THE NEEDS OF TECHNICAL EDUCATION

in the

WOLLONGONG DISTRICT.

Prepared by the Wollongong Technical Education District Council.

August 1958.
The Needs of Technical Education in the Wollongong District.

Introduction:
Technical education in the Wollongong district provides courses in the Applied Sciences, Engineering, Technology, Commerce, Management and Industrial Organisation, and other activities. This statement deals with the technical and technological fields only, where there are serious deficiencies in buildings and equipment.

Diploma instruction at Wollongong is given in the following courses:

- Mechanical Engineering
- Electrical Engineering
- Chemistry
- Metallurgy
- Science
- Civil Engineering (early stages only)
- Chemical Engineering (early stages only)

The training of technicians is dealt with in the following fields:

- Coal Mining
- Mine Surveying
- Metallurgy
- Chemistry
- Mechanical Engineering
- Electrical Engineering

Trades competency certificates are awarded in the following:

- Fitting and Machine
- Boilermaking
- Founding
- Patternmaking
- Automotive Mechanics
- Electrical Fitters
- Electrical Mechanics
- Bricklaying
- Carpentry and Joinery
- Plumbing
- House Drainage

Organisation:
The N.S.W. University of Technology administers, on behalf of the Department of Technical Education, diploma courses in fields similar to those in which the University is conducting degree courses. Students enrolled in them are registered students of the University and on completing their courses receive, as other diploma
course students do, the Associateship of the Sydney Technical College. This award is of course made by the Department of Technical Education.

All the diploma courses listed above are administered by the University of Technology. At Wollongong there is a Division of the University of Technology, the Principal of the Technical College being also Head of the Division.

The Department of Technical Education is responsible for all other aspects of technical education, in addition to the other activities mentioned earlier. The Principal and Staff of the Wollongong Technical College together with the Division of the University of Technology therefore cover the whole field of technical education.

DEVELOPMENT TO DATE AT WOLLONGONG:

Technical education began on a small scale at Wollongong in the old School of Arts building in Smith Street, in 1901.

Technical education facilities were later established at Gladstone Avenue, Wollongong and also at North Wollongong.

The first building at Gladstone Avenue was erected in 1928, for the purpose of a Trades School and Women's Handicrafts. From time to time as the need arose temporary buildings have been erected in the Gladstone Avenue grounds to provide instruction in various trades and for other purposes. At the present time the Boilermaking and Founding trades are still accommodated in temporary buildings there. In addition, the Coal Mining courses, fluid mechanics and physics laboratories are accommodated in buildings that can only be considered of a temporary nature.
Instruction in Diploma courses began in 1936, but no additional buildings were erected for this purpose.

At North Wollongong an area of land was acquired in 1938. This was added to in 1942 by the gift of 16 acres by Australian Iron & Steel Ltd. In 1953 an additional area of approximately 250 acres was acquired for education purposes generally.

The first building to be erected at North Wollongong was the engineering trades building, completed in 1943. A second building to house building trades was occupied in 1954. An additional wing to this building was completed in 1956 and accommodates the electrical trades.

The remaining accommodation at North Wollongong consists of temporary buildings and cares for bricklaying, panel beating and trades theory. In addition some adjacent temporary structures, belonging to the Department of Education, have to be used for trades theory evening classes.

ENROLMENTS & GROWTH OF STUDENT POPULATION:

With the rapid growth of this district there has been a corresponding increase in enrolments at the Technical College and University Division.

The present enrolment is rather more than 3,000 and there can be no doubt that this will increase to more than double this figure by 1964, that is a total of 6,000 students.

Attachment "A" shows total enrolments since 1938. The very marked upwards movement during the last six years will be noted.

Enrolments in Diploma Courses:

During the last three years enrolments at Wollongong in diploma courses have increased from 132 to
205. With this rate of increase the number enrolled in 1961 will reach 330. No reason can be seen why this rate of increase should not at least be maintained and it could well be exceeded.

These rates of increase far exceed those at any other centre in this State.

Enrolments in Certificate Courses:

Enrolments in Technician Certificate Courses have increased greatly during the last few years. In 1955 courses in metallurgy and chemistry were introduced and in mechanical engineering, and electrical engineering in 1956. The numbers enrolled in these courses have increased from 20 in 1955 to 203 in 1958.

It is certain that the enrolments will continue to increase, since these courses are of particular importance to the industrial development of the State.

Enrolments in Coal mining have also shown large increases, the numbers having grown from 12 in 1954 to 78 in 1958.

Attachment "B" shows the increases that can be expected in the immediate future.

Enrolments in Trades Courses:

Here again the numbers have shown a marked rise in recent years, from 585 in 1950 to 1,150 in 1958.

It is obvious that in this district requirements will demand a continued increase in the number of apprentices to be trained in the various courses mentioned.

Attachment "C" shows the annual increases that must be provided for. It will be seen that by 1963 there will be more than 1,500 apprentices taking the Trade Competency Certificate Courses.
DEFICIENCIES IN BUILDINGS AND EQUIPMENT:

Diploma & Degree Courses:

As mentioned above, instruction in Diploma courses began at Wollongong in 1936. No additional buildings were provided at that time and in fact no buildings have ever been erected specifically for diploma work.

The laboratories available for metallurgy and chemistry courses are completely unsatisfactory. For mechanical and civil engineering a fluid mechanics laboratory is being installed, as a makeshift arrangement, in the old Plumbing workshop, itself a temporary structure. These are examples of the present shortcomings.

As a result, the facilities available fall far short of essential requirements, with the inevitable consequence that students are discouraged, standards suffer and certain courses cannot be taught at Wollongong. These conditions also impose a severe and unfair strain on the teaching staff. A further result is that it has become increasingly difficult to obtain staff of the necessary calibre for Wollongong.

The University of Technology has been unable to introduce at Wollongong the revised and improved metallurgy diploma course, having to retain the old course. Students wishing to transfer to other centres are therefore at a considerable disadvantage and also difficulties are presented to those who wish to proceed from diploma to degree.

Further, due to conditions here, it is unlikely that the University will be able to introduce courses leading from diploma to degree in engineering. We have a number who desire to proceed to their engineering degree.

Diploma courses in chemical engineering and civil engineering can only be taught in the early stages at Wollongong.
With the rapid increase in student enrolments this state of affairs will progressively deteriorate until an impossible situation is reached. This will occur during the next two or three years.

It is a matter of prime urgency that reasonable facilities be provided for instruction in diploma and degree courses.

The initial requirement is for buildings to care for instruction in the basic subjects, mathematics, physics and chemistry, together with laboratories and lecture rooms for metallurgy, chemistry and engineering courses.

These buildings will be erected at North Wollongong and will form the first part of a University College.

Technician Certificate Courses:

As mentioned above Certificate courses in metallurgy and chemistry were introduced in 1955 and in mechanical and electrical engineering in 1956. The entrance requirement is the Intermediate Certificate.

These courses will meet a long felt need. In many other countries courses at an intermediate level between trades and diploma have long been instituted. Indeed they are considered an indispensable part of technical education.

The number required with this qualification will be very large, since they will meet a wide range of industrial need. From the inception in 1955 the numbers have grown to 203 in 1958 and must continue to increase at a rapid rate. An enrolment of more than 400 must be expected by 1961.

Here again the accommodation of these courses was superimposed as an added burden on the then existing
facilities. Recently, as an interim measure, temporary physics and applied mechanics laboratory facilities have been provided. However, this will merely enable the Technical College to carry on for a short period, after which permanent provision must certainly be made.

In this district instruction in Coalmining is obviously an essential part of Technical Education. As previously mentioned certificate courses in Mining and Coalmining Surveying are housed in a temporary building at Gladstone Avenue. Whilst the facilities available are reasonably adequate for the present, the increase in numbers that can be expected will make additional and permanent accommodation necessary in the near future.

A building that will provide for Certificate course instruction, excluding coalmining, has been laid out for North Wollongong and the Government Architect is proceeding with the design of this.

It is essential that this building be erected during the next two years.

**Trades Competency Certificate Courses:**

All apprentices are required to attend the Technical College for instruction in the appropriate trades courses.

As already mentioned, permanent workshop buildings have been erected at North Wollongong for fitting and turning, welding, motor mechanics, building trades (excluding bricklaying) and the electrical trades. Boilermaking, founding, bricklaying, panel beating and the other trades are accommodated in temporary buildings at Gladstone Avenue and North Wollongong.

Trades theory is most inadequately cared for at North Wollongong in temporary huts, some belonging to the Department of Education.
It is essential that permanent accommodation to house trades theory be built immediately at North Wollongong. Provision would also be made for the electrical trades workshops, the wing they now occupy in the building trades block then being made available for bricklaying.

The building being designed for technician certificate courses also makes provision for trades theory and electrical trades.

As shown above there will be a continued increase of apprentices in the various trades. Additional trades will have to be provided for.

This initial building must therefore be followed shortly by additional trades building blocks. All technician and trades courses will finally be accommodated at North Wollongong.

When this has been effected the permanent buildings at Gladstone Avenue could satisfactorily accommodate the Commerce Courses and general activities.

CONCLUSION:

It will be seen that the immediate requirements for Wollongong are:

University College buildings to provide for diploma and degree courses in metallurgy, chemistry and engineering.

A building for the Department of Technical Education to provide for Technician Certificate Courses, Trades Theory and Electrical trades.

Attachment "D" is a plan showing in outline the areas at North Wollongong where these developments will take place.

The cost of the initial buildings for the University College will be approximately £500,000.
The cost of the Department of Technical Education building will also be approximately £500,000.

The Report of the Committee on Australian Universities recommended a University building programme for 1958, 1959 and 1960, the cost to be met partly by the Commonwealth and partly by the State Governments. The report and recommendations have been adopted by the Commonwealth and State Governments.

In this report no provision was made for University development at Wollongong.

It is not practicable for students living in Wollongong to travel to Sydney for lectures. Many of them would be unable, for economic reasons, to live in Sydney and thereby attend a University. Further, to be employed in industry and to qualify by a part time diploma or degree, is the only avenue open to a large number of students.

The establishment of a University College at Wollongong is essential.

The industrial growth of this district is at a greater rate than that of any other area in Australia. When it is considered that the facilities available are already quite inadequate the urgency of the matter becomes apparent.

We cannot conceive a more urgent need for Technical Education than exists today at Wollongong. It is imperative therefore that all measures be adopted to ensure that the two buildings described are constructed and equipped during the next two years.

On behalf of the Council,

F.M. Mathews
Chairman.
ATTACHMENT 'B'

ENROLMENTS IN
TECHNICIAN CERTIFICATE COURSES
WOLLONGONG TECHNICAL COLLEGE


450 400 350 300 250 200 150 100 50

Total
Mechanics, Electrics, etc
Coal Mining

ENROLMENTS IN TRADE COURSES
WOLLONGONG TECHNICAL COLLEGE.