Final Year Project Showcase Batch-2017
Year 2021

Department: Physics Programme: Applied Physics		
1	**Project Idea**	**Utilization of Ion Exchange Membrane for Caustic Recovery from Industrial Waste/Water**
2	**Process**	Electrodylasis by using Ion Exchange Membrane (IEM).
3	**Outcome**	Recovery of caustic from waste water
4	**Evidence (Theoretical Basis)**	Electrodialysis is a membrane procedure that removes charged chemicals from a feed solution using a difference in electrical potential across a membrane stack.
5	**Competitive Advantage or Unique Selling Proposition** (Cost Reduction, Process improvement, Attainment of any SDG (Sustainable Development Goal), increase of market share or capturing new market or having superior performance over a competitor. In summary, any striking aspect of the project that compels the industry to invest in FYP or purchase it. Some detailed description is required in terms of how, why when what. You can select one or more from the following dropdown and delete the rest of them). Please keep relevant options, delete the rest of them, and correct the sequence	
a	**Cost Reduction of Existing Product**	With energy cost rising and environmental issues deteriorating, the challenge currently lies in the development of dynamic innovations for waste treatment and waste recycling by cost effective and environmentally friendly method. Ion Exchange Membranes (IEMs) have drawn much attention regarding accomplishing the energy task and to ease climate related issues by its wide-running applications from drugs to waste treatment.
b	**Process Improvement which Leads to Superior Product or Cost Reduction, Efficiency Improvement of the Whole Process** (e.g. What is the issue is current process and what improvement you suggests)	8% efficiency is achieved with stack having single layer of ion exchange membrane. This may be increase by using multiple IEM.
c	**Attainment of any SDG** (e.g. How it is achieved and why it is necessary for the region)	**SDG#13, Climate Action & SDG#15, Life on Land** These layers(IEM) have discovered little application in Pakistan because of its significant expense. We have combined these techniques with sustainable development goals. Curent project is intended to design a prototype for the application of waste recycling and treatment
d	**Expanding of Market share** (e.g. how it expand and what is the problem with the current market	This product quit expensive and not avaible in local markets. So this will provide industry an advantage of not only to treat the industrial waste but also obtain caustic from the waste.
e	**Capture New Market** (e.g. Niche market or unaddressed segment)	We need to introduce the product in the market for industries producing murtarizing waste
f	**Any Environmental Aspect** (e.g. carbon reduction, energy-efficient, etc.)	This product will save marine life by processing industrial waste containing acidic contant.
g	**Any Other Aspect**	

6	**Target Market** (Industries, Groups, Individuals, Families, Students, etc) Please provide some detail about the end-user of the product, process, or service	Textile industries, Chemical industries and Pharmaceutical industries will be prime user of this product.
7	**Team Members** (Names & Roll No.)	Muhammad Shahrukh (AP-040) Syed Hamza Shariq (AP-031) Syed Hamid Hussain (AP-301)
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