



LEARNING TO LEARN FROM NATURE! BIOMIMICRY – NATURE INSPIRED DESIGN THINKING!

Biomimicry is a discipline that looks at Nature for ideas to help solve human challenges. As part of the course you'll learn about the amazing designs and solutions in nature, go out in nature, play learning games, work in groups and make models. You will learn to apply Nature's' design principles using the latest biomimicry tools and methodology. As group project you will develop a nature inspired innovation/solution to the human challenge of eliminating / minimizing Waste. (Food Waste /Waste Water/Food packaging waste)

Course Credits : 2 | Course Fee : Rs. 12000



Seema Anand is the first person from Asia to obtain Biomimicry Specialist Certification (Biomimicry 3.8 Institute, USA, 2011). Seema is the co-founder of "Biomimicry India Network" and "Biomimicry India", a company which designs and delivers learning experiences, undertakes consultancy and research in the field of biomimicry.

Prashant Dhawan is the Co-founder of "Biomimicry India Network" and "Biomimicry India", a company which designs and delivers learning experiences, undertakes consultancy and research in the field of biomimicry. He is the first person from India to obtain a M.S in Biomimicry degree (2015) from the Arizona State University, and a Biomimicry Professional Certification (Biomimicry 3.8 Institute, USA). He also holds a degree in Architecture from SPA Delhi.





EXPLORATIONS IN PAPER PULP

India consumes around 14 million tones of paper annually, less than 30% of which is recycled locally. The paper recycling range of Indian consumers is average compared to global levels. We are addressing a paper recycling challenge on Ahmedabad University Campus during the course. This begins as an opportunity for the students to understand the status of the situation, it's impact on environment, individual behavioral pattern and pitching a solution as a beginning to sustainable living. As part of the solution, students will design & create a small temporary pavement brick area on campus ground, students will develop colorful paper pulp pavement bricks. The course addresses issues related to paper consumption during the course with art & design oriented approach.

Course Credits : 3 | Course Fee : Rs. 15000

Facilitator :

Snehal Kashikar is an Ahmedabad based ceramic artist. She is a ceramic instructor at various reputed institutes in Ahmedabad, and practices from her studio. She holds a Diploma in Textile Design(2002) from VJTI Textile Engineering Dept, Mumbai. Creative journey in clay began with a Diploma in Ceramics & Pottery(2007) from LS Raheja Institute, Mumbai. She is currently working as principal artist for handmade ceramics initiative Mogra. Her key interest areas are explorations in handbuilt techniques, form appreciation, glaze and surface development in the earthenware ceramics range.





CLUES "THE TRUTH FINDER" SOLVING THE CRIME

Forensic Science is a fine observation to recognise evidences and navigate it to solve intentionally or unintentionally executed crime. This definition itself delineates the vital role of Forensic Science in the criminal investigation process. The Forensic investigation process uses different theories and approaches drawn from various disciplines to help trace and identify clues and establish its links to a crime. These approaches not only help to detect and identify the clues but also help to reconstruct the crime event. In this course students will learn to detect and identify the most commonly found clues (Fingerprint, blood stains) at the crime scene and establish its link with the crime, suspect or victim. The course will provide awareness among the student about the significance of clues and its role in forensic investigation process and also prime them to prevent becoming a victim.

Course Credits : 3 | Course Fee : Rs. 17000 (Including Supplies)

Facilitator :

Ritesh Kumar Shukla is working as Assistant Professor in Biological and Life Sciences, School of Arts and Sciences, Ahmedabad University. He completed his Masters in Forensic Science and PhD in Toxicology. He is a trained fingerprint expert from DFS Forensic Science Laboratory, Gandhinagar, Gujarat. He is also a part of "Tata Consultancy services (TCS)" as "Subject Matter Expert" in the field of Forensic Biology.





CREATING IMPACTFUL SHORT FILMS

The course work will introduce students to basic film-making process. The three major building blocks of films- Pre-Production, Production and Post-Production will be taught. It will teach them to write conceptual and executable scripts and screenplays. The logic and techniques to write a gripping and engaging short film will be taught. It will also be an introduction to film-production, shoot scheduling, shot-divisions and sound recording. The basic cameras, light equipments and sound recorders will be demonstrated. It will teach them to do basic film editing. The entire course-work will be a 'Learning by Doing' exercise of each stages of film- making.

Course Credits : 3 | Course Fee : Rs. 15000

Facilitator:

Tanmay Shah, Founder & CEO at FridayFictionFilms is a former Research Associate at IIT- Bombay. He holds a Limca Book Of Record, India Book Of Record, Asia Book Of Record and Golden Book Of World Record for making 52 short films in 52 weeks in 2015. His short documentary- Pinch Of Salt has won 15 international film festival awards and is screened at more than 10 countries. FridayFictionFilms has served more than 90 clients under his direction.





CYBER SECURITY

Learn Cyber Security Mechanisms to Protect Your Digital Resources over the Internet



CYBER SECURITY

This course is designed to introduce participants to the exciting field of Cyber security. Course helps participants to understand and implement fundamentals of Cyber security mechanisms and makes their surfing and digital transactions safe over the Internet.

Course Credits : 3 | Course Fee : Rs. 15000

Facilitator:

Kuntal Patel is currently working as an Assistant Professor at the School of Engineering and Applied Science, Ahmedabad University. He has published more than 25 research papers at peer-reviewed Journals and Conferences. He is actively involved in Google, ACM-India and Govt. of Gujarat supported Activity Based Learning Project called CS-Pathshala. He is an editorial board member of Computer Science textbook of Gujarat State Education Board and contributes to GSEB's 10th standard CS textbook content and reviews those of 9th, 10th, 11th and 12th standards





OCEAN EXPLORERS – SHE SELLS SEA SHELLS

Our planet Earth is 70% water and 30% land. In fact, instead of planet "Earth", it should rather be called planet "Water". Of the 70% water cover on the Earth, more than 90% is actually marine water or salt water in oceans. Seas forming a complex web of ecosystems holistically known as "Marine Ecosystems". There is more life in these ecosystems than anywhere on the land, and a lot of it is unique, unexplored and unknown. The oceans are a significant source of oxygen for our planet and are instrumental in the storage of carbon dioxide. They are not only home to the animals but also innumerable plant species. This course is designed to give a glimpse of these exclusive and exceptional ecosystems and how they are important for the survival of mankind.

Course Credits : 3 | Course Fee : Rs. 25000 (Includes 3 days trip to Dwarka)



Janki Teli is a naturalist working in the field of wildlife research, conservation and education for last 15 years. She has passion for interacting with students and spreading the message of nature conservation.

Shefali Naik is an Assistant Professor at School of Computer Studies, Ahmedabad University. She is an author of the book Concepts of Database Management System. She has presented and published papers in national and international conferences and journals. She has a deep interest in Wildlife and Bird Watching.





ARAVALIS: THE FUTURE OF GUJARAT

Step foot upon the ancient Aravalis and come face to face with ancient communities. Examine the interface of the landscape and culture, development and evolution, and the self and the world. Understand the crucial role of the Aravalis in the economic and ecological stability of Gujarat. Trek, camp, reflect, engage – then, cook and eat. The course's second phase explores the human diet's effect on the climate, globally and locally. After exploring local farming practices in situ, students will tackle climate resilience through their stomachs. Students choosing this course must step out of their comfort zones – physically, mentally, emotionally and taste-fully.

Course Credits : 3 | Course Fee : Rs. 27000 (Includes 8 days trip to Aravalis)



Mackenzie completed her BA in Theology with a minor in Leadership at Loyola University Chicago after which she traveled to India to better understand social justice in relation to the global agriculture industry. After settling in India she has continued to build her understanding of local culture, food systems, and government to support sustainable agricultural practices and marketing that supports small farmers.

Mihir Bhardwaj has widespread experience in fields such as education, wildlife, adventure sports, youth programming, professional training, cultural exchange and outdoor adventure cum sensitization activities for groups of all sizes and backgrounds. He has over 20 years of experience working with tribal communities. Currently, Mihir is working with a variety of village communities towards sustainable solutions on the local level. He is focused on working with tribal youth to prevent migration by building a strong local economy under community leadership.



Design, Build & Program a Humanoid/ Animaloid/ Quadruped Robot

ROBOTICS &
AUTOMATION
FOR HUMAN ASSISTANCE



DESIGN, BUILD AND PROGRAM A HUMANOID OR ANIMALOID ROBOT

Robots are a result of research and development in a number of disciplines, counting computer science, mechanical engineering, electrical engineering, management, etc. intended to aid and support humanity. The goal of the course is to give students a foundational understanding of various fields and how they fit together to build, create, and code robots. Course covers both theoretical and practical aspects of the robotics including information regarding various types of robots used in the industries. The fundamentals of different domains, including kinematics and dynamics, electronics, programming, motion planning, control of mobile robots, basic app development for robot operation, etc., will be taught to the students. Following that, the class will pick whether to create an animal- or human-like robot and different features to be included in that robot. The robot will be divided into numerous different modules based on its features. Each group of four to five students will be devotedly in charge of developing a certain module. This will entail designing and creating a module such that it may subsequently be merged with other modules. To verify the compatibility of modules, a software simulation of each module will be performed both separately and when integrated with other modules. Following the independent testing of each module, students will assemble and test the entire robot.

Thus, this course will provide students with the sufficient knowledge of robotics and automation in order that they can implement the skills for their future projects.

No prior knowledge of engineering or robotics required.

Course Credits : 3 | Course Fee : Rs. 27000 (Includes Certificate)

Facilitator:

Tarun Rijwani is a tech enthusiast with a background in mechanical engineering who has spent the last six years working in the 3D printing industry. I currently serve as the CEO of Rudrabots Pvt. Ltd., where we manufacture indigenously developed 3D Printers for use in engineering and medicine. Some of the innovations I have created to improve the effectiveness and cost-effectiveness of 3D Printing include the Multi Material FDM system, Modified Core-XY mechanism, and FDM-based Metal Additive Manufacturing (FAM). I've worked on many DIY projects such as robotic arms, aerial robotics, CNC automation etc. and as a hobby, I continue to look for new opportunities to use what I know.





BIODIVERSITY: PROTOTYPING FAUNAL HABITAT IN URBAN AREAS

Biodiversity in cities exposes people to nature and thereby facilitates an appreciation of nature. This course will serve as a bridge between design and nature. Through classroom-interactive sessions, field visits and hands-on exercises, students will begin to appreciate the presence of rich biodiversity in urban areas and also what beneficial roles natural ecosystems play in cities and how urban planning can enhance this experience. This course will enrich their knowledge of urban biodiversity, ways of safeguarding and enhancing it, and introduce them to the concept of urban green mosaic. At the end of this course, students will build a physical prototype of an urban fauna habitat and install it in their own institute or in gardens, parks, ponds, riverbanks, farmhouses, or other similar urban areas, thereby contributing to the enhancement of urban biodiversity. The course aims to sensitise students to fauna diversity and its associated biodiversity.

Course Credits : 3 | Course Fee : Rs. 15000



Priyanka Kanhare Patel is a Academician and a practicing Architect and Landscape Architect. Currently I am working as Visiting Faculty at Navrachana University (School of Environment, Design And Architecture), Vadodara and CEPT University, Faculty of Architecture Program (Master in Architecture History and Theory), Ahmedabad. Beside this, I also conduct workshops informing ways to "Represent and Document Intangible Cultural Heritage of People and Places." I completed my Bachelor in Architecture in 2013, followed by Masters in Landscape Architecture in 2015 from CEPT University, Ahmedabad.

Soha Trivedi is Visiting Faculty at CEPT University since 2008. Visiting Faculty at Nirma University Arch Dept. L.J University Design department. I am an Artist, Art Teacher and Art Therapist. I have worked on various academic and professional projects across the country have taken mandatory Workshops of Wood, Metal, Clay, Ceramic, Digital Fabrication & Sketching & Tribal Art & Natural Dye as Electives..





THERMODYNAMICS FROM HISTORICAL WARS

This course covers several historical events and relates them with the concept of thermodynamics. The course includes the stories of Napoleonic wars, Jin-Song wars, Anglo-Mysore wars and World wars. Different concepts of thermodynamics such as entropy, heat of reaction, first law of thermodynamics and phase equilibrium are linked with specific historical events. The content is designed in such a way that all undergraduate programmes will find it interesting. (Engineering and Non-Engineering). The course contains many activities, namely making of simple rockets, fire lance, chemo-car, heat engine and thermometer etc.

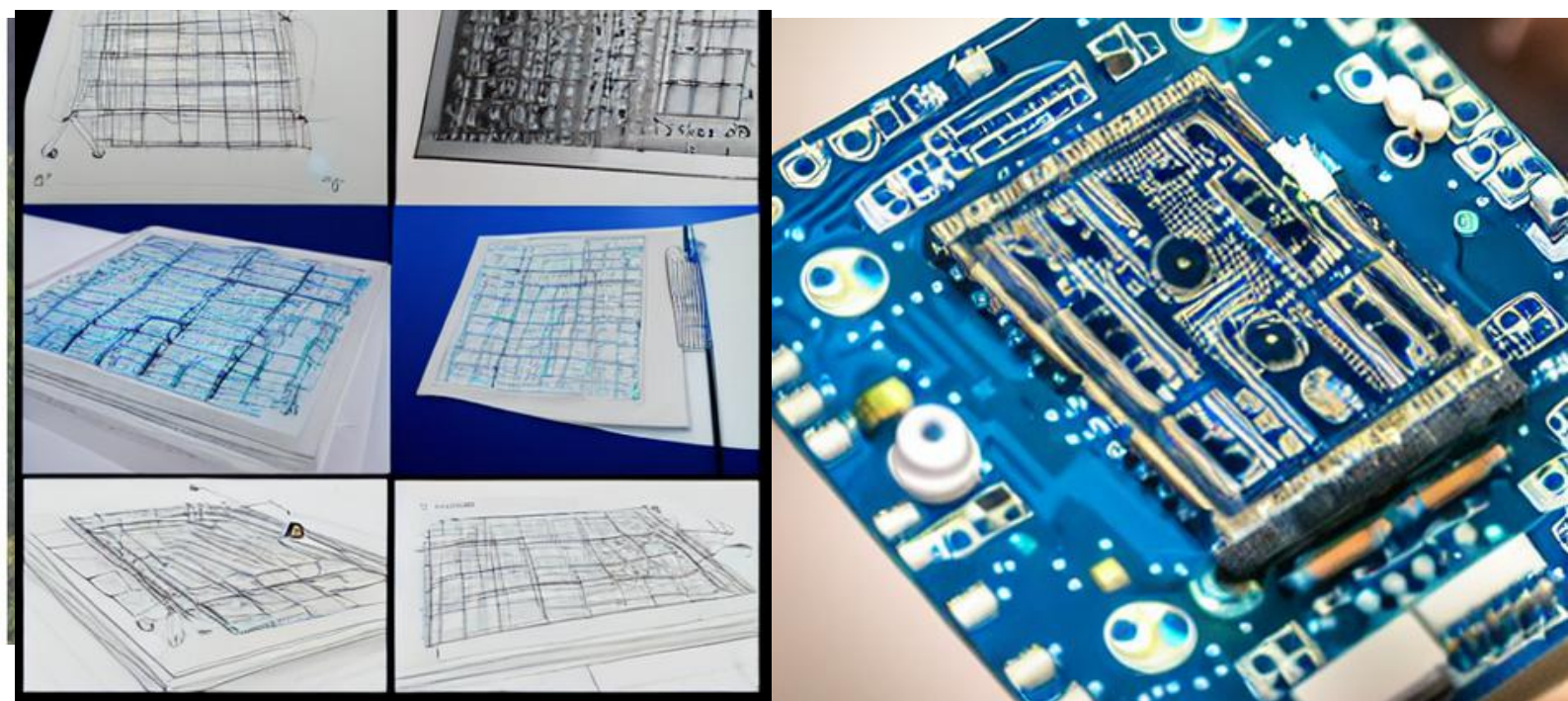
Course Credits : 3 | Course Fee : Rs. 15000

Facilitator:

Dharamashi Rabari teaches Thermodynamics to engineering students. The instructor has rich experience in Project based learning to teach thermodynamics and other courses.

Professor Aparajith Ramnath (Invited Speaker)
He teaches various courses based on history of science at School of Arts and Sciences, Ahmedabad University. He will deliver invited talks during a couple of sessions.





BUILDING A FLUIDIC NEUROCOMPUTER

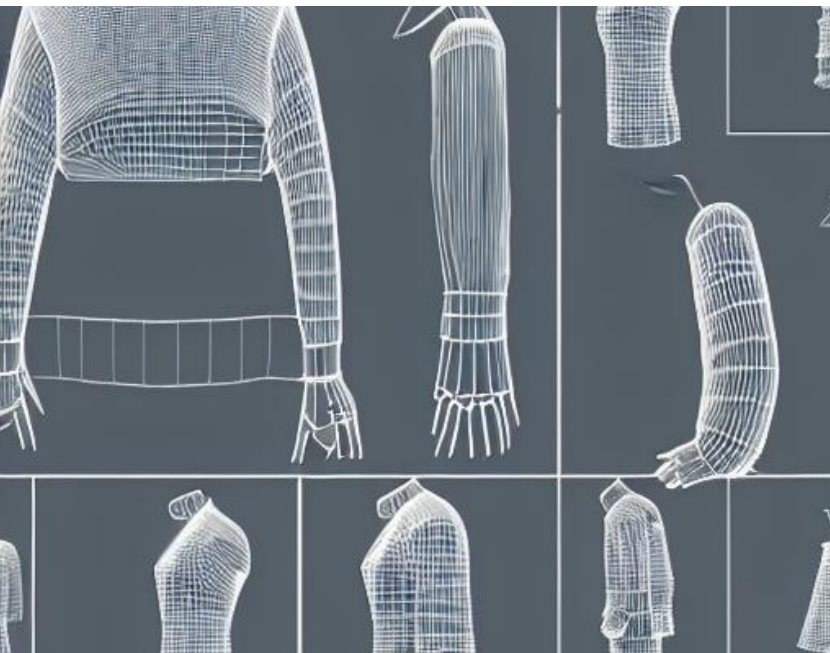
The students will review the history of computing and reaction-diffusion systems. This includes the study of Charles Babbage's difference engine and Alan Turing's mathematical model for morphogenesis. Following this, the students will seek the convergence of chemical reactions and computing. To this end, the recent developments of chemical computers will be reviewed and henceforth a robust plan for the follow-on experimental activities will be charted out. Along the way, the students will learn the technical aspects required to complete the project.

Course Credits : 3 | Course Fee : Rs. 15000

Facilitator:

Adarsh Ganesan completed his PhD in Engineering from the University of Cambridge. During his PhD, Adarsh reported the first experimental evidence for phononic frequency combs. The American Physical Society recognized these combs as a notable advance – <https://physics.aps.org/articles/v10/4>. As a faculty at Ahmedabad University, he intend to establish the field of phononic frequency combs building on research done during doctoral and postdoctoral work.





SUSTAINABILITY & CLOTHING LIFECYCLE

Introducing the connection between garment lifecycle & sustainability, by means of which students will begin to understand the environmental impact through fashion industry. The course will have series of interactive sessions informing & discussing the concept of Sustainability at every step. It will also include critical thinking on various topics covered such as What are the factors we consider when we buy clothes? The features one usually looks at are fit, fabric, colour, brand, look, trendy, etc. Have we ever wondered what went behind the clothing that are purchased? Did we think of how much water was used in creating those jeans or what chemicals were used to colour them? How were the chemicals left in the environment? At the end of the course, students will construct an upcycled garment & create a presentation of sustainable business around it. The idea of the course is to sensitize, be aware and conscious of the impact of the fashion industry and its sustenance for the future.

Course Credits : 3 | Course Fee : Rs. 15000

Facilitator: Ruchi Shah

Present - Entrepreneur, Design Consultant, Visiting Faculty at NIFT, Gujarat University & UID.

Founder of Geeta Corp, a firm specializing in Ceramic Consultancy & dealing in ceramic raw materials. I work with multiple ceramic artists PAN India as consultant & supplier. As Design Consultant, major work in fashion, graphic, product design industry.

For Fashion, I work with multiple Kutch based organizations such Shrujan, Khamir, Qasab, Kala Raksha, VRDI. Conducting variety of workshops for product development, quality upgrade, visual merchandising.

For Product design, designed a range of Bagasse Tableware & packaging. Worked on few projects of home décor objects such as planters, wall décor, benches of crystal glass mosaic.





FRESHWATER HABITATS OF GUJARAT – A PRACTICAL APPROACH

Students will learn about the freshwater habitats of Gujarat and over the course build their own self-contained freshwater ecosystems in terms. These ecosystems will be installed and maintained on campus and can be used as learning tools for other students. Students will build their own ecosystem in aquariums. Students will be divided into teams. Each team will choose a biotope of Gujarat. They will have to research the biotope, and attempt to replicate the ecological, physical, and chemical conditions of the biotope in the aquarium. They will have to learn about the nitrogen cycle and establish it in their aquarium. They will have to assemble and install life support equipment and replicate conditions that are fit to support living organisms. The final product will be a visually stunning display that quite authentically represents actual aquatic biotopes and which can become an installation on campus that is a tool for ongoing learning.

Course Credits : 3 | Course Fee : Rs. 25000 (Includes 3 days trip)

Facilitator:

Punit Lalbhai is the Executive Director of Arvind Limited. He is currently working on building new businesses for the company such as Advanced Materials, Engineering & Agribusiness.

Punit has an MBA from INSEAD, France. He is also deeply involved in sustainability conservation. He has done his Masters in Environmental Science from Yale University, USA. He has a Bachelor's degree in Conservation Biology from the University of California.

Punit has been practicing Heartfulness Meditation for 18 years and is a certified trainer since 2012.





INTRODUCTION TO FIELD ECOLOGY

The course's overall goal is to help students connect ecological theories to the real-world setup, i.e., a place where organisms live. More specifically, this course will help students:

- Understand the fundamental ecological concepts such as habitat, microhabitat and niche.
- Learn how to identify, quantify, and infer the factors limiting population size in a natural setting.
- Learn how natural history observations can be used to frame fundamental questions in ecology and evolution.

Course Credits : 3 | Course Fee : Rs. 30000 (Includes 12 days trip to Bhuj)

Facilitator:

Shomen Mukherjee has been working in the field of Ecology for over two decades, focusing on questions related to species interactions and mechanisms of coexistence. He has been using evolutionary game theory to understand predators' and competitors' direct and indirect effects in shaping ecological communities. He has also studied how predatory stress affects the reproductive life-history traits of prey animals. Shomen holds an MS degree in Wildlife Biology from the Wildlife Institute of India, and a doctorate from Ben-Gurion University, Israel. He has extensive research experience from working in different countries across the globe. He has taught both elective and core courses in Biology programmes in South Africa and India.

