Janata Shikshan Mandal's

DEVCHAND COLLEGE

ARJUNNAGAR 591 237

Dist. Kolhapur, Maharashtra, INDIA

INTERNAL QUALITY ASSURANCE CELL

Criterion III
Research, Innovation and Extension

3.2.1

Institution has created an ecosystem for innovations including Incubation centre and other initiatives for creation and transfer of knowledge

ECOSYSTEM *for* INNOVATIONS

Department of Chemistry

Facile synthesis of Drugs

Heterocyclic compounds are medicinally important compounds. However, their stepwise synthesis is a time consuming process. The single reaction by conventional method completes in more than 80 hours. Prof. Savita Desai, Department of Chemistry used microwaves as the source of energy. By this method, the reaction time has been reduced to less than 8 minutes. She has also followed the method of biological prediction studies by using the software PASS, with which the biological applications of the synthesized compounds are predicted before their actual testing. This method not only reduces the time lag between the synthesis of the compound and its use as a drug, but also increases the rate of success and reduces the expenses required for the screening of the compound. With this modified and improved technique, Prof. Desai and her research group has been successful in synthesizing various biologically active compounds such as anti microbial, anti-cancer, thrombin inhibitor and anti-tubercular etc. in the laboratory.

कमी वेळात सोप्या पद्धतीने औषधनिर्मिती

डॉ. सविता धोंगडे-देसाई यांचे संशोधन; केवळ सात ते आठ मिनिटांत प्रक्रिया

आम्ही कोल्हापुरी

नंदिनी नरवाडी-पाटोळे

डॉ. सविता धोंगडे-देसाई

३७ शोधनिबंध प्रकाशित

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Department of Physics

Development of Physics Laboratory instruments by Waste Material

Department of Physics developed some simple practical instruments in the laboratory in low cost instead of purchasing costly readymade instruments from the market which are required for Practical course. Such activity inculcates innovative skills of designing and developing instruments among students.

Specific rotation of sugar solution by Polarimeter

Cardinal points by Searle's Goniometer

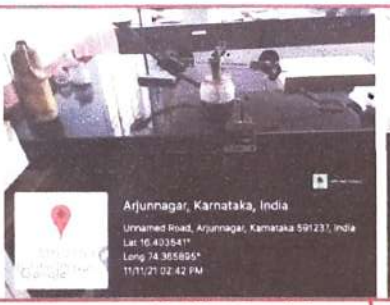
Surface tension of mercury by modified Fergusson's method

Surface tension of water by Jaeger's method

Surface tension of mercury by Quincke's method

Viscosity of water by Poiseuille's method

Carey-Foster key for calibration of bridge wire



Viscosity of oil by Searle's Viscometer

Poission's ratio of rubber tube

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Earth abundant and Environmental friendly solar cells - Research by Dr. K.V. Gurav

Indian Solar cell industry is based on Silicon Solar cells. However the current research trend is in CIGS based solar cells. The costly Indium (In) and toxic Selenium (Se) constrained the practical use of CIGS based solar cells. The eco-friendly, environmental benign version of CIGS is CZTS which comprises earth abundant materials like Cu and Zn. Dr. Gurav and group are working on low temperature chemical synthesis (electrodeposition) for CZTS absorber layers. CZTS can be replacement to traditional Si based solar technology in near future. They are also working in the field synthesis of nonomaterials for Urea oxidation, supercapcitor and Sensors.

सर्वसामान्यांना परवडणाऱ्या सोलर सेलची निर्मिती

डॉ. गुरव यांच्या संशोधनाने पारंपरिक सोलर पर्याय

आम्ही कोल्हापूरी

Magneto-electric Nanoparticles for Drug Delivery System-Research by Dr. C.M. Kanamadi

The Scientific community is showing more interest in the practical use of magnetoelectric nanoparticles (MENps) in biomedicines instead of magnetic nanoparticles. Magnetoelectric nanoparticles can respond very quick to both magnetic and electric field. Dr.C.M.Kanamadi is working on synthesis of magnetoelectric nanoparticles for drug delivery system. He is also working on the production of electricity by separating H+ and OH- ions of H_2O by using porous ferrite target (Hydroelectric cell). If water is sprinkled on the surface of ferrite target, the separation of ions takes place and gathers on the surface of electrodes and produce potential difference. Without using any acid as electrolyte, the production of electricity is possible by using hydroelectric cell.

कर्करोगावरील उपचार होणार सुटसुटीत

डॉ. कनमडी यांनी केमोथेरपीला दिला पर्याय; 'मॅग्नेटोइलेक्ट्रिक नॅनो पार्टिकल'वर संशोधन

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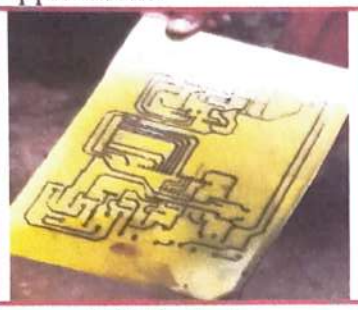
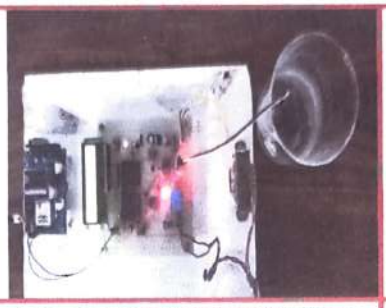
Department of Electronics

Developing skills of making innovative electronic Kits in the laboratory

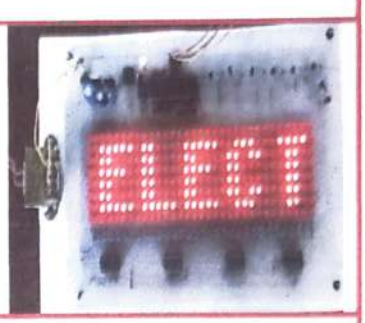
Department of Electronics developed innovative electronic circuits in the laboratory with the help of students. The kits have applications related to day- today life. This activity incubates innovative thoughts of students that reflects in terms of practical applications.



PCB Designing

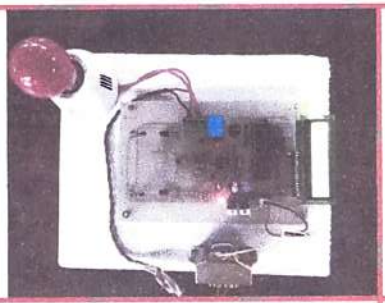


Automatic Irrigation System Using 8051 Microcontroller

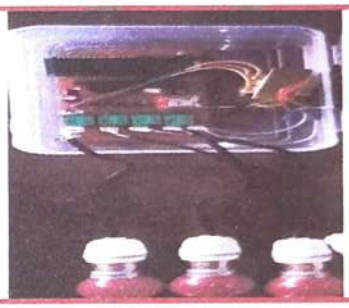


Bluetooth Controlled Smart Notice Board

Android Controlled Home Appliances Using Bluetooth Model

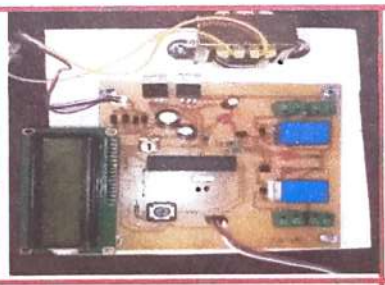


Speed Checker to Detect Rash Driving on Highway



GSM based Home Automation

RFID based Attendance System



Humidity and Temperature Measurement using Arduino

GSM based Bus Stop Alert for Passengers

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Department of Zoology

Food and Water Supply Devices for Birds

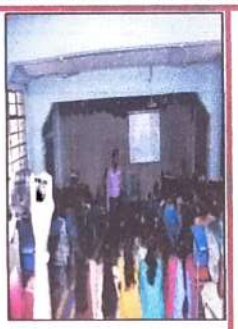
Birds need water just as much as they need food. It is very difficult for birds to find water in the wild, especially in the summer season. Students of Department of Zoology prepared food and water supply devices for birds. These devices were lodged in the campus of our college.



YouTube Link:

Glass Fish Aquarium: Management and Maintenance by students

Students of Zoology studied management and maintenance of aquarium by constructing various Glass Fish Aquariums. This innovative idea enriched knowledge of students regarding different varieties of ornamental fishes and their maintenance to start their part time business.

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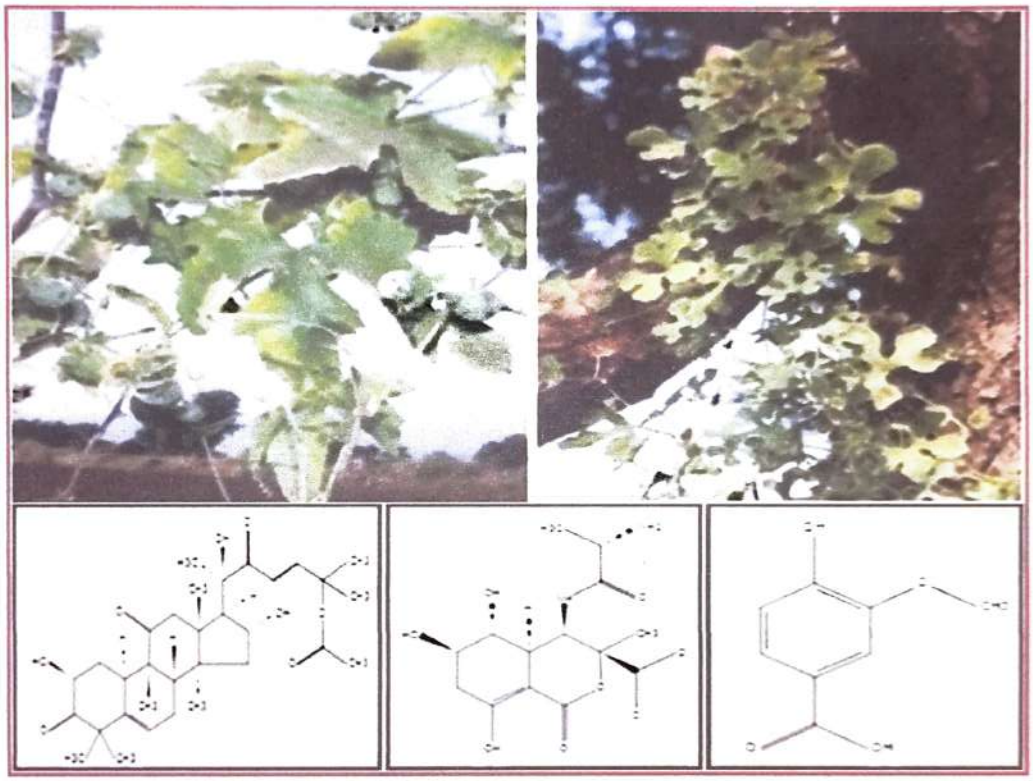
Department of Botany

Development of Antidiabetic, Anticancer and Antimicrobial Drugs

Department of Botany has undertaken the projects on discovery of antidiabetic, anticancer and antimicrobial drugs from plants. *Blastania cerasiformis* and *Blastania garcinii* are the members of Cucurbits used in the research work. These two plants contain good amount of phytochemicals in relation with antidiabetic, anticancer and antimicrobial properties. The future research will focus on to develop extraction technology for therapeutically drugs.



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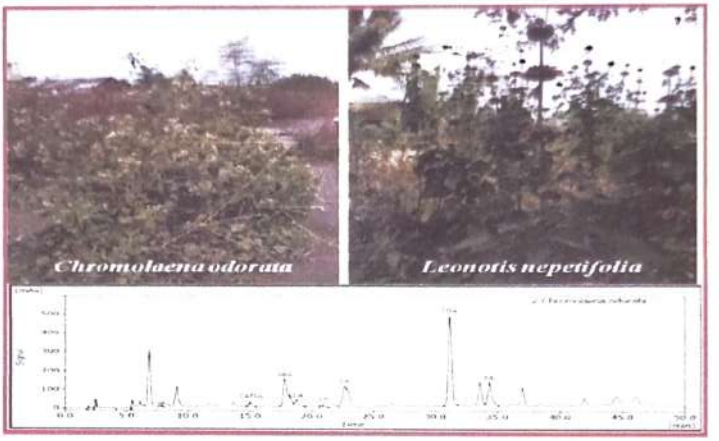
Department of Agrochemicals and Pest Management

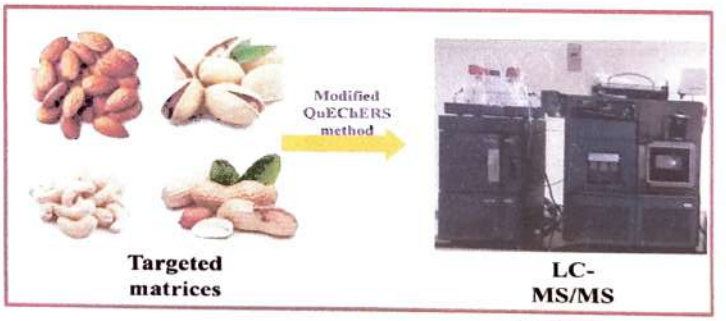
Screening of Plants for Insecticidal Compounds

Department of Agrochemicals and Pest Management has undertaken research work for discovery of novel insecticidal drugs from the plants. The members of family Asteraceae like *Chromolaena odorata* and *Leonotis nepetifolia* are used in the research work. Selected plants found rich for insecticidal compounds which can be used in future studies for the development of novel bio-pesticides.



Development of New Method for Pesticidal Residue Analysis

New LC-MS/MS method was developed for the detection of pesticide residue in Cereals, Pulses, Nuts and Processed Products. The developed method was published and accepted internationally.



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