

## 附 属 資 料

### 1. 農 学 部 資 料

### 2. 工 学 部 資 料

(資料内容)

- 1) 教 官 名 簿
- 2) 教 官 採 用 計 画
- 3) 教 官 研 修 計 画
- 4) 現 在 の 研 究 プ ロ グ ラ ム
- 5) Research Policy

### 3. 派 遣 中 専 門 家 一 覧 表



附屬資料 1. 農学部資料

Appendix 1 Staff List of Department of HORTICULTURE

| No | X A K E       | AGE | Academic Qualification and Year awarded | Designation | Specialized Area          | Subjects able to cover in Syllabus for degree course  | R e m a r k s (e.g. COO. Deon, necessity of further study etc.) |
|----|---------------|-----|---|-------------|---------------------------|---|---|
| 1. | E. M. Kahangī |     | Msc. 1980                               | Lecturer    | Olericulture & Seed Tech. | AE2306/Olericulture<br>AE2309) I & II.<br>AE2415 Seed Tech.<br>AE2216 Plant Prop.<br>AE2208 Principles of Hort.<br>AE2404 Biotechnology                           | C O D   |
| 2. | Hunja murage  |     | Msc. 1989                               | A/Lecturer  | Breeding                  | AE2313 Plant Breeding<br>AE2204 Genetics & Cytogenetics<br>AE2404 Electrometry<br>AE2405 Biometry   |   |
| 3. | B. M. Indiro  |     | Msc.                                    | A/Lecturer  | Crop Science              | AE2415 Seed Sci. & Technology<br>AE2201 Plant Physiology<br>AE2313 Plant Taxonomy<br>AE2402 Ecology & Env. Science<br>AE2205 Animal Sci. Lang. Comm. Dev. Studies |   |
| 4. | E. N. Marage  |     | Msc. 1990                               | C/Asst.     | Olericulture              | AE2306/Olericulture<br>AE2309) I & II<br>AE2216 Plant Prop.<br>AE2208 Principles of Hort.<br>AE2409 Post-Harvest Phy. & Tech.                                     |   |

Appendix 1 Staff List of Department of HORTICULTURE

| No | K A K E        | AGE | Academic Qualification and Year awarded | Designation | Specialized Area                           | Subjects able to cover in Syllabus for degree course  | R e m a r k s<br>(e.g. COD. Dean, necessity of further study etc.) |
|----|----------------|-----|---|-------------|--|---|--|
| 5  | W. Kariuki     |     | Msc.<br>Course work<br>Year awarded     | G/Asst.     | Floriculture                               | HE2307 Floricult-<br>HE2310 ture I&II<br>HE2216 Plant Prop-<br>HE2208 Principles<br>of Hort.<br>HE2409 Post Harv.<br>Physiology<br>& Tech.<br><br>HE2405 Annual &<br>Perennial<br>Crops<br><br>HE2313 Plant<br>Breeding<br>HE2304 Genetics &<br>Cytogenetics<br><br>HE2415 Seed Sci.<br>HE2401 Intro. to<br>Gen. Agric.<br>& Agronnet<br>HE2405 Ann. & Perse-<br>nial Crops<br>HE2214 Soil Chem.<br>HE2209 Soil Gen.<br>& Classifi-<br>cation<br><br>HE2308 Pomology<br>HE2311 I & II<br>HE2216 Plant Prop<br>HE2208 Principles<br>of Hort-<br>HE2409 Physiology<br>& Tech. |  |
| 6. | Obara Okeyo P. |     | Msc. 1990                               | A/Lecturer  | Pl. Breeding                               |   |  |
| 7. | Olango' V. O.  |     | Msc.                                    | A/Lecturer  | Agronomy                                   |   |  |
| 8. | E. Njve        |     | Msc.                                    | Lecturer    | Soil Science                               |   |  |
| 9. | C. X. Ndirgu   |     | Msc.<br>Course work<br>Year awarded     | G/Asst.     | Pomology and<br>Post Harvest<br>Technology |   |  |

Appendix 1 Staff List of Department of HORTICULTURE

| No | N A M E        | AGE | Academic Qualification and Year awarded | Designation | Specialized Area | Subjects able to cover in Syllabus for degree course  | R e m a r k s<br>(e.g. COO. Dean, necessity of further study etc.) |
|----|----------------|-----|---|-------------|------------------|---|--|
| 10 | N. Gatahi Mugo |     | Msc. 1990                               | A/Lecturer  | Soil Science     | AE207 Geology & Geomorphology<br>AE214 Soil Survey genesis & classification<br>Land Evaluation.   |  |
| 11 | Agong S. G.    |     | Msc. 1990                               | A/Lecturer  | Pi. Breeding     | AE2313 Plant Breeding<br>AE2304 Genetics and Cytogenetics<br>AE2313 Biometrics<br>AE2101 Introduction to Agric. & Agronomet.<br>AE2415 Seed Sci. & Tech.<br>AE2405 Annual & Perennial Crops |  |
| 12 | A. N. Theuri   |     | Msc. Course work                        | G/Asst      | Floriculture     | AE2307 Floriculture<br>AE2310 Floriculture I&II<br>AE2208 Principles of Hort.   |  |

Appendix 2 Academic Staff Recruitment Plan of Department of HORTICULTURE

| Designation  | Speciality                    | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total           | Possibility of Local Availability  |
|--------------|-------------------------------|---------|---------|---------|---------|---------|-----------------|------------------------------------|
| Professor    | Horticulture                  | -       | 1       |         |         |         | 1               | Difficult                          |
| Ass/Prof.    | Horticulture                  |         |         |         | 1       |         | 1               |                                    |
| Ass/Prof.    | Agronomy                      |         |         | 1       |         |         | 1               |                                    |
| S/Lecturer   | Pomology                      |         | 1       |         |         |         | 1               |                                    |
| N/Lecturer   | Agronomy                      |         | 1       |         |         |         | 1               |                                    |
| S/Lecturer   | Floriculture                  |         | 1       |         |         |         | 1               | Difficult                          |
| S/Lecturer   | Olericulture                  |         | (1)     |         |         |         | 1               |                                    |
| S/Lectuer    | Soil Science                  |         |         |         | 1       |         | 1               |                                    |
| Lecturer     | Pomology                      |         |         | 1       |         |         | 1               |                                    |
| Lecturer     | Breeding                      |         |         | (3*)    |         |         | 3               |                                    |
| Lecturer     | Landscape Des. & Management   |         | 1       |         |         |         | 1               | Difficult                          |
| Lecturer     | Olericulture                  |         |         | 1       |         |         | 1               |                                    |
| Lecturer     | Floriculture                  |         |         | (1)     |         |         | 1               |                                    |
| Lecturer     | Agronomy                      |         | (2)     |         |         |         | 2               |                                    |
| Lecturer     | Soil Science                  | (2)     |         |         |         |         | 2               |                                    |
| Lecturer     | Crop Protection               |         | 1       |         |         |         | 1               |                                    |
| N/Lecturer   | Horticulture                  |         | (1)     |         |         |         | 1               |                                    |
| N/Lecturer   | Agronomy                      | 1       |         |         |         |         | 1               |                                    |
| G/Assistant  | Landscape Des. & Floriculture |         |         | 2       |         |         | 2               | Recruit from our own Bsc. Students |
| C/A Lecturer | Floriculture                  |         | (1)     |         |         |         |                 |                                    |
| C/A Lecturer | Floriculture                  |         | (1)     |         |         |         |                 |                                    |
| Total        | -                             |         |         |         |         |         | 26 <sup>+</sup> |                                    |

\* Overstaffed in this area but breeders can also teach agronomic and science courses.

+ Includes the existing 14 staff. ( )

Appendix 3 Staff Development Plan of Department of HORTICULTURE  
 (Please include those who are now on study leave)

| N A M E      | Area of Study           | 1991  | 1992  | 1993  | 1994  | 1995  | Type of Study required |
|--------------|-------------------------|-------|-------|-------|-------|-------|------------------------|
|              |                         | April | April | April | April | April |                        |
| E.M. Kahangi | Olericulture            | ----- |       |       |       |       | Ph.D.                  |
| E. N. Murage | Olericulture            |       | ----- |       |       |       | Ph.D.                  |
| C. K. Ndungu | Pomology                |       | ----- |       |       |       | Ph.D.                  |
| W. Kariuki   | Floriculture            |       |       | ----- |       |       | Ph.D.                  |
| A. O. Watako | Floriculture            | ----- |       |       |       |       | M.Sc.                  |
| A. N. Theuri | Floriculture*           |       |       |       |       |       |                        |
| V. O. Olango | Agronomy                | ----- |       |       |       |       | Ph.D.                  |
| I. Lavusa    | Agronomy                |       |       |       | ----- |       | Ph.D.                  |
| P. O. Okeyo  | Breeding                |       |       |       | ----- |       | Ph.D.                  |
| S. G. Agong  | Breeding                |       | ----- |       |       |       | Ph.D.                  |
| H. Murage    | Breeding                | ----- |       |       |       |       | Ph.D.                  |
| E.M. Gichuki | Entomology <sup>+</sup> |       |       |       |       |       |                        |
| N. Mgai      | Soil Science            | ----- |       |       |       |       | Ph.D.                  |
| Gatahi Mwago | Soil Science            |       |       | ----- |       |       | Ph.D.                  |

\* Not known when the M.Sc. will be completed.

+ No interest in further training. Has requested for transfer.

Appendix 4 List of Current Research Programmes in Department of HORTICULTURE

| Name of Researcher                          | Title of Research   | Published or not  | Source of fund    |
|---|---|---|-------------------|
| E. M. Kahangi                               | Physiological studies on causes of pre-mature bolting of locally produced carrot seed   | -   | Looking for funds |
| E. M. Kahangi                               | Effects of altitudes on flowering rates, seed yields and seed quality of carrot.  | -   | Looking for funds |
| E. M. Kahangi,<br>Y. Fujime,<br>E. Nakamura | Report on premature bolting of locally produced carrot seed.  | *Accepted in 1990 for publication in J. Hort. Science             | JICA              |
| E. M. Kahangi<br>Y. Fujime<br>E. Nakamura   | Effects of chilling and growth hormones on runner production of Japanese June bearing - strawberries.                                   | In press<br>J. Hort. Sci.   | JICA              |
| L. Mwajurwa<br>E. M. Kahangi<br>J. Imunge   | Nutritional Evaluation of indigenous vegetables found and eaten in Kenya  | Accepted for publication in 1990 in "Ecology and Food Nutrition". | -                 |
| C. K. Nkungu<br>Shioni, Agong<br>and Kita   | Ripening characteristics of fruits attached on the plant and those harvested at different maturities for some tropical fruits in Kenya. | None  | JICA              |
| Agong S. G.,<br>Obara P. O. &<br>Shioni S.  | Groundnut (Peanut) <u>Arachis hypogea</u> (L.) improvement project.   |   |                   |
| Hunja Murage                                | Orchid culture and problems   | -   | -                 |

\* Noted by the referees of the J. Hort. Science as new knowledge and highly significant if confirmed by further research.

Appendix 5      Research Policy of Department of HORTICULTURE

1. Objectives.
2. Areas of Priority.
3. Strategies.
4. Possible research to be undertaken, and
5. Requirements for the implementation.

1 & 2. Objectives and areas of Priority

(i) Solving practical technical problems facing the horticultural farmers especially in:

- Shortage of horticultural seed and propagation material
- Lack of cultivars adapted to our conditions especially soils and climate in semi-arid and arid areas.
- Lack of knowledge in growing cut flowers.

(ii) Practical solutions to reduce spoilage of horticultural produce after harvest.

(iii) To teach relevant research skills to students.

3. Strategies

Staff development to Ph.D level in order to produce competent researchers.

4 & 5 Requirement

Competent Japanese Professors to assist the department in implementing research in the above areas.

Appendix 6 Area of Research interested by Staff in Department of HORTICULTURE

| Name          | Area of Interest  |
|---------------|---|
| E. M. Kahangi | Physiological and environmental studies on production of Seed and Propagules of various horticultural crops.  |
| Obara P. O    | Vegetable Breeding, specifically quality improvement, the use of embryo-culture to overcome cross-incompatibility and biochemical approval to disease resistance studies.     |
| Olango' V. O  | Aspects fo minimum tillage involving various horticultural crops.   |
| C. K. Ndungu  | Fruit ripening; physiological and biochemical changes as affected by pre-harvest conditions and storage conditions.   |
| E. Njue Muga  | Micronutrient status of vertisols<br>Nutritional control of fungus diseases - use of calcium and solicon.   |
| M. Gatahi M.  | Land quality requirements of crops.<br>Effectiveness of rainfall and plant available moisture.<br>Soil genesis and classification.  |
| Agong. S. G.  | Vegetable breeding, drought and salinity tolerance by use of enzymological studies; Hybrid seed production particularly in tomatoes ( <u>Lycopersicon esculentum L.</u> )     |
| E. N. Murage  | Vegetable nutrition: Plant nutrition and its effect on nutritive quality and physiological disorders.   |
| B. M. Indire  | Environmental physiology aspects of horticultural crops.<br>Indigenous and traditional vegetables (and fruits).<br>Plant ecological adaptation studies (including weediness). |
| A. N. Theuri  | Effects of Nitrogen nutrition on various florist crops.   |
| W. Kariuki    | Nutrition, watering regimes, lighting, morphological and physiological studies and post-harvest factors in floricultural crops.   |
| Gichuki E. M  | Non-chemical control of insect pests with opecial emphasis on cultural control.   |
| H. Murage     | Micropropagation as a means of conserving the gemplasm of local orchids.  |

## Appendix 1

## STAFF LIST

30th November, 1990

## DEPARTMENT : AGRICULTURAL ENGINEERING

## FACULTY : AGRICULTURE

| No | NAME          | DESIGNATION       | FIELD             | AGE | QUALIFICATION       | REMARKS                                 |
|----|---------------|-------------------|-------------------|-----|---------------------|---|
| 1  | F.K. LENGA    | SENIOR LECTURER   | SOIL PHYSICS      | 36  | Ph.D. (Utah State)  | 1985 CHAIRMAN                           |
| 2  | S.S. VERU     | LECTURER          | POWER & MACHINERY | 47  | M. Sc. (Silsoe)     | 1976 JICA C/P Kyushu 1988.2-1988.12     |
| 3  | J.T. MAXANGA  | ASST. LECTURER    | POWER & MACHINERY | 36  | M. Sc. (Obihiro)    | 1990 MOE Obihiro 1987.9-1990.3          |
| 4  | L.O. OCHIAMBO | LECTURER          | IRRIGATION        | 33  | M. Sc. (Seoul)      | 1986                                    |
| 5  | J.A. OWAZA    | LECTURER          | POWER & MACHINERY | 38  | M. Sc. (USSR)       | 1980 JICA C/P Ivate 1984.5-1985.6       |
| 6  | C. ARIKA      | LECTURER          | SOIL CONSERVATION | 34  | M. Sc. (Texas Tech) | 1986                                    |
| 7  | G.M. NDEGWA   | LECTURER          | IRRIGATION        | 33  | M. Sc. (Silsoe)     | 1986                                    |
| 8  | K. KULECHO    | LECTURER          | IRRIGATION        | 35  | M. Sc. (Silsoe)     | 1985                                    |
| 9  | D. MBURU      | LECTURER          | SOIL & WATER      | 38  | M. Sc. (Nairobi)    | 1990                                    |
| 10 | C.K. KARETE   | ASST. LECTURER    | IRRIGATION        |     | M. Sc. (USSR)       | JICA Nairobi 1989.9-                    |
| 11 | C.I. MINDO    | GRADUATE ASST.    | POST HARVEST      | 25  | B. Sc. (Nairobi)    | JICA Nairobi 1985.9-1990.9              |
| 12 | G. NYITHIGA   | GRADUATE ASST.    | POST HARVEST      | 30  | B. Sc. (Nairobi)    | JICA Nairobi 1985.9-1990.9              |
| 13 | P.G. HOME     | GRADUATE ASST.    | IRRIGATION        | 26  | B. Sc. (Nairobi)    | JICA Nairobi 1989.9-                    |
| 14 | J. GATHENYA   | GRADUATE ASST.    | IRRIGATION        |     | B. Sc. (Nairobi)    | Nairobi 1989.9-                         |
| 15 | J.T. MAILUTHA | ASST. LECTURER    | POWER & MACHINERY | 36  | M. Sc. (Poland)     | 1986                                    |
| 16 | M. KALULI     | ASST. LECTURER    | WATER RESOURCES   | 31  | M. Sc. (Ottawa)     | 1990 CIDA Univ. of Ottawa 1987.9-1990.3 |
| 17 | S.W. MUGUSIA  | (TSC) S. LECTURER | POWER & MACHINERY |     | B. Sc (Nairobi)     | MOE Iwate 1990.4~                       |
| 18 | R.B. AKENGA   | (TSC) LECTURER    | POWER & MACHINERY | 36  | B. Sc (Nairobi)     | 1976 JICA T.U.A. 1982.6-1984.1          |
| 19 | I.K. INOTI    | (TSC) LECTURER    | POWER & MACHINERY | 34  | M. Sc (Kyoto)       | 1984 MOE Kyoto 1985.9-                  |
| 20 | M. ODUORI     | (TSC) LECTURER    | POWER & MACHINERY |     | M. Sc (AIT)         | 1988 MOE Kyushu 1989.10                 |
| 21 | S.J. OKWACH   | (TSC) LECTURER    | STRUCTURES        |     | B. Sc (Nairobi)     | MOE T.I.A.T. 1985.4                     |
| 22 | B. MATI       | (TSC) LECTURER    | SOIL & WATER      |     | B. Sc (Nairobi)     | Nairobi 1989.9-                         |
| 23 | R. MATU       | (TSC) A. LECTURER | SOIL & WATER      |     | B. Sc (Nairobi)     | 1982                                    |
| 24 | E.O. AJIGOH   | (TSC) A. LECTURER | SOIL & WATER      |     | B. Sc (Nairobi)     |   |
| 25 | M.N. MURIITHI | (TSC) A. LECTURER | SOIL & WATER      |     | B. Sc (Nairobi)     |   |

|    |              |            |                   |    |                    |      |
|----|--------------|------------|-------------------|----|--------------------|------|
| 26 | H. V. NDUATI | TECHNICIAN | POWER & MACHINERY | 40 | Tech. III (JKUCAT) | 1987 |
| 27 | J.N. THIMBA  | TECHNICIAN | POWER & MACHINERY | 34 | Diploma (JKUCAT)   | 1984 |
| 28 | B. XIMANI    | TECHNICIAN | POWER & MACHINERY | 24 | Diploma (Egerton)  | 1990 |
| 29 | F.K. KIGIRA  | TECHNICIAN | SOIL & WATER      | 27 | Diploma (JKUCAT)   | 1986 |
| 30 | R.W. MUKUA   | TECHNICIAN | SOIL & WATER      | 26 | Diploma (JKUCAT)   | 1986 |
| 31 |              |            |                   |    |                    |      |

## Appendix 1

Teaching Subject Allocation of  
AGRICULTURAL ENGINEERING

| CODE            | SUBJECT                                | POSSIBLE LECTURER                 |
|-----------------|--|-----------------------------------|
| <b>1st Year</b> |  |                                   |
| AE2105          | Introduction to Agricultural Engineer. | Weru, Lenga                       |
| AE2113          | Soil Science                           | Lenga, Arika, Mburu,<br>Ndegwa    |
| <b>2nd Year</b> |  |                                   |
| AE2203          | Fluid Mechanics-I                      | Odhiambo, Kaluli                  |
| AE2212          | Statistics & Agricultural Experiment.  | Lenga, Arika, Kaluli              |
| AE2213          | Fluid Mechanics-II                     | Odhiambo, Kaluli                  |
| <b>3rd Year</b> |  |                                   |
| AE2302          | Agricultural Power-I                   | Weru, Mailutha, Owaka,<br>Makanga |
| AE2303          | Agricultural Machinery-I               | Weru, Mailutha, Owaka,<br>Makanga |
| AE2305          | Irrigation & Drainage-I                | Ndegwa, Odhiambo,<br>Kulecho      |
| AE2307          | Hydraulics                             | Kaluli, Odhiambo                  |
| AE2308          | Agri. Engineering Instrumentation-I    |                                   |
| AE2309          | Agri. Engineering Instrumentation-II   |                                   |
| AE2310          | Agricultural Power-II                  | Weru, Mailutha, Owaka,<br>Makanga |
| AE2311          | Agricultural Machinery-II              | Weru, Mailutha, Owaka,<br>Makanga |
| AE2312          | Irrigation & Drainage-II               | Ndegwa, Odhiambo,<br>Kulecho      |
| AE2315          | Soil Mechanics                         | Arika, Lenga                      |

| CODE            | SUBJECT   | POSSIBLE LECTURER                |
|-----------------|---|----------------------------------|
| <b>4th Year</b> |   |                                  |
| AE2401          | System Science Analysis                               |                                  |
| AE2402          | Soil & Water Conservation-I                           | Arika, Mburu                     |
| AE2403          | Postharvest Technology-I                              | Mwithiga, Nindo                  |
| AE2404          | Engineering Design-I                                  |                                  |
| AE2405          | Hydrology and Meteorology                             | Arika, Lenga, Kaluli             |
| AE2406          | Computer Modeling & Simulation                        |                                  |
| AE2408          | Rural Water Resource Development                      | Kaluli, Mburu                    |
| AE2409          | Operations Research                                   |                                  |
| AE2410          | Soil & Water Conservation-II                          | Arika, Mburu                     |
| AE2411          | Postharvest Technology-I                              | Mwithiga, Nindo                  |
| AE2412          | Engineering Design-II                                 |                                  |
| AE2413          | Agricultural Machinery Design                         | Weru                             |
| <b>5th Year</b> |   |                                  |
| AE2501          | Advanced Irrigation & Drainage                        | Ndegwa, Odhiambo,<br>Kulecho     |
| AE2502          | Advanced Agricultural Power                           | Makanga                          |
| AE2503          | Advanced Postharvest Technology                       | Mwithiga, Nindo                  |
| AE2504          | Agricultural Structure-I                              | Mwithiga, Nindo                  |
| AE2505          | Structural Design                                     | Mwithiga, Nindo                  |
| AE2507          | Agricultural Mechanization Management                 | Weru                             |
| AE2509          | Watershed Management                                  | Mburu, Kaluli                    |
| AE2510          | Advanced Agricultural Machinery                       | Makanga, Weru, Owaka             |
| AE2511          | Land Use Planning                                     |                                  |
| AE2512          | Reclamation of Arid & Semi-arid Areas<br>& Wastelands | Lenga, Arika, Mburu,<br>Odhiambo |
| AE2514          | Agricultural Structure-II                             | Mwithiga, Nindo                  |
| AE2516          | Renewable Energy Resources                            |                                  |

Appendix 2 Academic Staff Recruitment Plan of Department of AGRICULTURAL ENGINEERING

| Designation             | Speciality                    | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total | Possibility of Local Availability |
|-------------------------|-------------------------------|---------|---------|---------|---------|---------|-------|-----------------------------------|
| Lecturer                | Systems Eng. & Computer Appl. |         |         |         | 1       |         |       | Difficult                         |
| Lecturer or Senior L.   | Machinery Design & Prod.      |         |         | 1       |         |         |       | Difficult                         |
| Lecturer                | Survey & Land Use Planning    |         | 1       |         |         |         |       | Possible                          |
| Lecturer or Asst. Lect. | Agri. Eng. Instrument.        |         | 1       |         |         |         |       | Difficult                         |
| <b>Total</b>            | -                             |         | 2       | 1       | 1       |         | 4     |                                   |

Appendix 3 Staff Development Plan of Department of AGRICULTURAL ENGINEERING  
(Please include those who are now on study leave)

| N A M E                   | Area of Study            | 1991  | 1992  | 1993  | 1994  | 1995  | Type of Study required |
|---------------------------|--------------------------|-------|-------|-------|-------|-------|------------------------|
|                           |                          | April | April | April | April | April |                        |
| K. Marete                 | Soil & Water             | _____ |       |       |       |       | M.Sc. Nairobi          |
| G. Hooe                   | Soil & Water             | _____ |       |       |       |       | M.Sc. Nairobi          |
| O. Odhiambo               | Irrigation               | _____ |       |       |       |       | Ph.D. AIT              |
|                           | Surveying                | _____ |       |       |       |       |                        |
|                           | Machine Design           | _____ |       |       |       |       |                        |
|                           | Farm Power               |       |       | _____ |       |       |                        |
|                           | Mechanization            |       | _____ |       |       |       | Ph.D.                  |
|                           | Postharvest              |       |       | _____ |       |       | Ph.D. in Japan         |
|                           | Water Resource           |       |       |       | _____ |       | Ph.D. in Japan         |
|                           | Soil Conserv.            |       |       | _____ |       |       | Ph.D.                  |
|                           | Data Process.            |       | _____ |       |       |       |                        |
|                           | Land Use and Reclamation |       |       |       | _____ |       |                        |
|                           | Natural Energy           |       |       |       | _____ |       |                        |
| <b>&lt;TSC&gt;</b>        |                          |       |       |       |       |       |                        |
| S.W. Mugusia              | Power & Mach             | _____ |       |       |       |       | M.Sc. Iwate            |
| I.K. Inoti                | Power & Mach             | _____ |       |       |       |       | Ph.D. Kyoto            |
| M. Oduori                 | Power & Mach             | _____ |       |       |       |       | Ph.D. Kyushu           |
| S.J. Okwach               | Structures               | _____ |       |       |       |       | M.Sc. T.I.A.T.         |
| . Wati                    | Soil & Water             | _____ |       |       |       |       | M.Sc. Nairobi          |
| <b>&lt;Technician&gt;</b> |                          |       |       |       |       |       |                        |
|                           | Power & Mach.            |       | _____ |       |       |       |                        |
|                           | Power & Mach.            |       |       |       |       | _____ |                        |
|                           | Soil & Water             |       |       | _____ |       |       |                        |
|                           | Soil & Water             |       |       |       |       | _____ |                        |

Appendix 4 List of Current Research Programmes in Department of AGRICULTURAL ENGINEERING

| Name of Researcher           | Title of Research  | Published or not | Source of Fund |
|------------------------------|--|------------------|----------------|
| L.O. Odhiambo<br>J.W. Kaluli | Studies on Water Resources for Economic Development in Kenya (II)<br>-An Integrated Water Resources Planning for Ndarugu River Catchment-  | N                | JICA           |
| L.O. Odhiambo<br>S.S. Weru   | Irrigation Technology for Upland Crops Grown in Rotation with Wetland Rice<br>-A Study of Irrigation Practice Suitable for Soybeans (Glycine Max) Grown in Sequence with Wetland Rice (Oryza Sativa) as the Center Crop- | N                | JKUCAT         |
| K. Tokida<br>J.T. Mailutha   | Development of Wind Turbine for Farm Use<br>-Fabrication of Wind Tunnel and Turbine Models   | N                | JICA           |

RESEARCH POLICY OF THE DEPARTMENT OF AGRICULTURAL ENGINEERING

OBJECTIVES:

The objectives for research in the department shall be:-

1. To encourage research as an academic activity among students and staff of the department.
2. To intergrate teaching with research activities with the aim of:
  - (a) applying knowledge gained and technologies developed appropriately to our environments, and
  - (b) improving or modifying methodologies to suit our environment among other factors, and serve as a tool for teaching purposes.
3. To encourage publications of scholarly research work by staff of the department.
4. To disseminate research findings through the University to the farmers and industries within the country, and
5. To monitor the impact of research findings in development projects and the community at large.

AREAS OF PRIORITY

The areas of priority are:-

1. Promotion of rural agro-industry.
2. Development of machinery and processes for small-scale farmers.
3. Establishment of farming systems for ASAL, and
4. Outreach programmes in soil and water conservation, and farm machinery management.

STRATEGIES.

1. Drawing up of feasible research proposals by members of the academic staff in the department.
2. Approval of proposals by the University Research Committee.
3. Funds made available for approved proposals.

...../2

4. Research Implementation in coordination and consultation with relevant disciplines within and outside the country.
5. Progress report submission every six months to the University Research Committee for monitoring and evaluation for the continuation or termination of the project.
6. Final report submission to the University research committee.
7. Approval from the relevant University authority for publication and/or other way of final result dissemination (e.g. seminar presentation, conference participation, and conducting of outreach programmes) sought.
8. Problem finding for further research work or new project appraisal.

Possible Research to be undertaken

Refer to Appendix 6.

Requirements for the Implementation.

1. Subscription to relevant academic journals from within and outside the country (e.g ASAE, JAER, Agricultural Engineering, Journal of Soil Science Society of America, Agronomy Journal, EAAFJ, Discovery and Innovation, KJST) for literature review and acquisition of new information.
2. Provision of sufficient funds and equipment, including at least a departmental vehicle and photocopier, to facilitate project implementation.
3. Staff development in terms of promoting one's area of specialization, such as:-
  - (i) conversion of a research project for post graduate work.
  - (ii) participation in local and/or international seminars, workshops, and conferences.
  - (iii) affiliation to relevant professional societies/bodies.
  - (iv) coordination/interlinkage with other institutions or persons, including visiting professors, in relevant disciplines.

| Name          | Area of Interest   |
|---------------|--|
| Mailutha J.T. | 1. Design and development of wheat harvesting machine for small scale farming.   |
| Nindo C. I.   | 1. Determination of physical properties of maize, sorghum and beans for designing drying and storage structures.<br>2. A comparison of rice processing techniques in the different rice growing areas and their effect on the quality. |
| Mwithiga G.   | 1. Design, construction and testing of a simple solar dryer for pyrethrum flowers.<br>2. The effects of airtight storage and drying process on the quality of pyrethrum flowers.   |
| Mburu D. N.   | 1. Evaluation of the various methods of water harvesting being used in the ASAL areas of Kenya.<br>2. Soil erosion problems associated with new settlement in the ASAL areas as a result of land use change.                           |
| Akenga R. B.  | 1. Effects of tillage operations on wheat yields and nitrogen consumption in ASAL.   |
| Weru S. S.    | 1. Development of equipment for harvesting and handling of brussel sprouts.<br>2. The effects of mulching on groundnut yields in the ASAL areas.   |
| Kaluli W.     | 1. Formulation of a Kenyan model for carrying out hydrologic analysis for design purposes.<br>2. Tackling the problem of land use and water pollution - A modelling approach.  |
| Arika C. N.   | 1. Surface and groundwater pollution from applied agricultural chemicals.  |

| Name         | Area of Interest   |
|--------------|--|
| Arika C. N.  | 2. Wind erosion modelling for the ASAL in Kenya.   |
| Makanga J.T. | <ol style="list-style-type: none"> <li>1. A review of the level of agricultural mechanization in Kenya and drawbacks to its development.</li> <li>2. The relationship between speed, pulling power requirement and final consumption of disc and mouldboard plough under Juja soil conditions.</li> </ol>            |
| Odhiambo L.  | <ol style="list-style-type: none"> <li>1. Irrigation practicals suitable for soybean grown in rotation with wetland rice in Kenya's Irrigation Schemes.</li> <li>2. Irrigation practices suitable for more than one rice crop per year at Mwea irrigation scheme.</li> </ol>   |
| Ndegwa G.M.  | <ol style="list-style-type: none"> <li>1. Evaluation of surface irrigation methods in high infiltrating soils in some parts of Kenya.</li> <li>2. Development of an appropriate method of draining waterlogged areas of central province.</li> </ol>   |
| Kulecho K.I. | <ol style="list-style-type: none"> <li>1. Soil and water management in surface irrigation systems in ASAL.</li> <li>2. Development of simple water drilling techniques in rural areas.</li> </ol>  |
| Lenga F.K.   | <ol style="list-style-type: none"> <li>1. Production potential analysis for pure stands of green grams, cowpeas and inter-crop of cowpea-maize cropping system in the semi arid areas of Kenya.</li> <li>2. Effects of tillage operations on soil bearing capacity recovery under rice irrigated systems.</li> </ol> |
| Owaka J.A.   | 1. Development of simple harvesting machines for small scale rice production in Kenya.   |

| No  | X A M E           | AGE | Academic Qualification and Year awarded | Designation    | Specialized Area                                | Subjects able to cover in Syllabus for degree course   | Remarks (e.g. C.D. Dean, necessity of further study etc.) |
|-----|-------------------|-----|---|----------------|---|--|---|
| 1.  | DR. KUTIRA, P. M. | 34  | Ph.D                                    | SNR. LECTURER  | FOOD MICROBIOLOGY                               | AF 214 FOOD MICRO. I<br>AF 2301 FOOD MICRO. II<br>AF 2306 FOOD MICROB.                                       |   |
| 2.  | KEUL, C. M.       | 39  | M.Sc. (1968)                            | LECTURER       | FOOD CHEMISTRY                                  | AF 215 FOOD CHEM. I<br>AF 2302 FOOD CHEM. II   | ON STUDY LEAVE (OKAYAMA UNIV.)                            |
| 3.  | KINDEGA, C.       | 35  | M.Sc. (1990)                            | LECTURER       | FOOD ENGINEERING                                | AF 2316 S.M.A.C.I.<br>AF 2305 S.M.A.C.II<br>AF 2312 FOOD TECH.   | ON STUDY LEAVE (HIROSHIMA UNIVERSITY)                     |
| 4.  | MAJUMDAR, MOHIE   | 36  | M.Sc. (1985)                            | LECTURER       | FOOD CHEM.<br>F.L.V. TECH.<br>POSTHARVEST TECH. | AF 217 P/H FOOD SP-<br>AF 2405 F.V. TECH. I<br>AF 2412 F.V. TECH. II   | Ph. D. STUDY REQUIRED                                     |
| 5.  | MOJIB, S. M.      | 33  | M.Sc. (1986)                            | LECTURER       | FOOD CHEMISTRY                                  | AF 2304 FOOD ANAL. I<br>AF 2310 FOOD ANAL. II<br>AF 2409 F.V. TECH.<br>AF 2412 SENSORY EV.                   | Ph. D. STUDY REQUIRED                                     |
| 6.  | MASANI, M.        | 35  | M.Sc. (1985)                            | LECTURER       | CEREAL TECHNOLOGY                               | AF 2407 CEREAL TECH. I<br>AF 2410 CEREAL TECH. II<br>AF 2421 P/H GRAINS TECH. II                             |   |
| 7.  | MUNO, H. O.       | 34  | M.Sc. (1985)                            | LECTURER       | FOOD PROCESSING ENG.                            | AF 2303 FOOD ENG. I<br>AF 2309 FOOD ENG. II<br>AF 2425 P/H HANDLING  | Ph. D. STUDY REQUIRED                                     |
| 8.  | KINANGUL, P. M.   | 34  | M.Sc. (1989)                            | LECTURER (ASS) | INDUSTRIAL MICROBIOLOGY                         | AF 2317 FOOD MICRO. I<br>AF 2305 FOOD MICRO. II<br>AF 2425 P/H HANDLING                                      | Ph. D. STUDY REQUIRED                                     |
| 9.  | MUNDOO, Z. M.     | 28  | M.Sc. (1988)                            | ASS. LECTURER  | FOOD CHEMISTRY<br>POSTHARVEST TECH.             | AF 2422 P/H POSTHARVEST TECHNOLOGY - I<br>AF 2425 P/H POSTHARVEST TECHNOLOGY - II<br>AF 2312 FOOD TECHNOLOGY | Ph. D. STUDY REQUIRED                                     |
| 10. | CHAND, G. A.      | 29  | M.Sc. (1990)                            | ASS. LECTURER  | FOOD CHEMISTRY                                  | AF 2408 S.M.A.C. TECH.<br>AF 2411 F.V. TECH.<br>AF 2403 FOOD ENG. TECH.<br>FOR ANIMAL RES.                   | Ph. D. STUDY REQUIRED                                     |

Appendix 2 Academic Staff Recruitment Plan of Department of FOOD SCIENCE & POSTHARVEST TECHNOLOGY

| Designation  | Speciality             | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total | Possibility of Local Availability |
|--------------|------------------------|---------|---------|---------|---------|---------|-------|-----------------------------------|
| As. Prof.    | Food Sc&Tech           | 1       |         |         |         |         | 1     | Possible                          |
| Sr. Lec.     | Food Sc&Tech           | 1       |         |         |         |         | 1     | Possible                          |
| Lec.         | Food Sc&Tech           |         |         |         | 1       |         | 1     | Easy                              |
| Sr. Lec.     | Food Engineering       |         | 1       |         |         |         | 1     | Possible                          |
| Lec.         | Food Eng. (Grain Tech) |         |         | 1       |         |         | 1     | Possible                          |
| Lec.         | Food Micro.            |         |         | 1       |         |         | 1     | Possible                          |
| Sr. Lec.     | P/H Plant Physiol.     |         | 1       |         |         |         | 1     | Difficult                         |
| Lec.         | P/H Plant Physiol.     |         |         |         | 1       |         | 1     | Difficult                         |
| Lec.         | P/H Plant Pathol.      |         | 1       |         |         |         | 2     | Difficult                         |
| Lec.         | P/H Pest Cont.         |         |         | 1       |         |         | 1     | Possible                          |
| Lec.         | P/H Perishable Tech.   |         |         |         |         | 1       | 1     | Possible                          |
| <b>Total</b> | -                      | 2       | 3       | 3       | 2       | 2       | 12    |                                   |

Appendix 3 Staff Development Plan of Department of FOOD SCIENCE & POSTHARVEST TECHNOLOGY  
 (Please include those who are now on study leave)

| N A M E                                     | Area of Study  | 1993  | 1992  | 1993  | 1994  | 1995  | Type of Study required                                    |
|---|--|-------|-------|-------|-------|-------|---|
|   |  | April | April | April | April | April |   |
| KENJI<br>KIYUKIA<br>MAYBOOKO                | Food Chem.<br>Food Hygiene<br>Postharvest<br>Tech.     | →     | →     | →     | →     |       | Ph. D. (Okayama)<br>Ph. D. (Hiroshima)<br>Ph. D. in Japan |
| NJOROGE<br>MWASARU<br>AWINO                 | Food Chem.<br>Cereal Tech.<br>Food Proc.<br>Eng.       |       | →     | →     | →     | →     | Ph. D. in Japan<br>Ph. D.<br>Ph. D.                       |
| ONYANGO<br>MWAJUMWA<br>KINYANJUI<br>GICHURU | Meat Tech.<br>Food Chem.<br>Ind. Micro.<br>Food Micro. |       |       | →     | →     | →     | Ph. D.<br>Ph. D.<br>Ph. D.<br>Ph. D., M.Sc.               |

Appendix 4 List of Current Research Programmes In Department of FOOD SCIENCE & POSTHARVEST TECHNOLOGY

| Name of Researcher           | Title of Research  | Published or not              | Source of Fund |
|------------------------------|--|-------------------------------|----------------|
| MATHOOKO, F. H.<br>KOAZE, H. | Surveillance on Postharvest Handling for Food Crops and Development of Simple Adequate Technology on Storage in Kenya. | Not yet<br>(On-going project) | JICA(1990/91)  |

Appendix 5      Research Policy of Department of FOOD SCIENCE & POSTHARVEST TECHNOLOGY

1. Objectives.
2. Areas of Priority.
3. Strategies.
4. Possible research to be undertaken, and
5. Requirements for the implementation.

Please see the attached.

## **RESEARCH POLICY OF DEPARTMENT OF FOOD SCIENCE & POSTHARVEST TECHNOLOGY**

### **1. Objectives**

The University College has outlined the purpose of research as a means of improving the quality and quantity of products and such research activities should, consequently, be geared to solving the country's problems. Based on this guideline, the departmental policy is established as follows:

- 1) Considering the recent development in agricultural industry, it is necessary to investigate into the appropriate technologies for preservation and processing of agricultural food materials and its surpluses.
- 2) Product development is another objective of research projects in this department, because it is directly connected to promote the utilization of locally available materials.

### **2. Areas of Priority**

- 1) Improvement of primary and secondary processing of food crops for better preservation and minimizing postharvest losses.
- 2) Adaptation of new technologies into local conditions.

### **3. Strategies**

Through the establishment of appropriate technologies for food preservation and processing, longer preservation of higher quality products will be achieved and, at the same time, postharvest losses of food crops can be reduced to minimum. It is the time to step up to the introduction of new technologies such as Food Biotechnology and to initiate new development. However, it is also necessary to conduct preliminary feasibility studies for such technologies at the earlier stages.

### **4. Possible Research**

- 1) Development of Appropriate Technologies for Postharvest Handlings of Food Crops.
- 2) Application of Biotechnology to Local Food Processing Conditions.
- 3) Assessment of Quality Factors for Locally Processed Food Products.
- 4) Utilization of Traditional Methods of Food Preservation and Processing.

### **5. Requirements for Implementation**

- 1) Staff development and technical training.
- 2) Development of research facilities.
- 3) Availability of funds.
- 4) Provision of technical information.
- 5) Close linkage with Ministries and Government institutions concerned.
- 6) Financial assistance for attending relevant Conferences and Seminars overseas and publishing to international journals.

Appendix 6 Area of Research interested by Staff in Department of FOOD SCIENCE & POSTHARVEST TECHNOLO

| Name          | Area of Interest  |
|---------------|---|
| MATHOOKO, FM  | POSTHARVEST TECHNOLOGY OF PERISHABLES---Chemical and Biochemical Changes Occurring in Fruits during Ripening and Storage and Control of the same to Prolong Storage Period. |
| ONYANGO, CA   | CHEMICAL PRESERVATION AND SURFACE DRYING OF RED MEATS TO INCREASE THE STORAGE LIFE UNDER TROPICAL CONDITIONS.   |
| KINYANJUI, PM | AGRICULTURAL RAW MATERIALS USED IN FERMENTATION FOR PRODUCTION OF SINGLE PROTEIN.   |
| AWINO, WO     | Rheological Properties of Fats and Oils as an Index Quality Control.  |
| KWAJUNWA, L   | Post-harvest Technology of Perishables.   |
| NJOROGE, SH   | Food Chemistry, particular emphasis on Changes during Processing and Flavour Chemistry.   |
| MWARU, M      | Cereal Technology with special interests in Chemical and Functional Characteristics of Pigeon Peas.   |

附屬資料 2. 工学部資料

APPENDIX-I STAFF LIST OF CIVIL ENGINEERING DEPARTMENT

(Academic Staff under University Council)

25/Nov./1990

| No | NAME                       | AGE           | QUALIFICATIONS                           | DESIGNATION           | SPECIALITIES                        | SUBJECTS ABLE TO COVER IN SYLLABUS FOR B.Sc. *) | Remarks Required for |
|----|----------------------------|---------------|--|-----------------------|-------------------------------------|---|----------------------|
| 1  | George Samuel Agoki        | 40 (11/3/50)  | B.Sc., M.A., Ph.D (Nairobi)              | Senior Lecturer (COP) | Transportation Engineering          | EC 2403, 2411, 2515                             |                      |
| 2  | Josphat K.Z. Mwebeli       | 35 (24/1/55)  | B.Sc. (Nairobi), M.Eng. (Tottori)        | Lecturer              | Urban & Regional Planning/Surveying | EC 2314   | Ph.D. Study          |
| 3  | Harrison Mutlaya Mutua     | 37 (15/9/53)  | M.D. (K. Poly.), M.Sc. (Strathelyde)     | Lecturer              | Public Health Engineering           | EC 2305, 2313                                   | Ph.D. Study          |
| 4  | Geoffrey Ng'ang'a Kanguria | 35            | H.D. (K. Poly.), M.Sc. (Strathelyde)     | Lecturer              | Structures                          | EC 2204, 2213, 2408, 2416                       | Ph.D. Study          |
| 5  | Robert Kinoti Kirera       | 36 (21/10/54) | B.Sc. (Nairobi), M.Sc. (Birmingham)      | Lecturer              | Highway Engineering (Pavement)      | EC 2404   | Ph.D. Study          |
| 6  | Jone Mungai Kinuthia       | 32 (4/7/58)   | B.Sc. (Nairobi), M.Sc. (Birmingham)      | Lecturer              | Highway and Traffic Engineering     | EC 2412   | Ph.D. Study          |
| 7  | Alfred Oloo Kayabi         | 34 (4/12/56)  | B.Sc. (Nairobi), M.Eng. (McGill)         | Lecturer              | Water Engineering/Ag. Engineering   | EC 2305, 2513                                   | Ph.D. Study          |
| 8  | Mathew M.G. Mijja          | 41 (23/4/49)  | H.D. (Kenya Poly.), M.Sc. (Loughborough) | Lecturer              | Concrete & Design/Harbour Eng.      | EC 2306, 2308, 2502, 2510                       | Ph.D. Study          |
| 9  | Lois M. Njuki              | 31            | M.Sc. (Opeza)                            | Lecturer              | Structures                          | EC 2216, 2407, 2415, 2514                       | Ph.D. Study          |
| 10 | Moses Karoki Gochari       | 33 (16/4/57)  | B.Sc. (Nairobi), M.Sc. (U. of Oxford)    | Lecturer              | Geodesy/Surveying                   | EC 2306, 2314                                   | Ph.D. Study          |
| 11 | Stephen M. Mulel           | 40 (25/9/50)  | H.D. (K. Poly.), M.Sc. (Strathelyde)     | Lecturer              | Highway Engineering                 | EC 2406   | Ph.D. Study          |
| 12 | George K. Siaba            | 36 (12/12/53) | H.D. (K. Poly.), M.Sc. (Strathelyde)     | Assistant Lecturer    | Structures                          | EC 2205, 2214, 2307, 2315                       | Ph.D. Study          |
| 13 | Abiero-Gary Zachary C.     | 25 (30/12/62) | B.Sc. Engg. (Nairobi), M.A. Planning     | Assistant Lecturer    | Transportation Planning/Surveying   | EC 2202, 2211                                   | Ph.D. Study          |
| 14 | Khamala S. Makhuru         | 29 (21/12/60) | B.Sc. (Nairobi), [M.Sc. (Nairobi)]       | Graduate Assistant    | Water Resources Engineering         | EC 2203, 2212, 2402, 2410                       | Ph.D. Study          |
| 15 | (Keye Robert Moleba)       |               | B.Sc. Engg., Attending M.Sc.             | (Graduate Assistant)  | Structures                          |   | Ph.D. Study          |
| 16 | Oser J.R.                  |               | B.Sc. Engg.                              | Graduate Assistant    | Structures                          |   | M.Sc./Ph.D.          |
| 17 | Francis Okoth Amunah       | 27 (1963)     | B.Sc. (Nairobi), Attending M.Sc.         | Graduate Assistant    | Geology/Hydrology                   | EC 2405, 2413, 2302                             | Ph.D. Study          |
| 18 | Wa-Zyendo A. Muma          | 27 (11/11/63) | B.Sc. (Nairobi), Attending M.Sc.         | Graduate Assistant    | Highway (Road) Engineering          | EC 2303, 2406                                   | Ph.D. Study          |
| 19 | Walter Ochambo Oyava       | 25 (23/8/65)  | B.Sc. (Nairobi)                          | Graduate Assistant    | Structures, Structural Design       |   | M.Sc./Ph.D.          |

M.S.: 1) ( ) = Not reported  
 2) COP = Chairman of the Department  
 3) \* : All staff will be involved in the following subjects:

CIVIL ENGINEERING I & II. PROJECT I & II. PRACTICAL ATTACHMENT I, II & III.

APPENDIX-2 ACADEMIC STAFF RECRUITMENT PLAN OF DEPARTMENT OF CIVIL ENGINEERING

26/11/90

| No.   | DESIGNATION         | SPECIALITY   | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total | POSSIBILITY OF LOCAL UNIVERSITY |
|-------|---------------------|--|---------|---------|---------|---------|-------|---------------------------------|
| 1.    | Associate Professor | Water Resources Engineering (Hydraulics, Water Resources Planning) |         | 1 (E)   |         |         | 1     | Difficult                       |
| 2.    | Senior Lecturer     | Foundation Engineering (Soil Mechanics, Geotechnical Engineering)  |         | 1 (F)   |         |         | 1     | Not Easy                        |
| 3.    | Lecturer            | Water Resources Engineering (Fluid Mechanics, Coastal Engineering) | 1 (A)   |         |         |         | 1     | Not Easy                        |
| 4.    | Lecturer            | Foundation Engineering (Soil Mechanics, Geotechnical Engineering)  | 2 (B,C) | 1 (D)   |         |         | 3     | Not Easy                        |
| 5.    | Tutorial Fellow     | CIVIL Engineering  |         |         |         | 2       | 2     | Easy (UNION Graduate)           |
| TOTAL |                     |  | 3       | 3       |         | 2       | 8     |                                 |

(A, B, C, D, E, F → See APPENDIX-3)

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APPENDIX-3 STAFF DEVELOPMENT PLAN USING JAPANESE FUND OF CIVIL ENGINEERING DEPARTMENT (DRAFT)

University College Council Staff (Academic)

24/Nov./1990

| No | Name<br>(Present Position) | AREA OF STUDY                     | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | TYPE OF STUDY REQUIRED      |
|----|----------------------------|-----------------------------------|------|------|------|------|------|------|-----------------------------|
| 1  | A<br>(S.Lecturer, Ph.D)    | Transportation Engineering        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 2  | B<br>(Lecturer, M.Eng.)    | Transportation Engineering        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 3  | C<br>(Lecturer, M.Sc)      | Public Health Engineering         | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 4  | D<br>(Lecturer, M.Sc)      | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 5  | E<br>(Lecturer, M.Sc)      | Highway and Traffic Engineering   | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | MOE (Ph.D.)                 |
| 6  | F<br>(Lecturer, M.Sc)      | Highway and Traffic Engineering   | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | THIRD COUNTRY (Ph.D.)       |
| 7  | G<br>(Lecturer, M.Sc)      | Water Engineering, Ag-Engineering | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 8  | H<br>(Lecturer, M.Sc)      | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | MOE (Ph.D.)                 |
| 9  | I<br>(Lecturer, M.Sc)      | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 10 | J<br>(Lecturer, M.Sc)      | Geodesy/Surveying                 | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 11 | K<br>(Lecturer, M.Sc)      | Highways                          | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 12 | L<br>(Lecturer, M.Sc)      | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | JICA C/P                    |
| 13 | M<br>(Lecturer, M.Sc)      | Transportation Engineering        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | LOCAL UNIVERSITY            |
| 14 | N<br>(Lecturer, B.Sc)      | Water Resources Engineering       | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | MOE (Ph.D., Recommendation) |
| 15 | O<br>(G.A., B.Sc.)         | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | THIRD COUNTRY (Ph.D.)       |
| 16 | P<br>(G.A., B.A.)          | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | LOCAL UNIVERSITY            |
| 17 | Q<br>(G.A., B.Sc.)         | Geology                           | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | THIRD COUNTRY (Ph.D.)       |
| 18 | R<br>(G.A., B.Sc.)         | Geotechnical Engineering          | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | MOE (Ph.D.)                 |
| 19 | S<br>(G.A., B.Sc.)         | Structures                        | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | LOCAL UNIVERSITY            |
| 20 | T<br>(S.T., D)             | Water Resources Engineering       | ↑    | ↑    | ↑    | ↑    | ↑    | ↑    | MOE (M.Sc., Ph.D.)          |

⊙ TRANSPORTATION PLANNING AND TRAFFIC ENGINEERING  
 ⊙ ENVIRONMENTAL ENGINEERING AND WATER RESOURCES ENGINEERING  
 ⊙ STRUCTURAL ENGINEERING  
 ⊙ FOUNDATION ENGINEERING  
 ⊙ OTHERS  
 ⊙ = Attending Ph.D. Course In April, 1995 (Estimated)

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**APPENDIX-4 LIST OF CURRENT RESEARCH PROGRAMMES IN CIVIL ENGINEERING DEPARTMENT**

From April, 1990 up to December, 1990

25/11/1990

| NO. | NAME OF RESEARCHER   | TITLE OF RESEARCH   | PUBLISHED OR NOT  | SOURCE OF FUND              |
|-----|--|---|---|-----------------------------|
| 1.  | Mr. J. K. Z. Wrateleh  | Systems Analysis of Transportation Planning in Metropolitan Regions<br>- Case Study of Nairobi -  | On-going Research   | JICA LOCAL SCHOLARSHIP      |
| 2.  | Mr. K. S. Makhanu  | A PHYSICAL MODEL STUDY OF CATCHMENT PROCESSES<br>(M.Sc. Thesis Paper done between September, 1989 and September, 1990 at JKUAT)   | Postgraduate Students' Seminar at UOK<br>(22/June/1990)   | JICA LOCAL SCHOLARSHIP      |
| 3.  | Mr. K. S. Makhanu  | STUDY ON SIMULATED CATCHMENT HYDROLOGY  | An Annual Seminar on Engineering for Rural Development, KSLB at Kabete (1-3/Aug./1990)                                    | JICA LOCAL SCHOLARSHIP      |
| 4.  | Mr. K. S. Makhanu and Dr. Tsunoda  | POLICY AND LAW IN THE ADMINISTRATION OF WATER RESOURCES IN KENYA  | The Environment 2000 Conference at UNEP<br>(23-27/Oct./1990)  | JICA RESEARCH FUND (a part) |
| 5.  | Messrs. Nyadava, Makhanu, Mwangi, Tsunoda, Ochiengo (AE) and Kaluli (AE) | STUDIES ON WATER RESOURCES FOR ECONOMIC DEVELOPMENT IN KENYA (1)  | PRELIMINARY REPORT (24/Nov./1990) to R.P.2 C. in JKUAT  | JICA RESEARCH FUND          |
| 6.  | Messrs. Nyadava, Makhanu, Mwangi, Tsunoda, Ochiengo (AE) and Kaluli (AE) | STUDIES ON WATER RESOURCES MANAGEMENT FOR ECONOMIC DEVELOPMENT IN KENYA (1)<br>Part 1: An Integrated Water Resources Planning for Marugu River Catchment<br>Part 2: Modelling the Floods Causing Rainfall in the Flood Prone Areas of Kenya | On-going research<br>[Final Report to be published in March, 1991]  | JICA RESEARCH FUND          |
| 7.  | Messrs. Makhanu, Kaluli (AE) and Tsunoda                                 | Paper 1: CRITICAL VEGETATION COVER FOR MINIMUM SOIL LOSS<br>Paper 2: CONSIDERING MACROPORES IN HYDROLOGIC MODELLING<br>(Above two papers' abstracts have been approved by ICARD)  | International Congress on Alleviation of Natural Disasters at Arushu, Tanzania (Sep./1991) [to be finalised by May, 1991] | JICA RESEARCH FUND (a part) |

AE = Agricultural Engineering Department

APPENDIX-5 RESEARCH POLICY OF CIVIL ENGINEERING DEPARTMENT

1. Objectives

- 1.1 To carry out basic and applied research in Civil Engineering and related areas.
- 1.2 To carry out research for Governments, business, commerce, industry, educational and scientific institutions as well as other research bodies.
- 1.3 To strengthen teaching and training through research.
- 1.4 To direct research activities towards the application of research and development to definite problems in order to improve the social and economic conditions of Kenya.
- 1.5 To transfer as well as to develop appropriate technology.

2. Areas of Priority

- 2.1 Problems relating to Civil Engineering education content, teaching and training.
- 2.2 Problems relating to the environment, transportation, settlements, housing, disasters, resource utilization.
- 2.3 Reclamation of arid, semi-arid areas and wastelands.

3. Strategies

- 3.1 Financial Resources
  1. International donor agencies such as JICA, CIDA, SIDA, World Bank, UNESCO, etc.
  2. National organisations such as the National Council for Research & Technology.
  3. Contract research from Governments, businesses, educational and scientific institutions and other research bodies.
  4. JKUAT research funding.
  5. Other donors.
- 3.2 Personnel Resources
  1. Teaching and technical staff.
  2. Students at diploma, undergraduate and postgraduate levels.
  3. Collaborators including visiting researchers.

3.3 Time Scale

To combine short term research directed towards applied research and long term research directed towards basic research.

3.4 Collaboration

To collaborate with other departments and Institutes within JKUAT and others outside JKUAT for mutual benefit.

3.5 Research Training

To utilize local and external research facilities for training in research in various areas of interest to the department.

4. Possible research to be undertaken

See APPENDIX-6.

5. Requirements for the implementation

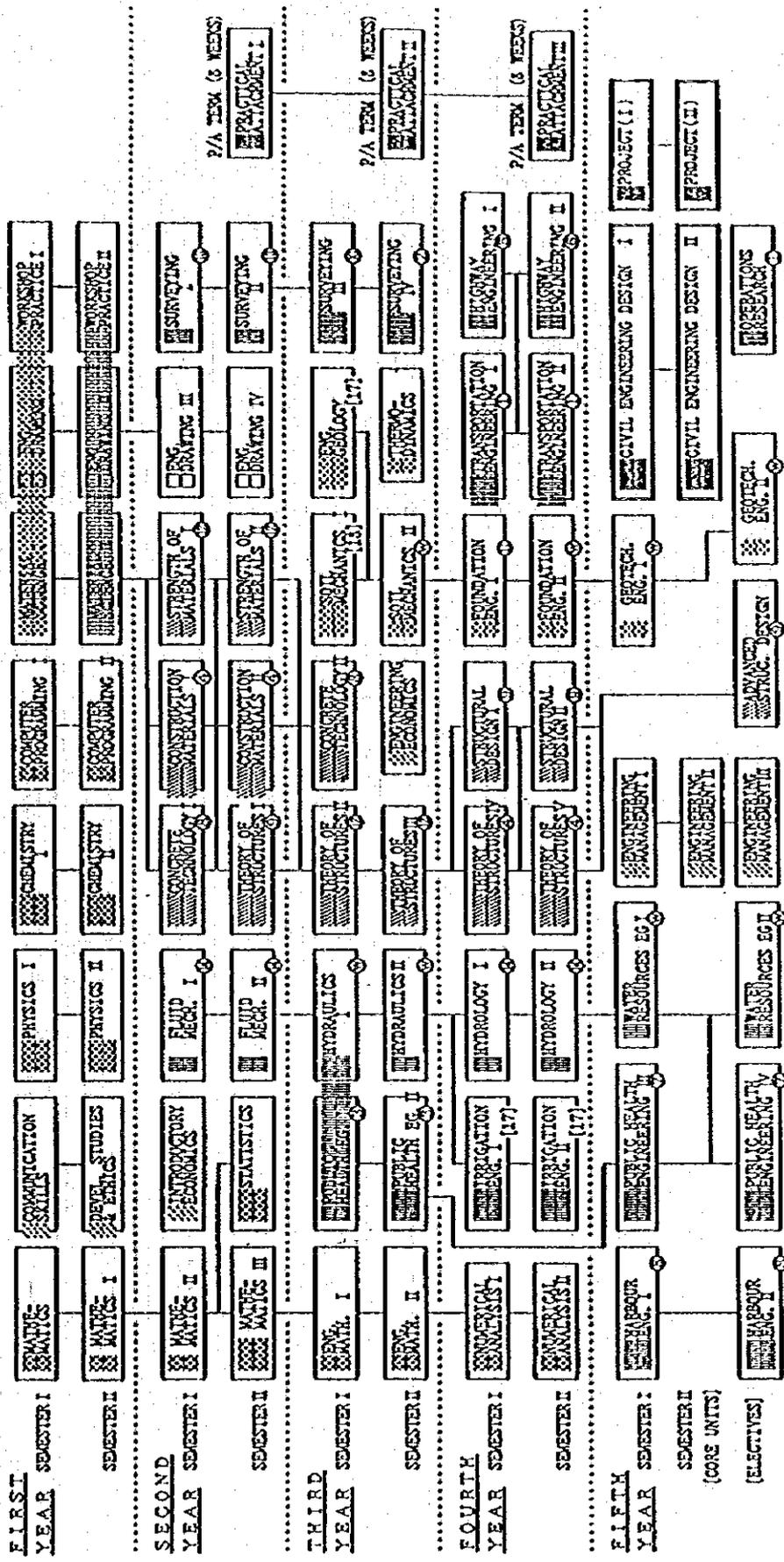
- 5.1 Setting up of laboratories for areas in Structural Engineering, Highways and Traffic Engineering, Public Health Engineering and Environmental Engineering and strengthening of existing Laboratories (Concrete, Soil Mechanics and Hydraulics).
- 5.2 Equipment and materials for the laboratories.
- 5.3 Research training.
- 5.4 Vehicles to provide transport for research projects.
- 5.5 Computer hardware and software.
- 5.6 Research funds for data collection, analysis, typing, printing and publication, documentation, etc.
- 5.7 Funds for seminar.

APPENDIX-6 AREA OF RESEARCH INTERESTED BY STAFF IN CIVIL ENGINEERING DEPARTMENT

| NO. | FIELD   | MAIN TITLE (Long Term Research)  | NAME                      | SUB-TITLE  |                      |   |
|-----|---|--|---------------------------|--|----------------------|---|
| 1.  | Transportation Engineering and Urban Planning | URBAN AND REGIONAL PLANNING  | Mr. J. K. Z. Mwalish      | Impact of Development on Urban and Regional Areas (Environmental Planning) |                      |   |
| 2.  |   |  | Mr. J. K. Z. Mwalish      | Application of Remote Sensing to Urban and Regional Planning               |                      |   |
| 3.  |   |  | Mr. J. K. Z. Mwalish      | Transportation Planning in Urban Areas                                     |                      |   |
| 4.  |   |  | Dr. G. S. Amidi           | Infrastructure and Transportation Engineering                              |                      |   |
| 5.  | Water Resources Engineering                   | WATER RESOURCES PLANNING AND MANAGEMENT                                | Mr. K. S. Mathani         | Flood Routing Studies and Integrated Catchment Management and Planning     |                      |   |
| 6.  |   |  | Mr. M. Nyadava            | Urban Hydrology and Catchment Flow   |                      |   |
| 7.  |   |  | Mr. Ibrahim               | Flood Control and Catchment Studies  |                      |   |
| 8.  | Structures and Foundation Engineering         | SOILS AND FOUNDATION ENGINEERING<br><br>TIDBER AND CONCRETE TECHNOLOGY | Mr. M. O. Vija            | Work Study and Productivity of Plant                                       |                      |   |
| 9.  |   |  | Mr. Vija                  | Reinforced Concrete Design for Earthquake                                  |                      |   |
| 10. |   |  | Mr. J. Karju              | Soils and Foundation Engineering   |                      |   |
| 11. |   |  | Mr. S. Gathaka            | Soil Mechanics   |                      |   |
| 12. |   |  | Mr. Obara                 | Concrete and Timber  |                      |   |
| 13. |   |  | Mr. Obara                 | Concrete   |                      |   |
| 14. |   |  | Public Health Engineering | WATER AND WASTEWATER MANAGEMENT  | Mr. A. O. Mayabi     | Soil Contaminant Interactions   |
| 15. |   |  |                           |  | Mr. A. O. Mayabi     | Removal of Hazardous Materials especially Hydrocarbons and Metals         |
| 16. |   |  | Civil Engineering         | SOIL EROSION AND CONSERVATION IN KENYA                                     | Mr. Makham           | Field Survey and Outdoor Experiment on Soil Erosion and its Control       |
| 17. |   |  |                           |  | Dr. G. S. Amidi      | Analysis of Soil Erosion and Land Use by Remote Sensing, Aerial Surveying |
| 18. |   |  |                           |  | Mr. J. K. Z. Mwalish | Assessment of Environment Impact from the Change of Hillslope Land Use    |
| 19. |   |  |                           |  | Mr. M. Nyadava       | Field Survey of Water Resources and Dam Sedimentation in Kenya            |

APPENDIX-7 OVERVIEW OF B.Sc COURSE (CIVIL ENGINEERING)

26/11/1990



CIVIL ENGINEERING DEPARTMENT  
 TRANSPORTATION PLANNING AND TRAFFIC ENGINEERING  
 STRUCTURAL ENGINEERING  
 FOUNDATION ENGINEERING  
 WATER RESOURCES ENGINEERING AND PUBLIC HEALTH ENGINEERING  
 ALL STAFF WILL BE INVOLVED. OTHERS (ANY STAFF IN C.E.) \* TO BE RECRUITED

SERVICE DEPARTMENTS  
 PHYSICAL AND BIOLOGICAL DEPARTMENTS      SOCIAL SCIENCE      MECHANICAL ENGINEERING DEPARTMENT      ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

Dr. AGUL, Dr. WATELAL, Dr. KINOTI, Dr. KANGULI, Dr. KANTHILA, Dr. KAROLI, Dr. KASHERI  
 Dr. MANGULU, Dr. MINJA, Dr. KUKI, Dr. SIBAL, Dr. WILALA, Dr. K. OVER, Dr. OYAWA  
 Dr. STEPHAN, Dr. K. VAITEENDO  
 Dr. KUTUA, Dr. WABDI, Dr. WASHU, Dr. K. OROTHI

**APPENDIX-8 STAFF ALLOCATION PLAN FOR B. S.O. COURSE (CIVIL ENGINEERING)**

October 1990 - September 1991

**F I R S T Y E A R**

| Semester  | Code No. | Course Title                   | (UNIT) | HOURS (L/P) | Hrs/week | Name of Staff | Service Department | Part Time Inst | Recruit Plan Year |
|-----------|----------|--------------------------------|--------|-------------|----------|---------------|--------------------|----------------|-------------------|
| First     | EC 2101  | Communication Skills           | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2102  | Mathematics I                  | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2103  | Chemistry I                    | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2104  | Computer Programming I         | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2105  | Physical Sciences              | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2106  | Engineering Drawing I          | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2107  | Workshop Practice I            | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
| SUB TOTAL |          |                                | (8)    | (215/710)   | 30       |               |                    |                |                   |
| Second    | EC 2108  | Development Studies-cur-Ethics | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2109  | Mathematics II                 | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2110  | Chemistry II                   | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2111  | Computer Programming II        | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2112  | Physical Sciences              | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2113  | Engineering Drawing II         | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
|           | EC 2114  | Workshop Practice II           | (1)    | 35/0        | 35       | (Any Staff)   | S.S.               |                |                   |
| SUB TOTAL |          | Sub Total                      | (8)    | (215/710)   | 30       |               |                    |                |                   |
| TOTAL     |          |                                | (8)    | (430/1420)  | 60       |               |                    |                |                   |

\* : Common Subject

October 1991 - September 1992

**S E C O N D Y E A R**

| Semester  | Code No.                             | Course Title              | (UNIT)    | HOURS (L/P) | Hrs/week    | Name of Staff | Service Department | Part Time Inst | Recruit Plan Year |
|-----------|--------------------------------------|---------------------------|-----------|-------------|-------------|---------------|--------------------|----------------|-------------------|
| First     | EC 2201                              | Mathematics II            | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2202                              | Surveying                 | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2203                              | Fluid Mechanics I         | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2204                              | Construction Materials I  | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2205                              | Strength of Materials I   | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2206                              | Concrete Technology       | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2207                              | Engineering Drawing III   | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
| EC 2208   | Introductory Economics               | (1)                       | 35/0      | 35          | (Any Staff) | S.S.          |                    |                |                   |
| SUB TOTAL |                                      |                           | (8)       | (215/195)   | 30          |               |                    |                |                   |
| Second    | EC 2209                              | Mathematics III           | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2210                              | Statistics II             | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2211                              | Fluid Mechanics II        | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2212                              | Construction Materials II | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2213                              | Strength of Materials II  | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2214                              | Theory of Structures      | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
|           | EC 2215                              | Engineering Drawing IV    | (1)       | 35/0        | 35          | Mr. Bhero     | P.P.S.             |                |                   |
| EC 2216   | Practical Attachment I <sup>1)</sup> | (8)                       | (215/195) | 30          | (All Staff) |               |                    |                |                   |
| SUB TOTAL |                                      |                           | (8)       | (215/195)   | 30          |               |                    |                |                   |
| TOTAL     |                                      |                           | (16)      | (430/705)   | 60          |               |                    |                |                   |

<sup>1)</sup> PA = Practical assignment term (PA, 3 weeks, L/P:-7/15)

**Third Year** (October 1992 - September 1993)

| Semester  | Code No. | Course Title               | (UNIT) | HOURS (L/P) | Hrs/week | Name of Staff            | Service Department | Part Time Inst | Recruit Plan Year        |
|-----------|----------|----------------------------|--------|-------------|----------|--------------------------|--------------------|----------------|--------------------------|
| First     | EC 2301  | Engineering Mathematics I  | (3)    | (25/75)     | 30       | Mr. Oloth                | P.B.S.             |                | Lecturer A               |
|           | EC 2302  | Engineering Mechanics I    | (3)    | (25/75)     | 30       | Mr. W. S. Sando          |                    |                |                          |
|           | EC 2303  | Strength of Materials I    | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2304  | Fluid Mechanics I          | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2305  | Electrical Engineering I   | (3)    | (25/75)     | 30       | Mr. S. M. S. S. S. S.    |                    |                |                          |
|           | EC 2306  | Surveying I                | (3)    | (25/75)     | 30       | Mr. S. M. S. S. S. S. S. |                    |                |                          |
|           | EC 2307  | Computer Graphics I        | (3)    | (25/75)     | 30       | Mr. S. M. S. S. S. S. S. |                    |                |                          |
| SUB TOTAL |          |                            | (3)    | (215/645)   | 30       |                          |                    |                |                          |
| Second    | EC 2308  | Engineering Economics      | (3)    | (25/75)     | 30       | Mr. Mutua                | P.B.S.             |                | Lecturer B<br>Lecturer A |
|           | EC 2309  | Engineering Mathematics II | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2310  | Engineering Mechanics II   | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2311  | Strength of Materials II   | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2312  | Fluid Mechanics II         | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2313  | Electrical Engineering II  | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
|           | EC 2314  | Surveying II               | (3)    | (25/75)     | 30       | Mr. Mutua                |                    |                |                          |
| SUB TOTAL |          |                            | (3)    | (220/660)   | 30       |                          |                    |                |                          |
| TOTAL     |          |                            |        | (425/690)   | 60       | (All Staff)              |                    |                |                          |

\*Under taken during June-August ( P.A. 8 weeks.L/P:-/315)

**Fourth Year** (October 1993 - September 1994)

| Semester  | Code No.                | Course Title                  | (UNIT)  | HOURS (L/P) | Hrs/week      | Name of Staff | Service Department | Part Time Inst | Recruit Plan Year |
|-----------|-------------------------|-------------------------------|---------|-------------|---------------|---------------|--------------------|----------------|-------------------|
| First     | EC 2401                 | Numerical Analysis I          | (3)     | (25/75)     | 30            | Mr. Mubhanu   | P.B.S.             |                | Lecturer C        |
|           | EC 2402                 | Hydrology                     | (3)     | (25/75)     | 30            | Dr. Agoki     |                    |                |                   |
|           | EC 2403                 | Transportation Engineering I  | (3)     | (25/75)     | 30            | Mr. Agoki     |                    |                |                   |
|           | EC 2404                 | Highway Engineering I         | (3)     | (25/75)     | 30            | Mr. Oloth     |                    |                |                   |
|           | EC 2405                 | Aviation Engineering I        | (3)     | (25/75)     | 30            | Mr. Stephan   |                    |                |                   |
|           | EC 2406                 | Foundation Engineering I      | (3)     | (25/75)     | 30            | Mr. Njuki     |                    |                |                   |
|           | EC 2407                 | Structural Design I           | (3)     | (25/75)     | 30            | Mr. Njuki     |                    |                |                   |
| EC 2408   | Theory of Structures I  | (3)                           | (25/75) | 30          | Mr. Munguriru |               |                    |                |                   |
| SUB TOTAL |                         |                               | (3)     | (210/630)   | 30            |               |                    |                |                   |
| Second    | EC 2409                 | Numerical Analysis II         | (3)     | (25/75)     | 30            | Mr. Mubhanu   | P.B.S.             |                | Lecturer C        |
|           | EC 2410                 | Hydrology                     | (3)     | (25/75)     | 30            | Dr. Agoki     |                    |                |                   |
|           | EC 2411                 | Transportation Engineering II | (3)     | (25/75)     | 30            | Mr. Agoki     |                    |                |                   |
|           | EC 2412                 | Highway Engineering II        | (3)     | (25/75)     | 30            | Mr. Oloth     |                    |                |                   |
|           | EC 2413                 | Aviation Engineering II       | (3)     | (25/75)     | 30            | Mr. Stephan   |                    |                |                   |
|           | EC 2414                 | Foundation Engineering II     | (3)     | (25/75)     | 30            | Mr. Njuki     |                    |                |                   |
|           | EC 2415                 | Structural Design II          | (3)     | (25/75)     | 30            | Mr. Njuki     |                    |                |                   |
| EC 2416   | Theory of Structures II | (3)                           | (25/75) | 30          | Mr. Munguriru |               |                    |                |                   |
| SUB TOTAL |                         |                               | (3)     | (210/630)   | 30            |               |                    |                |                   |
| TOTAL     |                         |                               |         | (420/630)   | 60            | (All Staff)   |                    |                |                   |

\*Under taken during June-July ( P.A. 8 weeks.L/P:-/315)

F I T H Y O O F (October 1934 - September 1935)

| Semester  | Code No. | Course Title                       | (UNIT) | HOURS (L/P) | Hrs/week | Name of Staff                       | Service Department | Part Time Inst | Recruit Plan Year               |
|-----------|----------|------------------------------------|--------|-------------|----------|-------------------------------------|--------------------|----------------|---------------------------------|
| First     | EX 2501  | CORE UNITS                         | (1)    | 137/0       | 1        | Mr. Minja                           | S.S.               |                |                                 |
|           | EX 2502  | Engineering Management I           | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2503  | Harbour Engineering I              | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2504  | Geotechnical Engineering I         | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2505  | Naval Architectural Engineering I  | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2506  | Public Health Engineering I        | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
| SUB TOTAL |          |                                    | (6)    | (255/150)   | 23       | Mr. Minja<br>(All Staff)            |                    |                | S. Lecturer D<br>A. Professor E |
|           |          |                                    |        |             |          |                                     |                    |                |                                 |
| Second    | EX 2507  | Engineering Management II          | (1)    | 137/0       | 1        | (All Staff)                         |                    |                |                                 |
|           | EX 2508  | Harbour Engineering II             | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2509  | Geotechnical Engineering II        | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2510  | Naval Architectural Engineering II | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2511  | Public Health Engineering II       | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
|           | EX 2512  | Project (I)                        | (1)    | 137/0       | 1        |                                     |                    |                |                                 |
| SUB TOTAL |          |                                    | (6)    | (255/150)   | 23       | Mr. Minja<br>Mr. Minja<br>Mr. Minja | S.S.               |                | S. Lecturer E<br>A. Professor E |
|           |          |                                    |        |             |          |                                     |                    |                |                                 |
| TOTAL     |          |                                    | (12)   | (450/240)   | 46       |                                     |                    |                |                                 |

**APPENDIX-9 A MINIMUM ESSENTIAL REQUEST FOR JAPANESE FUND (SCHOLARSHIP AND TRAINING)**

**THE SUMMARY OF SCHOLARSHIP AND TRAINING BETWEEN 1991 AND 1995 (CIVIL ENGINEERING DEPARTMENT)**

| NO. | JAPANESE FUND                              | 1990/91          | 1991/92          | 1992/93          | 1993/94          | 1994/95          | TOTAL     |
|-----|--|------------------|------------------|------------------|------------------|------------------|-----------|
| 1.  | JICA COUNTERPART (C/P) TRAINING            | 1<br>(FIELD ④)   | 2<br>(FIELDS ②②) | 2<br>(FIELDS ②②) | 2<br>(FIELDS ②②) | 2<br>(FIELDS ②②) | 9         |
| 2.  | THIRD COUNTRY TRAINING                     | -                | 1                | 1                | 1                | 1                | 4         |
| 3.  | HONSHU (MINISTRY OF EDUCATION) SCHOLARSHIP | -                | 1 (FIELD ④)      | 2                | 1                | 1                | 5         |
| 4.  | LOCAL UNIVERSITY SCHOLARSHIP               | [2]* (FIELDS ④④) | 3                | [3]*             | 1                | 3                | 7 + [5]*  |
|     | TOTAL                                      | 1 + [2]*         | 7                | 5 + [3]*         | 5                | 7                | 25 + [5]* |

\* : Continuing students from 1st Year (Local University Scholarship only)

**FIELDS OF CIVIL ENGINEERING**

- ① TRANSPORTATION PLANNING AND TRAFFIC ENGINEERING  
(Transportation Engineering, Highway Engineering, Engineering Management, Operations Research, Surveying)
- ② STRUCTURAL ENGINEERING  
(Material Science, Strength of Materials, Construction Materials, Concrete Technology, Theory of Structures, Design)
- ③ FOUNDATION ENGINEERING  
(Soil Mechanics, Geology, Geotechnical Engineering)
- ④ ENVIRONMENTAL ENGINEERING AND WATER RESOURCES ENGINEERING  
(Fluid Mechanics, Hydraulics, Hydrology, Public Health Engineering, Irrigation Engineering, Water Resources Engineering, Harbour Engineering, Global Environmental Engineering)
- ⑤ OTHERS  
(Workshop Practice, Engineering Drawing)

**IMPORTANT MEMO.**

- 1) The above number is based on APPENDIX-3 (Staff Development Plan).
- 2) In addition to the above requests, 10 more scholarships towards the attainment of Ph.D. Degrees are needed to be secured for M.Sc. staff holders.

APPENDIX-10 EQUIPMENT PURCHASING PLAN (1991-1994) OF CIVIL ENGINEERING DEPARTMENT

|                        |  |  |   |                        |  |
|------------------------|--|--|---|------------------------|--|
| 1991<br>FISCAL<br>YEAR | <ul style="list-style-type: none"> <li>① Surveying Equipment Set - 2 sets (水準測量機セット)</li> <li>② Camera set with 35-135 mm lens - 1 (カメラセット)</li> <li>③ Surveying Level - 1 (水準器)</li> <li>④ Surveying Level - 1 (水準器)</li> <li>⑤ Surveying Level - 1 (水準器)</li> <li>⑥ Surveying Level - 1 (水準器)</li> <li>⑦ Surveying Level - 1 (水準器)</li> <li>⑧ Surveying Level - 1 (水準器)</li> <li>⑨ Surveying Level - 1 (水準器)</li> <li>⑩ Surveying Level - 1 (水準器)</li> <li>⑪ Surveying Level - 1 (水準器)</li> <li>⑫ Surveying Level - 1 (水準器)</li> <li>⑬ Surveying Level - 1 (水準器)</li> <li>⑭ Surveying Level - 1 (水準器)</li> <li>⑮ Surveying Level - 1 (水準器)</li> <li>⑯ Surveying Level - 1 (水準器)</li> <li>⑰ Surveying Level - 1 (水準器)</li> <li>⑱ Surveying Level - 1 (水準器)</li> <li>⑲ Surveying Level - 1 (水準器)</li> <li>⑳ Surveying Level - 1 (水準器)</li> <li>㉑ Surveying Level - 1 (水準器)</li> <li>㉒ Surveying Level - 1 (水準器)</li> <li>㉓ Surveying Level - 1 (水準器)</li> <li>㉔ Surveying Level - 1 (水準器)</li> <li>㉕ Surveying Level - 1 (水準器)</li> <li>㉖ Surveying Level - 1 (水準器)</li> <li>㉗ Surveying Level - 1 (水準器)</li> <li>㉘ Surveying Level - 1 (水準器)</li> <li>㉙ Surveying Level - 1 (水準器)</li> <li>㉚ Surveying Level - 1 (水準器)</li> <li>㉛ Surveying Level - 1 (水準器)</li> <li>㉜ Surveying Level - 1 (水準器)</li> <li>㉝ Surveying Level - 1 (水準器)</li> <li>㉞ Surveying Level - 1 (水準器)</li> <li>㉟ Surveying Level - 1 (水準器)</li> <li>㊱ Surveying Level - 1 (水準器)</li> <li>㊲ Surveying Level - 1 (水準器)</li> <li>㊳ Surveying Level - 1 (水準器)</li> <li>㊴ Surveying Level - 1 (水準器)</li> <li>㊵ Surveying Level - 1 (水準器)</li> <li>㊶ Surveying Level - 1 (水準器)</li> <li>㊷ Surveying Level - 1 (水準器)</li> <li>㊸ Surveying Level - 1 (水準器)</li> <li>㊹ Surveying Level - 1 (水準器)</li> <li>㊺ Surveying Level - 1 (水準器)</li> <li>㊻ Surveying Level - 1 (水準器)</li> <li>㊼ Surveying Level - 1 (水準器)</li> <li>㊽ Surveying Level - 1 (水準器)</li> <li>㊾ Surveying Level - 1 (水準器)</li> <li>㊿ Surveying Level - 1 (水準器)</li> </ul> | <ul style="list-style-type: none"> <li>¥ 2,300,000</li> <li>¥ 400,000</li> <li>¥ 400,000</li> <li>¥ 100,000</li> <li>¥ 200,000</li> <li>¥ 300,000</li> <li>¥ 400,000</li> <li>¥ 1,000,000</li> <li>¥ 800,000</li> <li>¥ 2,200,000</li> </ul> <p style="text-align: right;">Sub Total ¥ 3,100,000</p> | <ul style="list-style-type: none"> <li>① Combined Universal Wood Worker - 1 (汎用木工用機械)</li> <li>② Equipment for measuring Water Qualities - 1 set (水質測定装置)</li> <li>③ Measuring Equipments for Open Channel Flow - 6 (明渠流量測定装置)</li> <li>④ Special Equipments for Soil Mechanics Apparatus - 3 (土質力学専用装置)</li> <li>⑤ Special Equipments for Soil Mechanics Apparatus - 1 (土質力学専用装置)</li> <li>* ⑥ Materials of Water Channel for Coastal Engineering - 1 (海岸工学用材料)</li> </ul> | 1992<br>FISCAL<br>YEAR | <ul style="list-style-type: none"> <li>¥ 2,200,000</li> <li>¥ 1,500,000</li> <li>¥ 2,100,000</li> <li>¥ 900,000</li> <li>¥ 1,000,000</li> <li>¥ 1,400,000</li> </ul> <p style="text-align: right;">Sub Total ¥ 9,100,000</p> |
|------------------------|--|--|---|------------------------|--|

|                        |  |  |  |                        |   |
|------------------------|--|--|--|------------------------|---|
| 1993<br>FISCAL<br>YEAR | <ul style="list-style-type: none"> <li>① Belt Sample Sander - 1 (ベルトサンダー)</li> <li>② Sample Testing Apparatus - 2 (試料試験装置)</li> <li>③ Measuring Equipments for Soil Mechanics - 3 (土質力学測定装置)</li> <li>④ Special Equipments for Soil Mechanics Apparatus - 7 (土質力学専用装置)</li> <li>⑤ Measuring Equipment for Construction Materials - 5 (建設材料測定装置)</li> <li>* ⑥ Structural Member Testing Frame Set - 1 set (構造部材試験用フレームセット)</li> </ul> | <ul style="list-style-type: none"> <li>¥ 2,300,000</li> <li>¥ 2,200,000</li> <li>¥ 2,300,000</li> <li>¥ 800,000</li> <li>¥ 1,300,000</li> <li>¥10,000,000</li> </ul> <p style="text-align: right;">Sub Total ¥ 3,100,000</p> | <ul style="list-style-type: none"> <li>① Joint Processing Machine (Detail Machine) - 1 (接合加工機)</li> <li>② Surveying Instruments - 2 sets (測量機器)</li> <li>③ Special Equipments for Environment Pollution - 2 (環境汚染専用装置)</li> <li>④ Measuring Equipments for Construction - 11 (建設材料測定装置)</li> <li>* ⑤ Loading System Set for Structural Mechanics - 1 set (構造力学試験用荷重システムセット)</li> </ul> | 1994<br>FISCAL<br>YEAR | <ul style="list-style-type: none"> <li>¥ 1,000,000</li> <li>¥ 2,900,000</li> <li>¥ 1,500,000</li> <li>¥ 4,100,000</li> <li>¥10,000,000</li> </ul> <p style="text-align: right;">Sub Total ¥ 2,100,000</p> |
|------------------------|--|--|--|------------------------|---|

\* To be purchased in Kenya  
\*\* Detail design to be proposed later (Further examination is needed).

SUMMARY OF BUDGET ALLOCATION IN EACH FIELD

| FIELDS OF CIVIL ENGINEERING                  | 1991      | 1992      | 1993       | 1994       |
|--|-----------|-----------|------------|------------|
| 1. Construction Materials & Structures       | 2,400,000 | 0         | 11,300,000 | 14,100,000 |
| 2. Water Resources Engineering               | 0         | 3,500,000 | 0          | 3,500,000  |
| 3. Environment Engineering                   | 0         | 1,500,000 | 3,000,000  | 0          |
| 4. Foundation Engineering                    | 0         | 900,000   | 2,300,000  | 0          |
| 5. Highway Eng. & Transportation Engineering | 0         | 1,000,000 | 0          | 1,400,000  |
| 6. Surveying & Photogrammetry                | 6,700,000 | 0         | 0          | 2,900,000  |
| 7. Workshop Practice                         | 1,000,000 | 2,200,000 | 2,300,000  | 1,000,000  |
| TOTAL  | 5,100,000 | 9,100,000 | 15,900,000 | 19,900,000 |

Appendix I Staff List / Department of ARCHITECTURE

| No | N A M E             | AGE | Academic Qualification and Year awarded | Designation    | Specialized Area     | Subjects able to cover in Syllabus for degree course | Remarks (e.g. COB. Dean, necessity of further study etc.) |
|----|---------------------|-----|---|----------------|----------------------|--|---|
|    | DR. NGUNJIRI, P.G.  | 39  | Ph.D. (1987)                            | S. LECT.       | Environmental Design | Arch. Design   |   |
|    | MR. WANYONA, G.     | 38  | M.Eng. (1987)                           | LECT.          | Conserv. Management  | Econ. for Designers                                  | NECESSITY OF FURTHER                                      |
|    | MR. ONG'ERI, T.     | 41  | M.Arch.                                 | LECT.          | Public Building      | Arch. Design   | "   |
|    | MR. OCHTENG, C.     | 32  | B.Arch. (1987)                          | A. LECT.       | Arch. Design         | Arch. Design   | "   |
|    | MR. MBURU, F.       | 30  | M.A. Planning (1990)                    | G. ASS.        | Area Planning        | Arch. & Planning                                     | "   |
|    | MR. RUKWARO, R.     | 30  | B.Arch. (1988)                          | G. ASS.        | Arch. Design         | Arch. Design   | "   |
|    | MR. ABOGI AKINJI S. | 48  | B.A.Arch. (1975)                        | COLL. ARCH.    | Arch. Design         | Arch. & Management                                   | "   |
|    | MR. NJAU/RA, H.G.   | 52  | T.T.C., C.T. (1963)                     | P. LECT. (TSC) | Conserv. Technology  | Workshop & Drawing                                   | "   |
|    | MR. WAKABA, J.K.    | 38  | B.A. (BUIL. ECONOMIC) 1976              | S. LECT.       | Quantity Surveying   | Measurement  | "   |
|    | MR. WANJERI, P.M.   | 37  | HND (1983)                              | LECT.          | Environmental Sol.   | Building Construction                                |   |
|    | MR. MBOROTHI, S.N.  | 37  | FTC (1981)                              | LECT.          | Building Services    | Plumbing   |   |
|    | MR. RWANDA, F.M.    | 34  | HND (1984)                              | LECT.          | Construction         | Construction Tech.                                   |   |
|    | MR. LAUKA, A.V.     | 32  | HND (1987)                              | A. LECT.       | Construction         | Construction Manag.                                  |   |
|    | MR. MUTHAIA, D.H.   | 33  | HND (1984)                              | A. LECT.       | Construction         | Historical of Construction                           |   |
|    | MR. TRWAIKI, J.M.   | 29  | HND (1987)                              | A. LECT.       | Technical Drawing    | Technical Drawing                                    |   |
|    | MR. MUGGI, I.P.     | 29  | HND (1987)                              | A. LECT.       | Reinforced Concrete  | Concrete Technology                                  |   |
|    | MR. WAMBUGU, N.W.   | 33  | FTC (1980)                              | A. LECT.       | Woodwork Tech.       | Carpentry/Joinery                                    |   |
|    | MR. MUNGAI, C.M.    | 30  | B.Sc. Arch. (1990)                      | EN. TECHNICIAN | Housing              |  |   |

| Designation | Speciality                         | 1990/91 | 1991/92    | 1992/93         | 1993/94         | 1994/95 | Total<br>1995/96 | Possibility of<br>Local Availability |                        |
|-------------|------------------------------------|---------|------------|-----------------|-----------------|---------|------------------|--------------------------------------|------------------------|
|             |                                    |         |            |                 |                 |         |                  | TOTAL                                |                        |
| PROF.       | Arch. Design                       |         |            | 1 Ass.<br>Prof. | 1 Ass.<br>Prof. | 1 Prof. |                  | 1 Prof.<br>2 Ass.<br>Prof.           | Difficult<br>Difficult |
| S. LECT.    |                                    |         | 2 S.L.     | 1 S.L.          | 1 S.L.          | 1 S.L.  |                  | 5 S.L.                               | Difficult              |
| LECTURER    |                                    | 5 L.    | 1 L.       | 1 L.            |                 | -       |                  | 7 LEC.                               | Easy                   |
| TUTORIAL F. |                                    |         |            |                 |                 | 1 T.F.  |                  | 1 T.F.                               | Easy                   |
| PROF.       | Land Scape                         |         | 1 Prof.    |                 |                 |         |                  | 1 Prof.                              | Difficult              |
| S. LECT.    |                                    |         |            | 1 S.L.          |                 |         |                  | 1 S.L.                               | Difficult              |
| LECTURER    |                                    |         |            |                 |                 |         | 1 L.             | 1 L.                                 | Difficult              |
| TUTORIAL F. | Design                             |         |            |                 |                 |         |                  |                                      |                        |
| PROF.       | Urban<br>Planning<br>and<br>Design |         |            |                 | 1 Ass.<br>Prof. |         |                  | 1 Ass.<br>Prof.                      | Difficult              |
| S. LECT.    |                                    |         |            |                 | 1 S.L.          |         |                  | 1 S.L.                               | Easy                   |
| LECTURER    |                                    | 1 L.    |            |                 |                 |         |                  | 1 L.                                 | Easy                   |
| TUTORIAL F. |                                    |         |            |                 |                 |         |                  |                                      |                        |
| PROF.       | Construction<br>and<br>Management  |         |            | 1 Ass.<br>Prof. |                 |         | 1 Pro.           | 1 Prof.<br>1 A. Pro.                 | Difficult<br>Difficult |
| S. LECT.    |                                    |         | 1 S.L.     | 1 S.L.          |                 | 1 S.L.  |                  | 3 S.L.                               | Difficult              |
| LECTURER    |                                    | 2 L.    | 1 L.       |                 |                 |         |                  | 3 L.                                 | Easy                   |
| TUTORIAL F. |                                    |         |            |                 |                 | 1 T.F.  |                  | 1 T.F.                               | Easy                   |
| PROF.       | Environment<br><br>Studies         |         | 1 Ass. Pr. |                 |                 |         |                  | 1 Ass.<br>Prof.                      | Difficult              |
| S. LECT.    |                                    |         |            | 1 S.L.          |                 |         |                  | 1 S.L.                               | Difficult              |
| LECTURER    |                                    | 1 L.    |            |                 |                 | 1 L.    |                  | 2 L.                                 | Difficult              |
| TUTORIAL F. |                                    |         |            |                 |                 |         | 1 T.F.           | 1 T.F.                               | Easy                   |
| PROF.       | Structures                         |         |            |                 |                 |         |                  |                                      |                        |
| S. LECT.    |                                    |         |            |                 |                 | 1 S.L.  |                  | 1 S.L.                               | Easy                   |
| LECTURER    |                                    |         |            | 1 L.            |                 |         |                  | 1 L.                                 | Easy                   |
| TUTORIAL F. |                                    |         |            |                 |                 |         |                  |                                      |                        |
| Total       | -                                  | 9       | 8          | 7               | 6               | 5       | 3                | 38                                   |                        |

Appendix 3 Staff Development Plan of Department of ARCHITECTURE  
(Please include those who are now on study leave)

| NAME         | Area of Study           | 1991  | 1992  | 1993  | 1994  | 1995  | Type of Study required        |
|--------------|-------------------------|-------|-------|-------|-------|-------|-------------------------------|
|              |                         | April | April | April | April | April |                               |
| Mr. Wanyona  | Construction Management | ----- |       |       |       |       | Ph.D.                         |
| Mr. Ogeri    | Arch/Commun.            |       | ----- |       |       |       | Ph.D. in VIENNA               |
| Mr. Ochieng  | Arch/Design             | ----- |       |       |       |       | M.Arch. in BRUGEN             |
| Mr. Mburu    | Planning                |       | ----- |       |       |       | Ph.D. in JAPAN                |
| Mr. Rukwiro  | Construction            |       |       | ----- |       |       | Ph.D. in JAPAN                |
| Mr. Wakaba   | Quantities              | ----- |       |       |       |       | Post                          |
| Mr. Wandari  | Envir. Sci.             |       | ----- |       |       |       | M.Sc. study in THAILAND       |
| Mr. Rwanda   | Construction            |       |       | ----- |       |       | M.Sc. in U.K.                 |
| Mr. Lonka    | Construction            |       | ----- |       |       |       | M.Sc. in U.K.                 |
| Mr. Thoiri   | Arch.Theory             | ----- |       |       |       |       | M.Sc. in JAPAN                |
| Mr. Ngugi    | Structurers             | ----- |       |       |       |       | B.Sc. in U.K.                 |
| Mr. Mungai C | Arch.Desin              | ----- |       |       |       |       | M.A. in Planning in KENYA     |
| Dr. Ngunjiri | Arch/Land scape         |       |       |       | ----- |       | Post Doctorial study in JAPAN |
| Mr. Muthania | Construction            | ----- |       |       |       |       | M.Sc. in U.K.                 |

Appendix 4 List of Current Research Programmes in Department of ARCHITECTURE

| Name of Researcher  | Title of Research   | Published or not | Source of Fund |
|---|---|------------------|----------------|
| MAIN RESEARCHER<br>DR. NGUNJIRI<br>others -<br>MR. MSURU<br>MR. RUKWARO<br>MR. EIGAWA | TRADITIONAL<br>ARCHITECTURE IN<br>KENYA   | NOT              | JICA           |
| MR. ONGERI  | <i>Urbanisation in Kisii and Nyamira Districts between 18th and 20th Century and its impacts on traditional and modern architecture</i> | NOT              | JICA           |
|   |   |                  |                |

## APPENDIX 5 RESEARCH POLICY OF DEPARTMENT OF ARCHITECTURE

### OBJECTIVES:

1. To develop both staff and student in the field of research.
2. To improve local quality of life through environmental design.
3. To establish and strengthen field extension in areas where development agencies or institutions are involved with respect to our research areas.
4. To establish a better understanding of factors that contribute to the environmental conflict with an aim of reinforcing the need for environmental design.
5. To build up local reference materials for both academia and professionals.

### AREAS OF PRIORITY:

1. Environmental Design
2. Environmental Studies/Technologies
3. Architectural Design
4. Construction
5. Landscape Design
6. Urban Design
7. Structure

### STRATEGIES:

1. To use both interdisciplinary and multidisciplinary approaches for research.
2. To use case study approaches as much as possible.
3. To liaise with interested organisations to ensure applicability of our research findings.
4. To work with on-going development projects in order to apply our research findings.
5. To disseminate research findings through mass media, exhibitions, conferences/workshops, and publications.

### REQUIREMENTS FOR IMPLEMENTATION:

1. Laboratories
2. Workshops
3. Research Assistants
4. Technicians
5. Land to put up demonstration units.

Appendix 6 Area of Research interested by Staff in Department of ARCHITECTURE

SPECIMEN

| Name                        | Area of Interest   |
|-----------------------------|--|
| DR. NGUNJIRI                | <ol style="list-style-type: none"> <li>1. Landscape Architectural approach for planning human settlement to respond to specific cultures, economies and political systems.</li> <li>2. Study to establish appropriate local plant materials for different situations.</li> <li>3. Different landscapes in Kenya, and their design and management principles.</li> <li>4. Appropriate methods that would link land use planning and environmental management knowledge within our cultural context.</li> <li>5. Urban open spaces in Kenya: distribution, design and use.</li> <li>6. Design theory.</li> </ol> |
| MR. WANYONA                 | <ol style="list-style-type: none"> <li>1. System building : use of local materials, and prefabricated industrial systems.</li> <li>2. Formulation of construction techniques and building technology to match local skills.</li> <li>3. Determinants of building production, particularly improvement of local building construction effectiveness and efficiency.</li> <li>4. A study of the relationship between land value and supply of housing to establish priority of land allocation for development.</li> </ol>   |
| MR. ONGERI                  | <ol style="list-style-type: none"> <li>1. Urbanization in Kisii and Nyamira Districts between 18th and 20th Century and its impacts on traditional and modern architecture.</li> </ol>   |
| MR. OCHIENG                 | <ol style="list-style-type: none"> <li>1. Human settlement and habitation with special emphasis to planning design and search for appropriate technology.</li> </ol>   |
| MR. MBURU                   | <ol style="list-style-type: none"> <li>1. Urban streets to establish designs that respond to the physical characteristics, social activities, and cultural resources of the immediate surroundings.</li> <li>2. Urban designs that respond to the pedestrian requirements.</li> <li>3. Plans and designs of Urban Centers with local identify.</li> </ol>  |
| MR. RUKWARO                 | <ol style="list-style-type: none"> <li>1. Architectural designs that improve space utilization.</li> <li>2. Role of traditional architecture in evolving contemporary architecture.</li> </ol>   |
| DEPARTMENT<br>IN<br>GENERAL | <ol style="list-style-type: none"> <li>1. Study of local urban road traffic noise.</li> <li>2. Acoustic characteristics of African Drama and Dance.</li> <li>3. Effect of solar control glass on both internal and external environment at the thermal and lighting level.</li> <li>4. Integration of renewable energy based mechanical services into the built environment.</li> </ol>  |

Appendix 6 Area of Research interested by Staff in Department of ARCHITECTURE  
SPECIMEN

| Name | Area of Interest   |
|------|--|
|      | <ol style="list-style-type: none"> <li>5. <i>Effective of development control on Urban Climatology.</i></li> <li>6. <i>Production of affordable local building materials.</i></li> <li>7. <i>Designs for energy conservation based on passive "sun lighting".</i></li> <li>8. <i>Study of local urban historical buildings.</i></li> <li>9. <i>Tourist architecture in Kenya.</i></li> <li>10. <i>Reinforced concrete beams and columns experiments to obtain basic knowledge from design to accord architectural structures.</i></li> <li>11. <i>Durability test (long term 5-years) of construction materials such as roof-tiles and block exposed to natural weather conditions.</i></li> </ol> |

Appendix 1 Staff List of Department of Electrical/Electronic Engineering

| No  | X A M E      | AGE | Academic Qualification and Year awarded            | Designation | Specialized Area                    | Subjects able to cover in Syllabus for degree course | R e m a r k s<br>(e.g. COB, Dean, necessity of further study etc.) |
|-----|--------------|-----|--|-------------|-------------------------------------|--|--|
| 1.  | M. Mbagho    | 41  | MSc. 1981  | S.L.        | Electrical Machines & Power Systems | Details on the attached sheets                       |  |
| 2.  | P. Hingo     | 37  | MSc.   | L           | Power Engineering                   |  |  |
| 3.  | O. Ogoke     | 38  | B.Sc. 1977<br>MSc. 1980                            | L           | Power Electronics                   |  |  |
| 4.  | O. Omingo    | 36  | B.Ed. 1978<br>P.G Diploma '83<br>(MSc. equivalent) | L           | Digital/Physical Electronics        |  |  |
| 5.  | S. Muayoki   | 36  | MSc.   | (SL, TSC)   | Telecommunication                   |  | on Study Leave   |
| 6.  | L.M. Ngoo    | 31  | MSc.   | L           | Control Eng-<br>Analogue            |  | on Study Leave   |
| 7.  | O.O. Monditi | 40  | MND  | (L, TSC)    | Analogue Electronics                |  | on Study Leave   |
| 8.  | P. O. Anangi | 34  | MSc. 1986  | AL          | Electrical Machines                 |  |  |
| 9.  | V. Magocha   | 34  | MSc 1980   | AL          | Physical Electronics                |  |  |
| 10. | E.N. Nzungu  | 33  | MSc. 1990  | AL          | Analogue Electronics                |  |  |
| 11. | F. Nyongese  | 32  | B.Sc. 1983<br>DIP. 1988<br>MSc. 1990               | AL          | Telecommunication                   |  |  |
| 12. | M.O. Kebeaso | 30  | BSc 1983<br>P.C. Dip 1988<br>Msc. 1989             | AL          | Computer Science                    |  |  |

Appendix 1 Staff List of Department of Electrical/Electronic Engineering

| No | N A K E       | AGE | Academic Qualification and Year awarded | Designation | Specialized Area   | Subjects able to cover in Syllabus for degree course | R e s e r v e (e.g. CDD. Dean, necessity of further study etc.) |
|----|---------------|-----|---|-------------|--------------------|--|---|
| 13 | P.K. Kinato   | 32  | HND                                     | (AL, TSC)   | Power Electronics  |  | Study Leave   |
| 14 | F. Mumba      | 25  | B.Tech. 1989                            | GA          | Digital Electronic |  |   |
| 15 | A.M. Githaiga | 31  | Tech. Part III                          | T           |                    |  |   |
| 16 | G. Kibunja    | 36  | Tech Part III                           | T           |                    |  |   |
| 17 | J.M. Mithi    | 29  | Tech Part III                           | T           |                    |  |   |
| 18 | J.M. Muangi   | 42  | " II                                    | T           |                    |  |   |
| 19 | J.M. Kiini    | 36  | " II                                    | T           |                    |  |   |
| 20 | J.N. Gachoki  | 36  | " III                                   | T           |                    |  |   |
| 21 | J.M. Kahindi  | 30  | " III                                   | T           |                    |  |   |
| 22 | H. Osieli     | 25  | " III                                   | T           |                    |  |   |
| 23 | Mesudi Juma   | 24  | University Diploma                      | T           |                    |  |   |

M.S.C.  
M.Sc.

< SUBJECT ALLOCATION LIST >

|        |  |
|--------|--|
| EE2202 | Analogue Electronics 1,2,3,4<br>D.Ogaba, D.Omingo, D.O.Konditi, E.N.Ndungu     |
| EE2204 | Physical Electronics 1,2<br>D.Omingo, Y.Magoha, D.O.Konditi                    |
| EE2205 | Electrical Measurement<br>can be covered by many lecturers                     |
| EE2206 | Computer Programming 1,2<br>F.C.Nyongesa, M.O.Kebasso                          |
| EE2208 | Circuit and Network Theory 1,2,3<br>D.Ogaba, D.Omingo, D.O.Konditi, E.N.Ndungu |
| EE2214 | Electrical Machines 1,2,3,4,5<br>M.Mbogho, P.O.Anangi, P.K.Kihato              |
| EE2215 | Electromagnetics 1,2<br>D.O.Konditi  |
| EE2305 | Digital Electronics 1,2<br>D.Ogaba, D.Omingo, F.Nyongesa, M.O.Kebasso          |
| EE2308 | Power Electronics 1,2<br>P.Hinga, D.Ogaba, P.K.Kihato                          |
| EE2313 | Signal and Communication 1,2<br>S.Musyoki, F.Nyongesa                          |
| EE2314 | Transmission Lines<br>S.Musyoki, F.Nyongesa                                    |
| EE2403 | Control Engineering 1,2,3<br>P.Hinga, L.M.Ngoo                                 |
| EE2405 | Filters<br>D.Ogaba, D.Omingo, D.O.Konditi, E.N.Ndungu                          |
| EE2406 | Microprocessor 1,2<br>F.Nyongesa, M.O.Kebasso                                  |
| EE2407 | Instrumentation<br>can be covered by many lecturers                            |
| EE2408 | Integrated Circuit   |
| EE2418 | Television 1,2<br>F.Nyongesa, D.O.Konditi                                      |
| EE2419 | Microwaves<br>S.Musyoki, F.Nyongesa  |

EE2505      Quantum Electronics  
              D.Omingo, V.Magoha

EE2515      Electrical Machine design  
              M.Nbogho, P.O.Anangi, P.K.Kihato, P.Hinga

EE2510      High Voltage Technology  
              M.Nbogho, P.Hinga

EE2511      Power System Protection  
              M.Nbogho, P.Hinga

EE2512      Electrical System Design 1,2  
              M.Nbogho, P.Hinga, P.K.Kihato

EE2513      Energy Study  
              M.Nbogho, P.Hinga ( + service dept.)

EE2514      Machine Drives  
              M.Nbogho, P.Hinga, P.O.Anangi, P.K.Kihato

EE2516      Digital Communication  
              S.Nusyoki, F.Nyongesa

EE2517      Antenna and Propagation  
              S.Nusyoki, F.Nyongesa

EE2518      Electro-accoustics

EE2519      Digital System Design 1,2  
              D.Ogaba, D.Omingo, M.O.Kebasso

EE2520      Digital Filters  
              D.Ogaba, D.Omingo, M.O.Kebasso

EE2521      Telephone and Telegraphic  
              F.Nyongesa

Appendix 2 Academic Staff Recruitment Plan of Department of Electrical/Electronic Engineering

| Designation         | Speciality           | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total | Possibility of Local Availability |
|---------------------|----------------------|---------|---------|---------|---------|---------|-------|-----------------------------------|
| Professor           | Telecommunication    | /       |         |         |         |         | 1     |                                   |
| Professor           | Power System         |         | /       |         |         | 1       | 2     |                                   |
| Professor           | Physical Electronics |         |         |         | /       |         | 1     |                                   |
| Associate Professor | Power System         | /       |         |         |         |         | 1     |                                   |
| "                   | Digital Electronics  |         | /       |         |         |         | 1     |                                   |
| "                   | Telecommunication    |         | /       |         |         |         | 1     |                                   |
| "                   | Power Electronics    |         |         | /       |         |         | 1     |                                   |
| Senior Lecturer     | Digital Electronics  | /       |         |         |         |         | 1     |                                   |
| "                   | Telecommunication    | /       |         |         |         |         | 1     |                                   |
| "                   | Heavy current        |         | /       |         |         | /       | 2     |                                   |
| "                   | Light Current        |         |         | /       |         |         | 1     |                                   |
| Lecturer            | Analogue electronics | /       |         |         |         |         | 1     |                                   |
| "                   | Heavy current        |         | /       |         | /       |         | 2     |                                   |
| "                   | Light Current        |         |         | /       |         |         | 1     |                                   |
| Assistant lecturer  | Heavy current        | /       |         | /       |         |         | 2     |                                   |
| Total               | -                    |         |         |         |         |         |       |                                   |



Appendix 3-1 Staff Development Plan of Department of ELECTRICAL/ELECTRONIC DEPT.  
 (Please include those who are now on study leave)

| N A M E      | Area of Study                 | 1991  | 1992  | 1993  | 1994  | 1995  | Type of Study required  |
|--------------|-------------------------------|-------|-------|-------|-------|-------|-------------------------|
|              |                               | April | April | April | April | April |                         |
| S. Musyoki   | Telecommuni-<br>cation        | _____ |       |       |       |       | Ph.D (Japan)            |
| D.O. Konditi | Analogue<br>Electronics       | _____ |       |       |       |       | M.Sc. (Japan)           |
| P.K. Kihato  | Power<br>Electronics          | _____ |       |       |       |       | M.Sc. (Japan)           |
| L.M. Ngoo    | Control<br>Engineering        | _____ |       |       |       |       | Ph.D (Canada)           |
| F. Mumba     | Digital<br>Electronics        |       | _____ |       |       |       | M.Sc. (Japan)           |
| A            | Computer Science              |       | _____ |       |       |       | Ph.D (Thailand)         |
| B            | Electrical<br>Engineering     |       | _____ |       |       |       | Ph.D (Germany)          |
| C            | Electronics                   |       |       | _____ |       |       | Ph.D (Japan)            |
| D            | Electrical<br>Engineering     |       |       | _____ |       |       | Ph.D (U.S.A.)           |
| E            | Electronics                   |       |       |       | _____ |       | Ph.D (Japan)            |
| F            | Electrical<br>Engineering     |       |       |       |       | _____ | Ph.D. (Japan)           |
| G            | Electronics                   |       | _____ |       |       |       | M.Sc. Or B.Tec<br>Kenya |
| H            | Electrical                    |       | _____ |       |       |       | -Ditto-                 |
| I            | Electronics                   |       |       | _____ |       |       | "                       |
| J            | Electrical Eng.               |       |       | _____ |       |       | "                       |
| K            | Electronics                   |       |       |       | _____ |       | "                       |
| L            | Electrical<br>Engineering     |       |       |       | _____ |       | "                       |
| M            | Electronics                   |       |       |       |       | _____ | "                       |
| N            | Electrical<br>Engineering     |       |       |       |       | _____ | "                       |
| J.M. Kahinda | Computer                      | _____ |       |       |       |       | C/P Training<br>(Japan) |
| H. Osieli    | High<br>Voltage<br>technology | _____ |       |       |       |       | "                       |
| O            | Electronics                   |       | _____ |       |       |       | "                       |

Appendix 3-2 Staff Development Plan of Department of Electrical/Electronic  
 (Please include those who are now on study leave)

| N A M E | Area of Study             | 1991  | 1992  | 1993  | 1994  | 1995  | Type of Study<br>required |
|---------|---------------------------|-------|-------|-------|-------|-------|---------------------------|
|         |                           | April | April | April | April | April |                           |
| P       | Electrical<br>Engineering |       | _____ |       |       |       | Ditto-                    |
| Q       | Electronics               |       |       | _____ |       |       | Ditto-                    |
| R       | Electrical<br>Engineering |       |       | _____ |       |       | Ditto-                    |
| S       | Electronics               |       |       |       | _____ |       | Ditto-                    |
| T       | Electrical<br>Engineering |       |       |       | _____ |       | Ditto-                    |
| U       | Electronics               |       |       |       |       | _____ | Ditto-                    |
| V       | Electrical<br>Engineering |       |       |       |       | _____ | Ditto-                    |

## **<RESEARCH POLICY OF DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING>**

### **1. OBJECTIVES:**

- 1.1 To give members of staff and students an opportunity to broaden their experience through practical work assignment or advanced studies.
- 1.2 To build scientific competence of the department and its staff so that it becomes possible to solve national problems.
- 1.3 To stimulate, support, scientific and technical research by developing closer links with local industries, government institutions etc.
- 1.4 To design research activities that will enhance skills of entrepreneurs in a range of technical endeavours that will create employment opportunities.
- 1.5 To help create and support research networks through which different members of department can learn from each other, share common experiences and conduct similarly designed studies in areas of mutual concern.
- 1.6 To promote cooperation between departmental researchers and their counterparts in other departments both locally and internationally through collaborative projects.
- 1.7 To prepare journals and periodicals for academic and public information.

### **2. AREAS OF PRIORITY**

- 2.1 Development of appropriate technology
- 2.2 Problems relating to energy saving
- 2.3 Problems relating to environmental protection

### **3. STRATEGIES**

#### **3.1 Funding**

- 3.1.1 JKUCAT research fund
- 3.1.2 National Council for Science and Technology /
- 3.1.3 Private sector
- 3.1.4 Government approved international donor agencies e.g. JICA, UNDP, ILO, etc.

#### **3.2 Selection**

- 3.2.1 The research committee shall receive and evaluate research proposals.
- 3.2.2 The research committee shall be responsible for providing the necessary material requirement and assessing progress reports.

3.2.3 The research committee shall approve the proposed budgets.

3.3 Human resources

3.3.1 Teaching staff and research assistants

3.3.2 Technical staff and post-graduate students

3.3.3 Collaborators and visiting lecturers

3.3.4 Support staff - secretaries, copy typists, programmers, and messengers

3.4 Collaboration

3.4.1 To collaborate with other departments within the university, other national universities, research institutes and international organizations.

4 POSSIBLE RESEARCH TO BE UNDERTAKEN

4.1 As shown in appendix 6

5 REQUIREMENTS FOR IMPLEMENTATION

5.1 Laboratories for modelling and testing

5.2 Equipment, apparatus and materials

5.3 Vehicles for transportation

5.4 Computers - IBM compatible, machintosh, printers (ordinary and laser), softwares

5.5 Training - seminars, workshops, conferences, local and overseas training

5.6 Journals - acquisition of IEE, IEEE and other reputable publications

Appendix 6 Area of Research interested by Staff in Department of Electrical/Electronic Engineering

| Name          | Area of Interest  |
|---------------|---|
| M. Mbogho     | Electrical Machines speed control                             |
| P. Ninga      | Electrical Machines speed control and Power systems           |
| D. Ogaba      | Thyristor switching using computer & microprocessor           |
| D. Oding'o    | Design of digital control systems                             |
| V. Magoha     | Semiconductor laser   |
| E.N. Ndungu   | Analogue filters  |
| F.C. Nyongesa | Distributed information processing                            |
| M.D. Kebasso  | Computer application to systems automations and communication |
| F. Numba      | Digital signal processing                                     |
|               |   |

## Appendix 1

## Staff List of Department of MECHANICAL ENGINEERING.

| No | K A X E            | AGE | Academic Qualifications Year awarded | Designation   | Specialized Area                            | Subjects able to cover in Syllabus for degree course                                     | K e m a K e (e.g. COB, Bonn, opportunity of further study etc.)        |
|----|--------------------|-----|--------------------------------------|---------------|---|--|--|
| 1  | Prof. S.M. MARANGA | 40  | BSc, MSc, PH D (1982) (U.K.)         | Assoc. Prof.  | Production Eng. Industrial Eng.             | Production Tech. I<br>Production Tech. Theory of product                                 | Chairman and Ag. Dean, Faculty of Engineering<br>K. Eng; M I C K I I I |
| 2  | Dr. L. M. MASU     |     | BSc, MSc, PH D (1989) (UK)           | Sen. Lecturer | Solid Mechanics                             | Solid & Structural Mechanics I - IV<br>Experimental Stress Analysis<br>Materials Science | (Reporting full-time on 2/1/91)<br>Needs visiting fellowships          |
| 3  | Mr. P. U. MACHA    |     | MSc (USSR)                           | LECTURER      | Computer Science<br>Thermodynamics          | Engineering Thermodynamics   | To read PH D   |
| 4  | Mr. G. E. MICHIRA  |     | MSc (UK)                             | LECTURER      | Thermodynamics                              | Thermodynamics   | To read Ph D   |
| 5  | Mr. S. K. NGUGI    |     | MSc (UK)                             | LECTURER      | Thermodynamics                              | Thermodynamics   | To read Ph D   |
| 6  | Mr. G. M. NYOVE    |     | BSc, MSc (UK)                        | LECTURER      | Fluid Mechanics                             | Fluid Mechanics I - IV   | To read Ph D   |
| 7  | Mr. C. C. ONDIEKI  |     | IND, MSc.                            | LECTURER      | Applied Mechanics<br>Engineering Design     | Engineering Drawing<br>Design<br>Workshop Practice                                       | To read PH D   |
| 8  | Mr. I. M. WAIRE    |     | MSc.                                 | LECTURER      | Control                                     | Metrology<br>Measurements and Instrumentation  | To read Ph D   |
| 9  | Mr. S. P. NG'ANG'A |     | BSc, MSc                             | LECTURER      | Production Engineering<br>Materials Science | Production Engineering - Metrology<br>Materials Science                                  | To read Ph D (has been appointed but still making up his mind)         |

Appendix 2 Academic Staff Recruitment Plan of Department of \_\_\_\_\_

| Designation         | Speciality                        | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total | Possibility of Local Availability |
|---------------------|-----------------------------------|---------|---------|---------|---------|---------|-------|-----------------------------------|
| PROFESSOR           | MECHANICS OF MACHINES/ VIBRATIONS | 1       | -       | -       | -       | -       | 1     | Difficult                         |
|                     | MACHINE TOOL/ Prod. ENGIN.        | -       | -       | 1       | 1       | -       | 1     | Difficult                         |
| ASSOCIATE PROFESSOR | THERMODYNAMICS                    | -       | -       | -       | 1       | 1       | 1     | Easy                              |
|                     | DESIGN                            | -       | -       | -       | -       | 1       | 1     | Difficult                         |
| SENIOR LECT.        | FLUID MECHANICS                   | 1       | -       | -       | -       | -       | 1     | Difficult                         |
|                     | MACHINE TOOL/ PRODUCTION EN.      | -       | -       | -       | 1       | -       | 1     | Difficult                         |
|                     | DESIGN                            | 1       | -       | -       | -       | -       | 1     | Difficult                         |
|                     | MATERIALS SC.                     | 1       | -       | -       | -       | -       | 1     | Difficult                         |
| LECTURER            | CONTROL & SYS. ENGINEERING        | -       | -       | 1       | -       | -       | 1     | Difficult                         |
|                     | SOLID MECHANICS                   | -       | 1       | -       | -       | -       | 1     | Difficult                         |
|                     | MACHINE TOOL/ PRODUCTION          | -       | -       | -       | -       | 1       | 1     | Difficult                         |
|                     | ENGINE TECH.                      | -       | -       | 1       | -       | -       | 1     | Difficult                         |
|                     | MOTOR VEHICLE TECHNOLOGY          | -       | 1       | -       | -       | -       | 1     | Difficult                         |
|                     | INDUSTRIAL ENG. MANAGEMENT        | -       | -       | 1       | -       | 1       | 2     | Difficult                         |
| LECTURER            | DESIGN                            | -       | -       | 1       | -       | -       | 1     | Difficult                         |
|                     | COMPUTER ENG.                     | -       | 1       | -       | -       | -       | 1     | Difficult                         |
|                     | MATERIALS SC.                     | -       | -       | 1       | -       | -       | 1     | Difficult                         |
| 6                   |                                   |         |         |         |         |         |       |                                   |
| Total               | -                                 | 4       | 3       | 6       | 2       | 3       | 18    |                                   |

NOTE:

Appendix 3 Staff Development Plan of Department of MECHANICAL ENGINEERING  
 (Please include those who are now on study leave)

|  | N A M E        | Area of Study                    | 1991                 | 1992  | 1993  | 1994  | 1995  | Type of Study required                      |
|--|----------------|----------------------------------|----------------------|-------|-------|-------|-------|---|
|  |                |                                  | April                | April | April | April | April |   |
| 1.   | P. W. Magcha   | Thermodynamics                   | //////////////////// |       |       |       |       | PhD in Germany/Europe                       |
| 2.   | C. E. Muchiri  | Thermodynamics                   | //////////////////// |       |       |       |       | PhD in UK/Commonwealth/Japan                |
| 3.   | S. K. Ngugi    | Thermodynamics                   | //////////////////// |       |       |       |       | PhD in Japan                                |
| 4.   | C. M. Ondiek   | Applied Mechanics<br>Product ion | //////////////////// |       |       |       |       | PhD in Local/External Supervision           |
| 5.   | G. H. Kwove    | Fluid Mechanics                  | //////////////////// |       |       |       |       | PhD in third country programme/Japan        |
| 6.   | I. M. Waire    | Control                          | //////////////////// |       |       |       |       | PhD in Japan                                |
| 7.   | S. P. Nzanga   | Materials Science                | //////////////////// |       |       |       |       | PhD in UK/Commonwealth<br>3rd world country |
| <u>ON STUDY LEAVE (TSC STAFF TO BE ABSORBED INTO UNIVERSITY ESTABLISHMENT)</u>   |                |                                  |                      |       |       |       |       |   |
| 8.   | H. M. Waruf    | Fluid Dynamics                   |                      |       |       |       |       | MSc in Japan<br>(back in 1992/93)           |
| 9.   | G. G. Wanyoike | Control Systems                  |                      |       |       |       |       | MSc in Japan<br>(back in 1992/93)           |
| 10.  | S. Wanji       | Thermodynamics                   |                      |       |       |       |       | MSc in Japan<br>(back in 1992/93)           |
| <p><b>NOTE:</b> There is need to appoint the:<br/>                 Graduate Assistant    2 ]<br/>                 Tutorial Fellow        2 ] for urgent training</p> |                |                                  |                      |       |       |       |       |   |

Appendix 3 Staff Development Plan of Department of MECHANICAL ENG.  
 (Please include those who are now on study leave)

| N A M E   | Area of Study                  | 1991                 | 1992  | 1993  | 1994  | 1995  | Type of Study required                 |
|---|--------------------------------|----------------------|-------|-------|-------|-------|--|
|   |                                | April                | April | April | April | April |  |
| <b>TO BE RECRUITED IN 1990/91</b>   |                                |                      |       |       |       |       |  |
| 1 *Tutorial Fellow(1)   | Material Science               | //////////////////// |       |       |       |       | PhD in Japan                           |
| 2 *Tutorial Fellow (2)  | Production Design              | //////////////////// |       |       |       |       | PhD in Japan                           |
| 3 *Graduate Assistant (3)   | Fluid Mechanics                | //////////////////// |       |       |       |       | MSc, Nairobi                           |
| 4 *Graduate Assistant   | Applied Mechanics (Vibrations) | //////////////////// |       |       |       |       | MSc, Nairobi/3rd country               |
| 5 Lecturer  | Motor Vehicle Technology       | //////////////////// |       |       |       |       | PhD in Japan                           |
| 6 ?Lecturer   | Industrial Engineering         | //////////////////// |       |       |       |       | PhD in 3rd country<br>UK/America/Japan |
| *Vacant Posts<br>(?)Double check vacant posts<br><br>INCLUDE: Short term fellowships for<br>1. Prof. S. M. Maranga<br>2. Dr. L. M. Masu |                                |                      |       |       |       |       |  |

Appendix 4 List of Current Research Programmes in Department of \_\_\_\_\_

| Name of Researcher                         | Title of Research                                       | Published or not | Source of Fund |
|--|---|------------------|----------------|
| PROF. S. H. MARANGA                        | Reporting full time on 31/12/91                         |                  |                |
| DR. E. M. MASU                             | Reporting full time on 2/1/91                           |                  |                |
| MR. P. W. MACHIA                           | Employed on .....                                       |                  |                |
| MR. C. M. MICHIRA                          | Employed on .....                                       |                  |                |
| MR. S. X. NUGI                             | Employed on.....  |                  |                |
| MR. G. M. KYOVE                            | Employed on 10/10/90                                    |                  |                |
| MR. C. M. ONDEKI                           | Employed on .....                                       |                  |                |
| MR. I. M. WAIRE                            | Employed on .....                                       |                  |                |
| MR. S. P. NGANGA                           | Still to accept appointment                             |                  |                |
| PROF. OKAZAKI<br>(JICA Co-ordinator<br>ME) | "Improvement of the performance of the Wind<br>Turbine" | Not Published    | JUKAT          |

1. Objectives.
2. Areas of Priority.
3. Strategies.
4. Possible research to be undertaken, and
5. Requirements for the implementation.

1: OBJECTIVES

Broadly;

- (i) to develop technologies for ready adoption by the jua kali industries and other rural based industries.
- (ii) to engage in research to improve the product and operation in the small scale industries.
- (iii) to develop the faculty staff capability in research and where applicable form the basis of the degree award.
- (iv) to eventually engage in advance research for the development of industry as well as new knowledge in the forefront of technology. Thus enable the country's industry to catch up with the latest techniques.
- (v) to disseminate technological information for the benefit of industry.

Areas of priority

- (i) Efficient energy utilization and development of alternative source of energy.
- (ii) Design and creativity development.
- (iii) Manufacturing.
- (iv) Materials Science.

3. STRATEGIES

Development of research capability and capacity through:

- (i) Staff research projects
- (ii) Post graduate projects
- (iii) Undergraduate student projects
- (iv) Consultancy projects
- (v) Exchange programs
- (vi) Seminars.

4. POSSIBLE RESEARCH TO BE UNDERTAKEN

Examples:

- (i) Improvement of the performance of the operative: characteristic of wind turbine.
- (ii) feasibility of a technological transfer centre of JKUCAT.
- (iii) seminar on University Industry co-operation
  - seminar on creativity and entrepreneurial engineering
  - short courses for engineering Graduates and Engineers.
  - workshop on pollution control in motor vehicles.
  - workshop on Engineering education.
- (iv) Design of equipment for bar and tubes drawing for research on polygonal drawing.

Appendix 3 cont.

5. REQUIREMENTS FOR IMPLEMENTATION

(i) Research Funds

(ii) Recruitment of more academic staff

Appendix 6 Area of Research interested by Staff in Department of MECHANICAL ENGINEERING

| Name   | Area of interest   |
|--|--|
| S. M. MARANGA<br>(Prof)                      | <ol style="list-style-type: none"> <li>1. Metal forming/production Engineering</li> <li>2. Traditional metal working</li> <li>3. Continuing education for Engineers</li> <li>4. University education - industry co-operation</li> <li>5. Engineering education.</li> </ol> |
| L. M. MASU<br>(Dr.)                          | SOLID MECHANICS  |
| P. MAGCHA                                    | <ol style="list-style-type: none"> <li>1. Thermodynamics</li> <li>2. Computer Science</li> </ol>   |
| C.M. MUCHIRA                                 | THERMODYNAMICS   |
| S. NGUGI                                     | THERMODYNAMICS   |
| G. M. KYOVE                                  | FLUID MECHANICS  |
| C. C. ONDIEK                                 | APPLIED MECHANICS  |
| I. M. WAIRE                                  | CONTROL AND INSTRUMENTATION  |
| S. P. NGANGA<br>(Still to accept and report) | MATERIALS SCIENCE/PRODUCTION TECHNOLOGY  |

Appendix 1 Staff List of Department of MATHEMATICS/COMPUTER SCIENCE

| No | N A M E                    | AGE | Academic Qualification and Year awarded   | Designation  | Specialized Area         | Subjects able to cover in Syllabus for degree course                      | R e m a r k s<br>(e.g. COD. Dean, necessity of further study etc.)   |
|----|----------------------------|-----|---|--|--------------------------|---|--|
| 1  | HUMPHREYS,<br>Henry Hurray |     | M.A. Maths<br>St. Andrs. '63<br>Oip Ed. Glasgow<br>1964,<br>MSC. STRATH-<br>CLYOE M78 | Lecturer   | Statistics               | General Math/<br>Prob. and<br>Statistics                                  |  |
| 2  | DR. G. XYPLAGUS,<br>Stower |     | B. Sc. M. Sc(City<br>Univ. London<br>Ph. D (Univ. Essex)<br>1985. England             | Senior Lecturer<br>Chairman, Dept<br>of Maths/<br>Computer Science | Fluid Mechanics          | Applied Maths/<br>Computer Science  | NEED THREE TO SIX MONTHS<br>COURSE ON COMPUTER AIDED<br>INSTITUTIONAL (DEPARTMENTAL)<br>MANAGEMENT IN JAPAN. |
| 3  | KINYANJUI,<br>Mathew       | 28  | B. Ed (Sc) 1987<br>M. Sc. Maths 1989,<br>Both at K. U.                                | ASST.<br>LECTURER  | Applied<br>Mathematics   | LINEAR ALGEBRA<br>ORDINARY DIFF.<br>EQNS, COMPLEX<br>ANALYSIS etc         | Needs further studies  |
| 4  | OMURUNDO,<br>John Kwendo   | 31  | B. Ed (Sc) 1984.<br>K. U.<br>MSc.(enabli upon<br>defence of thesis)<br>U. O. N        | Graduate<br>Assistant  | Calculus &<br>Statistics | General<br>Mathematics<br>Units, Prob. stat<br>at Under Graduate<br>Level | Needs further studies  |
| 5  | MUCHINA,<br>Njoroge        | 31  | B. Ed (Sc) U. O. N<br>MSc. STATISTICS<br>MCGILL UNIV                                  | Asst.<br>Lecturer  | Prob. Statistics         | Prob. Statistics<br>at Under Graduate<br>Level                            | Needs further studies  |
| 6  | OMONDI-MITULA              | 37  | B. Ed (Sc) 1978<br>U. O. N  | Senior<br>Lecturer (Ec)  | Diploma Maths<br>Physics | —   | Needs further studies  |

| No. | N A M E               | AGE | Academic Qualification and Year awarded                          | Designation           | Specialized Area                      | Subjects able to cover in Syllabus for degree course | R e m a r k s<br>(e.g. COD, Dean, necessity of further study etc.) |
|-----|-----------------------|-----|--|-----------------------|---------------------------------------|--|--|
| 7   | GATHARIA,<br>Leice W. | 26  | B. Ed (Sc) 1988<br>K.U. PGD in<br>Computer Science<br>1990-U.O.N | Graduate<br>Assistant | Computer<br>Science                   | Computer Science                                     | Needs further studies  |
| 8   | KANYUGI,<br>Hiriam w. |     | B. Ed (Sc) 1982  | Lecturer<br>(TSC)     | Diploma<br>Mathematics/<br>Statistics |  | Needs further studies  |
| 9   | MAKAMBI,<br>Kepher H. | 27  | MSc  | Tutorial<br>Fellow    | Statistics                            | Statistics   | Needs further studies  |

Appendix 2 ACADEMIC STAFF RECRUITMENT PLAN OF AEPT OF MATHS/COMP. SCIE

| AELIGNATION | JPECIALITY       | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | Total |
|-------------|------------------|---------|---------|---------|---------|---------|-------|
| Prof.       | Fluid Mechanics  |         |         | 1       |         |         |       |
| Prof.       | Computer Science |         |         |         |         | 1       | 2     |
| Ass. Prof.  | Fluid Mechanics  |         | 1       |         |         |         |       |
| Ass. Prof.  | Comp. Science    |         |         |         |         |         | 2     |
| S/Lect.     | Applied Maths    |         | 1       |         |         |         |       |
| S/Lect.     | Computer Science |         |         | 1       |         |         |       |
| S/Lect.     | Statistics       |         |         |         | 1       |         |       |
| S/Lect.     | Applied Maths    |         |         |         |         | 1       | 4     |
| Lect.       | Pure Maths       | 1       |         |         |         |         |       |
| Lect.       | Computer Science | 1       |         |         |         |         |       |
| Lect.       | Applied Maths    | 1       |         |         |         |         |       |
| Lect.       | Statistics       | 1       |         |         |         |         |       |
| Lect.       | Applied Maths    |         | 1       |         |         |         |       |
| Lect.       | Computer Science |         | 1       |         |         |         |       |
| Lect.       | Statistics       |         | 1       |         |         |         |       |
| Lect.       | Applied Maths    |         |         | 1       |         |         |       |
| Lect.       | Statistics       |         |         | 1       |         |         |       |
| Lect.       | Applied Maths    |         |         |         | 1       |         |       |
| Lect.       | Computer Science |         |         |         | 1       |         |       |
| Lect.       | Applied Maths    |         |         |         |         | 1       |       |
| Lect.       | Statistics       |         |         |         |         | 1       | 13    |
| A/Lect.     | Pure Maths       | 1       |         |         |         |         |       |
| A/Lect.     | Applied Maths    | 2       |         |         |         |         |       |
| A/Lect.     | Computer Science | 2       |         |         |         |         |       |
| A/Lect.     | Statistics       | 1       |         |         |         |         |       |
| A/Lect.     | Applied Maths    |         | 1       |         |         |         |       |
| A/Lect.     | Computer Science |         | 1       |         |         |         |       |
| A/Lect.     | Statistics       |         | 1       |         |         |         |       |
| A/Lect.     | Applied Maths    |         |         | 1       |         |         |       |
| A/Lect.     | Computer Science |         |         |         | 1       |         |       |
| A/Lect.     | Statistics       |         |         |         |         | 1       | 12    |
| T/Fellow    | Pure Maths       | 1       |         |         |         |         |       |
| T/Fellow    | Applied Maths    | 2       |         |         |         |         |       |
| T/Fellow    | Computer Science | 2       |         |         |         |         |       |
| T/Fellow    | Statistics       | 1       |         |         |         |         |       |
| T/Fellow    | Applied Maths    |         |         | 3       |         |         |       |
| T/Fellow    | Computer Science |         |         | 2       |         |         |       |
| T/Fellow    | Statistics       |         |         | 1       |         |         |       |
| T/Fellow    | Applied Maths    |         |         |         |         | 3       |       |
| T/Fellow    | Computer Science |         |         |         |         | 2       |       |
| T/Fellow    | Statistics       |         |         |         |         | 1       | 6     |
| G/Assistant | Applied Maths    | 1       |         |         |         |         |       |
| G/Assistant | Computer Science |         | 1       |         |         |         |       |
| G/Assistant | Statistics       |         |         | 1       |         |         |       |
| G/Assistant | Applied Maths    |         |         |         | 1       |         |       |
| G/Assistant | Statistics       |         |         |         |         | 1       | 5     |

## STAFF DEVELOPMENT PLAN OF DEPT OF MATHS AND COMPUTER SCIENCE

cannot be meaningfully be committed without funds for scholarships or a sufficient number of members.

It is my recommendation that the assistant lecturers/Tutorial Fellows have in the department who hold a M.Sc degree, should embark privately on a Ph. D programme of the local Universities. If any scholarships are obtained in the process then priority will be given to those who have shown interest.

For the first degree holders most of whom are employees of the Teachers Service Commission my advice is that they should make an effort to obtain scholarships from all possible sources available in the Country. They could also pursue postgraduate studies by sponsoring themselves. Until such time that scholarships will be available.

Dr. G. X. Stvwer

Chairman

Dept. of Math and Computer Science.

## Appendix 4      Research Policy of Department of Maths and Computer Science

1. Objectives.
2. Areas of Priority.
3. Strategies.
4. Possible research to be undertaken, and
5. Requirements for the implementation.

### Objectives

1. To provide the best research computing facilities in E-Africa
2. To prepare the department to be able to face and cope with the many challenging scientific and technological problems.
3. Provide advice and solutions to scientific and technologic queries as they arise in the other departments.
4. Provide computing services.
5. Provide computing facilities.
6. Evaluate the scientific content of the technological developments in other fields which have an experimental orientation.
7. Provide applied mathematicians, computer scientists and statisticians of 21 st century all equipped with basic tools of research.

### AREAS OF PRIORITY :

1. Teaching
2. Research and development
3. Services

### STRATEGIES:

1. Staff strengthening –through recruitment training, workshops, Seminars.
2. Development of the necessary infrastructure and support facilities
3. Acquisition of Journals, reviews and specialized magazine

POSSIBLE RESEARCH TO BE UNDER TAKEN

Possible research will depend on the staff specializations and research interests.  
Serious consideration will be given to the national employment potential.

REQUIREMENTS

Manpower

Space

Equipment.

Appendix 5 Area of Research interested by Staff in Department of MATHEMATICS/  
COMPUTER SCIENCE

| Name                | Area of Interest                                       |
|---------------------|--|
| DR. G. X. STOWER    | FLOWS THROUGH POROUS MEDIA                             |
| MR. H. M. HUMPHREYS | EFFICIENT METHODS FOR UNIVERSITY TEACHING<br>TIMETABLE |
| MR. N. MUCHINA      | STATISTICS FOR TECHNOLOGY                              |
| MR. M. KINYANJUI    | NUMERICAL ANALYSIS                                     |
| McSS M. KANYUGI     | STATISTICS FOR TECHNOLOGY                              |

附属資料 3. 派遣中専門家一覧表

シヨモ・ケニヤツタ農工大学プロジェクト（学士課程）専門家一覧表

1990年12月10日現在

| 区 分 | 氏 名   | 分 野     | 派 遣 期 間           | 自 宅 TEL | 随 伴 家 族   | 本 邦 所 属 先 |
|-----|-------|---------|-------------------|---------|-----------|-----------|
| 1   | 杉山 隆彦 | チームリーダー | 90. 4.21-91. 4.20 | 748683  | 妻、子3人 (4) | -         |
| 2   | 佐藤 武明 | 業務調整    | 90. 7.26-91. 7.25 | 47233   | 妻、子2人 (3) | 国際協力事業団   |
| 3   | 和田 章裕 | 業務調整補佐  | 90. 4.21-91. 4.20 | 569278  | 妻、子1人 (2) | -         |
| 4   | 塩見慎次郎 | 園芸学     | 90. 4.21-91. 4.20 | 726958  | 妻、子1人 (2) | -         |
| 5   | 時田 邦浩 | 農業工学    | 90. 5. 9-92. 5. 8 | 720086  | 妻、子1人 (2) | -         |
| 6   | 小崎 浩  | 食品工学    | 90. 4.21-91. 4.20 | 521624  | なし (0)    | -         |
| 7   | 角田 学  | 工学部     | 90. 4.21-91. 4.20 | 767140  | 妻、子1人 (2) | -         |
| 8   | 備川 哲光 | 土木工学    | 90. 5. 9-92. 5. 8 | 564580  | 妻、子2人 (3) | 熱錬株式会社    |
| 9   | 岡崎 修三 | 機械工学    | 90. 5. 9-91. 5. 8 | 802231  | 子1人 (1)   | 明石高専      |
| 10  | 大芝 敏明 | 電気電子工学  | 90. 5.18-91. 5.17 | 720593  | 妻 (1)     | -         |
| 11  | 小野 舜文 | 支援分野    | 90.10. 6-92.10. 5 | 720760  | なし        | -         |
| 12  | 青木 幹治 | 数学科     | 90. 4.21-91. 4.20 | 569474  | 妻、子1人 (2) | -         |
| 13  | 喜田 清  | 農場      | 90. 5.18-91. 5.17 | 569827  | なし (0)    | -         |



