In the 1960s, Kan Seng Chut attended the Marine Engineering Diploma Course while David Chin attended the Mechanical Engineering Diploma Course. Both courses were conducted by the Singapore Polytechnic. Both were apprentices at Keppel and went further for their professional qualifications – Seng Chut went for his engineer "tickets" while David went for his engineering degree. Both excelled in their respective endeavours and felt that their successes were attributed to the high standard of the engineering diploma courses. Here, they expressed their opinions, which in turn attracted comments from several mariners.

Cheng Huang Leng
Co-Editor
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The Standard of the Singapore Polytechnic Engineering Diploma Curriculum

According to Kan Seng Chut:

Our Singapore Polytechnic's diploma standard was very high that anyone going for a degree course could just walk through without much effort e.g. Michael Ngai and Lim Tau Kok. Similarly when I went for my refresher course in May 1973 at Poplar Technical College for the Class 1 Engineer Certificate of Competency, I decided that I needed to enrol for the Part B course only. However when the Principal found out that I did not have my Part A, he suggested that I join the Part A class first, pass that and then join the Part B class. I told him that since the College had accepted me and had received full payment I should be allowed to attend the Part B. I then told the Principal that I would be taking the Part A examination in 2 weeks time on my own effort. That was where our Polytechnic standard came into play for despite a 6-year lapse (I left Polytechnic in 1967) it only took me 2 weeks of revision and I cleared the Part A subjects in one attempt. I then took the results slip and updated the College office in the presence of the Principal. So if anyone had gone through the Polytechnic in the 60s and 70s, he/she would have little problem in taking a degree course later in life

That's my verdict on our Polytechnic's standard - the highest and the best!

According to David Chin Soon Siong

The Singapore Polytechnic Technician Diploma was of a very high standard in Applied Engineering, in particular, Applied Thermodynamics, Strength of Material and Theory of Machines. The standards for those subjects were really equal to the 3rd year of my 4-year degree course in Newcastle. The Engineering Mathematics, which we did to the 3rd year of our Diploma course was equivalent to the 2nd year Mathematics in my Degree course. In the 3rd year of my Degree course, we did more Mathematics, going into Fourier Series and Partial Differentiations (that we did not touch on at the Polytechnic) thus I had to put in a bit of study. Strangely, the 1st year of the Degree course was the tough year for me at Newcastle, as I had to do classical Thermodynamics—Roger and Mayhew's and all the corollaries from 1st principles. Also I had to do Physics and Chemistry which I did not do at O Level. In those days, there was no exemption for my Polytechnic Diploma, so I had to start from 1st year. So the 1st year was the toughest year for me. But 2nd year and 3rd year were really a walk in the park, as all that they taught me were already learnt in my Polytechnic Technician Diploma course. The 4th year included the Thesis and subjects that went past Polytechnic Diploma level subjects and thus I had to study again.

Looking back, I really appreciated the 1st year (even though it was tough), for it gave me a real grounding in Engineering Theory. Hence I'm now (and have always been) really suspicious of our new Polytechnic Diploma turn Degree Holder with just 1 or 2 years of study at degree level as someone who has a Degree, but may not really have the full grounding in the basics.

If I were to run the Newcastle Course here at Ngee Ann, I will have the 2 years such that the 1st year takes the Polytechnic graduates back to Classical Mechanics and Classical Thermodynamics and University Physics and University Mathematics and then the 2nd year jump past what is taught in our Polytechnic's Diploma—meaning my 1st and 4th year course at Newcastle.

David Chin's views triggered these rejoinders:

Rejoinder from Kan Seng Chut:

Ah! My old brain starts clicking again. When I was in Poplar Technical College in 1973 I remembered on the last day of the course the Engineering Knowledge lecturer was on medical leave, so a young lecturer took over. The subject was on main engine gears and chain drives. After the lesson as usual he asked for questions. I asked, "If a ship at sea has her duplex chain almost snapping due to cracks, how would you change the duplex chain if a new complete chain is available on board? The new chain weighs about 3.5 tons." He then asked the class for answers but none could give any practical solution. Everyone looked up to this young lecturer for the right answer. He stammered and then said "Mr Kan, since you asked the question can you give it a try?" All the students turned round (I was sitting at the back of the class) and stared at me. I then went up to the blackboard and sketched my answer. I explained, "It's very simple, first disconnect the old chain from its connecting link, then connect the new chain to the old chain and slowly turn the engine until the old chain is manoeuvred out of the crankcase and the new chain is in place. Disconnect the old chain from the new chain and connect back the connecting link. Then re-tension the new chain and the engine is ready to start." I then walked back to my seat. The whole class applauded and this lecturer said, 'brilliant answer', and he made my day. That ended the last lecture for the term (it was a Friday).

The following Monday I appeared for my Class 1 examination and passed. It was a standard practice in Poplar that any student who passed must invite all the lecturers and fellow classmates for a beer .At the pub the old EK lecturer came and congratulated me and remarked, 'I always see you nodding in my class and yet you are the only one who passed!'

I then thanked him nonetheless but overnight I became very popular in the seamen's hostel for EK consultation. I stayed for a week and then hired a car and went for 10 days drive to Wales and Ireland with Steven Chua, Leslie Low and Han Mui Kwang. Steven and Leslie were there to take there Combined Chiefs.

After the holidays I returned home to start my shore job as Superintendent with Neptune Orient Lines. I was given 6 months study leave on full pay by NOL and I only took 4 months to complete my study and examination. But I was bonded for 3 years.

This bit about David Chin is added by Cheng Huang Leng:

In 1967 David Chin got a Keppel Scholarship to pursue Mechanical Engineering at Newcastle Polytechnic, UK. His Singapore Polytechnic Mechanical Engineering course was of such a high standard that he got his 1st Class Honours without having to work too hard - or maybe, he was simply smarter than most! I was pursuing my Marine Engineering Degree Course at the University of Newcastle-Upon-Tyne at that time. Fortunately, I had David around for he coached me in Thermodynamics and Strength of Materials – these were subjects that were unheard off by those of us who took A-Level.

Rejoinder from Charles Foo

The Singapore Polytechnic Diploma in Mechanical Engineering was based on the UK HNC course which served the British Industrialization very well. I belong to the 1959 batch of apprentices. There were 10 of us and I was the only one who completed the 5 year apprenticeship and the Singapore Polytechnic course. There were other apprentices following the Craft courses. When I did my Extra First Class course at Poplar College half my lecturers failed their Extra but they were very good at the subjects they were teaching. Later I found out that all of them had their HNC and a very strong foundation in their favourite subjects.

I found the Singapore Polytechnic Diploma in Mechanical Engineering just as useful, giving me very good foundation in Applied Thermodynamics. Of the 11 of us in the class, three of us who passed were offered the M.Sc. course in "Tribology" by London City University - something to do with lubrication of marine engines. One English lad took up the offer, graduated and went back to Poplar to teach. I went back to Lloyds Register to work as I needed the money. Lloyds had only sponsored me for the 10 months course (9 months + 1

month exam) in terms of course fee, exam fee and living expenses. That was in 1972 when I passed my Extra Chief Engineers Certificate of Competency.

Rejoinder from Ron Periera

Perhaps I can add to Charles Foo's story, as I started serving my apprenticeship at SHB Dockyard at Keppel Harbour one year before him; in January 1958. The Singapore Polytechnic started the Engineering Day-Release Classes with British diploma courses in January 1959 and I was enrolled in the Joint Part 1 of the UK Council of Institutions course for qualification as a Chartered Engineer. However, at the end of 1959, it was announced that this course would be discontinued and I would have to join the 2nd year of the Singapore Polytechnic Diploma Course in Mechanical Engineering. However, after 6 months, I realised that the syllabus varied greatly from the 2nd Class Part 'A' Certificate of Competency syllabus and decided to leave the course and concentrate on studying for the Part A examinations in March 1962, which was 21 months away. This decision required study of at least 3 hours per evening, 3 evenings per week for the next 18 months – which I did at home and after dinner at about 7.30 pm. As I was still playing hockey 2 days per week, the only recreation was on Saturday nights and Sundays. However, guided by the recommended books on Applied Mechanics, Marine Engineering Drawing and Heat Engines which I managed to purchase from Motion Smith in Singapore and the Institute of Marine Engineers, London (where I was a Probationary Student Member). I managed to cover the whole syllabus for the Part A by January 1962, when I completed 4 years as an apprentice in SHB Dockyard, to enable me to sit for the examination in March 1962. Fortunately for my weakest subject, which was mechanical drawing, one week before the exam, I practiced a drawing of a centrifugal pump and it was one of the choice questions. I therefore finished the drawing within the allocated time of 3 hours and therefore passed the Part A at the first go.

Rejoinder from Sam Choo:

I belong to the early batch of mariners who served my apprenticeship in early 60s at Her Majesty Service Naval Base up north in Woodlands. All I wanted was to be a car mechanic and fix my father's old bone shaker. However, to be accepted by the high and mighty Brits at that time, we had to sit for a kind of selection test. We were tested only on English and Math. Those selected were considered "crème of the crop".

I did not do too well, and was allowed to do a mechanical trade fitter and turner trade. The college education of 4 years provided us with a good technical based up to the ONC and later on HNC level.

Comment from Richard Teo:

I have truly enjoyed reading how and what our marine engineers (many are good old personal friends) went through to get their tickets and additional qualifications. Comparatively deck officers had a much easier time to get their masters. I certainly for one feel that I had a much easier pathway than engineers.

I am currently Principal of the PNG Maritime College and can see how easy a time the present day marine engineers seem to have to get their tickets. Here we supply everything including arranging sea time with ship owners. What certainly is missing today is an adequate time in dockyard practice and on board ships working with the plant and machineries.

Engineers today from reports are more button pushers than practical engineers with insufficient amount of knowledge and best practice skills. I won't even venture to say anything about deck officers. There are never ending complaints from ship operators drawing officers, engineers and crew from Asia Pacific sources about behaviour and competence.

This year marks my 52nd year in the industry, the last 24 in maritime education and training. My main engines are still running well. Auxiliaries do need attention from time to time.

As for master candidates I still fail every candidate who doesn't know how to start his main engine (pre-checks and all) or even the generators. This is even more critical on small coastal vessels with short manning.

I salute our marine engineers!

Comment from Professor Ehsan Mesbahi

Educational, entertaining, enlightening, nostalgic and invaluable life-time experiences, worth thousands! (I now know how to change a duplex chain!)

I very much enjoyed reading the part about articulation and learning of basics in Stage 1... The part of the curriculum which talks about "science of engineering" without which, you may not be able to "engineer the science"! Most engineering students (marine and non-marine) rush to jump over this and get to what they call "more relevant" part of their education. A big mistake!

Rejoinder from Arun

When I saw Theory of Machines, I still remember, I got full marks for it. As our B.Eng. degree was Naval Architecture and Marine Engineering, we had to study almost all Mechanical subjects under condensed condition e.g. Heat Transfer and Power Plant Engineering became one subject for us. The same went with Machine Design and Theory of Machines and with Refrigeration and Air-conditioning. In addition, we had two subjects in Material Science (Metallurgical Engineering). We had Mathematics for the first 3 years of our 4 year course which we attended with Mechanical students. I attended classes on Fluid Mechanics in my 2nd year with 3rd year Mechanical students; they did not accept us quite easily in Class as well as during Lab works. I attended classes on Strength of Materials with Civil Engineering students who were also in their 2nd year. I still survived perhaps because of I already learned my Mathematics, Physics and Chemistry up to first year level before I embarked on the B. Eng programme.

Today we have a short-cut in Education globally! I always used to cross a field diagonally to make a short-cut but never took that short-cut in my learning process.

One more story that changed my post graduate education. When I went to Strathclyde University in Glasgow in 1983, I was admitted into Marine Technology under ORS Scholarship, which is actually Offshore Technology there. I was a little worried as I never studied these in my UG. So, I made an appointment to see the then Head of the Department, Prof. Chengi Kuo and asked him that I am from a shipyard and I know ship design and shipbuilding well; so I should do my M. Sc in Ship Production Technology instead. Professor looked at me and told me "Dev, you are here to do M. Sc in Marine Technology because you do not know that". You have not come here all the way from Singapore to do something that you already know. I did not speak a single word and got out of the room saying that it makes sense. Because of my M. Sc in Marine Technology, I could go to TU Delft because the Professor there was from Ocean Engineering. Today, I enjoy my “Offshore” skill on top of my “Ship” skill. It has made me a double-edged sword.

Many stories to tell but I leave it to a close here. What amazes me in Singapore small marine world is that I have met so many people like you since I landed here in 1981 to work (before that I came here on a cruise ship in 1978 and the ship was at the World Trade Centre and I saw Keppel Shipyard). The Group is really a worth of huge experiences. As Ehsan says, you all should write memoirs in a book.