**Institute of Science & Technology for Advanced Studies & Research (ISTAR)**

**Accredited with ‘A’ Grade by NAAC & KCG, Top 3rd Rank in GSIRF by KCG**

**VISION**

To add significantly to our enduring civilizational tradition of pioneering excellence in learning, knowledge, enlightenment and self-realization, in a universally relevant context.

**OBJECTIVES**

01. To create and nourish a stimulating learning environment that ensures a globally relevant Education based on Eternal human values;

02. To forge and reward excellence in the curricular as well as the non-curricular sectors so as to ensure the scholars' global competitiveness;

03. To tap, nurture and unleash the innovative entrepreneurial abilities of scholars and thereby ensure lifelong socioeconomic, value addition;

04. To evoke and embellish the finest traits of human excellence that go on to dovetail into a sustainable career growth curve;

05. To affiliate, associate, liaise or otherwise synergize with any institution, body, entity, ethno-cultural diaspora and the overall global fraternity in any form whatsoever, in support of the above;

06. To initiate, consolidate and extrapolate any objectives, functions and activities in support of

**MISSION**

We dedicate ourselves to the perpetuation of our Founders’ Vision of providing the infrastructure, facilities, operating conditions and overall environment conducive to the Education of young scholars, along with the desired physical, mental and character building inputs; we firmly renew our commitment to providing value added, globally relevant Education with an emphasis on the Techno Management domain, to ensure that our scholars fruitfully exercise their knowledge, skills and values in the global economy.

**Chairman’s Message**

I am glad to know that ISTAR is bringing out Third Issue of College Magazine INSPIRE at the onset of a new academic year. This is yet another milestone embodies curricular and co-curricular activities and praiseworthy achievements of the institute. I hope that 3rd Issue will surely inculcate creative and hidden talents of students and faculty of the institute. I convey my Warmest Wishes to students and staff of ISTAR for new academic year (2019-20).

Er. Shri Bhikhubhai B. Patel
Chairman, CVM
ISTAR @ PROFILE

Our institute namely Institute of Science and Technology for Advanced Studies and Research (ISTAR) is a brainchild of Dr. C.L. Patel and was established in the year 1999 exclusively for postgraduate study and research in Chemical Sciences, Information Science, and Environment Science. ISTAR pioneered unique interdisciplinary courses like Master of Industrial Hygiene and Safety and Master of Valuation. Facility for Ph.D. study in six disciplines viz. Industrial Chemistry, Environmental Science, Botany, Biotechnology, Chemistry, and Computer Science is available at ISTAR. ISTAR is an approved professional institute by All India Council for Technical Education (AICTE) as well as UGC and affiliated to Gujarat Technological University (GTU) and Sardar Patel University (SPU). Institute recognizes importance and essentiality of extra-curricular and co-curricular activities. Students are encouraged to organize and participate in technical activities, cultural activities and sports activities for demonstrating their leadership skills and mark of worthy citizens. Institute is committed in shaping career of the students as per the aspirations of the world of tomorrow and has taken many initiatives in this regard. One of the major initiatives taken is Memorandum of Understanding signed by different departments of ISTAR with Institutes and Universities of global repute for providing opportunity for collaborative research, joint planning of seminars and exchange of students and faculties. We understand the importance of sponsored research programs and consultancy work and accomplishments of institute have generated recognition and faith among industries, recruiting agencies and aspirant students. Institute is regularly inviting expert faculties from academia, industries and R & D institute for achieving academic excellence and this has benefitted in placement of our students. Institute is conscious about the raising and maintaining quality standards of higher education, will certainly widen the horizon in the era of knowledge economy with enlightened management of CVM under patronage of Dr. C.L. Patel, and by the efforts of qualified and committed faculty members of ISTAR. Presently, Er. Shri Bhikhubhai Patel took over the charge of CVM as a Chairman. He is a visionary personality with a goal to enhance quality of education using recent technological advancements. At present, CVM operates 49 educational institutions providing pre-primary to post-graduation in all fields of learning.

SALIENT FEATURES

- ISTAR is one of the premier institutes of the country and managing 11 diverse postgraduate programmes under one umbrella with unique, exceptional and job oriented courses
- Secured top 3rd Rank among all colleges of Gujarat by KCG in GSIRF ranking
- M.Sc. Valuation and M.Sc. Hygiene & Safety are only of their kind in the whole nation
- M.Sc. Geoinformatics is a novel program for entire state started by ISTAR in 2016-17
- M.Sc. Surface Coating Technology and Instrumentation & Control are the only courses of its kind offered by ISTAR in the state of Gujarat
- Sophisticated Instrumentation Centre for Applied Research and Testing (SICART) facilities established jointly by CVM and DST and ISTAR are jointly conducting 3 days Sophisticated Instrumentation training for students of EST, IC, OC, PST and SCT departments
- Testing and Consultancy in the field of chemical sciences has earned good reputation
and faith of industries and Institute is providing Testing and Consultancy services to many industries including GNFC

- Specialized training programs for Industry & Institute sponsored candidates
- Add-on courses for curriculum enrichment and improved employability
- Remote Class room for IIRS-ISRO outreach and faculty development programs

COURSES @ ISTAR

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Program</th>
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<tbody>
<tr>
<td>1.</td>
<td>M.Sc. (Environmental Science &amp; Technology)</td>
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<tr>
<td>2.</td>
<td>M.Sc. (Industrial Chemistry)</td>
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<tr>
<td>3.</td>
<td>M.Sc. (Surface Coating Technology)</td>
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<td>4.</td>
<td>M.Sc. (Polymer Science &amp; Technology)</td>
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<td>5.</td>
<td>M.Sc. (Organic Chemistry)</td>
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<td>6.</td>
<td>M.Sc. (Instrumentation &amp; Control)</td>
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<td>7.</td>
<td>M.Sc. (Real Estate Valuation)</td>
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<tr>
<td>8.</td>
<td>M.Sc. (Plant &amp; Machinery Valuation)</td>
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<tr>
<td>9.</td>
<td>M.Sc. (Industrial Hygiene &amp; Safety)</td>
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<tr>
<td>10.</td>
<td>M.Sc. (Geoinformatics)</td>
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<tr>
<td>11.</td>
<td>M.Sc. (Information Technology)</td>
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</tbody>
</table>

LEARNING LEVELS @ ISTAR

- Our departmental Teacher counselors keep evaluating the students by asking questions in classrooms, conducting weekly tests, giving them assignments and discussing results of internal tests.
- Open-House: Department Counselors discuss and provide improvement measures to students, and their parents regarding internal exam marks, attendance, regularity, sincerity, assignments, seminar presentations, remedial classes, and counseling to overcome the drop-out ratio.
- SC/ST/OBC/SEBC and minority students are given benefits of scholarships as per reservation policy.

STUDENT CENTRIC METHODS @ ISTAR

- Departments organize Weekly tests on every Saturday for Junior and Senior students, respectively.
- The focus of each department is always student centric, and they are informed about the courses available to them, examination system, counseling, sports, NSS and the future prospects and scope of each program.
- Course-wise topics are selected for the group seminars and discussion and the student groups are identified for different topics.
- Field studies, seminars, workshops, Study tours, industrial visits, Practical classes/Experiments provide platform for collaborative learning.
- Project assignments, seminar presentations, and preparation of reports enhance students’ independent learning ability.
• Counseling meetings for groups of students to discuss and solve their problems are organized periodically

TEACHING-LEARNING @ ISTAR

○ Departments arrange Subject Seminars, Expert Talks, Training Seminars, Project Seminars, and Industrial Visit etc.
○ Campus interview preparation related training programmes are arranged by all departments
○ 4 week in plant training is compulsory for IC, SCT and PST students after completion of 2nd semester
○ Students of the IT, GIS, Valuation, INC, EST department are assigned project work in last semester, and they are guided for review of literature, project work planning, and preparation of project reports.
○ All departments offers project work to the last semester students which develops R & D related insight in the students and also gives them the exposure of the professional environment
○ Additionally, above department are having Ph.D. students under guidance of faculties. The faculties carry out the research work and Ph.D. students are presented during internal seminars, which provide inspiration to the post-graduate students for creative thinking and joining for R & D work.

CONTINUOUS INTERNAL EVALUATION (CIE) @ ISTAR

• Syllabus, scheme of courses, question paper pattern along with marks distribution, pattern of theory examination and scheme of assessment for practical examination are informed to all the students well in advance.
• Subject seminars and assignment are the part of internal evaluation
• Department also conducts weekly test and internal test as per prescribed schedule.
• Open house is conducted every year where parents can see the answer books of their wards
• Summative assessment is done through weekly tests, internal tests, final university examination, and viva-voce. This ensures systematic, transparent, and unbiased assessment of learning outcome. Besides, preparation of Dissertation and Seminar presentation on project work provide important platform of evaluation of the students.
• Formative assessment is done through seminars presentations (Topics allotted), weekly tests, project assignments, mock interviews, attendance and Group discussion and this has resulted in better student – teacher interactions, learning process, personality development of students, improved knowledge application and employability.
• This mechanism ensures greater involvement of students in studies and also inspires them for self-learning study and helps the teachers to identify the slow learners who need more assistance/help.
• Results of any form of internal evaluation is declared in one week time
INNOVATION IN RESEARCH @ ISTAR

- The ISTAR is having a separate research committee looking after the scrutiny of research proposals before submitting it to the funding agency. Research committee arranges for presentation / evaluation of proposal and if required, suggestions / guidance is given to PI. Few departments excel in academics, research and consultancy. This has proved research and consultancy activities and analytical services to more clients by SCT and a coating policy document is prepared for GNFC, Bharuch. Research collaboration is done with AIST-Japan, and MST, Rolla, MO, USA and SVNIT – Surat and industry sponsored research work is taken up by IC department.

- All departments are fully equipped with ICT facilities and institution support is provided for timely auditing and submission of utilization certificate to the funding authorities. Every teacher involved in research has to get his or her expenditure audited from a chartered accountant hired by the institution and submit the utilization certificate in time.

- Laboratory facilities, manpower, administrative and library support is made available for the smooth conduction of the research project. Investigators sincerely utilize the funds as per the budget allotment in the sanctioned proposal.

- Research is a significant activity of the institute for both research scholars and faculty members.

- Faculty members are encouraged to participate and present their research papers in National and International Conferences for which they are provided duty leave.

- Faculties of other institutes are invited as visiting fellows to interact with the faculty members and students for appraising about emerging research areas and opportunities.

- The Institute is having collaboration with various institutes at regional, national and international level.

- The institute is having a recognition certificate of 12 (B) and 2 (f) Acts issued by UGC, New Delhi.

- Faculty members are encouraged to submit research projects for financial support to various national agencies.

- Almost all students of M.Sc. are given project work as a part of the university curriculum. The dissertation is assessed by the expert committee of S.P. University.

- Some of the research works also have been published in journals of national and international reputation.

EXTENSION ACTIVITIES @ ISTAR

Various extension related activities organized by the NSS unit and various departments develops an insight related to social issues. NSS has organized Jan Dhan Account Opening Movement in nearby villages, health check up camps, drinking water check up camps, lectures on various topics addressing social awareness on various issues etc. Such things develop the sense of social responsibility in the students participating in such activities. Along with this NSS organizes Thalasamia talk and checkup camps, Eye checkup & free treatment, blood donation camps, crops and diseases control to farmers annual camps at villages etc. every year, which sensitizes various social qualities viz. Co-operation, harmony, helping nature, nationalism etc. among students.
MoUs & LINKAGES @ ISTAR

- The institution has collaborations with the following research institutes: Gujarat Institute of Desert Ecology (GUIDE), Gujarat Ecology Commission (GEC), Nandesari Industrial Association (NIA), Green Circle Inc. - Group of Companies, Baroda for student short time research and project work.
- MoU with Gujarat Cleaner Production Centre (GCPC), Estd. by Department of Industries & Mines, Government of Gujarat, Gandhinagar, for Green Audit Activities
- College also tie-up with international university departments like University of Cincinnati, and Missouri University of Science and Technology, Rolla, Missouri, USA, and Department of Environmental Management, AIST, Tsukuba, Japan, for student research and Ph.D. program.
- MoUs with Lupin Ltd., Zydus Cadilla Ltd. For training and placement
- MoU with VCCI for project work
- MoU with SVNIT for student exchange
- MoU with Red Hat India Pvt. Ltd.

<table>
<thead>
<tr>
<th>Department</th>
<th>Functional MoUs with Industry</th>
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</thead>
<tbody>
<tr>
<td>EST</td>
<td>Nandesari Industrial Association (NIA), Green Circle Group of Companies (Green Circle Inc.), Baroda, Gujarat Cleaner Production Centre (GCPC), Estd. by Department of Industries &amp; Mines, Government of Gujarat, Gandhinagar</td>
</tr>
<tr>
<td>IC</td>
<td>Lupin Ltd. Zydus Cadilla Ltd., Vedant Chlorochem Pvt. Ltd., SVNIT</td>
</tr>
<tr>
<td>SCT</td>
<td>ISSPA, Ahmedabad Region</td>
</tr>
<tr>
<td>PST</td>
<td>IPI Student Chapter</td>
</tr>
<tr>
<td>MIHS</td>
<td>Pramukh Swami Medical College, Karamsad</td>
</tr>
</tbody>
</table>

CAPABILITY ENHANCEMENT & DEVELOPMENT (CED) @ ISTAR

1. Guidance for Competitive Examinations: Every year more than 10,000 students apply for government job but somehow they couldn’t make it because of lacking somewhere in preparation for the competition. Although there are ample of opportunities in private sectors but still most of them prefer for government jobs only because of its facility and permanent settlement till retirement. They want to establish their career in government sector as it is the hundred percent guarantee of lifetime security. Most of the candidates think of getting government job but they genuinely prepare for this. Cracking government competitive exam is not a cup of tea for everyone. For this students have to do really hard work. Today candidates get offer via open competitive examination based recruitment system. The reason behind failing in government competitive examination is unorganized strategy of study. Free coaching of NET EXAM is provided by EST Department to its various students every week (at least 1/period/week) in curriculum.
2. Career Counseling: At the time of admission during vacation, teachers counsel the students about courses available in the college and career prospectus about each course. Moreover, the college also has a unique policy of counseling. Group of students is allotted to one counselor. The counselor appointed is from the same department of the student. The counselor keeps track of the academic and general performance of the student. In case of need like attendance shortage and poor performance, parents are informed through letter or phone. Counselor also provides placement assistance. For each course, 1 period is allotted per week for the counselors to counsel.

3. Soft Skill Development: Personality Development Programme (PDP) is conducted in association with Globearena Technologies Ltd. Hyderabad. Total 24 hours sessions are organized every year and the topics covered are teamwork, corporate etiquette, aptitude, communication skills, attitude & skill mapping, letter writing, resume preparation and group discussion. Pre mock interview sessions and mock interview sessions are organized for the third semester students of all branches. Professionals, HR experts from industry, and experts from institute are invited to provide guidance.

4. Personal Counseling: All the students are counseled by their respective counselors about the above-mentioned facilities. The counselor also tries to solve academic and personal problems of the students. Parents are also informed about their wards’ issues. They are also invited to attend Parent-Teachers meeting at least once in each semester.

5. Motivational Talks: Motivational talk is organized for students and faculty during the academic year. Best motivational speakers are invited outside the college.

6. Bridge courses: The courses offered in ISTAR are inter and multidisciplinary in nature, so students coming from different back grounds are given exposure to bridge classes at least for two or three weeks in most of the M.Sc. programs to make them understand and connect about main core subject.

INSTITUTIONAL ACHIEVEMENTS

GSIRF RATING BY KCG, GANDHINAGAR

ISTAR secured Top 3rd Rank among All Colleges of Gujarat in Gujarat State Institutional Rating Framework (GSIRF) by KCG, Awarded by Education Minister Shri Bhupendrasinh Chudasama on 27.02.2019

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GLIMPSES OF 20th ANNUAL DAY OF ISTAR

GSIRF – COLLEGE RATINGS – SUMMARY

<table>
<thead>
<tr>
<th>S. NO</th>
<th>INSTITUTION NAME</th>
<th>SCORE OBTAINED (out of 100)</th>
<th>COPA (out of 5)</th>
<th>STAR RATINGS (out of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ST. XAVIER’S COLLEGE</td>
<td>69.46</td>
<td>4.06</td>
<td>5</td>
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<tr>
<td>2</td>
<td>ENTREPRENEURSHIP DEVELOPMENT INSTITUTE OF INDIA</td>
<td>62.53</td>
<td>3.66</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>INSTITUTE OF SCIENCE &amp; TECHNOLOGY FOR ADVANCED STUDIES &amp; RESEARCH (ISTAR)</td>
<td>62.36</td>
<td>3.65</td>
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<tr>
<td>4</td>
<td>GOVERNMENT DENTAL COLLEGE AND HOSPITAL</td>
<td>60.7</td>
<td>3.55</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>DINKA PATEL COLLEGE OF NURSING COLLEGE ROAD NAGDAD</td>
<td>57.18</td>
<td>3.34</td>
<td>4</td>
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<tr>
<td>6</td>
<td>N.V. PATEL COLLEGE OF PURE AND APPLIED SCIENCES</td>
<td>56.58</td>
<td>3.31</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>VITHALBHAI PATEL &amp; PARATNA P.P. PATEL SCIENCE COLLEGE</td>
<td>55.86</td>
<td>3.27</td>
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<tr>
<td>8</td>
<td>CHRIST COLLEGE ARTS, SCIENCE &amp; CONSERVACE, NAKKOT</td>
<td>55.18</td>
<td>3.23</td>
<td>4</td>
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<tr>
<td>9</td>
<td>VITHALBHAI PATEL &amp; PARATNA P.P. PATEL SCIENCE COLLEGE</td>
<td>54.56</td>
<td>3.19</td>
<td>4</td>
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<tr>
<td>10</td>
<td>M.G. SCIENCE INSTITUTE</td>
<td>54.30</td>
<td>3.18</td>
<td>4</td>
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<tr>
<td>11</td>
<td>S. M. PATEL COLLEGE OF HOME SCIENCE</td>
<td>54.31</td>
<td>3.16</td>
<td>4</td>
</tr>
</tbody>
</table>
5th International Yoga Day Celebration on 17-18/06/2019 by NSS Cell & Art of Living Organization, Anand Chapter
રાષ્ટ્રીય સેવા યોજના દેખાતા આઈષ્ટાર કોલેજને લાંબેવલ ગામ ગ્રામ વર્ષ માટે દિક લીધું

આધે, આ. ૧૯ આઈષ્ટાર વિડયામંદિર સંરક્ષિત આઈષ્ટાર દેશની લાંબેવલ ગામ પણ દર્શાવતા જાણ વર્ષ માટે દિક દેખા દેખા માટે સમજુદી કરી કરવામાં આવ્યો છે. શ્રેષ્ઠ મુખ્ય ઉદ્યોગની લાંબેવલ ગામને માટે પણ દિક દેખા દેખા જનાવ્યું જાણ મેં સિદ્ધાંતી રચના ને ભેગી કરવા શેખા કે 
સંદર્ભાના અભિભાષણ, પરિસ્થિતિના વચ્ચે સમયના, પરામા સંખ્યા અને નાતાલા વાહન પછી જનાસપાદનની 
જનતાઓની આકર્ષક રીતે, ગાંધીની તનતા સેવા જાહેર માટે સેવાપાલની પ્રશ્નોને કરવા માટે છે. 
આ સમજૂતી કરારનામ ને વધારો શેખા કે 
સંદર્ભાના અભિભાષણ કરવા માટે 

આઈષ્ટાર લોંબેવલ ગામની લાંબેવલ ગામની 

આઈષ્ટાર કોલેજની અન્યાયકાલ લિંગનો લાંબેવલ ગ્રામ માટે 

આઈષ્ટાર લોંબેવલ ગામ પણ દર્શાવતા જાણ વર્ષ 

આઈષ્ટાર લોંબેવલ ગામ પણ દર્શાવતા જાણ 

આીષ્ટાર લોંબેવલ ગામ પણ દર્શાવતા જાણ 

આીષ્ટાર લોંબેવલ ગામ પણ દર્શાવતા જાણ 

આીષ્ટાર લોંબેવલ ગામ પણ દર્શાવતા જાણ
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આરશ્તર અનેસાસોસ યુનિટ દ્વારા આયુર્વેદિક શિખર યાત્રા

આરશ્તર, તા. ૨૮
આરશ્તર વિદ્યા મંદિરની સંઘાલિત
આરશ્તર સંસથાન અનેસાસોસ યુનિટ
દ્વારા યાત્રા પર માટે હું કહશું હશે. હસ્તગી સહયોગી નહીં.
આ યાત્રાની અગ્રણી સમાવેશે આયુર્વેદિક શિખર યાત્રા.
તમારા સંઘાલિત નીચે.

આયુર્વેદિક શિખર યાત્રા પર માટે હું કહશું হશે.

આરશ્તર કોલેજી અનેસાસોસ શિખરને લોકો માણા સમાપન

આરશ્તર કોલેજી અનેસાસોસ યુનિટ દ્વારા લોકો માણા જાણી લોકી શિખરને લોકો માણા સમાપન.

આરશ્તર કોલેજી અનેસાસોસ યુનિટ દ્વારા લોકો માણા જાણી લોકી શિખરને લોકો માણા સમાપન.

Inspire (ISTAR E-Newsletter – 2019) 2 (1): 11
આરસ્તાર કોલેજનો 20મો વાર્ષિક અસંઘાત

આરસ્તારકે વિશ્વાસી સંઘાટના આરસ્તાર કોલેજનો 20મો વાર્ષિક અસંઘાતની યોજના અનુસાર ભારતીય પ્રીન્ટ કલયાણ પ્રજાસ્થાન પસંગ ગ્રામીણાં મકાનની માધ્યમદ્વારા મુલાકાત કરવા માટે આ અસંઘાત ભરપૂર કરવામાં આવ્યું છે.


આ અસંઘાત ભરપૂર માતમ પસંગ જે જાહેર પાસે આવા ગ્રામીણની પ્રશ્ન-સમસ્યાઓને મોટી પ્રમાણે મુલાકાત કરવામાં આવ્યું છે. આ અસંઘાત ભરપૂર માતમ પસંગ જે જાહેર પાસે આવા ગ્રામીણની પ્રશ્ન-સમસ્યાઓને મોટી પ્રમાણે મુલાકાત કરવામાં આવ્યું છે. આ અસંઘાત ભરપૂર માતમ પસંગ જે જાહેર પાસે આવા ગ્રામીણની પ્રશ્ન-સમસ્યાઓને મોટી પ્રમાણે મુલાકાત કરવામાં આવ્યું છે. આ અસંઘાત ભરપૂર માતમ પસંગ જે જાહેર પાસે આવા ગ્રામીણની પ્રશ્ન-સમસ્યાઓને મોટી પ્રમાણે મુલાકાત કરવામાં આવ્યું છે. 

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આઈસ્ટાર કોલેજમાં વિદ્યા પરયોગાબ્ધ દિવસની ઉજવણી

આપણે, તા. ૬

આઈસ્ટાર વિદ્યાપદ્ધતિ, વિદ્યાલયગાર, સંવચિત આઈસ્ટાર કોલેજ માંથી વિદ્યા પરયોગાબ્ધ દિવસની ઉજવણી આવ્યું હતું. પ્રથમ પ્રિયા માલયૂ મેથીના મેરીના પીનું પ્રતિસાદ તથા અંતિમ રૂપાંતરની દશનની સામૂહિક દૃષ્ટિઓ સાથે પ્રિયા માલયૂ પીનું પ્રતિસાદ તથા અંતિમ રૂપાંતરની દશનની સામૂહિક દૃષ્ટિઓ સાથે 

આઈસ્ટાર વિદ્યાપદ્ધતિ, વિદ્યાલયગાર, સંવચિત આઈસ્ટાર કોલેજ માંથી વિદ્યા પરયોગાબ્ધ દિવસની ઉજવણી આવ્યું હતું. પ્રથમ પ્રિયા માલયૂ મેથીના મેરીના પીનું પ્રતિસાદ તથા અંતિમ 

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ACTIVITIES OF VARIOUS DEPARTMENTS OF ISTAR

M.SC. INDUSTRIAL CHEMISTRY (IC)

Unique Features

✓ The M.Sc. Industrial Chemistry course is a fine blend of chemical engineering and chemistry. The curriculum comprises of the core aspects of Chemical Engineering, Chemistry, and Industrial Management & Safety. In-plant training of six weeks after completion of second semester is a pre requisite for admission to the third semester of the course.
✓ Expert lectures by eminent people from industry & academics, Industrial visits to make the students updated with the latest trends are the unique features of this department.
✓ Personality Development Programmes for students are arranged throughout the year for improving the soft skills of the students.
✓ The department evaluates the students by continuous assessment through classroom test, quizzes, seminars, home assignments, and external examinations.
✓ MoU with Lupin Ltd. for Scholarship.
✓ MoU with Cadila Healthcare Ltd. for Training & Placement.
✓ MoU for research and academic activities is signed with SVNIT, Surat on 10th August, 2013.
✓ Mini research project is a part of the curriculum, which sows and nurture research methodology in the students and sharpens their analytical skills.
✓ 100 % university results with first class and distinctions every year.
✓ Web: http://istar.edu.in/IC/index.htm

Departmental Activities

| Students Participation in Various Technical Activities | o 17 students of 2nd semester and 16 students of 4th semester in “Medicinal Chemistry at the interface 21st Century: An Indian perspective” organized by V.P. & R.P.T.P. Science college on 28th January 2019 participated in poster and oral presentation. | o 8 students of 4th semester in SCIENCE MANTHAN 2019 organized by CHARUSAT on 5th January participated in poster presentation. |
| Students Achievement in | o Jagrat Sevak, Sem-4 in Youth Parliament, 24th January 2019. | o Jagrat Sevak, Sem-4 in Research paper presented on “Diversity in Business” at Regional Conference (west) on “Constructive Leadership and Institutional Capacity Building: The way Forward” |

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- Hemant Mali and Dvijendra Rathod, Sem.-4 2\(^{nd}\) position in poster presentation competition at “Medicinal Chemistry at the interface 21\(^{st}\) Century: An Indian perspective” on 28\(^{th}\) January 2019. |
| **Sports Achievements** | Rushi Makati IC 4\(^{th}\) winner in Badminton (Doubles-Boys) inter class.
- Jeimin Joshi IC 2\(^{nd}\) runners up in Badminton (Doubles-Boys) inter class.
- Sweta Chauhan IC 2\(^{nd}\) & Rushi Makati IC 4\(^{th}\) runners up in Badminton (Doubles-Boys) inter class.
- Jeimin Joshi IC 2\(^{nd}\) winner in Table Tennis (Singles)
- Jeimin Joshi IC 2\(^{nd}\) & Harsh Patel IC 2\(^{nd}\) winner in Table Tennis (Doubles)
- Harshit Ganatra IC 4\(^{th}\) runners up in Table Tennis (Doubles)
- M.Sc. (IC) 4\(^{th}\) runners up in cricket.
- Harshit Ganatra IC winners in Chess (Boys)
- Sweta Chauhan & team won the Championship in Kabaddi in Khel Mahakumbh 2018 from Anand District.
- Sweta Chauhan & team won the Championship in Senior state Kabaddi tournament, Khel Mahakumbh, all Gujarat State Invitation Kabaddi tournament during 2018-19 at state level.
- IC 2\(^{nd}\) & 4\(^{th}\) semester 1\(^{st}\) position in Table Tennis team in Inter-Collegiate Tournaments, Organized by Sardar Patel University.
- Mohammadanis Yusufmiya Malek, 2\(^{nd}\) semester 3\(^{rd}\) position Triple Jump (58\(^{th}\) Intercollegiate Athletics Championship 2018-19) in Inter-Collegiate Tournaments, Organized by Sardar Patel University.
- Sweta Chauhan won CVM ‘Gaursav Puraskar’ for Kabaddi. |
| **Scholarship awarded** | Lupin Scholarship of Rs. 30,000/- to Bhavesh Modi
- MISA Scholarship of Rs. 20,000/- to Kartik Patel and Mahavirsinh Gohil.
- CVM Scholarship to Sweta Chauhan |
| **Gold Medal** | Ms. Simaran Kaur won university Gold Medal |
IC 4th Sem. Runner’s up in Interclass Cricket Tournament

Harshit R. Ganatra (IC 4th sem.) became champion in Interclass Chess Tournament
Mohammadania Y. Malek
Secured 3rd Position in Triple Jump in Intercollegiate Athleticsss Championship Distance: **11.74 Mts.**

**Glimpse of Buddies Meeting**
GUJCOST Sponsored National Seminar on Medicinal Chemistry at the Interface of 21st Century: An Indian Perspective on 28.1.19

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M.S.C. SURFACE COATING TECHNOLOGY (SCT)

Unique Features

- Only course available in Gujarat of its kind in the field of coating technology and unique in India that is available for science graduates.
- The course has been framed to cater highly skilled technocrats for the fast growing field of Surface Coating Technology which grows hand in hand with the growth of Construction Industry (Housing & Commercial buildings), Infrastructure development (Ports, Offshore structures, Pipelines, Bridges etc), Automotive Industry, Ship building Industry, Heavy Engineering Industry, Packaging industry (Printing Ink) etc to offer protection & aesthetics to these assets.
- The 2 years (4 Semester) curriculum includes the subjects related to the technology for the manufacturing & application of the Surface Coatings and analysis of their performance properties.
- 6 weeks in-plant training at various coating and allied industries at the end of Second Semester.
- Project work to be conducted during the 4th Semester on the topics related to the recent trends in surface coatings.
- 100% job placement through Campus Interview (National & International).
- Highest Salary Offered: Rs 42,500/- (AED 2500 + Bach. Accommodation + Transportation + Air Fair)
- M/S Asian Paints Charitable trust, Mumbai and Shri Umesh Pathak, Netherland have been kind enough to give scholarship to our M.Sc. (SCT) students.
- Strong Academic – Industry interaction.
- Visit to various Coating Industries, National & International Seminars, Exhibitions, and Conferences.
✓ Arrangement of lectures of the professionals from the various fields of Coating Industry.
✓ Conducting Corporate Training for Civil Engineers like GNFC, Kribhco etc. and consulting for paint application.
✓ The students passing with the M.Sc. Degree in Surface Coating Technology are expected to have opportunities in:
  o Paint & Resin Manufacturing Industry
  o Pigment & Additives Industry
  o Engineering Industry (Paint Application)
  o Paint Industry (Technical Sales Services)
  o Printing Ink Industry
  o Academic & Research, Testing and Consultancy Works Institutions
✓ Web: http://istar.edu.in/SCT/index.htm

**Departmental Activities**

**PARTICIPATION OF 2ND SEMESTER SCT STUDENTS IN INTERNATIONAL CONFERENCE**

24 students of M.Sc. Surface Coating Technology (2nd Semester) department of ISTAR participated in two days international conference organized by Surface Protective Coating Council (SSPC), Mumbai, CIDCO, on 11-12th March 2019. Three students have secured 1st, 2nd and 3rd prize in quiz competition and have won Rs. 3000, Rs. 2500 & Rs. 1000, respectively.

- Bureau of Indian Standards (BIS): Raw Materials for Paints, Varnishes and related Products Sectional Committee, CHD 21. The Committee further decided to Co-opt Dr. Kalpesh Patel and Dr. Parag S Karia as a Young Professional, Institute of Science and Technology for Advanced Studies and Research (ISTAR) in CHD 21 Committee)
- Campus Placement for the Year 2018-2019: 92.00%
- Results of the Academic Year 2018-2019: 95.65%
M.S.C. ORGANIC CHEMISTRY (OC)

Unique Features

- Teaching is delivered by highly experienced and qualified faculty.
- State-of-art well-equipped spacious laboratories, classrooms are well-ventilated and equipped with advanced multimedia facility.
- A seminar hall with modern multimedia technology and a capacity of around 100 is also furnished.
- Career counseling, mock interviews, resume writing seminars, and personality development program conducted during the academic year by experts.
- Placement by campus interviews.
- Industrial visit during program.
- Wi-Fi facility for students.
- Web: [http://istar.edu.in/OC/index.htm](http://istar.edu.in/OC/index.htm)
Ms. Dipti B. Upadhyay (4th Semester Student) secured 1st Rank at Sardar Patel University

M.SC. POLYMER SCIENCE & TECHNOLOGY (PST)

Unique Features

- Fine blend of Chemical Engineering, Polymer Chemistry, Polymer Technology, Pure and Applied Chemistry.
- Introducing Students Chapter in Association of Indian Plastics Institute, Vadodara Chapter in 2013.
- Compulsory in-plant training of six weeks after completion of second semester.
- Department is selected as runners up in category of 'Best Education Institution Contributing to Plastics' and awarded Plasticon Award 2009 in Award Ceremony Programme at Pragati Maidan, New Delhi.
- Expert lectures from eminent people from industry & academics.
- Strong Academic-Industrial Interaction.
- Industrial visits to make the students updated with the latest trends.
- 100% University results
- Students can pursue Ph.D., M.Tech. etc. programme after M.Sc.
- Project work on recent developments in the area of chemistry, polymer chemistry, polymer technology etc.
- 100% Placement achieved before M.Sc. degree.
- Web: http://istar.edu.in/PST/index.htm

Departmental Activities

1. Expert Talk by Dr. Nitin Bhate for Semester II & IV Students on 8/1/2019
2. Industrial Visit at Polycab, Halol and Crest Composites and Plastics at Kheda
3. Mr. Sagar Joshi awarded Ph.D. Degree in Chemistry under guidance of Dr. M.M. Raj

SICART Training from 20-22 February 2019

PST @ PRESS

आयस्टारना पोलिमर सायन्स
विभागमात्र 100 टका पेसमेंट

आઇसीएस, TA. 01
आयस्टार कॉलेज अन्म.अंस.सी. पोलिमर सायन्स अन्टेक्नोलॉजी विभागमां वर्ष 2018-19 ना बोधा सेमेस्टरना विद्यार्थीयांना 100 टका पेसमेंट देत दिले होते. आम परंपरा अंतर्गत यात्र वर्ष (2018-19) मास देखील साजिद तथा भारतीय व्यापार रप्तानीतीमध्ये जेंटीली क्रेडिट, रीलायजेशन, मेक्सी पोलिमर, मोडलिंग, जेंटीली इन्स्ट्र्युक्शन, एकेज जेंटीली क्रेडिट, जेंटीली इन्स्ट्र्युक्शन अन्म.अंस.सी. पोलिमर सायन्स अन्टेक्नोलॉजी विभागांमध्ये माहिती पेसमेंटमध्ये आमोघन करून आले होते.
M.S.C. ENVIRONMENTAL SCIENCE & TECHNOLOGY (EST)

Unique Features

- 100% University Results, More First Class & Distinction Every Year.
- Absolute Placement in Industry, consultancies, research labs, Academic Institutes for needy students.
- The course provides the knowledge, technical skills and solid background not only in Pollution Control Technologies, Ecology & Environmental Biology, Environmental Science and Technology, but also in Industrial Hygiene & Safety.
- Several Students are pursuing Ph.D. Program
- LoI with Department of Environmental Management, AIST, Japan
- MoU with Missouri University of Science & Technology, Rolla, MO, USA, for Students Exchange Program / Project Work / Ph.D.
- Excellent Laboratory Facilities.
- Students mentored by Seminars, Workshops, Industrial Visits, Study Trips.
- Best Practices: Weekly Practice Test, Bridge Course, Competitive Exams Preparation for NET, SLET, etc., Field Sampling Techniques, On-hand Instrumentation Training at SICART.
- Many students from our department joined Foreign Universities for Higher Studies in Environmental Science / Technology / Management
- Web: [http://istar.edu.in/EST/index.htm](http://istar.edu.in/EST/index.htm)

Result of April 2019:

- Second Semester: 100% (Distinction: 22, First Class: 17, Second Class: 05)
- Fourth Semester: 100% (Distinction: 20, First Class: 18, Second Class: 03)
- Placement: 100% to needy students

Departmental Activities

Expert Talk on ‘Cleaner Production’ by Mr. Abhi Patel, GCPC, Gandhinagar on 05/01/2019

6th International Conference on Industrial Hygiene & Safety, CIHA, Ahmedabad, attended by Prof. Dr. Nirmal Kumar, J.I. & Dr. Hiren B. Soni on 06/01/2019

Expert Talk on ‘Legal Aspects of NIOSH’ by Dr. Illis Feitshans, Director, American Public Health Association (APHA), D.C., USA, on 10/01/2019

Visit to Tobacco Processing Plant, Kambhat on 05/02/2019
Visited Sardar Patel Renewable Energy Research institute (SPRERI), V.V. Nagar on 16/02/2019

Campus Placement of 4th Semester Students of M.Sc. EST on 27/04/2019

Freeship was given to Ms. Deepa Lalwani (PhD Student) to carry out research work at AIST, Tsukuba, Japan, including free-of-cost research facilities, fieldwork, analytical services, airfare, accommodation, and food for Two Years.

Donation by Organization

Analytical Instruments for Soil and Air Sampling worth Rs. 3,00,000/- for Field Sampling Techniques and Laboratory Analysis for PG and PhD Students donated by Dr. Nobuyoshi Yamashita, Chief Senior Research Scientist, AIST, Japan.
Activities with MoU Partners

- All Three Faculty Members of EST Department involved in GREEN AUDIT CELL, CVM, CORE TEAM.

- Dr. Nobuyoshi Yamashita, Chief Senior Scientist, AIST, Japan, provided Freeship to Two PhD Scholars (Ms. Deepa Lalwani, Ms. Pooja Thaker) to carry out research work at AIST, Tsukuba, Japan, including free-of-cost research facilities, fieldwork, analytical services, airfare, accommodation, and food for Two Years.

- Nandesari Industrial Association (NIA) imparted training, internships and on-hand techniques to EST students at industrial scale, along with helping students in their Dissertation / Project Work and Placement in thrust areas of Environmental Science.

- Gujarat Institute of Desert Ecology (GUIDE), Bhuj-Kachchh, helped EST students in Dissertation / Project Work, Training and Placement.

EST @ PRESS

विधानगर : आधुनिक गौरव

- तालाबस्थीत गुजरात कलीनर प्रदेश केन्द्र, गांवीनगर, गुजरात पोलिस कॉलेज लोड, अने मिश्रित स्कॉलर लेखन स्कॉलर लेखन डे रेक्ट, ब्यू हिंदीगी नांदुरबाज उपरोक्त प्राध्यापकांच्या शिक्षणातील विद्यार्थ्यांना दिला गोष्ट, त्या अनुसार सूचना अखाडे अने गौरवी गौरवी रेक्ट शिक्षणातील दर्शनांना लेखन केलेल्या सचिवालयाचे उपरोक्त गोष्ट देत दिला गोष्ट. अनुसार अनुसार अखाडे अने गौरवी गौरवी रेक्ट शिक्षणातील दर्शनांना लेखन केलेल्या सचिवालयाचे उपरोक्त गोष्ट देत दिला गोष्ट. त्या अनुसार सूचना अखाडे अने गौरवी गौरवी रेक्ट शिक्षणातील दर्शनांना लेखन केलेल्या सचिवालयाचे उपरोक्त गोष्ट देत दिला गोष्ट.

**Activities of EST Department from January to June, 2019**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.19</td>
<td>Expert talk on Cleaner Technology by Abhi Patel, GCPC, Gandhinagar</td>
<td>Attended by 30 students of MSc 2nd Semester, 8 students of MSc 4th Semester, and TV BSc (ES) students of NVPAS</td>
</tr>
<tr>
<td>7.1.19</td>
<td>6th International Conference on Industrial Hygiene &amp; Safety, CIHA, Ahmedabad</td>
<td></td>
</tr>
<tr>
<td>10.1.19</td>
<td>Expert Talk by Dr. Illis Feitshans, Director, American Public Health Association (APHA), D.C., USA, on “Legal Aspects of NIOSH”</td>
<td>Attended by 30 Students of M.Sc. EST (2nd Semester) and 15 Students of MIHS (2nd Semester)</td>
</tr>
<tr>
<td>15-19.1.19</td>
<td>5 Days Workshop on Wetland Monitoring, Training and Methodologies at Khijadiya Bird Sanctuary, organized by GEER Foundation, Gandhinagar</td>
<td>Attended by Sagar Sheikh (PhD Student) and Yukti Sharma (M.Sc. EST 4th Sem Student)</td>
</tr>
<tr>
<td>18-19.1.19</td>
<td>National Symposium on Green Chemistry &amp; Technology for Sustainable Development, GCET College</td>
<td>Prof. Dr. Nirmal Kumar, J.I., as a Chair Person in Oral Presentation</td>
</tr>
<tr>
<td>22.1.19</td>
<td>Counselling to the TYBsc, ES, NVPAS</td>
<td>Attended by 15 students</td>
</tr>
<tr>
<td>23.1.19</td>
<td>Counselling to TYBSc, Microbiology,</td>
<td>78 students were participated</td>
</tr>
</tbody>
</table>
Botany, Zoology, from VP Science college

23.1.19 Visit to Meteorological Department and Vermicompost Unit at AAU, Anand Visited by 25 students of MSc EST 2nd Semester Headed by Dr. Drhuti Patel

24.1.19 Counselling to TYBSc Microbiology, Biotechnology NVPAS 48 students were participated

2.2.19 Counselling to TYBSc Genetics, Bioinformatics 27 students were participated

5.2.19 Visit to Tobacco processing unit at Borsad Attended by 25 students headed by Mr. Baiju Varghese

16.2.19 Counseling to TYBSc Students, Gujarat Science College, Ahmedabad Participated by 28 Students of Zoology, by Dr. Hiren B. Soni

16.2.19 Visit to SPRERI Open House Attended by 26 Students of 2nd Sem

20.2.19 As Juge in Poster competion, held in GCET college Dr. Drhuti Patel as Jury

27.2.19 Awarded with 4 stars and got 3rd position in state,GSIRF by KCG Prof. Dr. Nirmal Kumar, J.I. and Dr. Hiren B. Soni

28.2.19 Awarded Best Ph.D thesis by GCPC,Gandhinagar Prof. Dr. Nirmal Kumar, J.I. and Dr. Drhuti Patel

3.3.19 Awarded with Guarav Pursakar by CVM on VV Nagar Day Prof. Dr. Nirmal Kumar, J.I.

7.3.19 Counselling to TY BSc Food & Nutrition, Clothing & Textile, family planning, Child Development 69 students were participated

13.3.19 Counselling to TYBSc Botany Students of MSU, Baroda Counseled by Prof. Dr. Nirmal Kumar, J.I., Accompanied by Dr. Hiren B. Soni

13-14.3.19 KIA Workshop: Domain Knowledge at ARIBAS, New V.V. Nagar Attended by Prof. Dr. Nirmal Kumar, Dr. Hiren B. Soni and Dr. Dhruvi S. Patel

27.4.19 Campus Placement for 4th Semester Students Attended by 17 students

4.6.19 World Environment Day Celebrations by Community Science Center, SPU, V.V. Nagar Attended by Prof. Dr. Nirmal Kumar (Jury), and Dr. Hiren B. Soni

M.Sc. INDUSTRIAL HYGIENE & SAFETY (MIHS)

Unique Features

✓ The programme M.Sc. Industrial Hygiene and Safety is India's first of its kind full time Post Graduate Programme offered at Sardar Patel University.
✓ Previously known as Master of Industrial Hygiene since inception in 1997 is the science that deals with Anticipation, Recognition, Evaluation, and Control of occupational health hazards.
✓ The portion of safety was added to the course in 2005 to get enhance knowledge about safe working conditions to be created in workplace.
✓ The students passing with the Master of Industrial Hygiene & Safety (MIHS) Degrees are expected to have opportunities at:

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✓ Industrial Hygiene Consultancies
✓ Industrial Safety Consultancies
✓ Various Engineering, Refineries, Paints, Ports, Pharmaceuticals, Software Industries etc.
✓ Work with Various National and Multinational Industries
✓ Go on to become Certified Industrial Hygienist and Certified Safety Professionals.
✓ Students may establish their own Industrial Hygiene and Safety firm.
✓ Good job opportunities abroad
✓ Web: http://istar.edu.in/MIHS/index.htm

**Departmental Activities**

Dr. Cynthia Ostroski, President (AIHA) visited ISTAR Library, 5.1.19
President, American Industrial Hygiene Association visiting the Department and ISTAR, 5.1.19

Alumni Get Together at Novotel, Ahmedabad
6th International Industrial Hygiene Conference, Novotel Hotel, Ahmedabad, 7-9.1.19
International Labour Law Expert Dr. Illse Freithans visited ISTAR and CVM Management, 10.1.19

Expert Talk on Refinery by Dhruvit Mehta, Mittal -HPCL Refinery, Bhatinda, 18.1.19

Expert Talk on TLV by Abhi Mishra, 22.1.19

Felicitation of NSS Student of MIHS, 30.1.19

Mourning observed by MIHS Student for Brave Soldiers of Pulwama Attack, 30.1.19
M.S.C. (REAL ESTATE VALUATION) & M.S.C. (PLANT & MACHINERY VALUATION)

Unique Features

- Master of Valuation (Real Estate) / M.Sc.(Real Estate Valuation) and Master of Valuation (Plant & Machinery) / M.Sc. (Plant & Machinery Valuation) are the two unique interdisciplinary courses run by ISTAR. The courses are affiliated to Sardar Patel University.
- These courses were first started by Charutar Vidya Mandal at BVM Engineering College, Vallabhbh Vidyanagar in the year 1994. Master of Valuation (Real Estate) was the first course of its kind in India and master of Valuation (Plant & Machinery) was first course of its kind in the whole world. The senior professionals in the field of valuation designed the courses, after extensive study and research of the valuation courses worldwide.
- Some of the key persons instrumental in starting these courses were Mr. Kirit P. Budhbhatti (ex-Hon. Advisor), Mr. D.N. Banerjee (ex-Chairman, Central Valuation Board, Kolkatta, West Bengal) and Mr. R. K. Gandhi (practicing valuer, Mumbai). Some eminent valuers from Kolkata, Mumbai and Surat were also part of the same team.
- As Charutar Vidya Mandal established ISTAR to bring post graduate programmes of Science, Engineering, and Interdisciplinary under one umbrella, these valuation courses were shifted to ISTAR in the year 1999.
- Nomenclature of these courses are changed to M.Sc. (Real Estate Valuation) & M.Sc. (Plant & Machinery Valuation) from Academic Year 2016-17 as per the UGC norms.
- Master of Valuation (Real Estate) - first and only course of its kind in India
- Master of Valuation (Plant & Machinery) – first and only course of its kind in the world
- As per the recent report of the Indian Banks’ Association (IBA), only academically qualified valuers possessing Post Graduate Degree in Valuation shall be empanelled by banks from 1st January 2020.
- Being a multi-disciplinary course, students from variety of fields and with wide filed experience join the course – glimpses of some of the students are mentioned below:
  - More than 20 years experience in construction industry
  - Chartered Accountant
  - More than 15 years experience as a Civil Engineer and Real Estate Valuer
  - About 10 years experience as a Mechanical Engineer and Plant & Machinery Valuer
  - Electronics Engineer, shifted to valuation career and is working with a valuer’s firm
  - MBA, having own valuation firm at Delhi
  - Civil Engineer, working with a valuer’s firm
  - Architect from Mumbai, Master’s degree in Urban Planning from UK
  - About 10 years experience as a Plant & Machinery Valuer
  - Web: http://istar.edu.in/valuation/index.htm

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Departmental Activities

Expert Lecture

- Dr. Shashikantkumar, head, Planning Dept., Bhaikaka Centre for Human Settlement, APIED, delivered expert lecture on “Effect of Development Control Regulations on Valuation” on February 7, 8 2019.
- Dr. Sudhir Thakur, senior Town Planner delivered expert lecture on Town Planning and Valuation on 28 February 2019.

Extra-Curricular Activities

- Rudra Bhatt, first semester student of M.Sc. (Real Estate Valuation) participated in Rangoli competition on women’s day and won second prize.
- Rushabh Shah, first semester student of M.Sc. (Real Estate Valuation) participated in Inter College Table Tennis tournament of Sardar Patel University as a team member of ISTAR and ISTAR won the championship in the tournament.
- Rushabh Shah, second semester student of M.Sc. (Real Estate Valuation) participated in Inter University Table Tennis tournament at Nanded, Maharashtra as a team member of Sardar Patel University. He was also the Runner’s up in ISTAR interclass Table Tennis Tournament.

Participation of Faculty and Students in Seminar/Workshop

- 14 students of second semester, three students of fourth semester and one faculty member (Rupesh T. Shah) participated in a “National Valuation Symposium” organized jointly by IBBI and CVSRTA at Ahmedabad, Management Institute, Ahmedabad on 23rd February 2019.
- Mr. Rupesh T. Shah was also invited as a panelist in one of the panel discussion sessions in this symposium.

Expert Lecture delivered by Faculty

M. SC. INSTRUMENTATION & CONTROL (INC)

Unique Features

- Instrumentation & Control is interdisciplinary subject; it has roots in physics and mechanism in electrical and electronics. It has control through computers and the functional utility in different industrial and domestic spheres. The multidisciplinary aspect has led this discipline to translate the logical ideas into reality with reliable gadgets for effective utilization.
- The precision and sophistication thus provided by Instrumentation & Control has made it very important subject to study. ISTAR thus conducts Two Years (Four Semesters) post graduate course of M. Sc. Instrumentation & Control which bridges the gap between Science and Engineering concepts and to meet the requirements of high skill manpower for Instrumentation based Process and Control industries in our country as whole and industrial sectors of Gujarat in particular.
- Course provides know-how about various instruments, process control systems, and automation with technical skills.
- Well balanced structure between Science & Engineering.
- Compulsory presentation of seminars by each student in all theory papers.
- Project / Industrial Training report evaluation through presentations & Viva-voce.
- Encouragement & guidance provided to participate in Seminars, workshops at State/ National level for poster/oral presentations.
- Results of University examinations are almost 100%.
- Prospective course for job in Instrumentation industries.
- Web: [http://istar.edu.in/Instrumentation/index.htm](http://istar.edu.in/Instrumentation/index.htm)

Departmental Activities

- Department organized State Level Seminar on Frontiers in Instrumentation jointly with V. P. Science College. About 100 participants from different colleges participated.
- Dr. H. N. Kapse delivered a talk on Sensors in Biomedical Instrumentation on 2-2-2019.
• Two students Dwji Oza and Rahul Suthar received first and second prize respectively in poster presentation.
• Dr. H. N. Kapse delivered talk on “Remote Sensing Concepts for Civil Engineering”, at training programme in Civil Engineering Department, GCET, 4-1-2019.
• FDP: KIA Workshop on Domain Knowledge attended by Dr. H. N. Kapse & Ms. Feby Sam, 15 & 16-3-2019.
• Dr. H. N. Kapse attended Seminar on Awareness of SIS-SIF-SIL organized by ISA Gujarat Section, Vadodara.
• Poster presented in Symposium & Poster Competition by Feby Sam & H. N. Kapse on E-waste Management a challenge for Public health organized by C. C. Patel Community Science Centre, SPU, Dept. of Chemistry, SPU, K. M. Patel Institute of Physiotherapy, Karmasad & Voluntary Nature Conservancy, 4-6-2019.
• Placement Interviews arranged:
  o Arteeflow control, Vadodara selected 1 student, 18-2-2019
  o H P Enterprise, TempHu Validation Services, Vadodara selected 1 student, 8-4-2019
  o Otica Meditronics, Vadodara selected 1 student, 18-4-2019.
• Alumni talks arranged:
  o Mr. Kaushal Chokshi on “Electromagnetic Flow Meter”, KFlow Instruments, Vadodara, 4-1-2019.
  o Mr. Chirag Patel on “Interview Skills” from Dhyey Career Academy, Anand, 16-2-2019.

State Level Seminar on Frontiers in Instrumentation jointly with V. P. Science College on 2-2-2019
Alumni Talk – Mr. Kaushal Chokshi - KFlow Instruments, 

Alumni Talk – Mr. Chirag Patel –
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**M.SC. GEOINFORMATICS (GIS)**

**Unique Features**

- Unique PG course in Gujarat
- Upcoming opportunities under Digital India for Project Management & Implementation
- Linkages with ISRO-IIRS, C-DAC, MPCOST, Compusense Automation, Scanpoint Geomatics Ltd. etc.
- Technical support from Indian Society of Geomatics, Ahmedabad
- Blend of multidisciplinary aspects of Remote Sensing, Image Processing, GPS, Android, Geoinformatics, Geo WebServers etc.
- Application Areas: E-Governance, Environment & Climate change, Urban Infrastructure Development & Planning, Tourism, Irrigation, Forestry, Agriculture, Geosciences, Disaster Management, Crowd Sourcing, Database Management, WebGIS etc.
- Job Scopes:
  - ISRO – IIRS, NRSC, Govt. Ministries, Survey of India, R & D Organizations, Disaster Management Organization, NGOs, Academia, Municipal Corporations
  - GEO-ICT Solutions / Services Private Companies.
- Web: [http://istar.edu.in/MSCGIS/index.htm](http://istar.edu.in/MSCGIS/index.htm)

**Result of April 2019:**

- Second Semester: 100% (Distinction: 4, Second Class: 1)
- Fourth Semester: 100% (Distinction: 9, First Class: 3, Second Class: 1)
- Placement: 100%

**Workshops/Outreach Programs Organized:**

<table>
<thead>
<tr>
<th>Event Name</th>
<th>Event Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>43 IIRS outreach program (Advances in Forest Remote Sensing)</td>
<td></td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>05th March 2019 to 13th March 2019</td>
</tr>
<tr>
<td><strong>Organized by</strong></td>
<td>Geoinformatics Department, ISTAR</td>
</tr>
<tr>
<td><strong>No. of Participants</strong></td>
<td>03 students</td>
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<thead>
<tr>
<th>Event Name</th>
<th>Event Details</th>
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<tbody>
<tr>
<td>42 IIRS outreach program (Principles of Polar metric SAR Remote Sensing and its Processing)</td>
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</tr>
<tr>
<td><strong>Date</strong></td>
<td>18th February 2019 to 1st March 2019</td>
</tr>
<tr>
<td><strong>Organized by</strong></td>
<td>Geoinformatics Department, ISTAR</td>
</tr>
<tr>
<td><strong>No. of Participants</strong></td>
<td>07 students</td>
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<table>
<thead>
<tr>
<th>Event Name</th>
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<tr>
<td>41 IIRS outreach program (Hyperspectral remote sensing and its Applications)</td>
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<tr>
<th>Date</th>
<th>21st January to 1st February, 2019</th>
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<td><strong>Organized by</strong></td>
<td>Geoinformatics Department, ISTAR</td>
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<tr>
<td><strong>No. of Participants</strong></td>
<td>07 students</td>
</tr>
<tr>
<td><strong>Event Name</strong></td>
<td>One Day IIRS outreach work shop (Microwave Remote Sensing in Agriculture)</td>
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<tr>
<td><strong>Date</strong></td>
<td>28th March 2019</td>
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<tr>
<td><strong>Organized by</strong></td>
<td>Geoinformatics Department, ISTAR</td>
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<tr>
<td><strong>No. of Participants</strong></td>
<td>02 Research Scholar + 08 Faculty</td>
</tr>
<tr>
<td><strong>Event Name</strong></td>
<td>One Day IIRS outreach work shop (Satellite data access from online data repositories and ISRO Bhuvan Geoportal)</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>26th June 2019</td>
</tr>
<tr>
<td><strong>Organized by</strong></td>
<td>Geoinformatics Department, ISTAR</td>
</tr>
<tr>
<td><strong>No. of Participants</strong></td>
<td>18 Students + 03 Faculties</td>
</tr>
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</table>
### Event Name: IIRS Academia Meet - 2019 Capacity Building in Geospatial: Requirements, Challenges and Opportunities

<table>
<thead>
<tr>
<th>Date</th>
<th>14th &amp; 15th March 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organized by</td>
<td>Indian institute of Remote sensing (ISRO), Dehradun</td>
</tr>
<tr>
<td>No. of Participants</td>
<td>01 Student + 01 Faculty, Invited by ISRO, Dehradun</td>
</tr>
</tbody>
</table>

### Students Participation:

<table>
<thead>
<tr>
<th>Event Name</th>
<th>One Day State Level Seminar</th>
</tr>
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<tbody>
<tr>
<td>Date</td>
<td>2nd February 2019</td>
</tr>
<tr>
<td>Organized by</td>
<td>Instrumentation &amp; Control Department, ISTAR</td>
</tr>
<tr>
<td>No. of Participants</td>
<td>03 students</td>
</tr>
</tbody>
</table>
Students Achievement:

Students of GIS Department won 1st Prize in Kite Decoration Competition at ISTAR.

M.Sc. INFORMATION TECHNOLOGY (IT)

Unique Features

M.Sc. (IT) program is recognized and affiliated to Sardar Patel University, Gujarat, India. Faculty of Information technology is a multi-disciplinary unit related to computer Sciences. Information Technology is the most captivating sector of the modern world. Every people and each of the organization are been fascinated by the technique of it.
M.Sc. (IT) gives career in Programming, Software project development, computer networks, information, and network security etc.

**Departmental Activities**

IT department had organized “Technokhoj 2019” on 10th January, 2019. This event provided the students with opportunities to explore and enhance their Technological and motivated them to execute their thoughts in this real world.

Technokhoj’19 was a grand success with total number of participants more than 82, more than 5 colleges students participated in this event. It comprised of total 8 events out of which 4 were Technical Events, 5 were Non-Technical Events.

**SHORT TERM CERTIFICATE COURSE ON “PYTHON PROGRAMMING AND MACHINE LEARNING”**

Information Technology department of ISTAR College had organized Short Term Certificate Course on “Python Programming and Machine Learning” for M.Sc. IT, IInd semester students. This Course was started from 15th December 2018 and finished 23rd February 2019, Completed this course within 30 hours. The Certification course had an aim to equip the participants with the knowledge and skill enhancement with respect to Python Programming and Machine Learning.
WEBINAR: ARTIFICIAL INTELLIGENCE VS. MACHINE LEARNING VS. DEEP LEARNING AND DATA SCIENCE

As a part of students learning activity, Information Technology department had organized Webinar on “Artificial Intelligence Vs. Machine Learning Vs. Deep Learning and Data Science” on 20th February, 2019 at ISTAR IT Lab. Anindita Das Bhattacharjee, Assistant Professor, Swami Vivekananda Institute of Science Technology conducted the session.

EXPERT TALK WITH HANDS ON SESSION ON “WEBSITE DESIGNING USING WORDPRESS”
Information Technology Department Of ISTAR College had Organized One Day Expert Talk On “Website designing using Wordpress” For Second Year Students on 4th February, 2019 For 4 Hours. It’s probably the easiest and most powerful blogging and website content management system (Or CMS) in existence today.

STUDENTS ACHIEVEMENTS

Mr. Pranay Rawat (M.Sc. IT) 
Received First Prize in Rangoli Competition on Annual Day

Ms. Kesha Parikh & Ms. Mansi Modha (M.Sc. IT) Received First Prize in Best Out of Waste Competition on Annual Day

GROUP DAY CELEBRATION

Information Technology Department of ISTAR College had Organized Group Day on February, 2019.

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RESULT

- 100% University Results, More First Class & Distinction Every Year.

IT @ PRESS

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We do many times go for outing at hilly areas especially where river streams are beautiful in nature and with transparent flow of water. This type of flow is best suited for Rafting. Rafting is recreational outdoor activity, which use an inflatable raft to navigate a river. This is often done on white water or different degrees of rough water. Dealing with risk and the need for teamwork is often a part of the experience. The overall risk level on a rafting trip using proper precautions is low. Thousands of people safely enjoy rafting trips every year. Rafting in general has become safer over the years. Expertise in the sport has increased, and equipment has become more specialized and improved in quality. As a result, the difficulty rating of most river runs has changed. Depending on the area, safety regulations covering rafting, both for the general do-it-yourself public, as well as commercial operators may exist in legislation. These range from the mandatory wearing of lifejackets, carrying certain equipment such as whistles and throwable flotation devices. Risks in white water rafting stem from both environmental dangers and from improper behaviour. Typical rafting injuries include trauma from striking an object, traumatic stress from the interaction of the paddler’s positioning and equipment or the force of the water. It is generally advisable to discuss safety measures with a commercial rafting operator before enjoying it.

What is the science behind this sport activity?

We know Newton's 1st law: Every object continues in its state of rest, or of uniform velocity in a straight line, as long as no net force acts on it. The first law applies to the state of the water. 2nd law: The acceleration of an object is directly proportional to the net force acting on it, and is inversely proportional to its mass. The direction of the acceleration is in the direction of the net force acting on the object. The second Newton's laws apply to the raft by the fact that water is constantly in motion which applies force to the raft. 3rd law: Action and reaction are always equal and opposite. Whenever one object exerts a force on a second object, the second exerts an equal force in the opposite direction on the first. The third law applies because if you hit a rock with a certain force you bounce back because of the force applied, which is then where the elasticity of the raft is needed. The flow of water does play an important role. There are three basic states of flowing water: laminar, turbulent, and chaotic.

Laminar describes the smooth-flowing currents in an unobstructed river. Even these currents can be complicated, for their speeds vary. Surface water is slowed by wind, while deep currents are slowed by friction with the riverbed. Water in the middle, a few feet below the surface, usually runs the fastest. Turbulence occurs when obstacles, such as rocks or a sudden narrowing of the river channel, obstruct the current's flow. Obstacles force too much water into too little space, so the water runs faster and laminar sheets break into individual ribbons of current. Then things get really
complicated. If water runs into a stone, a turbulent zone is created where the water and rock collide. The current runs faster around the stone edges, but behind the rock, it forms an area of backward-flowing water called an eddy. Shear zones between the eddy and the fast water can be strong enough to keep a raft from reaching the calm water.

Water crashing over a submerged ledge or rock becomes chaotic and creates a hole. A hole creates a horizontal vortex underwater that actually rotates in an upstream direction. A rafter, who falls into a hole, is pushed back upstream against the ledge that created the hole, and then driven down underwater. Often the only way out of a vortex is to dive to the bottom of the river, where some of the water crashing into the hole flows under the vortex. A rafter who gets into that deep current can follow it out of the hole and then resurface. Another large part of fluid dynamics and rafting is Bernoulli’s Principle. It states that where the velocity of a fluid is high, the pressure is low, and where the velocity is low, the pressure is high. Knowing the amount of water flowing in a river is important because the river’s speed increases as more water flows through it. So it is dangerous in rainy season and Rafter must avoid in such times.

Balance is also a large part of rafting. If a raft is unbalanced it flips more easily, so equilibrium needs to be maintained. Buoyancy is a force exerted by water that opposes an object’s weight. The magnitude of the force is proportional to the difference in the pressure between the top and the bottom, and is also equivalent to the weight of the water. If the object is either less dense than the water or is shaped appropriately like raft, the force can keep the object afloat. Archimedes’s principle specifically applies to the raft. An object floats on water if its density is less than that of the water. Which is the reason why rafts though small in comparison to the load it can float and hence the rafters won’t sink. Thus experience of rafting sport is fully exciting unsurprisingly involves lot of Physical Science to survive it.

ENVIRONMENTAL FORENSICS: A SOLUTION FOR CHEMICAL POLLUTION

Hiren B. Soni
Assistant Professor, P.G. Department of Environmental Science & Technology (EST)
Institute of Science & Technology for Advanced Studies & Research (ISTAR)
Vallabh Vidyangar – 388 120 (Dist. Anand) Gujarat (India)
E-Mail: drhirenbsoni@gmail.com

Background

Forensic science is the application of science to legal cases. Forensic science technicians help investigate crimes by collecting and analyzing physical evidence. Environmental forensic science applies scientific methods to the investigation of environmental crimes and contamination events. ‘Environmental forensics’ is a combination of analytical and environmental chemistry, which is useful in the courtroom context. It therefore involves field analytical studies and both data interpretation and modeling connected with the attribution of pollution events to their causes. Environmental forensics is defined as the systematic and scientific evaluation of physical, chemical, and historical information for the purpose of developing defensible scientific and legal conclusions regarding the source or age of a contaminant release into the environment.

Historical Perspective
Environmental forensics evolved in the 1980s as a result of the potential liability (as defined by laws in the United States) of parties who allegedly released a contaminant into the environment. Since this time, other countries, such as those in the European Union, have enacted similar laws requiring the same environmental tools provided by environmental forensics.

**Functional Areas**

Environmental forensics is the application of defensible scientific methods to address questions related to release histories and sources of contamination in the environment. Environmental forensics generally involves the reconstruction of past environmental events, such as the timing, types and amounts, and sources of chemical releases to the environment. Questions requiring environmental forensic applications usually relate to understanding the extent, duration, and responsibility for environmental contamination sites in a regulatory and/or legal context. These approaches are also integral to environmental due diligence for mergers and acquisitions and remediation cost recovery. Techniques such as chemical fingerprinting, chemical fate and transport modeling, hydro-geological investigation, and reconstructing operational histories, among others are at the heart of many investigations. These and newer techniques, such as multivariate receptor statistical modeling, continue to evolve and have become more sophisticated over time, as have the types of problems to which they are applied (Exponent, 2018).

**Key Areas**

Environmental forensics aims to cover some of the main techniques and areas to which environmental forensics are being applied. These are source identification issues, microbial techniques, metal contamination, methods of assigning liability, use of isotopes to determine sources and their applications, molecular biological methods, hydrocarbon fingerprinting techniques, oil chemistry and key compound identification, and emerging role of environmental forensics in groundwater pollution. Besides, environmental forensics also considers specific pollutants and long-lived pollutants of groundwater such as halocarbons, which have presented particular problems as well as the way in which chemical degradation processes can lead to compositional changes, which provide valuable information. It will be both of specialist use to those seeking expert insights into the field and its capabilities as well as of more general interest to those involved in both environmental analytical science and environmental law (Hester and Harrison, 2008).

**Recent Development**

Recent decades have seen a burgeoning of legislation designed to protect the environment and, as the costs of environmental damage and clean-up are considerable, not only are there prosecutions by regulatory agencies, but the courts are also used as a means of adjudication of civil damage claims relating to environmental causes or environmental degradation. The result is the increasing number of prosecutions of companies, who have breached regulations for environmental protection and in civil claims relating to harm caused by excessive pollutant releases to the environment. Such cases can become extremely protracted as expert witnesses provide their conflicting
interpretations of environmental measurement data and their meaning. It is in this context that environmental forensics is developing as a specialism, leading to greater formalization of investigative methods which should lead to more definitive findings and less scope for experts to disagree. Now a significant subject in its own right, at least one journal devoted to the field and a number of degree courses have sprung up.

**Solution to Chemical Pollution**

Environmental forensics is a rapidly growing area primarily directed towards determining those responsible for releasing contaminants into the environment (Mudge, 2009; Murphy and Morrison, 2007). There is a wide range of contaminants that are continually being released into a large number of environments. Not only will the nature of the product and environment determine what actually happens to the product but also they will play an important role in evaluating the time it may take for the environment to be cleansed, particularly if natural attenuation is the major means for remediating the environment. Therefore, in general, the majority of environmental issues require a number of basic questions to be addressed such as (a) What is the product? (b) Where did it come from? (c) How long has it been there? and (d) Is it degrading?

As illustrated in Figure 1, this can be a very complex problem since there may be multiple sources of the same product, comingling of the same product from different sources, mixing of degraded and non-degraded products and a multitude of other possibilities. Weathering aspects also need to be considered along with the length of time the spilled product has been in the environment. As noted below these investigations cannot depend upon the standard EPA (Environmental Protection Agency) monitoring methods but rather conventional techniques, such as Gas Chromatography (GC), Gas Chromatography-Mass Spectrometry (GCMS) and Gas Chromatography-Isotope Ratio Mass Spectrometry (GCIRMS), specifically tailored to the problem being investigated. No one of these techniques should be used individually but even so, it is still not always possible to provide precise answers to these questions. It is still important to use all of the data in an attempt to answer these questions which are basically directed towards finding the responsible parties who should ultimately be required to clean up and remediate the contaminated sites.
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Fig. 1. The complexity of the problem faced by the environmental forensic scientist is illustrated in this diagram showing the potential for multiple sources as well as interference from background sources.

Looking into the above, environmental forensics is the systematic and scientific evaluation of physical, chemical, and historical information for developing defensible scientific and legal conclusions regarding the source or age of a contaminant released into the environment. As such, there is a multitude of forensic techniques available for contaminant age dating and source identification including, but not limited to aerial photo interpretation/photogrammetry, chemicals associated with discrete chemical processes, identification of the manufacturer of a particular product, chemical additives and/or impurities, chemical profiling, degradation modeling, corrosion models, contaminant transport modeling, surrogate chemical analysis, chronological changes in chemical processes resulting in diagnostic markers, compound specific isotopic analysis, polychlorinated biphenyl (PCB) congener analysis and degradation product ratio analysis. Given the range of available environmental forensic techniques, selected methods are presented to illustrate the applications of environmental forensics to identify the age and source of a contaminant release.

Applications

Applications of environmental forensic techniques include their use for identifying the responsibility for areas of known contamination, to allocate responsibility for remediation in areas of mixed waste streams from multiple parties, identification of historical property owners responsible for a contaminant release, developing the probability that chemical exposure caused manifest or latent injuries, distinguishing between anthropogenic and anthropomorphic contaminants, and for marine oil pollution, determining the spill source.

Scenarios in which environmental forensics have been applied have ranged from remote Arctic environments to urban sediments. In both extremes, the chemical condition of the environment – i.e., the background or baseline – is a central part of any
investigation. It is upon this background that additional contamination from one or several responsible parties is overlain. The types of problems to which environmental forensic techniques are commonly applied include (1) Identifying and quantifying contributions from various sources to contaminated sites (i.e., apportionment) (2) Distinguishing natural background and diffuse anthropogenic background from specific pollution sources (3) Differentiating specific sources of petroleum and natural gas (4) Delineating the time frames of releases (5) Reconstructing historical concentrations and pathways of releases for dose reconstruction in toxic torts, and (6) Conducting causal analysis to determine associations between observed conditions and potential sources.

Selected Bibliography


