

## ACCOMMODATION, SPORTS AND GAMES

Hostel accommodation is only available to first year students. Those students without hostel accommodation are expected to find their own accommodation. The Polytechnics may provide assistance in finding accommodation for their students.

Various facilities for sports and games are available. However, students are expected to arrange their own sports, social and cultural activities under the guidance of appointed lecturers.

## OTHER REQUIREMENTS

Successful candidates are required to pass a medical examination (including X-Ray) before being allowed to commence their studies. Medical fees incurred are to be borne by the students.

Students are required to fill in an Indemnity Form, absolving the polytechnic of any responsibility in case of any accidents that may befall them while studying.

Students are also required to take a personal insurance cover for the period of their studies in the polytechnic and for the period of their industrial attachment.

Students are required to observe all the rules and regulations of the polytechnic which are currently in force and those which may be introduced from time to time.

## TRAINING PROGRAMMES FOR THE TECHNICAL COURSES

All polytechnics courses are full-time courses and require attendance during normal academic semesters for the entire course. In addition to lectures, courses also involved in laboratory work, workshop practice, assignments/tutorials, semester examinations and industrial training.

### ***Laboratory Work***

All laboratory work is obligatory, students are divided into various groups to carry out experiments. Students in a group are expected to cooperate among themselves and to write out individual or group reports about the experiments carried out. Report marks will be included for final assessment of student performance.

## ***Workshop Practice***

Practical experience in the workshop is vital to all the technical courses of study. Experienced instructors are assigned for each course of study to train students in the practical aspects of their subjects. Practical tests form part of every semester examination, and students are expected to pass their practicals before being considered to have passed their semester examination.

## ***Assignments/Tutorials***

Students are assessed in order to monitor their progress throughout the course so that any gaps in their knowledge can be revealed and remedied before moving on to the next stage of the course or semester. Apart from the substantial proportion of continuous assessment during the course (report writing on workshop practical, project work, laboratory work) that counts towards the final assessment mark, the other different forms of assessment used by polytechnics include assignments, tutorials and some 'timed' tests/quizzes. The standard of work put into the completion of these assignments/tutorials/quizzes will help in the final assessment of the students' work.

## ***Examinations***

A written examination will be held at the end of each semester. All students are required to satisfy the following criteria before they are allowed to sit for each semester examination.

They must have:

- a. settled all payments (fee, others).
- b. attended more than 80% lectures/tutorials/practical for the semester concerned.
- c. already registered for the subject on the course.
- d. satisfactorily completed all assignments/projects/course work requirements.

Students who are medically unfit to sit for any examinations should produce a medical certificate. Certificates issued by private clinics are limited for a maximum of two consecutive days leave.

Students must abide by all rules and regulations or any extended circulars pertaining to the examination.

## ***Industrial Visit***

Visits are arranged to various industrial/government organizations to familiarise students with the kind of industrial environment they may have to work in after they graduate.

## ***Industrial Training***

This is an integral part of all the courses offered in the polytechnics. The objectives of this Industrial Training are to provide the students with practical experience in their respective course of study and with insights into their eventual careers as well as to improve their opportunities for employment upon graduation. The polytechnics will make arrangements for the emplacement of student trainees for one semester on-the-job training. All students are required to complete and submit a full report of their training.

## **POLYTECHNIC ACADEMIC CALENDAR**

The academic session for all polytechnics in Malaysia commences in June and ends in Mei. Each session is divided into two semesters. In general, the calendar for each academic year is as follows:

June Semester	10 Weeks
Semester Break	2 Weeks
August Semester	10 Weeks
Semester Holidays	4 Weeks
December Semester	10 Weeks
Semester Break	2 Weeks
February Semester	10 Weeks
Semester Holiday	4 Weeks

\* Please refer to APPENDIX A for the calendar of the academic year.

## **STUDENT COUNSELLING & GUIDANCE**

Student counselling and guidance is concerned with effective adjustment of students to college life, and the necessary guidance to students who may be faced with anxieties, problems and real difficulties posed by financial or living environment, circumstances which affect their ability to make satisfactory progress in their study. The counselling and guidance service is carried out via the 'tutorship system' whereby a tutor takes care of a number of students. Whatever problem a student has is discussed in the strictest confidence, unless the situation warrants that it be brought up to a higher authority for the necessary solution.

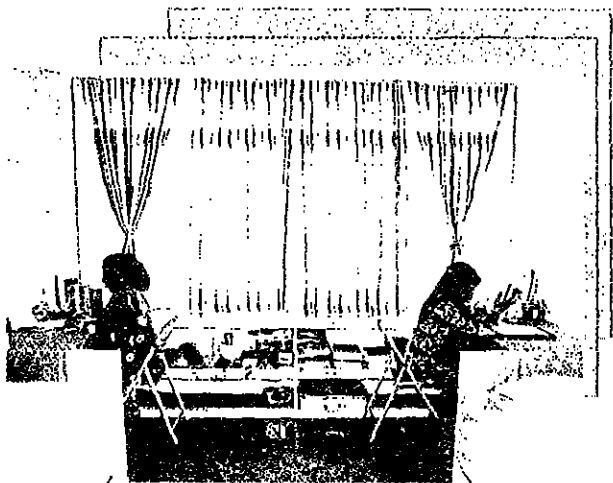
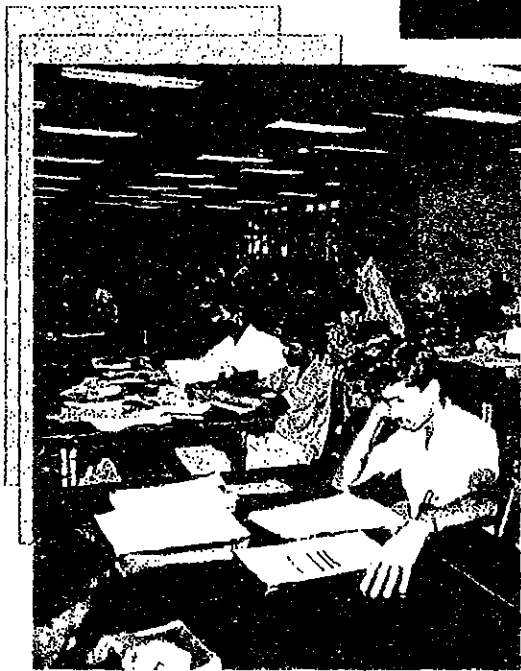
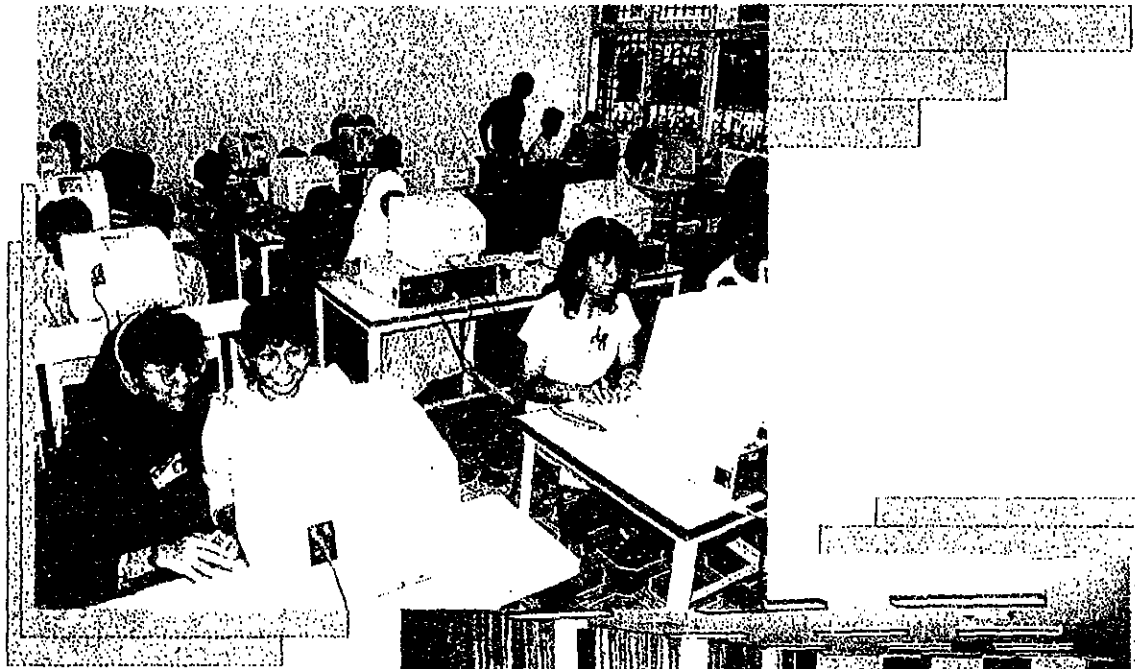
The Polytechnic expects a high standard of student performance in every aspect of the course, and through the student counselling and guidance services every effort is made to help students who are themselves making an effort.

## **EMPLOYMENT**

Students, after completion of their studies, are expected to find their own employment. However, the Polytechnics offer assistance by channelling notices of employment opportunities from firms to the suitable students/graduates. Polytechnics also provide facilities for firms wishing to interview graduating students.

Among the posts held by Engineering Certificate holders in the various government departments are technicians, radio officers, assistant project supervisors, instructors, plan drafters, works supervisors and assistant quantity surveying officers. For graduates in the Accountancy and Business Studies courses, among the posts are Accounts clerks, Account examiners, clerks and others.





**CIVIL  
ENGINEERING  
DEPARTMENT**

## **CIVIL ENGINEERING DEPARTMENT**

The Civil Engineering Department offers the following engineering courses at certificate level:

1. Civil Engineering (Construction)
2. Civil Engineering (Public Works & Hydraulics)
3. Architecture
4. Land Surveying
5. Building Services
6. Quantity Survey
7. Development Planning
8. Civil Engineering (Highway)

These courses are planned to equip the students with sufficient skills so that they can become competent technicians in the government departments, statutory bodies and private organizations.

Heavy emphasis is placed on practical work in the laboratory and workshop.

The duration of each of the above courses is two years including a six-month industrial training period in industries/government departments.

### **CIVIL ENGINEERING (CONSTRUCTION)**

This course equips the students with the necessary theoretical knowledge and practical skill to enable them to become technicians competent enough to supervise construction and development projects like building construction, housing, roads, highways, bridges and others.

In addition to studying basic subjects like Science and Mathematics, the students are also given sufficient theoretical and practical knowledge on topics related to construction like Surveying, Materials Testing, Basic Hydraulics, Structures, Water Supply, Highway and also the different construction materials commonly used.

Basic workshop training includes carpentry, concrete work and surveying. Students are also taught about contracts and the tendering process beginning from drawing up of specifications to supervision until completion of projects.

Visits are made to various factories and industries where building materials and components are manufactured or fabricated and to construction site works of varied nature, to broaden their knowledge generally.



## **CIVIL ENGINEERING (PUBLIC WORKS & HYDRAULICS)**

One of the aims of this course is to produce technicians who can help engineers and technical assistants to supervise drainage and sewerage works, surveying and other works connected with Civil Engineering.

To achieve this aim the students will study subjects connected with water works like methods of water flow measurement, collection of data on rainfall and water works. Students will also learn various aspects of construction including properties of building materials used and also ways of engineering measurement that are covered in the Construction course.

Practical work in the workshop and laboratory is the same as for the Construction course like carpentry, brickworks, concreting, surveying and others.

## **ARCHITECTURE**

Students in this discipline will be equipped with knowledge in the areas of construction technology, drafting, structures and drafting office management.

In the first year, students are taught Mathematics and Science subjects. Basic subjects like Physics, Electricity, Mechanics and Building Materials are also taught. Theory classes are balanced with practical work where the students develop practical skills in woodwork, brickwork, concreting and surveying. In the Architectural Studio, the students are shown the correct ways of using drawing/drafting instruments.

After the period of industrial training, the students are taught architectural structures, architectural drawing techniques (with emphasis on wooden and concrete constructions), perspective drawing and other presentation drawings. Architectural structures are taught using the method of building calculation as employed in building structures. Students are also given instructions on office management procedures connected with estimating and costing in the preparation of contracts and tenders and also the legal aspects involved in the construction field.

## **LAND SURVEYING**

In the first year, the course structure is similar to that followed by the other Civil Engineering courses. However the emphasis is the aspects of measurement like ways of drawing plans, method of division and subdivision of land.

In the second year, the students study the ways of investigating border markers,

three-cornered measurement system, analysis of aerial photographs for determining mountain facing direction and others. Amongst the instruments used are theodolite, electronic distance measurement instrument, plane table, prismatic compass and other surveying instruments.

It is expected that the graduates of this course will be able to help the surveyors in Topographic Survey, Photogrammetry and Engineering Survey.

## **BUILDING SERVICES**

This course enables the students to acquire knowledge of Building Services (Electrical, Mechanical and Plumbing Installation). With this knowledge they should be able to prepare working drawings, specifications and planning data, assess the costs of installing building services including the economic use of plant, materials and labour. They should also know how to test and commission installed building services systems, develop ability to select materials, an appreciation of physical and performance standards and interpretation of technical information and to provide supervision of office site staff liaison with the client, other contractors and statutory bodies.

## **QUANTITY SURVEYING**

The course is intended for school leavers who wish to subsequently gain employment as Quantity Surveying technicians in the public or private sectors or in the construction industry. The aim of the course is to produce an initial integrated and balanced course offering students technical skills.

On successful completion of the course students will be able to appreciate the role and functions of a Quantity Surveying technician, have a thorough grasp of a practice in, the duties of a Quantity Surveying technicians. They should also be able to communicate and collaborate effectively with other members of the working team and apply principles learnt to provide answers to assignments and projects by analysing the problems, researching and finding satisfactory solutions.

## **DEVELOPMENT PLANNING**

On completion of the course the graduate in Development Planning will be equipped with the necessary knowledge and skills to operate micro-computer information systems, both standard office software and those relevant to planning and development, operate and maintain photographic and other visual aids equipment, produce architectural models, draft plans, layouts, thematic maps

and other design graphics, maintain photographic, cartographic, statistical and other records for planning and development purposes, execute a wide range of surveys, physical and socio-economic and supervise small rural development and landscaping projects.

Graduates can be employed as Town Planning Assistants or Technical Assistants in the public sector as well as in the private sectors.

### ***CIVIL ENGINEERING (HIGHWAY)***

On successful completion of the course the students are able to understand the implications of design on the construction process, measure and record civil/highway engineering works for progress and payment, set out works and record data, select and understand the application of mechanised plant for projects, prepare layout drawings, routine specifications and detail structural elements, working details and schedules.



# CURRICULUM

## **CIVIL ENGINEERING (CONSTRUCTION)**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 101 Mathematics  
SAW 102 Engineering Science  
SAW 103 Engineering Drawing  
SAW 104 Engineering Survey  
SAW 105 Material & Construction  
SAW 106 Concrete Technology

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 201 Mathematics  
SAW 203 Engineering Drawing  
SAW 204 Engineering Survey  
SAW 205 Material & Construction  
SAW 207 Strength of Materials  
and Structures  
SAW 209 Contract Procedures And  
Estimating

### **Semester 3 — Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 404 Engineering Survey  
SAW 405 Materials and Constructions  
SAW 407 Strength of Materials & Structures  
SAW 408 Soil Mechanics  
SAW 410 Hydraulics  
SAW 411 Highway Engineering

## **CIVIL ENGINEERING (PUBLIC WORKS AND HYDRAULICS)**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 101 Mathematics  
SAW 102 Engineering Science  
SAW 103 Engineering Drawing  
SAW 104 Engineering Survey  
SAW 105 Material & Construction  
SAW 106 Concrete Technology

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 201 Mathematics  
SAW 203 Engineering Drawing  
SAW 204 Engineering Survey  
SAW 205 Material & Construction  
SAW 207 Strength of Material  
and Structure  
SAW 209 Contract Procedures  
And Estimating.

### **Semester 3 - Industrial Training**

#### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 404 Engineering Survey  
SAW 405 Materials and Constructions  
SAW 407 Strength of Materials & Structures  
SAW 408 Soil Mechanics  
SAW 410 Hydraulics  
SAW 412 Water Resources Engineering

## **ARCHITECTURE**

#### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 113 Mathematics & Engineering  
Science  
SAW 114 Construction Survey  
SAW 115 Architecture Drawing  
SAW 116 Graphics  
SAW 117 Materials and  
Constructions

#### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 213 Mathematics & Engineering  
Science  
SAW 215 Architectural Drawing  
SAW 216 Graphics  
SAW 217 Materials & Construction  
SAW 218 Architectural Design  
SAW 219 Building Services

### **Semester 3 --- Industrial Training**

#### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 418 Architectural Design  
SAW 419 Building Services  
SAW 420 Building Construction - Working Drawing  
SAW 421 Professional Practice  
SAW 422 Architectural Structure  
SAW 423 Architectural Graphics

## **LAND SURVEYING**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 101 Mathematics  
SAW 102 Engineering Science  
SAW 104 Engineering Survey  
SAW 124 Cadastral Survey  
SAW 125 Computation  
SAW 126 Plan Drawing

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 201 Mathematics  
SAW 204 Engineering Survey  
SAW 224 Cadastral Survey  
SAW 225 Computation  
SAW 226 Plan Drawing  
SAW 228 Land Laws and Regulations

**Semester 3 — Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 404 Engineering Survey  
SAW 424 Cadastral Survey  
SAW 425 Computation  
SAW 427 Astronomy  
SAW 429 Photogrammetry  
SAW 430 Cartography

## **BUILDING SERVICES**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 132 Mathematics  
SAW 133 Engineering Science  
SAW 134 Building Drawing  
SAW 135 Engineering Survey  
SAW 136 Materials & Construction  
SAW 137 Basic of Building  
Services

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 232 Mathematics  
SAW 233 Engineering Science  
SAW 234 Building Drawing  
SAW 236 Materials & Construction  
SAW 237 Basic of Building Services  
SAW 244 Building Services Drawing

**Semester 3 — Industrial Training**

#### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 438 Industrial Study  
SAW 439 Plumbing Services  
SAW 440 Mechanical Services  
SAW 441 Electrical Services  
SAW 442 Building Services Science  
SAW 443 Project

### **QUANTITY SURVEYING**

#### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 145 Mathematics & Engineering  
Science  
SAW 146 Building Drawing  
SAW 147 Engineering Survey  
SAW 149 Building Procedures  
SAW 150 Measurement of  
Building Works  
SAW 151 Materials and Construction  
Technology

#### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 245 Mathematics & Engineering  
Science  
SAW 247 Engineering Survey  
SAW 248 Office Practice  
SAW 250 Measurement of Building  
Works  
SAW 251 Materials and Construction  
Technology  
SAW 252 Building Services

#### **Semester 3 — Industrial Training**

#### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 450 Measurement of Building Works  
SAW 451 Materials and Construction Technology  
SAW 452 Building Services  
SAW 453 Specification Writing  
SAW 454 Tendering and Estimating  
SAW 455 Post-Contract Procedures & Professional Practice  
SAW 456 Project



## **DEVELOPMENT PLANNING**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 157 Environmental Science  
SAW 158 Mathematics  
SAW 159 Economics  
SAW 160 Engineering Drawing  
SAW 161 Engineering Survey  
SAW 162 Construction and  
Landscaping

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 258 Mathematics  
SAW 260 Engineering Drawing  
SAW 261 Engineering Survey  
SAW 263 Applied Statistics  
SAW 264 Planning and Development  
SAW 265 Survey Techniques

**Semester 3** --- Industrial Training

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 463 Applied Statistics  
SAW 464 Planning and Development  
SAW 465 Survey Techniques  
SAW 466 Information Systems  
SAW 467 Cartography and Presentation Technique  
SAW 468 Project

## **CIVIL ENGINEERING (HIGHWAY)**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAW 101 Mathematics  
SAW 102 Engineering Science  
SAW 103 Engineering Drawing  
SAW 104 Engineering Survey  
SAW 105 Material & Construction  
SAW 106 Concrete Technology

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SAM 206 Computer Application  
SAW 201 Mathematics  
SAW 203 Engineering Drawing  
SAW 204 Engineering Survey  
SAW 205 Material & Construction  
SAW 207 Strength of Material  
& Structure  
SAW 209 Contract Procedures And  
Estimating.

**Semester 3** --- Industrial Training

#### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SAW 404 Engineering Survey  
SAW 407 Strength of Materials and Structures  
SAW 408 Soil Mechanics  
SAW 410 Hydraulics  
SAW 411 Highway Engineering  
SAW 469 Highway Maintenance

**ELECTRICAL  
ENGINEERING  
DEPARTMENT**

## **ELECTRICAL ENGINEERING DEPARTMENT**

The Electrical Engineering Department offers the following engineering courses at diploma level:

1. Computer Technology
2. Communication Engineering
3. Electro-Mechanical Engineering

and at certificate level in:

1. Electrical Power Engineering
2. Electronic and Communication Engineering
3. Industrial Instrumentation and Control
4. Electronic Engineering and Computer Technology

These courses are of 3 years duration for diploma courses and 2 years duration for certificate courses including a compulsory six-month training period in government departments or private sectors during the fifth semester for the diploma courses and in the third semester for the certificate courses. Throughout the course great emphasis is placed on practical and laboratory work.

### **COMPUTER TECHNOLOGY (DIPLOMA)**

The objective of the course is to develop understanding, knowledge and application of the theory and practical of electrical and electronics engineering, computers, computing and communication.

On completion of the course the students would be able to carry out the servicing and maintenance of a range of analogue and digital equipment in a non-supervising role. They can be employed as Technical Assistants in the public as well as in the private sectors.

### **COMMUNICATION ENGINEERING (DIPLOMA)**

The objectives of the course are to provide students with the knowledge and skills required for Technical Assistants in the communications industry and in particular to enable the students to be aware of the present situation in the general field of communications, to develop the basic understanding, knowledge and applications of the theory and practice of electrical and electronic engineering, to develop abilities in using the equipment, testing of equipment, service and maintenance of equipment and supervise works of subordinates, to

develop students skill in both hardware and software and to develop the students self-confidence in solving practical problems.

It is also aimed that graduates would have entrepreneur qualities/abilities and have the aptitude to be self-employed.

### ***ELECTRO-MECHANICAL ENGINEERING (DIPLOMA)***

The objective of the course is to provide a multi-disciplinary training and education in the principles and techniques required by Electro-Mechanical Engineering technicians working in any electronic-based industries and semi-conductor industries.

Students trained in Electro-Mechanical Engineering will be involved in testing and evaluating the performance of machines and control systems that use hydraulic, pneumatic, mechanical and electrical power as their energy source. The course is practical in nature with emphasis on automation controls and instrumentation, manual, semi-automatic and automatic, electro-hydraulic and electro-pneumatic drives, microcomputer controls and transmission principles.

### ***ELECTRICAL POWER ENGINEERING***

This course provides the student with the theory and practice that are necessary for a technician to do his job competently. Electrical Technicians working with Electricity Supply Board play an important role in ensuring supply to firms and residences. Those involved with electrical installation and construction can ensure that these are done properly and safely. For those in the sales field, the knowledge and expertise in electrical repairs and maintenance will provide them with that necessary 'extra' that will help to clinch a sale.

This course offers basic Electrical Theory, Technical Mathematics, Engineering Science and Engineering Drawing, along with extensive training in installation, operation and maintenance of electrical machines, industrial electronics and controls, measurement and electrical power distribution as utilised in industry. Laboratory and workshop exercises provide insight into the applications of the principles.

### ***ELECTRONIC AND COMMUNICATION ENGINEERING***

The last two decades have seen startling developments in the field of space exploration, industrial automation, communications and computer science. This technological explosion has resulted in a tremendous diversification of

possibilities in which a graduate from an electronics course may seek employment.

This course covers the fundamental concepts and circuits commonly encountered in the fields of communication, controls, measuring, recording and display devices. Because electronics is a rapidly evolving field, the course is designed to train the students to be readily adaptable to the changes which will inevitably occur in the future. The theory courses are supplemented with laboratory work on electrical and electronic principles.

In addition to the basic subjects, this course also provides theory and practice in Repair and Maintenance of electronic equipment.

### **INDUSTRIAL INSTRUMENTATION & CONTROL**

Industrial Instrumentation and Control is the science of applying devices and techniques to measure, display, monitor and control plant equipment and process operations. The objective of this course is to train Instrument Technicians specially suited for the continually expanding processing and automated industries.

The laboratory contains an S2 plant which provides extensive training in temperature-pressure-level-flow control, process control simulator, process trainer, pneumatic PID controller, basic servo mechanism trainer, pneumatic and electronic instrument calibrating panel, system simulator, Maxam fluid power panel and analogue simulator.

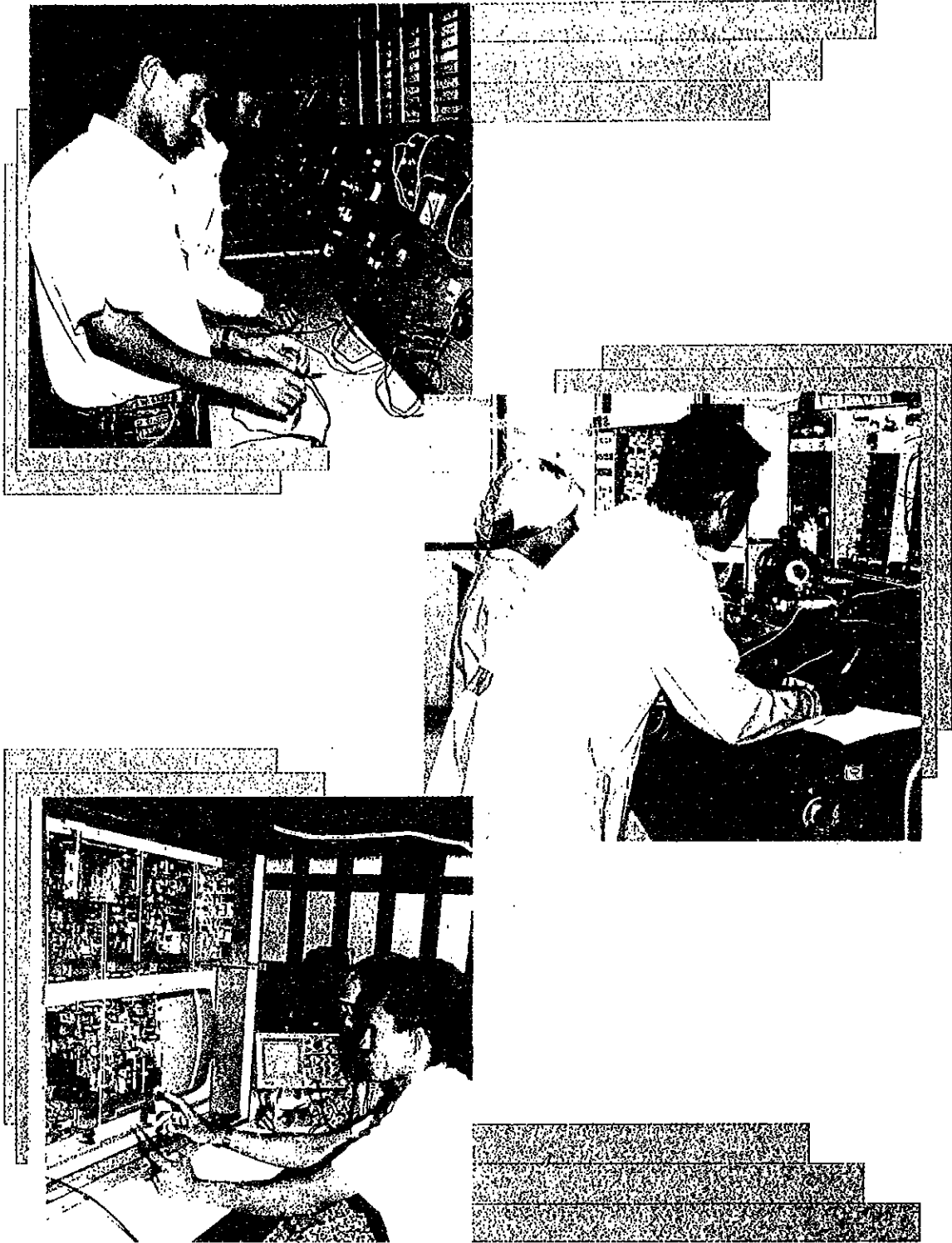
The training given in start-up, fault-finding, repair and maintenance of process automation equipment should enable the Instrumentation and Control Technician to undertake maintenance work of industrial control systems and also to assist professional engineers in system design.

### **ELECTRONIC ENGINEERING AND COMPUTER TECHNOLOGY**

Since the last decade computers have increasingly been used in all areas of human activity and this is expected to continue. With this proliferation of computers (especially mini and microcomputers), it has become imperative that there should be a pool of trained personnel to maintain these equipment. In line with this, a Certificate course in Computer Technology was started in the 1984/85 session.

During the first and second semesters the basic electronic subjects are taught and the students are also given an introduction to Computer Engineering. In

the fourth semester the students will be given an opportunity to trouble-shoot common faults in microcomputer and peripheral equipment to complement the theory learnt in class.



# CURRICULUM

## COMPUTER TECHNOLOGY (DIPLOMA)

### Semester 1

DAM 101 Islamic Education  
DAM 102 Moral Education  
DAM 103 Technical English  
DAM 106 Computer Application  
DEL 102 Mathematics  
DEL 104 Electronics  
DEL 106 Principles of  
Electricity  
DEL 108 Engineering Drawing  
DEL 111 Workshop Process  
DEL 112 Physics

### Semester 2

DAM 201 Islamic Education  
DAM 202 Moral Education  
DAM 203 Technical English  
DEL 202 Mathematics  
DEL 204 Electronics  
DEL 215 Basic Wiring  
DEL 216 Measuring Principles  
DEL 217 Computer Principles  
DEL 218 Pascal

### Semester 3

DAM 301 Islamic Education  
DAM 302 Moral Education  
DAM 303 Technical English  
DEL 302 Engineering Mathematics  
DEL 324 Electronic Techniques  
DEL 325 Electronic Fault  
Diagnosis  
DEL 326 Logic Design  
DEL 327 Microprocessors  
DEL 328 Operating Systems

### Semester 4

DAM 403 Technical English  
DAM 407 Business and Management  
DEL 402 Engineering Mathematics  
DEL 427 Microprocessors  
DEL 430 Project  
DEL 431 System Diagnosis and  
Maintenance  
DEL 432 Data Base  
DEL 433 C Programming

### Semester 5 — Industrial Training

### Semester 6

DAM 608 Islamic Civilisation  
DEL 630 Project  
DEL 638 Statistics and Probability  
DEL 639 Microelectronics  
DEL 640 Software Engineering  
DEL 641 Computer system Architecture  
DEL 642 Data Communication



## **COMMUNICATION ENGINEERING (DIPLOMA)**

### **Semester 1**

DAM 101 Islamic Education  
DAM 102 Moral Education  
DAM 103 Technical English  
DAM 106 Computer Application  
DEL 101 Mathematics  
DEL 103 Electronics  
DEL 105 Principles of  
Electricity  
DEL 109 Digital Electronics  
DEL 110 Electronic Instruments  
and Measurement  
DEL 107 Engineering Drawing

### **Semester 2**

DAM 201 Islamic Education  
DAM 202 Moral Education  
DAM 203 Technical English  
DEL 201 Mathematics  
DEL 203 Electronics  
DEL 213 Electrical Technology  
DEL 209 Digital Electronics  
DEL 210 Electronic Instruments  
and Measurement  
DEL 214 Project

### **Semester 3**

DAM 301 Islamic Education  
DAM 302 Moral Education  
DAM 303 Technical English  
DEL 301 Engineering Mathematics  
DEL 314 Project  
DEL 319 Basic Communication  
DEL 320 Electromagnetism  
DEL 321 Circuit Theory  
DEL 322 Electronic Equipment  
Repair & Maintenance  
DEL 323 Basic Computing and  
Programming

### **Semester 4**

DAM 401 Islamic Education  
DAM 403 Technical English  
DAM 407 Business and Management  
DEL 401 Engineering Mathematics  
DEL 414 Project  
DEL 420 Electromagnetism  
DEL 421 Circuit Theory  
DEL 422 Electronic Equipment  
Repair and maintenance  
DEL 423 Basic Computing and  
Programming  
DEL 429 Television/Satellite  
Communication

### **Semester 5 — Industrial Training**

### **Semester 6**

DAM 608 Islamic Civilisation  
DEL 614 Project  
DEL 634 Fibre Optics  
DEL 635 Telephony and Telegraphy  
DEL 636 Microwave  
DEL 637 Microprocessors

## **ELECTRO-MECHANICAL ENGINEERING (DIPLOMA)**

### **Semester 1**

DAM 101 Islamic Education  
DAM 102 Moral Education  
DAM 103 Technical English  
DAM 106 Computer Application  
DJE 101 Mathematics  
DJE 102 Engineering Science  
DJE 103 Engineering Drawing  
DJE 104 Electronics and  
Electrical Technology  
DJE 105 Workshop Processes &  
Elect. Installation  
DJE 106 Engineering Measurements

### **Semester 2**

DAM 201 Islamic Education  
DAM 202 Moral Education  
DAM 203 Technical English  
DJE 201 Mathematics  
DJE 202 Engineering Science  
DJE 207 Electronics and Electrical  
Applications  
DJE 208 Digital Electronics  
DJE 209 Computers in Industry  
DJE 210 Instrumentation and Control

### **Semester 3**

DAM 301 Islamic Education  
DAM 302 Moral Education  
DAM 303 Technical English  
DJE 301 Mathematics  
DJE 311 Electronics  
Instrumentation  
DJE 312 Hydraulics & Pneumatics  
DJE 313 Microprocessor Systems  
DJE 314 Manufacturing Plant  
Installation and  
Maintenance  
DJE 315 Workshop Practice

### **Semester 4**

DAM 403 Technical English  
DAM 407 Business and Management  
DJE 401 Mathematics  
DJE 415 Workshop Practice  
DJE 416 Industrial Electronics  
DJE 417 Microcomputers  
DJE 419 CAD Applications  
DJE 420 Semi-conductor  
Manufacturing Processes  
DJE 418 Industrial Plant  
Maintenance

### **Semester 5 — Industrial Training**

### **Semester 6**

DAM 608 Islamic Civilisation  
DJE 620 Industrial Plant Maintenance  
DJE 621 Industrial Automation and Robotics  
DJE 622 Data Handling and Fault Diagnosis  
DJE 623 Quality Control And Engineering Economics  
DJE 624 Electro-mechanical System Design  
DJE 625 Supervisory Management  
DJE 626 Project

## **ELECTRICAL POWER ENGINEERING**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAM 106 Computer Application  
SEL 101 Mathematics  
SEL 102 Principles of  
Electricity  
SEL 103 Engineering Drawing  
SEL 104 Measuring Principles  
SEL 105 Electronics  
SEL 106 Electrical  
Installation

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SEL 201 Mathematics  
SEL 202 Principles of Electricity  
SEL 206 Electrical Installation  
SEL 208 Programming  
SEL 209 Project  
SEL 212 Generation, Transmission  
and Distribution  
SEL 223 Power Electronics

**Semester 3 --- Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SEL 401 Mathematics  
SEL 409 Project  
SEL 412 Generation, Transmission and Distribution  
SEL 413 Electrical Machines  
SEL 414 Electrical Instrument and Maintenance  
SEL 423 Power Electronics

## **ELECTRONIC AND COMMUNICATION ENGINEERING**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAM 106 Computer Application  
SEL 101 Mathematics  
SEL 102 Principles of  
Electricity  
SEL 103 Engineering Drawing  
SEL 104 Measuring Principles  
SEL 105 Electronics  
SEL 106 Electrical  
Installation

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SEL 201 Mathematics  
SEL 202 Principles of Electricity  
SEL 205 Electronics  
SEL 207 Digital Systems  
SEL 208 Programming  
SEL 209 Project  
SEL 215 Telecommunication

**Semester 3 — Industrial Training**

**Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SEL 401 Mathematics  
SEL 407 Digital System  
SEL 409 Project  
SEL 410 Electronics Instruments and Measurements  
SEL 415 Telecommunication  
SEL 416 Electronic Equipment Repair  
SEL 421 Basic Microelectronics

**INDUSTRIAL INSTRUMENTATION AND CONTROL**

**Semester 1**

**Semester 2**

SAM 101 Islamic Education	SAM 201 Islamic Education
SAM 102 Moral Education	SAM 202 Moral Education
SAM 103 Technical English	SAM 203 Technical English
SAM 106 Computer Application	SEL 201 Mathematics
SEL 101 Mathematics	SEL 202 Principles of Electricity
SEL 102 Principles of Electricity	SEL 204 Measuring Principles
SEL 103 Engineering Drawing	SEL 205 Electronics
SEL 104 Measuring Principles	SEL 206 Electrical Installation
SEL 105 Electronics	SEL 207 Digital Systems
SEL 106 Electrical Installation	SEL 208 Programming
	SEL 209 Project

**Semester 3 — Industrial Training**

**Semester**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SEL 401 Mathematics  
SEL 407 Digital System  
SEL 409 Project  
SEL 411 Industrial Electronics  
SEL 417 Instrument Workshop  
SEL 418 Control Systems

# **ELECTRONIC ENGINEERING AND COMPUTER TECHNOLOGY**

## **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAM 106 Computer Application  
SEL 101 Mathematics  
SEL 102 Principles of  
Electricity  
SEL 103 Engineering Drawing  
SEL 104 Measuring Principles  
SEL 105 Electronics  
SEL 106 Electrical  
Installation

## **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SEL 201 Mathematics  
SEL 202 Principles of Electricity  
SEL 205 Electronics  
SEL 207 Digital Systems  
SEL 208 Programming  
SEL 209 Project  
SEL 215 Telecommunication

## **Semester 3 — Industrial Training**

## **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SEL 401 Mathematics  
SEL 408 Programming  
SEL 409 Project  
SEL 410 Electronics Instruments and Measurements  
SEL 415 Telecommunication  
SEL 419 Microprocessor Systems  
SEL 420 Computer Maintenance  
SEL 422 Data Communication

**MECHANICAL  
ENGINEERING  
DEPARTMENT**

## **MECHANICAL ENGINEERING DEPARTMENT**

The Mechanical Engineering Department offers the following engineering courses at diploma level:

1. Automotive Technology
2. Manufacturing Technology

and at certificate level:

1. Mechanical Engineering (General)
2. Manufacturing Technology
3. Automotive and Diesel
4. Air-conditioning and Refrigeration
5. Mechanical Engineering (Plant)
6. Agricultural Engineering

These courses are of 3 years duration for diploma courses and 2 years for certificate courses and are of the sandwich type, incorporating six months practical training in industries during the fifth semester for the diploma courses and in the third semester for the certificate courses. The courses are very practical-oriented and approximately fifty percent of the students' time is spent in the workshops and laboratories which also include a fair amount of drawing and design work in the drawing offices.

All the courses follow a fairly common syllabus in the first semester with one or two special subjects in the respective specialities. This is to enable the students to have a strong ground in basic mechanical engineering requirements. The subsequent semesters of each course lay more stress on the specialized subjects relating to the course.

### ***AUTOMOTIVE TECHNOLOGY (DIPLOMA)***

The aim of the course is to provide knowledge and skill in understanding and repair works of heavy vehicles such as trucks and tractors, diagnose and repair of electronic fuel injection system and engine and chassis design.

On completion of the course students are able to diagnose and repair almost all types of land vehicles.

## **MANUFACTURING TECHNOLOGY (DIPLOMA)**

The primary vocational aim of the course is to provide an education and training for students who will enter manufacturing industries and eventually take up positions in 'Line Supervision' posts for example, as a line leader, foreman or production supervisor.

On successful completion of the course, the students will be able to understand the technology of the equipment used in the components produced by the manufacturing processes, understand and planning and control procedures used in the manufacturing companies and contribute to the solution of the managerial and technical problems that occur during the manufacturing operation.

## **MECHANICAL ENGINEERING (GENERAL)**

The course is designed to give students as broad a base as possible in general mechanical engineering principles.

Specialized subjects include Jig and Tool Design, Workshop Management, Metallurgy and Materials Science, Plant Engineering and Control System Technology.

Some of the equipment that are available in the workshops are: Capstan Lathe operated by a fully automatic pneumatic programme controller, CNC milling machine, centre, lathes, hydraulic profile milling machine, jig boring machine, TIG and MIG arc welding machines, universal testing machines, ultrasonic flow detector, strain gauge equipment, double stage air compressor, hydraulic dynamometer, power hydraulic equipment and steam plant.

## **AUTOMOTIVE & DIESEL**

The course has been designed to give the students a sound and basic knowledge in the principles of Automotive and Diesel Engineering at the same time provide them with adequate mechanical engineering knowhow to enable them to assume a useful and responsible role either in an automotive establishment or a mechanical engineering concern.

Specialized subjects include Internal Combustion Engines, Chassis Construction, Automotive Electrical Equipment and Power Hydraulics. The subject of Service Management provides the students with the basic need required to prepare them to be future garage supervisors and managers.



The Automotive and Diesel workshop contains the most up-to-date garage equipment which include such items as a Chassis Dynamometer, a Roller Brake Tester, Optic Wheel Alignment Tester, Electrical Equipment Testers, Petrol and Diesel engine test rigs, Battery Chargers and a Fuel Injection Test Bench. Small portable training models are used to illustrate the principles of operation of Automotive vehicle components.

## **AIR CONDITIONING AND REFRIGERATION**

Just like the Automotive and Diesel Engineering students, the Air Conditioning and Refrigeration students are given a very strong foundation in Mechanical Engineering in the first year while they study specialized subjects biased towards their speciality in the second year. Specialized subjects include Air Conditioning, Refrigeration, Control Systems, Systems Design and Architectural Drawing and Building Design.

The Air Conditioning and Refrigeration Workshop contains modern equipment such as a training model of a car air conditioning system, a training model of a general refrigeration system, an ice-maker, a fault tracer trainer, window air conditioning units, a central air conditioning unit, a solar air conditioning and refrigeration unit and a split air conditioning unit. There is also an air handling duct where temperature and air flow can be adjusted and balanced.

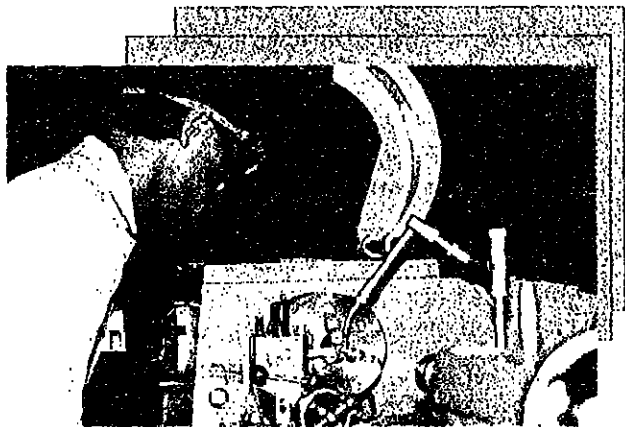
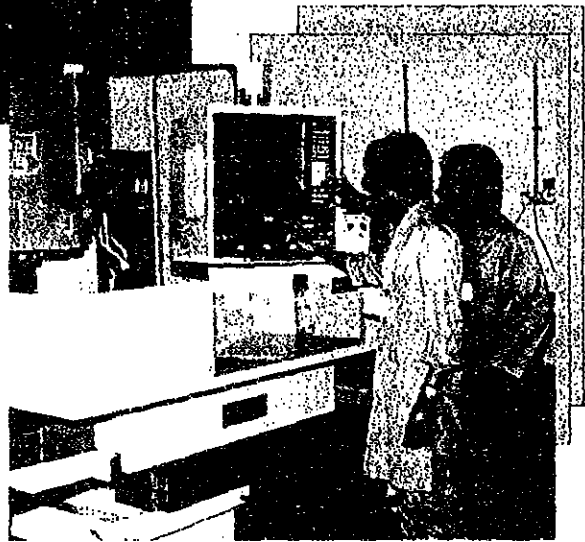
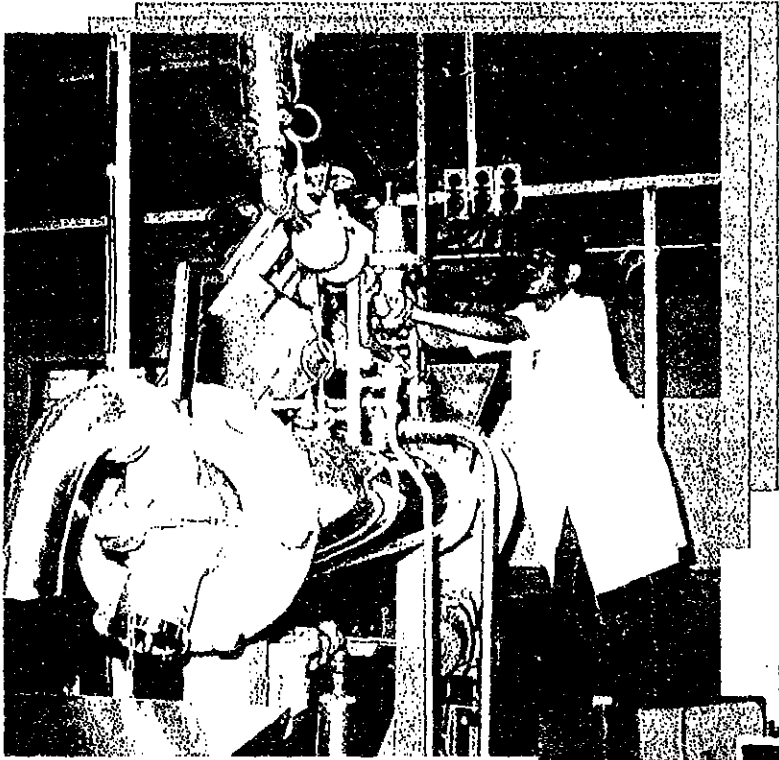
## **MECHANICAL ENGINEERING (PLANT)**

The objective of the course is to provide a broadbase training and education in the principles and techniques required by the technicians working in the process, power generation and manufacturing, to enable students to understand the scientific basis of Plant Engineering, to work within current safety legislation and code of practice and using of communicating informations.

## **AGRICULTURAL ENGINEERING**

The course provides a practical orientated study of the fundamental principles and application of agricultural engineering, together with the acquisition of relevant practical and problem solving skills, integrated with tropical agricultural and management studies.

On successful completion of the course the students will understand the principles and application of agricultural machines, operate them effectively in the field, carry out routine maintenance and repair on agricultural machines, carry out systematic fault finding on agricultural machines, understand the practical importance of biological and economic factors affecting agricultural engineering applications and understand the basic principles of construction and adaptation of simple form structures and associated engineering works.



# CURRICULUM

## AUTOMOTIVE TECHNOLOGY (DIPLOMA)

### Semester 1

DAM 101 Islamic Education  
DAM 102 Moral Education  
DAM 103 Technical English  
DAM 106 Computer Application  
DJN 101 Mathematics I  
DJN 102 Engineering Science  
DJN 103 Engineering Drawing  
DJN 127 Heat & Fluid Technology  
DJN 128 Electrical Technology

### Semester 2

DAM 201 Islamic Education  
DAM 202 Moral Education  
DAM 203 Technical English  
DJN 201 Mathematics II  
DJN 202 Engineering Science II  
DJN 227 Heat & Fluid Technology II  
DJN 228 Electrical Technology II  
DJN 229 Automotive Workshop  
Practice  
DJN 230 Automotive Technology I

### Semester 3

DAM 301 Islamic Education  
DAM 302 Moral Education  
DAM 303 Technical English  
DJN 301 Mathematics III  
DJN 330 Automotive Technology II  
DJN 312 Strength of Materials  
DJN 313 Mechanics of Machines  
DJN 315 Instrumentation &  
Control

### Semester 4

DAM 403 Technical English  
DAM 407 Business and Management  
DJN 401 Mathematics IV  
DJN 429 Automotive Workshop  
Practice  
DJN 430 Automotive Technology III  
DJN 418 Hydraulics and Pneumatic  
DJN 431 Internal Combustion Engine  
DJN 432 Mechanics of Motor Vehicle  
DJN 433 Materials Technology

### Semester 5 — Industrial Training

### Semester 6

DAM 608 Islamic Civilisation  
DJN 630 Automotive Technology IV  
DJN 604 Project  
DJN 634 Workshop Services Management  
DJN 635 Auto Electronics & Electrical Equipment  
DJN 636 Basic Heavy Vehicle Maintenance  
DJN 637 Advanced Fuel System  
DJN 638 Computer Aided Design

## **MANUFACTURING TECHNOLOGY (DIPLOMA)**

### **Semester 1**

DAM 101 Islamic Education  
DAM 102 Moral Education  
DAM 103 Technical English  
DAM 106 Computer Application  
DJN 101 Mathematics I  
DJN 102 Engineering Science  
DJN 103 Engineering Drawing  
DJN 105 Electronics and  
Electrical Technology  
DJN 106 Material Science  
DJN 107 Manufacturing Process  
DJN 108 Manufacturing Workshop  
Practice

### **Semester 2**

DAM 201 Islamic Education  
DAM 202 Moral Education  
DAM 203 Technical English  
DJN 201 Mathematics II  
DJN 202 Engineering Science  
DJN 206 Material Science  
DJN 207 Manufacturing Process  
DJN 208 Manufacturing Workshop  
Practice  
DJN 209 Engineering Measurement  
DJN 210 Manufacturing System

### **Semester 3**

DAM 301 Islamic Education  
DAM 302 Moral Education  
DAM 303 Technical English  
DJN 301 Mathematics III  
DJN 308 Manufacturing Workshop  
Practice  
DJN 310 Manufacturing System  
DJN 312 Strength of Materials  
DJN 311 Computer  
DJN 313 Mechanics of Machines  
DJN 314 Computer Aided Design  
And Drafting  
DJN 315 Instrumentation  
and Control

### **Semester 4**

DAM 403 Technical English  
DAM 407 Business and Management  
DJN 401 Mathematics IV  
DJN 408 Manufacturing Workshop  
Practice  
DJN 411 Computer  
DJN 418 Hydraulics and Pneumatic  
DJN 416 CAD Applications  
DJN 419 Engineering Design  
DJN 420 Fabrication Technology  
DJN 417 Manufacturing Plant  
Installation & Maintenance  
DJN 408 Manufacturing Workshop  
Practice

### **Semester 5 — Industrial Training**

### **Semester 6**

DAM 608 Islamic Civilisation  
DJN 604 Project  
DJN 621 Industrial Automation & Robotics  
DJN 622 Quality Control & Engineering Economics  
DJN 623 Tool Design  
DJN 624 Manufacturing Control  
DJN 625 CAM & CNC Technology  
DJN 626 Supervisory Management

## **MECHANICAL ENGINEERING (GENERAL)**

<b>Semester 1</b>	<b>Semester 2</b>
SAM 101 Islamic Education	SAM 201 Islamic Education
SAM 102 Moral Education	SAM 202 Moral Education
SAM 103 Technical English	SAM 203 Technical English
SAM 106 Computer Application	SJN 201 Mathematics II
SJN 101 Mathematics I	SJN 204 Machine Drawing
SJN 102 Engineering Science	SJN 205 Electrical Technology II
SJN 103 Geometrical Drawing	SJN 206 Heat & Fluid Technology II
SJN 105 Electrical Technology	SJN 207 Materials Technology I
SJN 106 Heat & Fluid Technology	SJN 210 Engineering Workshop Practice
SJN 111 Workshop Technology I	SJN 211 Workshop Technology II

### **Semester 3 — Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SJN 408 Project  
SJN 409 Strength of Materials  
SJN 410 Engineering Workshop Practice  
SJN 411 Workshop Technology III  
SJN 412 Mechanics of Machines  
SJN 413 Plant Engineering Technology  
SJN 414 Engineering Drawing and Design

## **MANUFACTURING TECHNOLOGY**

<b>Semester 1</b>	<b>Semester 2</b>
SAM 101 Islamic Education	SAM 201 Islamic Education
SAM 102 Moral Education	SAM 202 Moral Education
SAM 103 Technical English	SAM 203 Technical English
SAM 106 Computer Application	SJN 201 Mathematics II
SJN 101 Mathematics I	SJN 204 Machine Drawing
SJN 102 Engineering Science	SJN 205 Electrical Technology II
SJN 103 Geometrical Drawing	SJN 207 Materials Technology I
SJN 105 Electrical Technology I	SJN 210 Manufacturing Workshop Practice
SJN 110 Manufacturing Workshop Practice	SJN 216 Manufacturing Process II
SJN 116 Manufacturing Process I	SJN 218 Engineering Mechanics I
SJN 117 Manufacturing System	

**Semester 3 — Industrial Training**

**Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SJN 407 Materials Technology II  
SJN 408 Project  
SJN 410 Manufacturing Workshop Practice  
SJN 416 Manufacturing Process III  
SJN 418 Engineering Mechanics II  
SJN 419 Instrumentation and Control  
SJN 420 Computer Aided Design

**AUTOMOTIVE ENGINEERING**

**Semester 1**

**Semester 2**

SAM 101 Islamic Education	SAM 201 Islamic Education
SAM 102 Moral Education	SAM 202 Moral Education
SAM 103 Technical English	SAM 203 Technical English
SAM 106 Computer Application	SJN 201 Mathematics II
SJN 101 Mathematics I	SJN 204 Machine Drawing
SJN 102 Engineering Science	SJN 205 Electrical Technology II
SJN 103 Geometrical Drawing	SJN 206 Heat and Fluid Technology
SJN 105 Electrical Technology	SJN 225 Automotive Workshop Technology
SJN 106 Heat and Fluid Tech.	SJN 226 Automotive Technology II
SJN 125 Automotive Workshop Practice	
SJN 126 Automotive Technology	

**Semester 3 — Industrial Training**

**Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SJN 408 Project  
SJN 409 Strength of Materials  
SJN 425 Automotive Workshop Practice  
SJN 426 Automotive Technology III  
SJN 427 Internal Combustion Engine  
SJN 428 Mechanics of Motor Vehicles  
SJN 429 Mobile Hydraulics

## **AIR CONDITIONING AND REFRIGERATION**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAM 106 Computer Application  
SJN 101 Mathematics I  
SJN 102 Engineering Science  
SJN 103 Geometrical Drawing  
SJN 105 Electrical Technology  
SJN 106 Heat and Fluid Technology  
SJN 121 Air Conditioning and  
Refrigeration Workshop  
Practice  
SJN 122 Air Conditioning and  
Refrigeration Technology I

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SJN 201 Mathematics II  
SJN 204 Machine Drawing  
SJN 205 Electrical Technology  
SJN 206 Heat and Fluid Technology  
SJN 221 Air Conditioning and  
Refrigeration Workshop  
Practice  
SJN 222 Air Conditioning and  
Refrigeration Technology II  
SJN 223 Control Systems

### **Semester 3 — Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SJN 408 Project  
SJN 409 Strength of Materials  
SJN 421 Airconditioning and Refrigeration  
Workshop Practice  
SJN 422 Air Conditioning and Refrigeration Technology III  
SJN 423 Control Systems  
SJN 424 Air Conditioning System Design and Drawing

## **MECHANICAL ENGINEERING (PLANT)**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAM 106 Computer Application  
SJN 101 Mathematics  
SJN 102 Engineering Science  
SJN 103 Geometrical Drawing

SJN 105 Electrical Technology  
SJN 130 Plant Technology  
SJN 131 Mechanical Technology

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SJN 201 Mathematics  
SJN 204 Machine Drawing  
SJN 205 Electrical Technology

### **Semester 3 — Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SJN 432 Plant Engineering Process  
SJN 433 Hydraulics and Pneumatic  
SJN 434 Steam and Combustion  
SJN 435 Plant Electrical Services  
SJN 436 Plant Engineering Drawing



## **AGRICULTURAL ENGINEERING**

### **Semester 1**

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 Technical English  
SAM 106 Computer Application  
SJN 101 Mathematics I  
SJN 102 Engineering Science  
SJN 103 Geometrical Drawing  
SJN 105 Electrical Technology I  
SJN 137 Agricultural Workshop  
Practice  
SJN 138 Tractor and Power  
Unit  
SJN 139 Agriculture  
Mechanisation

### **Semester 2**

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 Technical English  
SJN 201 Mathematics II  
SJN 204 Machine Drawing  
SJN 205 Electrical Technology II  
SJN 237 Agricultural Workshop  
Practice  
SJN 238 Tractor and Power Unit  
SJN 239 Agricultural Mechanisation  
SJN 240 Tropical Agriculture  
SJN 241 Engineering Survey

### **Semester 3 — Industrial Training**

### **Semester 4**

SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
SJN 408 Project  
SJN 437 Agricultural Workshop Practice  
SJN 439 Agricultural Engineering  
SJN 442 Soil Mechanics  
SJN 443 Water Engineering  
SJN 444 Farm Building Construction  
SJN 445 Crop Processing Technology

**MARINE  
ENGINEERING  
DEPARTMENT**

## MARINE ENGINEERING DEPARTMENT

The Marine Engineering Department offers only one course at diploma level, that is Marine Engineering.

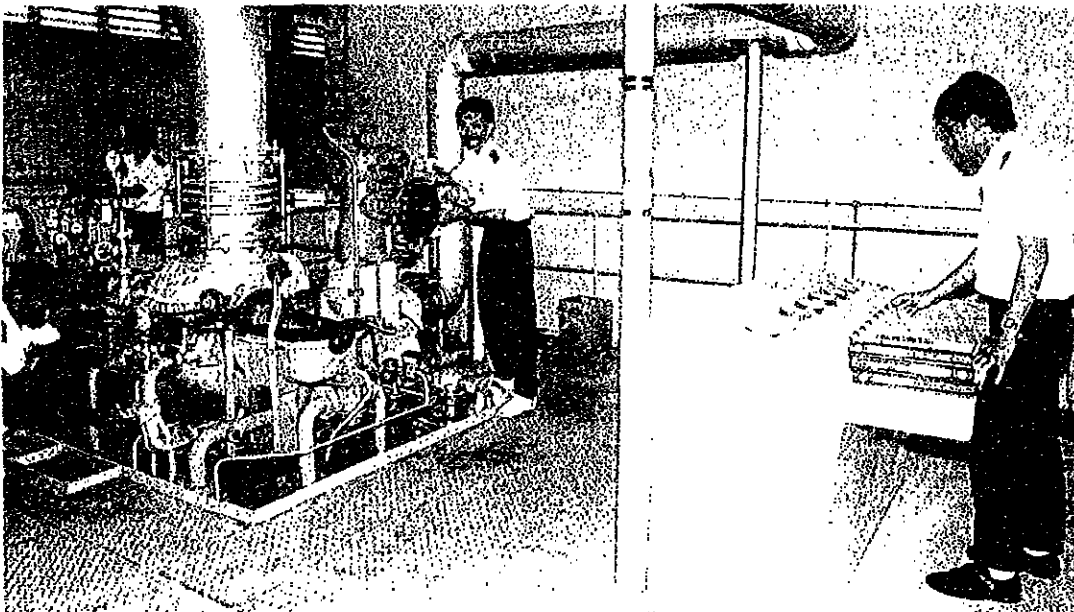
The rapid development of Malaysia's own shipping line, MISC, had led to a great demand for technical personnel to man the ships and for this reason, the year 1972 saw the commencement of the first year of the Marine Engineering Course.

This course has been set up with the assistance of the Japanese Government under the Colombo Plan. The Japanese Government provided equipment to the value of \$1.3 million and five advisers while the Malaysian Government provided the workshops, local teaching staff, additional equipment and operating costs.

Marine Engineering, which is closely related to Mechanical Engineering emphasises the operation and maintenance of the ship, marine power plants, associated equipment as well as ship construction and naval architecture.

Students who have successfully undergone this course with sufficient credits and obtained sufficient sea-experience are exempted from Part A of Class I and Class II of the Certificate of Competency of Foreign-Going Ship Examinations conducted by the Malaysian Government. Students are required to sit for certain papers of Part B only.

The duration of this course is four years, the third year being spent on board ocean-going ships.



# CURRICULUM

## MARINE ENGINEERING (DIPLOMA)

### Semester 1

DAM 101 Islamic Education  
DAM 102 Moral Education  
DAM 103 Technical English  
DAM 106 Computer Application  
DKP 101 Mathematics  
DKP 102 Engineering Science  
DKP 103 Engineering Drawing  
DKP 104 Workshop Technology I  
DKP 105 Heat and Fluid  
Technology I  
DKP 106 Marine Engineering  
Practice

### Semester 2

DAM 201 Islamic Education  
DAM 202 Moral Education  
DAM 203 Technical English  
DKP 201 Mathematics  
DKP 203 Engineering Drawing  
DKP 204 Workshop Technology II  
DKP 205 Heat and Fluid Technology II  
DKP 207 Electrical Technology I  
DKP 208 Mechanics of Machines  
DKP 209 Control Engineering  
DKP 210 Naval Architecture

### Semester 3 - 6 months industrial training

### Semester 4

DAM 401 Islamic Education  
DAM 402 Moral Education  
DAM 403 Technical English  
DKP 406 Marine Engineering Practice  
DKP 407 Electrical Technology II  
DKP 410 Naval Architecture  
DKP 411 Strength of Materials  
DKP 412 Internal Combustion Engine  
DKP 413 Steam Engineering I  
DKP 414 Auxilliary Engineering I  
DKP 423 Marine Workshop Practice I

### Semester 5 dan semester 6 — Industrial Training (Sea-going)

**Semester 7**

DKP 701 Mathematics  
DKP 710 Naval Architecture  
DKP 713 Steam Engineering  
DKP 715 Mechanical Technology  
DKP 716 Engineering Drawing  
DKP 717 Engineering Design  
DKP 718 Applied Electric and  
Electronics I  
DKP 719 Materials Technology  
DKP 723 Marine Workshop  
Practice II

**Semester 8**

DAM 808 Islamic Civilisation  
DKP 810 Naval Architecture  
DKP 812 Internal Combustion Engine  
DKP 813 Steam Engineering II  
DKP 814 Auxiliary Engineering II  
DKP 820 Control Engineering  
DKP 821 Applied Electric and  
Electronics II  
DKP 822 Marine Engineering Practice  
And Law  
DKP 823 Marine Workshop Practice III

**COMMERCE  
DEPARTMENT**

## COMMERCE DEPARTMENT

The Commerce Department offers the following courses at diploma level:

1. Accountancy
2. Marketing

and at certificate level in:-

1. Business Studies
2. Stenography
3. Book-keeping
4. Data Processing

The Diploma courses are of 3 years duration including six months of industrial training with public or private organization during the fifth semester. The certificate courses take 2 years including a six months industrial training in the third semester. This is to expose students to the working life. Students are expected to write an individual report after their training.

### **ACCOUNTANCY (DIPLOMA)**

This course takes 3 years and leads to the award of a Diploma. As Accounting is concerned with planning, controlling, recording, reporting and evaluating the financial affairs of an organization, this course places great emphasis on specialized aspects of accounting including:-

Elements of Accounting; Cost Accounting; Financial Accounting; Management Accounting; Business Finance; Auditing and Investigations.

Equal emphasis is given to other subjects allied to commerce such as Economics, Statistics and Law (Company, Taxation, Commercial) so that a complete framework of the commercial sector is presented.

The organizations which have a need for accounting services include Government Departments, public authorities, business organizations, accounting firms, clubs and unions. Accountancy is a new and dynamic profession, offering opportunities for personal development and services to the community.

## **MARKETING (DIPLOMA)**

The marketing course exposes students to the world of business and management relevant to marketing. Students will acquire the skills and expertise (theory as well as practical) required in today's competitive marketing environment.

Initially the course will equip students with a comprehensive basic knowledge about the business organization and the environment in which it operates. Studies include the core elements of business studies and knowledge of present day business environment.

Subjects of the course include Economics, Business Law, Statistics, Behavioural Studies, Accounting and Marketing.

## **BUSINESS STUDIES**

The Business Studies course is designed to provide students with a comprehensive basic knowledge of commerce, by studying basic subjects like Marketing, Accounting, Statistics, Economics, Elements of Management, Commercial Practice and Business Mathematics. This will enable them to venture into their own business. For those who wish to be employees in business organizations, the course should make them more readily adaptable to the branch of business activity within which they are placed and thus reduce the period of training to the advantage of their employers.

In addition, all students doing this course, are required in the final semester to submit a written project of not less than three thousand words on a business topic relevant to Malaysia.

The course is of the sandwich type, where students spend their first and second semesters in the Polytechnic attending lectures, then attending practical training for twenty four weeks in firms and Government or statutory agencies, followed by another semester of academic studies.

## **STENOGRAPHY**

The objective of this course is to equip students on the above subject matter and other related fields. During the course of study, students are required to undergo a six-month Industrial Training.

To meet the requirements of the course, subjects like Shorthand, Trengkas (shorthand in Bahasa Malaysia), Typing and Secretarial English are emphasized throughout the duration of the course. Besides this, students are also ex-



posed to the following subjects, namely Secretarial Accounting, Islamic Studies, Office Management, Malaysian Economics and Islamic Civilisation.

Upon completion of the course, students are able to fill up posts like stenographers, clerks, book-keepers, typists, Office Supervisors, teachers and secretaries in both the public and private sectors. They can also further their education to a higher level.

### **BOOK-KEEPING**

The objective of this course is to equip students on the above subject matter and on other relevant fields. Upon completion of the course students would be awarded a certificate in Book-Keeping.

As the certificate signifies, subjects on Accounting and practical Book-Keeping are very much stressed throughout the course. To prepare the students for the present needs of the government agencies and private sectors the students are also exposed to subjects like Commercial English and Basic Business Computer.

### **DATA PROCESSING**

This course is designed to provide a comprehensive programme of study by which students are trained in the various aspects of computing such as programming, the use of application packages and the design of computer-based systems.

Emphasis is given to subjects like accounting, economics, business management and other related subjects in order to provide the students with the necessary knowledge of the business world.



# CURRICULUM

## ACCOUNTANCY (DIPLOMA)

### Semester 1

DAM 101 Islamic Education I  
DAM 102 Moral Education I  
DAM 104 Commercial English I  
DAM 106 Computer Application  
DPG 101 Financial Accounting I  
DPG 102 Microeconomics  
DPG 103 Statistics I  
DPG 104 Management Statistics  
DPG 105 Business Computing

### Semester 2

DAM 201 Islamic Education II  
DAM 202 Moral Education II  
DAM 204 Commercial English II  
DPG 301 Financial Accounting II  
DPG 202 Macroeconomics  
DPG 203 Statistics II  
DPG 204 Management Mathematics  
DPG 206 Commercial Law

### Semester 3

DAM 301 Islamic Education III  
DAM 302 Moral Education III  
DAM 304 Commercial English III  
DPG 301 Financial Accounting III  
DPG 307 Cost Accounting  
DPG 308 Company Law  
DPG 309 Computer Programming  
DPG 310 Practice and Concept  
of Management

### Semester 4

DAM 404 Commercial English IV  
DPG 401 Financial Accounting IV  
DPG 402 Islamic Economics  
DPG 407 Cost Accounting  
DPG 411 Auditing  
DPG 412 Malaysian Taxation I

### Semester 5 — Industrial Training

### Semester 6

DAM 608 Islamic Civilisation  
DPG 601 Financial Accounting V  
DPG 609 Computer Programming  
DPG 611 Auditing and Investigation  
DPG 612 Malaysian Taxation II  
DPG 613 Management Accounting  
DPG 614 Business Finance  
DPG 615 Project

## **MARKETING (DIPLOMA)**

### **Semester 1**

DAM 101 Islamic Education I  
DAM 102 Moral Education I  
DAM 104 Commercial English I  
DAM 106 Computer Application  
DPG 121 Marketing I  
DPG 122 Business Accounting I  
DPG 123 Microeconomics  
DPG 124 Introductory Statistics  
DPG 125 Management Mathematics I

### **Semester 2**

DAM 201 Islamic Education II  
DAM 202 Moral Education II  
DAM 204 Commercial English II  
DPG 211 Marketing II  
DPG 222 Business Accounting II  
DPG 223 Macroeconomics  
DPG 225 Management Mathematics II  
DPG 227 Statistics for Marketing

### **Semester 3**

DAM 301 Islamic Education III  
DAM 302 Moral Education III  
DAM 304 Commercial English III  
DPG 327 Sales Management:  
Principles and Practice I  
DPG 328 Commercial Law  
DPG 329 Market Behaviour I  
DPG 330 Basic Bus Computing  
DPG 331 Cost Accounting

### **Semester 4**

DAM 404 Commercial English IV  
DPG 423 Islamic Economics  
DPG 427 Sales Management:  
Principles and Practice II  
DPG 428 Advanced Commercial Law  
DPG 429 Market Behaviour II  
DPG 432 Principles of Advertising  
DPG 433 Financial and Management  
Accounting

**Semester 5 — Industrial Training**

### **Semester 6**

DAM 608 Islamic Civilisation  
DPG 634 Management (Analysis and Decision)  
DPG 635 Communication for Marketing  
DPG 638 International Marketing: Exporting and Importing  
DPG 637 Marketing Management: Planning and Control  
DPG 638 Marketing Research

## **BUSINESS STUDIES**

### **Semester 1**

SAM 101 Islamic Education I  
SAM 102 Moral Education I  
SAM 104 Commercial English I  
SAM 106 Computer Application  
SPG 101 Accounting I  
SPG 102 Microeconomics  
SPG 103 Marketing I  
SPG 104 Basic Statistics I  
SPG 105 Business Computing  
SPG 108 Introduction to Business

### **Semester 2**

SAM 201 Islamic Education II  
SAM 202 Moral Education II  
SAM 204 Commercial English II  
SPG 203 Marketing II  
SPG 201 Accounting II  
SPG 202 Macroeconomics  
SPG 204 Basic Statistics II  
SPG 207 Office Management  
SPG 208 Commercial Law

**Semester 3** — Industrial Training

### **Semester 4**

SAM 408 Islamic Civilisation  
SPG 401 Accounting III  
SPG 402 Islamic Economics  
SPG 403 Marketing Analysis  
SPG 409 Business Mathematics  
SPG 410 Business Management

## **BOOK-KEEPING**

### **Semester 1**

SAM 101 Islamic Education I  
SAM 102 Moral Education I  
SAM 104 Commercial English I  
SAM 106 Computer Application  
SPG 121 Accounting I  
SPG 122 Practical Book-Keeping I  
SPG 123 Microeconomics  
SPG 124 Marketing I  
SPG 125 Basic Statistics I  
SPG 126 Office Practice and Typing

### **Semester 2**

SAM 201 Islamic Education II  
SAM 202 Moral Education II  
SAM 204 Commercial English  
SPG 221 Accounting II  
SPG 222 Practical Book-Keeping II  
SPG 223 Macroeconomics  
SPG 224 Marketing II  
SPG 225 Basic Statistics II  
SPG 227 Costing I

**Semester 3** — Industrial Training

#### **Semester 4**

SAM 408 Islamic Civilisation  
SPG 421 Accounting III  
SPG 422 Practical Book-keeping III  
SPG 423 Islamic Economics  
SPG 424 Marketing Analysis  
SPG 427 Costing II  
SPG 428 Business Computing  
SPG 429 Project

### **DATA PROCESSING**

#### **Semester 1**

SAM 101 Islamic Education I  
SAM 102 Moral Education I  
SAM 104 Commercial English I  
SAM 106 Computer Application  
SPG 161 Accounting I  
SPG 162 Microeconomics  
SPG 163 Quantitative Method I  
SPG 164 Computer Principle  
SPG 165 Cobol Programming I

#### **Semester 2**

SAM 201 Islamic Education II  
SAM 202 Moral Education II  
SAM 204 Commercial English II  
SPG 261 Accounting II  
SPG 262 Macroeconomics  
SPG 263 Quantitative Method II  
SPG 265 Cobol Programming II  
SPG 266 Data Processing

**Semester 3 --- Industrial Training**

#### **Semester 4**

SAM 408 Islamic Civilisation  
SPG 462 Islamic Economics  
SPG 467 Operation Research Technique  
SPG 468 Business Computing  
SPG 469 Information System  
SPG 470 Programming Techniques  
SPG 471 Project

## **STENOGRAPHY**

### **Semester 1**

SAM 101 Islamic Education I  
SAM 102 Moral Education I  
SAM 105 Commercial English I  
SAM 106 Computer Application  
SPG 141 Secretarial Accounting I  
  
SPG 142 Shorthand I  
(English Language)  
SPG 143 Shorthand I  
(Bahasa Malaysia)  
SPG 144 Typing I (Basic)  
SPG 145 Office Procedure and  
Practice I

### **Semester 2**

SAM 201 Islamic Education II  
SAM 202 Moral Education II  
SAM 205 Commercial English II  
SPG 241 Secretarial Accounting II  
SPG 242 Shorthand II (English  
Language)  
SPG 243 Shorthand II  
(Bahasa Malaysia)  
SPG 244 Typing II  
SPG 245 Office Procedure  
and Practice II  
SPG 246 Basic Computing

### **Semester 3 — Industrial Training**

### **Semester 4**

SAM 408 Islamic Civilisation  
SAM 405 Commercial English III  
SPG 441 Secretarial Accounting III  
SPG 442 Shorthand III (English Language)  
SPG 444 Typing III  
SPG 445 Office Procedure and Practice III  
SPG 443 Stenography  
SPG 447 Project

**FOOD  
PROCESSING  
TECHNOLOGY  
UNIT**

## FOOD PROCESSING TECHNOLOGY UNIT

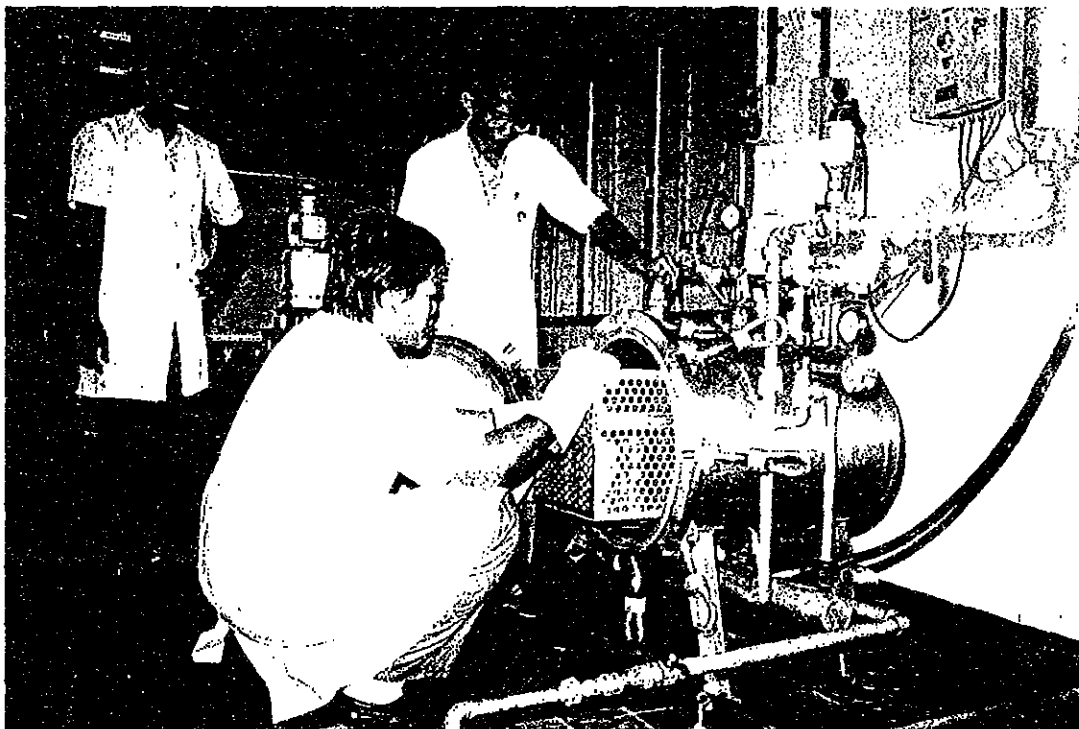
The Food Processing Technology Unit offers 2 courses in Food Processing Technology: One at diploma level and one at certificate level.

These courses are available only at the Sultan Haji Ahmad Shah Polytechnic.

The certificate course is of 2 years duration and the diploma course is of 3 years duration including a six-month compulsory placement in the related industries for practical exposure and training.

The courses educate and train would be technicians in food processing and production for the nation's food industry needs for trained, efficient and skilled workers of an intermediary level. Instructions and training given cover theoretical aspects and practical work beginning from the selection of raw materials and after harvest treatment, to the preparation, processing, quality control, packaging and distribution of food.

The graduates of this course are able to serve both in the public and private sectors as Assistant Research Technicians, Food Laboratory Technician/Supervisors, Production Supervisors, Maintenance Technicians, Health Inspectors, Social Welfare Officers, Assistant Enforcement officers, as well as in many other allied services. Graduates of the course have also the choice of furthering their studies at a higher level.





# CURRICULUM

## FOOD PROCESSING TECHNOLOGY

### Semester 1

SAM 101 Islamic Education  
SAM 102 Moral Education  
SAM 103 English Language  
STM 101 Physical Chemistry  
STM 102 Organic Chemistry  
STM 103 Applied Physics  
STM 104 Biochemistry  
STM 105 Laboratory Techniques  
and Safety  
STM 106 Mathematics and  
Statistics  
STM 107 Basic Microbiology

### Semester 2

SAM 201 Islamic Education  
SAM 202 Moral Education  
SAM 203 English Language  
STM 207 Food Microbiology  
and Industrial  
Microbiology  
STM 208 Food Chemistry and  
Nutrition  
STM 209 Food Storage and  
Packaging  
STM 210 Food Preservation  
STM 211 Food Engineering  
STM 212 Food Quality Control

### Semester 3 — Industrial Training

### Semester 4

SAM 406 Computer Application  
SAM 407 Business and Management  
SAM 408 Islamic Civilisation  
STM 413 Technology of Animal Products  
STM 414 Technology of Plant Products  
STM 415 Fats and Oils Technology  
STM 416 Technology of Miscellaneous Products  
STM 417 Project

Curriculum for Diploma in Food Processing Technology is still in process.

## POLYTECHNIC ACADEMIC CALENDAR

### ACADEMIC CALENDAR 1989/1990

First Year Students (Intake 1989) All Courses Second Year Students (Intake 1988) Diploma Courses		
Date	Week	Activities
03.07.89 -- 08.09.89	10	Semester 1/Term 1
09.09.89 -- 17.09.89	1	Semester Break
18.09.89 -- 24.11.89	10	Semester 1/Term 2
25.11.89 -- 17.12.89	3	Semester Holiday
18.12.89 -- 23.02.90	10	Semester 2/Term 3
24.02.90 -- 04.03.90	1	Semester Break
05.03.90 -- 11.05.90	10	Semester 2/Term 4
Industrial Training from 1.6.90 till 15.11.90 Register again as Fourth Semester/Third Year students at POLYTECHNIC on 3.12.90		

Second Year Students (Intake 1988) Certificate Courses Third Year Students (Intake 1987) Diploma Courses		
Industrial training from 1.7.89 till 8.12.89 Register again as second/third year students at POLYTECHNIC on 18.12.89		
18.12.89 -- 23.02.90	10	Term 1
24.02.90 -- 04.03.90	1	Term holiday
05.03.90 -- 11.05.90	10	Term 2
12.05.90 -- 03.06.90	3	Term holiday
04.06.90 -- 10.08.90	10	Term 3 (Final)

## ACADEMIC CALENDAR 1990/1991

First Year Students (Intake 1990) All Courses Second Year Students (Intake 1989) Diploma Courses		
Date	Week	Activities
04.06.90 -- 10.08.90	10	Semester 1/3
11.08.90 -- 26.08.90	2	Semester Break
27.08.90 -- 02.11.90	10	Semester 1/3
03.11.90 -- 02.12.90	4	Semester Holiday
03.12.90 -- 08.02.91	10	Semester 2/4
09.02.91 -- 24.02.91	2	Semester Break
25.02.91 -- 03.05.91	10	Semester 2/4
<p>Industrial training from 1.6.91 till 15.11.91                      Register again as third/sixth semester students                      at POLYTECHNIC on 3.12.91.</p>		

Second Year Students (Intake 1989) Certificate Courses Third year Students (Intake 1988) Diploma Courses		
<p>Industrial training from 1.6.90 till 15.11.90                      Register again as fourth semester/third year students                      at POLYTECHNIC on 3.12.90</p>		
03.12.90 -- 08.02.91	10	Semester 4/Term 1
09.02.91 -- 24.02.91	2	Semester break
25.02.91 -- 03.05.91	10	Semester 4/Term 2
04.05.91 -- 02.06.91	4	Term holiday *
03.06.91 -- 09.08.91	10	Term 3 (Final)*

\* For Diploma course students intake 1988 only.

(4) ハンドブック (PUO発行)

# HANDBOOK



**UNGKU OMAR POLYTECHNIC  
JALAN DAIRY  
31400 IPOH, PERAK  
MALAYSIA**

## HANDBOOK

Politeknik Ungku Omar

Jalan Dairy, Ipoh

Perak

Telephone: 05-557622  
557656

## 1. THE ROLE OF THE POLYTECHNIC

- 1.1 The Ungku Omar Polytechnic was established in 1969 as an Educational Institution under the Ministry of Education. Its main function is to train school-leavers from Secondary Schools and above to be efficient technicians and middle-level business personnel.
- 1.2 Ungku Omar Polytechnic offers full-time courses for two years and three months in the main fields of engineering technology and business studies, three years and three months in Accountancy and four years in Marine engineering. This period includes six months of industrial attachment which is compulsory.

## 2. COURSES OF STUDY

- 2.1 Information concerning the courses offered, their structure, and the academic calendar are as shown in the appendices.

## 3. ENTRY QUALIFICATIONS

- 3.1 To qualify for consideration for admission a candidate must first have obtained the Sijil Pelajaran Malaysia/Sijil Pelajaran Vokasional Malaysia or its equivalent with a pass in Bahasa Malaysia together with the following qualifications obtained at one examination sitting only:-

i) *All certificate courses*

ii) *Diploma in Accountancy Course (SPM Grade 1 and 2 only)*

a) a credit in Mathematics and

b) a pass in any one subject

from the following

grouping:-

a) a pass in Mathematics and

OR b) a credit in any one

subject from the

following grouping:

*Physics, Physical Science, Additional General Science, General Science, Engineering Science, any related technical subject, Commerce and Principles of Accounts\**

*\*(for Commerce courses only)*

2) Diploma in Marine Engineering Course (SPM only)

- a) Credit - Mathematics and Physics
- b) Pass - any related subject

3.2 Candidates must also be:-

- i. Malaysian citizens
- ii. more than 16 years in age
- iii. physically healthy.

4. APPLICATION PROCEDURE

- 4.1 Application for admission can be made on the application form provided and submitted to the Secretary-General, Ministry of Education (Technical and Vocational Education Division) only after the advertisement inviting applications has appeared in the local newspapers.
- 4.2 The advertisement inviting applications will normally be published in the local Bahasa Malaysia newspapers after the announcement of the Sijil Pelajaran Malaysia Examination results.
- 4.3 All completed application forms must be accompanied by the required photographs (recently taken) and certified copies of certificates held by the applicant.
- 4.4 Application from candidates who do not possess the necessary academic qualifications and who do not follow the stated procedures will not be entertained.

5. SELECTION OF STUDENTS

- 5.1 Shortlisted candidates will be required to attend an interview. All expenses incurred for attending this interview will be borne by the candidates themselves.

## 6. FEES

### 6.1 Tuition fees

All students will pay tuition fees amounting to \$300/- a year and of this sum a portion amounting to \$150/- will be paid on acceptance of offer. Tuition fees paid are not refundable.

### 6.2 Security Deposit

All students are required to pay a security deposit of \$50/- as soon as they receive a formal acceptance from the Polytechnic. This amount is refundable provided there is no damage to any Polytechnic property by the student.

### 6.3 Hostel Fees

Students who are given hostel places will be required to pay a hostel deposit of \$50/-. Students may take their food at the cafeteria where one pays as one eats.

6.4 All students are expected to buy their own text-books, drawing equipment and stationery.

## 7. SCHOLARSHIPS

7.1 The Ungku Omar Polytechnic does not offer any scholarships or financial assistance to students. However, students can apply for scholarships offered by the federal government, the various state governments, statutory bodies and other private organisations.

7.2 Scholarship forms from the various sponsoring bodies are available for registered students of the polytechnic. Selection interviews are normally held by the sponsors. The value of the scholarships and the attached conditions are the prerogative of the sponsors.

## 8. ACCOMMODATION, SPORTS AND GAMES

8.1 Limited hostel accommodation is available to first year students. Students not given hostel accommodation are expected to find their own accommodation. The Ungku Omar Polytechnic provides assistance in finding accommodation for the students in the various nearby housing estates.



8.2 various facilities for sports and games are available. However, students are expected to arrange their own sports, social and cultural activities under the guidance of appointed lecturers.

## 9. GENERAL

9.1 Successful candidates are required to pass a medical examination (including X-Ray) before being allowed to commence their studies. Medical fees incurred are to be borne by the students.

9.2 Students are also required to fill in an Indemnity Form, absolving the Ungku Umar Polytechnic of any responsibility in case of any accidents that may befall them while studying here.

9.3 Students are also required to take a personal insurance cover for the period of their studies in the polytechnic and for the period of their industrial attachment.

9.4 Students are required to observe all the rules and regulations of the Polytechnic which are currently in force and those which may be introduced from time to time.

## 10. JOB EMPLOYMENT

10.1 Students, after completion of their studies, are expected to find their own employment. However, the Polytechnic offers help by channelling notices of employment opportunities from firms to the suitable students/graduates. The Polytechnic also provides facilities for firms wishing to interview graduating students.

10.2 Among the posts held by Engineering Certificate holders in the various government departments are technicians, radio officers, assistant project supervisors, instructors, plan drafters, works supervisors and assistant quantity surveying officers. For graduates in the Accountancy and Business Studies courses, among the posts are Accounts clerks, Accounts examiners, clerks and others.

## 11. EXAMINATIONS

11.1 All students are required to satisfy the attendance and course work requirements before they are allowed to appear for the examinations.

11.2 The following examinations are held:-

Term examination : This examination is held at the end of each Polytechnic term.

Final examination : This is held at the end of the final term of each academic year.

Supplementary examination: This examination is held after the Final examination for those who have failed in one or more subjects (up to a certain maximum) in the Final examination; these subjects have to be passed before a student is allowed to go on to the next year of studies or to receive the Polytechnic Certificate or Diploma.

11.3 The performance of the student in all these examinations are taken into account in deciding on his academic achievement/standard for that particular year of study. Students who have successfully completed their course of studies will be awarded a Certificate/ Diploma in the discipline concerned.

## CIVIL ENGINEERING DEPARTMENT

The Civil Engineering Department offers the following engineering courses at Certificate (Technician) level:

1. Civil Engineering (Construction)
2. Civil Engineering (Public Works & Hydraulics)
3. Architecture
4. Land Surveying.

These courses are planned to equip the students with sufficient skills so that they can become competent technicians in the government departments, statutory bodies and private organisations.

Heavy emphasis is placed on practical work in the laboratory and workshop.

These courses are of two years and three months duration and include a six months training period in industries between the two academic years.

### CIVIL ENGINEERING (CONSTRUCTION)

This course equips the students with the necessary theory and practical skill to enable them to become technicians competent enough to supervise construction and development projects like building construction, housing, roads, highways, bridges and others.

In addition to studying basic subjects like Science and Mathematics, the students are also given sufficient theoretical and practical knowledge on topics connected with construction like Surveying, Materials Testing, Basic Hydraulics, Structures, Water Supply, Highway and also the different construction materials commonly used.

Basic workshop training includes carpentry, concrete work and surveying. Students are also taught about contracts and the tendering process beginning from drawing up of specifications to supervision until completion of project.

Visits are made to various factories and industries where building materials and components are manufactured or fabricated and to construction site works of varied nature, to broaden their knowledge generally.

#### CIVIL ENGINEERING (PUBLIC WORKS & HYDRAULICS)

One of the aims of this course is to produce technicians who can help engineers and technical assistants to supervise drainage and sewerage works, surveying and other works connected with Civil Engineering.

To achieve this aim the students will study subjects connected with water works like methods of water flow measurement, collection of data on rainfall and water works. Students will also learn various aspects of construction including properties of building materials used and also ways of engineering measurement that are covered in the Construction course.

Practical work in the workshop and laboratory are the same as for the Construction course like carpentry, brickworks, concreting, surveying and others.

#### ARCHITECTURE

Students in this discipline will be equipped with knowledge in the areas of construction technology, drafting, structures and drafting office management.

In the first year students are taught Mathematics and Science subjects. Basic subjects like Physics, Electricity, Mechanics and Building Materials are also taught. Theory classes are balanced with practical work where the students develop practical skills in woodwork, brickwork, concreting and surveying. In the Architectural Studio, the students are shown the correct ways of using drawing/drafting instruments.

After the period of industrial training, the students are taught architectural structures, Architectural Drawing techniques (with emphasis on wooden and concrete construction), perspective drawing and other presentation drawings. Architectural structures are taught using the method of building calculation as employed for building structures. Students are also given instructions on office management procedures

connected with estimating and costing in the preparation of contracts and tenders and also the legal aspects involved in the construction field.

## LAND SURVEYING

In the first year the course structure is similar to that followed by the other Civil engineering courses. However the emphasis is the aspects of measurement like ways of drawing plans, method of division and subdivision of land.

In the second year the students study the ways of investigating border markers, three cornered measurement system, analysis of aerial photograph for determining mountain facing direction and others. Amongst the instruments used are theodolite, electronic distance measurement instrument, plane table, prismatic compass and other surveying instruments.

It is expected that the graduates of this course will be able to help the surveyors in Topographic survey, Photogrammetry and Engineering Survey.

## CURRICULA

### CIVIL ENGINEERING (CONSTRUCTION)

First Year	Second Year
English Language	Islamic Civilization
Islamic Education	Structures & Strength of
Mathematics	Materials
Engineering Science	Soil Mechanics
Engineering Drawing	Estimating & Contract
Engineering Survey	Procedures
Construction & Materials	Engineering Survey II
	Civil Engineering
	Construction II
	Hydraulics
	Water Supply & Sewerage
	Highway Engineering

## CIVIL ENGINEERING (PUBLIC WORKS & HYDRAULICS)

**First Year**  
English Language  
Islamic Education  
Mathematics  
Engineering Science  
Engineering Drawing  
Engineering Survey  
Construction & Materials

**Second Year**  
Islamic Civilization  
Structures & Strength of  
Materials  
Soil Mechanics  
Estimating & Contract  
Procedures  
Engineering Survey II  
Civil Engineering  
Construction II  
Hydraulics  
Water Supply & Sewerage  
Irrigation & Drainage

## ARCHITECTURE

**First Year**  
English Language  
Islamic Education  
Mathematics  
Engineering Science  
Architectural Drawing  
Engineering Survey  
Construction & Materials  
Principles of Graphic  
Communication

**Second Year**  
Islamic Civilization  
Architectural Structures  
Building Services  
Architectural Project  
Architectural Practice  
Building Construction  
Architectural Design  
Architectural Presentation  
Drawing

## LAND SURVEYING

**First Year**  
English Language  
Islamic Education  
Mathematics  
Engineering Science  
Engineering Drawing  
Engineering Survey  
Computation I  
Plan Drafting

**Second Year**  
Islamic Civilization  
Engineering Survey II  
Cadastral Survey  
Astronomy  
Land Laws & Regulations  
Photogrammetry  
Cartography  
Computation II  
Survey Camp

## ELECTRICAL ENGINEERING DEPARTMENT

The Electrical Engineering Department runs the following engineering courses at Certificate (Technician) level:

1. Electrical Engineering (Power)
2. Electronic Engineering (Communication)
3. Industrial Instrumentation and Controls
4. Computer Technology

These courses are of two years and three months in duration and include a compulsory six-month training period in industries between the two academic years. Throughout the course great emphasis is placed on practical and laboratory work.

### ELECTRICAL ENGINEERING (POWER)

This course provides the student with the necessary theory and practice that is necessary for a technician to do his job competently. Electrical Technicians working with Electricity Supply Boards play an important role in ensuring supply to firms and residences. Those involved with electrical installation and construction can ensure that these are done properly and safely. For those in the sales field, the knowledge and expertise in electrical repairs and maintenance will provide him with that necessary 'extra' that will help to clinch a sale.

This course offers basic Electrical Theory, Technical Mathematics, Engineering Science and Engineering Drawing, along with extensive training in installation, operation and maintenance of electrical machines, industrial electronics and controls, measurement and electrical power distribution as utilised in industry. Laboratory and workshop exercises provide insight into the applications of the principles.

### ELECTRONIC ENGINEERING (COMMUNICATIONS)

The last two decades have seen startling developments in the field of space exploration, industrial automation, communications and computer science. This technological explosion has resulted in a tremendous

diversification of possibilities in which a graduate from an electronics course may seek employment.

This course covers the fundamental concepts and circuits commonly encountered in the fields of communications, controls, measuring, recording and display devices. Because electronics is a rapidly evolving field, the course is designed to train the student to be readily adaptable to the changes which will inevitably occur in the future. The theory courses are supplemented with laboratory work on electrical and electronic principles.

In addition to the basic subjects, this course also provides theory and practice in Repair and Maintenance of Radio and Television, Communications and Microprocessors.

### **INDUSTRIAL INSTRUMENTATION & CONTROL**

Industrial Instrumentation and Control is the science of applying devices and techniques to measure, display, monitor and control plant equipment and process operations. The objective of this course is to train Instrument Technicians specially suited for the continually expanding processing and automated industries.

The laboratory contains an S2 plant which provides extensive training in temperature-pressure-level-flow control, process control simulator, process trainer, pneumatic PID controller, basic servo mechanism trainer, pneumatic and electronic instrument calibrating panel, system simulator, Maxam fluid power panel and analog simulator.

The training given in start-up, fault-finding, repair and maintenance of process automation equipment should enable the Instrumentation and Control Technician to undertake maintenance work of industrial control systems and also to assist professional engineers in system design.

### **COMPUTER TECHNOLOGY**

Since the last decade computers have increasingly been used in all areas of human activity and this is expected to continue. With this proliferation of computers (especially mini and microcomputers), it has become imperative that there should be a pool of trained personnel to



maintain these equipment. In line with this, a Certificate course in Computer Technology was started in the 1984/85 session.

During the first year the basic electronic subjects are taught and the student is also given an introduction to Computer Engineering. In the second year the students will be given an opportunity to trouble-shoot common faults in microcomputer and peripheral equipment to complement the theory learnt in class.

## CURRICULA

### ELECTRICAL ENGINEERING (POWER)

First Year	Second Year
English Language	Islamic Civilization
Islamic Education	Industrial Management
Mathematics I	Mathematics II
Engineering Science	Electrical Instruments & Measurement
Engineering Drawing	Electrical Machines Generation, Transmission and Distribution
Principles of Electricity	Industrial Electronics and Control
Electrical Installation	Project
Workshop Processes and Applied Heat	
Basic Electronics	

### ELECTRONIC ENGINEERING (COMMUNICATION)

First Year	Second Year
English Language	Islamic Civilization
Islamic Education	Industrial Management
Mathematics I	Mathematics II
Engineering Science	Telecommunications
Engineering Drawing	Electronic Equipment Repair and Maintenance
Principles of Electricity	Electronic Instruments and Measurement
Electronics I	Pulse and Digital Systems Project
Workshop Processes and Basic Wiring Practice	

## INDUSTRIAL INSTRUMENTATION AND CONTROL

### First Year

English Language  
Islamic Education  
Mathematics I  
Engineering Science  
Engineering Drawing  
Principles of Electricity  
Measuring Principles  
Workshop Processes and  
Basic Wiring Practice  
Basic Electronics

### Second Year

Islamic Civilization  
Industrial Management  
Mathematics II  
Instrument Workshop Practice  
Control Principles and  
Systems  
Computer Principles  
Industrial Electronic Control  
Project

## COMPUTER TECHNOLOGY

### First Year

English Language  
Islamic Education  
Mathematics I  
Engineering Drawing  
Principles of Electricity  
Computer Technology I  
Workshop Processes and  
Basic Wiring Practice  
Electronics I

### Second Year

Islamic Civilization  
Industrial Management  
Mathematics II  
Electronic Equipment and  
Measurement  
Electronic Equipment Repair  
and Maintenance  
Computer Maintenance and  
Trouble-shooting  
Programming  
Project

## MECHANICAL ENGINEERING DEPARTMENT

The Mechanical Engineering Department offers the following engineering courses at Certificate (Technician) level:

1. Mechanical Engineering (General)
2. Mechanical Engineering (Production)
3. Automotive and Diesel
4. Air-conditioning and Refrigeration

These courses are of two years and three months duration and are of the sandwich type, incorporating six months practical training in industry in between the first and second years. The courses are very practical-oriented and approximately fifty percent of the students' time are spent in the workshops and laboratories which also include a fair amount of drawing and design work in the drawing offices.

All the courses follow a fairly common syllabus in the first year with one or two special subjects in the respective specialities. This is to enable the students to have a strong grounding in basic mechanical engineering requirements. The second year of each course lays more stress on the specialist subjects relating to the five branches.

### MECHANICAL ENGINEERING (GENERAL/PRODUCTION)

These courses are designed to give the students as broad a base as possible in general mechanical engineering principles. The common subjects are Mathematics, Engineering Science, Heat and Fluid Technology, Electrical Technology and Engineering Drawing. Basic workshop practice includes machining, fitting, welding and sheetmetal work. Specialised subjects in the second year include Jig and Tool Design, Workshop Management, Metallurgy and Materials Science, Plant Engineering and Control Systems Technology. Production Engineering students spend a considerable amount of time in the Metrology and Fine Measurement Laboratory as well as in the Instrumentation and Control Laboratory. Modern workshop equipment include a Capstan Lathe operated by a fully Automatic Pneumatic Programme Controller, a Bridgeport CNC milling machine (series I), 24 units centre lathes, a hydraulic profile milling machine, a Jig Boring Machine, TIG and MIG arc welding machines, a Universal Testing Machine, Ultra sonic flow detector, Strain Gauge equipment, 2 double stage air compressors, a Hydraulic dynamometer, Power

hydraulic equipment and a Steam Plant. The Polytechnic also houses a Foundry which has two oil-fired furnaces, a cupola and metallurgical equipment where students perform experiments in various foundry techniques.

#### AUTOMOTIVE AND DIESEL

The course has been designed to give the students a sound and basic knowledge in the principles of Automotive and Diesel Engineering at the same time provide them with adequate mechanical engineering knowhow to enable them to assume a useful and responsible role either in an Automotive establishment or a mechanical engineering concern.

Specialised subjects include Internal Combustion Engines, Chassis Construction, Automotive Electrical Equipment and Power Hydraulics. The subject of Service Management provides the students with the basic need required to prepare them to be future garage supervisors and managers.

The Automotive and Diesel workshop contained the most up-to-date garage equipment which include such items as a Chassis Dynamometer, a Roller Brake Tester, Optic Wheel Alignment Tester, Electrical Equipment Testers, Petrol and Diesel engine test rigs, Battery Chargers and a Fuel Injection Test Bench. Small portable training models are used to illustrate the principle of operation of Automotive vehicle components.

#### AIR-CONDITIONING AND REFRIGERATION

Just like the Automotive and Diesel Engineering students, the Air-conditioning and Refrigeration students are given a very strong foundation in Mechanical Engineering in the first year while they study specialised subjects biased towards their speciality in the second year. Specialised subjects include Air-conditioning, Refrigeration, Control Systems, Systems Design and Architectural Drawing and Building Design.

The Air-conditioning and Refrigeration Workshop contains modern equipment such as a training model of a car air-conditioning system, a training model of a general refrigeration system, an ice-maker, a fault tracer trainer, window air-conditioning units, a central air-conditioning unit, a solar air-conditioning and refrigeration unit and a split air-conditioning unit. There is also an air handling duct where temperature and air flow can be adjusted and balanced.

## CURRICULA

### MECHANICAL ENGINEERING (GENERAL)

First Year	Second Year
English Language	Islamic Civilization
Islamic Education	Workshop Management
Mathematics	Materials Technology II
Engineering Science	Engineering Drawing II
Engineering Drawing	Mechanics of Machines
Materials Technology I	Heat & Fluid Technology II
Workshop Technology I	Strength of Materials
Heat & Fluid Technology I	Workshop Technology II
Electrical Technology	Plant Engineering Technology

### MECHANICAL ENGINEERING (PRODUCTION)

First Year	Second Year
English Language	Islamic Civilization
Islamic Education	Workshop Management
Mathematics	Materials Technology II
Engineering Science	Engineering Drawing II
Engineering Drawing	Mechanics of Machines
Materials Technology I	Heat & Fluid Technology II
Workshop Technology I	Strength of Materials
Heat & Fluid Technology I	Workshop Technology II
Electrical Technology	Control Systems Technology

### AUTOMOTIVE AND DIESEL

First Year	Second Year
English Language	Islamic Civilization
Islamic Education	Strength of Materials
Mathematics	Automotive Electrical Equipment
Engineering Science	Automotive Technology II
Engineering Drawing	Internal Combustion Engines
Automotive Technology I	Mechanics of Motor Vehicles
Workshop Technology I	Mobile Hydraulics
Heat & Fluid Technology I	Service Management
Electrical Technology	

## AIR-CONDITIONING AND REFRIGERATION

### First Year

English Language  
Islamic Education  
Mathematics  
Engineering Science  
Engineering Drawing  
Air-conditioning and  
Refrigeration I  
Workshop Technology I  
Heat & Fluid Technology I  
Control Systems I

### Second Year

Islamic Civilization  
Strength of Materials  
Workshop Management  
Heat & Fluid Technology II  
Air conditioning Systems  
Design  
Architectural Drawing and  
Design  
Control Systems II  
Refrigeration II

## MARINE ENGINEERING DEPARTMENT

The Marine Engineering Department offers only one course at Diploma level, i.e.

### Marine Engineering.

The rapid development of Malaysia's own shipping line, MISC, has led to a great demand for technical personnel to man the ships and for this reason, the year 1972 saw the commencement of the first year of the Marine Engineering Courses.

This course has been set up with the assistance of the Japanese Government under the Colombo Plan. The Japanese Government is providing equipment to the value of \$1.3 million and five Advisers while the Malaysian Government provides the workshops, local teaching staff, additional equipment and operating costs.

Marine Engineering, which is closely related to Mechanical Engineering emphasises the operation and maintenance of the ship, marine power plants, associated equipment as well as ship construction and naval architecture.

The students who succeed in this course with sufficient credits and after obtaining sufficient sea-experience are exempted from Part A of Class I and Class II of the Certificate of Competency for Foreign-Going Ship Examinations conducted by the Malaysian Government. The students are required to sit for only certain papers of Part B.

The duration of this course is four years, the third year being spent on board ship.

## CURRICULUM

### First Year

English Language  
Islamic Education  
Mathematics  
Engineering Science  
Engineering Drawing  
Workshop Technology I  
Electrical Technology  
Heat & Fluid Technology I  
Marine Engineering Practice  
Naval Architecture I

### Second Year

Islamic Civilization  
Strength of Materials  
Mechanics of Machines  
Steam Engineering  
Auxiliary Engineering  
Marine Control Systems  
Technology  
Marine Workshop Technology  
Naval Architecture II  
Electrical Technology  
Internal Combustion  
Engineering

### Fourth Year

Mechanical Technology  
Internal Combustion Engineering  
Mathematics  
Drawing and Design  
Steam Engineering  
Naval Architecture III  
Marine Engineering Practice & Legislation  
Marine Control Systems  
Applied Electronics & Electrical Technology  
Materials Technology  
Auxiliary Engineering



## COMMERCE DEPARTMENT

The Commerce Department offers the following courses:-

1. Accountancy
2. Business Studies.

### ACCOUNTANCY

This course takes three years and three months and leads to the award of a Diploma. This period includes a six-month industrial attachment with private or public organisations and takes place during the period between the second and third year of study.

As Accounting is concerned with planning, controlling, recording, reporting and evaluating the financial affairs of an organisation, this course places great emphasis on specialised aspects of accounting including:-

Elements of Accounting; Cost Accounting; Financial Accounting; Management Accounting; Business Finance; Auditing and Investigations.

Equal emphasis is given to other subjects allied to commerce such as Economics, Statistics and Law (Company, Taxation, Commercial) so that a complete framework of the commercial sector is presented.

The organisations which have need for accounting services include Government Departments, public authorities, business organizations, accounting firms, clubs and unions. Accountancy is a new and dynamic profession, offering opportunities for personal development and services to the community.

### BUSINESS STUDIES

The Business Studies course takes two years and three months, including a six-month industrial attachment between the first and second year of study. It is designed to provide students with a comprehensive basic knowledge of commerce. By studying basic subjects like Marketing, Accounting, Statistics, Economics, Elements of Management, Commercial Practice, Business Mathematics the students will be provided with a basic

knowledge of commerce to venture into their own business. For those who wish to be employees in business organizations, the course should make them more readily adaptable to the branch of business activity within which they are placed and thus reducing the period of training to the advantage of their employers.

In addition, all students doing this course, are required in the final year to submit a written project concerning a business topic relevant to Malaysia, of not less than three thousand words.

This course is of the sandwich type, where students spend their first year in the Polytechnic in attending lectures, then do practical training for twenty four weeks in firms and Government or statutory agencies, followed by another nine months of academic studies.

## CURRICULA

### ACCOUNTANCY

#### First Year

English Language  
Islamic Education  
Accounting I - Paper A  
Accounting I - Paper B  
Commercial Law  
Applied Statistics  
Economics  
Management Mathematics

#### Second Year

English Language  
Accounting II - Paper A  
Accounting II - Paper B  
Cost Accounting  
Auditing  
Company Law  
Business Administration  
Data Processing

#### Third Year

Islamic Civilization  
Accounting III - Paper A  
Accounting III - Paper B  
Management Accounting - Paper A  
Management Accounting - Paper B  
Auditing and Investigation  
Business Finance  
Malaysian Taxation

BUSINESS STUDIES

First Year

English Language  
Islamic Education  
Accounting I  
Statistics I  
Marketing I  
Economics I  
Office Management  
Commercial Practice

Second Year

Islamic Civilization  
Accounting II  
Statistics II  
Economics II  
Business Management  
Marketing II  
Business Mathematics  
& Costing  
Business Law  
Project







JICA