

# University students design and construct pleasure boats

National

24 May 2011 | Times of Malta | 11

1 min read



Two small pleasure boats have been designed, constructed and tested by two final year students reading for a degree in B.Eng.(Hons) in Mechanical Engineering at the University of Malta.

The university said that the two students, Ryan Cachia and Jeremy Cortis, have followed, together with other students, the Ship Studies course modules, enabling them to design the hulls using the Naval Architecture principles.

They have undertaken these projects as their final year dissertation, under the academic supervision of Dr Claire De Marco and Prof. Carmel Pule'.

Ryan Cachia's work concentrated on a wooden displacement hull using a plywood stitch and glue technique.

The resulting hull, achieving a design speed of seven knots, is 3.89 m long with a 1.62m beam and a depth of 0.76m.

Jeremy Cortis, used near typical moulding techniques and worked on a fibre glass, double bottom planning hull 3.14 m long and 0.6 m deep, beam 1.53. It is capable of reaching speeds in excess of 20 knots. The boats are registered with the Small Ships Section at Transport Malta.

The test results achieved good comparison with professional Naval Architecture software obtained as part of an ERDF project (part-financed by the European Union under the European Regional Development Fund 2007 – 2013), aimed at setting up a Mechanical Engineering Computer Modelling and Simulation Lab, CAE, at the University of Malta.

*Independent journalism costs money. Support Times of Malta for the **price of a coffee**.*

Support Us

Sponsored Articles





Reflections on 20 years of the euro



European People's Party 'acknowledges role of nuclear energy as low-carbon tech' Privacy





When language is not a barrier



Working from Malta, for the Dutch live casinos

Privacy



**Bitcoin and Ethereum are heading lower: Is it now the time to invest?**



**Sport betting in Japan**

# Comments

## Sponsored

**February 2022 intake**

Applications available online

## ALSO ON TIMES OF MALTA

4 hours ago · 3 comments

**The state's overdraft facility**

## Sponsored

-62%

AliExpress Official  
AliExpress

### Times of Malta Comment Policy

All comments are subject to moderation. Important: Please read our [Comment Policy](#) before commenting.



Comments for this thread are now closed



11 Comments

Times of Malta



Login

Favorite

Tweet

Share

Sort by Oldest



**Christian Abela** • 11 years ago

Engineering final year students at Uni work on a pleasure boat project ?? At Fellenberg Engineering students used to work on robotics in their last year (2002 and before). I wonder if technology is going backwards.

Privacy

^ | v • Share >

## Sponsored



**mindofmyown** • Christian Abela • 11 years ago

Its called diversity Abela. I never saw iron man floating at Ghajn Tuffieha, have you?

If you have 60 different final year projects, it would be useless to dedicate them all on robots, hence they differ, and 2 of them involved hull design.

I'm sure you could go give a lecture on the fluid dynamics, involved with the design of hulls, to our final year engineering student?

^ | v • Share >



**Kurt Caruana** • Christian Abela • 11 years ago

Dear Mr. Abela.

Your comment forced me to create an account with timesofmalta just so i can reply to your comment!

you seem to think that Engineering = Robotics. and thats it!....

you're WRONG!... that's only 1 small part of what is covered in an engineering course..



The observation and analysis of data obtained from experiments compared to data obtained analytically is however a major part of what engineering students do.

I'm pretty sure these students did not build these boats just for the sake of building them.

Well done guys! Good luck with your future!

^ | v • Share >



**Jesmond Micallef Brown** → Christian Abela

• 11 years ago

OK Mr. Christian Abela, but what about drones that FLY autonomously in comparison to those that SWIM autonomously. Such robotic technology has been used to find aircraft wreckage in the depths of the Atlantic. Consider the shape of a Tuna fish, those natural sleek and graceful lines of the fineness ratio have also made their way into undersea research.

<http://www.youtube.com/watch...>

The hull shapes of watercraft are nothing else but sculptured hydrodynamical bodies which slice or skim through the water with the least "pain". Here's a good potential project for you then, an adaptive body which changes shape as the water flows around it, an adaptive morphological structure which caters for the fluid dynamic needs under various conditions. Have a go at that and see what current UOM has to offer in this regard. I can think of a particular technology which coupled with embedded piezoelectric crystals with specific orientations can provide worthy consideration, for example.

Technology never goes backwards because sometimes even older ideas are brought back to life after years on the shelf piling up the dust. Today there is so much computing power available that ideas that were once thought to be impracticable years ago can be restudied,



reinvestigated and further enhanced. Today's technologies are more or less the fine tuning of older technologies.

<http://blogs.hbr.org/kanter...>

^ | v • Share >



**Christian Abela** → Christian Abela • 11 years ago

I just said there are more interesting areas of engineering rather than fluid dynamics :-)

I still give my complements to these guys.

Mr Zammit - I would be definately better than most of the people commenting on timesofmalta to give a lecture on fluid dynamics and not only.

Mr Caruana - Your efforts in creating an account just because of me make me blush. Although its you whos wrong in thinking that I think (sorry for the word puzzle) that Engineering is only Robotics. Actually Robotics is - Electronics Engineering which is slightly a different area. Thanks.

^ | v • Share >



**Pule' Carmel** → Christian Abela • 11 years ago

He who says that building boats at University as compared to building robots, better redefine his thoughts. The technology of modern boatbuilding and its research has resulted in a modern sailing boat, reaching over 53 knots, tankers longer than 424 metres running at 30 knots, passenger catamarans to Sicily running at 42 knots, Cruise ships carrying over 3000 passengers, Crossing the Atlantic ocean with composite building of boats on solar power alone, we can have racing skiffs weighing less than 20 kilos, lesser wave making hulls, longer range, more stability and safety, less fuel consumption, and one can row the atlantic in compleate safety, and circumnavigate the world in a small boat in less than 60 days, not to mention that boats can now fly over water as in a hydrofoil system due to the light but strong composite constructions and new designs.

As the Local University has not got a towing tank, it was decided to invest in a test boat which could tow research models of various sea craft designs. Hence the

displacement hull was built to suit this purpose. It had

Privacy

displacement hull was built to suit this purpose. It had to be a low wave making hull so as not to interfere with the characteristics of the model being towed. Plywood cannot achieve complex three dimensional curves but only cones and cylinders. The designer must know his mathematics and geometry to achieve a particular predicted shape for a particular purpose. It is an interesting concept that the two boats were designed on a straight line basis and if one has a straight edge, one can check that all the curves are achieved with straight lines along the surface of cylinders and cones. It is a case of knowing your calculus and knowing that any curve can be looked upon as a multiple of straight lines along a surface, The student must look deep into this property when designing and it is not just a case of building a boat, there are various depths at which one must look into.

The students predicted the wave motion and wave shape when the boats are light or carrying a load, including the wave formation when the boats are running in shallow or deep waters. With the displacement hull, one is looking forward to prove a concept that displacement hulls float higher in the water when static than when in motion. This is because, the high bow wave due to pressure at the bows will occur at a zone where there is a low volume and under the wide centre of the hull, the wave created will cause the water to deplete, and at the stern the rear peak of the wave will occur close to the transom which has less displacement. The overall effect is that the boat will sink and finds itself climbing a hill of its own making. This hull will be used to prove that an economical hull is one which is not designed on a straight keel but one which has a rocker WHICH FITS EXACTLY IN THE WAVE THE BOAT ITSELF MAKES, where one may look upon this condition as a semi planning effect/situation. This resulting wave will have its peaks separated by approximately the length of the boat. This will have to be proved. Driving the boat at higher speeds will become very uneconomical, and this will prove that many local Maltese small traditional craft with over 20 horsepower is just a waste of time and money and fuel. So much for the 3 litre ISUZUs and TOYOTA diesels included in 16 foot boats!!!!

The planning boat hull was made of fibreglass, but no plug was first made and it was an ordeal to construct the mold ( some people write mould) directly WITHOUT A PLUG!!

Both boats had a limited budget and a limited time and I believe that both students did well to construct such boats in about one month!

Maltese Education will gain if each local school sponsors a boat like most European Universities and they compete against each others. Thus Olympic records are challenged, students develop a grinta for competing in the real world and new materials and new construction methods are developed. New vacuum infusion techniques, and using composite materials sandwiched between carbon fibre or fibreglass , are achieving unbelievable strength with less weight and the annual Cambridge and Oxford University skiff racing produces, not only new boat designs and technologies but the new leaders of tomorrow.

There is character in building a boat at University and I am not only referring to the dynamics and construction of the boat, I am referring to the formation of the students who will develop a personality that guarantees successful results and where the student does not need a teacher to judge him, but he will learn to judge himself by the performance of his own wares. Any university student must learn to float without his lecturers and his teachers and building a boat will give you all that , provided you do not miss the wood for the trees!

^ | v • Share >



**Victor Rodenas** • 11 years ago

Good job.Next time try doing a Maltese Kajjik or Fregatina made of wood.Today almost all boats are made of fiberglass ,making a wooden boat is a bigger challenge and in a few years time nobody will make them any more.The children of our children will have to go to The Maritime Museum to see the beauty of a wooden boat.

^ | v • Share >



**Jesmond Micallef Brown** → Victor Rodenas  
• 11 years ago

The traditional boat building techniques you talk about are still valid and will remain so because wooden boat building techniques offer no other alternative. Its very labour intensive, the tooling, the wood forming and cutting, rivetting and nailing and anyway wood requires alot of maintenance too after completion. The exercise here relates to a production technology and not to traditional boat building using wood.



In former times, cars had separate chassis onto which the engine, transmission, suspension and wheels, and the body work was mounted on. This form of automotive construction has now been quite successfully replaced by monocoque shell construction. The whole bodywork is thin sheetmetal formed and shaped in a very intelligent manner. The modern glass fibre boat is such a construction method and these students have taken this construction method one step further, ie that using a plugless mould.

May I congratulate these students here on thier accomplishment and hope that this innovative undertaking be successfully taken onboard by industry, not just by the local one (mind you it has potential) but also abroad.

^ | v • Share >



**D. A. Agius** • 11 years ago

It's fine that diverse projects are undertaken. The hope is that some of these projects actually do have an impact on local industry and deliver a return to the Maltese economy which sponsors their education.

Well done for projects, hope the effort put into them is used in future boat building in Malta.

^ | v • Share >

Sponsored



Sponsored

-67%	-63%	-62%
DARMOWA DOSTAWA		
3-380,31 zł	10	

AliExpress Official  
AliExpress

Privacy

