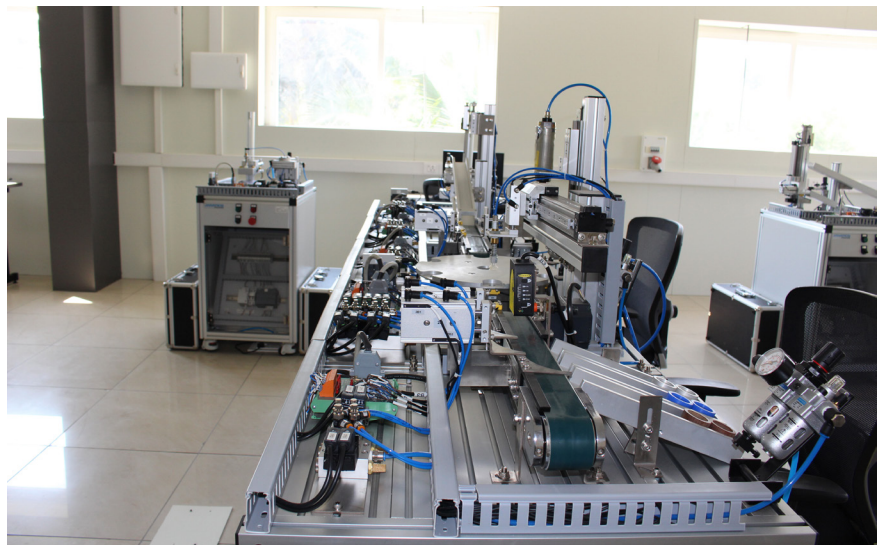


IRClass' Centre of Excellence in Maritime & Shipbuilding

Mr Arun Sharma, Executive Chairman of Indian Register of Shipping, tells *The Naval Architect* about a new initiative to establish India as a maritime educational hub

The Indian Register of Shipping (IRClass) first announced the formation of a 'Centre of Excellence in Maritime and Shipbuilding' (CEMS) in November last year, with a view to meeting the industry's demand to bridge the skills gap and upgrade the expertise of India's maritime and shipbuilding workforce.

One year on, the Centre of Excellence, in association with SagarMala, India's Ministry of Shipping and Siemens, has already made significant progress. CEMS is expected to be officially launched by the Hon. Prime Minister of India, Narendra Modi, in January 2019, with the unveiling of a range of state-of-the-art facilities spread across two strategically placed locations.



A workstation at the mechatronics lab at Visakhapatnam

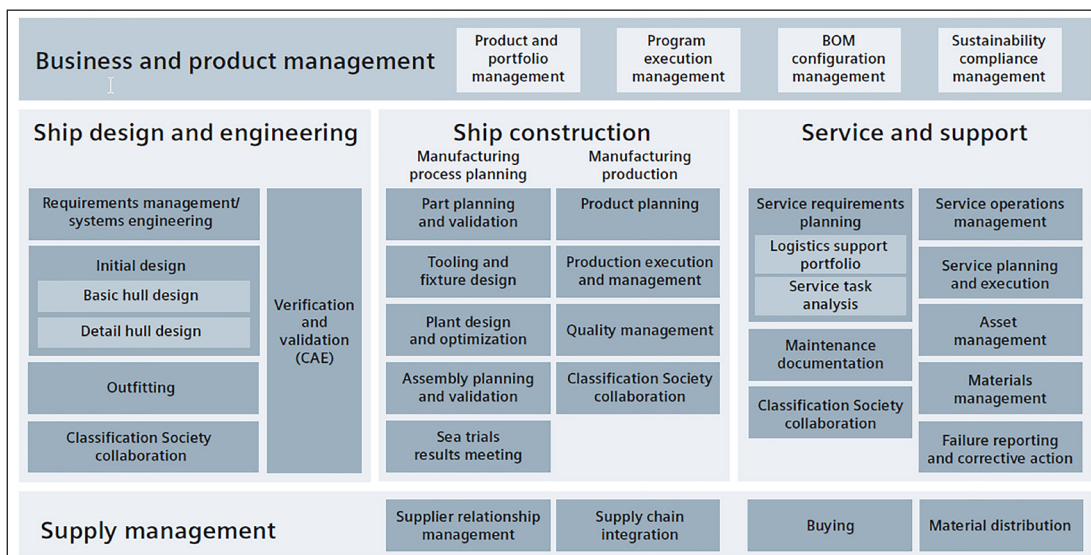
Launch of hi-tech labs

The Centre of Excellence has two campuses: one at IRClass's head office in Mumbai, and another situated within the Indian Maritime University (IMU) premises in Visakhapatnam, an important port and a major industrial hub on the east coast of India with several heavy and

allied industries, shipyards, and a naval dockyard. Fully equipped with the latest mechatronics and robotics technologies, the Visakhapatnam campus is set to have 18 world-class labs (see Table 1), while the Mumbai Centre will have a further six labs. Infrastructure and facilities for both

campuses are already in place and are now awaiting formal commissioning.

The Centre of Excellence provides 50 courses across 18 specialisations and will be covering 770 modules; of these, 270 will be algorithm-based, and the other 500 process and sector-based. With several colleges in the



PLM platforms will be a major focus at the new campuses' development impact area

vicinity, the Centre of Excellence intends to offer its courses for the benefit of students and professionals alike.

Reflecting the growing trend towards process optimisation, particular emphasis will be placed on Product Life Cycle Management (PLM) aspects, starting from ship design to the construction phase as well as lifetime maintenance support of the ship. Towards this end, there will be dedicated courses on a number of iterations of PLM software.

The overall framework of training at the CEMS will create general and specialist competencies in a multitude of areas: ship structure basic and detailed design, ship structure manufacturing, HVAC systems design, multi-discipline validation and simulation, digital shipyard optimisation, shipyard logistics, ship program and product management, hull assembly, supply chain management, 1D and 3D virtual and physical testing, ship building block analysis, nesting productivity improvement, hull design, CNC programming and machining, PLCs, HMI, SCADA, pneumatics and hydraulics, various types of welding technology, robotics, factory concepts like process instrumentation, electrical systems and energy saving methods, use of radar technologies, pump systems and piping systems.

Indian ship design and construction

The Indian shipbuilding industry is of strategic importance to the Indian economy and plays an important role in employment generation, development of manufacturing and related industries, and national security. The Government of India has thus set ambitious plans for the shipbuilding and ship repair industry in the country.

The marine industry worldwide is in transition and undergoing significant transformation, as even European shipbuilders begin to lose their market share to Asian countries. The changing international landscape, where external companies contribute 80% of value to shipbuilders, is increasingly concentrating on design and system integration. Challenges for survival have arisen, involving workforce skills, new design and the need to integrate suppliers and external parties. Consequently, there is

S.no	Laboratories
1	Product Design and Validation Lab
2	Advanced Manufacturing Lab
3	Test and Optimisation Lab
4	Dimensional Accuracy Control System Lab
5	Nesting - Productivity Improvement Lab
6	Hull - Design Lab
7	Research Machine Shop
8	Automation Lab
9	Mecatronics Lab
10	Welding Technology Lab
11	Robotics Lab
12	Process Instrumentation Lab
13	Electrical Lab
14	Pneumatic & Hydraulic Lab
15	Virtual Reality Lab
16	Pumps Training System Lab
17	Piping Training Systems Lab
18	Radar Training Lab

Table 1: The different labs at Visakhapatnam campus

increased focus by leading Indian shipyards on improving productivity, aligning operations, and optimising processes.

One of the issues the Centre of Excellence plans to tackle is the shortfall in the design of commercial ships in India for seagoing, coastal and inland waterways operation. Via the Centre of Excellence, Indian shipyards will be able to gain access to basic as well as detailed working designs for the production of vessels that are more relevant to today's market requirements. In addition, a study is planned to better understand market needs.

Skill development in the coastal region

Coastal economic development stands as one of the most important objectives. This will pave the way for societal development and livelihood creation through the cration of port-led ecosystems, developing industrial clusters through anchor manufacturing industries and most of all creating jobs through encouragement of entrepreneurship.

The creation of a conducive environment for industrial clusters and anchor industries to grow is very important to achieve the goals set forth. A holistic skill development framework executed to reach the

corners of the coastal economic regions becomes imminent to leverage the huge economic multipliers of ports, focus on early job creation and most of all minimise the time taken to realise economic benefits.

Such a skill development infrastructure would serve multiple purposes, namely to create a pre-fabricated ecosystem for investments in the coastal areas, bridge the skill gap of Rs2.84 Crore (US\$40 million) manpower required in the coastal states over various sectors and most of all, create livelihoods in the influence areas.

Socio-economic impact

The capacity of infrastructure of CEMS will be 10,512 trainees in one year. This holds immense potential for the country, the industry and people in coastal economic zones to up-skill and re-skill themselves at highly subsidised rates in relevant marketable technology for employment in shipbuilding and related industries. Skill development at CEMS will take the trainees to world class level in not only design but also in the manufacturing sector.

The international accreditation of courses offered in the Centre of Excellence would equip the students and working professionals with an opportunity to work in global shipbuilding and allied sectors. **NA**