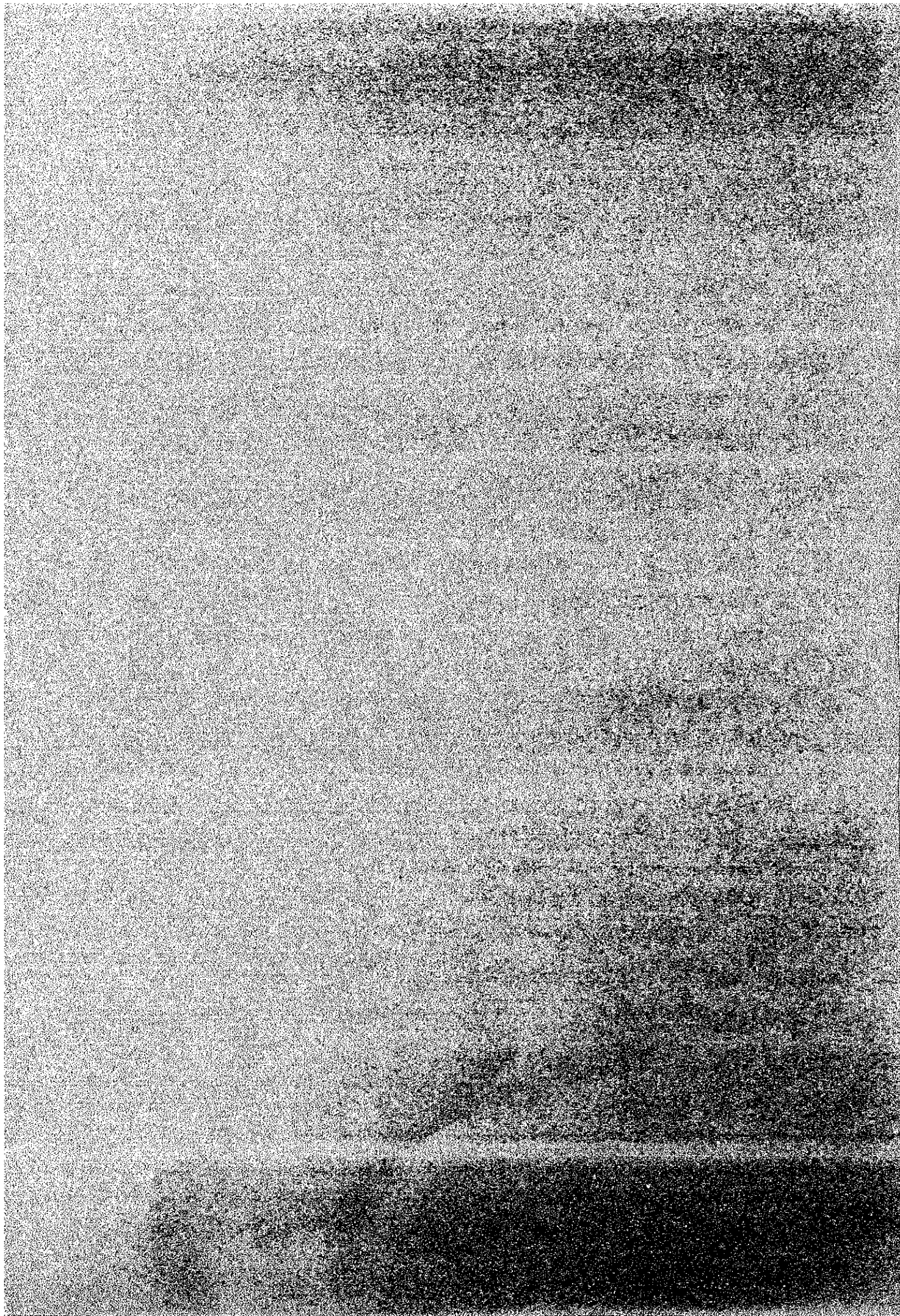


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1. 日本側技術教育基礎調査団より
モンゴル側関係当局に対する
質問項目

日本側技術教育基礎調査団よりモンゴル側関係当局に対する質問項目

本調査団は、貴国から要請のありましたモンゴル技術大学の基盤強化を目的とするプロジェクトが、わが国として「プロジェクト方式技術協力」の枠組みの下で協力する必要性や妥当性につき検討するため、今次調査において特に以下の項目につき明らかにしたいと考えております。つきましては、モ・日関係者合同会議において貴国関係当局からの資料提出を含めた詳細な説明が行われることを期待します。

1. 貴国の教育政策について

- (1) 工業化政策の内容
- (2) 科学技術振興政策の内容
- (3) 工業教育、基礎理論教育の現状と問題点
- (4) 日本との協力によって改善を期待する事項
- (5) 新教育法、制定予定の高等教育法、専門教育法等の教育関係法の内容
- (6) 高等・専門教育における学位の種類とその取得方法
- (7) 各教育課程における到達目標

2. 高等・専門教育行政について

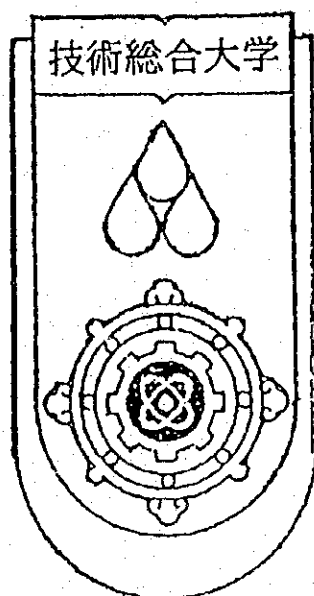
- (1) 科学教育省における高等・専門教育の位置づけ
- (2) 各大学の設置基準及び役割
- (3) 職業学校の大学昇格の現状と問題点

3. モンゴル技術大学について

- (1) 教育体系の中で技術大学が担うべき役割及びその教育の理念・到達目標
- (2) モンゴル技術大学教育現場における問題点
- (3) 日本に対する協力要請内容の詳細（具体的な背景・理由を含めて）

(注) 貴国側からの説明を受けた後日本側から、技術協力（主としてプロジェクト方式技術協力）の仕組みにつき説明いたします。

2. モンゴル技術大学
1994～95年度報告抜粋



技術総合大学

1994年～1995年度報告抜粋

(1995 年 7 月 1 日現在)

ウランバートル市

1995 年

技術総合大学の理事会構成

1. D.バダルチ	理事長、大学総長
2. Ts.ボルド	教務および学術研究担当の副学長
3. L.ボルドバートル	社会経済担当の副学長
4. Kh.ダシドルジ	教務処長
5. B.ドグソム	人事、管理室長
6. G.ベフバト	総長専門補佐（学生関連）
7. M.ジャダムバー	事務課長
8. G.ビルゲー	財務会計課長
9. N.ドルゴルフー	機械技術学校長
10. Kh.バーサンドルジ	基礎教育センター責任者
11. T.バットバヤル	外国語センター責任者
12. D.サグワドルジ	地質・鉱山学校長
13. B.マンダッハ	エネルギー大学長
14. P.オトゴンバヤル	建設技術学校長
15. D.エンヘボルド	コンピュータ技術マネジメント学校長
16. B.ダムディンスレン	通信技術学校長
17. J.オソルフー	交通学校長
18. L.ミャンガンボー	ダルハン技術学校長
19. G.ツォグバドラハ	通信教育センター責任者
20. Kh.ツァガーン	学位審議会責任者

技術総合大学の構成員

教員	444名
学部学生	3907名
学術研究者	7名
博士課程院生	72名
職員、指導助手	187名
作業員	210名
修士課程院生	64名
中級職業教育学生	56名
初職業教育学生	403名
合計	5350名

技術総合大学の1995年卒業生

No	専攻	人数
1	民間住宅、工業用施設	37
2	暖房供給、空調	13
3	給水、浄水設備	18
4	民間住宅建築	10
5	灌漑	6
6	地質図、資源鉱床の探索	8
7	露天鉱の採掘技術	6
8	鉱山電力設備	6
9	工学測地学	13
10	縫製工業技術	20
11	メリヤス工業技術	10
12	織物工業技術	2
13	織物工業用設備機器	8
14	軽工業用設備機器	1
15	皮革、毛化学技術者	1
16	服飾デザイナー	1
17	乳加工技術	4
18	発酵工業技術	6
19	種子精製技術	5
20	食品衛生、外食産業技術	29
21	食料プラント	8
22	林業技術	1
23	木材加工技術	7
24	林業用設備機器	2
25	電気設備の自動化	12
26	工場、都市、農牧業用の電力供給	14
27	発電所、電力供給ライン	1
28	火力発電所	12
29	暖房用ボイラー	5
30	産業用暖房供給	9
31	暖房工程の自動化	6

No	専攻	人数
32	電気通信	11
33	無線通信	10
34	通信技術	8
35	通信測量電子技術	8
36	電気通信（ディプロマ）	12
37	無線通信（ディプロマ）	9
38	プログラム開発	18
39	自動電子	11
40	マネージメント（ディプロマ）	15
41	プログラム開発（ディプロマ）	7
42	コンピュータ技術開発（ディプロマ）	7
43	自動車機械工業	22
44	建設、道路用設備機器	11
45	建設資材工業	9
46	建設資材用設備	6
47	自動車産業	8
	合計	453

技術総合大学在校生

(専攻別)

No	専攻	計	I	II	III	IV	V
1	水力発電所利用技術	18	18				
2	自動車道路工事	48	20	8	10	10	
3	建築設計	71	24	20	17		10
4	建設工事技術	12		12			
5	建設工事	133	37	22	13	24	37
6	水文工学	18		5	6		7
7	衛生工学	140	36	16	20	34	34
8	工業デザイン	33	33				
9	衛生工学(夜学)	13	13				
10	建設工学(夜学)	20	20				
11	地質工学	82	36	15	11	12	8
12	地球物理学	25	19	6			
13	水理地質学	17		6	7	4	
14	鉱坑測量学	46	17	8	10	11	
15	測地学	23		5	5		13
16	鉱山開発	50	27	23			
17	鉱山資源利用	82	34	16	18	6	8
18	鉱山電力供給	73	25	19	14	11	4
19	石油	81	28	33	11	9	
20	掘削工業	10			6	4	
21	電力	288	81	57	54	68	28
22	暖房	204	74	37	28	33	32
23	軽工業技術	148	33	36	28	16	35
24	軽工業用設備	61	14	11	9	17	10
25	食料加工技術	147	79	21	19	13	15
26	食料加工設備	74	31	16	11	7	9
27	食品衛生、外食産業技術		66	21	22	27	29
28	木材加工技術	50	11	10	10	12	7
29	木材加工設備	24	11	5		8	
30	林業	2					2
31	服飾デザイン	85	41	28	16		

(専攻別)

No	専攻	計	I	II	III	IV	V
32	縫製技術	33	33				
33	化学技術	60	39	21			
34	物理工学	34	15	19			
35	マネジメント	268	129	71	57	11	
36	電子機械	194	89	37	38	17	13
37	プログラム開発	190	80	38	39	14	19
38	原料設備技術	227	119	108			
39	電気通信助手	12			12		
40	無線通信助手	10			10		
41	電気通信	42			16	16	10
42	無線通信	38			15	13	10
43	電子	31			13	10	8
44	通信技術	37			16	13	8
45	資源利用工学	32	32				
46	機械工学	157	54	26	29	25	23
47	建築・道路用機器	67	25	10	11	10	11
48	内燃機関	16	16				
49	建設用資材技術	59	18	16	7	9	9
50	冶金学	44	15	10	12	7	
51	自動車産業技術	71	15	15	18	15	8
52	建築資材用設備機器	42	16	12	8		6
	高等教育機関	3907	1523	839	649	486	413
	修士課程	64	35	29			
	専門中等科	56				56	
	技術系初等科	403	171	178	54		
	技術総合大学全体	4430	1729	1046	700	542	413

1994年度（高等教育機関への）新入生の出身地

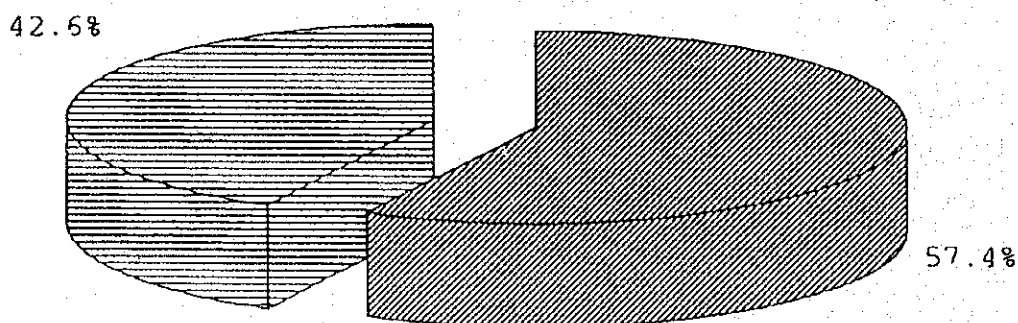


図 833 ウランバートル市 617 地方出身者
出身者

1994年～1995年度に発行された参考書、文献

No	著者名	学習書、参考書の題名	ページ数
1	D.バダルチ	マイクロコンピュータ	8.7
2	J.ゲレルフー	建築課程教本(教程指導書)	2.5
	N.バットトブシン		
3	D.ダシジャムツ	建築基盤	12
4	D.エンヘトヤー	メリヤス工程技術	8.8
5	Ts.アブダイ	チャツアルガナ植物について	2.0
6	N.トゥグジスレン	物理(訳本)	10.3
	D.ソドブ		
7	Kh.ブレブダグワ	「経営」英露蒙辞典 モンゴル語の脚注・解説付	2
	L.ツェレンチメド		

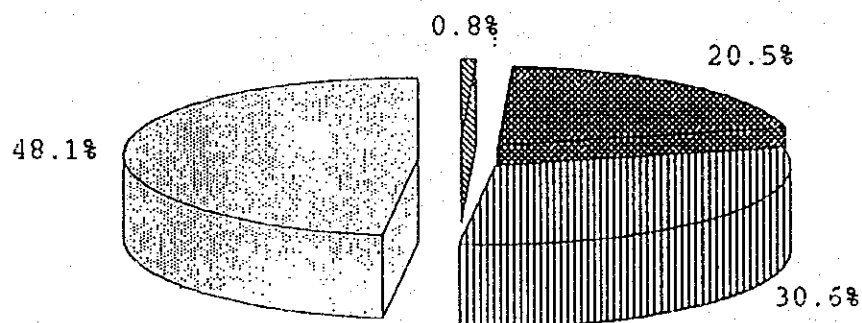
No	著者名	学習書、参考書の題名	ページ数
8	L.ツェレンチメド	「経営基礎」教育カリキュラム用資料	2.5
	Kh.ブレブダグワ		
9	Kh.ブレブダグワ	「モンゴルにおける経営実現の課題」 プラン設定の教育カリキュラム用資料	1
10	Kh.ブレブダグワ	「マーケティング」英露蒙簡明辞典	2
	Sh.バット・エルデ	モンゴル語の脚注・解説付	
	M.ツェツェグレン		
11	D.ドラムスレン	「ミクロ経済」	12
12	Ts.ドルジンジャブ	「ビジネス戦略」教育カリキュラム用資料	1
13	Ya.バジレアド	「確率理論・数学統計教本」	11.5
	R.エンヘバット		
14	S.トグミド	高等数学教本	20
	L.オブゴン		
	R.エンヘバット		
	Ya.バザルサド		
15	D.ブーベイバートル	「ビジネスの利点とその利用価値」(参考書)	10
16	A.エルデネバートル	「作用システム」講義用参考書	12
	D.アリウンバット		
17	Ts.ガンバット	バスカルのグラフ(書籍)	10
18	N.ナンジドジャムチ	機械図表(参考書)	10
19	N.ソロソソンボルド	プログラミング言語S I(書籍)	13
20	G.バットフレル	経営理論(教科書全5巻)	8
21	G.バットフレル	技術指導要綱(3部)	2
22	Ts.シャラブジャムチ	マルチメディア	2
		デジタル通信システム	2.5
23	B.バートルジャブ	クラッチ技術	1
24	B.オトゴンバヤル	ラジオ放送構想技術	3.5
25	Z.ボヤンヒシグ	容量および位相電鍵通信法のシグナル研究	0.5

教育要員
(高等教育を行う学部要員)

(年齢別)

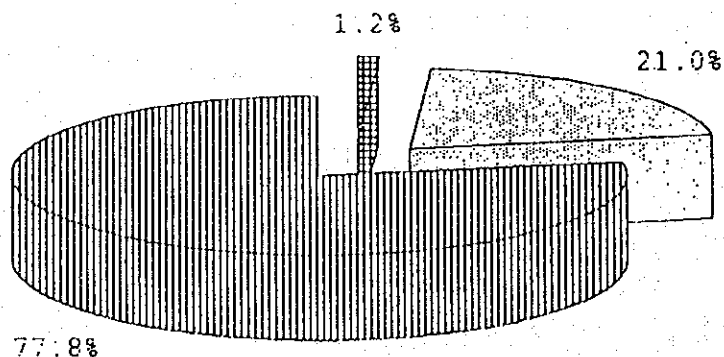
学部	建築学部	地質鉱山 学部	機械 工学部	材料・ 技術 学部	基礎教育 センター	外国語 学部	情報 工学部	コンピュータ工学 経営学部	運輸学部	工学部 タカノ キャンパス	工業 大学
30歳以下	9	13	12	6	5	3	19	18	6	14	105
31～35歳	2	1	5	3	2	5	4	14	4	1	41
36～39歳	8	5	8	9	11	6	2	10	3		62
40～49歳	22	9	15	16	16	8	8	12	7	8	121
50～59歳	14	10	8	7	5	4	6	3	5	4	66
60～64歳	2				3			2	1	2	10
総計	57	38	48	41	42	26	39	59	26	29	405

教育要員内訳一覧
(職階別)



☒ 教授：3人
 ☒ 副教授：75人
 ☒ 上級講師：112人
 ☒ 講師：176人

教育要員内訳一覧
(学位別)



☒ 博士：5人
 ☒ 修士：85人
 ☒ 学位なし：315人

’93年に他機関へ転出した講師とその理由

	講師氏名	転出理由
1.	Ch. オヨンチメグ	自己の希望による
2.	S. バトボルド	ポスト削減による
3.	D. プレブツェツェグ	自己の希望による
4.	S. セレンゲ	ポスト削減による
5.	P. ソルザヤー	自己の希望による
6.	D. ツォグトバートル	職種変更のため
7.	G. プレブ	定年退職

教員ポストが不足している機関一覧

No.	機関名	教員数
1.	画像工学	2
2.	自動車道	2
3.	建築	2
4.	測地・鉱山測量	2
5.	鉱山	6
6.	食品技術	3
7.	食料生産工学	2
8.	一般食品技術	1
9.	軽工業科	2
10.	化学	2
11.	数学	1
12.	無線通信	1
13.	電気通信	2
14.	電子工学	2
15.	カリキュラム作成	5
16.	外国語教授法	1
17.	機械生産技術	1
	工業大学総計	37

第2章 学術活動

1994～1995就学年度に国家の要望によって9題目の計画が実行され、そのうち1994年第4四半期に4計画が完了し、1995年より4計画を実行すべく科学教育省の批准を受けた。また、670万トゥグルグの予算額を有する学術活動を産業協定に則って実行した。

本就学年度に本学講師より博士1、修士6人が認定され、副教授に11人が就任した。新たに6人の講師が修士課程に入り、4人の講師が学術研究員申請資格保持者として認定された。

本学付設博士課程に9人の博士論文執筆資格者、修士課程に76人の修士論文執筆資格者が在学している。本博士課程を1人、修士課程を8人が終了し、工業科学分野の研究者となっている。

前就学年度において学術図書6冊、学術小会議要旨4冊が出版され、多数の教科書、便覧、論文が出版された。

学術会議

No.	会議名	報告数	報告者数
1.	「技術依存型発展」(国連開発プログラム援助による工業大学主催国際学術小会議) 1994年	77	203
2.	「中央アジアの地域地質システム」国際地質学「ヘルレン」調査団第9回小会議 1994年	16	80
3.	モンゴル国における水文地質学、エンジニア地質学、地質生態学の諸問題 1994年	19	42
4.	「大学・高等専門学校教育における技術的刷新」(講師を対象とした学術理論と実践に関する小会議) 1995年	10	21
5.	モンゴル国における鉱物研究の諸問題 (Zh. ルハムスレン博士・教授60歳記念学術小会議) 22 42		
6.	エネルギー生産配分技術の理論と実践の諸問題 エネルギー工学部25周年記念学術小会議	16	37
7.	モンゴルにおける通信分野の差し迫った課題	3	4
8.	地方における情報システム	1	2
9.	建築資材生産ー市場	15	28

第4章 経済・財政面の活動

財政・経済・社会設備

工業大学予算外資産元金より講師・職員の社会保障を満たす目的で、食費及び交通費軽減に21,505,000トゥグルグが支出され、

工業大学の36人の講師、職員は自己資金で住居を購入した。

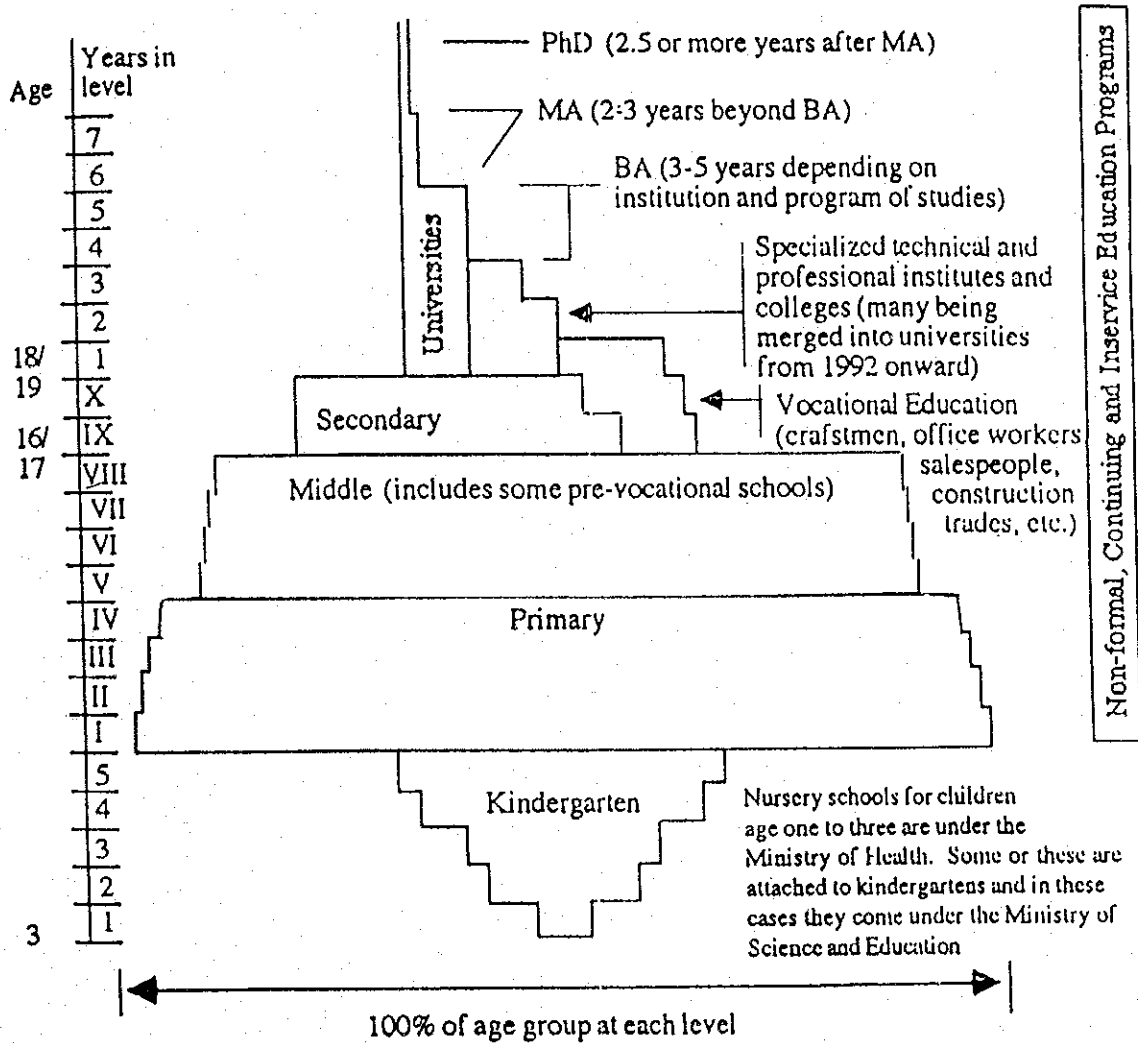
ダルハン工学部キャンパスでは10戸を300トゥグルグで改築して居住可能にし、60トンの食料貯蔵庫を建築した。

1994～1995年予算収支

(単位：千トゥグルグ)

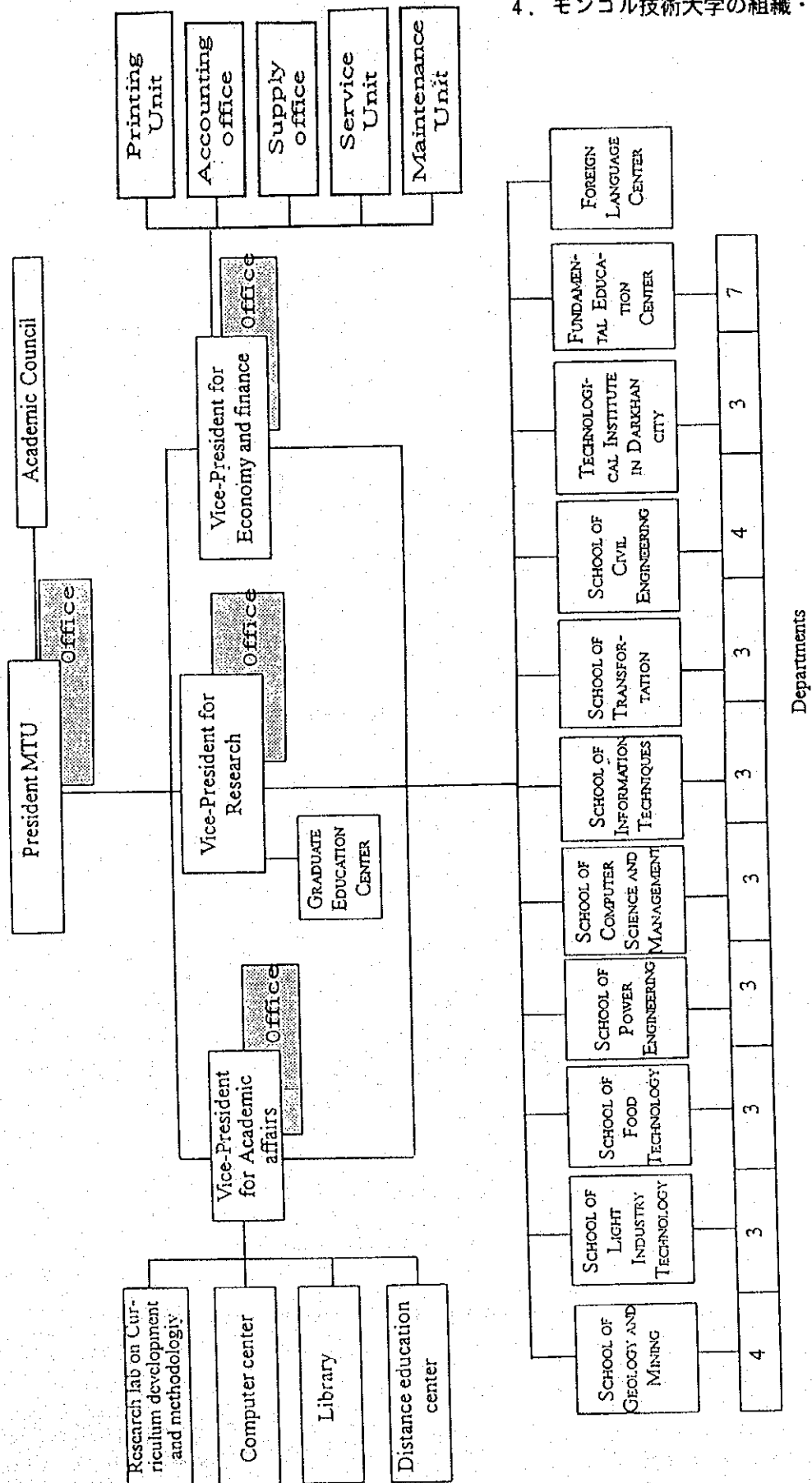
No.	学部	1994年	1995年推定収支
1.	地質鉱山学部	27918.8	31081.7
2.	機械工学部	31525.3	32255.6
3.	基礎教育センター	3141.8	20682.6
4.	外国語センター		8685.9
5.	エネルギー技術学部	33504.7	42871.5
6.	建築学部	35818.9	52717.5
7.	コンピュータ工学経営学部	85646.2	101312.8
8.	情報技術学部	56391.1	65399.3
9.	運輸学部	45478.2	56000.8
10.	センター部	130438.6	139655.0
	総計	449863.6	550662.7

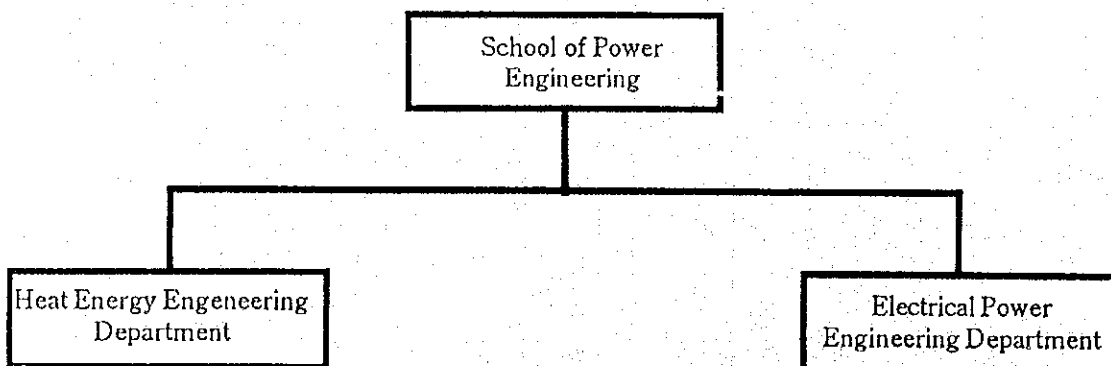
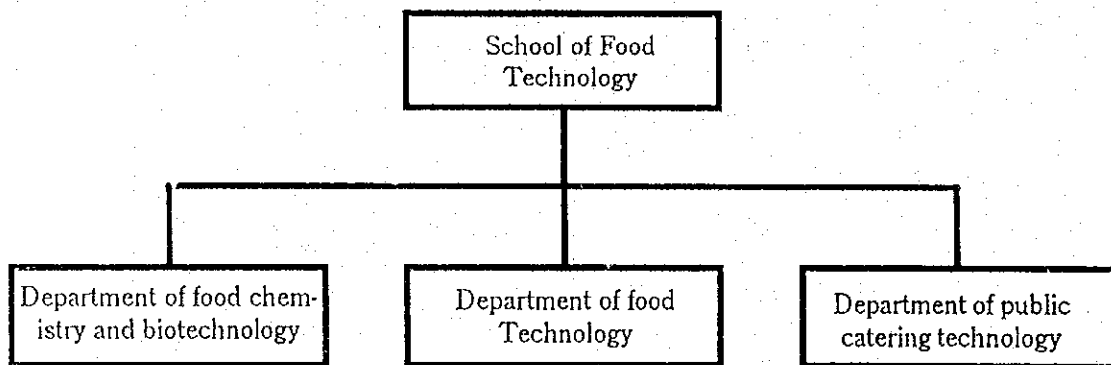
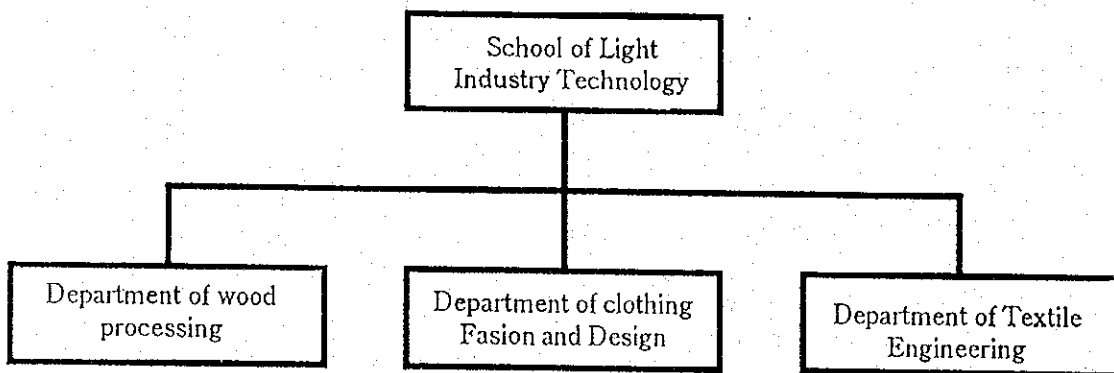
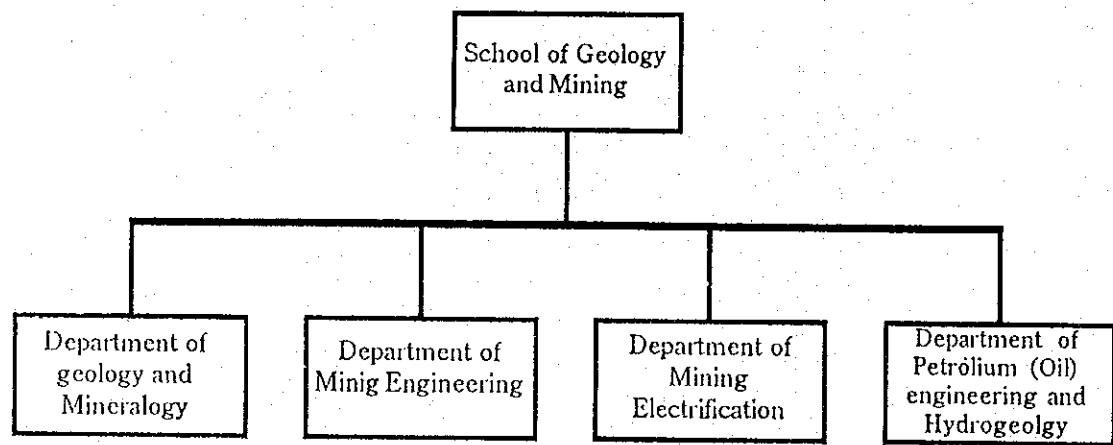
FIGURE 4-1
THE EDUCATION SYSTEM OF MONGOLIA

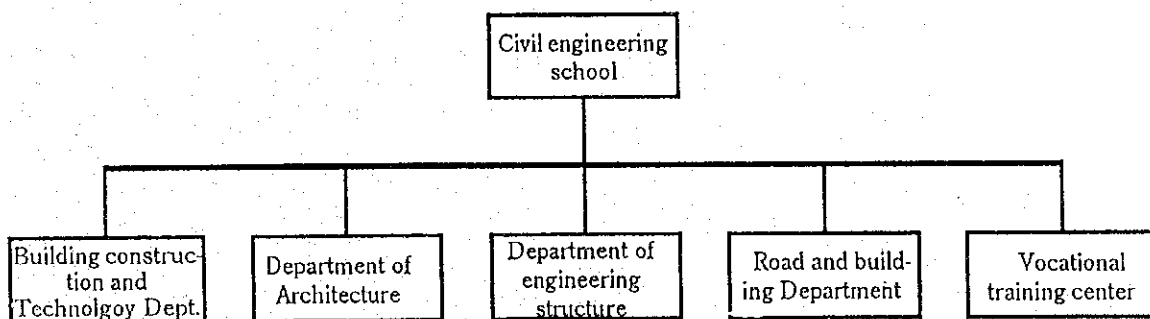
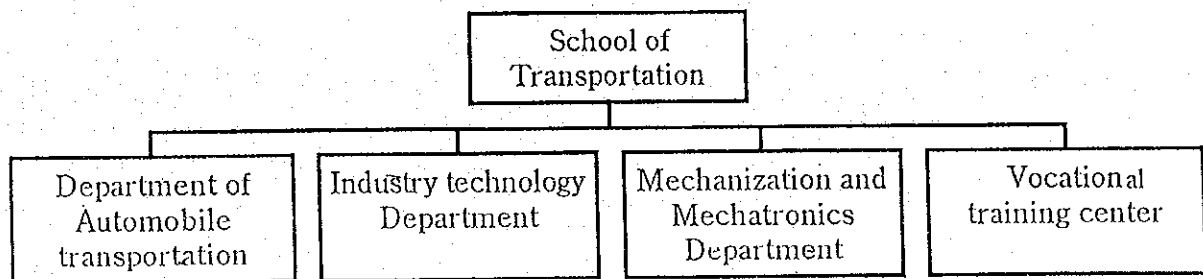
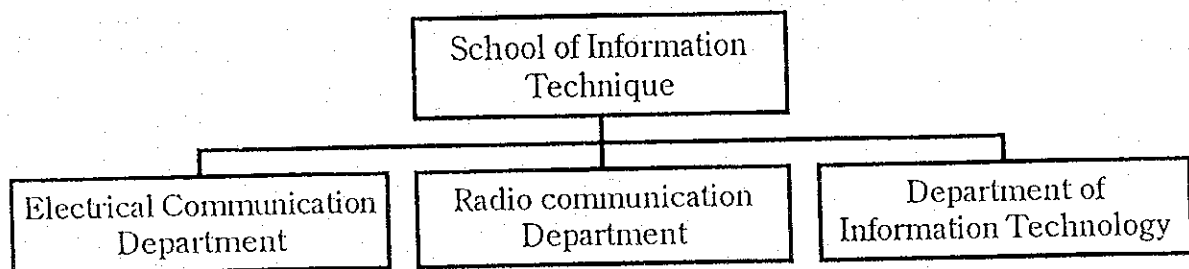
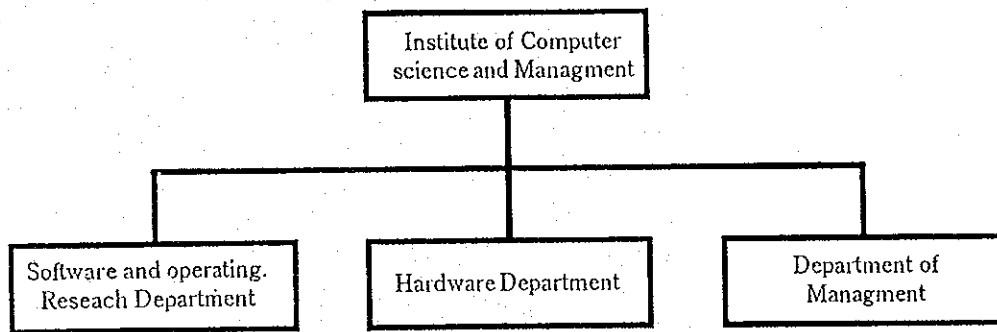


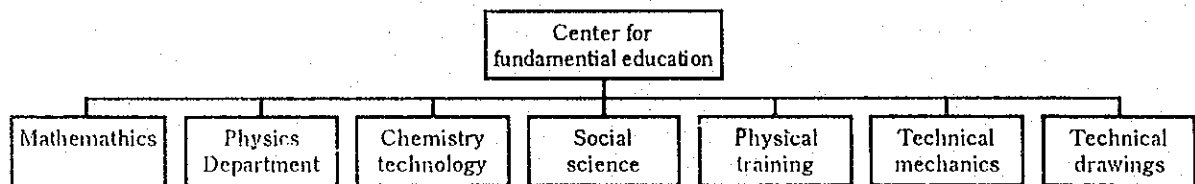
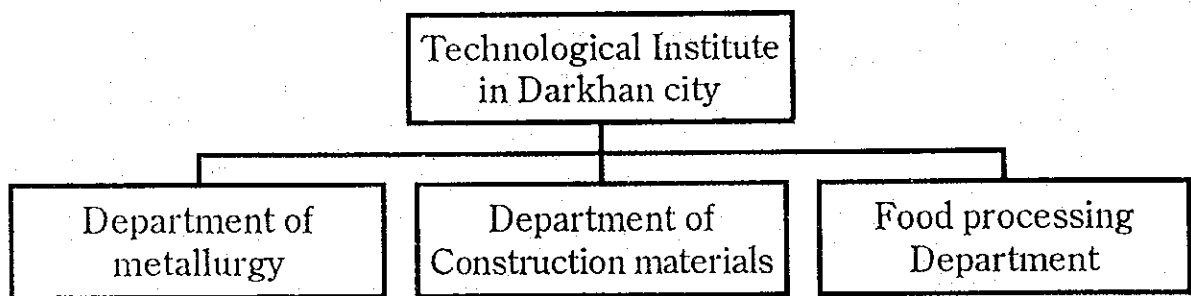
Source: Data from the Ministry of Science and Education.

4. モンゴル技術大学の組織・構成









Mongolian Technical University
Computer Science & Management Institute
Department of Computer Hardware Engineering

CURRICULUM

ULAANBAATAR

COMPUTER SCIENCE and MANAGEMENT INSTITUTE
Department of Computer Hardware Engineering

CURRICULUM
Training course "DIPLOMA"
During time : 3 years

N	SUBJECT	SEMESTER										Teaching time				Semester			
		Time										I				II			
		Exam Proj thics clas										16				16(8)			
		lect	cal	ses	Lect	Lab	Sem												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
a. I year																			
11	Mathematics I	1,2	1	1	1	192	128	1	64	61	4	2	61	4	2	2	61	4	2
21	Physics	1,2	1	1	1	192	64	64	64	61	2	2	2	61	2	2	2	2	2
31	Russian language	1,2	1	1	1	128	64	1	64	41			41	41					
41	Theory of Electric Circuits I	2	1	1	1	80	32	32	16	1			51	2	2	1	2	2	1
51	Introduction to Computer Systems	1,2	1	1	1	144	64	64	16	51	2	2	1	41	2	2	1		
61	Drawing	1,2	1	1	1	96	32	1	64	41	2		2	21					2
71	Economics	1,2	1	1	1	96	64	1	32	31	2		1	31	2				1
81	Mongolian History	1	1	1	1	32	32	1	1	2	2			1					1
91	Philosophy	1,2	1	1	1	32	32	1	1	1				1	2				1
101	Physical culture	1,2	1	1	1	64	1	1	64	21			2	21					2
SUM		1	2	1	1	1056	512	160	384	32	14	4	14	34	14	6	14		
b. II year																			
(required)		1	1	1	1	1	1	1	1	1	1								
11	Mathematics II	1,2	1	1	1	128	64	1	64	41	2		2	41	2				2
21	English	1,2	1	1	1	192	1	1	192	61			61	61					61
31	Computer programming	1,2	1	1	1	128	64	64	1	41	2	2	1	41	2	2			1
41	Theory of Electric Circuits II	1	1	1	1	64	32	16	16	41	2	1	1	1					1
51	Electronics Engineering	1	1	1	1	64	32	32	1	41	2	2	1	1					1
61	Theory of Measurements	2	1	1	1	64	32	32	1	1			1	41	2	2			1
71	Discret mathematics	1	1	1	1	64	32	1	32	41	2		2	1					1
81	Digital Circuits	2	1	1	1	96	64	32	1	1			1	61	4	2			1
91	Practice in Electrical & Digital Circuits	1,2	1	1	1	96	1	1	96	21			2	41					41
SUM		1	3	4	1	896	320	176	400	281	10	5	13	281	10	6	12		
c. Elective subject.																			
11	Power supply of Electronic Devices	1	1	1	1	64	32	32	1	41	2	2	1	1					1
21	Seminar in Electronics & Electrical Engineering	2	1	1	1	64	32	1	32	1			1	41	2				2
31	Electromagnetic devices	1	1	1	1	64	32	32	1	41	2	2	1	1					1
41	Seminar in Electromasurements	2	1	1	1	64	32	1	32	1			1	41	2				2
SUM		1	1	1	1	128	64	64	32	41	2		2	41	2				2
TOTAL		1	4	4	1	1024	384	240	432	321	12	5	15	321	12	6	14		

CURRICULUM
(continuation)

N	SUBJECT	Exam		G/c	In	cl	Lec	Lab	Sem	sum	lec	semi	lab	sum	lec	semi	lab
		4	5														
3																	
	d. III year																
1	Theory of Automation Control	1	1				80	48	32		5	3		2			
2	Microprocessor system	1	2	1			80	48	32		5	3		2		4	2
3	Electronic Control Engineering	2	1				16	16								2	2
4	Materials for Electronics Engineering	2	1				48	32	16							6	4
5	English	1	1	2	1	+	144			144	6		6				6
6	Applied Mechanics	1	1			+	80	48		32	5	3	2				
7	Analog Circuits	1	1	1			64	32	32		4	2		2			
8	Business Administration	1	1				64	32		32	4	2	2				
9	Electronic Computing Circuits	2	1				48			48						6	6
10	Graduation project	2	1				32	32								4	4
	Sum		2		2		656	288	112	256	29	13	10	6		28	12
	(Elective)																
1	Advanced Electromagnetic	1	1				48	32	16		3	2					
2	Applied Optics	2	1				32	16	16							4	2
3	Industrial Electronics	1	1				48	32	16		3	2					
4	Applied Electronics Engineering	2	1				32	16	16							4	2
	Sum					0	80	48	32		0	3	2			4	2
	TOTAL		2		2		736	336	144	256	32	15	10	7		32	14
	TOTAL for 3 years										96					98	

Bachelor of Engineering Degree course
During time : 1.5 years

-74-

6. 社会人再教育短期コース実績

IMPLEMENTATION COURSES AT SCHOOL OF INFORMATION ENGINEERING

N	Course name	Total weeks of training period	Total of trainees	Payment of year (tugrick)
1	Network planning	8	25	-
2	Switching system	17	12	-
3	Transmission	17	11	-
4	Outside plant	16	11	-
5	Data Communications	8	6	-
6	Corporate Planning	24	13	-
7 *	Nightclasses of Radio communication	36	21	120 000.00
8 *	Nightclasses of Radio communication	8	9	95 000.00
9 *	Nightclasses of Radio communication	32	31	80 000.00

* There are 3 courses for radiocommunications but training period are different depending on the level of participants experiences and knowledge

7. 教官数一覧

The number of teaching staff in MTU

As of 1995-1996 academic year

№	Department	Number of teachers	Number of lab.assistants
I	School Geology and Mining	43	13
1	Dept.of geology and Mineralogy	11	4
2	Dept.of Mining Engineering	16	4
3	Dept.of Mining Electrification	5	2
4	Dept.of Petroleum (Oil) engineering and Hydrogeology	11	3
II	School of Light Industry Technology	21	4
1	Dept.of wood processing	6	2
2	Dept.of clothing Fasion and design	7	1
3	Dept.of Textile Engineering	8	1
III	School of food Technology	15	6
1	Dept.of food chemistry and biotechnology	0	0
2	Dept.of food Technology	6	2
3	Dept.of public catering technology	9	4
IV	Civil engineering school	45	10
1	Building construction and Technology Dept	16	3
2	Dept.of Architecture	6	1
3	Dept.of engineering structure	13	4
4	Road and building Dept	10	2
V	School of power engineering	39	10
1	Heat energy Engineering Dept	14	4
2	Electrical Power Engineering Dept	25	6
VI	Institute of Computer science and Management	49	9
1	Software and operating Reseash Dept	18	4
2	Hardware Dept	9	3
3	Dept.of Management	22	2
VII	School of Information Technique	40	4
1	Electrical Communication Dept	10	1
2	Radio Communication Dept	10	1
3	Dept.of Information Technology	20	2
VIII	Center of Fundamatial education	75	18
1	Mathematics	13	1
2	Physics Dept	14	5
3	Chemistry technology	8	3
4	Social science	9	1
5	Physical training	5	2
6	Technical mechanics	12	4
7	Technical drawings	14	2
IX	Foreign Language Center	42	3
X	Technological Institute In Darkhan city	31	3
1	Dept.of metallurgy	11	1
2	Dept.of Construction materials	10	1
3	Food processing Dept	10	1
XI	Shcool of transfortation	46	8
1	Dept of Automobile transfortation	16	2
2	Industry technology Dept	16	2
3	Mechanization and Mechatronics Dept	14	4
Total		446	88

Mongolian Technical University

Power Engineering School

The Curriculum Vitaes of teaching staff in Electrical Power Engineering Department

As of 1995-1996 Academic year

Curriculum Vitae of prof. kh.Tsagaan

1. Name Khinaatiin Tsagaan
2. Date of birth 01. july. 1941
3. Nationality Mongol
4. Title Professor, Ph. Doctor
5. Education 1960 -1964. Mongolian state University
6. Other trainig 1979-1980. Novosibirsk Eiectrotechnical University, Russia
7. Employment record: - From 1992 to Present
Employer : Mongolian Technical University
Position: Head of Power Engineering Department
- From 1986 to 1992
Employer : Mongolian Technical University
Position: Dean of Power Engineering Facculty
- From 1966 to 1986
Employer : Mongolian Technical University
Position: Lecturer

8. Detailed tasks assigned

1. Have been published more than 30 scientific articles and two textbooks for students of Power Engineering School.
2. Project title: Reducing the electcal power losses in Central Energy system of Mongolia.
1981 - 1990. Haed of team

CURRICULUM VITAE of Dr. Z.Tserendorj

1. Name Z.Tserendorj
2. Date of birth 11. mar. 1947
3. Nationality Mongol
4. Title Professor, Ph. Doctor
5. Education 1965 -1970. Mongolian State University, Power Engineering
Department, Electrical Engineer
6. Other training 1972-1974. Mongolian State University, Master of
Engineering Science
1980 - 1984 Warshawa Technical University, Doctor of
Engineering Science
7. Employment record From 1993 to Present
Employer : Mongolian Technical University
Position: lecturer
From 1989 to 1993
Employer : Mongolian Technical University
Position: Director of Power Engineering School of MTU
From 1986 to 1989
Employer : Mongolian Technical University
Position: Dean of Power Engineering Faculty of MTU
8. Detailed tasks assigned
Project name:
 1. The determination of the faults of the 110 - 220 KV
Transmission Lines of Mongolian Energy System during for 1965 -
1987 Mongolia, 1986 - 1988. title: Project Director Head of the
team.
 2. Investigation of high voltage radiation in climate condition of
Mongolia. 1988 - 1991. Project Director

CURRICULUM VITAE of prof D.Sodnomdorj

1. Name Dariin Sodnomdorj
2. Date of birth 10. may. 1949
3. Nationality Mongol
4. Title Professor, Ph.Doctor
5. Education 1968 - 1973. Ural Politechnic, Russia
Electrical Engineer
6. Other trainig 1986 - 1987. Ural Politechnic, Master of Electrical
Engineering
7. Employment record From 1973 to Present
Employer : Mongolian Technical University
Position: lecturer
8. Detailed tasks assigned
Project name: Reduction of Power losses of central
Energy system of Mongolia. Project Director

CURRICULUM VITAE of N. Dashnyam

1. Name N. Dashnyam
2. Date of birth 10. IV.1940
3. Nationality Mongol
4. Title bachelor
5. Education 1962 -1970. Moscow Energy Institute, Russia
Power Engineering Department, Electrical Engineer
6. Other trainig 1987 - 1988 Moscow Energy Institute, Russia
7. Employment record From 1970 to Present
Employer : Mongolian Technical University
Position: lecturer
8. Detailed tasks assigned
Project name: —

CURRICULUM VITAE of Dr. D.Ulzii-Orshikh

1. Name D.Ulzii-Orshikh
2. Date of birth 05. may. 1955
3. Nationality Mongol
4. Title Ph.Doctor
5. Education 1973 - 1979. Uralian Politechnical Institute,
Electrical Engineering Department,
Electromechanical Engineer
6. Other trainig 1988 - 1992. Moscow power Engineering Institute,
Ph.Dr of power engineering science
7. Employment record From 1979 to 1995 Mongolian Technical
University. Power engineering department Position
lecturer
8. Detailed tasks assigned
Project name: 1992 - 1994 Rational USE of electrical
energy in industry. Executive of team.

CURRICULUM VITAE of Sh. Angar

- | | |
|----------------------|---|
| 1. Name | Sarkhuu Angar |
| 2. Date of birth | 15. Jan. 1956 |
| 3. Nationality | Mongol |
| 4. Title | Bachelor |
| 5. Education | 1980 - 1985. Mongolian State University, Power
Engineering Department, Electrical Engineer |
| 6. Other training | |
| 7. Employment record | From 1995 to Present
Employer: Mongolian Technical University.
Position: lecturer |

8. Detailed tasks assigned

Project name:

1. Project of substations of Arkhangai aimag,

CURRICULUM VITAE of D. Baasanjargal

1. Name Demberel Baasanjargal
2. Date of birth 10. Oct. 1957
3. Nationality Mongol
4. Title Bachelor
5. Education 1980 - 1985. Mongolian State University, Power Engineering Department, Electrical Engineer
6. Other training
7. Employment record From 1985 to Present
Employer: Mongolian Technical University.
Position: lecturer
8. Detailed tasks assigned

CURRICULUM VITAE of M. Khuyagdorj

1. Name Mendiin Khuyagdorj
2. Date of birth 26. dec. 1951
3. Nationality Mongol
4. Title Master
5. Education 1977 - 1982. Mongolian State University, Power Engineering Department, Electrical Engineer
6. Other training
7. Employment record From 1982 to Present
Employer: Mongolian Technical University.
Position: lecturer

8. Detailed tasks assigned

Project name:

1. Determination of the faults of the 110 -220 kv Transmission lines of Mongolian Energy System during for 1965 - 1987 Mongolia, 1986 - 1988.
executive of the team
2. Realization of calculations for Optimal Distribution of load of Power Plants and Mongolian Energy System 1988 - 1990.

CURRICULUM VITAE of J. Sodbayar

1. Name Jadmaagiin Sodbayar
2. Date of birth 12. nov. 1960
3. Nationality Mongol
4. Title Bachelor
5. Education 1986 - 1989. Mongolian State University, Power
Engineering Department, Electrical Engineer
6. Other training
7. Employment record From 1992 to Present
Employer: Mongolian Technical University.
Position: lecturer

8. Detailed tasks assigned

Project name:

1. Dynamic stability of Central Energy System of
Mongolia.

Executive of the team.

CURRICULUM VITAE of P.Erkhemtur

1. Name P. Erkhemtur
2. Date of birth 08. aus.1965
3. Nationality Mongol
4. Title bachelor
5. Education 1983 -1988. Mongolian State University, Power Engineering Department, Electrical Engineer
6. Other trainig —
7. Employment record From 1988 to Present
Employer : Mongolian Technical University
Position: lecturer
8. Detailed tasks assigned

Project name:

1. Electral supply of Bulgan aimag, Mongolia

1. Name	Ch. Natsagdorj
2. Date of birth	10 Feb. 1950
3. Nationality	Mongol
4. Title	Professor. Ph.D.
5. Education	1970-1975 Mongolian State University. Power Engineering Department, Electrical Engineer.
6. Other training	1978-1979 Mongolian State University. Education training course. 1989-1992 Latvia Riga Technical University. Doctor of engineering science.
7. Employment record	From 1992 to Present Employer: Mongolian Technical University Positions: Head of Department of Electronics and Automation From 1975 to 1989 Employer: Mongolian Technical University Position: Senior Lecturer. 1980-1989. Optimization of rejim working Central Energy Syste m cntrol system and inculcate the computerss to mthe CES. Response Executer. 1989-1995. Applying microprocessors to relay protection of the electrical load (Whith Riga Technical University). Project Director.
8. Detailed tasks assigned	

1. Name	Nusgai Tsevgee
2. Date of birth	30.Nov.1952
3. Nationality	Mongol
4. Title	Senior lecturer
5. Education	1971-1976. Mongolian State University, Power Engineering Department, Electrical Engineer
6. Other training	1977-1978 Educational training course, 1978-1980 Social Science Institute, Economic Department
7. Employment record	1992 to present Mongolian Technical University lecturer 1989-1992 Ministry of Education and Science, speasialist 1976-1989 Mongolian Technical University, lecturer
8. Detailed tasks assigned	1976-1982 Loss in the electrical transmission lines. Three projects 1976-1983 Bread and sweet factory 1993-1995 Inculcate microprocessor and automation to the Power 1983-1985 Power in the unit production

1. Name	D.Halzaa
2. Date of birth	10 Oct. 1948
3. Nationality	Mongol
4. Title	Ph.D, lecturer
5. Education	1972-1979 Moscow Radio and Communication Institute, electrical communication engineer
6. Other training	1972-1974 Mongolian State University. English school 1974-1980 German. Training course of electronic apparatus 1990 Russia. Leningrad training course of definition World parametr.
7. Employment record	1994 to present Mongolian Technical University, lecturer 1972-1994 Science academy. Speasialist
8. Detailed tasks assigned	Publish 18 science report in Mongolia, 4 science report in other countries. Now prepare to publish 2 science report.

1. Name B.Lkhagvadorj

2. Date of birth 19 February 1941

3. Nationality Mongol

4. Title Ph.D, lecturer

5. Education 1961-1965 Uralian Polytechnic Institute, Electrical Mechanic Engineer
1975-1979 German. Weirmart Civil Engineering Institute graduate school. Ph.D
programm.

6. Other training

7. Employment record

From 1983 to Present
E mployer: Mongolian Technical University
Position: Lecturer
From 1966 to 1975
Employer: Ulaanbaatar Electrical Transmission System , Position: Speasialist.
From 1979 to 1983
Employer: Science Academy. Development and location center of productive
forces.
Position: Science worker.
Publish 10 science report and 4 concrete proposal.
Mongolian cities power supply.

8. Detailed tasks assigned

1. Name S.Lyankhtsetseg

2. Date of birth 01 Oct. 1948

3. Nationality Mongol

4. Title Senior lecturer

5. Education 1978-1982 Russia Electrical College.
1983-1988 Russia. Moscow Railway Institute. Electrical Engineering.

6. Other training 1985. Mongolian State University. Education Training Course.
1989. Moscow Railway Institute Training Course.

7. Employment record

From 1983 to Present
Employer: Mongolian Technical University
Position: Senior Lecturer.

Published Science 8 repoets, 3 laboratory handbook , handbook for course project.

8. Detailed tasks assigned

1. Name	S. Erdentuya
2. Date of birth	1968
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1987-1992, Russia. Novosibirsk Electro-Technical University. Hardware Engineer.

6. Other training

7. Employment record	From 1993 to Present Employer: Mongolian Technical University Position: Lecturer
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8. Detailed tasks assigned

1. Name	B. Bat-Erdene
2. Date of birth	1966
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1989-1994 . Mongolian Technical University. Power Engineering School. Electrical Engineer.

6. Other training	1994 to present. Mongolian Technical University. Graduate school. Technical Science Master degree programm.
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7. Employment record	From 1995 to Present Employer: Mongolian Technical University Position: Lecturer
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8. Detailed tasks assigned

1. Name	B.Nyamtseren
2. Date of birth	21 Dec. 1969
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1989-1994 . Mongolian Technical University. Power Engineering School. Electrical Engineer.
6. Other training	1994 to present. Mongolian Technical University. Graduate school. Technical Science Master degree programm.
7. Employment record	From 1995 to Present Employer: Mongolian Technical University Position: Lecturer
8. Detailed tasks assigned	

1. Name	A. Ganbold
2. Date of birth	30 Jan. 1960
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1974-1989. Russia. Bladimir Politechnic Institute. Hardware Engineer.
6. Other training	1992-1995. Japan . Hirosima University. 3 years traning copurse.
7. Employment record	From 1984 to 1992 Employer: Mongolian Technical University Position: Lecturer
8. Detailed tasks assigned	

1. Name	T.Chultemdagva
2. Date of birth	28 Augs. 1952
3. Nationality	Mongol
4. Title	Master of science
5. Education	1970-1976 Irkytsk Politechnic Institute. Power Engineering Department, Electrical Engineer.
6. Other training	1992-1994 Latvia Riga Technical Universitygraduate school. Master of engineering science.
7. Employment record	From 1989 to Present Employer: Mongolian Technical University Position: Senior Lecturer. From 1976 to 1989 Employer: "Gobi" factory Position: Electrical Engineering
8. Detailed tasks assigned	

1. Name	B.Enkhjargal
2. Date of birth	27 Apr.. 1956
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1983-1988 Mongolian Technical University. Power Engineering Department, Electrical Engineer.
6. Other training	
7. Employment record	From 1993 to Present Employer: Mongolian Technical University Position: Lecturer. From 1988 to 1993 Employer: Construction college Position: Lecturer
8. Detailed tasks assigned	

1. Name	Ch.Battulga
2. Date of birth	21 Dec. 1967
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1988-1993 . Mongolian Technical University. Power Engineering School. Electrical Engineering.
6. Other training	
7. Employment record	From 1994 to Present Employer: Mongolian Technical University Position: Lecturer
8. Detailed tasks assigned	

1. Name	B.Sergelen
2. Date of birth	11 Jan. 1967
3. Nationality	Mongol
4. Title	Lecturer
5. Education	1987-1992 . Russia . Ural Technical University. Electrical Engineering.
6. Other training	1995. Singapore. Electrical supply, transmission and distribution.
7. Employment record	From 1992 to Present Employer: Mongolian Technical University Position: Lecturer
8. Detailed tasks assigned	Project of electrical, mechanic and electronic meter with tariff.

CURRICULUM VITAE of T.Uranchimeg

- | | |
|-----------------------------------|--|
| 1. Name | Tudevdagva Uranchimeg |
| 2. Date of birth | 11.09.1969 |
| 3. Nationality | Mongolia |
| 4. Title | Lecturer |
| 5. Education | From 1987 To 1992
Novosibirsk Electro Technical
University (Russia)
Software engineer |
| 6. Other training | 3 months in Japan
From 02.1995-05.1995
Computer Networking
Technologies course |
| 7. Employment record | From 1992 To 1995
Power Engineering School of
Mongolian Technical University |
| 8. Detailed tasks assigned | |

Project name:

Mongolian Technical University

Civil Engineering School

**Curriculum Vitae of full-time faculty in
Department of Structural Engineering and Construction Technology**

Civil Engineering School

Full-time Department of Structural Engineering and Construction technology.

1. Dalain Dashjamts (1948) - BA, MS Uralian Technical University (Russia) Ph.Doctore Moscow Civil Engineering University

Associate Professor (Soil mechanics and Foundation Design, engineering geology, geotechnical aspects of disaster prevention, Engineering in Cold Regions)

Text book- Soil mechanics; Foundation Engineering; Foundation Design Mongolia . Science articles-28.

Short-time course-Asian Institute of Technology in Tailand (1995).

2. Gonchig Bazar (1932)- BA,MS. Mongolian Technical University (Russia) Ph.Doctore Moscow Civil Engineering University (Russia).

Professor (Structural reinforced concretes, Analysis of Structures and Solids; Structural dynamics; Structural mechanics)

Hand book- Reinforced concrete desing and Analysis. Science articles -35.

3. Luvsanjamtsyn Bayar (1942)-BA,MS. Mongolian Technical University .Associate Professor (Structural mechanics and programming)

Hand book- Basis of construction; Analysis of frames, "Basic-programming for all"

4. Zagdyn Binderya. (1953). BA, MS .Mongolian Technical University. Ph.Doctore Civil Engineering University in Leningrad (Russia). Associate Professor (Soil mechanics and Foundation. Design, Quality control and structural experiment methods, vibration control, engineering in Cold Regions, mechanics of permafrost Soil).

Hand-book- Study of interactions of small layid foundations on the sandy cushions with freezing and heaving soil bases;
Laboratory manual for soil mechanics. Science articles-21.

5. Begziin Bathuyg, (1950)- BA, MS .Mongolian Technical University. Ph.Doctore Civil Engineering University in Leningrad (Russia). Associate Professor (Soil mechanics and Structural mechanics). Science Articles-14.

6. Erdene Ganzorig, (1958). BA, MS .Ph. Doctore Mongolian Technical University. Assistant Professor (Analysis of Structures and Solids, computational methods, computer aided Design, finite element analysis). Science Articles-13.

7. Peljee Otgonbayar.(1953)- BA,MS. Mongolian Technical University (Russia) Ph.Doctore Moscow Civil Engineering University
Associate Professor (Structural mechanics and dynamics).
Hand book- Analysis of frames,Science articles -18.

8. Suudiimanan Otgontulga (1971)-BA,MS Mongolian Technical University. Lector (Structural analysis, Seismic analysis of Structures, Steel Structures).

9. Mendbayar Ounchimeg (1970)- BA,MS Mongolian Technioal University. Lector (Structural analysis, wood structures).

10. Jagbaralyn Norob. (1970)- BA,MS Mongolian Technical University. Lector (Analysis of structures, computational methods, Computer aided Design).

11. Rentsing Norob. (1954)- BA,MS Uralian Technical University. Lector (Structural reinforced concrete design and analysis)
Hand book - Reinforced conoctrete design -1
Science articles - 6

Short-time course - Asian Institute of Technology in Thailand
12. Jadambaa Haliun . (1959)- BA,MS Uralian Technical
University. Lector (Structural reinforced concrete design and
Analysis)

Articles - 4

Short-time course - Asian Institute of Technology in Thailand

13. Nanzadyn Battubshin. (1958)-Mongol. BA,MS., 1981
Mongolian State University. Employment record: From 1981 to
Present. Employer - MTU, position- Lector

14. Sanduin Gombodorj. (1962). Mongol. BA,MS in 1984
Mongolian Polytechnical Institute, Employment record: from
1984 to present- MTU, position-Lector.

15. Djugderiin Gerelhuu. (1946). Mongol. BA,MS in 1969 in
Mongolian State University. Employment record: from 1969 to
present- MTU, position- associate Professor.

16. Batyn Nayma. (1938). Mongol. BA, MS in 1962 Moscow
Economics and Statistic institute, Ph.Doctore Moscow Economic
and statistic University in 1971. Employment record: From 1963
to present MTU, position- associate Professor.

17. Darhiihuugiin Ochirbat. (1952). Mongol. BA.,MS in 1976.
Uralian Technical University (in Russia). Ph.Doctore
Leningradian economics Engineering Institute in 1989.
Employment record: From 1976 to present MTU, position-
associate Professor.

18. Baljaa Ojunchimeg.(1955). BA.,MS. Mongolian Polytechnics
Institute in 1985. Employment record: From 1975 to 1992. From
1992 to present MTU, position Lector. (economics and essentials
of accounting)

19. Begz Sarangerel. (1958). BA.,MS Uralian Technical
University in 1983. Employment record: From 1983 to present
MTU, position Lector.

Mongolian Technical University

List of Using Laboratory Equipment

Light Industry Department
School of Power Engineering
School of Information Engineering
School of Civil Engineering

Light Industry Department

List of the using laboratory equipment

No	Name of the equipment	Installation date	Producing country
1	Plane knitting machine,">J@5(120	1992	Russia
2	Plane knitting machine Y-.g @5	1994	Russia
3	Plane knitting machine Lg;kug	1994	Russia
4	Sewing machine 1022 kl	1977	Russia
5	Sewing machine,GC1-2-1	1994	China
6	Overlock machine Textima 8515	1982	Germany
7	Sewing machine Textima 8332/005	1973	Germany
8	Hand sewing machine	1985	Russia
9	Defectometer	1984	Russia
10	Measuring machine	1984	Russia
11	Pacemeter	1984	Russia
12	Monometer	1984	Russia
13	Callipers	1984	Russia
14	Nutrometer	1984	Russia
15	Compressmer	1984	Russia
16	Tachometer	1984	Russia
17	Micromonometer for liquid	1984	Russia

**LIST OF EQUIPMENTS FOR LABORATORY OF INDUSTRIAL
ELECTRONICS AND AUTOMATION OF ELECTRONICS AND AUTOMATION
DEPARTMENT OF POWER ENGINEERING SHCOOL**

Name of equipments	Exploitation date	In wich country is made	Unit	Comment
Oscilloscope CS-1566	1980	Japan	3	
Oscilloscope C1-94	1975	Russia	3	
Signal generator TRIO G-203	1980	Japan	2	
Signal generator	1978	Russia	2	
Electronics training kit	1993	Singapore	4	
National FP1 programmable controller	1993	Japan	6	
IBM PC XT Computer	1978	Malaysia	2	
Computer Philips R3105	1980	Japan	2	
Voltmeter B7-37	1985	Russia	2	
Voltmeter B7-16	1980	Russia	2	
Voltmeter	1980	Rassia	2	
Milivoltmeter	1975	Rassia	2	
Amphermeter	1975	Rassia	2	
Miliamphermeter	1980	Rassia	2	
Sanwa N-501 multimeter	1970	Japan	2	
One board Computer Z-80	1995	Japan	7	
Trainer of microprocessor Intel 8080	1985	Russia	6	

The upgrade course for Electronics and Software specialists will be organized four times in the Electronics and Automation Department from 1995 to 1996:

From Oct 20 to Nov 20 1995 25 people
 From Nov 20 to Dec 20 1995 16 people
 From Feb 10 to March 10 1996 20 people
 From March 20 to April 20 1996 20 people

The course cost is 15000 tugrig for a person.

School of Information Engineering

List of using equipment

1995 - 1996

N	Name of the laboratory equipment	Year of installation	Manufactured country name	Piece of equipment
	<u>Multichannel laboratory</u>			
1	B - 3 - 3 (multiplex equipment)	1974	Russia	2
	B - 12 - 3			1
	ПБ - 3 - 3			1
2	Oscilloscope	1974	Russia	2
3	Millivoltmeter	1974	Russia	3
	<u>Switching technique laboratory</u>			
1	Crossbar exchange (АТСК 50/200)	1974	Russia	1
2	12 subscriber electronic exchange (ЕМ - 4)	1992	Mongolia	1
3	48 subscriber's electronic exchange (ЕМ - 48)	1990	China	1
	<u>Mobile radio telephone communications laboratory</u>			
1	Microvoltmeter ВЗ-40	1977	Russia	2
2	Sound generator ГЗ-102	1984	Russia	1
3	RF generator Г4-102	1984	Russia	1
4	RF generator Г4-107	1977	Russia	1
	<u>Radio-teletudio laboratory</u>			
1	RF generator	1974	Russia	1
2	Power supply	1976	Russia	1
3	Noise generator	1975	Russia	1
4	Low frequency generator	1977	Russia	1
5	Frequency counter	1981	Russia	1
6	Multimeter	1972	Russia	2
7	AM - generator	1979	Russia	1
8	Millivoltmeter	1976	Russia	1
9	Oscilloscope	1974	Russia	1
10	RCL universal bridge	1975	Russia	1
11	Electronic analyser	1978	Russia	1
12	Resistor box	1975	Russia	1
13	Capacitor box	1972	Russia	1
14	TV generator	1981	Russia	1
	<u>Electronic laboratory</u>			
1	RF generator	1974	Russia	1
2	Power supply	1976	Russia	4
3	Low frequency generator	1977	Russia	2
4	Frequency counter	1981	Russia	2
5	Z-channel oscilloscope	1982	Russia	1
6	Multimeter	1972	Russia	6
7	AM - generator	1979	Russia	3
8	Millivoltmeter	1976	Russia	2
9	Oscilloscope	1974	Russia	4
10	RCL universal bridge	1975	Russia	2
11	Electronic analyser	1978	Russia	2
12	Resistor box	1975	Russia	1
13	Pulse generator	1986	Russia	1
14	Curve tracker	1986	Russia	1
15	Microvoltmeter	1976	Russia	3

List of Equipment in the Laboratories (CES)

Laboratory of Soil Mechanics.

	Name of equipment	Amount	Date of man.	Name of country
1.	Direct shear apparatus	2	1985	Russia
2.	Evaporating dishis/soil mortarand pestle	3	1974	Russia
3.	Desiccator	3	1974	Russia
4.	Table top consolidation apparatus GGP-29M	2	1972	Russia
5.	Soil sampling kit	1	1972	Russia
6.	Portable sieve shakers	1	1970	Russia
7.	Laboratory oven	1	1972	Russia
8.	Gram balance	1	1974	Russia
9.	Analytic balance	4	1980	Russia
10.	Metric weight set (2,000 grams)	5	1972	Russia
11.	Thermometers (laboratory)	3	1972	Russia
12.	Aluminum moisture boxes	20	1980	Russia
13.	Glass graduated cylinders	3	1980	Russia
14.	Vernier calipers	1	1972	Russia
15.	Apparatus for coefficient filteretion KF-00	5	1969	Russia
16.	Refrigerator ZIL	1	1970	Russia
17.	Instrument for angle shear UVT-2	3	1969	Russia
18.	Swelling tester PNG-00	3	1969	Russia
19.	Apparatus for distilled water	1	1963	Russia
20.	Theodolit	1	1980	Russia
21.	Niveller	1	1975	Russia
22.	Electrocalculator	1	1975	Russia

Experiment laboratory of Structural Engineering (CES)

	Name of equipment	Amount	Date of man.	Name of country
1.	Comprestion machine:			
	a) PSU-125	1	1972	Russia
	b) UMM-5	1	1972	Russia
2.	Magnetic instruments for testing of reinforced concrete IZS-2	1	1975	Russia
3.	Ultrasound instrument UKB-1M	1	1970	Russia
4.	Tenzometers apparatus			
	a) automatic tenzoapparatus AID-3	1	1982	Russia
	b) tenzoapparatus Isd-3	1	1975	Russia
5.	Dinamometer DOSM	1	1969	Russia
6.	Mechanical vibrograph Vr-1	1	1971	Russia

Laboratory of Construction Materials (CES)

11/24/95

Name of equipment	Amount	Date of man	Name of country
1. Oven	1	1970	Russian
2. Balance (chaindial)	1	1965	Russian
3. Trip Balance	1	1968	Russian
4. Concrete compression machine- 100kN	1	1965	Russian
5. Concrete compression machine- 1250kN	1	1965	Russian
6. Slump Cone	1	1965	Russian
7. Cube mould:			
-100*100*100 mm	15	1970	Russian
- 20* 20* 20 mm	20	1936	Russian
8. Vibrating tables	1	1965	Russian
9. Small curing tank	1	1957	Russian
10. Vicat method	2	1967	Russian
11. Test sieves	10	1970	Russian
12. Ductilometer	1	1965	Russian
13. Thermometer	1	1965	Russian
14. Ultrasonic Testor	1	1970	Russian
15. Penetrometer Bitume	1	1965	Russian

List of Equipment in Laboratories of CES
Study Laboratory of water supply, sewerage and
chemistry of water and microbiology

	Name of equipment	Amount	Date of manufac.	Manufac. country
1	Microscope SBR-1 MBS-3	2	1975	USSR
2	Gram balance	2	1975	USSR
3	Refrigerator "ZIL"	1	1982	USSR
4	pH-meter	1	1975	USSR
5	Drying oven	1	1975	USSR
6	Microscope TP 43.5	1	1975	USSR
7	Press KPP-60	1	1975	USSR
8	Light OC-12	1	1975	USSR
9	Centrifuge CAK-1	1	1975	USSR
10	Microcalorimeter	1	1975	USSR
11	Arifinometer	1	1975	USSR
12	Phot	1	1975	USSR

The Study Laboratory of ventilation and air conditioning

	Name of equipment	Amount	Date of manufac.	Manufac. country
1	Aerodynamic pipe TE92/A (12inch × 3 inch wind tunnel)	1	1974	England Plint and partner Ltd
2	Experimental air conditioner TE94/1823	1	1974	England
3	Ventuator C4-70 N 3.4.5	3	1974	USSR
4	Micromanometer - MMN	1	1975	USSR
5	Anemometer winged	1	1974	USSR
6	Tachometer	1	1974	USSR
7	Tube PFTO	1	1975	USSR
8	Calorifier KFB	1	1975	USSR
9	Thermograph	1	1974	USSR
10	Hygrograph	1	1974	USSR
11	Barofacter Aneriod	1	1974	USSR
12	Psychrometer	1	1974	USSR

11/24/95

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The Building Physics Study Laboratory
of Civil Engineering School

(The laboratory does not work due to old equipment and equipment and equipment's broken)

List of working equipment

	Name of equipment	Amount	Date of man.	Name of country
1.	Psychrometer	1	1975	Russia
2.	Frequencymeter	1	1975	Russia
3.	Barograph	1	1975	Russia
4.	Hydrograph	1	1975	Russia
5.	Thermograph	1	1975	Russia

List of Equipment in the Laboratories (CES)

Laboratory of Soil Mechanics.

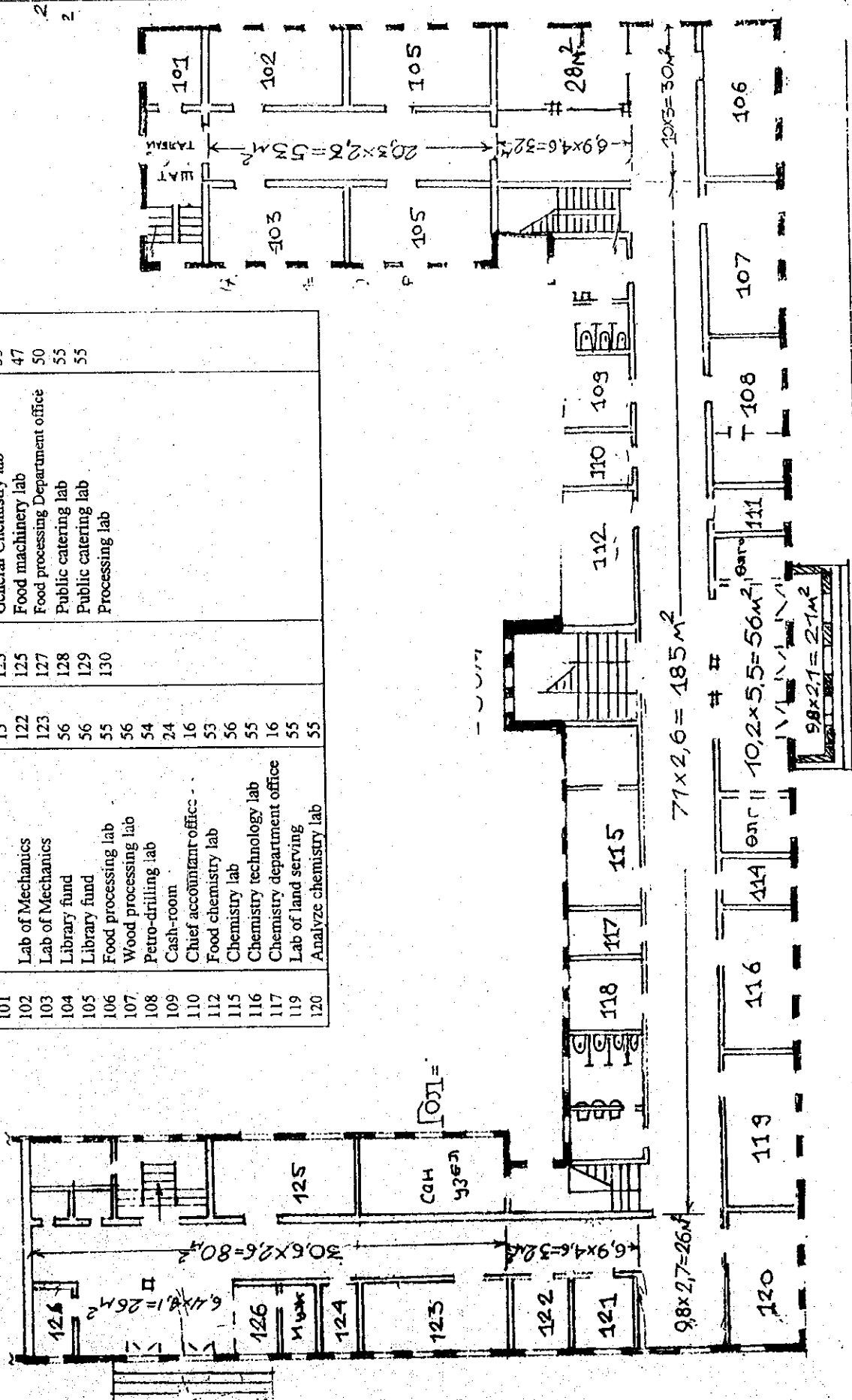
	Name of equipment	Amount	Date of man.	Name of country
1.	Direct shear apparatus	2	1985	Russia
2.	Evaporating dishis/soil mortarand pestle	3	1974	Russia
3.	Desiccator	3	1974	Russia
4.	Table top consolidation apparatus GGP-29M	2	1972	Russia
5.	Soil sampling kit	1	1972	Russia
6.	Portable sieve shakers	1	1970	Russia
7.	Laboratory oven	1	1972	Russia
8.	Gram balance	1	1974	Russia
9.	Analytic balance	4	1980	Russia
10.	Metric weight set (2,000 grams)	5	1972	Russia
11.	Thermometers (laboratory)	3	1972	Russia
12.	Aluminum moisture boxes	20	1980	Russia
13.	Glass graduated cylinders	3	1980	Russia
14.	Vernier calipers	1	1972	Russia
15.	Apparatus for coefficient filteretion KF-00	5	1969	Russia
16.	Refrigerator ZIL	1	1970	Russia
17.	Instrument for angle shear UVT-2	3	1969	Russia
18.	Swelling tester PNG-00	3	1969	Russia
19.	Apparatus for distilled water	1	1963	Russia
20.	Theodolit	1	1980	Russia
21.	Niveller	1	1975	Russia
22.	Electrocalculator	1	1975	Russia

Experiment laboratory of Structural Engineering (CES)

	Name of equipment	Amount	Date of man.	Name of country
1.	Comprestion machine:			
	a) PSU-125	1	1972	Russia
	b) UMM-5	1	1972	Russia
2.	Magnetic instruments for testing of reinforced concrete IZS-2	1	1975	Russia
3.	Ultrasound instrument UKB-1M	1	1970	Russia
4.	Tenzometers apparatus			
	a) automatic tenzoapparatus AID-3	1	1982	Russia
	b) tenzoapparatus Isd-3	1	1975	Russia
5.	Dinamometer DOSM	1	1969	Russia
6.	Mechanical vibrograph Vr-1	1	1971	Russia

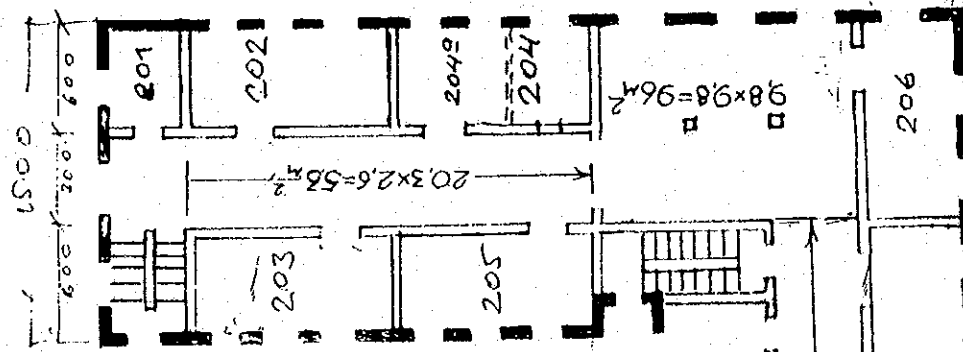
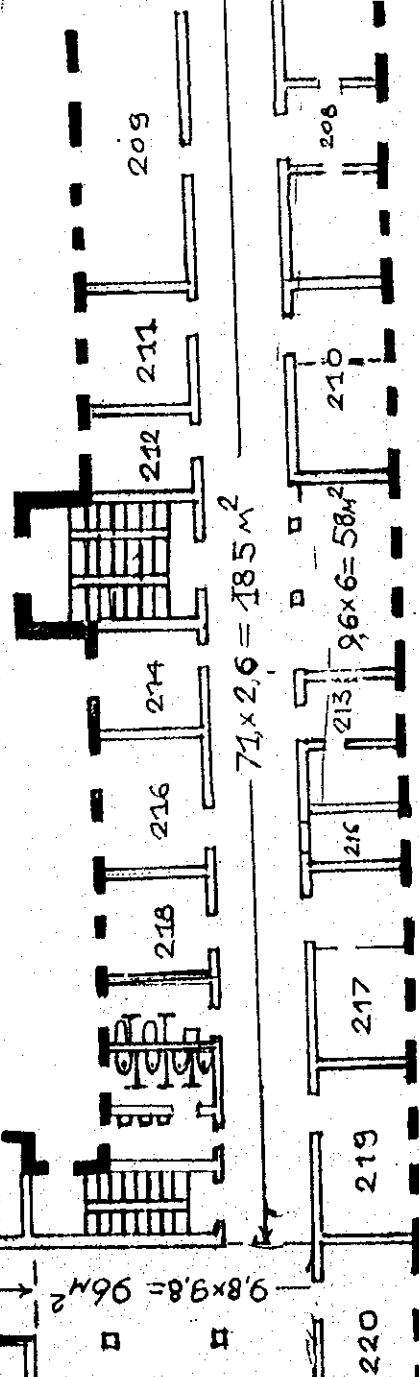
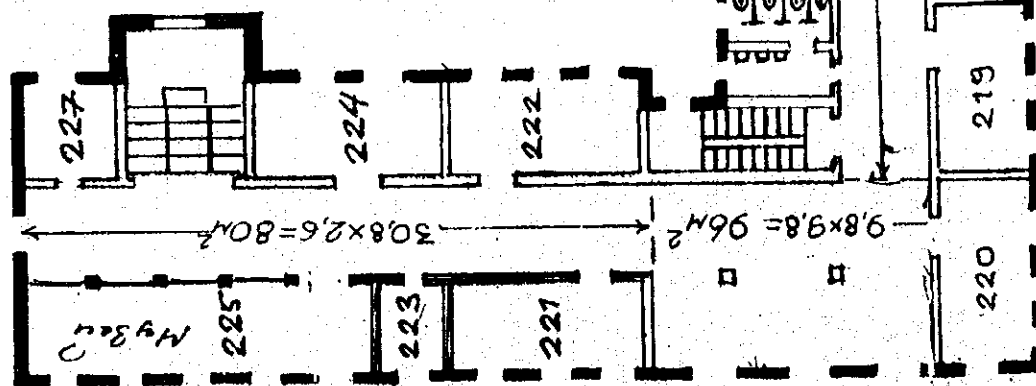
ЛАВХАРЫН БАЙГУУЛАЖИМ

No	Prescription	area m ²	No	Prescription	area m ²
101	Lab of Mechanics	15	123	General Chemistry lab	53
102	Lab of Mechanics	122	125	Food machinery lab	47
103	Library fund	123	127	Food processing Department office	50
104	Library fund	56	128	Public catering lab	55
105	Library fund	56	129	Public catering lab	55
106	Food processing lab	55	130	Processing lab	
107	Wood processing lab	56			
108	Petro-drilling lab	54			
109	Cash-room	24			
110	Chief accountant office	16			
112	Food chemistry lab	53			
115	Chemistry lab	56			
116	Chemistry technology lab	55			
117	Chemistry department office	16			
119	Lab of land serving	55			
120	Analyze chemistry lab	55			



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No	Prescription	area m ²	No	Prescription	area m ²
201	Computer room	16	222	Prospecting lab	51
202	Computer room	56	223	Geology and Mineralogy Department	18
203	Computer room	56	224	Mineralogical museum	51
204 a	Accounting office	24	225	Mineralogical museum	91
204		36	227		28
205		39	228	Petrographics lab	55
206		55	229	General geology lab	55
208		73	230	Genetics mineralogical lab	57
209	Computer network room	54	231	Structural Geology lab	57
210		29	232	Minerals lab	57
211		24	233	Geophysicist lab	57
212		37	234	Aerophoto geology lab	54
213		24	235		17
214		17	236		
215		29			
216		54			
217		31			
218		55			
219	Science library				



Floor plan of the second floor. The plan shows a central corridor (323) and two main rooms: 320 on the left and 321 on the right. Room 320 contains a desk and a chair. Room 321 contains a desk and a chair. The plan also shows a staircase (322) and a small room (324) at the top. Dimensions are provided for the rooms and the corridor.

Room 320: $13 \times 2,6 = 36 m^2$

Room 321: $16,4 \times 8,6 = 141 m^2$

Corridor 323: $13 \times 2,6 = 36 m^2$

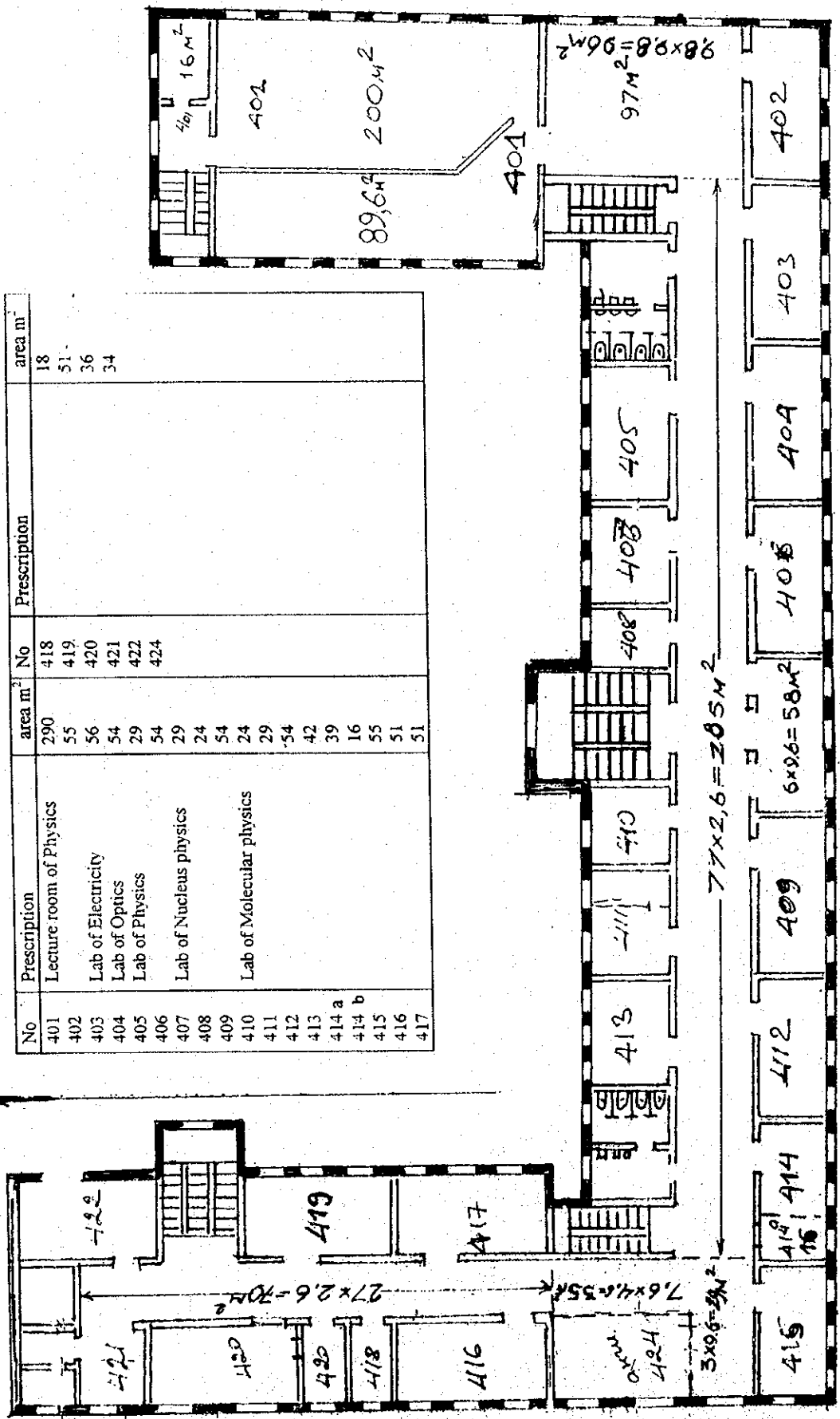
Staircase 322: $13 \times 2,6 = 36 m^2$

Small room 324: $13 \times 2,6 = 36 m^2$

IV

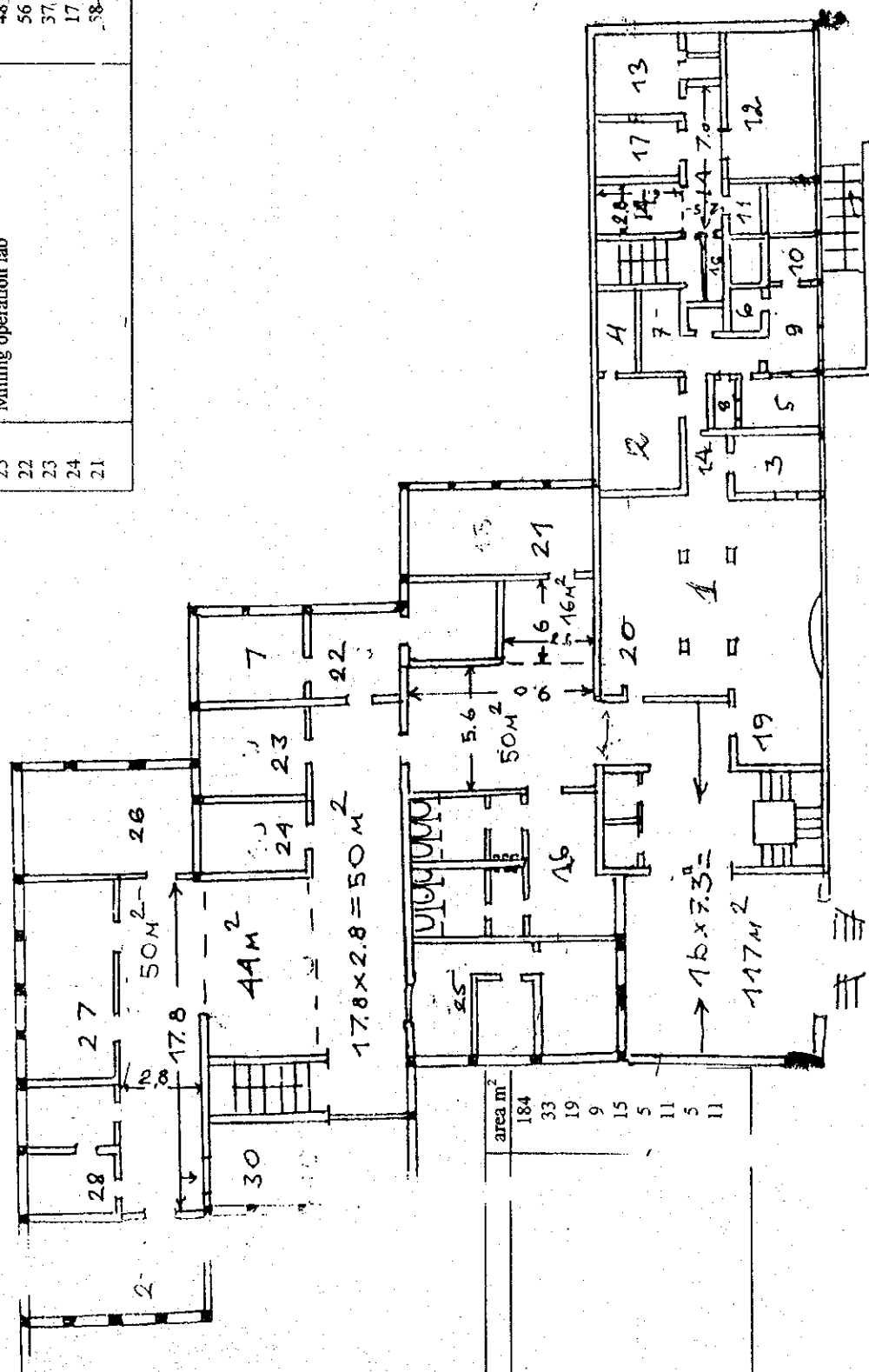
IV ДАВХАРЫН БАЙГУУЛАЛТ

No	Prescription	area m ²	No	Prescription	area m ²
401	Lecture room of Physics	290	418		18
402		55	419		51
403	Lab of Electricity	56	420		36
404	Lab of Optics	54	421		34
405	Lab of Physics	29	422		
406		54	424		
407	Lab of Nucleus physics	29			
408		24			
409		54			
410	Lab of Molecular physics	24			
411		29			
412		54			
413		42			
414 a		39			
414 b		16			
415		55			
416		51			
417		51			



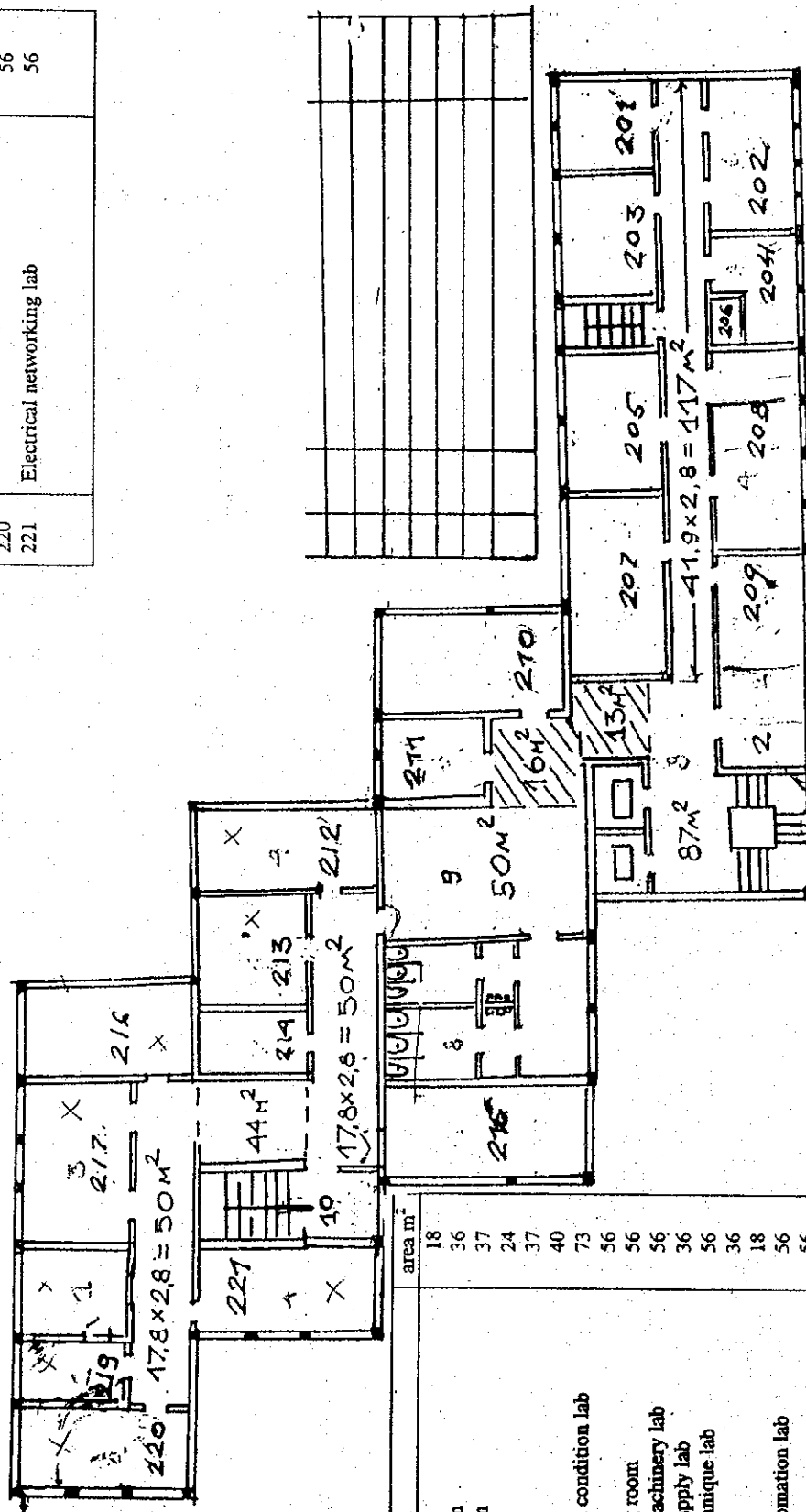
1-р ПАВХАРЫН БАЙГУУЛАЛ

No	Prescription	area m ²
28		30
29	Mining electrical machinery lab	54
30	Mining electrical machinery lab	54
27	Mining electrical machinery lab	73
26		54
25	Mining operation lab	48
22		56
23		37
24		17
21		58



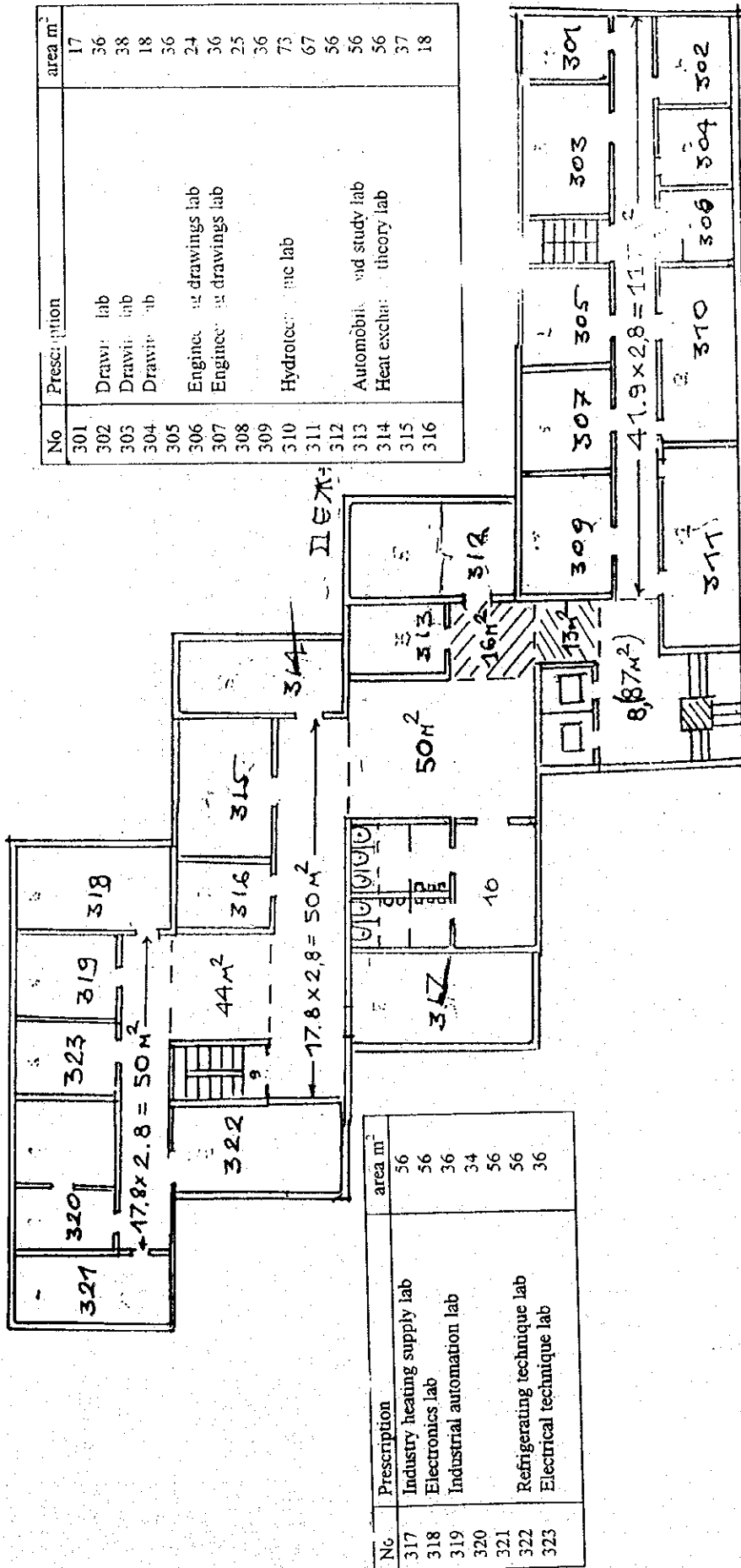
No	Prescription	area m ²
	Cafeteria	184
		33
		19
		9
		15
		5
		11
		5
		11

No	Prescription	area m ²
220		56
221	Electrical networking lab	56



No	Description	area m ²
201		18
202	Design room	36
203	Design room	37
204		24
205		37
206		40
207	Heating and condition lab	73
208		56
209	Art drawing room	56
210	Electrical machinery lab	56
211	Electrical supply lab	36
212	Heating technique lab	56
213		36
214		18
215	Heating automation lab	56
216		56
217	Technical thermodynamics lab	73
218		
219		34

3-Р ПАВХАРЫН БАЙГУУЛАГДАН



Hand-drawn floor plan of a building. The plan shows a central corridor and various rooms. The rooms are labeled with numbers: 414, 415, 416, 417, 418, 419, 420, 421, 422, and 423. The plan also shows a staircase and a large room labeled '421'.

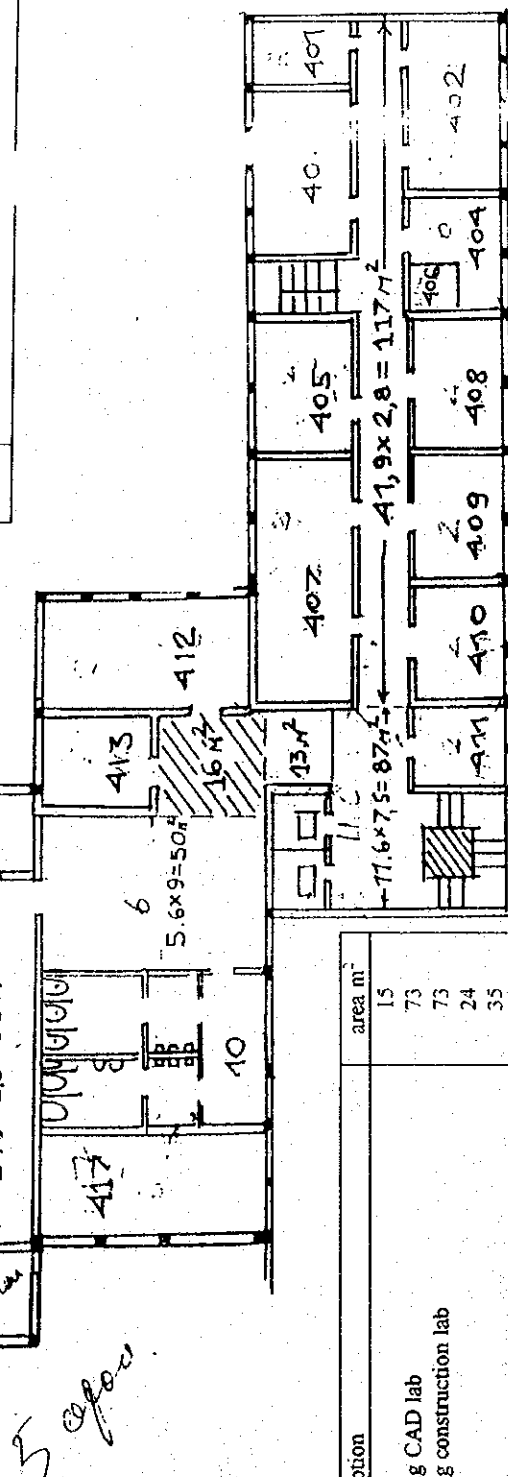
Dimensions and areas:

- Room 418: $17.8 \times 2.8 = 50 \text{ m}^2$
- Room 415: $5.8 \times 3.6 = 21 \text{ m}^2$
- Room 422: $17.8 \times 2.8 = 50 \text{ m}^2$

Other labels and notes:

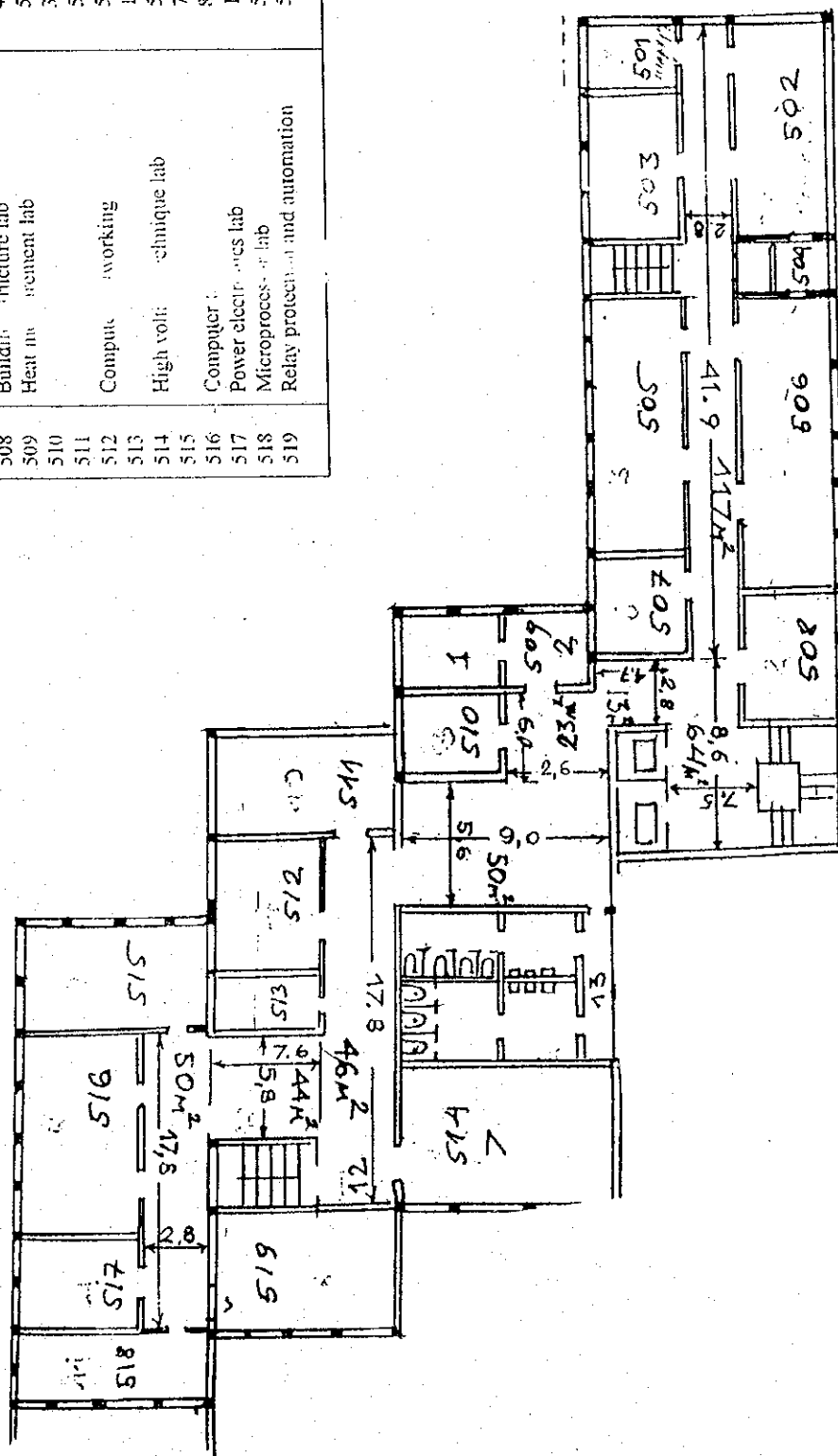
- Room 421: *Handwritten note: 421*
- Room 422: *Handwritten note: 422*
- Room 414: *Handwritten note: 414*
- Room 415: *Handwritten note: 415*
- Room 416: *Handwritten note: 416*
- Room 417: *Handwritten note: 417*
- Room 418: *Handwritten note: 418*
- Room 419: *Handwritten note: 419*
- Room 420: *Handwritten note: 420*
- Room 423: *Handwritten note: 423*

No	Prescription	area m ²
416		17
417	Steam generator's lab	55
418	Thermo power station	55
419		73
420		34
422		60
423		55



No	Prescription	area m ²
401		15
402	Building CAD lab	73
403	Building construction lab	73
404		24
405		35
406		
407		72
408		35
409	Computer lab	35
410		35
411		35
412		35
413		36
414		55
415		36

No	Purpose	area m ²
501		30
502	Arch	91
503	Arch	54
504		
505		91
506		91
507		36
508	Building structure lab	47
509	Heat treatment lab	57
510		36
511		58
512	Computer working	54
513		14
514	High voltage technique lab	59
515		76
516	Computer	89
517	Power electronics lab	15
518	Microprocessor lab	59
519	Relay protection and automation	59



11. 学生数一覧

The number of students in MTU

As of 1995-1996 academic year

°	Profession	Total	I	II	III	IV	V
1	Hydra electrical station building and usage	47	30	11		6	
2	Autoroad build eng.	80	36	14	10	9	11
3	Architecture	83	30	19	19	15	0
4	Building eng. technology	10			10		
5	Civil eng.	145	59	21	20	16	29
6	Sanitary eng.	134	47	23	14	18	32
7	Industrial design	66	36	30			
8	Sanitary eng. (evening)	41	30	11			
9	Autoroad eng. (evening)	30	30				
10	Civil eng. (evening)	47	30	17			
	↑ Civil engineering school	683	328	146	73	64	72
11	Geology eng.	84	28	19	10	14	13
12	Geophysics	24	0	14	10		
13	Hydrageology	27	15	0	4	6	2
14	Marksheder	64	22	14	8	10	10
15	Geodetic	10			5	5	
16	Mining enrichment	77	31	26	20		
17	Mining usage	96	31	31	14	15	5
18	Mining electrical supply	107	37	25	15	15	15
19	Oil production	130	42	35	31	12	10
20	Drilling	10				6	4
	↑ School of Geology and Mining	629	206	164	117	83	59
21	Electrical eng.	363	99	74	50	75	65
22	Power energy	256	90	46	33	53	34
	↑ Power Engineering school	619	189	120	83	128	99
23	Light industry technology	159	48	31	29	29	22
24	Light industry mechanics	73	26	8	12	10	17
25	Clothes design	130	48	37	30	15	
26	Sawing technology	74	44	30			
27	Wood production technology	70	28	8	14	8	12
28	Wood industry mechanics	41	24	6	3		8
	↑ School of light industry eng.	547	218	120	88	62	59
29	Food supply technology	159	62	44	19	22	12
30	Food industry mechanics	77	29	14	14	13	7
31	Public catering technology	174	56	42	25	23	28
	↑ School of food technology	410	147	100	58	58	47
32	Chemistry technology	94	44	32	18		
33	Research of material	48	20	12	16		
	↑ Fundamental education center	142	64	44	34		
36	Industrial management	334	93	121	57	54	9
37	Electronics & automatics	193	66	66	28	14	19
38	Computer software	206	82	57	36	16	15
	↑ School of Comp.science & manag.	733	241	244	121	84	43
39	Information technique and technology	321	164	109	19	16	13
40	Operation eng.	50		33	17		
41	Electrical communication	55			24	15	16
42	Radio communication	45			19	13	13
43	Electronics	41			16	14	11
44	Engineering Economics	14			14		
	↑ School of information technique	526	164	142	109	58	53
45	Automobile eng.	271	92	56	45	39	39
46	Road building machinery	87	30	24	10	13	10
47	Internal combustion engines	46	26	20			
	↑ School of transportation eng.	404	148	100	55	52	49
48	Building materials technology	64	23	12	14	7	8

49	Metallurgy	47	14	7	9	10	7
50	Machinery industry technology	70	18	11	14	13	14
51	Machinery & technology of building materials	43	14	8	11	10	
52	Food production technology	37	26	11			
53	Public catering technology	54	28	26			
54	Food industry mechanics	29	18	11			
↑	Technological institute in Darkhan	344	141	86	48	40	29
55	Engineering translators	47	47				
↑	Foreign language center	47	47				
Total		5084	1893	1266	786	629	510

The number of students in MTU Vocational Training Centers

As of 1995-1996 academic year

1	Civil engineering school's training center	215	86	74	55		
2	Transportation eng. school's training center	174	136	38			
3	Darkkhan branch's training center	49	25	24			
Total		438	247	136	55		

The employment of graduated students for 1995

№	Profession	Number of graduates	employed	in country side	in cities
1	Architecture	10	9	4	5
2	Building eng. technology	37	30	6	24
3	Civil eng.	31	28	7	21
4	Sanitary eng.	6	4	1	3
	↑ Civil engineering school	84	71	18	53
5	Geology eng.	8	6	4	2
6	Geodetic	13	9	4	5
7	Mining usage	6	5	3	2
8	Mining electrical supply	6	4	2	2
	↑ School of Geology and Mining	33	24	13	11
9	Electrical eng.	27	22	8	14
10	Power energy	32	28	11	17
	↑ Power Engineering school	59	50	19	31
11	Light industry technology	13	12	3	9
12	Light industry mechanics	9	6	2	4
13	Clothes design	1	1		1
14	Sawing technology	20	16	6	10
15	Wood production technology	8	6	4	2
16	Wood industry mechanics	2	2		2
	↑ School of light industry eng.	53	43	15	28
17	Food supply technology	19	15	4	11
18	Food industry mechanics	4	3	1	2
19	Public catering technology	29	26	7	19
	↑ School of food technology	52	44	12	32
20	Industrial management	15	12	4	8
21	Electronics & automatics	18	15	5	10
22	Computer software	25	22	9	13
	↑ School of Comp.science & manag.	58	49	18	31
23	Information technique and technology	58	48	26	22
	↑ School of information technique	58	48	26	22
24	Automobile eng.	22	19	6	13
25	Road building machinery	11	8	3	5
	↑ School of transportation eng.	33	27	9	18
26	Machinery industry technology	8	6	2	4
27	Machinery & technology of building materials	15	12	4	8
	↑ Technological institute in Darkhan	23	18	6	12
	Total	453	374	136	238

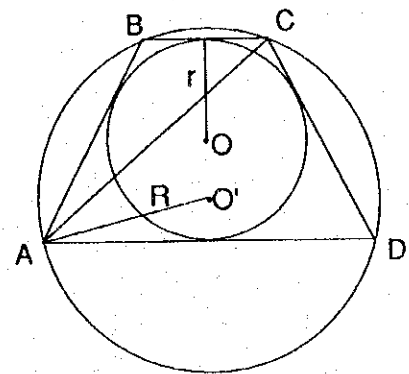
MTU入学試験問題・例

数学

[A種]

- 1) 2桁の正の数 ab がある。この数より9を引くと、 ab の10の桁の数字と1の桁の数字の位置が入れ代わったもの ba に等しくなる。1の桁と10の桁の数をそれぞれ2乗し、足したものが13となる条件下において、 a, b を求めよ。

- 2) 右図に示すように、円が内接する等脚台形 $ABCD$ の周囲の長さは16cm、対角線 AC の長さが5cmである。台形の面積、および外接円と内接円の半径を求めよ。



- 3) 次の関数の x の範囲を求めよ。

$$y = \sqrt{\frac{1}{|x-1|}} + \sqrt{2-x} + \sqrt{x-0.5}$$

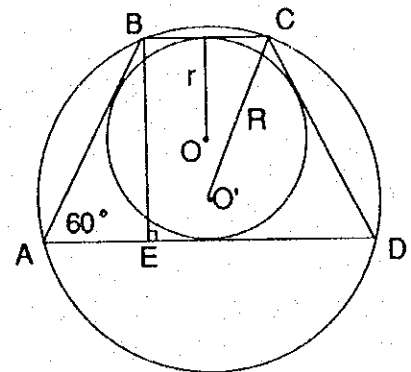
- 4) 次の方程式を解け。

$$\frac{(24)^{x^2}}{(9)^{x^2/2}} - (2)^{x^2} - 6 = 0$$

[B種]

- 1) 2桁の正の数 ab がある。この数の10の桁の数字の2乗に、1の桁と10の桁の数字との積を足したものは52である。また、1の桁の数字の2乗に、1の桁と10の桁の数字との積を足したものは117となる。このとき、 a, b を求めよ。

- 2) 右図に示すように、円が内接する等脚台形 $ABCD$ がある。 $\angle BAD = 60^\circ$ とする。 $ED + AB = 1$ のとき、内接円と外接円の半径を求めよ。



- 3) 次の関数の x の範囲を求めよ。

$$y = \sqrt{|x|-1} + \sqrt{3-x} + \sqrt{x-2}$$

- 4) 次の方程式を解け。

$$\frac{(54)^x}{(4)^{x/2}} + (9)^x - 2 = 0$$

化学

[A種]

1. 酸化還元反応、および電気分解について述べよ。電気分解の応用について記せ。
2. エタノールの構造、性質、製法と応用について述べよ。
3. 質量140.8 gの銅を硝酸銀の溶液にしばらく置いた後、質量は171.2 gになっていた。それを32%の硝酸 ($\rho=1.2\text{g/ml}$) に溶かした。溶解に要する硝酸の体積Vを求めよ。
4. 飽和な1原子第一アルコールの脱水素反応により生成する気体不飽和炭化水素の体積は、同じ量の上記のアルコールを燃焼させたときに生成した二酸化炭素の体積より3倍少なかった。上記のアルコールは何だったか。また、このアルコール3gを燃やして生成される二酸化炭素を吸収するのに、0.2MのKOHの溶液が何ml必要か。

[B種]

1. 電気分解の法則と分解度、強いあるいは弱い電気分解質、水の電気分解、イオンの反応、それぞれについて知るところを述べよ。
2. カルボン酸の性質、化合物
3. 一価の2つの金属の硝酸化物(?)の混合物を赤熱したら、8.96 lの気体が生じた(normal状態)。残物を水に溶かしてみると、一部分が溶けた。溶けなかった部分に十分な硝酸を加えてみたら、4.48 lの茶色の気体が生じた。1つの硝酸化物の質量は34 gで、もう片方が20.2 gだった。この2つの金属は何と何だったか。
4. ブタノールとnponuon酸の混合物に十分な NaHCO_3 を加えたらガスが生じた。このガスの体積は、上記の混合物を同量、完全に燃やすときに生ずるガスの体積に比べると15倍少なかった。当混合物を燃やすのに48.16 l酸素が使われたとして、混合物の成分を%で表せ。

[A2種]

1. 2A族の元素、これらの原子構造、性質、CaとMgの性質、水の硬さについて述べよ。
2. フェノールの性質、製法、応用について記せ。
3. 750 g、88%の酢酸溶液を得るために25%の酢酸溶液と(?)何グラムが必要か。
4. ベンゼンとトルエンの混合物を酸化すると8.54 g n有機酸が生成する。この酸を NaHCO_3 と反応させることにより生じるガスは、最初の混合物を燃やして生じるガスより19倍少なかった。当混合物の成分を%で表しなさい。

[B2種]

1. 周期表のI族の原子構造はどうなっているか。アルミニウムの性質、重要な化合物、応用について記せ。
2. (?)は、自然界にどのように存在するか。分子構造、性質、応用について記せ。
3. 500 g、25%の硫酸溶液を98%の硫酸溶液と水から作る場合、98%の硫酸溶液と水はそれぞれ何グラム必要か。
4. ホルムアルデヒドとエタノールの100 g 混合溶液 KMnO_4 で酸化させたら30 g有機酸とガスが生成した。そのガスを Ba(OH)_2 溶液中に投入した結果、20 g沈澱が生じた。混合溶液中のホルムアルデヒドとエタノールの割合を%で表しなさい。

13. 大学予算

The Mongolian Technical University¹⁵
of budget expenditure execution
(ths.tgs)

Budget	1990	1991	1992	1993	1994	1995
Revenue	22559.1	36154.5	47317.1	138250.5	389057.4	549106.9
-Government	16440.2	33305.3	44502.0	121371.0	240000.0	394000.0
-Tuition fee,etc.				15000.0	126664.4	127658.7
-Self revenue	5616.3	2849.2	2815.1	1727.6	9838.6	27448.2
-Others	502.6			151.9	12554.4	
Expenditure	17384.9	33383.9	47317.1	162922.7	449863.6	527862.2
-Administrative cost	130.0	217.8	214.7	252.0	275.0	300.0
-Light,water,heating,etc.	1265.3	2272.4	4380.8	25540.3	92729.8	150324.3
-Operation/Maintenance	129.0	203.7	530.4	1746.3	1570.9	52901.7
-Salaries	6481.9	11171.5	0.0	46867.6	154658.2	257194.4
-Food	0.0	0.0	0.0	0.0	0.0	0.0
-Facility and equipment	62.3	944.2	39320.0	2549.2	30622.3	12400.0
-Others	9316.4	18574.3	2871.2	85967.3	170007.4	54741.8

