



INTERNATIONAL ATOMIC ENERGY AGENCY
UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION



INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS
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SMR/90 - 35

COLLEGE ON MICROPROCESSORS:
TECHNOLOGY AND APPLICATIONS IN PHYSICS

7 September - 2 October 1981

INTRODUCTION TO THE PRACTICAL SESSIONS

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These are preliminary lecture notes, intended only for distribution to participants. Missing or extra copies are available from Room 230.

HANDS ON EXPERIENCE

FOR > 100 STUDENTS ?

• PROVIDE EACH STUDENT
WITH A KIT

STUDENTS KEEP KITS

• REQUIREMENTS :

CHEAP

BUS SYSTEM

GOOD DOCUMENTATION

AVAILABLE NOW IN
LARGE QUANTITIES.

• MOTOROLA

MEK6802DSE

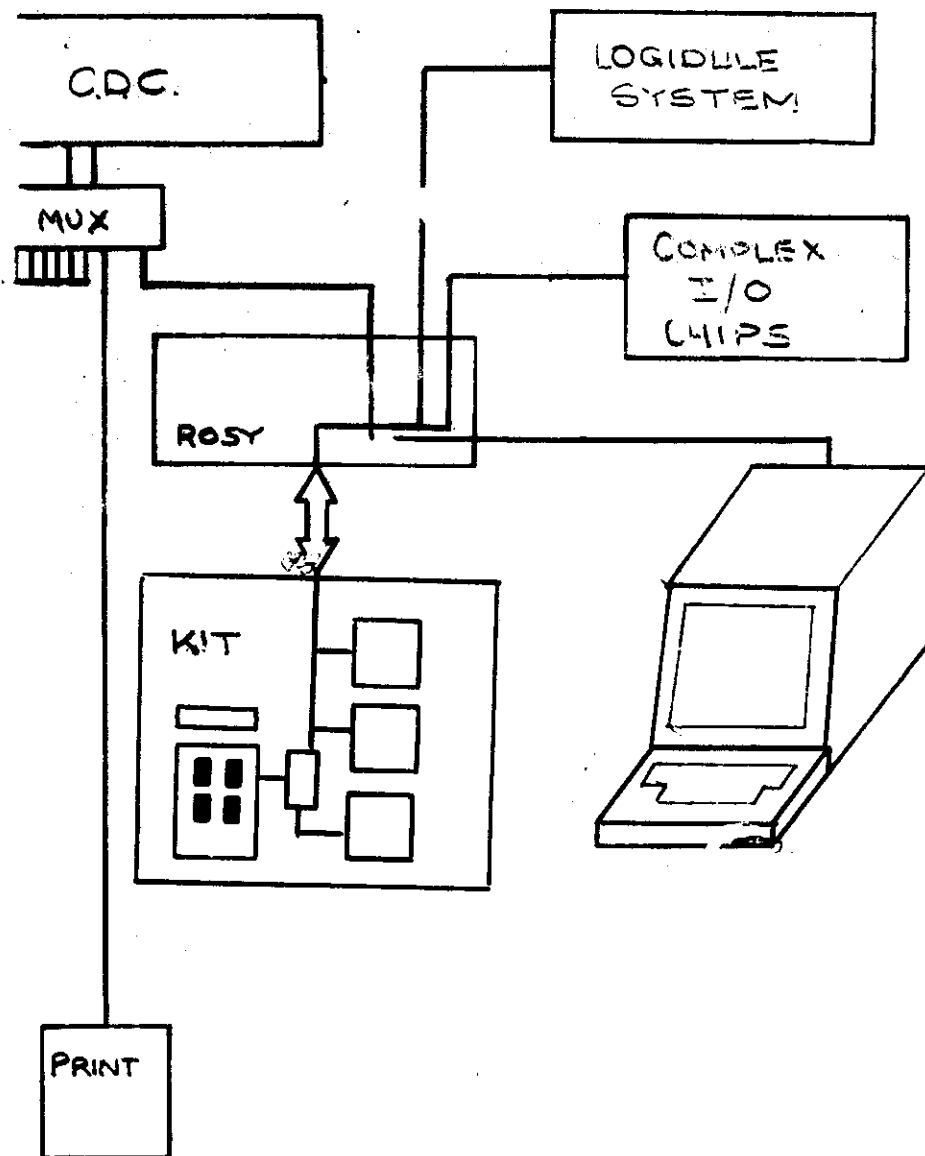
BUT . . .

• LIMITED HARDWARE

• KEY IN MACHINE CODE
SLOW AND ERROR PRONE

• NO ASSEMBLER

• NO COMPILER



INTRODUCTION TO THE M6802D5E KIT

LECTURER ROBERT MCLAREN DATE 8-9-81

SUBJECTS:

- * Overview of kit
- * Simple addressing modes
- * Kit monitor commands
- * Limited instruction set

INPUT/OUTPUT USING THE LOGIDULE SYSTEM

LECTURER BRIAN MARTIN DATE 10-9-81

SUBJECTS:

- * Input/Output
- * The Logidule system

COMPREHENSIVE EXERCISE ON KIT

LECTURER MARTYN EDWARDS DATE 14-9-81

SUBJECTS:

- * Full instruction set
- * Use of monitor routines
- * Subroutines
- * Parameter passing methods

DEALING WITH COMPLEX I/O CHIPS

LECTURER WOLFGANG VON RUEDEN DATE 16-9-81

SUBJECTS:

- * Parallel interface adaptor (PIA)
- * Asynchronous communications interface adaptor (ACIA)

PROGRAMMING AIDS

LECTURER ALESSANDRO MARCHIORO DATE 18-9-81

SUBJECTS:

- * Connecting a Visual Display Unit
- * The Resident Operating System
- * The principle of downline loading

PRACTICAL SESSIONS

THE CROSS ASSEMBLER

LECTURER JEAN-PIERRE VANUXEM DATE 21-9-81

SUBJECTS:

- * The CMC Cyber editor file system
- * Cross assembly and downline loading

ADVANCED FEATURES OF THE CROSS ASSEMBLER

LECTURER MICHAEL BARTON DATE 23-9-81

SUBJECTS:

- * Macros
- * Conditional Assembly

THE MOTOROLA PROGRAMMING LANGUAGE (MPL)

LECTURER ULRICH RAICH DATE 25-9-81

SUBJECTS:

- * Introduce MPL
- * Explain advantages and disadvantages of MPL

AN ANALOG INTERFACE

LECTURER DARIO CROSETTO DATE 28-9-81

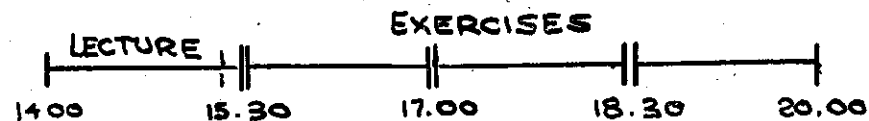
SUBJECTS:

Digital to analog / Analog to digital conversions

- 2 TYPES
- EXERCISES



- LECTURE + EXERCISES



FORMAT FOR PRACTICAL SESSIONS

- LIMITED DISCUSSION OF COMMON PROBLEMS
- LECTURE ON TOPIC
- PRESENTATION OF EXERCISES

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•
3½ HOURS

- WRITTEN SOLUTIONS
PLEASE STUDY

- SLOW AT FIRST
- FREEDOM TOWARDS END
- YOU CAN'T FOLLOW PRACTICAL LECTURES WITHOUT MORNING LECTURE
- YOU CAN'T DO EXERCISES WITHOUT PRACTICAL LECTURE
- YOU WON'T GET MAXIMUM OUT OF COURSE UNLESS YOU DO EXERCISES

MAGIC FORMULA

SUCCESS = LECTURES AND
PRACTICAL LECT. AND
EXERCISES

AND HARD WORK