

Best Practice-1

1. Title of the Practice: Emerging Areas in Innovations (Artificial Intelligence and Robotic)

Institute has established state of the Art Artificial Intelligence and Robotic Lab for student leaning and R&D and manufacturing purpose in the field of AI, Robotics, Automation, Machine Learning, Drone, Mechatronics, Laser Cutting, Vacuum Forming, 3D Printing etc. Institute have the capabilities of designing to manufacturing of many kinds of commercial and industrial Robots. Centre of Excellence in Artificial Intelligence & Robotics by RTU.

2. Objective:

- To expose and showcase to students the latest technologies and to make them capable of solving real life problems.
- To create the **R&D** environment for students and faculties and motivate them for **Innovations and Inventions.**

3. The Context:

AIET has a vision to work for excellence in imparting quality education and thus

- Established AIR lab to fill the academia industry gap and extend an opportunity to the students to learn latest technologies and to prepare them for the 4.0 Industry revolution.
- AIR is the enhanced and advanced field of Engineering Science & Technology which helps the students to develop the skills like Startup, Innovation, Incubation, Entrepreneurship and Creativity.
- AIR lab relies on the STEM learning with the objective of developing student's logics and intellectual capacity.





4. The Practice:

- **AIET** has been working in the fields of AIR for last 6 Years and has made many Industrial and Commercial Robots and related products.
- In addition to learning Robotics Engineering concepts and facts, students also learn and develop other valuable skills like Team work, Creativity, Design, Problem Solving and Planning & Execution etc. to improve the analytical approach.

5. Evidence of Success

After learning various technologies related to Robotics, AI&ML, the students of ECE, CSE & IT, ME & EE has made many Industrial and commercial Robots.

To utilize the Technical, Startup and Innovation skills of the students, college has started one startup named **"Irobolabs"** (www.irobolabs.com) with the students and has commercially launched various Robots which are installed in various Govt. and Non-Govt. organization.

6. Problems Encountered and Resources Required:

- Procuring the material and other electronics components especially DC motors.
- Products customizations.
- Problem faced in Animatronics during robot manufacturing.
- Plastic Moulding technique needs to be implementing to improve the body parts of the products.
- Regular updation and learning of latest Technologies.
- Increase the participation in various Innovative Idea competitions.





Best Practice-2

1. Title of the Practice: Green Campus

Key Words: Solar Power, STP, Rainwater Harvesting, Sustainability and Conservation of Nature, Green Energy

2. Objectives of the Practice

With the believe of nature conservation, institute has taken an initiative of green campus to lay great emphasis on various practices related to environment and sustainability. This mainly consists of harnessing sustainable energy, water conservation and maintaining greenery.

3. The Context

Maintaining a green campus is to promote renewable sources of energy to preserve the ecological balance of nature and thus 80% of institute is covered by green area. Also, Solar plant of 300 kWA will provide 50% of energy of total consumption which increases support of Green Energy campaign in Rajasthan. Rain water harvesting and sewage treatment plant increases the cause of Green initiatives in the institution.

4. The Practice

The following steps have been taken by Institute for maintaining the green campus index:

- Environmental policy amongst the students and the staff.
- Pollution free campus.
- Use of LED, Solar Lamps, Battery operated vehicles etc.
- RO drinking water.
- Minimum use of Papers.
- Renewable energy solar system of 300 kW consisting of solar PV roof-top plane



- Two rain water harvesting tanks, each of capacity 3 lakh litres, were constructed in the year 2017. The used water recycling system (STP Plant) of capacity 1.5 lac litres is already in practice since the year 2008.
- Entire open area of the institute is sprawled with lush green area.
- Annual Green Audit.

5. Evidence of Success

- The solar power generation annually generates nearly 14 lakh units of electricity cutting 1150 tons of CO2 emissions that contributes towards saving nearly 34000 trees annually.
- The recycled and treated water is used for watering of variety of plants & trees and lawns of the Institute. With this we are able to save 90 % of the water needed to maintain the index of green campus initiative. As a whole this contributes in saving of nearly 60 % of total water consumption of the institute.

6. Problems Encountered and Resources Required

All the set-ups require good quality maintenance. The institute has not received any kind of support from the government authorities. However, Weather conditions in Rajasthan will also affect the maintenance.





Best Practice-1

Artificial Intelligence and Robotic Lab



Best Practice-1

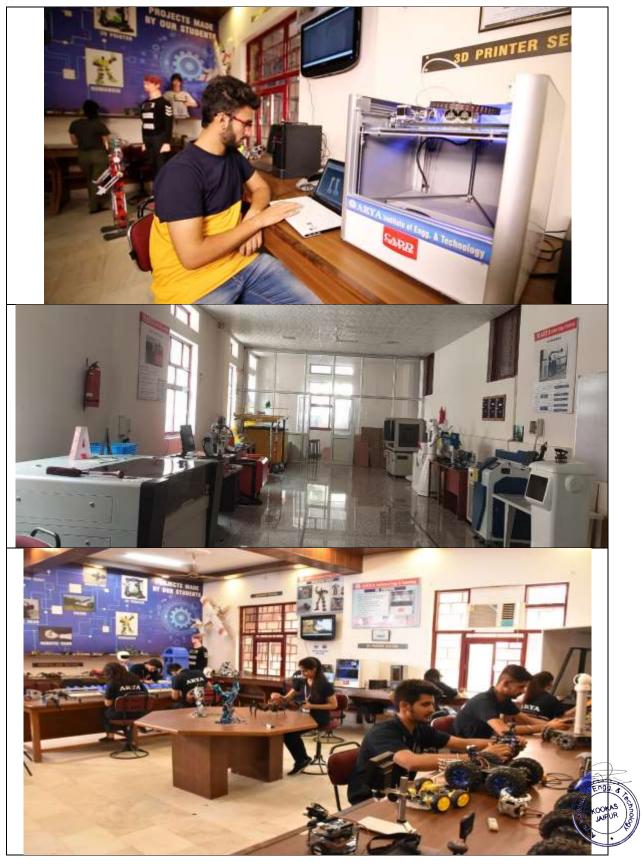
Artificial Intelligence and Robotic Lab.



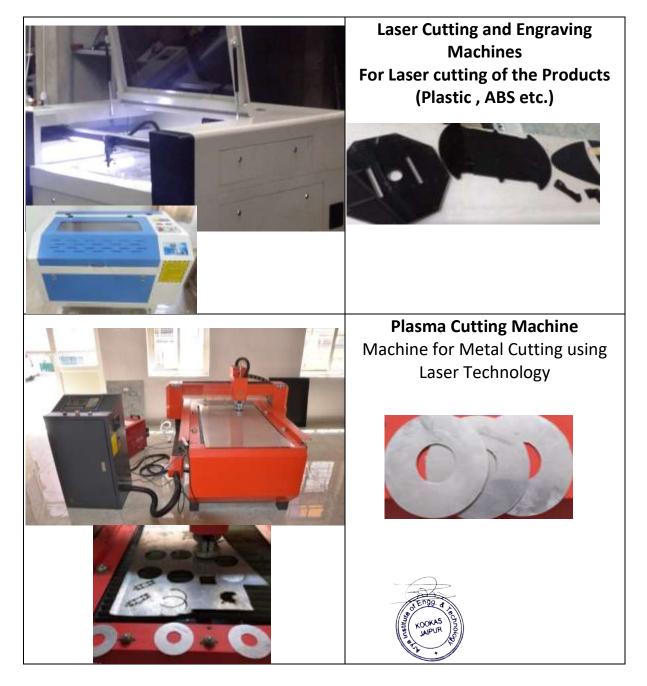








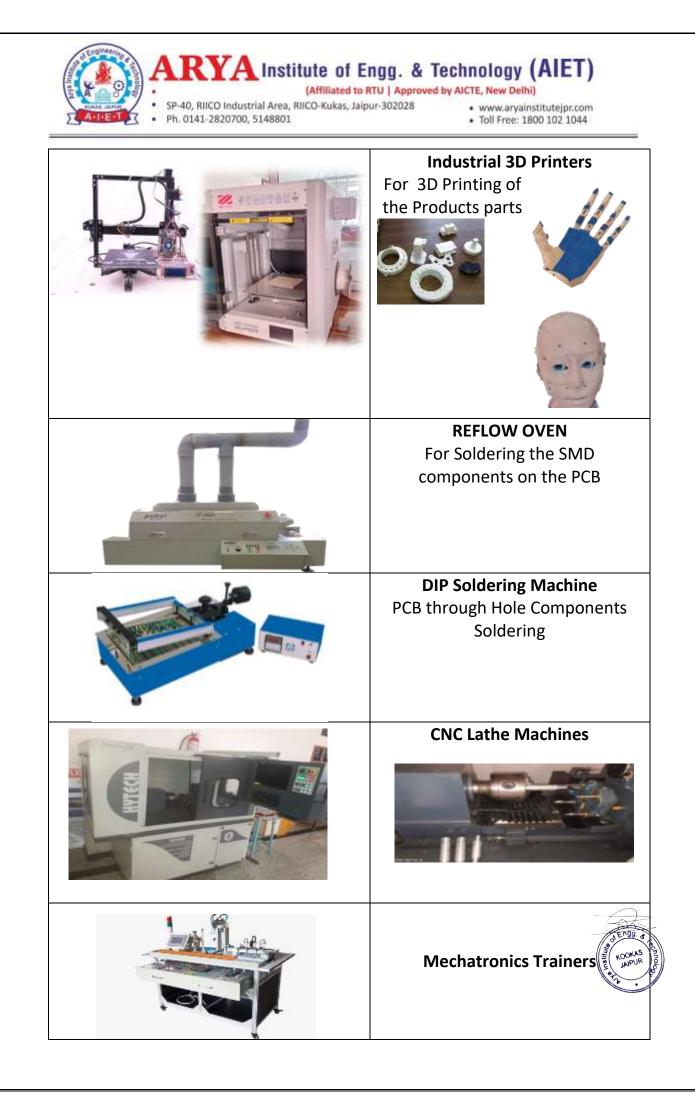




List of Equipments & Machines in Lab











LIST OF PRODUCTS MANUFACTURED IN THE LAB



UV STERILIZATION AND DISINFECTANT INSTITUTIONAL ROBOT (Anti-Viral Robot)

This is the disinfection UV light / Spray robot which can drying and spray multiple disinfection liquids, and diffuse the disinfection spray to target area

Can be used – Hospitals, Mall, Hotels, **Restaurants**, School and Colleges



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ARYA Institute of Engg. & Technology (AIET) (Affiliated to RTU Approved by AICTE, New Delhi) • SP-40, RIICO Industrial Area, RIICO-Kukas, Jaipur-302028 • Ph. 0141-2820700, 5148801 • Toll Free: 1800 102 1044	
	HUMANOID DELIVERY ROBOT-NANCY This Robot equipped with Various Sensors, RFID, LIDAR technology and Al programming. can be used in Hospitals to deliver day to day equipments, medicines from store to patient room
	ROBOTIC HEAD WITH AI (VOICE RESPONSIVE)3D Printed PartsLife liked robot designVoice responsiveGoogle Assistance5 Degree of movementEquipped with Eye movement, neck movement, head movement and jaw movement.Python based AI programmingINDUSTRIAL ROBOTIC ARMMulti axis industrial robots are super cost- effective with payload 3kg, 5kg, 6kg, 10kg, 20kg, 30kg, 50kg, etc.Robotic arms can be used for a variety of purposes. It can be widely applied in machine tool loading and unloading, welding, palletizing, material handling, Spraying etc.
	ROBOTIC PALM Gesture & Button Controlled
GERDOR OF CONTRACT	 <u>HUMANOID ROBOT</u> It consists of a head, a torso, two arms, two legs. In addition you can perform walk, squat, bend, sliding and other actions



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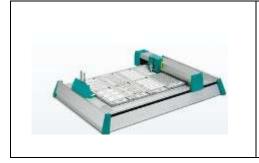
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	 It can also do dance performances or fight robots.
-	Hexapod ROBOT Hexapod robot, or spider robot, is one type of multi-legged robots. The design of this robot is derived from insects in nature, especially principles of their movement
	CCTV Less(Surveillance Robot)
	AI Based Robotic Face (For Programming)
the second second	Quad Copters
	Line and Wall Follower Robots

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ALC: MA	4WD Mecanum Wheeled Robot This 4WD drive Mecanum wheel platform vehicle is stable and can be made to move in any direction and turn by varying the direction and speed of each wheel.
	Walk With Me Robot
	Super Anthony Robot
	Robotic Car Big Size with Different-2 Sensors





Arduino Robotic Plotter

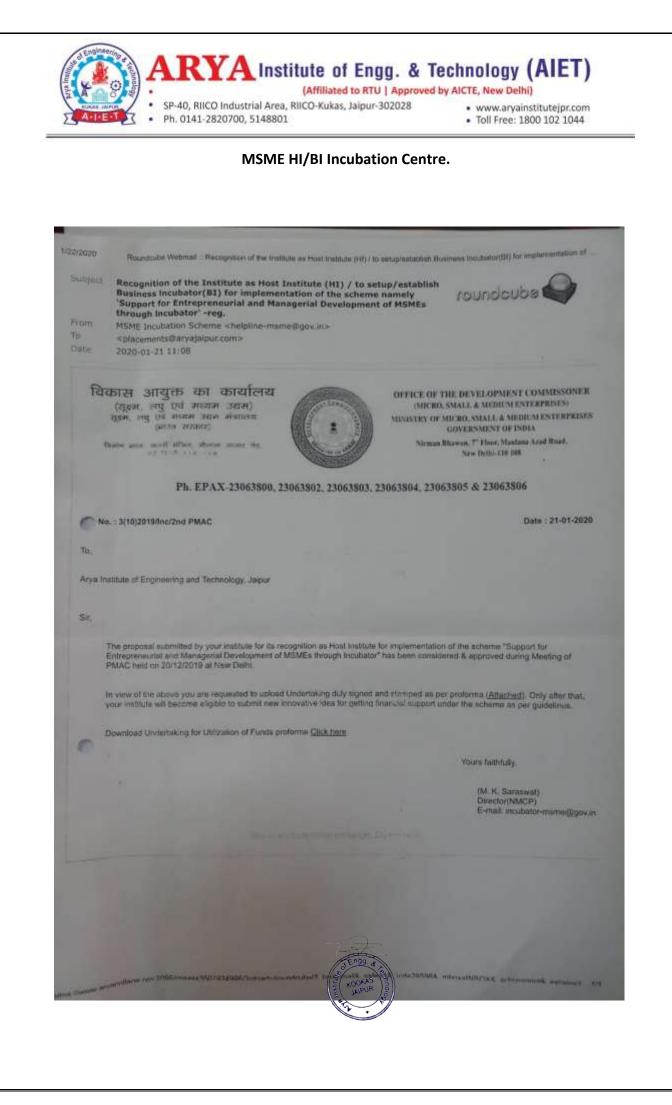
NEWS COVERAGE





Centre of Excellence in Artificial Intelligence and Robotics by RTU, Kota

OFFICE OF THE DEAN ACADEMIC AFFAIRS RAJASTHAN TECHNICAL UNIVERSITY AKELGARH, RAWATBHATA ROAD, KOTA-324010 Ph-0744- 2473015, website : www.rtu.ac.in, email : dean.academicartu.ac.in RTU/Acad./F(17)14/2021/ 3157-61 Date: 22.02.2021 To Principal/Director Arya Institute of Engineering & Technology SP-40, Kukas Industrial Area (RIICO), Delhi Road Jaipur-302028 Sub: Recognition of Centre of Excellence in Artificial Intelligence and Robotics (AIR). Ref.: 1. University letter no. RTU/F(17)Acad./2020/1414-15, dtd. 30.09.2020. 2. Your proposal dtd. 30.12.2020. Sir With reference to University call for proposals for establishment of Centre of Excellence, your application for recognition of Centre of Excellence in the area of Artificial Intelligence and Robotics (AIR) was considered. On the recommendation of Expert Evaluation Team and subsequent approval of 66th Board of Inspection vide agenda no. 66.3, University has recognised the Centre of Excellence in the area of Artificial Intelligence and Robotics (AIR) at your institute. The modalities of operation for Centre of Excellence shall be communicated in due course of time. 22-2-2021 (Prof. D.K. Palwalia) Dean, Academic Affairs C.C.to: 1. PS to HVC 2. All Deans 3. Registrar 4. Finance Comptroller 5. Guard File -Yel (Diwakar Joshi) Dy. Registrar





The Green Campus and Environmental Policy



Scope of the Policy:

The Green Campus and Environment Policy will develop exciting new cocurricular and extracurricular practices that encourage students and staff to take the lead in creating positive change. These initiatives call for a thorough review of all infrastructural, administrative functions from the standpoints of energy efficiency, sustainability and the environment.

The focus areas of this policy are:

- Clean Campus Initiatives
- Landscaping Initiatives
- Clean Air Initiatives
- Infrastructure
 - Solar Power Plant
 - Installation of Energy Efficient Equipment
 - Water Conservation through Rainwater Harvesting System
- Waste Management processes
 - Solid Waste Management
 - Liquid Waste Management
 - E-Waste Management
- Awareness Initiatives
- Environment-centric Student Societies and Department Activities
- Green Audit
- Energy Audit
- Plastic-Free Campus





Objectives of the Policy:

- To protect and conserve ecological systems and resources within the campus.
- To ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations.
- To integrate environmental concerns into policies, plans and programmes for social development and outreach activities.
- To work with all stakeholders and the local community to raise awareness and seek the adoption of environmental good practice and the reduction of any adverse effects on theenvironment.
- To continuously improve our contribution to climate protection and adaptation to climate change and to the conservation of global resources.
- To continuously improve the efficient use of all resources, including energy and water, and to reduce consumption and the amount of waste produced, recovering and recycling waste where possible.
- To make the campus plastic free.
- To conduct environmental and energy audits from time to time.
- To minimize the use of paper in administration through having policy for E-governance.





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Policy:

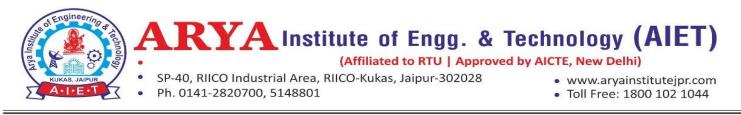
Clean Campus Initiatives

Arya Institute of Engineering & Technology had pledged to actively coordinate cleanliness activities in the college and beyond the campus in accordance with the vision of Swachh Bharat Abhiyan. It commits to continue with this Program.

The broad vision is as follows:

- 1. Generating mass awareness on cleanliness and hygiene amongst students and staff members by holding regular cleanliness drives. The idea is to motivate them to contribute in a proactive manner.
- 2. Activities under 'Swachh Bharat Abhiyan' will be a key component of all the community work being done by NSS and volunteers of the college.
- 3. Staff Members will be encouraged to participate in the cleanliness drive in the college campus.
- 4. Remove all kinds of waste material like broken furniture, unusable equipment etc.
- 5. Administer of the pledge by students and staff members to maintain cleanliness of the college campus and its surrounding areas on an annual basis.
- 6. Conduct workshops on the 3Rs: Reduce, Reusing and Recycling of waste.
- 7. Commit to manage waste and maintain clean campus especially during college events.





Landscaping Initiatives:

It is a vital part of the life of a campus, providing space for study, play, outdoor events, relaxation and aesthetic appreciation. Green campus landscapes also manage runoff, help recharge groundwater, and clean and cool the air on campus. The landscape serves as a visual representation of the campus community's commitment to sustainability. As campus landscapes are so visible and accessible, landscaping initiatives are a great way to build awareness around the environment.

There are more than 100 trees and more than 250 shrubs on campus. The landscape of trees and plants provide the 800+ students and staff with clean and cool air and is a soothing environment.

The diverse green cover of Arya Institute of Engineering & Technology is also home to a number of animals and rare birds across at least 24 species, creating a campus rich in biodiversity. The college commits to enriching this healthy habitat and maintaining the symbiotic relation of the institution with nature by

- Organizing annual tree plantation drives
- Encouraging student clubs to hold tree planting events





Clean Air Initiatives:

We encourage our students and staff to use public transportation. Our campus is also located in the outskirts of Jaipur. For this reason, we feel responsible to maintain our green cover. The abundant natural landscape cleans the air on campus.

Infrastructural Initiatives:

- **Renewable Sources of Energy:** Arya Institute of Engineering & Technology is dedicated to minimize and sustainably manage its use of electricity. The college believes in reducing the consumption of electricity produced by non-renewable resources by switching to clean energy sources like solar energy for purposes like lighting the campus. Hence solar panels were installed on top roof of the college building.
- Energy Saving and Energy Efficient Equipment: We commit to install environmentfriendly electrical appliances that save energy and reduce wasteful inefficiencies. The college believes in using cleaner energy such as LED lighting.
- Water Conservation through Rainwater Harvesting System: Arya Institute of Engineering & Technology has committed itself to the effort to replenish the groundwater table by practicing rainwater harvesting. This practice helps in the replenishment and recharge of the groundwater.





Waste Management Processes:

Arya Institute of Engineering & Technology strives to have a minimal impact on the environment and is dedicated to reduce and manage the waste generated by the college campus. The following specific procedures will be undertaken to ensure Arya Institute of Engineering & Technology contribution in protecting the environment.

- Solid Waste Management: With its aim to provide holistic education that also has a positive impact on the environment, the college will adopt practices that will mitigate the generation, and manage solid waste through the following methods:
 - Systematically engage with the 3Rs of environment friendliness (Reduce, Reuse and Recycle).
 - Collect paper waste produced on campus and collaborate with scrap dealers for recycling.
 - Reduce solid waste by developing a technology-centric teaching and administrative model.
 - Reduce use of paper by supporting digitization of attendance and internal assessment records.
 - Reduce requirement of printed books by updating the e-books and e-journals collection of the college library.
 - > Take initiatives to spread awareness amongst students about
 - ✓ Food wastage and ways of minimizing it
 - ✓ Minimizing the use of packaged food
 - ✓ The habit of reusing and recycling non-biodegradable products
 - Organizing workshops for students on solid waste management.

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• Liquid Waste Management:

- Maintain leak proof water fixtures.
- Minimize the use of water by constructing more Indian style toilets instead of western style toilets.



- Continued employment of a caretaker to take immediate steps to stop anywater leakage through taps, pipes, tanks, toilet flush etc.
- Reuse of wastewater generated by the Reverse Osmosis (RO) system in washrooms.
- E-Waste Management: Arya Institute of Engineering & Technology ensures that its usage of technology and generation of e-waste does not impact the environment. For this purpose, the college plans to strive towards:
 - > More provisions for the disposal of the institutional e-waste.
 - Awareness amongst students about reduction of e-waste and environment friendlydisposal practices for e-waste.
 - Encouraging department and society level activities pertaining to e-waste management.

Awareness Initiatives:

Outreach and education are of utmost importance so that all members of the campus community may value the objectives of the policy and aid in its implementation. This is why Arya Institute of Engineering & Technology supports and encourages awareness campaigns, seminars, workshops, conferences and other interactive sessions to facilitate effective implementation of the Green Campus, Energy and Environment policies.

- Environment-centric Student Clubs and Department Activities: Arya Institute of Engineering & Technology encourages all the departments and specific student societies like; NSS, and others to organize events, competitions and training sessions that will bring about positive environmental changes the grass root level. The college supports departments and student clubs in moulding the students into active agents of environment protection and conservation.
- Green Warriors: Institutional changes towards sustainability and eco-friendly practices have percolated down to the students which have led more and more students to join the initiative. Making the club a compulsory one will provide it a bigger pratorner to broadcast the institution's environmental values to raise awareness. This will aid the green initiatives and practices that are a part of this policy to grow exponentially.



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- **Green Audit:** The college aims to regularly conduct a Green Audit of our college campus to assess our strengths and weaknesses to further our goals of long-term sustainability. A green audit is a useful tool to determine how and where most energy or water or resources are being used. The college can then consider how to implement changes and make savings. It can determine the type and volume of waste. Recycling projects or waste minimization plans can be adopted. It will create health consciousness and promote environmental values and ethics. It provides a better understanding of the impact of ecofriendly practices on campus. Green auditing will promote financial savings through reduction of resource use. It is imperative that the college evaluate its own contributions toward a sustainable future.
- Energy Audit: An Energy Audit to be conducted as and when required to further reduce its carbon footprint. The importance of reducing energy consumption cannot be overstated. The energy audit, with its specialized tools will identify wastage of energy. Such an inspection often reveals several different flaws which cause a loss of significant amounts of energy which the college will not be able to detect. These flaws often have easy and affordable solutions and provide significant savings.
- Plastic-Free Campus: Arya Institute of Engineering & Technology has been observing most of its duties in terms of solid waste management since its inception. In view of the Government of India's resolution to ban all single use plastics due to the hazardous impact of plastic useand pollution, the college administration strictly bans the use of single use plastics in its premise to make it a 'Plastic Free Campus'.





Ref: AIET/Admin/2020/07

Date: 03/08/2020

NOTICE

In light of ban on single use plastic products in India, and with the reference of previous notices regarding ban of use to plastic in campus. All the staff and students of ARYA Institute of Engineering & Technology are requested to strictly adhere to avoid the use of plastic in and around the campus and hostel.

Further all are requested to kindly co-operate and replace single use plastic with environment friendly alternative.



AIET

Copy To:

Arvind Sir (For Kind Information)

Puja Madam (For Kind Information)

Principal Sir (For Kind Information)

HOD all Departments



Ref: AIET/Admin/2020/08

Date: 03/08/2020

NOTICE

In continuation of earlier related notices, all the students are hereby informed that they are prohibited from possessing motorized vehicles on the institutional campus.

Possession of motorized vehicles within institute campus is banned for all students. Any student found to be driving a motorized vehicle by the administration on campus are liable to have these motorized vehicles impounded, and students are liable to be expelled from the hostel.



AIET

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