

MEDIA RELEASE

For immediate release

Republic Polytechnic launches Industry Centre

New centre will serve as a hub to deepen industry collaboration; Students to benefit from specialised laboratories in fields including food manufacturing, Internet-of-Things and logistics

Singapore, 3 August 2016 – Republic Polytechnic (RP) today announced the official opening of the Republic Polytechnic Industry Centre (RPIC), a six-storey building that houses state-of-the-art laboratories and learning facilities to drive research, innovation and enterprise. With a gross floor area of over 11,000 square metres, the centre aims to deepen industry collaboration across a range of industries that include food manufacturing, hospitality, advance manufacturing and logistics, among others. It will be a learning hub for students, staff and industry professionals to develop skills that will better prepare them to meet future industry needs.

The Republic Polytechnic Industry Centre was officially launched by Assoc Prof Muhammad Faishal Ibrahim, Parliamentary Secretary, Ministry of Education & Ministry of Social and Family Development. Two new joint industry laboratories were also inaugurated today. The RP-Wilmar Innovation Centre is **the first joint food innovation centre between Wilmar International Limited (Wilmar) and a polytechnic.** RP will also be partnering McKinsey & Company to train company employees on Lean methodologies that can improve productivity in their own organisations, through the RP-McKinsey Productivity Lab for Lean Production and Services.

The polytechnic also inked a Memorandum of Understanding (MoU) with **Microsoft Singapore for the setup of a Smart Technology Exploration Lab** to support Singapore's Smart Nation initiative. The lab will house technologies and solutions to aid the development of skilled manpower in the areas of big data management, business analytics and sensor networks.

“In planning for the Republic Polytechnic Industry Centre, our vision was to create a conducive and vibrant learning environment for our students and staff to collaborate with the industry. We are excited at the array of opportunities available to RP, industry partners and companies to synergise capabilities in research and development projects, share knowledge and best practices, as well as access cutting-edge technologies and resources. The centre signifies our commitment to develop our students' skills with a strong industry focus, giving them an edge in the future industry landscape.” said Mr Yeo Li Pheow, Principal/Chief Executive Officer, Republic Polytechnic.

Republic Polytechnic and Wilmar lend R&D expertise to local food industry

The Republic Polytechnic-Wilmar Innovation Centre is a 400 square-metre facility comprising two key areas: a food application space equipped with food processing capabilities to facilitate R&D; and a food texture laboratory dedicated to the study of physical properties and behaviour of food products under specific conditions. A highlight of the Food Application space is the complete suite of chocolate making equipment, which includes a five-roll refiner, ball mill, chocolate conche, tempering machine, chocolate melters and a seven-metre cooling tunnel, currently the first and only such equipment available among the institutes of higher learning.

Small and Medium Enterprises (SMEs) can work on joint projects with Wilmar and RP, leveraging Wilmar's extensive capabilities in food ingredients and RP's expertise in functional food formulation to drive food innovation. Over 500 Pre-Employment Training (PET) applied science students, mainly those from the biotechnology food and nutrition specialisation track and at least 30 Continuing Education and Training (CET) adult learners studying nutrition and food science will be able to use the lab each year for hands-on learning and skills training through working on industry projects.

Wilmar's Chief Scientific Advisor, Professor Chua Nam-Hai, said, "As a Singapore-headquartered global agribusiness group, Wilmar is very excited to establish a food innovation centre in Republic Polytechnic. The centre will engage in research and development (R&D) work with a focus on developing novel ingredients and value-added product applications for the Asian food market. It will also serve as an interaction space for Wilmar and local SMEs to exchange ideas and knowledge and create technical solutions for the food industry to meet the evolving requirements of discerning customers."

Driving productivity through lean thinking at RP-McKinsey Productivity Lab for Lean Production and Services

Located within the RP's Supply Chain Innovation Lab, the RP-McKinsey lab's real-life factory set-up allows students and businesses to learn and implement the lean methodology in eliminating waste and driving greater productivity in the assembly process. Trainees will get to work with real industry products in an actual production environment, while applying performance-enhancing measures in the workflow.

About 100 students from RP's Specialist Diploma in Supply Chain Management and Part-Time Diploma in Engineering (Operations and Engineering Management) are expected to benefit from the lab each year.

"The lab will help students and business leaders build technical and managerial skills required to achieve and sustain operational excellence. In order to maintain economic growth, Singapore must increase its output per worker faster than its historic pace. Doing so will require organisations to rethink how they operate and derive value. Lean management is one of the most established and effective approaches to do this. Similar

to our capability centres in Munich and Atlanta, the Productivity Lab will provide hands-on learning in lean management to help participants transform their operations to be more efficient. The partnership underscores McKinsey's commitment to bring the best of the Firm's global expertise to Singapore," said Ms Diaan-Yi Lin, Managing Partner of McKinsey & Company in Singapore.

Republic Polytechnic and Microsoft Singapore to develop and test bed Smart Nation-related projects

The convergence of connectivity, cloud and mobile technologies have helped to create a shift towards the Internet of Things (IoT), which presents vast opportunities for governments and businesses to harness untapped data for actionable insights – especially in a world envisioned by Singapore's Smart Nation. Through an MoU signed today between Republic Polytechnic and Microsoft Singapore, both parties will collaborate on a Lab for Smart Technology Exploration, scheduled for completion in early 2017. This Lab will provide curriculum and facilities for RP students and staff to work together with Microsoft Singapore and its industry partners to test-bed IoT projects that will contribute to a Smart Nation.

The lab will also function as a think-tank for consultation on research ideas, technical issues, software support and industry contacts related to Smart Nation initiatives, and offer Microsoft Singapore CET courses for lifelong learning.

"Microsoft's mission is to empower every person and every organisation on the planet to achieve more. What matters to us is the local ingenuity that we have been able to foster together with the ecosystem here in Singapore. We thank Republic Polytechnic for the opportunity to continue on this journey through our collaboration on the Lab for Smart Technology Exploration to ready our workforce for tomorrow's smart economy – one that is increasingly digitized for networked intelligence as data and devices continue to proliferate. The opportunities presented to us to leverage the Internet of Things to reimagine how we work and play in a connected world envisioned by Singapore's Smart Nation vision is immense, and the possibilities that can be unlocked by the students will be without boundaries," said Ms Jessica Tan, Managing Director, Microsoft Singapore.

Other facilities in the RPIC include a Business Incubation Centre to facilitate students' entrepreneurial pursuits and industry-benchmarked training facilities to enhance authentic learning for students. They include an engineering design studio, a supply chain innovation lab, a sports engineering lab, a hotel lab, a training kitchen and restaurant, customer experience labs and a food formulation lab, among others.

To help students better understand the SkillsFuture movement and its impact on their future, RP is concurrently holding its first-ever SkillsFuture Fiesta from 2 to 8 August. The interactive event with exhibition booths will showcase SkillsFuture initiatives to drive home the importance of skills upgrading and encourage them to take ownership of their careers and lifelong learning.

About Republic Polytechnic

The first educational institution in Singapore to leverage the Problem-based Learning approach for all its diploma programmes, Republic Polytechnic (RP) has seven schools and one academic centre offering forty-one diplomas in Applied Science, Engineering, Management and Communication, Events and Hospitality, Infocomm, Sports, Health & Leisure, and Technology for the Arts.

Republic Polytechnic is committed to nurturing innovation and entrepreneurial learning in an environment that develops problem-solving skills and lifelong learning opportunities. Its holistic and broad-based curriculum prepares students for an active and meaningful role in society as problem solvers, respected professionals and passionate citizens.

Republic Polytechnic strives for excellence by achieving various international and national accreditations, including ISO 9001, ISO 14001, OHSAS 18001, ISO 22301, Singapore Quality Class, People Developer, Innovation Class, and Service Class

For more information, visit <http://www.rp.edu.sg>

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APPENDIX – FACT SHEET

Republic Polytechnic Industry Centre (RPIC) Architectural Write-up

The Republic Polytechnic Industry Centre (RPIC) is positioned at the west as a linear 6-storey building that links RP's Learning Hub (Pods, Agora, and Lawn) with the Admiralty Park. It also creates a strong and clear southern boundary to the Sports Complex.

This RPIC building also has a new landscaped courtyard to be shared and linked by covered walkway with the neighboring SIT@RP Building. This composition of new facilities is directly linked at ground level to the existing main RP campus via connecting covered walkways. Complete integration is established where the lower two floors will remain accessible to all students, visitors and the surrounding community, maximizing interaction and creating a new vibrant social environment.

The building has obtained the BCA's Green Mark Platinum Certification owing to several strategic measures being integrated into the design concept.

The new courtyard consists of matured transplanted trees, keeping the adjacent spaces cool. A green roof is planned over the Training Restaurant to help reduce the heat island effect. Similarly, the RPIC building features a green wall on the north along the soccer pitch as a louvered screen wall to reduce overall temperatures of the building

Details of RPIC

The Republic Polytechnic Industry Centre (RPIC) is a new 6-storey building with a gross floor area of 11,305 m² that houses laboratories and learning facilities to support Research, Innovation and Enterprise (RIE). The RPIC serves as a hub to enable closer collaboration with industry, with a slew of joint laboratories that provide students and staff opportunities to work on real-life innovative projects.

In addition, the RPIC is also envisioned to facilitate cross-disciplinary projects through leveraging the expertise of RP's different schools, creating a diverse RIE environment. The Business Incubation Centre in RPIC will further facilitate entrepreneurial activities and help in the commercialisation of RP's Intellectual Property (IP).

The following training laboratories provide students with real-world environments for realistic applied learning experiences:

<p>No. of Joint Labs in RPIC and SIT@building:</p>	<p>7</p> <p>RP-McKinsey Productivity Lab for Lean Production and Services</p> <p>RP-Microsoft Lab for Smart Technology Exploration</p> <p>RP-Wilmar Innovation Centre</p> <p>RP-Hexagon Manufacturing Intelligence Joint Lab</p> <p>RP-PSA Joint Lab</p> <p>RP-StarHub Data Analytics Lab (<i>tbc</i>)</p> <p>IoT Makerspace In Partnership with Element14</p>
<p>No. of Industry/research/teaching labs in RPIC and SIT@building:</p>	<p>16</p> <p><u>School of Applied Science</u></p> <p>Nu3 Lab</p> <p>Sericulture Lab</p> <p><u>School of Engineering</u></p> <p>Automation, Robotics and Machine Vision Lab</p> <p>Aircraft Electrical Systems Lab</p> <p>DREAM (Design for Reliability Engineering and Additive Manufacturing)</p> <p>Engineering Design Studio</p> <p>Rail Operations Management Lab</p> <p>Supply Chain Innovation Lab</p> <p><u>School of Sports, Health and Leisure</u></p> <p>Sports Engineering Lab</p> <p><u>School of Management and Communication</u></p> <p>Business Incubation Centre</p> <p>Business Ideation Space</p> <p><u>School of Hospitality</u></p> <p>Customer Experience Laboratories</p> <ul style="list-style-type: none"> • Collaboratory: Contact Centre learning lab

	<ul style="list-style-type: none"> • Customer Relationship Management Lab • Retail Laboratory (Retail Unlimited) <p>9th Avenue Training Restaurant and Kitchen</p> <p>Hotel Experiential Lab</p> <p><u>Others</u></p> <p>Digital Healthcare Cluster Lab</p> <p>Sustainable Urban Solutions Cluster Lab</p>
No. of classrooms in RPIC:	11
No. of Smart learning labs in RPIC:	4 (iLearn, IAchieve, iDiscover and iTransform)

Brief write-ups or fact sheets on select labs in the RPIC are available below:

1) **RP-Wilmar Innovation Centre**

The **RP-Wilmar Innovation Centre** will support the growing needs of the food manufacturing industry in creating new and improved products. **This is the first joint food innovation centre between a polytechnic and Wilmar International, a global agribusiness group.** Wilmar’s extensive capabilities and knowledge in food ingredients (such as specialty fats), along with RP’s expertise in functional food formulation, will allow food Small and Medium Enterprises (SMEs) to leverage on these joint capabilities to drive food innovation. The various food processing and R&D capabilities, along with contribution from both local and overseas industry experts from Wilmar at the facility, will also provide an avenue for RP to deliver an authentic hands-on learning experience for RP’s applied science students.

Key Features

The 400-square-metre state-of-the-art facility comprises two key areas; 1) a food application space with dedicated hot and cold areas, and 2) a food texture laboratory. It also includes an office space to facilitate discussions and exchange of ideas for food. Students will be able to benefit from the hands-on and authentic learning experience.

Food Application Space

The Food Application space is an area dedicated to facilitate innovation and showcase food products resulting from the R&D efforts by Wilmar and RP. It is fully equipped with food processing capabilities relevant to the industry. **A highlight of this space would be the complete series of chocolate making equipment, which includes a 5-roll refiner, ball mill, chocolate conche, tempering machine, chocolate melters and a seven-metre cooling tunnel, which is currently the first and only such capability available among the institutes of higher learning.** Other facilities within this space include deck and combi ovens, climate chambers, table top dough sheeter, bread slicer, plug-and-play mobile cooking station, blast and chest freezers, and an ice cream making machine & pasteurizer to provide a complete suite of baking, frying and cold confectionery applications.

Food Texture Laboratory

The Food Texture laboratory is an area that enables staff and students to conduct detailed studies relating to the physical properties and behaviour of food products under specific conditions (eg: texture, heat flow and rheological profile). R&D capabilities in this section include a Texture Analyser for studying textural properties of food, a Differential Scanning Calorimeter (DSC) for studying the behaviour of food during heating and cooling processes, and a Rheometer for studying the flow and other rheological properties of fluids.

Contribution to skill-based learning for RP students

This facility will provide an avenue for RP's applied science students, especially those from the Diploma in Biotechnology on the Food and Nutrition track to experience authentic hands-on learning through laboratory practical and demo sessions in the teaching curriculum, as well as industry-commissioned Final Year Projects. The innovation centre will also be able to support training for adult learners seeking skills upgrading opportunities through RP's Continuing Education Training (CET) part-time Diploma in Applied Science (Nutrition and Food Science) programme. Through this collaborative effort, Wilmar experts will be available to share their views and current trends in the industry to benefit the learning of both staff and students in RP's School of Applied Science.

Contribution to business development and growth of local food SMEs

Wilmar's extensive capabilities and knowledge in food ingredients (such as specialty fats), along with RP's expertise in functional food formulation, will allow food Small and Medium Enterprises (SMEs) to leverage on these joint capabilities to drive food innovation. Food SMEs can look forward to joint projects with Wilmar, as well as staff and students of RP in the development of innovative food products which are healthier, more nutritious and tasty. This will in turn benefit local consumers through the availability of more value-added food products to be introduced to the market. Additionally, food SMEs can also consult experts from Wilmar and RP to look into improvements to their food formulation and processing parameters, which will in turn enhance their productivity and increase their capabilities in exporting their food products to overseas markets, which are in line with SPRING Singapore's focus to promote business growth and development of local enterprises.

2) RP-McKinsey Productivity Lab for Lean Production and Services

Located within the Supply Chain Innovation Lab, the RP-McKinsey Productivity Lab provides an out-of-the-box lean manufacturing model factory environment with real products such as pneumatic cylinders. The lab is set up for the end-to-end production of a pneumatic cylinder with a machining centre and an assembly line with 8 work stations, from raw materials to quality-tested products.

Learning objectives:

- Use of Lean methodology to enhance productivity through the systematic elimination of waste
- Experiential learning in a lab environment, allowing participants to learn in a stable and risk-free environment

Lab features:

- Trainees will observe a non-optimized work flow at the beginning of the training
- Step by step, trainees will learn and apply performance improvement measures in the work flow
- Final target state is a fully optimized work flow with nearly 100% productivity increase and 50% reduction in inventory and required space

Each workshop session will be conducted with 10 to 12 participants, and around 100 participants are expected to benefit from the lab each year. Participants would include company employees and adult learners from CET courses such as RP's Specialist Diploma in Supply Chain Management and Part-Time Diploma in Engineering (Operations and Engineering Management).

3) Supply Chain Innovation Lab

This is a purpose-built distribution centre featuring the latest integrated solutions for supply chain and logistics management. It is the region's first fully-automated applied learning facility featuring a driverless forklift working in tandem with an automatic picking system and robotic arm. The lab simulates a realistic environment of an industry-benchmarked distribution centre, providing students and staff applied learning and research possibilities.

The Supply Chain Innovation Lab also presents Small and Medium Enterprises (SMEs) with new opportunities to partner RP's Centre of Innovation for Supply Chain Management (COI-SCM) to develop and testbed new logistics solutions and technologies to improve cost competitiveness, productivity and create new value for customers.

A 50 pax amphitheatre provides learning space for seminars, training and interactive sessions. This enables an integration of both theoretical and practical delivery of the curriculum under one roof.

4) RP-Microsoft Lab for Smart Technology Exploration

RP inked a Memorandum of Understanding (MoU) with Microsoft at the opening of the RPIC to announce the lab, which is expected to be ready by early 2017. The joint lab aims to fulfil the following functions:

- A "think tank" to provide advice on research ideas, technical issues, software support and industry contacts in relation to Smart Nation.
- A location to conduct Microsoft related Continuing Education and Training (CET) courses;
- A location in the RPIC R&D ecosystem for IOT-related student or staff projects, done either with Microsoft or Microsoft's partners; and
- A showcase area to display prominent Smart Nation test-bed projects.

5) Engineering Design Studio

The Engineering Design Studio is a one-stop facility for students and staff to actualise their ideas and designs through the design process. It will integrate design thinking and engineering principles with a hands-on, prototyping approach in dedicated spaces and features, supported by up-to-date equipment and technology. RP students will discover new product opportunities and be able to bring their ideas to life in a supportive environment.

Dedicated spaces are incorporated in the design studio for each stage of the design process, comprising: Ideation, Imagineering, Prototyping, Fabrication and Actualization. Consequently, students are able to realize their ideas and designs via multimedia presentations in the Engineering Design Studio.

6) Sports Engineering Lab

The sports engineering lab is a dedicated space of 270 square-metres that allows staff and students to conduct tests in similar conditions to the actual performance of an athlete and measure biomechanical variables to evaluate actual performance. The new facility will help increase the School of Sports, Health and Leisure's repertoire of ecologically-valid human performance activities.

Some of the equipment that will be available are: Force plate, pressure mat, isokinetic dynamometer, EMG, motion capture system etc. which are all commonly used in the industry. More importantly, the new equipment will enhance RP's capabilities in conducting more experiments incorporating the latest testing methodologies that can lead to specialised end-to-end empirical evaluative solutions that can be published in international peer-reviewed scientific journals. Such information is not commonly available in the sports science industry.

The sports engineering lab will also be an integral platform for students in the Diploma in Sports and Exercise Sciences to incorporate theoretical concepts taught in class to actual practical situations.

7) Customer Experience Laboratories

The Customer Experience Laboratories will be used predominantly by students from the School of Hospitality who are taking the following three modules under the Diploma in Customer Experience Management with Business:

- Contact Centre Operations
- Customer Relationship Management
- Retail Management

Each lab for the respective modules has its own unique set-up to provide learning environments that match up to industry standards for each discipline.

Contact Centre Learning Laboratory

Collaboratory, the Contact Centre Learning Laboratory is a 110 m² space that will allow students undertaking the module on H304 Contact Centre Operations to learn contact centre management skills in a simulated industry environment.

The 26-seat laboratory is specially designed with flexible workstations to cater to a variety of learning methodologies adopted by the module, such as call simulations, practical exercises, interactive lectures and group discussions.

H304 Contact Centre Operations is a specialisation module offered to Year 3 students in the Customer Experience track of the Diploma in Customer Experience Management with Business (DCXB). This module aims to equip students with the knowledge, skills and tools to manage customer needs and interactions in the operation management of contact centres.

With the introduction of Collaboratory, students can look forward to a deepening of skills and authentic learning experience that emulates the standards and practices in the industry.

Customer Relationship Management Laboratory

H204 Customer Relationship Management (CRM) is a module taken by Year two students from the Diploma in Customer Experience Management with Business (DCXB) and Diploma in Integrated Events Management (DIEM). Students undertaking the module H204 CRM will be the main users of the CRM Laboratory.

The CRM Laboratory is approximately 300m² and able to accommodate up to three classes of students at any one time. The area is segregated into three zones – **AmPower**, **Zoom** and **Prestige** with each zone featuring its own unique set up. This will allow students to envision the application of CRM strategies through different operational fronts and customer interactions such as partial self-service interactions, transactional-based interactions and high customer involvement interactions.

Students will be using the CRM system together with a customer web portal and Q-system which are some operational tools used by the industry to manage customer experiences as well as nurture relationships.

In today's competitive marketplace, managing customer relationships is critical to a company's profitability and long term success. This module is designed to equip students with the skills to strategically manage customers as well as foster greater customer intimacy and loyalty. With the CRM Laboratory students can look forward to acquiring CRM skills in an environment that simulates industry settings for CRM on the operational front. The use of the CRM laboratory will facilitate several learning methodologies such as role playing, cognitive apprenticeship, interactive lectures and group discussions.

Retail Laboratory

Retail Unlimited is a realistic environment that was created by working with partners ASICS, Cumulus Nimbus, ZA and Ma Cherie. It is designed to provide students from the Diploma in Customer Experience Management with Business with practical skills and knowledge in the development and management of retail strategies.

The laboratory marks an inaugural collaboration between our partners and Republic Polytechnic. From planning to execution, deliberate steps were taken to align to industry standards. The 110m² shop-in-shop concept comprises Beauty, Lifestyle and Sports categories. The Beauty section is modelled after the stores of ZA and Ma Cherie, cosmetics and haircare brands under Shiseido. Cumulus Nimbus, part of Known Group, contributes to the contemporary touch in the lifestyle category. The Sports section is a replica of the ASICS shop.

The technology-enabled laboratory is equipped with Octopus, an integrated retail POS system that is accessible by computers, tablets and smart devices. The integrated system also provides inventory management and analytics capabilities. SenSource, a foot counter is mounted on the ceiling to record traffic data. Students will use these statistics to perform customer analysis.

With the introduction of Retail Unlimited, students will be exposed to the various hardware and software applications used in the retail industry and have hands-on sessions with these applications. They will also gain knowledge and develop practical skills required for the retail industry such as visual merchandising and merchandise management.

8) 9th Avenue Training Restaurant

9th Avenue is named after the polytechnic's address, 9 Woodlands Ave 9, and adds to the School of Hospitality's suite of training kitchens and restaurants. It is situated on a mezzanine level and features a rustic, cozy and relaxed urban atmosphere. The restaurant covers a total floor space of 305 m², offers seating for 60 guests and is open for lunch to both public and campus staff.

9th Avenue aims to expose students to preparing a wide range of cuisines from different parts of the world, guided by instructors with immense industry knowledge and experience.

At the 9th Avenue, the objective is to impart and allow students to experience working with natural produce and develop confidence interacting with guests. Through this exposure it also allows the students to learn and understand about other customs and culture through the preparation and service of different menu dishes.

Highlights of RPIC resources and facilities

THE NEW REPUBLIC POLYTECHNIC INDUSTRY CENTRE (RPIC)
Officially opened on 3 August 2016



Supply Chain Innovation Lab
RP-McKinsey Productivity Lab for Lean Production and Services
Sport Engineering Lab
RP-Hexagon Manufacturing Intelligence Joint Lab
 RPIC Level 2

RP-Wilmar Innovation Centre
 SIT@Building Level 5

Nu3 Lab
Sericulture Lab
Hotel Experiential Lab
 SIT@Building Level 4

9th ave. Training Restaurant and Kitchen
Technology Showcase
 SIT@Building Level 3

RP-Microsoft Lab for Smart Technology Exploration
RP-StarHub Data Analytics Lab
IoT Makerspace In Partnership with Element14
Digital Healthcare Cluster Lab
Sustainable Urban Solutions Cluster Lab
Business Incubation Centre
Centre of Innovation for Supply Chain Management
Office of Technology Development
 RPIC Level 6

Engineering Design Studio
RP-PSA Joint Lab
Automation, Robotics and Machine Vision Lab
Rail Operation Management Lab
 RPIC Level 4

Customer Experience Labs
Collaboratory: Contact
Centre Learning Lab
Exhibition Training Lab
 RPIC Level 3

