



**Enablity** | Enabling People with Special Needs through Technology  
International Specialist Enrichment Program 2019





مؤسسة عبدالمنعم الرشيد الإنسانية  
Abdulmonem Alrashed Humanitarian Foundation

## Abdulmonem Alrashed Humanitarian Foundation

A registered and supportive charity in the Ministry of Labor and Social Development that works on social and educational services through a qualified team. It has several initiatives and Fablab Alahsa is one of its initiatives.



## Fablab Alahsa

Fablab is a digital fabrication lab, set up to inspire people and entrepreneurs to turn their ideas into new products and prototypes by giving them access to a range of advanced digital manufacturing technology. Fablab Alahsa is the 1st digital fabrication lab in Alahsa, it has a various number of CNC - Computer Numerical Control- machines including 3D Printers, Laser Cutting Machines and Milling Machines. Moreover, it has a specialized zone for Electronics and Arduino.



## Program

You might be wondering about the name of the program **Enablity** and think that there is a typo with this name. Well, there is no typo and this name is intended. Let's us tell you about where we got this name from:

Usually the word **Disability** is used most of the time when talking about People with **Special Needs**. However, we think that this is not true, and this special need is not a thing that can disable someone. So, we thought about the following:

The word **Disability** and the word **Enable**, let's try and erase the prefix **Dis** from the first word **Disability**, we got **ability**! Now let's try to add **Enable** to the new word **Enable-ability**. With a little magic **Enableability**, let's finalize it: **Enablity**. Now we got **Enablity**! You got it, right?

During this program we will be working on projects that can help people with special needs, and you will do that at Fablab Alahsa.



ENABLITY

**Enabling People with Special Needs  
through Technology**

## Participants from Saudi Arabia



### English Name

RAYAN ABDULLAH ALHARB  
MOHAMMED KHALED ALMARZUQI  
MESHREF SULTAN AL GHAMDI  
ALSHEHRI, HATEM MOSAED  
MOHAMMED MUTAB ALOTAIBI  
ALOTAIBI, TALAL ABDULLAH  
ABDULLAH FAISAL ALYOUSIF  
ABDULLAH YASER DAHLAN  
FAISAL AWAD ALBARIQI  
ALHAQBANI, FAISAL KHALID  
ALI MOHAMED ALALI  
AHMED TAWIFQ ALMESHAL  
MOHAMED ABDULKHALEQ ALSALMAN  
ABDULLAH ABDULWAHAB ALETHAN  
MOHAMED AHMED BO HOLIQA

### اسم الطالب بالعربية

ريان عبد الله الحربي  
محمد خالد المرزوقي  
مشرف سلطان الغامدي  
حاتم مساعد الشهري  
محمد متعب العتيبي  
طلال عبد الله العتيبي  
عبد الله فيصل اليوسف  
عبد الله ياسر دحلان  
فيصل عوض البارقي  
فيصل خالد الحقباني  
علي محمد العلي  
أحمد توفيق المشعل  
محمد عبدالخالق السلطان  
عبدالله إبراهيم العيثان  
محمد أحمد بوطيقه

### الإدارة التعليمية

حفر الباطن  
عنيزة  
الباحة  
تبوك  
الدوادمي  
الشرقية  
جدة  
مكة المكرمة  
الرياض  
الخرج  
الأحساء  
الأحساء  
الأحساء  
الأحساء  
الأحساء



## Participants from Taiwan



### English Name

Liu, Jun-Wei

LEE, LI-AN

Huang YunChien

TENG,YUN-FEI

Shao-Chun Ho

Wen-Chieh Lo

LIN, CHIA-KANG

CHIA-WEI, CHEN

RUI-TING HUNG

KE-YING, TSAI

WANG,YU-CHENG

Chen-Jui, Tsao

FAN, JHAO-WEI

Hung-Shiang Tsai

WU, TSUNG-HAN

### Chinese Name

劉峻瑋

李立安

黃允謙

滕雲飛

何紹群

羅文韻

林家康

陳家葦

洪睿廷

蔡科穎

王昱宸

曹宸睿

范釗維

蔡弘祥

吳宗翰



## Program Details

### Innovation and Entrepreneurship

An introduction to **Entrepreneurship** will help participants to understand how to start and design a new business. Then they will be trained on **Business Model** in which they will learn how to identify the services of the business, the target customers and the expenses. These two concepts will help the trainees to design their project in an efficient and practical way.

## Machines Basics

In this part, trainees will be trained on selected machines and tools. They will learn how to deal with both hardware and software of each of the following machines and tools:

- 3D Printing
- Laser Cutting
- Electronics & Arduino



The 30 participants will be divided into 3 Groups with 10 students in each group. Each group then will be introduced to one of the mentioned topics above.

After the Machines Basics session ends, these 3 groups will be divided into 5 groups, as such, each group will have 2 participants from every topic.

## **Project Implementation**

Each one of the 5 groups will pick a problem that people with special needs face in the real world and they will work on it find a solution through a project using the machines they were trained on under the supervision of the technical team that will provide support and help during the program.

## **Projects Submission**

Participants will be asked to finalize their work and submit their projects and prepare for the project presentation along with the demo of the project.

## **Projects Evaluation**

A team of engineers and specialists will evaluate each project with respect to certain criteria.



FAB LAB  
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مركز لتعليم الإلكتروني والابتكار

مركز لتعليم الإلكتروني والابتكار  
آلافاب للابتكار



RC522 RFID Module

## Prizes

After the judges finish the evaluation, they will announce the winning teams of the following:

- Best Project Design
- Best Teamwork

## Honoring & Closing Ceremony

At the end of the program the participants will be invited for the honoring & closing ceremony in which the winning teams will be announced.

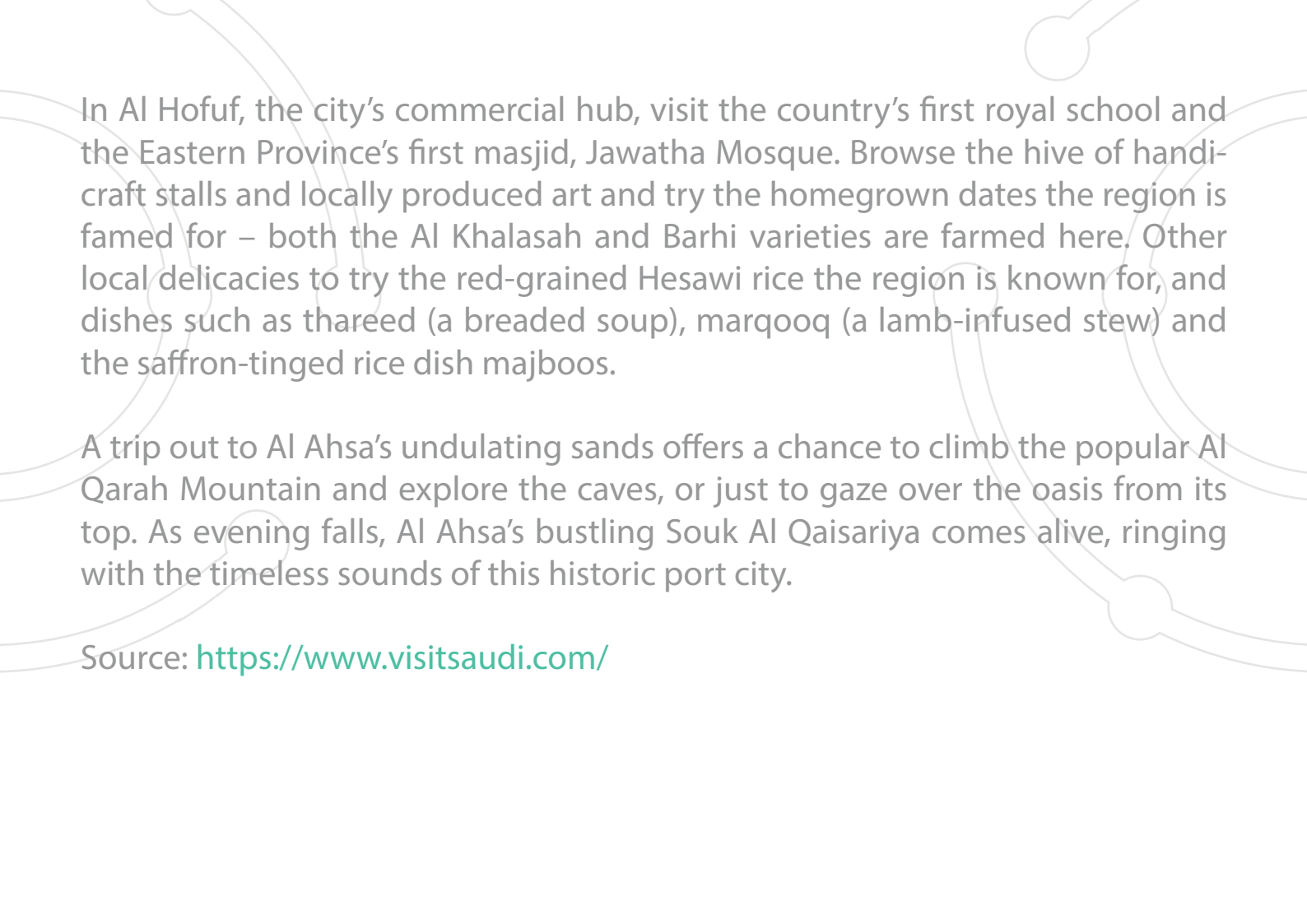
## Enrichment Visits:

### Al Ahsa

For thousand years, this region was a hub for traders and caravans crossing the region's ancient trade routes, forging links across the Arabian Peninsula and beyond.

Now a UNESCO world heritage site – a nod to the city's many archaeological landmarks, which show traces of human settlement all the way back to the Neolithic period – Al Ahsa Oasis is rapidly gaining appeal as one of Saudi Arabia's most captivating tourist destinations.

A visit to Al Ahsa Oasis offers an entry to an amazing world of greenery, sand-toned hamlets, vibrant markets and evocative historical sites. Tour its network of artesian springs, wells and canals, which pump water into the surrounding farmland.



In Al Hofuf, the city's commercial hub, visit the country's first royal school and the Eastern Province's first masjid, Jawatha Mosque. Browse the hive of handi-craft stalls and locally produced art and try the homegrown dates the region is famed for – both the Al Khalasah and Barhi varieties are farmed here. Other local delicacies to try the red-grained Hesawi rice the region is known for, and dishes such as thareed (a breaded soup), marqooq (a lamb-infused stew) and the saffron-tinged rice dish majboos.

A trip out to Al Ahsa's undulating sands offers a chance to climb the popular Al Qarah Mountain and explore the caves, or just to gaze over the oasis from its top. As evening falls, Al Ahsa's bustling Souk Al Qaisariya comes alive, ringing with the timeless sounds of this historic port city.

Source: <https://www.visitsaudi.com/>





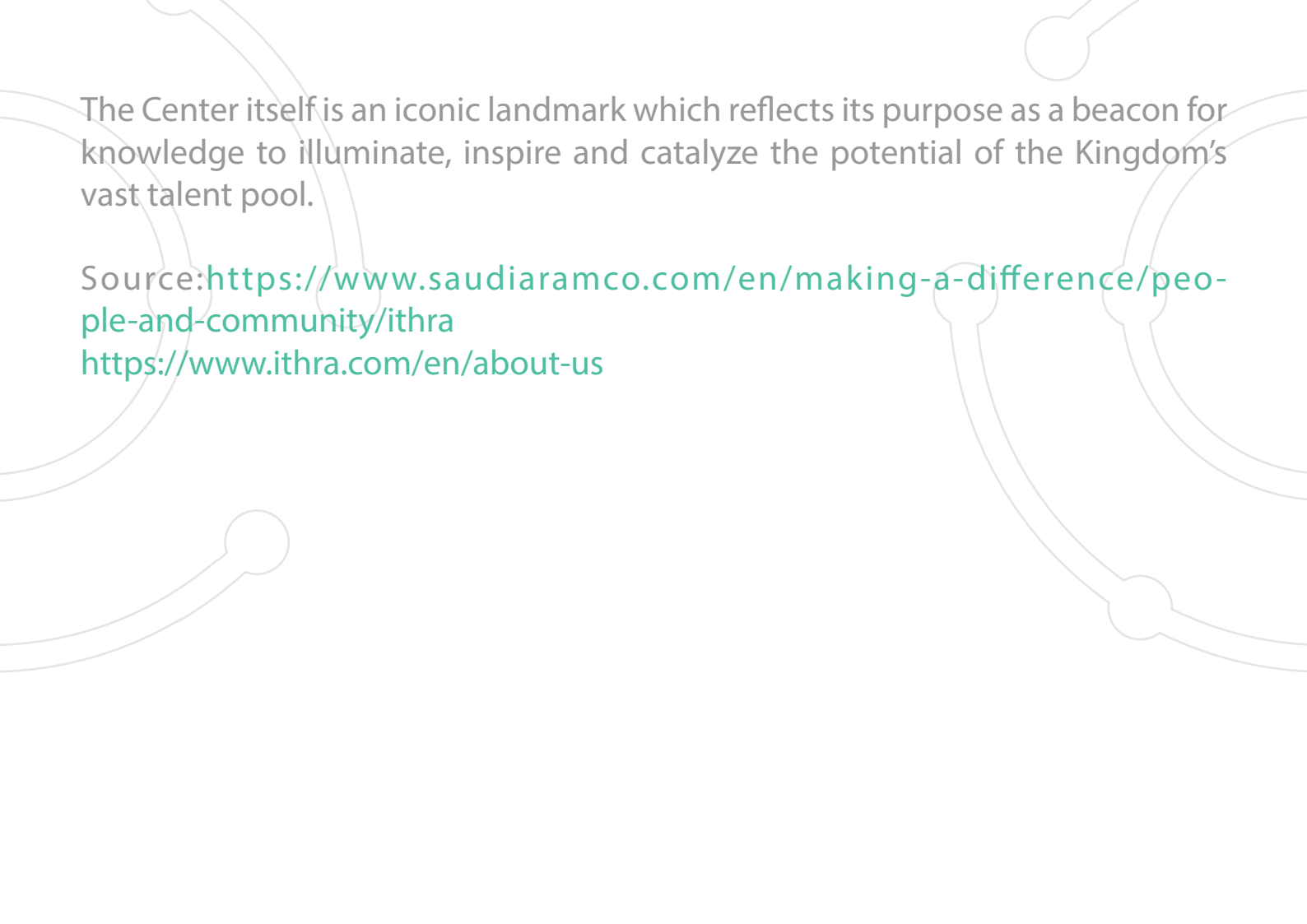
## King Abdulaziz Center for World Culture – Ithra

The world is evolving, transforming and changing, and Saudi Arabia is changing at an even more rapid pace. At the King Abdulaziz Center for World Culture (Ithra)

The new Center, also known as iThra, the Arabic word for 'enrichment' — promises a continuous journey of enrichment, using science, innovation, arts and culture to inspire creativity and a love of learning, helping to transform Saudi Arabia into a knowledge economy. We see human potential as the greatest source of change. That's why we are focused on accelerating that potential through encouraging creativity, inspiring minds, and empowering talent.

Ithra is an all-purpose cultural destination with an environment for transformative experiences to unlock the power of potential through mastery in arts, science, literature and innovation.

The facilities include Idea Lab, Library, Ithra Theater, Cinema, Museum, Children's Museum, Energy Exhibit, Archives, The Great Hall and The Knowledge Tower, all which are housed to provide visitors an immersive and transformative experience.



The Center itself is an iconic landmark which reflects its purpose as a beacon for knowledge to illuminate, inspire and catalyze the potential of the Kingdom's vast talent pool.

Source: <https://www.saudiaramco.com/en/making-a-difference/people-and-community/ithra>  
<https://www.ithra.com/en/about-us>



## **Shaybah – The Most Remote Treasure on Earth**

By 1998, with endurance, commitment, and determination, Saudi Aramco overcame tremendous obstacles, and completed the project a whole year ahead of schedule. It took a colossal 50 million man-hours to do so. Project Shaybah still recall the spine-tingling excitement the team felt waiting for the first few drops of oil to reach the facility. These first few drops turned into half a million barrels of oil per day, enough to supply 10 million households.

## **The Oil Field Expansion Project**

Sophisticated reservoir modelling meant Saudi Aramco could optimize the development of the oil fields. The first phase of our Oil Field Expansion Project raised production to three quarters of a million barrels of high-value AXL crude oil per day, by 2009. But with ever higher ambitions, in 2016 they boosted production by a further 250,000 barrels, raising Shaybah's total production capacity to one million barrels per day - double the initial capacity.

## The Natural Gas Liquids (NGL) Recovery Project

Saudi Aramco aimed to reduce the use of liquid fuel for power generation in the Kingdom and instead use natural gas as a more efficient energy source that produced less emissions. Therefore, they added a 2.4 billion standard cubic feet per day (Bscfd) Natural Gas Liquids recovery plant, providing large volumes of ethane, critical for industrial development, as well as other NGLs. They also conducted a major upgrade to boost power generation capacity from cogeneration to more than one gigawatt.

Given the role Shaybah was to play in meeting growing feedstock demand, this project opened a new era for the Kingdom's chemicals industry.

Source:

<https://www.saudiamco.com/en/who-we-are/mega-projects/shaybah>





# Detailed Timetable

Date / Time		9:00 AM – 12:00 AM	12:00 AM – 1:30 PM	1:30 PM – 3:30 PM	3:30 PM – 4:00 PM	4:00 PM – 6:00 PM
Sunday	20-Oct-19	Welcoming Participants				
Monday	21-Oct-19	Fablab Tour	Lunch Break	Innovation & Entrepreneurship	Break	Machines Basics
		Innovation & Entrepreneurship				
Tuesday	22-Oct-19	Innovation & Entrepreneurship		Machines Basics		Machines Basics
Wednesday	23-Oct-19	Project Implementation		Project Implementation		Project Implementation
Thursday	24-Oct-19	Project Implementation		Project Implementation		Project Implementation
Friday	25-Oct-19	Enrichment Visits in Alahsa				
Saturday	26-Oct-19	Visit to King Abdulaziz Center for World Culture – Ithra in Dhahran				
Sunday	27-Oct-19	Field Trip to Shaybah Field - Saudi Aramco				
Monday	28-Oct-19	Innovation & Entrepreneurship	Lunch Break	Project Implementation	Break	Project Implementation
Tuesday	29-Oct-19	Innovation & Entrepreneurship		Project Implementation		Projects Presentation & Demo
Tuesday	30-Oct-19	Projects Evaluation	Honoring & Closing Ceremony			

Some enrichment activities might be held in some days of the program after 6:00 PM



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