### GADJAH MADA UNIVERSITY

# a history of the college of engineering

1964





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A HISTORY

of

THE COLLEGE OF ENGINEERING GADJAH MADA UNIVERSITY

by

Prof. Ir. Soewandi Notokusumo



JOGJAKARTA, INDONESIA

1964

#### A NOTE ON PUBLICATION

The Indonesian language edition of this History of the College of Engineering, Gadjah Mada University was first published in the spring of 1964 for distribution during the University's open house celebration, March 30 to April 4. The celebration, which included a Science and Engineering Exhibition staged by faculty and students, was in commemoration of the 600th birthday of Indonesia's great Prime Minister, Gadjah Mada, after whom the University was named. Translation of the History into English was undertaken by members of the Engineering faculty of Gadjah Mada University, and during the summer of 1964 the present edition was printed in the United States by the Gadjah Mada Project (funded by the United States Agency for International Development), the Department of Engineering of the University of California, Los Angeles, California.



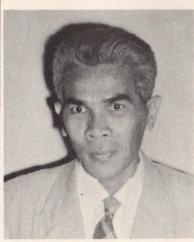
Prof. Ir. Rooseno, first Dean of the Technical High School, 1946-1947.



Prof. Dr. Sardjito, first President of Gadjah Mada University, 1950-1961.



Prof. Ir. Wreksodiningrat, first Dean of the College of Engineering, Gadjah Mada University, 1947-1949.



Prof. Ir. H. Johannes, formerly Dean of the College of Engineering, 1951-1954 and 1955-1956, now Rektor (President) of Gadjah Mada University.

### ACADEMIC OFFICERS OF THE ENGINEERING FACULTY GADJAH MADA UNIVERSITY

Dean

Secretary

1949-1950

Prof. Ir.\* Wreksodiningrat

1950-1951

Prof. Ir. Wreksodiningrat

1951-1954

Prof. Ir. H. Johannes

Ir. Soewandi Notokusumo

Prof. Ir. M. Soenarjo

Prof. Ir. Soewandi Notokusumo

1955-1956

Prof. Ir. H. Johannes

Prof. Ir. M. Soenarjo

1956-1958

Prof. Ir. Soewandi Notokusumo Ir. A. Antono

1958-1960

Prof. Ir. Soepardi Surjoputranto R. Soeroso Notohadiprawiro

1960-1962

Prof. Ir. M. Soenarjo

R. Soeroso Notohadiprawiro

1962-1964

Ir. Soewarno Wirjomartono

Vice-Deans

1st, Ir. Pragnojono Mardjikun

2nd, Ir. Ida Bagus Agra

3rd, Ir. Soegihardi

(Resigned as of Dec., 1963)

3rd, Ir. Winoto Martoadiprawito (Appointed as of Dec., 1963)

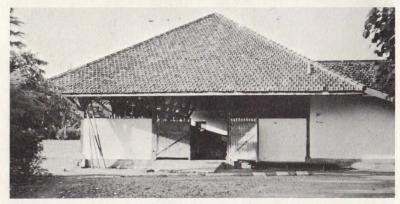
<sup>\*</sup>In Indonesian, the double title "Professor Insinjur" (abbreviated as "Prof. Ir.") follows the European custom of honoring the individual by indicating all his degrees and titles, whether academic or other. "Professor Insinjur" does not carry the same meaning as the American "Professor of Engineering," however, the latter being simply an explanatory academic title. Rather, the Indonesian title indicates that the individual has the academic rank of full professor and is, in addition, a professional (or practicing) engineer.



Left to right, Dean Soewarno, Dean Soenarjo, Dean Soepardi, Dean Soewandi Notokusumo, President Johannes, and Dean Wreksodiningrat of the College of Engineering, Gadjah Mada University.



Ir. Soewarno, present Dean of the College of Engineering.



First building occupied by the Technical High School, Kota Baru, Jogjakarta.

Prof. Ir. Wreksodiningrat, and the Secretary was Ir. Soemani, who was later succeeded by Prof. Ir. Soenarjo. Outside lecturers included: Prof. Ir. Soepardi Soerjopoetranto, Prof. Ir. Soemadijo, Prof. Ir. Oerip Iman Soedjono, Mr. Endong Soenarjo, and Mr. Soeroso Notohadiprawiro.

Some of the buildings of the Technical High School in the district of Djetis, and the hydraulics laboratory of the Ministry of Public Works, in Pingit, were then made available to the College of Engineering.

In 1950 it became evident that because of a shortage of qualified teachers the Department of Mechanical-Electrical Engineering could not be maintained, so the department was suspended. The Faculty then began to stress the development of the Departments of Mathematics and Physics, with the following principal instructors: Prof. Ir. H. Johannes, Ir. Kusumaningrat, Ir. R. M. J. T. Soehakso, and Mr. Wirasto.

In 1951 Prof. Ir. H. Johannes was elected Dean of the Faculty, and Prof. Ir. Soenarjo the Secretary. And at this time, the staff in Chemical Engineering was increased to include Prof. Drs. Sardjono, Dr. U. Schmiescheh (West Germany), Dr. Gergeley (a United Nations leather expert from Jugoslavia), Mr. Whitfield, M.Sc. (Australia), Mr. Soedikno, and Miss Partroesti Soedibjo.

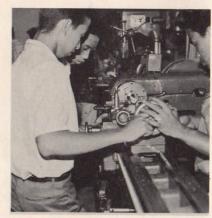
With this staff it was possible to prepare the first class for graduation in Chemical Engineering, in 1955. And from amongst the graduates Ir. Soegihardi and Ir. Winoto were appointed instructors.

Prof. Ir. Johannes had been continued as Dean, and Prof. Ir. Soewandi had replaced Prof. Ir. Soenarjo as Secretary. During this period, however, so many tasks had to be performed by members of the Faculty that the burden was very heavy. One man, Mr. Alkaf, Chief of the Administrative Office, who had transferred from Bandung, even died from overwork on October 23 of the year 1954.

A year later Prof. Ir. Soewandi was appointed Minister of Higher Education in Djakarta, and Prof. Ir. Soenarjo returned to the position of Secretary of the Faculty.



Checking a calibration run in a distillation column.



Laboratory studies in the Department of Mechanical Engineering.

BY now the College of Engineering was growing so rapidly the Faculty thought it desirable to divide it into two colleges. The College of Sciences was established, which included the Departments of Mathematics, Physics, and, later, Chemistry. Prof. Ir. Johannes was elected Dean of this new College, and Prof. Ir. Soenarjo became its Secretary. The professors in the new College of Science continued to give lectures and to conduct laboratories, as needed, for the College of Engineering. In the College of Engineering, Prof. Ir. Soewandi became Dean, and Ir. Achmad Antono became Secretary. Then, in 1958, Prof. Ir. Soepardi Soerjopoetranto was appointed Dean and Mr. Soeroso Notohadiprawiro Secretary.

The Department of Mechanical Engineering was reopened in 1959, with Prof. Ir. Soenarjo and Ir. Soesilo, from the Railway Office, as the principal instructors. And the following year Ir. Dharmawan Tjipto Harijono, from Bandung, was added to the departmental staff.

That same year, 1959, the Department of Geodesy (Surveying) and Geology was established, with Prof. Ir. Ali Djojadinoto, Ir. J. Rais, and Mr. Soeroso Notohadiprawiro as instructors.

Early the next year, a part of the College of Engineering was able to move into one of the new buildings, Unit IV in the area Sekip, which had been built and occupied temporarily by a Colombo Plan conference. This building was assigned primarily to Chemical Engineering. In 1960, also, Prof. Ir. Soenarjo was appointed Dean, and Mr. Soeroso was continued as Secretary.

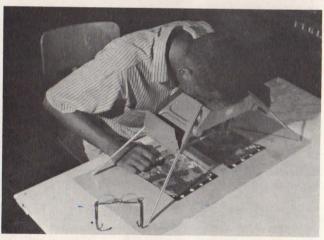
The College continued to grow, and in 1962 the Board of the Faculty was enlarged to provide for three Vice-Deans. The new Board was now composed of Ir. Soewarno Wirjomartono as Dean; Ir. Pragnjono Mardjikoen as First Vice-Dean, in charge of academic matters; Ir. Ida Bagus Agra as Second Vice-Dean, in charge of fiscal affairs; and Ir. Soegihardias Third Vice-Dean in charge of student affairs.

At the same time Geology and Geodesy (Surveying) became separate departments. A Department of Architecture was also established, with Ir. Samingoen as the principal instructor.

The Department of Electrical Engineering was initiated in 1963, under Ir. Dharmawan Tjipto Harijono as Chairman of



Problem solving in the Laboratory of the Department of Chemical Engineering.



Pursuing a project in the Department of Geodesy.



Drawing board problems in design, Department of Architecture.

## A HISTORY OF THE COLLEGE OF ENGINEERING GADJAH MADA UNIVERSITY

by Prof. Ir. Soewandi Notokusumo

A NEW College of Engineering was born in Bandung on August 15, 1945, when the city was forcibly taken from the Japanese by the newly-formed Republic of Indonesia. The College was started by Indonesian students and officials, who first escorted the Japanese prisoners working at the old college from Bandung to Garut, a small town south of Bandung. There the Japanese were interned for delivery to the Allied Forces.

The new institution was staffed by Indonesian instructors, including Prof. Ir. Goenarso, Prof. Ir. Soenarjo, Prof. S. M. Abidin, and Prof. Ir. Soewandi. Prof. Ir. Rooseno was elected Dean of the Faculty.

Not long after the college was opened the Dutch, helped by the English (the so-called Allied Forces), began to return to their old pre-war domination. Then the clash between the Republic of Indonesia and the English army broke out, and because of this the Government of the Republic moved its capital from Djakarta to Jogjakarta, in central Java. The Dean and the Faculty thought it advisable to move the newly-established College of Engineering to Jogjakarta, to be near the Central Government, Jogjakarta at that time being the quieter and safer of the two cities. In November, 1945 lectures were suspended at the College because the buildings were occupied by the Dutch-English army.

A committee was then formed in Jogjakarta to establish a private university to be known as Universitas Gadjah Mada, named for an illustrious prime minister of the 14th century. Prof. Ir. Rooseno, a member of the Air Force who had been evacuated to Jogjakarta, was one of the committee members charged with the opening of the College of Engineering. It was at this time that the decision was made to move the College from Bandung to Jogjakarta.

On January 6, 1946, the move was begun. Students helped by carrying library books, archives, and laboratory equipment. It was then decided that the College of Engineering would not join the private Gadjah Mada University, but would stand independently as the first national university in Jogjakarta. With authorization from the Ministry of Education, and with the assistance of the Military Government and of Ir. Marsito, the principal of the Senior High School, the College of Engineering was transferred from Bandung and was opened there on February 12, 1946. Classes were held in the afternoon, in the High School of an area known as Kota Baru. And housing for the instructors who had come from Bandung was provided by the Military Government.

The College of Engineering included departments similar to those formerly at Bandung: Civil Engineering, Mechanical-Electrical Engineering, and Chemical Engineering.

A Technical High School, which also consisted of three departments, was then opened, where classes met in the afternoon, using the workshops of the Technical School in the Lempujangan district. The principal of this Technical High School was Prof. S. M. Abidin.

The officers of the College of Engineering were Prof. Ir. Rooseno as Dean, and Prof. Ir. Soewandi as Secretary; and the new College was assisted by experts from the several Ministries and Technical Officers, men who had been evacuated to Jogjakarta. Among the part-time instructors were the following:

Prof. Ir. Poerbodiningrat
Ir. Marsito
Prof. Ali Djojoadinoto
Ir. Sardjono
Prof. Ir. Soemarman
Ir. Putuhena
Prof. Ir. Sutedjo
Prof. Ir. Wreksodiningrat
Ir. Kusumaningrat
Ir. Sarengat
Prof. Ir. Soemono
Prof. Ir. Mertonegoro

Sana Budojo Museum
Senior High School
National Industrial Bank
Ministry of Public Works
Railway Office
Railway Office

It was difficult to obtain instructors for the Department of Mechanical-Electrical Engineering, however, because there were at that time very few in Indonesia who were properly qualified. To help solve this problem the Board of the Faculty requested that several of the full-time instructors in civil engineering, including Prof. Ir. Rooseno and Prof. Ir. Soenarjo, study the courses and give lectures in Mechanical Construction. Lectures in Electrical Engineering were conducted by Ir. Soedoro of the Indonesian Electric Company and by certified mechanics from the Railway Office. The Department of Chemical Engineering relied on the efforts of Ir. Soepardi Prawironegoro, Mr. Kahar, Mr. Nazir, Prof. Ir. Johannes, and Prof. Drs. Sardjono.

MEANWHILE, on March 3, 1946 the original committee was able to establish the private Gadjah Mada University, thanks to the great assistance of Sultan Hamengku Buwono IX, who made the pavilion of Sitihinggil in Pagelaran available for class rooms and offices.

Examinations in civil engineering were given for the first time in October, 1946. These were given to students who had been ready to take examinations at the former Technische Hogeschool in Bandung, but who were prevented from doing so by the war. Among those who graduated was Prof. Ir. H. Johannes, who later became a first rank professor, and who more recently was made Rektor (President) of Gadjah Mada University.

On March 1, 1947, Prof. Ir. Rooseno and Prof. S. M. Abidin moved to Djakarta. The Ministry of Public Works released Prof. Ir. Wreksodiningrat for full-time duty, and he was thereupon appointed Dean of the Faculty. Prof. Ir. Soewandi became Secretary of the Faculty, and Prof. Ir. Soenarjo became head of the Technical High School.

With the renewal of hostilities on December 19, 1948 the Dutch army attacked Jogjakarta, and both the College of Engineering and Gadjah Mada University were closed. They were reopened when sovereignty was returned by the Dutch government to the Republic of Indonesia.

On December 19, 1949 Gadjah Mada University was constituted a national university, formed by combining the former private Gadjah Mada University and the national College of Engineering. The Dean of this new College of Engineering was



Second building occupied by the College of Engineering, Gadjah Mada University, Djetishardjo, Jogjakarta.



Present building occupied by the College of Engineering, Gadjah Mada University, Sekip, Jogjakarta.

Mechanical and Electrical Engineering; and students who had started in Mechanical Engineering were then permitted to transfer to the new department. At the same time the Department of Architecture was strengthened by the appointment of instructors secured from the Institute of Technology at Bandung, and from the Ministry of Public Works.

During these latter years of growth the College of Engineering was severely handicapped, not only by the shortage of qualified teachers but also by the need for additional laboratory equipment. Seeking assistance in solving these problems, the Government of Indonesia negotiated with the Government of the United States of America for the loan of teaching experts and for apparatus and equipment. This led to an affiliation with the Department of Engineering of the University of California at Los Angeles. Professor T. E. Hicks came to Gadjah Mada University, arriving in 1955 to teach for a year and to survey the needs and possibilities. This resulted in a recommendation that chemical engineering now be given the principal emphasis, since civil engineering was by then well established. The Field Staff who came from the United States to Gadjah Mada in 1957 were: Prof. Wesley L. Orr, Chief of Party, Engineering Economics; Prof. George Lamb, Chemical Engineering; Prof. Richard Holroyd, Chemistry; Prof. Richard Johnson, Engineering Materials (Professor Johnson returned to the United States in 1958 because of illness); Prof. Harry Showman, Engineering Graphics (Professor Showman also served as Mechanical Superintendent); and Mrs. Verna Matthay, Secretary.

In September, 1959 Professors Lamb and Holroyd, and Mrs. Matthay returned to the United States, and the new staff members who replaced them were: Prof. William Van Vorst, Chemical Engineering; Prof. William Knapp, Ceramic Engineering; Prof. Francis Hutchinson, Mechanical Engineering; Prof. George Hansen, Geology; Prof. Jacob Frankel, Metallurgy, Nuclear Engineering; and Miss Kathleen Grogan, Secretary.

Additional members who arrived in Indonesia a year later were: Prof. Ralph Tapy, Electrical Engineering; and Prof. W. Buell Evans, Mathematics.

Professor Hicks returned to Gadjah Mada in March, 1961 for a four-month tour of duty, and the following August Professors



Book display in the College of Engineering during the open house exhibition of March 30 to April 4, 1964. Freely translated, the legend on the rear wall reads "In the Library Are Found the Sources that Contribute to Scientific Research."

Orr, Frankel, Knapp, Hutchinson, and Showman returned to the United States.

New staff members who thereupon joined the project were: Prof. Van Vorst, Chief of Party; Prof. Willard Sutton, Ceramic Engineering; Prof. Buchanan Cargal, Mathematics; Prof. Neils Edlefsen, Physics; Prof. Marshall Cook, Chemical Engineering; Prof. Alex Petroff, Fluid Mechanics and Aeronautics; Prof. Russell Perry, Mechanical and Agricultural Engineering; and Mr. Alfred Whittle, Architecture, who also served as part-time Administrator.

In August, 1963 Professors Van Vorst, Hansen, Cargal, Edlefsen, Cook, Petroff and Whittle, also Miss Grogan, completed their work in Indonesia. Professor Perry then became Chief of Party, and the following new staff members arrived: Prof. Wendell Mason, Mechanical Engineering, and Associate Chief; Prof. Harley Dillingham, Electrical Engineering; Prof. John Feyk, Mechanical Engineering, and part-time Administrator; and Miss Edith Francis, Administrative Assistant.

In March of 1964 Prof. Daniel Klemme, Geologist, joined the staff.

DURING this period, too, Lecturers from the Gadjah Mada College of Engineering were sent to the United States to study for one or more years, and by December of 1963 thirteen had returned to Indonesia to assume positions of added responsibility. These included Ir. Soewarno, who was elected Dean in 1962, and Ir. Ida Bagus Agra, Ir. Soegihardi, and Ir. Winoto. The latter three were elected Assistant Deans.

As this account is being written fifteen other Lecturers and Assistants who have gone to the United States more recently are continuing their studies, and seven Professors or Lecturers, either from the College of Engineering or the College of Science, have been able to go for short periods to observe both the organization of other universities and the facilities for engineering and science education. These institutions have included not only many in the United States but a number in other countries as well.

Because of the close relationship between the Colleges of Engineering, Science, and Agricultural Technology at Gadjah Mada University, thirty-four Lecturers or Assistants from the two latter colleges have also had the opportunity to study abroad. Three of these have served as Deans of Engineering or Science, and two as Secretary or Assistant Dean.

In addition to direct assistance in teaching and in the training of professors and lecturers, the UCLA Engineering-Gadjah Mada Project has provided laboratory equipment for those departments needing additional apparatus; and through the US AID organization funds have been made available for the construction of houses for resident teachers and for a shop and laboratory building. The first wing of a new Engineering building was started in March, 1964, in the Sendowo district, near the administration building and the new laboratory.

For this assistance, the Faculty of the Gadjah Mada University College of Engineering expresses its deepest appreciation to the US Agency for International Development (AID, formerly ICA) and to each staff member who has served on the UCLA project. Not only has a close relationship been developed between the University of California and the Gadjah Mada University teaching staff; the wives of the staff members have also helped to create an atmosphere of good understanding, through clubs devoted to English conversation, and to establish a cultural exchange between Indonesians and Americans.

In order to acquaint the public with the progress of the College of Engineering, the Faculty of the University held a *Pameran Ilmiah*, or Open House and Engineering Exhibition, March 30 to April 4, 1964. In this way, people were made aware of the contribution which the study of engineering is making to the progress of Indonesia. This booklet, the *sedjarah*, or history, of the College of Engineering, was prepared for distribution at the Exposition. It was later translated into English and republished in the United States.



### ENROLLMENT AND ENGINEERING GRADUATE FIGURES GADJAH MADA UNIVERSITY

1945 to January, 1964, inclusive

Academic Year	Total Enrollment	Engi Civil	0	Students G Mechanica	
1945-1946	467	6			
1946-1947	332	4			
1947-1948	205	2			
1948-1949		1			
1949-1950	203				
1950-1951	182	2			
1951-1952	317	7			
1952-1953	719	11			
1953-1954	926	10			
1954-1955	1019	12			
1955-1956	1092		25		
1956-1957	1213	25	4		
1957-1958	1105	22	13		
1958-1959	1100	60	14		
1959-1960	1291	44	24		
1960-1961	1309	43	31		
1961-1962	1361	70	39		
1962-1963	1656	30	52		
1963-1964					
(Jan.)	1939		10	3	1
		349	212	3	1

#### Appendix II

### FACULTY MEMBERS OF THE COLLEGE OF ENGINEERING GADJAH MADA UNIVERSITY

### I. Professors, Permanent Appointments

1.	Prof. Ir. Wreksodiningrat	Djl. Tjik Di Tiro No. 37, Jogjakarta.
2.	Prof. Ir. S. Purbodiningrat	Dil. Pantangpuluhan No. 10b,
	(Deceased, May 6, 1964)	Togjakarta.
3.	Prof. Ir. Soewandi Notokusumo	Bulaksumur A/12, Jogjakarta.
4	Prof Ir M Soenario	Bulabsumur A/13 Ingiabarta

### II. Professors, Temporary Appointments

1.	Prof. Ir. Soepardi Surjoputranto	Djl. Sagan Ari No. 114, Jogjakarta.
2.	Prof. Ir. Mertonegoro	Dil. Tosari No. 10, Djakarta III/8.
3.	Prof. Ir. Soemarman	Djl. Pandanaran No. 169, Semarang.
4.	Prof. Ir. Oerip Iman Soedjono	Djl. Riau No. 113, Bandung.
5.	Prof. Ir. Go Dhiam Ing. S. H.	Djl. Pegangsaan Timur No. 76, Djaka.
6.	Prof. Ir. H. Johannes	Dil. Simandjuntak No. 3, Jogjakarta.
7.	Prof. Ir. R. M. J. T. Soehakso	Bulaksumur C/13, Jogjakarta.
8.	Prof. Dr. Russell L. Perry	Bulaksumur 1/3, Jogjakarta.
9.	Prof. Dr. W. J. Sutton	Sekip M/1, Jogjakarta.
10.	Prof. Ralph W. Tapy	Sekip K/7, Jogjakarta.
11.	Prof. John A. Feyk	Sekip M/7, Jogjakarta.
12.	Prof. Wendell E. Mason	Bulaksumur 1/2, Jogjakarta.
13.	Prof. H. C. Dillingham	Bulaksumur I/6, Jogjakarta.
14.	Prof. Ir. Soemono	Dil. Prof. Eyckman No. 35, Bandung.
15.	Prof. Ir. Mugiono	Bulaksumur A/17, Jogjakarta.

### III. Lecturers, Permanent Appointments

1.	R. Soeroso Notohadiprawiro	Tedjakusuman V/286, Jogjakarta.
2.	R. Endong Soenarjo	Dil. Sagan Ari No. 117, Jogjakarta.
3.	Ir. Achmad Antono	Bulaksumur D/9, Jogjakarta.
4.	Ir. Soewarno Wirjomartono	Bulaksumur 1/7, Jogjakarta.
5.	Ir. Pragnjono Mardjikun	Bulaksumur M/2, Jogjakarta.
6.	Ir. Winoto Martoadiprawito M. Sc.	Bulaksumur C/17, Jogjakarta.
7.	Ir. Hardjasa Prodjopangarso	Djl. Taman Krido No. 23, Jogjakarta.
8.	Ir. Soegiarto,	Bulaksumur D/14, Jogjakarta.
9.	Ir. Ida Bagus Agra	Bulaksumur D/19, Jogjakarta.
10.	Ir. Sri Warnijati Agra	Bulaksumur D/19, Jogjakarta.
11.	Ir. Dharmawan Tjipto Harijono.	Djl. Mlati No. 6, Jogjakarta.
12.	Ir. Harsaja Dirdjosubroto	Djl. Demangan No. 55A, Jogjakarta.
13.	Ir. Hardjono	Flat U.G.M. E/6, Jogjakarta.
14.	Ir. Soebono	Djl. Kebon Dalem No. 6, Jogjakarta.
15.	Ir. Parmono Atmadi	Bulaksumur E/7, Jogjakarta.

#### IV. Lecturers, Temporary Appointments

1v. Lecturers, Temporary Appointments					
1.	Dra. Zr. Bernardia	Rumah Sakit Panti Rapih, Jogjakarta.			
2.	Ir. P. J. Soedarjono	Bulaksumur D/21, Jogjakarta.			
3.	Ir. Margono Notodihardjo	Dil. Mlati No. 12, Jogjakarta.			
4.	Ir. F. Kuijper S. J.	Asrama Realino, Jogjakarta.			
5.	R. Warsono	Dil. Madjapahit No. 3, Djakarta.			
6.	Ir. J. Rais	Dil. Sultan Agung No. 115, Semarang.			
7.	R. M. Wasisto Surjadiningrat M. Sc.	Bulaksumur B/5, Jogjakarta.			
8.	Ir. Jutono	Flat U.G.M. D/6, logjakarta.			
9.	Drs. Soediono Wachid	Djl. Soka No. 5, Jogjakarta.			

10	Ir. Soenarto	Hotel Garuda Kamar No. 38, Jogja.
11.	Drs. Harsono Pringgoprawiro	Djl. Iman Bondjol No. 19, Bandung.
12.		Djl. Setiabudi No. 235, Bandung.
13.	Ir. Soeparman Sentot	Djl. Ranggamatela No. 4a, Bandung.
14.	Nj. Sri Soedewi M. S. SH.	Dil. Seraju No. 9, Jogjakarta.
	Drs. P. C. Soeratman M. Sc. E.	Flat U.G.M.
	Ir. Widodo Martopuspito	Djl. Pakuningratan No. 17, Jogja.
17.	Ir. Mulhim Kartodharmo	Bag. Tambang I.T.B.
18.		Surokarsan Mg I/188, Jogjakarta.
19.	Ir. Ars. Sampurno Samingun	Mritjan Baru 18/IV, Jogjakarta.
20.	Nj. Soemarti S. H.	Flat U.G.M. E/2, Jogjakarta.
21.	Ir. Tedjojuwono N.	Tedjokusuman V/286, Jogjakarta.
22.	Ir. A. Madjedi Hasan	Djl. Tjilamaja No. 1, Bandung.
23.	Drs. Soemantri	Djl. Rotowidjajan 15, Jogjakarta.
24.	Moch. Setiadjai Sastroamidjojo M. Sc.	Bulaksumur C/22, Jogjakarta.
25.	Ir. Soediro	Fak. Technik Undip, Semarang.
26.	Drs. Hindersah Wiriatmadja	Fak. Ekonomi U.G.M.
27.	R. M. Soepandi	Fak. U.G.M. Sekip/Flat.
28.	Drs. Bambang Rijanto	Fak. Ekonomi U.G.M.
29.	Drs. Hasjim	Djl. Kranggan 22, Jogjakarta.
30.	Ir. R. Soegoto	Djl. Madura No. 39, Djakarta.
31.	Ir. Pudjirahardjo	Dil. Tundjungan No. 80, Surabaja.
32.	Dr. Rubini Soeratmadja	I. T. B. Dep. Geologi Bandung.
33.	Drs. Soenoto	Flat B/3, Sekip, Jogjakarta.

### V. Research Engineers

1. Ir. Ali Soerono	Bulaksumur A/3, Jogjakarta.
2. Ir. Djoko Wurjanto	Bulaksumur A/3, Jogjakarta.
3. Ir. Soepalih	Dil. Ronodigdajan No. 15A, Jogja.
4. Ir. Soetomo Purodiprodjo	Kemetiran Kidul Gt V/2, Jogjakarta.
5. Ir. Bambang Soehendro.	Sagan 4 No. 2, Jogjakarta.
6. Wardijasa B. E. (Canada)	Wirogunan, Jogjakarta.
7. Ir. Soegeng Djojowirono	Dil. Sosrowidjalan No. 18A, Jogja.
8. Ir. Soetojo	Dil. Kranggan No. 8, Jogjakarta.
9. Ir. Soejoko	2/11/2018/88/11/2010/ 10/8/40/40/40
10. Bomo W. Tijoso	

Ir. Soewandi
 Ir. Bondan Hermani Slamet
 Ir. Toto Slamet
 Ir. Ign. Sumardi
 Ir. Rubachman
 Ir. Robachman
 Ir. Soemarno Adiwidjaja

Bulaksumur A/3, Jogjakarta.
Bulaksumur A/3, Jogjakarta.
Bulaksumur A/3, Jogjakarta.
Sosrokusuman No. 9, Jogjakarta.
Prawirodirdjan D6/350, Jogjakarta.

### VI. Teaching Assistants

1.	Irjanto	8.	Iman Wahjono
2.	Soekotjo	9.	Dwidjo Rohadi
3.	Tjahjono Adi.	10.	Prijono
4.	Djoko Walijatun	11.	Rachmad Prawirohartono
5.	Abiratno	12.	Tandjung Mursanto
5.	Gito Sanjono		Entang Samsi
	Soepono Sastroputro		Arjono Suwarno B. Sc.

15. R. Soemadi.