

ASSESSMENT STATUS REPORT OF UTD

Name of the School: **School of Chemical Sciences**

Year of Report: **2009-10**

Part A:

The plan of action chalked out by the IQAC in the beginning of the year towards quality enhancement and the outcome achieved by the end of the year.

Part B:

1.	Activities reflecting the goals and objectives of the institution	To explore new horizons of knowledge in chemical sciences and to blend it effectively in academic curricula for overall educational purpose. To fulfill these goals and objectives, we update our syllabi and explore innovative methods of learning.
2.	New academic programmes initiated (UG and PG)	We have been focusing on consolidation of existing programmes with distinct learning objectives.
3.	Innovations in curricular design and transaction	New experiments have been added in the academic curricula.
4.	Inter-disciplinary programmes started	Some courses offered by the School possess interdisciplinary approach.
5.	Examination reforms implemented	New Ordinance 31 of University for UTD's has been implemented with effect from July 2008.
6.	Candidates qualified NET/SLET/GATE etc.	No of students selected through NET =01 GATE: 02
7.	Initiative towards faculty development programme	Faculty members have been interacting with eminent scientists.
8.	Total number of seminars / workshops conducted	Nil
9.	Research projects a) Newly implemented: b) Completed:	See Annexure I On going : 01 Completed: 05
10.	Patents generated if any	Nil
11.	New collaborative research programmes	See Annexure II

12.	Research grants received from various agencies	See Annexure I
13.	Details of research scholars	Students with fellowships : 05 Students without fellowship : 11 Rajiv Gandhi National fellowship : 01
14.	Citation index of faculty members and impact factor	See list of publications of faculty members with impact factor. See Annexure III
15.	Honors/Awards to the faculty	Nil
16.	Internal resources generated	See Annexure I
17.	Details of departments getting SAP, COSIST (ASSIST) / DST.FIST, etc. assistance/recognition	Rs. 30 lakhs as FIST support from DST
18.	Community services	Our students participate in sports and cultural activities through Youth Festival of University.
19.	Teachers and officers newly recruited	None
20.	Teaching-Non-teaching staff ratio	Total faculty : <ul style="list-style-type: none"> • Professor : 08 Non teaching staff: <ul style="list-style-type: none"> • Sr. Technician : 01 • Assst. Grade III :01 • Lab Technician :03 • Lab Attendant :03 • Gas Mistry :01 • Mali :01 • Peon :01 • Temporary staff: 02 Ratio : 08: 13
21.	Improvements in the library services	Procurement of various standard books has been done from time to time.
22.	New books/journals subscribed and their value	Procurement of various standard books has been done from time to time.
23.	Courses in which student assessment of teachers is introduced and the action taken on student feedback	In all the following courses students feed back about the teachers are taken after every semesters examinations. Feedbacks are analyzed by IQAC Committee & teachers are informed accordingly by the Head. <ul style="list-style-type: none"> • M.Sc Chemistry • M.Sc. Applied Chemistry • M.Sc. Pharmaceutical Chemistry

24.	Unit cost of education	N/A
25.	Computerization of administration and the process of admissions and examination results, issue of certificates	All the results of the semester examination grade sheets are prepared on the computer. All day to day letters, Dept profiles, data asked from the University are prepared on the computer. We shall further strengthen the computerization in administration.
26.	Increase in the infrastructural facilities	Seminar Hall was equipped with chairs and two AC's. LCD projector facility is also available.
27.	Technology up gradation	Some new instruments have been procured for the laboratories and research.
28.	Computer and internet access and training to teachers and students	All the faculty members have been provided PC & internet facility. Students are using internet facility in the IT Centre of the University.
29.	Financial aid to students	Scholarship to SC/ST/OBC students by state Government for M.Sc students.
30.	Activities and support from the Alumni Association	Alumini association will be formed in the academic year 2009-2010.
31.	Activities and support from the Parent Teacher Association	Parent teacher Association will be formed in near future.
32.	Health services	There is a health centre in the University campus. From July 2008 students are using this facility. Students of the department who are in the hostel are being cared by the doctors appointed by the University from July 2008. All the day scholars of the department will be issued health card & files.
33.	Performance in sports activities	Students participated in the sports activity organized by UTD sports association every year and their performance was quite impressive.
34.	Incentives to outstanding sportspersons	Not Applicable
35.	Student achievements and awards	Students got selected in the different Organizations.
36.	Activities of the Guidance and Counseling unit	Guidance and counseling unit has been formed in the school with all the faculty members.
37.	Placement services provided to students	Placement services to the M.Sc & students are provided through centralized placement cell of the University. Department placement cell comprises of all the faculty members.
38.	Development programmes for non-teaching staff	Three non teaching staff members were given training for developing computer skills.

39.	Healthy practices of the institution	Every year cultural activities (twice) are held for teachers and students. Get together is organized in the beginning of the session for all the students faculty & staff. As a result of this there has been no reported case of ragging in the Department.
40.	Linkages developed with National/International, Academic/Research bodies	See Annexure II
41.	Any other relevant information the institution wishes to add	<p>School's mission is to provide high quality education and training for high flying careers in Chemical Sciences. Our distinguishing features are:</p> <ul style="list-style-type: none"> • Theoretical and practical knowledge of Instrumental Techniques. • Interpretation of various types of spectra. Nuclear Magnetic Resonance (NMR) Electron Spin Resonance (ESR), Infrared (IR), Ultraviolet-Visible (UV-Visible), Mössbauer, Mass Spectrometry. • Summer training and project work in leading industries/ research Institutes. • The faculty is extremely well qualified and motivated with a strong commitment to research.

(PART – C)

Detail the plans of the institution for the next year:

Yearly plan: 1st July 2010 to 30th June 2011

1. Admission process

The test for admission to all the following courses would be conducted on the 6st July, 2010.

- M.Sc Chemistry
- M.Sc. Applied Chemistry
- M.Sc. Pharmaceutical Chemistry

2. Syllabus & Classes:

The classes will start from July 15, 2010 for all the students of M.Sc. III semester and the classes of newly admitted students in M. Sc. I semester will start from July 15, 2010. Every student will be given a copy of syllabus and Ordinance 31.

3. Test and exam schedule:

Test and exam schedules will be displayed on the notice board by July 15, 2010, which will be followed strictly by the faculty.

Results of Semester – I and III will be declared before 30th Dec., 200 & results of Semester II and IV will be declared by 30th June 2010.

4. Attendance:

The record of attendance of the students will be maintained by the faculty members.

5. Improvement of the academic activity:

The seminar activity will be included to improve the academic activity.

6. Invited Lectures:

Eminent scientists and Professors will be invited to deliver the lectures on contemporary topics.

7. Laboratories:

The existing laboratories of the school will be upgraded with new equipments through the funds provided under the FIST programme.

8. Research grants & Research:

Faculty is actively engaged in research as is evidenced by good number of research publications in various standard journals of National and International repute and the funds provided by various funding agencies. (Annexure I and Annexure III)

9. Conference / Workshop:

Faculty members and students will participate in conferences through invited lectures and paper presentations.

Annexure I

Details of research grant received from different agencies during the last five years:

Name of the Investigator	Title of the project and duration	Status	Amount sanctioned	Funding agency
Dr. R. Prasad	Surface and catalytic studies of nanocrystalline and nanoporous metal oxides	Completed	Rs.3,06,000/-	CSR-CRS
	Studies of few catalytic vapourphase alkylation and cyclization reactions.	Completed	Rs. 7,64,800/-	UGC
Dr. Ashok Kumar	Synergistic extraction and spectrophotometric determination of toxic metal ions and lanthanides at trace level by chromogenic substituted calix(n) arenes.	Completed	Rs. 10,46,000/-	CSIR
	Synergistic extraction and stripping voltammetric determination of toxic metal ions and lanthanides at trace level.	Completed	Rs. 17,00,000/-	DST
Dr. H.P.S. Chauhan	Synthetic, Spectroscopic, Thermal and Biochemical Studies on some Group 14 (Si, Ge and Sn) and Group 15 (As, Sb and Bi) Metal and Organometallic Complexes with some sulphur and/or Oxygen Donor Organic Ligands	Completed	Rs.4,11,100/-	UGC
Dr Pratibha Sharma	Design, Synthesis, Electrochemical Studies and Evaluation of Therapeutic Potential of Purines and Benzimidazoles Through Quantitative Structure - Activity Relationship	Ongoing	Rs.14,94,000/-	DRDO

International Collaboration of the Professors:

Dr. K.K. Pandey

<p>World's most prestigious Alexander von Humboldt Fellowship Germany</p> <p>Visiting Professor Department of Chemistry Universitat Autònoma de Barcelona, Spain</p> <p>Emerson Center's <u>Visiting</u> Fellow for the, Emory University, Atlanta</p>	<p>(May, 1982 – December, 1983) (University of Göttingen)</p> <p>(May, 2002 – July, 2002) (University of Marburg)</p> <p>(May, 2004 – July, 2004) (University of Marburg)</p> <p>(May, 2005 – June, 2005) (University of Marburg)</p> <p>(May, 2006 – July, 2006) (University of Marburg)</p> <p>May, 2008 – June, 2008</p> <p>July2008-Sept .2008</p>
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Dr. Ashok Kumar

<p>Visited University of Pecs, Hungary under Indo-Hungarian Exchange Program</p>	<p>Nov.10, 2008 – Feb.9, 2009</p>
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**SCHOOL OF CHEMICAL SCIENCES
DEVI AHILYA UNIVERSITY, INDORE**

List of Publications : (2009-2010)

Dr. Krishna K. Pandey (Professor)

1. **K.K. Pandey**
Transition Metal sigma-borane complexes
Coord. Chem. Revs. 253 (2009) 37. **Impact Factor : 8.815**
2. **Krishna K. Pandey** and Agustí Lledós
Linear M≡E-Me Versus Bent M-E-Me: Bonding Analysis in Heavier Metal-ylidyne Complexes [(Cp)(CO)₂M≡EMe] and Metallo-ylidenes [(Cp)(CO)₃M-E-Me] (M = Cr, Mo, W; E = Si, Ge, Sn, Pb)
Inorg. Chem. 48 (2009) 2748-2759.
3. **Krishna K. Pandey**, Agusti Lledos and Feliu Maseras
The Nature of M-B Versus M=B Bonds in Cationic Terminal Borylene Complexes: Structure and Energy Analysis in the Borylene Complexes [(η⁵-C₅H₅)(CO)₂M{B(η⁵-C₅Me₅)}]⁺, [(η⁵-C₅H₅)(CO)₂M(BMes)]⁺, and [(η⁵-C₅H₅)(CO)₂M(BNMe₂)]⁺ (M = Fe, Ru, Os)
Organometallics 28 (2009) 6442-6449.
4. **Krishna K. Pandey** and Djamaladdin G. Musaev
Structure and Bonding Energy Analysis of Cobalt, Rhodium and Iridium Borylene Complexes [(η⁵-C₅H₅)(CO)M(BNX₂)] (X = Me, SiH₃, SiMe₃) and [(η⁵-C₅H₅)(PMe₃)M{BN(SiH₃)₂}] (M = Co, Rh, Ir)
Organometallics 29 (2010) 142-148.
5. **Krishna K. Pandey** and Agusti Lledos
Linear versus bent bonding in metal-phosphinidene complexes: Theoretical studies of the electrophilic phosphinidene complexes [(η⁵-C₅H₅)(CO)₂M(PMe)]⁺, [(η⁵-C₅H₅)(CO)₃M(PMe)]⁺ (M = Cr, Mo, W)
J. Organomet. Chem. 695 (2010) 206-214.
6. **Krishna K. Pandey**, James P. Snyder, Dennis C. Liotta and Djamaladdin G. Musaev
Computational Studies of Transition Metal Selectivity of Octapeptide Repeat Region of Prion Protein (PrP)
J. Phys. Chem. 114 (2010) 1127-1135.

7. **Krishna K. Pandey**, Pankaj Patidar and Holger Braunschweig
Structure and Bonding Energy Analysis of M-Ga Bonds in Dihalogenallyl Complexes
trans-[X(PMe₃)₂M(GaX₂)] (M = Ni, Pd, Pt; X = Cl, Br, I)
Inorg. Chem. 49 (2010) 6994-7000.

Dr. Ashok Kumar – Professor

- 1 Pratibha Sharma, **Ashok Kumar**, Siya Upadhyay, Vinita Sahu and Jitendra Singh
Synthesis and QSAR Modeling of 2-acetyl-2-ethoxycarbonyl-1- [4(4'-aryloxy)-phenyl]-
N, N-dimethyl-aminophenyl aziridines as Potential Antibacterial Agents
European Journal of Medicinal Chemistry, (**Elsevier**), 44 (1), 251-259(2009)
Impact Factor : 2.187
- 2 Pratibha Sharma, **Ashok Kumar**, Siya Upadhyay, Vinita Sahu, and Jitendra Singh
Synthesis of bio-active Spiro-2-[3'-(2'-phenyl)-3H-indolyl]-1-aryl-3- phenyl
aziridines and SAR studies on their antimicrobial behaviour
Medicinal Chemistry Research (**Springer**), 18, 383-395 (2009)
- 3 Pratibha Sharma, **Ashok Kumar**, Vinita Sahu and Jitendra Singh
Theoretical evaluation of the global and local electrophilicity patterns to characterize
hetero Diels Alder cycloaddition in the synthesis of Isoxazolo-[4,5-e]-1,2,3,4-tetrazines
Chinese Journal of Chemistry, (**Wiley Inter Science**), 27, 1-10 (2009)
- 4 Calix[n]arenes Mediated Phase Transfer Catalytic Synthesis of Purine Derivatives
Pratibha Sharma, **Ashok Kumar**, Vinita Sahu, and Jitendra Singh
International Journal of Chemical Kinetics (**Wiley Inter Science**) 41, 265-274 (2009)
- 5 Sandor Kunsagi-Mate, **Ashok Kumar**, Pratibha Sharma, Laszlo Kollar, and Martin
Pour Nikfardjam
Effect of molecular environment on the formation kinetics of complexes of malvidin-3-
o-glucoside with caffeic acid and catechin.
J. Phys. Chem. B (**ACS Publication**) 113, 7468-7473 (2009)
- 6 Pratibha Sharma, **Ashok Kumar**, Siya Upadhyay, Jitendra Singh and Vinita Sahu
A novel approach to the synthesis of 1,2,3-triazoles and their QSAR studies
Medicinal Chemistry Research (**Springer**) (2009)
DOI 10.1007/s00044-009-9215-7
- 7 Ashok Kumar*, Pratibha Sharma, Bhagwan Lal Kalal, and Lal Kumar Chandel
Synthesis and Metal Extraction Behavior of Pyridine and 1,2,4-Triazole Substituted
calix[4]arenes
J. Incl. Phenom. Macrocycl. Chem., (**Springer**) (2010)) **Impact Factor : 1.251**
DOI 10.1007/s10847-010-9796-2

Dr. H.P.S. Chauhan - Professor

1. **H. P. S. Chauhan**, Sumit Bhatiya and Abhilasha Bakshi
Synthesis and Characterization of Toluene-3,4-dithiolatoantimony (III) Derivatives with some Oxygen and/or Sulphur Donor Ligands
Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy
74, 67-73 (2009). (ELSEVIER) Impact factor: 1.5
2. **H. P. S. Chauhan**, Abhilasha Bakshi and Sumit Bhatiya
Synthetic, spectral as well as in vitro antimicrobial studies on some bis(N,N-dialkyldithiocarbamate)bismuth (III)Alkylenedithiophosphates.
Applied Organometallic Chemistry, 24, 317-325 (2010). WILEY – INTERSCIENCE,
Impact factor: 1.2
3. **H. P. S. Chauhan**, Abhilasha Bakshi and Sumit Bhatiya
Bismuth(III) bis(N,N-diethyldithiocarbamate)alkylenedithiophosphates: FAB⁺ mass, Thermal decomposition and SEM studies.
Phosphorus, Sulphur and Silicon, Accepted 2010. TAYLOR & FRANCIS
Impact factor: 0.7
4. **H. P. S. Chauhan**, Sumit Bhatiya and Abhilasha Bakshi
Synthesis, Spectroscopic Structural Characterization and Antimicrobial Studies of 1,3-Dithia-2-arsacyclopentane Derivatives with Oxygen and Sulfur Donor Ligands.
Phosphorus, Sulphur and Silicon, Accepted 2010, TAYLOR & FRANCIS,
Impact factor: 0.7

Dr. Sheela Joshi – Professor

1. **Sheela Joshi**, Purti Bilgaiyan, Kapil Vyas, Anju pathak
Synthesis and antibacterial screening of novel mannich based of 2-amino-9-[(1,3-dihydroxy propane-2yl)oxy)methyl]-6-9-dihydro-3H- Purine-6-one
European Journal of Chemistry (Paper in press) 2010.
2. **Sheela Joshi**, Purti Bilgaiyan, Kapil Vyas, Anju pathak, Anjudas Manikpuri
Synthesis spectral studies and antimicrobial study of aminomethylated derivatives of 7-azaspiro[4,5] decane 6-8 dione
Research journal of pharmaceutical, biological and chemical sciences 1(3) 23-29
2010.
3. **Sheela Joshi**, Purti Bilgaiyan, Anjudas Manikpuri, Anju pathak, Kapil Vyas
Synthesis, characterization and antibacterial screening of aminomethylated derivative of 7-azaspiro[4,5]decane-6,8-dione
Der pharma chemical, 2,(2010), 122-129.
4. **Sheela Joshi**, Anjudas Manikpuri, Deepak Khare and P.V. Khadikar
Synthesis and SAR studies on the new potential bioactive mannich based of 2-methyl benzamide derived from sulphonamides.
Oxidation communication 33(2010)380-397.
5. **Sheela Joshi**, Anjudas Manikpuri, Prapti Tiwari and P.V. Khadikar

Convenient one pot synthesis of antimicrobial evaluation of some mannich bases of 5-nitro-2-furfuraldehyde semicarbazone
Oxidation communication 33(2010)398-407.

6. **Sheela Joshi**, Anjudas Manikpuri, Deepak Khare and P.V. Khadikar
Synthesis and structural characterization of mannich base of 5-Uriedohydronation.
Oxidation communication 32(2009)714-723.
7. **Sheela Joshi**, Anjudas Manikpuri, Prapti Tiwari
Synthesis and biological evolution of medicinally important mannich based of 5-nitro-2-furfuraldehyde semicarbazone derived from secondary amines.
International journal of chemical sciences 7(2009)869-877.
8. **Sheela Joshi**, Anjudas Manikpuri, Deepak Khare
Synthesis, spectroscopic and antimicrobial studies of mannich bases through active hydrogen compounds.
International journal of chemical sciences 7(2009)825-836.

Dr. Pratibha Sharma

1. **Pratibha Sharma**, Ashok Kumar, and Vinita Sahu
Theoretical evaluation of global and local electrophilicity patterns to characterize Hetero-Diels-Alder cycloaddition of three-membered 2H-azirine ring system
Journal of Physical Chemistry A (**ACS Publication**) 114, 1032–1038 (2010)
2. **Pratibha Sharma**, Sandor Kunsagi-Mate, Ashok Kumar, Laszlo Kollar, and Martin Pour Nikfardjam
Effect of molecular environment on the formation kinetics of complexes of malvidin-3-o-glucoside with caffeic acid and catechin.
J. Phys. Chem. B (**ACS Publication**) 113, 7468-7473 (2009)
3. **Pratibha Sharma**, Ashok Kumar. Siya Upadhyay, Jitendra Singh and Vinita Sahu
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Medicinal Chemistry Research, Springer,
DOI 10.1007/s00044-009-9215-7 (2009)
4. **Pratibha Sharma**, Ashok Kumar, Vinita Sahu, and Jitendra Singh
Calix[n]arenes Mediated Phase Transfer Catalytic Synthesis of Purine Derivatives
International Journal of Chemical Kinetics (**Wiley Inter Science**), 41, 265-274 (2009)
5. Aushutosh Mishra, Ruchita Awate, Namrata Soni, Niyati Mishra, Ritu Soni and **Pratibha Sharma**
Synthesis and characterization of transitional metals (Cu, Co, Fe) complexes of 6-Methyl-5-Arylhydrazono-2-Thio-4-Oxo-Pyrimidine

Phosphorus, Sulphur, Silicon and Related Elements, **(Taylor & Francis)**,
184, 2624-2635 (2009)

6. **Pratibha Sharma**, Ashok Kumar, Siya Upadhyay, Vinita Sahu and Jitendra Singh
Synthesis and QSAR modeling of 2-acetyl-2-ethoxycarbonyl-1-[4(4'-aryloxy)-
phenyl]-N,N-dimethyl-aminophenyl aziridines as potential antibacterial agents
European Journal of Medicinal Chemistry, **(Elsevier)** 44 (1), 251-259(2009)
7. **Pratibha Sharma**, Ashok Kumar, Vinita Sahu and Jitendra Singh
Theoretical evaluation of the global and local electrophilicity patterns to
characterize hetero Diels Alder cycloaddition in the synthesis of Isoxazolo-[4,5-e]-
1,2,3,4-tetrazines
Chinese Journal of Chemistry, **(Wiley Inter Science)**, Accepted, 27, 1-10 (2009)
8. **Pratibha Sharma**, Ashok Kumar, Siya Upadhyay, Vinita Sahu, and Jitendra Singh
Synthesis of bio-active Spiro-2-[3'-(2'-phenyl)-3H-indolyl]-1-aryl-3-phenyl
aziridines and SAR studies on their antimicrobial behaviour
Medicinal Chemistry Research **(Springer)**, 18:383-395 (2009)

Dr Savita Khare (Professor)

1. **Savita Khare**, V.S. Srivastava and S.V. Mahajan
Spectrophotometric detection method of micro amount of nitrite in water sample.
Journal of Environment Research and Development 3(4)2009,11.

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STUDENTS FEEDBACK ASSESMENT REPORT:

In all the programme viz., M.Sc Chemistry, M.Sc. Applied Chemistry and M.Sc. Pharmaceutical Chemistry all the teachers were rated 'very good' or 'good' on more than 85% of the parameters given in the feedback form. A few ratings of 'satisfactory' were also given. No 'unsatisfactory' rating was given.

ACTION: It has been decided to give more home assignments.

Signature of Head

Date: