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## The Matriculation Course at Universiti Sains Malaysia

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Pemerian mengenai Kursus Matrikulasi di dalam rencana ini didahului dengan penjelasan terhadap masalah-masalah yang menimbulkannya dan juga usaha-usaha awalan untuk menyelesaikannya. Kursus Matrikulasi, Universiti Sains Malaysia dimulai awal tahun 1977 apabila perhubungan-perhubungan diadakan dengan Sekolah-Sekolah Menengah Sains di Sungei Patani dan di Bukit Mertajam. Pengambilan pelajar-pelajar yang pertama dilakukan pada bulan Julai 1977. Kakitangan sekolah dan universiti telah berusaha bersama-sama untuk membentuk sukatan-sukatan pelajaran, kaedah-kaedah mengajar dan peperiksaan-peperiksaan. Sekolah-sekolah ini diperbekalkan dengan buku-buku sains dan alatan-alatan tambahan. Pelajar-pelajar menjalani kursus tahun pertama di kedua-dua sekolah menengah sains tersebut. Selepas itu mereka mengambil peperiksaan (Matrikulasi I) sebelum memasuki universiti untuk mengikuti kursus tahun kedua. Di akhir kursus ini, mereka harus mengambil peperiksaan Matrikulasi II. Kelulusan peperiksaan ini melayakkan kemasukan ke dalam tahun pertama Universiti Sains Malaysia.

### Introduction

The aims of education in Malaysia include the development of human resources. In particular, the development of individuals who can participate in scientific and technological activities. In these respects, bumiputras are behind-hand and it was felt back in 1970 that USM should not shy away from helping to correct the imbalance. In the session 1969/70, only 2% of those reading pure science courses at USM were bumiputras. There were a number of reasons for this but the main one is that bumiputra students from rural areas have poor learning facilities for science. To assist them, courses in basic science were created at USM in 1970/71 to encourage bumiputra participation in university science courses.

These so-called "Preliminary Year" courses were designed to help students not qualified for first year science courses. Students were to be given basic training and intensive guidance for one year and then placed in one of the first year science courses. The syllabus is intermediary between the STP/HSC and the first year courses. However, there were a number of problems: students found it difficult to adjust from school to university methods of study; there were problems of language for those from Malay medium schools; there were problems of finance and acclimatization to new living situations; lecturers had problems in determining the syllabus, etc.

Between 1970 and 1976, the numbers of students taking the Preliminary Year courses increased from about 20 to 140, but not all were successful – in fact, a pitiable number succeeded in staying the course. This was largely because their academic background was too poor to enable them to compete with others.

A big contribution towards solving these problems was offered by the Sekolah Menengah Sains – the residential schools, most of which were new and were only recently producing sixth form students. This offered an opportunity to devise a new scheme to help bumiputra students to read science at the University with greater success.

The introduction of the Matriculation Course had on its objective the creation of bridges between school and university so that the standard of University entrants could be raised. As has

been mentioned above, little is done at present to ease the transition from school to university. Syllabuses are not necessarily dove-tailed, the books used are different, at school pupils are taught whereas at the university they are expected to learn for themselves, etc. For this new Matriculation Course, school and university teachers have worked together on the construction of sixth form syllabuses. The first sixth form year is conducted in the schools, the second in the University. The two groups of teachers keep in touch through monthly workshops and visits. They coordinate their activities in science teaching and in examining. Then when the students come to the university, they will find that their courses follow on from the school courses, that they use the same basic textbooks and, because they come from residential schools, there are fewer problems of acclimatization. They are also allotted to a tutor to whom they can go if they have problems needing guidance and counselling.

The draft proposal for a Matriculation Course at Universiti Sains Malaysia was drawn up in 1976. It was proposed that the University should establish a relationship with two or more residential schools in North Malaysia. Staff of the schools and the University would work closely together over educational matters such as the syllabuses, textbooks, equipment, examinations etc. Other universities in Malaysia were working along similar lines and Universiti Sains Malaysia studied these and hoped to profit by their experience so far.

In November 1976, an outline plan for the Matriculation Course was drawn up. This was worked out by a policy committee consisting of the Deputy Vice Chancellor (Chairman), heads of Schools of Biology, Chemistry, Mathematics, Physics, Language Unit, the coordinator for Kursus Matrikulasi, the headmasters of the collaborating schools and a representative of the Ministry of Education. The two schools involved were Sekolah Menengah Sains Pulau Pinang, Bukit Mertajam, and Sekolah Menengah Sains Kedah, Sungai Petani. Subject committees in biology, chemistry, mathematics, and physics were also set up, chaired by the appropriate member of the policy committee and including members of the science schools of the University and the science teachers from the two Sekolah Menengah Sains. A third school, Sekolah Menengah Sains Perlis, is now being added.

### Initial Programme

The following programme was suggested:

Form V pupils, having sat for MCE Examination in November, would start the Matriculation course in the schools as Lower VI Form members. They would remain in the schools as members of the Upper VI Form until the end of the first term of the Upper VI. Towards the end of that term, i.e. in March, they would take a Matriculation Examination, to be called 'Part I'.

While at school, they would be full members of the VI form and play their part, as now in the life of the schools. They would be the only members of the VI form, i.e. there would be no Higher School Certificate Examination class.

The choice of these pupils is decided by the Matriculation Committee and the Ministry of Education is kept fully informed about the programme. It is important that pupils chosen for the Sixth Form, whether they come from the two schools concerned or from other schools, should be up to a certain standard. This standard was agreed to be a total of at most 30 points in the five Science/Maths subjects and a credit in Bahasa Malaysia or English.

After leaving school in April, the students have a holiday and join the University at the beginning of the academic year in June. At the end of this year they would take another examination, to be known as 'Matriculation II' before being admitted to the University as first year students. They thus have two full academic years of VI form, pre-university study as compared with the 4½ terms that is all that is available for Higher School Certificate Examination students. They will therefore have a much better chance of reaching university standard than heretofore.

Those who fail Matriculation I Examination can either repeat the year, or be transferred to another school to try Higher School Certificate Examination, or leave school for some kind of employment. Those who fail Matriculation II Examination may repeat the year or leave for studies elsewhere or for employment.

## **Collaboration between Schools and University**

### **1. Subject Committees**

The construction of syllabuses for the matriculation year in the schools was undertaken by subject panels as mentioned above. The syllabuses were to be based on those of the Higher School Certificate Examination; they should grow out of the MCE/SPM Examination syllabuses and lead into the university work. The construction of syllabuses for Matriculation Year II in the University could follow that of the syllabuses for use in the schools.

The syllabuses so constructed will be published as "Interim Syllabuses" and will be modified after some experience of their suitability in use becomes available. The subject committees also arrange workshops at the University where teachers can discuss the teaching of various parts of the new syllabuses.

### **2. Books**

The University has provided the schools with textbooks in all the science subjects with additional books for their libraries. They have also provided books and other aids to improve the pupil's ability to understand English and, in particular, science textbooks in English. There are very few sixth form Science textbooks in Bahasa Malaysia, and although some summaries of certain chapters are being translated, it remains essential at this time that students, especially when they come to the University, shall be able to study books in English. Another set of textbooks has been provided for students when they are in the University for Matriculation Year II. These are available for them from the University library.

### **3. Equipment**

The schools are already well equipped to teach science subjects, but a few additional pieces of apparatus are being supplied to them when they are needed.

### **4. Visits**

Members of the University science schools pay visits to the two schools periodically in order to keep in touch with the progress of the courses. The coordinator pays more frequent visits in order to discuss any difficulties or weaknesses so that these may be discussed and remedied.

The results of mid-term and end-of-term tests are also monitored and students who have done poorly are interviewed with a view to find out the reasons for their poor performances and to suggest ways for improvement.

### **5. Conferences at the University**

In addition to the subject committees' workshops, an annual conference of all those concerned with the Matriculation Course is held at Universiti Sains Malaysia. Those attending include Ministry and State Education officials in addition to the headmasters and science teachers

from the schools, and the heads and lecturers of the University Science Schools. Here, comments on the way in which the plan is working out and suggestions for its improvement for the future, can be made and discussed.

## 6. Finance

The provision of finance falls under the following headings: science equipment, books, visits, workshops, stationery, contingencies. The total provision for the first year, 1977, was \$150,000. In addition to this, the Ministry provides a bursary for those students entering the preliminary year at the University. This is to cover their running expenses: tuition, accommodation, food, travel, etc. Their accommodation is provided in the University desasiswa.

## Conclusion

In conclusion, it should be said that the plan has now been in operation for one year (1977) and that a number of difficulties have been ironed out. One of the major difficulties was that the number of pupils in the sixth forms did not stabilise until about June. This made the teaching of the classes very difficult. Another difficulty was that the teachers found it hard to teach the new syllabuses. Books and equipment were slow to arrive but next year all these difficulties will diminish. The intake into the Matriculation Year II in the University is expected to consist of about 200 students. As this will be the first of such intakes, no doubt other teething problems will arise. However, we hope that by the end of 1978, these will have been ironed out and that the Matriculation Course will be running smoothly.