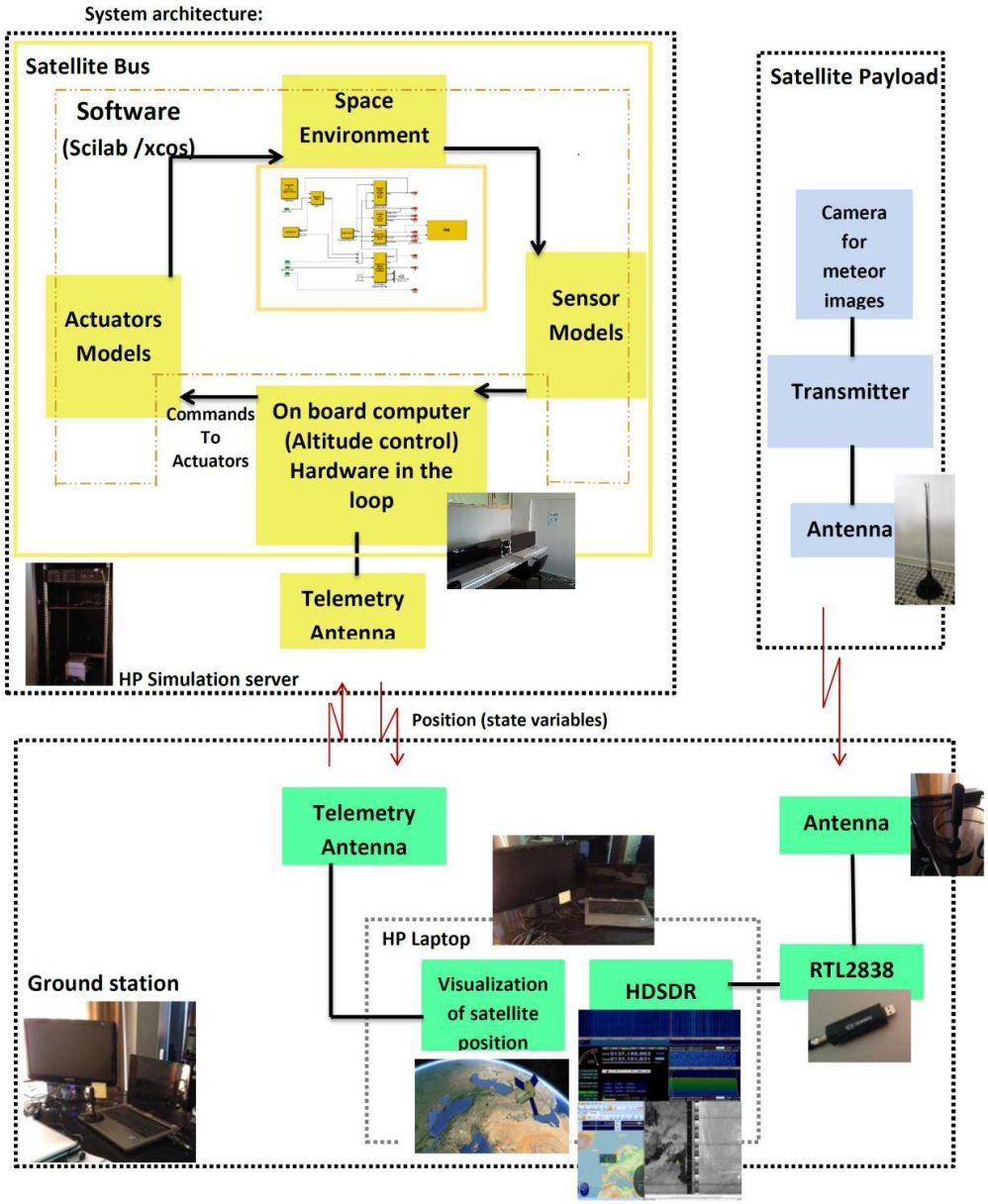
5.3.1 Hardware Development Laboratory, Software Development Laboratory, Simulation Server

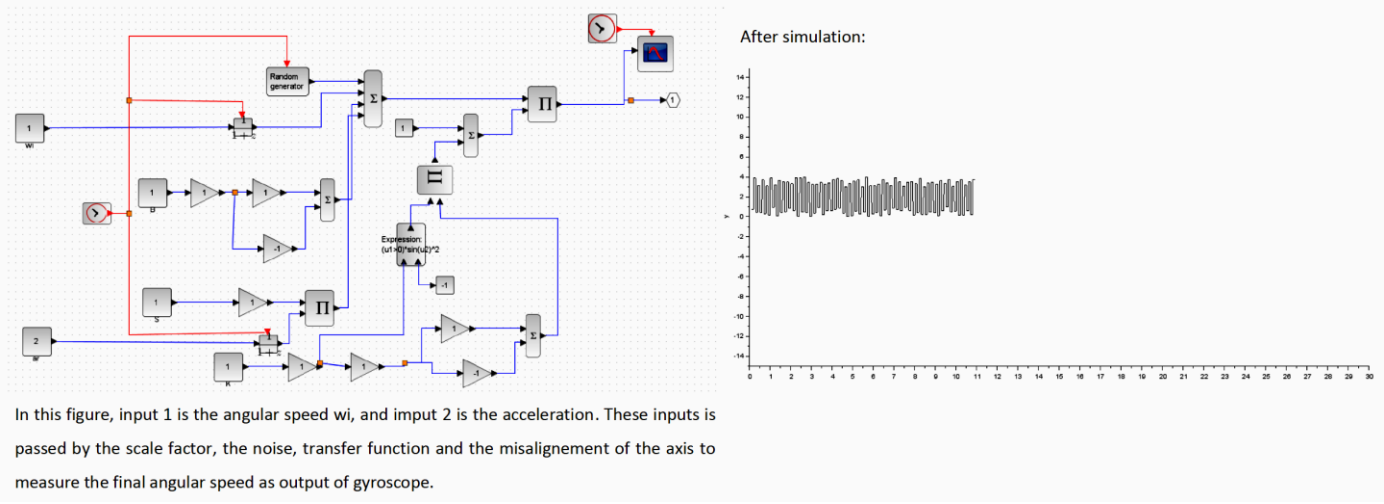
5.3.2 Sensor & Electrical Propulsion testing lab

For testing FOG sensor and Electrical Propulsion Unit

	
FOG sensor	Electrical Propulsion Unit

5.3.3 Scilab Simulation Lab, HIL Test rig





In this figure, input 1 is the angular speed wi, and imput 2 is the acceleration. These inputs is passed by the scale factor, the noise, transfer function and the misalignement of the axis to measure the final angular speed as output of gyroscope.

Further details see Master Thesis of Fatima Al Chaar [FatimaAlChaar 2015].

5.3.4 FOG test rig

5.3.5 Satellite propulsion test rig

6 Staff

6.1 Overview

Institute	Staff	Costs
Administration	Samir (80 h/month)	No personal costs
MEAE	2 Master Students, Practicant	No personal costs
MEGBI	Practicants	No personal costs
IAP	Practicant	No personal costs

6.2 Persons Pool (since 2013)

		Tel.
Mahmoud Sohby		
Banan Kerdi		
Maysaa Kamareddin		
Mahmoud Kamareddin		
Burhan Kabbara		03/339523
Wassim Kabbara	Student Etec Hat 2016 an Hochspannungstrafo gearbeitet. Didn't complete project, returned the budget (about 135$)	76 877854

6.3 CVs

6.3.1 Samir Mourad

sent 16 Jan 2016 for Satellite Conference in Pakistan

بسم الله الرحمن الرحيم

Eng. Samir Mourad

Born 1969 in Heilbronn/Germany. Farther originally from Lebanon (came for study of mechanical engineering to Germany), mother originally from Germany.

Education:

1975/76 primary school in Lebanon and Jeddah/Saudi-Arabia, 1976-1988 primary and High school at Heidelberg/Germany. 1989-1990 study of physics at Heidelberg University. 1990-1996 Study of Electrical Engineering at University of Karlsruhe/Germany. Degree of Diplom-Ingenieur (Master of Eng.) in 1996. 1996-2001 Study of Computer Science at University of Karlruhe. 2001 Degree of Diplom-Informatiker (Master of Science) in 2001. 1999-2000 Research Assistent at Institute of Flight Mechanics&Control, University of Stuttgart/Germany. 2002-2005 PhD work at Bundesforschungsinstitut für Ernährung, Karlsruhe & University of Tübingen/Germany, Faculty of Computer Science (Protein Purification, Molecular Biology, Bioinformatics)

Practical Experience&Work:

Mainly in Germany:

- 1999 Foundation member of Association of Alternative Power at University of Karlsruhe (VaEf), Director 1999-2010
  1999-2005 Project Leader of Flight Control System Development for a the Air Ship Alternative Lotte
  2006-2010 Project Leader of Solar-Thermal Power Plant Project VaEf-STPP
- Owner of company *TEMO Soft-, Hardware & Consulting*, Germany (www.temo-ek.de), since 2002
  2000-2015 partly time Consultant Engineer with focus on Automotive, Embedded Systems mainly for German Automotive Industry, and sometimes Aerospace Industry

Mainly in Lebanon:

- 2009 Foundation member of *Association for Economical and Technological Cooperation in the Euro-Asian and North-African Region* (www.aecenar.com), HQ now in Ras Nhache/North Lebanon (near Tripoli). Director since 2009
  AECENAR has cooperations with Lebanese Universities, German Universities, Turkish Universities, Research Institutions in Kuwait and Oman.
  Since 2012 Project Leader of Meteorological Satellite Project at Institute of Astrophysics (IAP), AECENAR
- Owner of company *North Lebanon Alternative Power*, Lebanon (www.nlap-lb.com)

For publications see www.aecenar.com/publication

Other Publications:
Translation of parts of Ibn Kathir&Tabari Tafsir of Holy Quran from Arabic to German Language (cited in de.wikipedia.org/Ibn_Kathir)

6.4 Contracts

Practicants and Master Thesis Contracts.

7 Budget: Income / Expenditure 2016

7.1 Debits

Status at Beginning of 2016 (21 Jan 16):

- AECENAR has to pay 6.000 EUR to Diyab Dabschah,
- AECENAR has to pay 2500 EUR to Samir Mourad (about 1000 EUR credit in summer for debit return, 1500 EUR cash credit for completing MEGBI-VPP and IAP-SAT)
- Diyab Dabschah hat 2.500 EUR Anteile am Kraftwerksprojekt gekauft

7.2 Expenditure

7.2.1 Planned at beginning of 2016 (to complete AECENAR projects)

	Projects	**Labs**
MEGBI	Completing MEGBI-VPP: Manufactoring 2 Chromatographic devices, Disc Stack Centrifuge, Homoginizer Budget: 2x500$+800$+1200$=3000$ Integration Budget: 500$(Piping)+1500$(Automation)=2000$	Building Manufactoring Site (Fine Mechanics) with connection to S7: CNC milling maschine, CNC Drehmaschine Budget: 2x4.500$+1000$=10.000$
IAP	Completing IAP-SAT Prototype Budget: 5000$	Building Experimental Rig for Electrical Satellite Propulsion Unit Budget: 1500$
Total required budget: 21.500$		

7.2.2 Update February 2016

7.2.3 In fact

			Total
AECENAR Facility			
MEGBI			
MEAE			
IAP			
Debits return			
New Debits			

7.3 Income

Item	Date	Amount
From MEGBI-VPP project with LASeR		
From IAP-SAT project with LASeR		

Aus Kaufverträgen TEMO-AECENAR 2011, 2013 und 2014		

7.3.1 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!

8 Projects

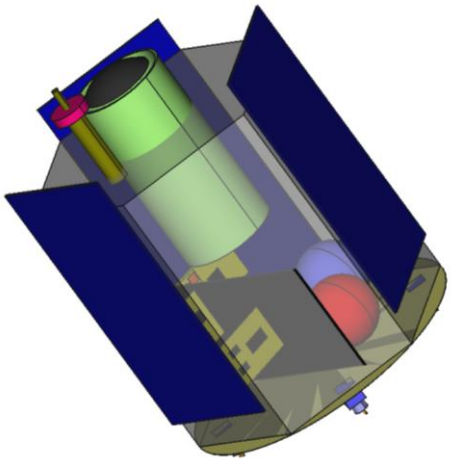
8.1 Documentation

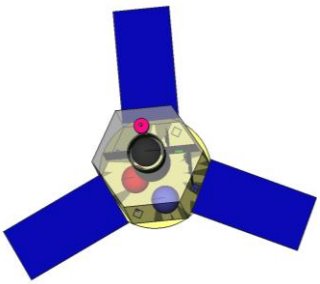
8.1.1 AECENAR Reports in General

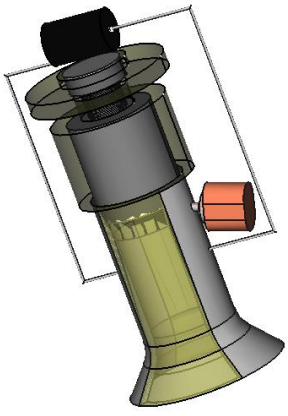
To manage the administration and projects work at AECENAR there are the following documents:

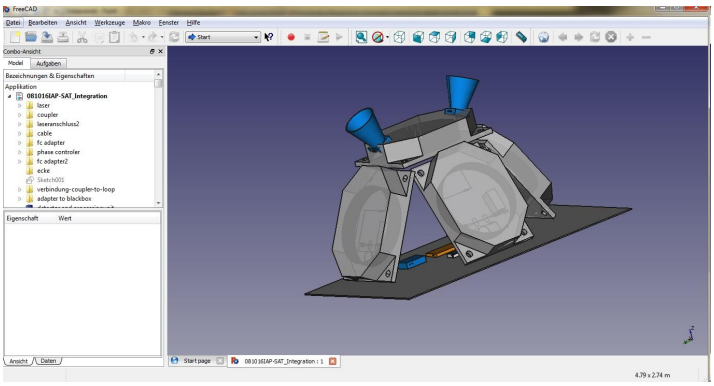
Institution	Document (with short description)		Frequency of appearence	Remarks
AECENAR Administration	- Planning (time, costs, staff) - Rough project planning for each institute Language: whole document in English and Arabic جميع التقرير بالغتين العربية الانجليزية		At the end of each year	This is the current planning&controlling document (at the end of the year the time and costs are final)
MEGBI	- 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	actually MEGBI Vaccine Pilot Plant	At the end of each year	All technical details needed to undergo the project at another place
MEAE		actually TEMO-IPP		
IAP		actually IAP_SAT		

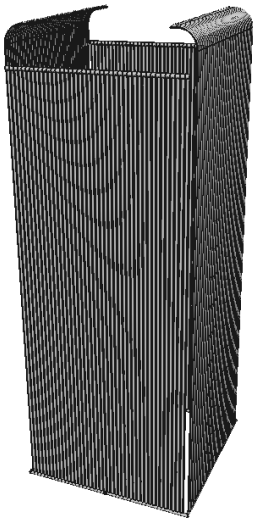
8.1.2 CAD models, SW/HW Design Files

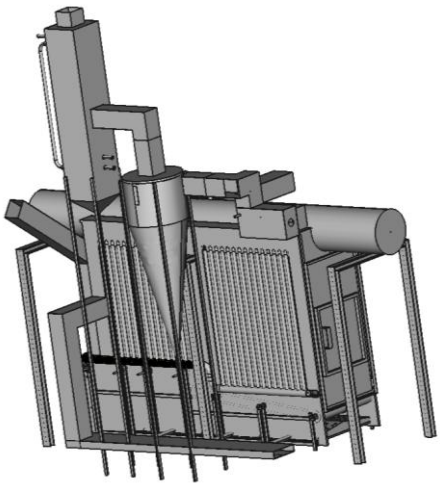


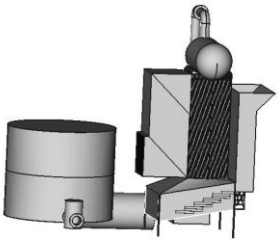


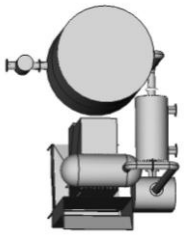


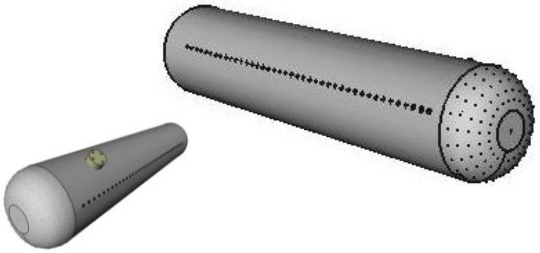


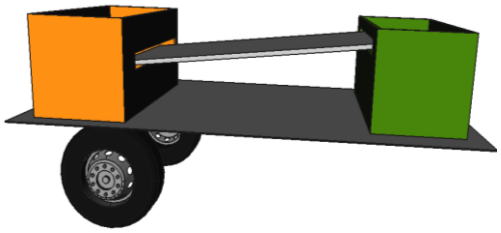


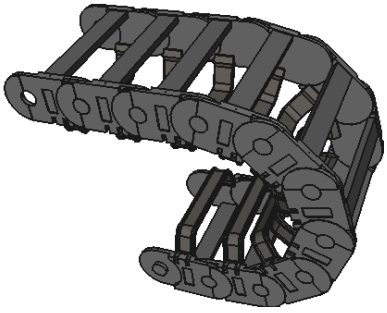


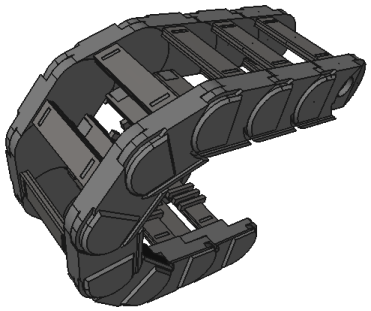


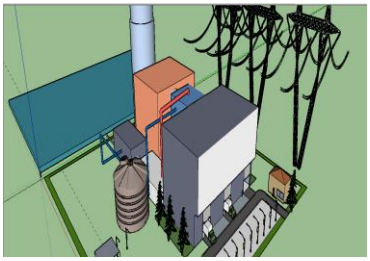


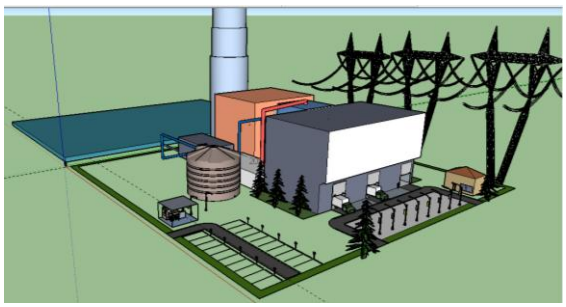


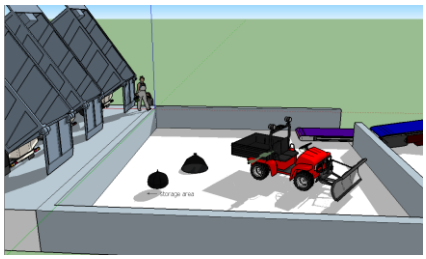


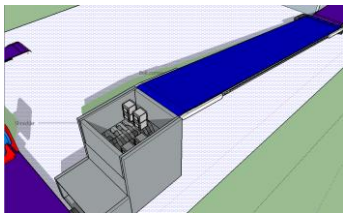


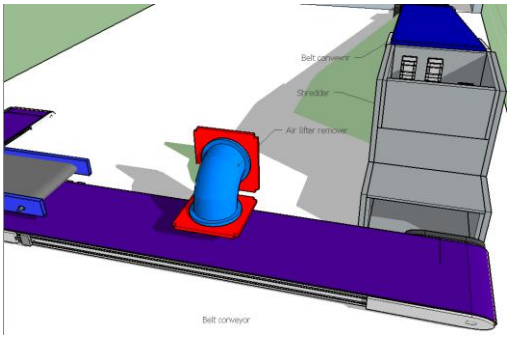


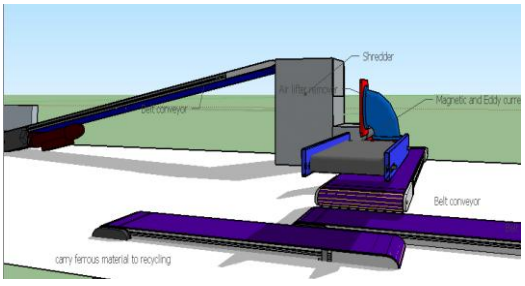


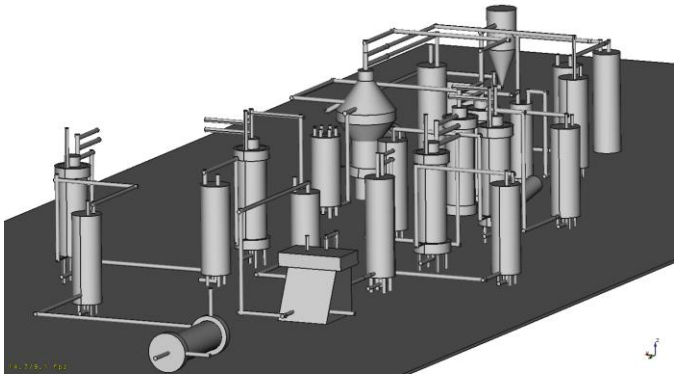


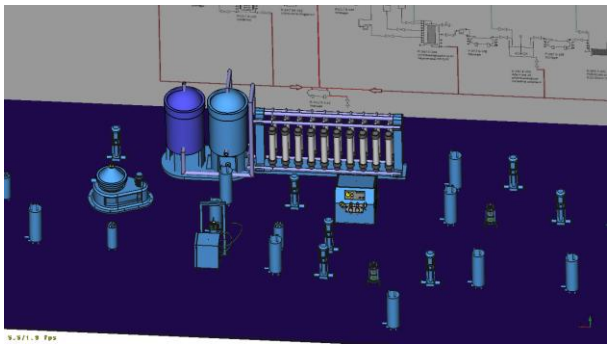


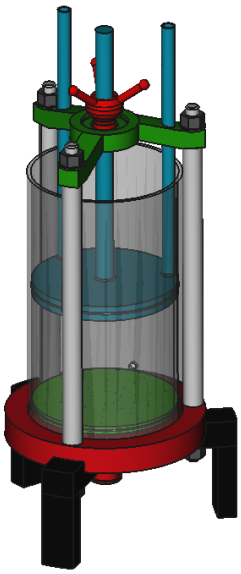


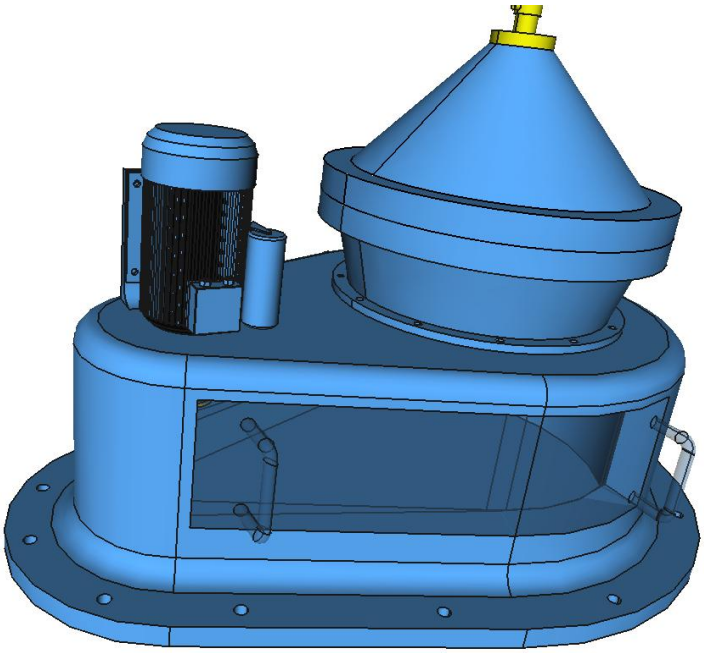

Belt conveyor
Shredder
Air lifter remover
Belt conveyor

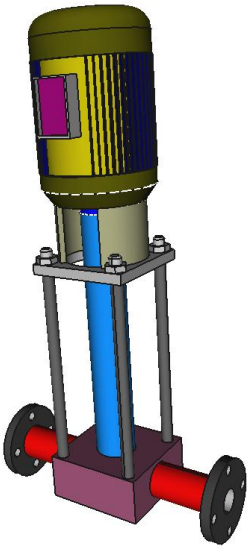

Shredder
Belt conveyor
Belt conveyor
carry ferrous material to recycling

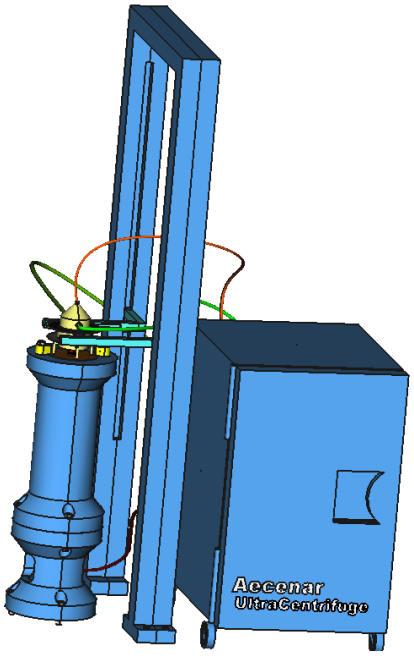


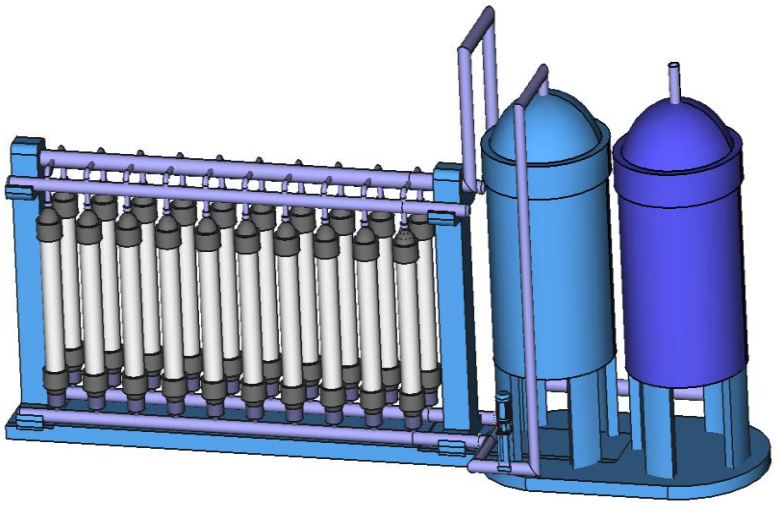









Aecenar
UltraCentrifuge



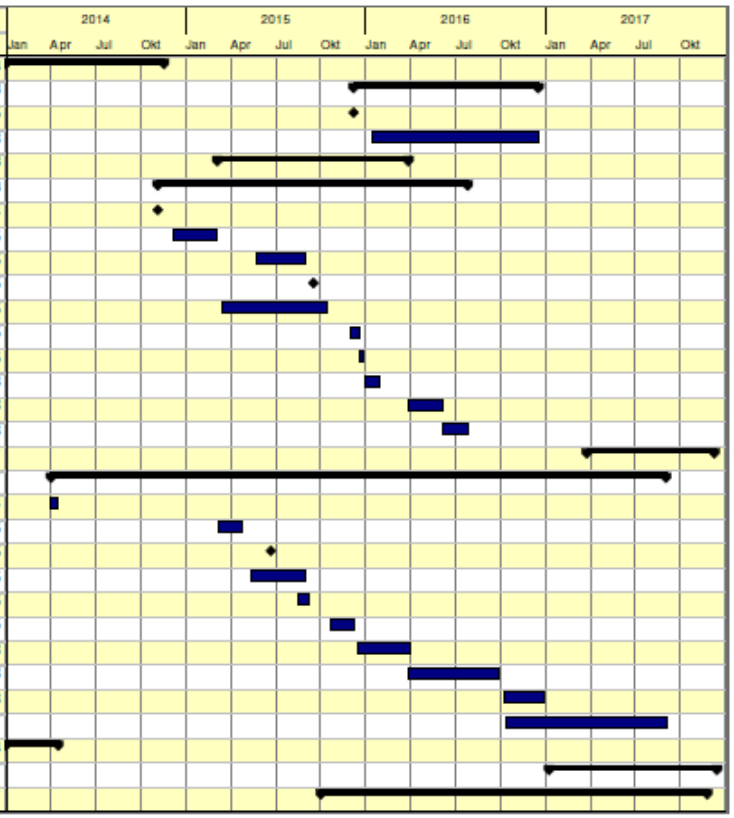
8.1.3 Other documents&publications (e.g. master thesises in AECENAR projects)

Master Theses, see References

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

AECENAR Applied Research Center & Startup Companies Complex 2014-17 - Gantt Chart

ID	Name	Start	Finish
MEAE	TEMO-IPP with LASeR	03.01.2014	19.11.2014
NLAP	Initial. of North Lebanon Altern. Power NLAP	08.12.2015	20.12.2016
	Foundation of NLAP	08.12.2015	08.12.2015
	operational working of incineration plant at Ras Nhache	17.01.2016	20.12.2016
	BSBN (Planning of Tripoli Incineration Plant)	07.03.2015	29.03.2016
MEGBI	MEGBI-VPP	06.11.2014	28.07.2016
	Specification (Excellist as TEMO-STPP offer attachment to L	06.11.2014	06.11.2014
	Different Specifications Offered to Azm, LASeR, Small Invest	06.12.2014	04.03.2015
Practicants	Modelling MEGBI-VPP MECH Production Scale	26.05.2015	29.08.2015
Practicant	MEGBI-VPP presentation film	17.09.2015	17.09.2015
MasterThesis	MEGBI-VPP Automation System	16.03.2015	16.10.2015
	MEGBI-VPP MECH Simplified Version	01.12.2015	20.12.2015
$500Mat+250Pers.	Manufactoring MEGBI-VPP Simplified Version (without DSC)	21.12.2015	27.12.2015
	Integrating Automation System	01.01.2016	30.01.2016
	DNA Lab (HBSAg DNA im Dez. besorgen): Transfer in S.cari	29.03.2016	07.06.2016
	Bioreactor integration (mech.+autom.), DSC	08.06.2016	28.07.2016
LGBiotech	Initial. of LGBiotech vaccine production	26.03.2017	13.12.2017
IAP	IAP-SAT	01.04.2014	05.09.2017
	1. mock-up model	01.04.2014	17.04.2014
IAP-SAT_MIS	Specification Prototype (Mission Simulation)-> Presentation Fi	10.03.2015	25.04.2015
	Presentation Film presented at TECDA founding meeting	22.06.2015	22.06.2015
IAP-SAT_HIL	Hardware-in-the-loop test rig (space model, board computer)	13.05.2015	31.08.2015
	design of MPD propulsion system simple prototype	17.08.2015	08.09.2015
Practicant-0	star tracking camera	23.10.2015	10.12.2015
Hiwi 300$	sensors (GPS, Gyro, Acceleration)	18.12.2015	31.03.2016
Master Thesis	propulsion system, integration, camera	31.03.2016	29.09.2016
Employee	vibration studies, payload in shuttle system	09.10.2016	29.12.2016
PhDEmployee	shuttle system	14.10.2016	05.09.2017
	IAP_SRWDA Ground Station	30.12.2013	18.04.2014
Administration	AECENAR Building	09.01.2017	18.12.2017
ISSIR	ISSIR	02.10.2015	28.11.2017



16.12.15 1/1

8.3 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

8.4 MEGBI Hepatitis Vaccine Pilot Plant (MEGBI-VPP)/since Feb. 2016: Antibiotics Production Plant (MEGBI-APP)

8.4.1 Project Planning and Control in Jan 2014

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)

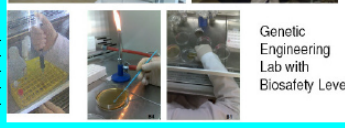
8.4.2 Offer to LASeR in Oct 2014 (non-commercial investment budget 120 000 Mio. USD)

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

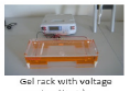
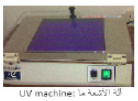



Genetic Engineering Lab with Biosafety Level 2


Shaker Incubator

Centrifuge / نابذة

Thermocycler(PCR)

Precision Balance

Gel rack with voltage supply: طبق هادم

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

Total Laboratory $48.700

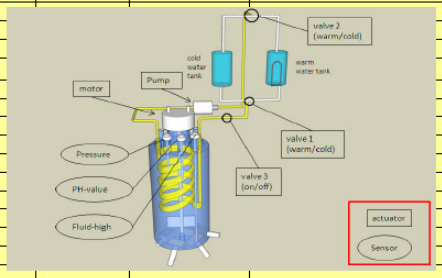
Upstream Processing (Bioreactor)

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/Facharbeiter (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

8.4.3 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

Bemerkung Aug. 16: Inzwischen 100 EUR an Amine Bouaffif und 500 EUR an David Yildiz zurückgezahlt.

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.

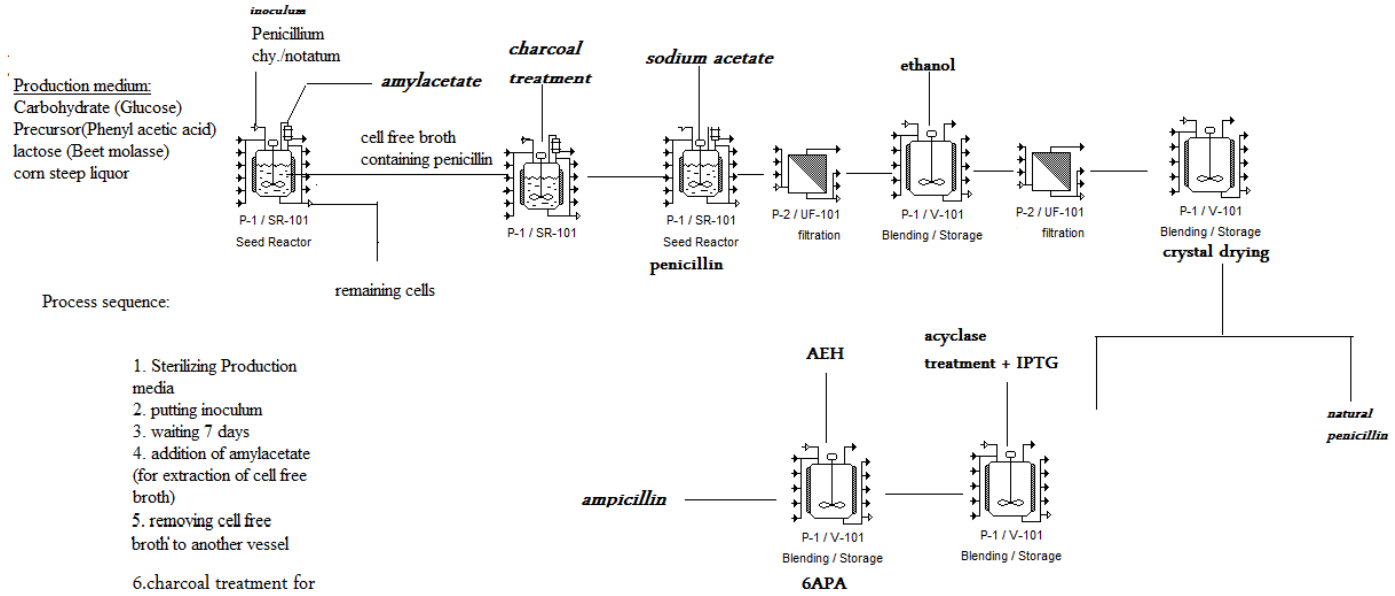
Date: 4.12.2014

Samir Mourad
(CEO TEMO e.K.)

Nasser Ali Al Araimi

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

8.4.4 Design of semi-synthetic penicillin poduction pilot plant (May 2016)



Process sequence:

1. Sterilizing Production media
2. putting inoculum
3. waiting 7 days
4. addition of amylacetate (for extraction of cell free broth)
5. removing cell free broth to another vessel
6. charcoal treatment for purification
7. sodium acetate for crystallization
8. filtation
9. addition ethanol
10. filtation
11. acyclase treatment+ IPTG for removing side chaine
12. addition AEH for ampicillin production

8.5 TEMO-STPP/IPP

8.5.1 Project Status Nov 2014

المحطة ولدت كهرباء عن طريق حرق خشب

Status: Completed for AECENAR Applied Research Center

8.5.2 Achievement 2015:

- CFD & FEM simulations for power plants
- Commercialization: Foundation of North Lebanon Alternative Power Plant NLAP (طاقة الشمال), www.nlap-lb.com

8.5.3 Commercializing project trough NLAP

Further development through NLAP, www.nlap-lb.com

AECENAR holds shares at NLAP. Actually (24 July 2016): 100 200$ (16,70%)

8.5.4 Achievement 2016

Electrofilter for Flue Gas Purification (High Voltage Generator -> for IAP-SAT electrical propulsion unit)

Chemical Engineering Process (Metal Recovery)

High Precision Automatic Temperature / Pressure Measuring at Condensing Turbine Inlet (Planned)

Salt Water Distillation for cooling cycle (Planning for 2017)

8.6 IAP_SAT

8.6.1 Status of project May 2014

Figure 25 Mock up model

8.6.2 Main goals achieved 2014

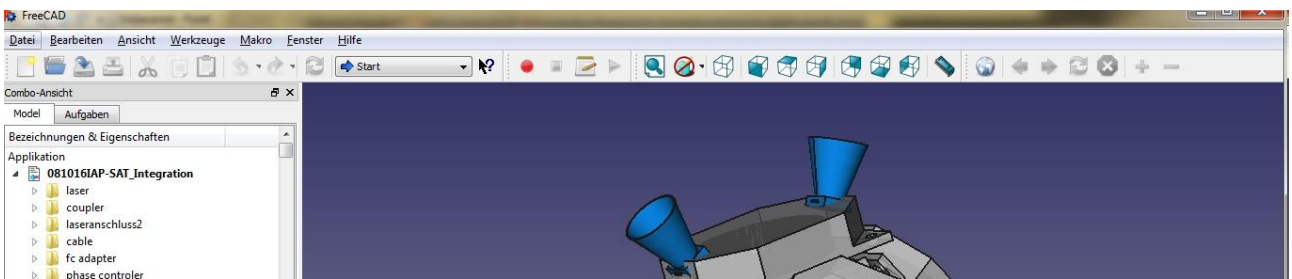
- Specification of SAT clear: scientific surveillance as Dubai-SAT & radio astronomy SAT
- Radio astronomy sensor
- Communication system partly developed (Software designed radio in IAP_SRWDA)

8.6.3 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 computer	May-Aug 2015 (4 man months)	Scicos, ubuntu, C compiler	Master Student Fatima Al Chaar	Finished
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

8.6.4 IAP-SAT 2016

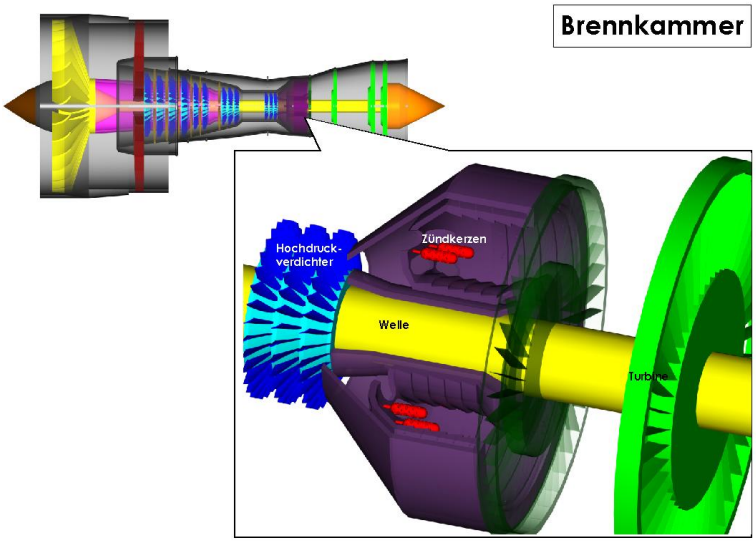
- Development of a Fiber Optic Gyro (FOG) sensor for IAP-SAT
- Update of complete model



- Star tracker

8.7 MEAE-GTPP

Begin Nov 2016



Planned: Gas Turbine Based Power Plant on Mobile Platform

9 Supervision of Master Theses

Date of beginning of master thesises:

9.1 Students Data

Abbreviation of Thesis	**Name, Tel., email, address of Student, Master 1**	**Other involved tasks and staff**
	Maysaa Kamareddin	
	Malak Zoeby	

9.2 Master Thesis Tasks

9.2.1 Turbine for 2MW NLAP-IPP

بسم الله الرحمن الرحيم

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

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

North Lebanon Alternative Power
www.nlap-lb.com

الجامعة اللبنانية
كلية العلوم

Discipline
Energetic physics

Master Thesis proposal

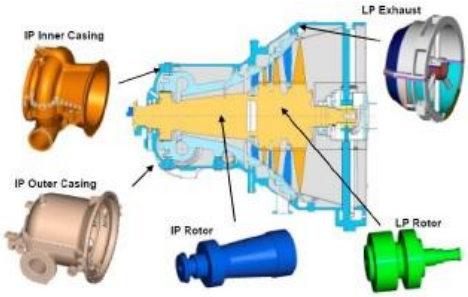
Laboratory name: AECENAR
Laboratory website: http://www.aecenar.com

Supervisors (contact persons)
Samir Mourad, smourad69@googlemail.com, Mob. +961 76 341 526
Banan El Kerdi, banankerdi@hotmail.com, Mob. +961 76 655 639

Ras Nhache, 5.3.2016

Thesis title: Design, Regulation and Test of an enlarged turbine (1,5 MW el. power) for a the waste incineration power plant TEMO-IPP

Abstract: The motive power in a steam turbine is obtained by the rate of change in momentum of a high velocity jet of steam impinging on a curved blade which is free to rotate.
The steam from the boiler is expanded in a nozzle, resulting in the emission of a high Velocity jet. This jet of steam impinges on the moving vanes or blades, mounted on a shaft. Here it undergoes a change of direction of motion which gives rise to a change in momentum and therefore a force.
The turbine modules are furthermore divided into sub-modules of different sizes, which may be combined as required.



Working packages:

- Reading and searching about the subject (2 Weeks) (http://www.aecenar.com/publications)
- Detailed design for the cylinder, rotor, and blades (3 Weeks)
- Waste incineration based regulation concept for the turbine (e.g. air supply regulation) (3 weeks)
- Support of the CNC machine based manufactoring of the turbine (4 weeks) (- 15 June 16)
- Test of the delivered turbine with the the TEMO-IPP incinerator (2 weeks) (- 30 June 16)
- Calculation of the efficiency of the turbine (1 Week)
- Documentation (4 Weeks).

(the duration of packages is only approximately)

Key Words: alternative energy, FreeCAD, steam turbine regulation, cylinders, rotor, blades, CAM (Computer Aided Manufactoring)

9.2.2 TEMO-IPP Mobile Platform and Flue Gas Purification

بسم الله الرحمن الرحيم

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

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

طاقة الشمال
North Lebanon Alternative Power
www.nlap-lb.com

الجامعة اللبنانية
كلية العلوم

Master project proposal

Discipline
Energetic physics

Laboratory name: AECENAR
Laboratory website: http://www.aecenar.com

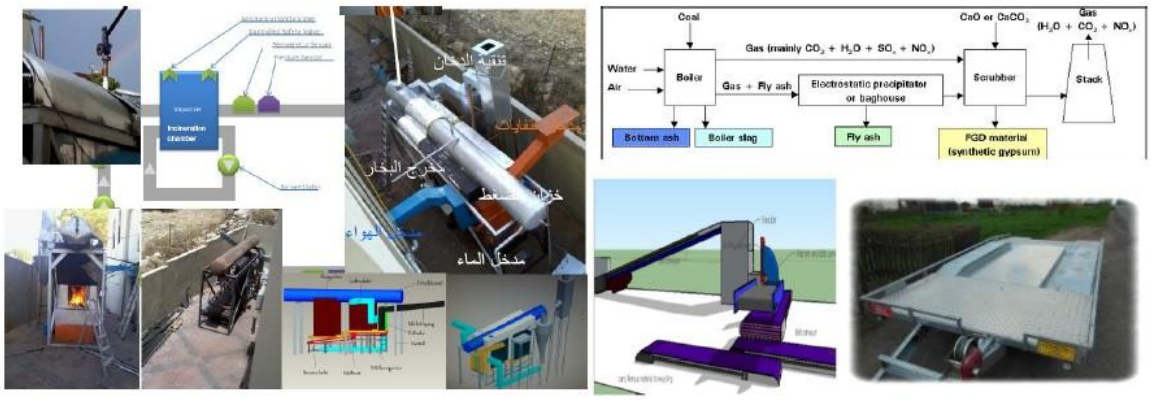
Supervisors (contact persons)
Samir Mourad, smourad69@googlemail.com, Mob. +961 76 341 526
Banan El Kerdi, banankerdi@hotmail.com, Mob. +961 76 655 639

Ras Nhache, 16.2.2016

Subject of the thesis

Thesis title:Completing of integration (adding of waste inlet/outlet, flue gas purification and correcting incineration bed) and testing of TEMO-IPP incineration power plant on mobile platform.

Abstract: Actually the incinerator power plant (TEMO-IPP), which can produce 40 KW of electricity is situated in Ras Nhache-Tripoli. Modeling a mobile platform for the transfer of the station with all its parts, including the main entrance of the waste, the turbine, the piston and finally the flue gas filters will make this plant available for using in any region.



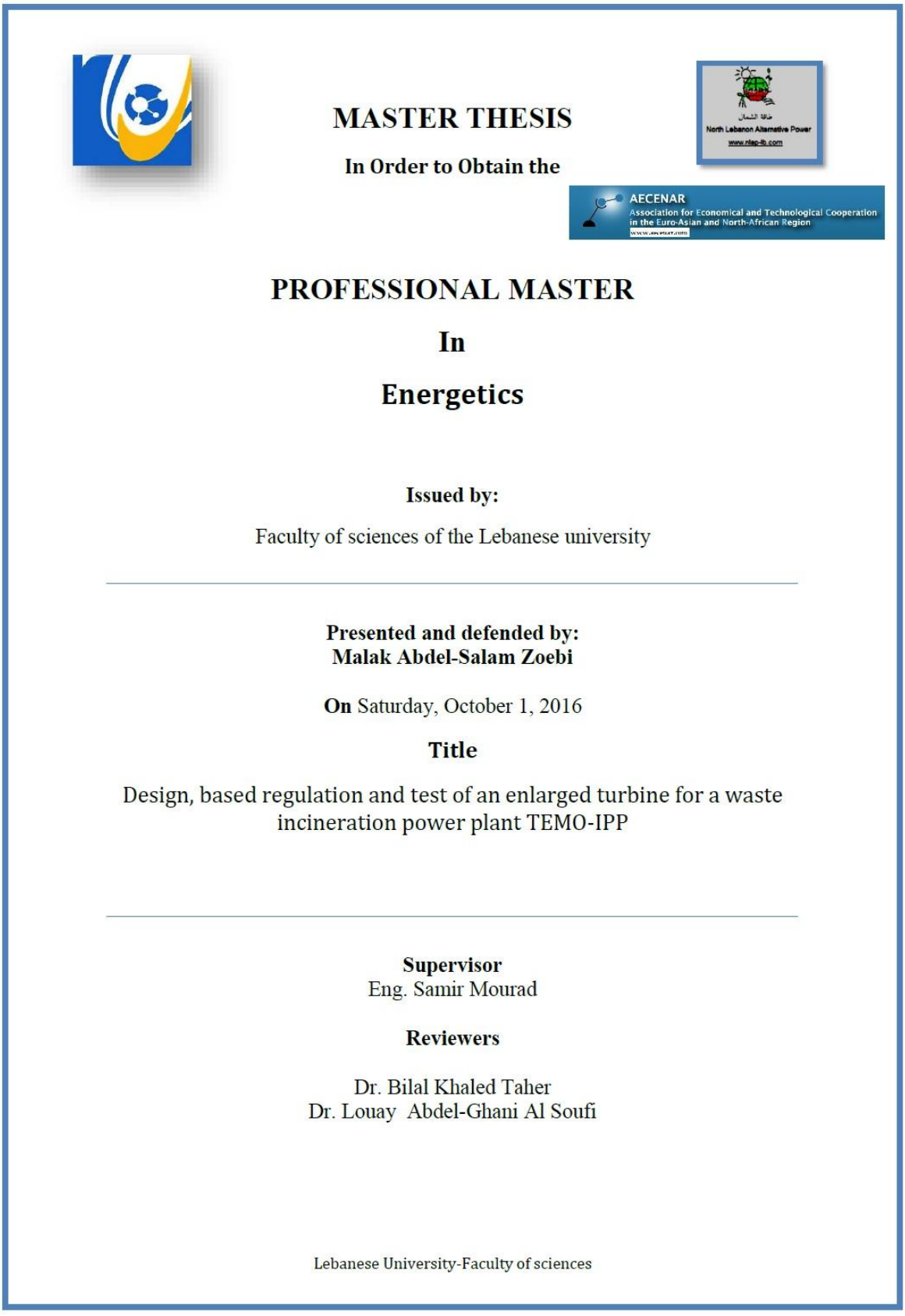
Working packages:

- Reading and searching about the subject (2 Weeks) (http://www.aecenar.com/publications)
- Detailed design for the entrance and exit of waste (2 Weeks).
- Study for the environmental effect (1 weeks).
- Detailed design for filters and chemical emissions processing (4 Weeks).
- Detailed design for the mobile platform and integration on platform (2 Weeks)
- Operation of the plant and testing of the emmisions (4 weeks)
- Documentation (4 Weeks)

(the duration of packages is only approximately)

Key words: alternative energy, incineration power plant, waste handling, flue gas purification, FreeCAD, environmental impact.

9.3 Documentations published on www.aecenar.com/publications



MASTER THESIS

In Order to Obtain the

PROFESSIONAL MASTER

In

Energetics

Issued by:

Faculty of sciences of the Lebanese university

Presented and defended by:
Malak Abdel-Salam Zoebi

On Saturday, October 1, 2016

Title

Design, based regulation and test of an enlarged turbine for a waste incineration power plant TEMO-IPP

Supervisor
Eng. Samir Mourad

Reviewers

Dr. Bilal Khaled Taher
Dr. Louay Abdel-Ghani Al Soufi

Lebanese University-Faculty of sciences

MASTER THESIS

In Order to Obtain the

PROFESSIONAL MASTER

In

Energetic physics

Presented and defended by:
Maysaa kamardine

On Saturday, October 1, 2016

Title

Integration and testing of TEMO-IPP
incineration power plant on a mobile platform

Supervisor
Eng. Samir Murad
Reviewers
Dr. Ahmad Ossman
Dr. Bilal Taher

Lebanese university-faculty of sciences

9.4 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)

9.5 Introductional Reading Material

...

9.6 Working Places, Ressources

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

For introductional reading and development

9.6.1 MEGBI-VPP

9.6.2 IAP-SAT INT

9.6.2.1 Hardware

Ubuntu PC (Dual Core)

9.6.2.2 Software

OS: Redhat 5, scilab, gpredict

9.7 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	

9.8 Time Plans

...

10 Supervision of practicants

10.1 June/July 2016, Students Data

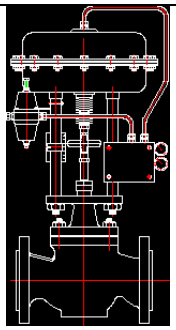
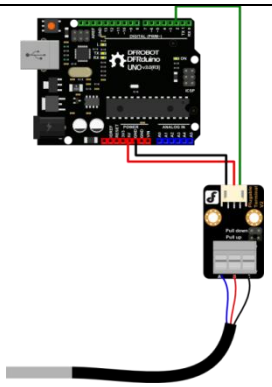
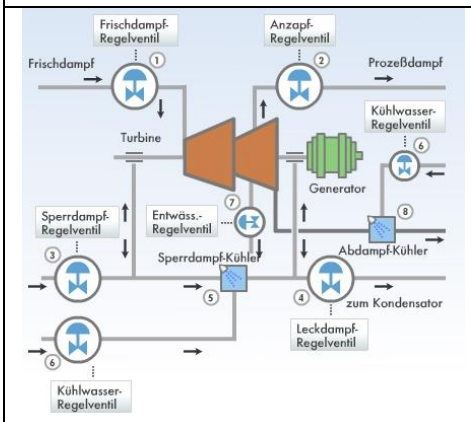
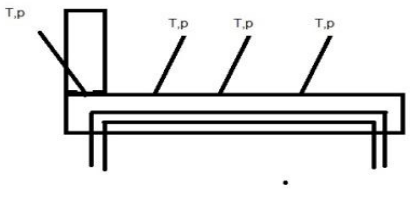
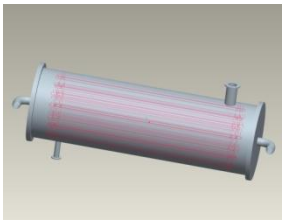
Mohammad Hasbini, worked on FOG sensor for IAP-SAT project

10.2 Nov 2016-Jan 2017 (Trainees at North Lebanon Alternative Power NLAP)

عمل	Email, Tel.	اسم
Temperature and pressure control at turbine inlet/outlet Turbine outlet -> condensor 112°C/1.5bar ((127)°C/2.5bar max)	email: siham.aisha@outlook.com telephone: 71 342 371 سير - الضنية	Siham Aisha
Chemical flue gas purification + Processing of flue gas purification products	saraarab2894@gmail.com Tel: 76769316 بعصفرين الضنية القبة	Sara al Arab
Construction of a gas turbine based unit including control system for a waste power plant based on Methane gas	souhaabdallah21@gmail.com phone number :71079057 القبة	Souha Abdallah
تقدير البنيى التحتية الحالية لتغزية الكهربائية في عكار والضنية في شمال لبنان	amena.shaker93@gmail.com Tel. 76673349 حزمية - الضنية	Amena Shaker
gas turbine based system for a waste power plant on mobile platform	Number: +961 70 658 116 e-mail: marwanalkheir@gmail.com المنية	Marwan Al-Kheir

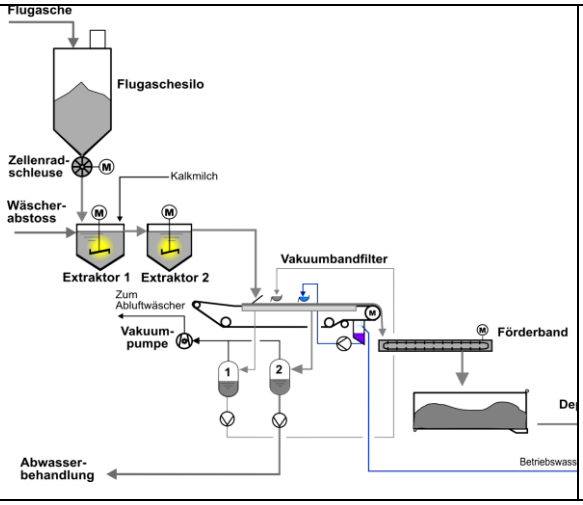
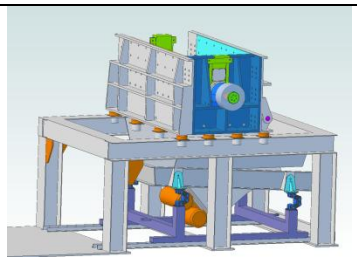
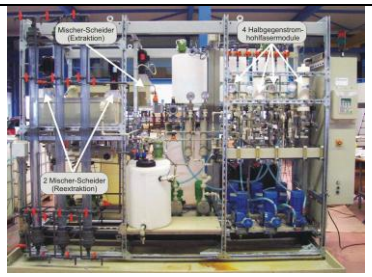
10.2.1 Temperature and pressure control at 2 MW turbine inlet/outlet

Working packages

	FreeCAD modeling of computer controlled valve Readings: http://www.bibliocad.com/library/machinery--mechanical/1 Please log in into bibliocad to get dwg files. ....
	Turbine inlet: p,T measurement and connecting to GUI Readings: http://cnclablb.com/products_responsive.aspx?scid=59 ...
	connecting valve and T,p sensors to GUI
 	Turbine outlet control: FreeCAD modelling of condensor cover sheet and p,T sensor positions on condensor

10.2.2 Design and manufactoring of a fly ash recycling process device for incineration power plant TEMO-IPP

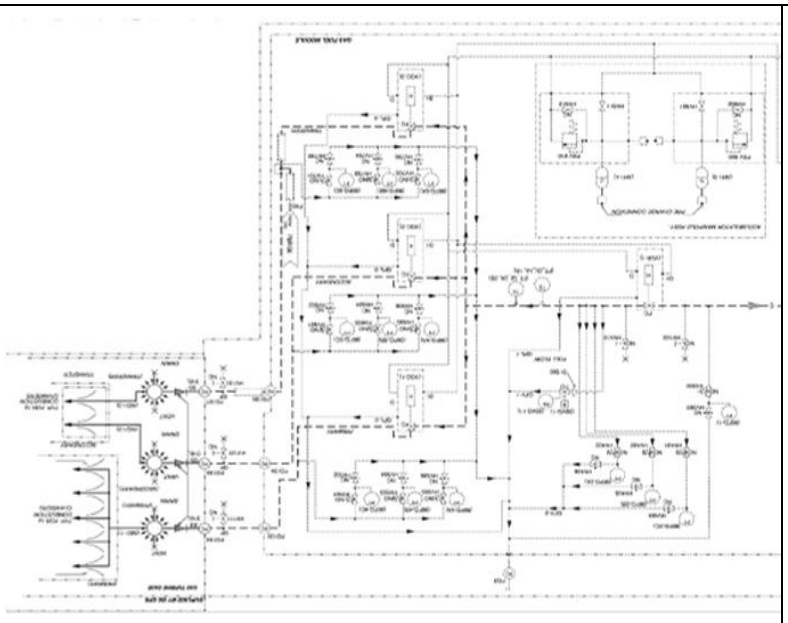
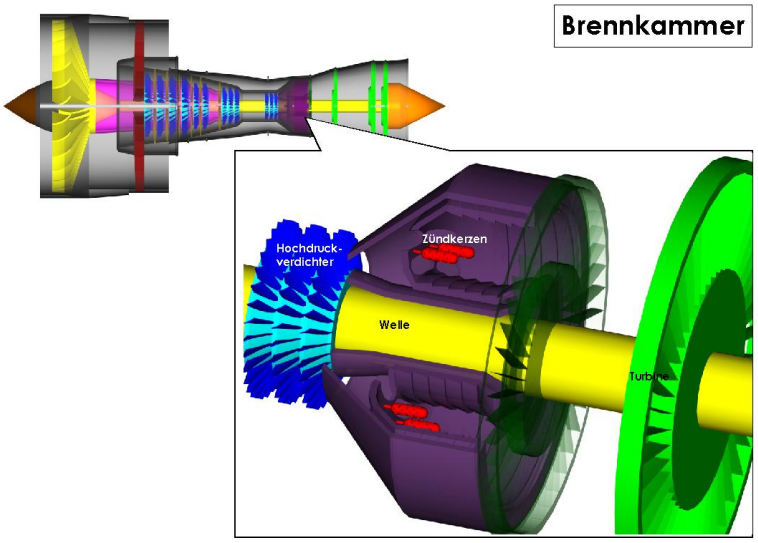
Working packages

	Understanding FLUREC, FLUWA Flow chart of simplified fly ash recycling process
Readings (in German, to be understood by translation of specific words and then research on internet): https://www.bsh.ch/assets/PDF-Datenbank/BSH-Zinkrueckgewinnung-und-Ascherueckfuehrung-FLUREC-Verfahren.pdf https://www.bsh.ch/assets/PDF-Datenbank/BSH-Saure-Flugaschenwaesche-FLUWA-Verfahren.pdf https://www.bsh.ch/assets/PDF-Datenbank/BSH-Technologie-Referenzblatt-FLUWA.pdf https://www.bsh.ch/assets/PDF-Datenbank/BSH-Technologie-Referenzblatt-Quecksilberabscheidung.pdf http://www.greatwallcorporation.com/solutions/production-line/ggbs-production-line.html https://www.youtube.com/watch?v=e7RG5UAlK4Y FLUREC: https://www.youtube.com/watch?v=T1Gj5_JQCcM	
	Design of a ash simplified recycling process device for TEMO-IPP (Tool: FreeCAD)
	Material list for manufactoring (Tool: Excel)
	Managing device manufactoring

10.2.3 بناء وحدة توربينات الغاز ومقرها بما في ذلك نظام التحكم لمحطة توليد الكهرباء من النفايات تعتمد على الغاز الميثان

Construction of a gas turbine based unit including control system for a waste power plant based on Methane gas

حزم العمل

	schematic (P&ID diagram) التخطيطي (الرسم البياني P& ID) من • gas turbine fuel system • ...
	FreeCAD Modeling of • gas fuel system • Burning chamber • ...

Readings:

http://gasturbinetutorial.blogspot.com/2013/06/gas-turbine-combustion-section.html

http://gasturbinetutorial.blogspot.com/2013/06/gas-turbine-fuel-system.html

...

10.2.4 تقدير البنيى التحتية الحالية لتغزية الكهربائية في عكار والضنية في شمال لبنان

Working packages

حزم العمل

ايجاد خريطاة للمحطات الموجودة وللشبكة الكهربائية	
تقيم النقص لكل منطقة ما يخص التغزية الكهروبائية (كم MW)	
اقتراح مفصل لبناء محطات طاقة حسب الحاجيات	

11 Visits

No official visits to AECENAR so far this year (Nov 2016).

12 References

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

[BananKerdi 2015] Banan ElKerdi, TEMO-IPP Stress Analysis, Master Thesis, 2015

[FatimaHamed 2015] Fatima Hamed, TEMO-IPP CFD Analysis, Master Thesis 2015

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
Welder / Metal working	Muhammad Qammah	Mina	70 339875
	Muhammad Akkumi	Biddawi	71669613
	Said Hussein, 25-45.000LL/day	Biddawi	06/383728 or 03/793802
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**