Dept. of Chemistry Website Details

Departmental Report

Message from HOD's Desk	Attached below	
0. Message about the department	Attached below	
 0. Faculty Details . Name a. Designation b. Qualification c. Specialisation d. Email ID 	Details already with Khatija Atthar	
4) Programmes offered	B.Sc. Chemistry M.Sc. Chemistry (by papers) M.Sc. Chemistry (by research)	
5) Students Achievement(not more than 3) 2018- 19	Attached below	
6) Tentative dates of the departmental event with the name of the resource person.(if possible image of the event)	Previous years activity report is attached below with pictures. (Chemical Society)	
7) Syllabus	Needs approval from BoS after, the latest syllabus of 2020-21 will be sent to website committee for upload	

1) From HODs Desk:

Dr. Brijesh Kumar N. Singh

Welcome to the Department of Chemistry which is one of the oldest Science departments of Jai Hind College. The department has the largest number of students who take up courses at various levels of graduation and post graduation and to supplement that we have the largest strength of teachers who are involved with theory and practical coursework of students.

The subject of chemistry occupies the pivotal place amongst science subjects. The qualification in this subject open's doors to the wide range of careers which is involved in our day to day lives and there is a wide spectrum of careers open to those who graduate from any branch of chemistry.

Being a chemist develops a greater thinking capability, logical reasoning ability and analytical mind and therefore such candidates are very versatile to tackle any problems from any sciences.

Greater career options and opportunities exist both inside and outside the laboratory. Nobody is sure what the future will be in the job sector, but many students in the field of Chemistry have flourished in the best positions either in the service sector or as entrepreneurs. Global challenges such as human health, energy and environment are best tackled by today's chemists.

The worldwide change is creating enormous challenges relating to human health, energy and scarcity of natural resources. These challenges offer excellent opportunities to people who study chemistry.

As a teacher it is important to us that our students enjoy chemistry and science and hence have the chance to be involved in practical experiments.

We are rather fortunate to attract good students and have a favourable faculty to student's ratio, which encourages close contact between students and the faculty members. In today's time research is the key aspect in teaching and learning and therefore, having a majority of the teachers with Ph.D and research experience helps to foster research culture in students. In order to strengthen exchange of knowledge and gain industrial experience we are strengthened by collaboration with BARC, ICT, TIFR, autonomous Chemistry Department University of Mumbai, Lupin, IRMRA, UM-DAE CEBS, and other institutions.

We firmly believe in creating high level chemists who would not be the job seekers, rather they would be job givers. We always bear in mind the mission and the vision of the college to create students who are nurtured well to be highly talented and globally competent.

Dr. Brijesh Kumar N. Singh

2) About the Department

About the Department:

The Department of Chemistry offers an undergraduate B.Sc. program in Chemistry and postgraduate M.Sc. program in Physical, Organic and Inorganic Chemistry by papers and M.Sc. program in Analytical Chemistry by research. The Department has a rich legacy of over 70 years dating as far back as the inception of college itself. Located on the second floor of the main building, the department has two expansive undergraduate laboratories and a postgraduate laboratory for practical courses in the discipline. Apart from the academic programs offered, the department also organizes co-curricular activities for students- workshops, seminars, events etc. under the aegis of Chemical Society. The Department envisions to upkeep the college motto by imparting an experimental experiential learning to ensure a well-rounded education of international standards to its students.

3) Faculty Details:

FACULTY DETAILS



Name: Dr. Brijesh Kumar Singh

Designation: Associate Professor

Qualification: MSc , Ph.D

Specialisation: Organic Chemistry

Experience: 27 years

Email ID: brijesh.singh@jaihindcollege.edu.in



Name: Dr. Shipra Biswas

Designation: Assistant Professor

Qualification: M.Sc, B.Ed, M.Phil, Ph.D

Specialisation: Inorganic Chemistry

Experience: 20 years

Email ID: shipra.biswas@jaihindcollege.edu.in



Name: Dr. Sreela Dasgupta

Designation: Associate Professor

Qualification: B .Sc(Hons), M.Sc, B.Ed, Ph.D

Specialisation: Organic Chemistry

Experience: 19 years

Email ID: sreela.dasgupta@jaihindcollege.edu.in



Name: Dr.Sangeeta Parab

Designation: Associate Professor

Specialisation: Analytical Chemistry

Qualification: M.Sc, B.Ed, Ph.D

Experience: 17 years

Email ID: sangeeta.parab@jaihindcollege.edu.in



Name: Dr.Supriya Deshmukh

Designation: Assistant Professor

Qualification: M.Sc, Ph.D

Specialisation: Analytical Chemistry

Experience: 16 years

Email ID: supriya.deshmukh@jaihindcollege.edu.in



Name: Dr. Sajith Chandran

Designation: Assistant Professor

Qualification: M.Sc , Ph.D

Specialisation: Analytical Chemistry

Experience: 10 years

Email ID: Sajith.chandran@jaihindcollege.edu.in



Name: Mr.Gokul Ganesan

Designation: Assistant Professor

Qualification: M.Sc , NET

Specialisation: Organic Chemistry

Experience: 9 years

Email ID: gokul.ganesan@jaihindcollege.edu.in



Name: Dr.Shilpa Jain

Designation: Assistant Professor

Qualification: M.Sc, NET, PhD

Specialisation: Organic chemistry

Experience: 4 years

Email ID: Shilpa.jain@jaihindcollege.edu.in



Name: Ms.Khatija Atthar

Qualification: M.Sc

Designation: Assistant Professor

Specialisation: Inorganic Chemistry

Experience: 5 years

Email ID: Khatija.atthar@jaihindcollege.edu.in



Name: Ms. Aksh Hina Shaikh

Designation: Assistant Professor

Qualification: MSc , SET

Specialisation: Physical Chemistry

Experience: 1 year

Email ID: akshhina.shaikh@jaihindcollege.edu.in



Name: Mr.Onkar. Lotlikar

Designation: Assistant Professor

Qualification: MSc , NET, SET

Specialisation: Organic Chemistry

Experience: 1 year

Email ID; onkar.lotlikar@jaihindcollege.edu.in

4) Programmes offered

Sr.N o	Programme name	Degree/diploma/certificat e	Aided/Self financed
1.	B.Sc. Chemistry	Degree course	Aided
2.	M.Sc. Chemistry (by papers)	Degree course	Aided
3.	M.Sc. Chemistry (by research)	Degree course	Aided

5) Chemical Society:

A] Events organized by the department:

Name of the event	:	Practicing Science- Scope, Perspectives & Vision
Date	:	26 th & 27 th April 2019
Organized by	:	Department of Chemistry Jai Hind College, in association
		with Indian Chemical Society (Mumbai Branch) & Indian
		Society for Mass Spectrometry (ISMAS)
Venue	:	AVC, Jai Hind College

The Department of Chemistry organized a two-day workshop under the DBT-STAR Scheme for its undergraduate and post graduate students titled "Practicing Science: Scope, Perspective & Vision". The event spanning two days covered talks by eminent scientists, academicians & scientific entrepreneurs who took their audience through the nuances of good scientific practice. The keynote address was delivered by Dr. Prabodh Chobe, Former Sr. GM & Head of R&D, BASF. He also engaged the audience in a second session on Laboratory Safety. Dr. Deepa Khushalani followed up with a talk on Scientific Communication. Along with being an ace researcher in the field of Materials Chemistry at the esteemed TIFR, Dr. Khushalani also happens to be an excellent orator and is actively involved in science outreach programs. In the session she detailed about the scientific methods in oral presentations. The first day culminated in a demonstrative session on calibration of glassware and its importance by Mr. Meghani, a freelance entrepreneur in the scientific glassware business. The session was conducted in chemistry laboratory where students practiced the techniques involved in calibration of common laboratory glassware.

The sessions of first half of day two were on Mass spectrometry which were engaged by Dr. Rajesh Vatsa from BARC, Mumbai. He took students through a journey commencing with introduction and applications to interpretation of mass spectra. Students actively participated in all the sessions and were thrilled to solve problems handed out to them in worksheets. The event was drawn to a close by one of the most influential yet modest scientists of the Indian Science community, Dr. Sandip Trivedi, Director of the Tata Institute of Fundamental Research, Mumbai. His talk was titled "Coming of Age in the World of Science" in which he described the cutting-edge research that is being done in India in the field of science and technology. His charisma and humility were exemplary to the audience of young students who were deeply inspired by his talk.

The Department of Chemistry is committed to provide platforms like these to the students for interaction with the best minds in the scientific world & we strive to pursue it in the days to come.

Name of the event	:	HPLC- Introduction, Instrumentation & Application
		DSC- Principle & Applications
Date	:	18th September 2019 & 11th February 2020
Organized by	:	Department of Chemistry Jai Hind College

Venue	:	Chemistry	Seminar	Room	&	DST-FIST	sponsored
		Central Ins	trumentati	ion Facil	lity	(CIF) Jai Hii	nd College

The Department of Chemistry organized a one-day workshop on HPLC & DSC respectively for its post graduate students. The event was convened by Dr. Sangeeta Parab, DST-FIST coordinator of Jai Hind College. Dr. Rajesh Vadgama, affiliated with the Institute of Chemical Technology (ICT) Mumbai, delivered a talk on High Performance Liquid Chromatography (HPLC) followed by a demonstrative session on its operation and use with the assistance of Mr. Gokul Ganesan at the Central Instrumentation Facility (CIF). The session concluded with a healthy discussion on various aspects of HPLC with Dr. Vadgama.

In continuation with the endeavor on exposure to sophisticated analytical instruments, the department organized a second session on Differential Scanning Calorimetry (DSC) by Dr. Avinash Kale, UM-DAE Center for Excellence in Basic Sciences (CEBS). Dr. Kale introduced the thermal methods to the attendees & covered all basic thermal instrumental techniques of DSC, TGA & DTA in the first session. The second half was a demonstrative session lead by Mr. Gokul Ganesan on Shimadzu DSC-60 Plus for analysis of various peaks in the thermogram of polyethylene glycol (PEG) samples.

The sessions were well received by students with a positive feedback & gave an opportunity to learn the use of these sophisticated techniques in analysis.

Name of the event	:	Celebration of International Year of Periodic Table 2019
Date	:	7 th , 14 th & 21 st December 2019
Organized by	:	Chemical Society, Department of Chemistry, Jai Hind
		College
Venue	:	Chemistry Seminar Room, AVC Jai Hind College

The Dept. Of Chemistry organized a series of events to commemorate the International Year of Periodic Table on 7th, 14th & 21st of December 2019.

The series commenced with a talk on Precious Metal Analysis by Ms. Neha Shinde; followed by demonstration of handheld XRF instrument by Mr. Abhishek Jha from LabIndia.

On 14th December; two documentaries were screened for students on the theme of periodic table and the contributions of D. Mendeleev & Moseley.

The series concluded on 21st of December with address by eminent scientists from BARC & Nanoscience Center of University of Mumbai, namely Dr. M.C. Rath; Dr. Adish Tyagi & Dr. Pravin Walke. The students also benefited from a demonstrative session on alloying of metals by Ms. Varsha Vhadge.

About 100 students across the science faculty participated in the series of activities and benefitted from them.

B] Student Internships, Research & Co-curricular activities:

Internships:

1. Student internship at Food & Drug Administration, Mumbai

The Department of Chemistry recommended its M.Sc. students for 1-month internship at Food & Drug Administration, Mumbai. 7 of the part 2 students got an opportunity to intern with FDA from December 2019 to January 2020. The experience involved rotation from one division to another and learning key instrumental techniques in Food & Drug analysis.

2. Internship at NCNNUM

Internship was offered to 3 students to work under Dr. Atul Chaskar at National Center of Nanosciences & Nanotechnology, University of Mumbai in the month of May 2019 & December 2019. The interns worked on methodologies in organic synthesis. This internship also resulted in two of the interns authoring papers in esteemed international journals by Elsevier and Taylor & Francis publishers.

3. NIUS camp (National Initiative on Undergraduate Science) by HBCSE (Homi Bhabha Center for Science Education), TIFR.

Mr. Rushabh Chheda of F.Y. B.Sc. class, Jai Hind College was offered a 1-week internship at HBCSE, Mumbai from 23rd to 30th December 2019. Everyday of the internship, they had lectures on various topics on chemistry followed by post lunch practical sessions. There was a special focus on waste management through the internship. On the last day of the internship, they had a personal interview for a summer research project. The experience on the whole was deeply enriching.

Research:

The Department of Chemistry promotes research among its students in the form of small projects. This helps in developing critical thinking among students and also gives them a research experience. The Department is proud to announce that many students end up publishing their work in journals. The list of student publications is as follows:

Year 2019-20

1. Patil, B. N., Lade, J. J., Karpe, A. S., Pownthurai, B., Vadagaonkar, K. S., Mohanasrinivasan, V., & Chaskar, A. C. (2019). Transition metal-catalyzed C-H

- functionalization of arylacetic acids for the synthesis of benzothiadiazine 1,1-dioxides. *Tetrahedron Letters*, 60(13), 891–894. https://doi.org/10.1016/j.tetlet.2019.02.031
- 2. Bhargude, P. L., Lade, J. J., Patil, B. N., Vadagaonkar, K. S., & Chaskar, A. C. (2019). Highly adequate oxidative esterification of α-carbonyl aldehydes with alkyl halides in TBAI/TBHP mediated system. *Synthetic Communications*, 49(10), 1325–1333. https://doi.org/10.1080/00397911.2019.1600193
- 3. Ganesan, G., Shaikh, S., Maurya, R., & Shah, K. (2019). Use of Carbonised Matter from Vehicle Exhaust in Dye Adsorption for Treatment of Effluents from Dyeing Industries. *International Journal of Innovative Science and Research Technology* 4(4), 753–755.

Other Publications:

- 1. Mudliar, N. H., Pettiwala, A. M., Awasthi, A. A., & Singh, P. K. (2016). On the Molecular Form of Amyloid Marker, Auramine O, in Human Insulin Fibrils. *Journal of Physical Chemistry B*, 120(49), 12474–12485. https://doi.org/10.1021/acs.jpcb.6b10078
- 2. Awasthi, A. A., & Singh, P. K. (2018). Proton Transfer Reaction Dynamics of Pyranine in DMSO/Water Mixtures. *ChemPhysChem*, 19(2), 198–207. https://doi.org/10.1002/cphc.201701133

Projects:

Name	Title of the project	Event name	Achievement
Mansi Mistry and	Research project on	XPLORE (Poster)	1 st position
Riddhi Shah.	comparative	Jai Hind College	
	evaluation of	Avishkar 2020	
	Adsorption studies	(Jai Hind College at	
	of transitional metal	preliminary level	
	ions onto Orange	and K.C. college for	
	(Citrus siesis) and	Zonal level)	
	Lemon(Citrus		
	Limon) rind'.		

Co-curricular activities:

Name	Title of the event	Event & Venue	Position
	participated		
Neha Vadagbalkar,	Dash for the Stashed	Alchemia 2020 (St.	1st
Gauri Barve, Odelia	Potash (Treasure	Xavier's College)	
Rebello	Hunt)		

Odelia Rebello	Chem housie- Jaldi 5	Chemscope 2020(Sophia College)	1st
Heena Tahsildar,	Splash the Colours	Fluorescence	1st
Sakina Kantawala	(T-shirt painting)	2020(R.D National	
		& S.H. National	
		College, Bandra)	COT
Odelia Rebello,	Rasayan Shodh	Chemscope-	1 ST Runner up
Manasi Mane,	(Treasure Hunt)	2020(Sophia	
Heeba Shaikh,		College))	
Suwaiba Sopariwala			
Mehlam Tumsa	Chem Housie	Alchemia-2020	2nd Runner up
Anagha Anilkumar;	Battle Grid	Alchemia-2020	1 st
Anamika Kanojia			
Rushabh Chheda	Chem Housie	Alchemia-2020	1st Runner up
Seeta Verma	Fact & Furious	Alchemia-2020	1 st
Riddhi Parmar,	Frame it Right	Alchemia-2020	1 st
Mansi Mistry			
Seeta Verma, Aditi	CHEMICAL	XPLORE 2020	1 st
Oza, Shalini Mishra,	SCIENCES(EXHIBI	(Jai Hind College)	
Anshika Jain	T)		
	POSTER		
Rushab Chedda,	CHEMICAL	XPLORE 2020	1 ST
Fatema Pardawala,	SCIENCES(MODE	(Jai Hind College)	
Shruti Anand	L)		
Athira Nair, Khushi	CHEMICAL	XPLORE 2020	2 nd
Sharma, Mahenoor	SCIENCES(MODE	(Jai Hind College)	
Khan, Rakshita	L)		
Shetty			

C] Competitive Examination/Aptitude Tests:

Preparation for Competitive examination for M.Sc. JAM:

The Department of Chemistry facilitates student enrollments to competitive examinations for M.Sc. like JAM, ICT entrance examination etc. In the February 2019 JAM examination organized by Indian Institute of Technology, 9 of our students qualified the prestigious examination with a highest All India Rank of 104 which was secured by Ms. Kinjal Vaja. The successful students are now placed in IIT Madras, IIT Mandi, IIT Hyderabad, IIT Indore, NIT Surat and other prestigious and renown institutions.

In the JAM 2020 examination, Mr. Prasad Thombre secured an All India Rank of 515. A few other students have qualified the examination and are awaiting the admission rounds for the year 2020-2021.

Indian Chemical Society Aptitude Test:

The students of Department of Chemistry Jai Hind College participate in the aptitude test organized by the Indian Chemical Society (Mumbai Branch) every year. Students from all the colleges of Mumbai, including premiere institutions like TIFR, IIT Bombay participate in the aptitude test.

INDIAN CHEMICAL SOCIETY (Mumbai Branch) C/o Chemistry Group, BARC, Mumbai Result of 36th Aptitude test (AT-2019) in Chemistry held on Sunday, 15th Sept., 2019 at Ruia College

Sr. No.	Answer sheet No.	Name of Student	Rank (Out of 855)	Class	Net Marks obtained (Max. Marks: 400)
1.	281	Sayed Mohd Hasnain Moh Ali	81	M.Sc. I	148
2.	280	Khanvilkar Vighnesh Vilas	88	M.Sc. I	145
3.	282	Anuja Sukumaran	94	M.Sc. I	143
4.	850	Kosha Atul Shah	129	M.Sc. II	128
5.	261	Parikh Priya Yogen	139	M.Sc. I	125

D] Industrial & Lab visits:

1) Industrial visit to IRMRA (Rubber association) on 13th January 2020:

The Department of Chemistry organized a visit to the Indian Rubber Manufacturing and Research Association which is an Accredited independent Laboratory With Wide Spectrum of services in Testing, Research & Development, Inspection, Training & Validation in Rubber and has diversified its activities in the new sophisticated areas such as Nano and Latex Technologies as well as Rubber Engineering. The visit was attended by 55 students and 2 staff members of the department where they were shown various laboratories of quality testing of rubber products. Students were also thrilled to have a hands-on experience of preparation of rubber balloons by a simple method. The session was interactive and students learnt more about the applications of rubber in different fields.

The Department of Chemistry organizes a visit to the Anchrom Enterprises for demonstration of HPTLC technique to its students every year. This year the trip was attended by 12 M.Sc. part 1 students on 21st September 2019.

In a full day workshop, they were first given a presentation on the instrumentation and the applications of HPTLC, followed by which they were demonstrated the technique using the inhouse instrumentation facility of CAMAG make. The visit was received well by the students and was a good learning experience.

Demonstration session of CAMAG HPTLC at Anchrom

2) Visit to ICT, Mumbai on 29th September 2019:

The Department of Chemistry tied up with Institute of Chemical Technology for a one-day demonstrative workshop on GC-MS. Dr. Pawan More had hosted the M.Sc. students of Jai Hind College numbering 20 in all, to explain the hyphenated technique of GC-MS & demonstrate the technique using the in-house GC-MS facility at ICT, Mumbai.

The sessions were well appreciated by the post graduate students as it was in continuation with the HPLC workshop conducted at Jai Hind College.

3) Visit to Directorate of Forensic Sciences on 22nd January 2020:

The Department organized a visit to the Forensic Sciences Laboratory, Directorate of Forensic Sciences, Kalina in their National Forensic Awareness Week. About 30 students of TY B.Sc. & M.Sc. classes had joined to know about various procedures in forensic sciences and the opportunities for students in these government positions.

The sessions were informative and many students used this opportunity to personally interact with forensic officers to understand the scope & career prospects.

5) Student Achievements

Research

Name	achievement	Event
B. Pownthurai, M.Sc. Chemistry	Paper published: Patil, B. N., Lade, J. J., Karpe, A. S., Pownthurai, B. , Vadagaonkar, K. S., Mohanasrinivasan, V., & Chaskar, A. C. (2019). Transition metal-catalyzed C–H functionalization of arylacetic acids for the synthesis of benzothiadiazine 1,1-dioxides. <i>Tetrahedron Letters</i> , 60(13), 891–894. https://doi.org/10.1016/j.tetlet.2019.02.031	
Pooja Bhargude, M.Sc. Chemistry	Paper published: Bhargude, P. L. , Lade, J. J., Patil, B. N., Vadagaonkar, K. S., & Chaskar, A. C. (2019). Highly adequate oxidative esterification of α-carbonyl aldehydes with alkyl halides in TBAI/TBHP mediated system. <i>Synthetic Communications</i> , 49(10), 1325–1333. https://doi.org/10.1080/00397911.2019.1600193	
Kosha Shah, Rohit Maurya, Sobia Shaikh, M.Sc. Chemistry	Paper published: Ganesan, G., Shaikh, S., Maurya, R., & Shah, K. (2019). Use of Carbonised Matter from Vehicle Exhaust in Dye Adsorption for Treatment of Effluents from Dyeing Industries. <i>International Journal of Innovative Science and Research Technology</i> 4(4), 753–755.	
Mansi Mistry & Riddhi Shah, T.Y. B.Sc.	Research project on comparative evaluation of Adsorption studies of transitional metal ions onto Orange (Citrus siesis) and Lemon(Citrus Limon) rind'.	XPLORE (1st position) Avishkar 2020 (Zonal level

	participation at K.C. College)
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Co-curricular Achievement

Name	achievement	Event
Neha Vadagbalkar, Gauri Barve, Odelia Rebello, Mehlam Tumsa, Anagha Anilkumar, Anamika Kanojia, Rushabh Chheda, Seeta Verma, Riddhi Parmar, Mansi Mistry	Jai Hind College won the Chemistry Festival of St. Xaviers college and secured the overall winners trophy!	Fact & Furious (FIRST) Frame it Right (FIRST) Battle Grid (FIRST) Dash for the Stashed Potash (FIRST) Chem Housie (First & Second runner up)
Odelia Rebello	Chem Housie (Jaldi 5)	Chemscope 2020 (Sophia College)
Heena Tahsildar, Sakina Kantawala	First position in intercollegiate festival	Fluorescence 2020 (R.D. National College)

Extra-Curricular Achievement

Name	achievement	Event
Kosha Shah	Outstanding contribution to all activities of Chemical Society	Chemical Society initiatives



Dr. Prabodh Chobe, Former Sr. GM & Head R&D, BASF



Dr. Deepa Khushalani, Associate Professor, Dept. of Chemistry, TIFR, Mumbai



Mr. Meghani demonstrating calibration technique for glassware in Chemistry Laboratory



Dr. Rajesh Vatsa, BARC Mumbai with his presentation on Mass Spectrometry



Dr. Sandip Trivedi, Director of the esteemed Tata Institute of Fundamental Research, Mumbai



Dr. Avinash Kale, CEBS Mumbai engaging a session on thermal methods with students



Dr. Rajesh Vadgama, ICT Mumbai demonstrating parts of HPLC



Dr. Avinash Kale being felicitated by Principal Dr. Ashok Wadia



Mr. Gokul Ganesan demonstrating Shimadzu DSC-60Plus to students



Dr. M.C. Rath of BARC addressing the audience on the future of Periodic Table



Dr. Adish Tyagi of BARC presenting on Moseley's contribution to Periodic Table



Dr. Pravin Walke of NCNNUM being felicitated by Head, Dr. Brijesh Singh



Dr. Pravin Walke, NCNNUM presenting on nanomaterials and its potential



Ms. Varsha Vhadge, Sr. Research Associate Ambernath Organics Pvt. Ltd.





Ms. Varsha Vhadge demonstrating the technique of alloying metals to students



Students and Faculty at the reception of IRMRA



Students enjoying a hands-on session of preparation of rubber balloons at IRMRA

4) Visit to Anchrom Enterprises Pvt. Ltd on 21st September 2019:



M.Sc. part I students of Jai Hind College with the organizer and demonstrator at Anchrom





Demonstration of GC-MS technique at ICT, Mumbai



M.Sc. students of Jai Hind College outside the Institute of Chemical Technology, Mumbai



Students listening to information by Forensic officer at Forensic Science Laboratory



Students posing outside the Forensic Science Laboratory, Directorate of Forensic Sciences