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African Institute for Higher Technical Training and Research

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COURSE SCHEDULES FOR THE INITIAL TRAINING PROGRAMMES OF THE INSTITUTE

M81-145

COURSE V.1 - B & C

Time-Table and Courses for a Starting Programme on:
Practical Workshops in Educational and Communicational Technology

A. Rationale: Technical Teacher/Educator/Instructor training has for long been identified as one of the acutely needed facilities in the region's efforts to match its educational performance with its growing industrialisation needs. It ranks with the agro-industries in the first-phase priority fields of activity of the Institute; however, its bourgeoning application and adaptation of modern communicational and electromechanical techniques are as recent as the acknowledged didactic efficiency of these techniques is world-wide. On account of the former, the current generation of teachers, educators and instructors at all levels is not generally well-acquainted with the most effective of these techniques, largely because these last involve technical and theoretical appreciations that are discontinuous with the teachers' backgrounds.

Consequently upgrading or retraining in the application, use and maintenance of educational and reprographic media materials and of communicational techniques relevant thereto - all usually referred to as educational technology - is one of the first areas of concern of the Institute. Its choice is favoured by the availability locally of more resources in this than in most other disciplines.

B. Title of Courses: Educational and Communicational Media Appliances for: (i) Technical Teachers; (ii) Technical Instructors.

C. Training Fields catered for: Schools Broadcasting, Mass Education, Distance Teaching by Radio and Television, Open Universities, Technical Teaching/Education and Science Teaching in Colleges, Polytechnics and Universities.

D. Duration: About 3 month cycles starting in July, 1981.

E. Target Groups: The Course should be adapted to several homogeneous groups of teachers in the following categories:

(a) Experienced graduate teachers of technical, science and agricultural courses in polytechnics and universities, who are of entirely technical backgrounds and have not had much acquaintance with modern educational technology, materials and theory.

(b) Graduate technical teachers, young to experienced, who are furnished with modern educational theories but have little practical acquaintance with the technical processing of information and educational media materials.

(c) Technicians, non-graduate school teachers and technical Instructors in such professions as radio and television production (including schools broadcasting), agricultural extension work, and telecommunications and factory productions schools, whose performance would be considerably improved by the appropriate use of educational technology materials. The precise duration for the individual groups (a), (b) and (c) will be determined by the resource personnel but should not be less than 3 months.

Time-Table and Courses for Initial Programmes on:

(i) Instrumentation and Metrology.

(ii) Special Foundry Processes.

A. Rationale

The S-Series (or Special Diploma, S. Dip.) Programmes: are aimed to impact on a variable spectrum of sub-professional, highly needed skills in fields of either such modern development or such restricted but critical manpower needs that they are usually by-passed as unviable or unfeasible by national training programmes. Technicians in electromechanical engineering for instance as distrinct from electrical or mechanical engineering, specialised computer technicians, aircraft maintenance crews, space communications, nuclear reactor and explosives-handling technicians, etc. Their particular need stems from the fact that owing to their conditions of development, the most effective technicians are also the most specialised in a particular skill. The Special Diploma technologist should be as proficient in the materials, machining and manufacture of all or parts of particular equipment and subsystems as in their assembly and operation, their maintenance and normal and emergency repairs. He differs from other technologists in developing a vertically integrated proficiency throughout the life history, from parts manufacture to the system maintenance, of the equipment and instruments in his special field. In the Institute such would be fields in which it is impossible because of manpower shortages, or uneconomical, for a national institution to arrange for training, entrance into the course will be restricted to senior technicians with or without a full secondary educational background but who are clearly identifiable with at least one major skill operated for at least seven years e.g. foundry technology, power station maintenance, tools and components machining, electronic instrumentation, possible to schedule the programme for 2 to 3 semesters only.

Specialist Diploma (S.Dip.) in the field of:

(i) Instrumentation and Metrology, or

(ii) Special Foundry and Metallurgical Processes.

The programmes, Instrumentation (and Metrology) or Foundry (and Metallurgical) Processes, according to the chosen degrees of comprehensiveness can be offered at two levels. But it is proposed to start with a Specialist Diploma programme which is adjudged to be the one of greater need at the moment and in the immediate future for imports negotiations and substitutions, refineries and the manufacturing and process industries, standards bodies, and products quality and reliability assessement in the one case; or for the metals, machines and tooling industries in which quite a few member states should be engaged within five years, in the other. Also as a course it should need a minimum of additions to instruments existing in the Institute's host institutions. It should be offered therefore as a 3-semester (maximum) programme with some flexibility to allow for an envisaged wide variation in entrants' backgrounds.

Course Outlines

1. S-3 Series (3-Semesters) Instrumentation (and Metrology), Special Foundry (and Metallurgical) Processes

Contact Hours

300	Project
50	Solid Mechanics/Metals Testing
50	Properties of Fluids/Solidification
100	Technical Maths/Business Maths
100	Mechanical and Electrical Materials Properties, and Tests
100	Mechanical and Electrical Drafting
175	Electromechanical Vibrations/Heat Treatment Processes and Metal Forming
150	Metrology and Tools Technology/Furnace Design
300	Electromechanical Instrumentation/Foundry Technology and Metallurgy
150	Industrial Electronics/Industrial Engineering
75	Electrical Technology
125	Production Technology and Quality Control
1575	

Major Projects

Project Philosophy and Type. For a large part of the early period leading up to the acquisition of manufacturing capability that will hopefully be realised through the project strategy among others, the project type that the Institute's formal curricula need to support are the technology-adaptation and replication variety. These include the unpackaging and testing, disassembly, study and analysis (structurally and functionally), reassembly and retesting, leading in time to the repair, adaptation and replication capabilities on old equipment previously in general use or on equipment involving special new technique.

The projects concentration on real-life equipment and techniques unhesitant familiarity with all aspects of which is the crucial 'skill' demanded by the world of work, enhances the problems-solving orientation of the entire thrust of the Institute's programme and leads most directly, practically and cost-effectively to new skills and technology development, without due losses through equipment damage. The learning of the principles and practice of original design proceeds hand-in-hand with 'doing' real-life maintenance routines, and this combination is the best expression of engineering training.

Course Number and Expected Duration	(a) Course Title (b) Trainee Group	Dates (a) Planned Call (b) Application (last date)	Trainees per Country		Class Size	Course Commencement	Total Estimated Fellowships	Award
			Maximum Proposals	Average Acceptance				
W1 - C (3 months)	(a) Use of Technical Appliances in Educational Technology (b) Technical Education and Science Education teachers & Instructors (non-graduates) of 1-2 years practice	(a) May, 1981 (b) June 1, 1981	2	1	25	Cycle I July 1, 1981 Cycle II Oct. 12, 1981	30	Workshop Certificate
W1 - B (3 months)	(a) Ditto (b) Ditto but graduate teachers	(a) May 1981 (b) June 1, 1981	2	1	25	Ditto	20	Ditto
S - 3/E (18 months)	(a) Instrumentation Specialisation (b) Medium-level and Senior Electrical	(a) July 1, 1981 (b) August 15, 1981	2	1	15	September 28, 1981	10	S.Dip. Specialist Diploma
S - 3/M (18 months)	(a) Foundry Process Specialisation (b) Medium-level and Senior mechanical engineering technicians	(a) July 1, 1981 (b) August 15, 1981	3	1	15	Ditto	10	Ditto

Time-Table

March 1981

Announce initial Courses
For Technical Teacers: Course W1 - C) Modern Teaching Aids in
For Instructors: Course W1 - C) Educational Technology
For Technicians: Course S3 - E, Instrumentation and Metrology
Course S3 - M, Special Foundry Processes

April 1981

Correspondence with potential donor governments and institutions on the recruitment of identified resource personnel.

Host Government seconds identified senior administrative and supporting staff to Institute. These follow up with all donor governments on remaining staff secondements.

Advertise to Member Governments the initial training courses, trainees' qualifications, quotas and fees; and publish the dates for applications and admissions.

April 20, 1981

Administrative arrangements at Headquarters for receiving all seconded staff from Member States; and communications with such staff on teaching programmes.

Arrange for all identified local teaching staff participation in course starting in July.

May 1981

Seconded staff arrivals start.

Schedule all teaching and training facilities.

Procure urgent, unavoidable complements of initial teaching equipment and materials.

June 1 - 10, 1981

All Seconded staff arrive to prepare training programmes and projects.

June 10 - 30, 1981

Complete preparations for first Course Cycle, including arrangements for admitting and housing trainees.

July 1, 1981

First Cycle starts for two classes of about 25 trainees each.

September 1, 1981

Second Cycle starts: two new classes overlapping last month of First Cycle.

November 1, 1981

Third Cycle starts.

Trainee Population Target

150 (or 450 man-months) in the first half-year.

NB: The time schedule for the various courses will be adjusted to later dates when funding is assured.