

Narayan Dash (India)

Narayan is a welding instructor at the Government Industrial Training Institute (ITI) in Berhampur. He has been training students for nine years and has received felicitations by Dr Rajat Kumar Panigrahy, Principal, ITI Berhampur for various fabrication works.

As part of the learning experiences at the ITI, giving students an understanding and awareness of the need for adoption of renewable energy is undertaken. One method used by Narayan is by the use of welded art and Narayan has used this approach to show the benefits of installing a solar tree.

A solar tree complements rooftop solar systems or other green initiatives and can enthruse the use of solar technology particularly since the energy produced by a solar tree can be more than an array of solar cells.

Solar trees are a new innovative way to generate solar energy. They are essentially artificial trees with solar panels attached to their branches and can be used to provide electricity for individual homes, businesses or even entire communities.

Contact Info

Email: dash.narayan88@gmail.com



Exhibit "Solar Tree"

Fabrication of the structure of the solar tree involved welding scrap GI metal plumbing pipes generated during the demolition of buildings. Sheet metal from scrapped bathroom doors, TMT bars from RCC structure together created a strong and stable structure. The solar panels were then attached to the branches of the Solar Tree and wired together for a complete electrical circuit to generate the green and renewable energy. A 2KW system was created with 12 solar panels.

Mild steel round bar and pipe, GI sheet, solar panels, battery and wiring cables were the key components.

Dimensions of Exhibit

3.35m high x 2.43m wide, weight 220 kg



Solar Tree
Narayan Dash

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Upcycling of Scraps from Technical Institutes: A Case Study—Govt. Industrial Training Institute Berhampur

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Waste Management as Economic Industry Towards Circular Economy

Rajat Kumar Panigrahy

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Abstract

Govt. ITI Berhampur having 3600 students is one of the largest ITIs in the country. The trainees of the ITI developed this innovative method of Upcycling of scrap by managing waste beyond skill development. An integration of skilling under Skill India Mission and Swachh Bharat to make the environment clean, green and safe from the iron/aluminum /electronic/automobile scraps that are released and left out during their regular training practice creating the environment hazardous is the most desired need of the hour. Normally, in a technical training institute, the trainees go for filing/drilling turning chipping practices which generate various kinds of iron scraps. Also, electrician/electronic trainees produce scrap from PVC wire/electronic component and waste PCBs. Automobile trainees leave the discarded spare parts from two wheelers and four wheeler scrap. Around 1000 kg of scrap is produced during the training session at Govt. ITI Berhampur in every semester. Some iron-dust mixes with the soil and is washed off in the rainwater creating water pollution and soil pollution as well. Transporting these items to the dumping

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Bichitra Kumar Padhiary Team Leader, ITI, Berhampur (India)

He entered the IWI India National Competition for "Welded Marvels 2022 – Project Trash to Treasure" and with his exhibit "Mahatma Gandhi" he was awarded first prize. He has also received felicitations from Dr. Rajat Kumar Panigrahy, Principal, Govt. ITI, Berhampur and appreciation from Smt. Usha Padhee, Principal Secretary, Skill Development and Technical Education Department, Govt. of Odisha and appreciated by Ministry of Skill Development Govt. of India <https://twitter.com/MSDESkillIndia/status/1615246410835984387?s=20>

Mohandas Karamchand Gandhi is widely recognized as one of the twentieth century's greatest leaders and led many campaigns against inequality and poverty. Due to his stature, he is now referred to as Mahatma, meaning "great soul." He was also famous for his quotes related to poverty including "There's enough on this planet for everyone's needs but not for everyone's greed". "Poverty is the worst form of violence", "To a man with an empty stomach food is God".

Contact Info

email: bichitra4padhiary@gmail.com
twitter: [@IBIC418R34758598](https://twitter.com/IBIC418R34758598)
Facebook: [iti.berhampur](https://www.facebook.com/iti.berhampur)
Instagram: [itibampprincipal@gmail.com](https://www.instagram.com/itibampprincipal@gmail.com)
Website: <https://itiberhampur.in/>



SDG 1

End poverty in all its forms everywhere

1 NO POVERTY



Achieving SDG 1 would end extreme poverty globally by 2030. One of its indicators is the proportion of population living below the poverty line. The data gets analysed by sex, age, employment status, and geographical location (urban/rural).

It is hoped that the mobilisation of resources and the establishment of poverty eradication policy frameworks at all levels can be implemented to help achieve the end of poverty. The eradication of extreme poverty, reduction of all poverty by half, implementation of social protection systems, ensuring equal rights to ownership, basic services, technology and economic resources, and the building of resilience to environmental, economic and social disasters are key to this.

Exhibit "Mahatma Gandhi"

The exhibit was fabricated from scrap metal items which were cleaned by petrol and wire brushing. It was welded using Shielded Metal Arc Welding (SMAW) and after further cleaning was beautifully painted. It was shaped mostly with the aid of tools such as an angle grinder, a bench vice and a ball peen hammer.

A key objective of the competition was to use scrap parts and the range of parts used included fan ball bearings, a bike crank, timing chain, sheet metal, round rod and square pipe amongst other items.

Dimensions of exhibit

Full size with a height of 1.65 m

Industrial Training Institute, Berhampur, Ganjam (India)

The Exhibit is a collaborative team effort of Principal Dr. Rajat Kumar Panigrahi along with trainer Anil Kumar Mishra and five students, Barsha Nahak, Sunanda Swain, Upasana Dash, Basudev Swain and Narayan Pradhan. Notably, the team comprised both male and female trainees, highlighting the institute's commitment to making quality education accessible to all. This unique combination of artistic vision, technical skill, and equal opportunity, makes "The Horse" a truly inspiring piece.

"The Horse" aims to embody the spirit of SDG 4: Quality Education. Through its form and materials, it emphasizes themes of equal access to education in the TVET sector, environmental sustainability, and lifelong learning through the "Waste to Wealth concept" leading to a green economy.

By breathing new life into discarded materials, it highlights the potential for transformation through education. The sustainable approach underscores the importance of responsible resource management, another crucial aspect of SDG 4.

Contact Info

Phone: 9438293909
email: itberampur@gmail.com,
itsupport@itberampur.dtet.odisha.gov.in
Web: <https://itberampur.in/>
Facebook: [It Berhampur](https://www.facebook.com/itberampur)



Principal Dr. Rajat Kumar Panigrahi along with trainer Anil Kumar Mishra and five students, Barsha Nahak, Sunanda Swain, Upasana Dash, Basudev Swain and Narayan Pradhan

Exhibit "The Horse: A Welded Exploration of Strength and Movement"

The sculpture is crafted entirely from upcycling metal scraps like automobile parts, bike cranks, waste iron rod from demolished buildings, GI sheet from a water tank and repurposed toilet doors.

The exhibit utilizes shielded metal arc welding (SMAW) to join the metal pieces. The intricate details achieved through techniques such as grinding and shaping, depict various educational tools and symbols. Grinding techniques are employed to create smooth transitions and define the horse's form. It was shaped mostly with the aid of tools such as angle grinder, bench vice and ball peen hammer. It has been beautifully painted with the 2K paint and coated with anti-corrosion chemicals to ensure its longevity and aesthetic appeal.

The horse itself represents perseverance and the journey of lifelong learning, its form is both powerful and elegant, suggesting the strength and grace gained through education.

Dimensions of Exhibit

304 cm high x 243 cm long x 76 cm wide, weight 600 kg



*The Horse:
A Welded Exploration
of Strength and
Movement
Industrial Training Institute,
Berhampur Ganjam (India)*