K.C.E.Society's

Post Graduate College of Science, Technology and Reserch, Jalgaon

(Recognized by Govt. of Maharashtra G. R. NGC NO. 2010 / (247/10) Mashi 4, dated 15/07/2010)

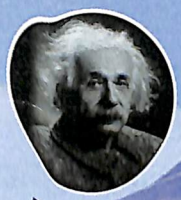
Affiliated to K.B.C. N.M.U. Jalgaon, Conferred 'B' Grade with 62% marks by Academic Audit Committee of K.B.C. N.M.U., Jalgaon


Homi Bhabha


Charles Darwin


J.C. Bose


APJ Abdul Kalam


Albert Einstein


C. V. Raman


Louis Pasteur

Volume 2

SPHATIK

ANNUAL COLLEGE MAGAZINE

2018-19

Discussion With Hon'ble N. G. Bendale In Induction Training Workshop For Faculty Members

Miss. Neha Bhamre won Bronze Medal in Cartooning, in Yuwarang 2019

Our Source of Inspiration

Anandyatri Late Annasaheb G. D. Bendale
Founder President, KCE Society, Jalgaon

Our Driving Force Towards Excellence

Pradnyavant Shri. Nandkumar G. Bendale

President, KCE Society, Jalgaon

KCE Society's

Post Graduate College of Science, Technology and Research, Jalgaon

Affiliated to K.B.C. N.M.U. Jalgaon, Conferred 'B' Grade with 62% marks by Academic Audit Committee of K.B.C. N.M.U., Jalgaon

SPHATIK

ANNUAL COLLEGE MAGAZINE 2018-19

CONTENT

Khandesh College Education Society, Jalgaon

MANAGEMENT COUNCIL

Mr. N. G. Bendale	President
Mr. Prakash B. Patil	Vice-president
Mr. Suresh R. Chirmade	Treasurer
Adv. S. S. Phalak	Secretary
Adv. Pramod N. Patil	Joint secretary
Mr. Harish S. Milwani	Member
Mr. Sudhir S. Bendale	Member
Prof. Charudatta Gokhale	Member
Mr. Laxmikant Chaudhari	Member
Mr. Dyandeo T. Patil	Member
Dr. Mrs. Minakshi Waykole	Member
Dr. Harshwardhan A. Jawale	Member
Mr. Shrikant S. Maniyar	Member – Nominee
Dr. U. D. Kulkarni	Member – Ex officio (Principal, M. J. College)

Editorial

'SPHATIK'- The Crystal

Dear Students,

I am heartily delighted to present the annual college magazine 'SPHATIK' for the year 2018-19.

From all our perspective, it is very heartbreaking to mention the incidents of coward attacks laid by Naxalites & international terrorists, unfortunately happened all over the nation & state of Maharashtra in past few months. College expressed deep condolence to all those brave martyrs and real heroes of nation for their supreme sacrifices.

College has created special attention over the last ten years of establishment, in the educational traditions of Maharashtra, especially Khandesh region, as it is the only post-graduate college in the state, governed by private organization. In the current year, Dr. V. S. Zope has undertaken the charge of college as a Principal, from the ex-principal Dr. R. T. Mahajan and continue the flow of educational journey of college.

Since the current academic year is celebrated as international year of periodic table, the editorial board decided the 'theme' of the magazine as 'Periodic Table and Elements'. Based on the theme, five different topics were circulated amongst the students to invite related articles. Students from all departments responded in huge numbers in the form of articles, especially on the topic of 'Nobel prizes for elements'. Even teachers also submitted their respective articles for the magazine.

Similarly, the magazine encompasses different departmental reports, activities conducted and academic, co-curricular, curricular and extra-curricular achievements. It also includes toppers amongst each stream, prizes won in different events and research outputs by students as well as teachers. Many glimpses are provided wherever possible in magazine that made the entire magazine more attractive and readable.

This edition has been completed with worthy support of 'SPHATIK' magazine editorial board and all dear students of College for which they all are duly acknowledged. Similarly, on behalf of editorial board, I am heartily grateful to the college management for providing financial support. I am also thankful to all teaching as well as non-teaching staff of college for their co-operation and Spark printing services for taking efforts to publish magazine on time.

Thank you..!

Dr. Sarang S. Bari
(Chief Editor)

From Principal's Desk...

I am pleased to state that the academic year 2018-19 has been successful, eventful and creative for all the Departments of the Post Graduate College of Science, Technology & Research (PGCSTR), Jalgaon.

I am happy to recollect that the past year could see major expansion in terms of introducing new programmes, strengthening research and technical and analytical skills of the students. The expansion was not only in terms of quantitative but also quality wise as infrastructure, student strength, as well as laboratory facilities are concerned. College has been in the forefront to implement various students centric- schemes and planning of academic programmes such as University Level Power Point Presentation Competition, Prospective Researchers' Scheme, publication of a compendium of research articles by the students, blood donation camp, tree plantation, voting awareness programme, celebration of national science day, annual social gathering SPANDAN etc.

I am proud to state that our students show their talent in various curricular, co-curricular, extra-curricular activities which have been reflected in winning awards, prizes in University level youth festival, Avishkar, university merit list etc.

PGCSTR is the first and only college in Maharashtra conducting only post graduate courses in science discipline and is established in 2010. I am happy to mention that college has submitted the proposal through KBC North Maharashtra University to University Grants Commission, New Delhi to get 2(f) recognition and I am sure we will receive letter from UGC soon. It is proud to mention that, college conferred 'B' Grade with 62% marks by Academic Audit committee of K.B.C. N.M.U. Jalgaon.

All these achievements, as stated above, are the result of enormous, enthusiastic but structured efforts in proper direction undertaken by management, teaching as well as nonteaching faculty, and students of the college.

I appreciate the efforts taken by the editorial board of Sphatik, all the teaching, non-teaching staff and students for their contribution in appropriate way.

Prof. Dr. Vishvanath S. Zope
Principal

Departmental Reports

Department of Biotechnology

Mr. Javed V. Khan
Head

Department was established in 2010 with an intake capacity of 30 Students. Department has three qualified teaching staff with one Ph.D degree and one NET Examination qualified Mr. Javed V. Khan is pursuing Ph.D.

- Two groups of five students from the second year of Biotechnology Department were participated in the "Avishkar-2018", in which one group of three students was shortlisted for 2nd round of "Avishkar-2018", held at KBC North Maharashtra University, Jalgaon.
- Department arranged a blood-group detection camp on 01st Sept. 2018, in which nearly 100 students have confirmed their blood groups.
- Miss. Wagh Vaishali M. got first prize in power point presentation competition, held on 25th January 2019.
- Miss Lathi Shehal Dilip stood second In university merit list at M.Sc Biotechnology examination held in May 2018.

Research Publications:

1. Javed Khan, Aeginetiaindica L. and Conyzabonariensis (L.) Cronq. are new distributional records in Satpuda range of Khandesh region, Maharashtra Bioscience Discovery, 9(4):498-500, Oct - 2018 2229-3469 (Print); 2231-024X (Online)
2. Javed Khan, Diversity of Genus Plagiochasma in Satpuda Range of Khandesh Region, Maharashtra, India International Journal of Current Research in Biosciences and Plant Biology, (2018) 5(11), 50-55
3. Sarang S. Bari & Satyendra Mishra, A book chapter for Elsevier book'Recent advances on Nanostructured Polymer Composites for Biomedical Applications' (In Press) 2019.

Seminar/ Workshop/Conference:

1. Mr. Javed Khan attended one day Syllabus Framing Workshop of M. Sc. I (Biotechnology) of KBC NMU, organized at PSGVPM College, Shahada on 16th July 2018.
2. Mr. Javed Khan, Dr. Sarang S. Bari and Miss. Pratiksha Wankhede participated in one day 'Induction Training Program' held on 16th Feb. 2019 at PGCSTR, Jalgaon.
3. Dr. Sarang Sharad Bari and Miss. Pratiksha Wankhede participated in one day 'Workshop of IPR & Patent System' 12thMarch 2019 at North Maharashtra University, Jalgaon.
4. Mr. Javed Khan & Miss Pratiksha Wankhede were the College Team Leader for Avishkar -2018 (Phase-II), on 2nd Jan. 2019 at KBC NMU, Jalgaon.

Department of Microbiology

Mr. S. N. Patil
Head

Department of Microbiology was established in 2012 with intake capacity of the student 30 Every year almost all the seats were filled having average passing parentage of 70% Department has well experienced staff with one SET examination qualified.

Student's achievements

- Hema Arun Patil: Best Student, by Microbiology Society of India, Osmanabad
- Pankaj Sadanand Borase: First rank in Quiz contest Watson and Crick Micro-Olympiad organized by, DNCVP College Jalgaon
- **Staff achievements :** Mali Manisha Suresh : passed ASRB NET, examination in December 2018

Conference / workshop :

Mr. Sandip Narayan Patil:

1. Attended workshop on "Induction Training workshop for Faculty" Organize by KCES PGCSTR, Jalgaon on16 February 2019
2. Attended workshop on "NAAC awareness program" Organize by IQAC, KBC North Maharashtra university Jalgoan on 17-18 January 2019
3. Attended workshop on "Creating Bibliography Using Endnote" organized by department of zoology, M. J. college Jalgaon on 28 September 2018
4. Attended seminar on "Intellectual Property Right" organized by IQAC KCES PGCSTR, Jalgaon on 2 April 2019

Miss Manisha Suresh Mali:

1. Attended workshop on "Induction Training workshop for Faculty" Organize by KCE, PGCSTR on 16 Feb. 2019
2. Attended seminar on "Intellectual Property Right" organized by IQAC KCES PGCSTR, Jalgaon on 2 April 2019

Miss. Diksha Sanjay Bhat:

1. Attended workshop on "Induction Training workshop for Faculty" Organize by KCES
2. Attended seminar on "Intellectual Property Right" organized by IQAC KCES PGCSTR, Jalgaon. 2 April 2019

Participation of Student in Avishkar

Six students from department of participated in district level Avishkar

Samrudhi Sham Gosavi
Hema Arun Patil
Krutika Arun Chaudhari
Jagruti Sunil Saindane
Shubhangi Mohan Sonawane
Reshma Govinda Patil

International webinar

One day International webinar on "Trends in Genetic Modification" was organized on 9st February 2019 by Microbiology department in association with Microbiologist Society, India and Mahyco Research Foundation Trusts, Badrinarayan Barwale Mahavidyalaya, Jalna. Students and staff members from Microbiology and Biotechnology departments actively participated in this webinar.

Students unit

To encourage and support research in microbiology, Department organize courses in Microbiology at various levels of education that support conferences, seminars, symposia, exhibition and to arrange lectures and demonstrations on any aspects of Microbiology. Microbiology "Students unit" was established for 2018-19 for M. Sc. I and II students.

Department of Chemistry

Mr. R. M. Patil
Head

Department of Chemistry was established in 2011 with intake capacity of 30 students. Mr. R.M. Patil, M.Sc. NET, heads the department. The Department has produced excellent academic results. some of our students have qualified NET examination. Department of chemistry of the college have academic collaboration with School of Chemical Science, KBC NMU, Jalgaon through which Dr. Wasim Shaikh took Physical chemistry course.

Industrial Tour:

The department had organized industrial study tour for the students of M.Sc. (Organic Chemistry) at Mapro Food Park, Wai Dist. Satara on 5th to 9th March 2019. The industrial tour was coordinated by Prof. R. M. Patil in which 34 students had participated. The students gained the knowledge of fruit processing units for the manufacture of jelly, jam, various food juices and other food products.

Campus Interview:

S. P. Pharmaceuticals, Jalgaon conducted campus interview for the students of PG college on 30th April 2019 and two students of Organic Chemistry, Poornima Harikisan Joshi and Gaurav Arun Marathe were selected.

Participation of students in various activities:

The students are always encouraged to participate in different curricular and co-curricular activities. The students participated in Avishkar, power point presentation competition etc. The details are as follows:

- Nitin S. Marathe, Suraj G. Patil, Khushal Suryawanshi, Chetan S. Gagare, Sachin Borse, Poornima H. Joshi and Shrutika Diyama from M.Sc. Chemistry presented poster in Avishkar-2018 at Dhanaji Nana Mahavidyalaya, Faizpur.
- Chetan S. Gagare, Manabuddeshwar N. Phalak, Madhuri Y. Patil, Manasi Joshi and Aadesh Jain participated in university level Power Point Presentation competition at Post Graduate College of Science, Technology and Research, Jalgaon.
- Miss Madhuri Y. Patil of M.Sc. I Chemistry won the Second prize in university level Power Point Presentation competition held at Post Graduate College of Science, Technology and Research, Jalgaon.
- Chetan S. Gagare and Aadesh Jain participated in university level Power Point Presentation competition at Moolji Jaitha College, Jalgaon.

Prospective Researcher's Scheme (PRS):

Five Groups of 18 students completed mini research projects under the supervision of Mr. R. M. Patil, Miss. Rupali Chaudhari, Miss. Ujwala Marathe and Miss. Kirti Nakve. Research projects were evaluated by the experts in which 1st prize was won by the project entitled 'Efficient one pot synthesis of Schiff's base using amino acid as a catalyst.'

Achievements of Teachers

- Mr. Malik Khan Department of Chemistry Qualified 'GATE- 2019' Examination.

Research Publications:

- Ravindra M. Patil and A. P. Rajput "Synthesis of 6-Amino-2, 4-Dihydropyrano-[2,3-c]Pyrazol5-Carbonitriles Catalyzed by Cerium(IV)carboxymethylcellulose under Solvent-Free Conditions"Journal of Applicable Chemistry 2018, 7 (3): 553-558(International PeerReviewed Journal).
- Ravindra M. Patil and A. P. Rajput "Synthesis of a Novel, Efficient and Reusable Fe(II) Carboxymethylcellulose Catalyst and its Catalytic Activity in the Synthesis of 1,4-dihydropyrano [2,3-c] Pyrazole Derivatives"Journal of Applicable Chemistry 2018, 7 (6): 1821-1828 (International Peer Reviewed Journal).

Extracurricular Activities of Teachers

Prof. (Dr.) V. S. Zope invited as Resource Person for NAAC Accredited Awareness Workshop on17-18 Jan. 2019 organized by IQAC, KBCNMU, Jalgaon

Paper Presentation in Avishkar-2018

Mr. Ravindra M. Patil

- Presented paper "Synthesis, characterization and catalytic application of Fe(II)carboxymethylcellulose" in Avishkar- 2018 University Level at KBCNMU, Jalgaon on 02-03 Jan. 2019.
- Presented paper "Synthesis, characterization and catalytic application of Fe(II)carboxymethylcellulose" in Avishkar- 2018 District Level D.N. College, Faizpur on 27 Dec. 2018.

Miss Rupali A. Chaudhari

- Presented paper "Synthesis of novel pyranopyrazole derivatives by using dialdeyde-" in Avishkar-2018 District Level D.N. College, Faizpur on 27 Dec. 2018.

◆◆◆

Department of Mathematics

Mr. Dnyaneshwar R. Nhavi
Head

Department of mathematics was established in 2017, with the intake capacity of 30 students. Department has qualified teaching staff one is with SET examination. Mr. D.R. Nhavi is Asst. Professor and pursuing his Ph.D. degree.

- Two students of the first year participated in the "Aviskar-2018" and four students participated in "Youth Festival-2019".
- In Youth Festival-2019 one of our students got first rank and another one has got consolation prize in the district zone.
- Miss Neha Devidas Bhamre has got third rank in Youth Festival at the University level.
- Department celebrated the 'National Mathematics Day' on 22nd December 2018 in collaboration with Department of mathematics of M. J. College and Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and in which 32 students of department participated in the poster presentation.
- On 22nd February 2019 department organized the **'Maths Skills Development Workshop'** in the collaboration with Mathematical Science Association and department of mathematics M. J. College,

Jalgaon.

- The final event of celebration of 'National Mathematics Day' held on 3rd March 2019 at Department of mathematics, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and in that program our students participated in quiz competition, poster presentation Miss Kanchan Yuvraj Zambare and Miss Sarita Savarmal Sharma have got third prize in poster presentation.
- Department also has academic collaboration with Department of Mathematics of M. J. College, Jalgaon in which Prof. Dr. J. N. Chaudhari and Mr. Dnyaneshwar R. Nhavi imparted the instructions to the course MT-204 (Number Theory) and MT-202 (Complex Variables) respectively.

Research Publications:

Mr. Dnyaneshwar R. Nhavi published the research article entitled"Fixed point theorems satisfy property P in Gb-metric space, Electronics Journal of Mathematical Analysis and Applications,Vol. 7(2) July 2019, No. 17, pp. 181-197, ISSN:2090-729X".

Seminar/ Workshop/Conference:

1. Mr.Dnyaneshwar R. Nhavi and Mrs. Prachi P. Pawar participated in 'Maths Skill Development Workshop' dated 22nd February 2019 at P.G.C.S.R, Jalgaon.
2. Mr. Dnyaneshwar R. Nhavi and Mrs. Prachi P. Pawar participated in 'National Mathematics Day' program celebrated on 03rd March 2019 at KBCNMU, Jalgaon.

◆◆◆

Department of Statistics

Mr. Rakesh H. Wagh
Head

Statistics department of college has been established in 2017 with the intake capacity of 30 students and qualified faculty.

- Five students of the department participated in "Youth Festival-2019" in the event installation and got consolation prize in it.

Certificate Course:

To enhance the statistics conceptual attitude among the students of all the departments, college initiated the self governing certificate course in 'Statistical Approaches of Analysis'. 32 students were sucessfully completed the certificate course.

Publications:

Mrs. Yogita V. Jadhav published the following research article:

- Kamalja, K. K. and Wagh, Y. S. (2018). Estimation in zero-inflated Generalized Poisson distribution, Journal of Data Science, 18, 183-206.
- Wagh, Y. S. and Kamalja, K. K. (2018). Zero-Inflated models and estimation in Zero-Inflated Poisson distribution accepted for publication in Communications in Statistics-Simulation and

Computation (DOI: 10.1080/ 03610918. 2017. 1341526).

Achievements:

1. Mr. Rakesh H. Wagh was coordinator of the 1st University level Power Point Presentation & 'Election Awareness Program'.
2. Mr. Rakesh H. Wagh was a team manager of "Youth Festival-2019".
3. Mrs. Y. V. Jadhav was coordinator of 'Induction training workshop' arranged on 16th February 2019.

◆◆◆

Activity Reports (Co-curricular, Extra-curricular & Extension)

IQAC

First meeting of IQAC was held on 19 January 2019. Members present for the meeting were Dr. V. S. Zope, Dr. Minakshi V. Waykole Dr. K. C. Patil, Mr. Sudeep S. Rane, Dr. P. S. Patil Prof. D.G. Hundiwale, Mr. S.S. Narkhede Miss. C.A. Gajare Prof. S. N. Patil Prof. R. M. Patil, Prof. J. V. Khan, Mr. Jayesh Patil, Mrs. Leena Jadhav. The agenda for the meeting was

1. Commencement of NPTEL, SWAYAM portal
2. Orgnaization of university level power point presentation competition
3. Importance, Roles and functions at IQAC

In the meeting various suggestions and advices were given by Prof. D. G. Hundiwale regarding, the establishment of swayam portal of NPTEL for students and faculty members. Dr. V. S. Zope, Dr. Minakshi V. Waykole and Dr. K. C. Patil suggested the themes and guideline regarding the smooth conduct of "University Level Power Point Presentation Competition". Prof. S. N. Patil give information about Importance, Role and functions of IQAC

Second meeting of IQAC was held on 08 February 2019. Members present for the meeting were Dr. V. S. Zope, Dr. Minakshi V. Waykole, Dr. K. C. Patil, Mr. Sudeep S. Rane, Dr. P. S. Patil, Prof. D.G. Hundiwale, Mr. S.S. Narkhede, Miss. C.A. Gajare, Prof. S. N. Patil, Prof. R. M. Patil, Prof. J. V. Khan, Mr. Jayesh Patil, Mrs. Leena Jadhav. The agenda for the meeting was

1. Introduction of certificate courses
2. Hands on training on sophisticated instruments
3. Induction training program for teaching staff

In the brief discussion with the members, It was decided to organize skill based certificate

course under 181, namely Certificate course in "Bio-analytical techniques and bioinformatics" for the students of Microbiology and Biotechnology and "Certificate Course in Analytical Chemistry" for the students of Organic chemistry. It was also suggested to start self-organized course in statistics to develop statistical skills of all students. Prof. D. G. Hundiwale suggested to organize "Hands on training on sophisticated instruments for students. The members were also agreed to organize workshop on Induction training program for teaching staff

As per the suggestions, IQAC organized the following activities in the college,

On 19/12/2018 college received the approval letter from IIT Madras for **NPTEL, Swayam portal** for students and Teachers. Mr. Sandip Patil was appointed as SPOC for conduct of various certificate courses in various disciplines.

On 25th January 2019 **"University Level Power Point Presentation Competition"** was organized for Microbiology, Biotechnology and organic chemistry. Participants from various colleges registered for this activity.

Proposal for certificate course, under 181 on Certificate course in 1. Bio-analytical Techniques Bioinformatics, 2. Analytical Chemistry was submitted to KBC North Maharashtra University for approval.

On 16th February 2019 workshop on "Induction training program for teaching staff members" was organized. 17 staff members attended the workshop.

It has been decided in the IQAC meeting to prepare the proposal to get 2(f) recognition by UGC. Following are steps in this regard.

a. Date of submission of proposal to KBC, NMU, Jalgaon: 11/12/2018
b. One-man Committee visited to the college: Prof. S. T. Ingale visited on 4th Feb. 2019
c. Letter received by KBC, NMU regarding proposal forwarded to UGC.: 18/03/2019

Avishkar- 2018

The College Level Avishkar-2018 was organized by KBC NMU at different colleges at district level. For Jalgaon district the competition was on 27th Dec 2018 at Dhanaji Nana Mahavidyalaya, Faizpur. There were total 28 students from our college participated in this competition belonging to different categories (PPG and Teacher), subject and theme areas. They presented their ideas, views and research works through posters and models. The participant focused the different areas of current research and successfully presented their innovative ideas. .

The referees screened and shortlisted the innovative ideas and scientific research for University Level competition. The participants screened from this Phase-I had chance to present at University level. Total four participants of our college were shortlisted for Phase- II presentation. The participant namely, Patil Satish S., Patil Sominath R. and Dapke Rahul S. were presented model on the topic "Building our own tool for identifying DNA". Our faculty Member Mr. Ravindra Patil, also presented his poster on "Characterization and catalytic application of Fe (II) carboxymethyl cellulose prepared by metathesis strategy". The Phase- II of Avishkar-2018 was at KBCNMU campus, Jalgaon on 2nd Jan 2019. The activity was coordinated by Miss. Pratiksha R. Wankhede.

Youth Festival (Yuwarang-2019)

Ten students of the college, participated in Youth Festival organized by KBC NMU (Yuwarang-2019) in the events of mehandi, installation, cartooning, poster making & rangoli. Three groups won the prizes at district level. For the first time, in the history of college, Miss Neha Devidas Bhamre awarded bronze medal in the event cartooning. Though our college a science & technology college, many of the students have hidden talent in fine arts & performing arts. Participants from the college are listed below.

Event	Name of participant	Award
Cartooning	Miss. Neha Devidad Bhamre	Bronze medal
Installation	Miss. Gayatri Ratilal Borese	District level of Yuvarang
	Miss. Pragati Sanjay Neve	
	Mr. Vishal Rajendra Patil	
	Miss. Yogita Ashok Sonar	
Poster making	Miss. Sarita Savarmal Sharma	District level of Yuvarang
	Miss. Lalita Rajendra Badgujar	
Mehendi	Mr. Khatik Shaikh Shabaj Shaikh S.	College Level of Yuvarang
Rangoli	Miss. Neha Devidas Bhamre	

Yuwati Sabha

Yuwati sabha of the college organized various events for the girl students related to their health, career, empowerment etc. This year on 18th Jan 2019, 11 girl students participated in personality development workshop organized by M. J. College, Jalgaon. In this workshop, participants actively involved & acquired the knowledge of cyber security and women related rules & laws. Dr. Chanchal Shaha, a reputed Gynaecologist, also focussed on gynaecological problems of women in this workshop. This activity was coordinated by Miss. Rupali Chaudhari.

Teacher's Day

On birthday of our 2nd president & hard-core teacher, Dr. Sarwapalli Radhakrushnan, a teacher's day was celebrated by the students on 5thSept. 2018. The programme was inaugurated by the Principal of collage, Dr. R. T. Mahajan, lighting the lamps in front of goddess Saraswati! This was followed by felicitation of all teachers by students. Dr. Mahajan explained the importance of a teacher in student's life as well as in society. Few students also shared their views about teachers. Students from department of Biotechnology gifted a clock to the department.

Students Achievement

- University topper - Miss. Lathi Shehal Dilip stood second in university merit list at M.Sc. Biotechnology examination held May 2018.
- Miss. Patil Hema Arun was awarded best student by microbiology society of India.
- Miss Mansi Joshi from department of organic chemistry (M.Sc.I) won 2nd prize in Inter Colleges District Level Chess Competition held on 4th Aug. 2018.
- **Endowment prize:**

Miss. Rupali Chaudhari won the endowment prize of Rs. 600, sponsored by Dr. V. S. Zope to the students who stood 1st in M.Sc. (Organic Chemistry) university examination.

Annasaheb Dr. G. D. Bendale Scholarship 2018-2019

Annnasaheb Dr. G. D. Bendale scholarship was distributed to four students of PGCSTR, Jalgaon on 29/03/2019. This scholarship is awarded to poor, clever and needy students.

Sr. No.	Name of the student	Department	Amount (Rs.)
1	Priyanka Bhanudas Chaudhari	Chemistry	1000
2	Sandip Yashvant Patil	Biotechnology	1000
3	Vishal Rajendra Patil	Statistics	1000
4	Umakant Prakash Patil	Statistics	1000
		TOTAL	**4000**

Induction Training Programme

Induction training workshop was conducted by K. C. E.'s Post Graduate College of Science, Technology and Research, Jalgaon (PGCSTR) for all the staff members on 16-02-2019. The chief guest for the inauguration function was Dr. D. G. Hundiwale, Academic Director, K. C. E. Society, Jalgaon Dr. R. T. Mahajan, Dr. G. S. Chaudhari and Principal Dr. V. S. Zope were present on the dias Dr. D. G. Hundivale motivated the participants through his speech about the soft skill and contribution of the teacher for the society. He emphasised up on importance of up-gradation of subject knowledge and use of internet and ICT tools in teaching and learning process.

In the next session, was about "Know Your College", Dr. G.S. Chaudhari, former Principal of PGCSTR, Jalgaon (founder Principal of College) guided about the history of the college and efforts taken by the society for establishment of the college. He told that PGCSTR is the only college in Maharashtra which has post-graduation study. He also focused on the courses that have started step by step in the college. Initially the sanctioned courses were Biotechnology, Chemistry, Microbiology, Geoinformatics and Rural development. But as per the interest of the students, in 2010 Biotechnology was commenced. Then, Chemistry and Microbiology were commenced in 2011 and 2012 respectively, and recently in 2017 Mathematics and statistics started.

Dr K. B. Mahajan, Head of Physics Department, M. J. College Jalgaon talked on know your Society. He gave an information about of KCE society Jalgaon and the establishment of KCE society. In 1945 KCE society was established and the founder member was Hon'ble Dr. G.D. Bendale. 38-

acre land for the society was donated by visionary industrialist Mr. Moolji Jaitha. At present about 11000 students are taking their education through 20 institutes of society from K.G to P.G.

Dr. Zope V. S. Principal of PGCSTR illustrated the UGC norms and University act about the workload of College teacher. He guided about PBAS: Performance based assessment system, which is the basic requirement of Career advancement scheme (CAS). He also guided about filling of PBAS for API: Appraisal Performance indicator.

In the afternoon session, Dr. Ashok Rane, Principal, College of Education, Jalgaon guided about teaching and learning process. The first step is cognitive domain which can be divided into prework and post work. Teachers should develop students IQ through cognitive domain. Teachers should be well planned, suggestive, informative, cooperative and effective for students. Teachers should respond student views and other respect. Teaching process should be from formal to informal.

Prof. Dr. R. T. Mahajan guided us on research methodology, research projects and how to write a good research paper which includes abstract, keywords, introduction, Analysis, research conclusions and references etc.

Mr. N. G. Bendale had given a motivating and inspiring lecture on how we should improve ourselves in research and academics. What should be our responsibilities while teaching and learning. The activity was coordinated by Miss Yogita Jadhav.

Industrial Visit

Apart from the academic schedule of the college, practical knowledge is also an important aspect. University added a compulsory Industrial visit for the Post Graduate students. In this regard, PGCSTR organized an industrial visit for students of M.Sc. at **Mapro Foods Pvt. Ltd, Shendurjane on Friday, 8th of March 2019.**

After receiving the permission from Mapro Foods Pvt. Ltd, Shendurjane, 34 students along with 4 faculty members (Mr. R. M. Patil, Miss. Rupali Chaudhari, Miss. Kirti Nakve and Miss. Ujjwala Marathe) Visited **Mapro Foods Pvt. Ltd.**

Human Resource Manager received us at the entrance and gave a brief introduction for their other departments. After the introduction of company, the official gave the additional information about company history and background as well as about promoters.

Mapro Foods Private Ltd. is a fruit processing company founded in 1959, which is situated at Panchgani (near Mahabaleshwar) a panoramic and beautiful hill station of western India. company is in the fruit processing business over more than forty years and it is known for quality and innovation in the industry. The Brand Mapro is a well-recognized brand in India. The company has shown organic growth over the last four decades representing sound financials with sustained profitability. Set up as a family business over 45 years ago, it has earned a name for quality and consistency.

Mapro products enjoy Premium Status in the Indian market. The Manufacturing facilities are Certified ISO 9001:2000 and HACCP by BvQi. The Company has expanded its capacity and produce 30000 MT of processed frozen foods p.a. For the students of M.Sc. (Organic Chemistry), it was opportunity to observe practically the overall procedure of their subject areas. The visit came to the end at 8.00 p.m. It was an informative, interesting and a successful visit.

Seminar on Intellectual Property Rights

One day seminar on **Intellectual Property Rights (IPR)** was organized by IQAC of the college on 2nd April 2019. Dr. Vikas Gite, Head, Department of Polymer sciences, SOCS, KBC NMU, Jalgaon delivered the lecture with the help of power point presentation. His lecture was very informative, interesting and help to understand rules, importance, of IPR. In the next session Dr. G. K. Mahajan elaborated IPR with suitable examples. On inauguration function Dr. V. S. Zope. S. N. Patil, Coordinator, IQAC and Chief guest Dr. Vikas Gite were present on the dias. The seminar was coordinated by Mr. S. N. Patil.

Maths Skill Development Workshop

K. C. E's Post Graduate College of Science, Technology and Research, Jalgaon organized **Maths Skill Development Workshop** with the collaboration of All India Ramanujan Maths Club, Dr. C. V. Raman Club, Vigyan Prasar Network of Science Clubs, Government of India, Zilha Parishad Secondary Education Department, Jalgaon and M. J. College, Jalgaon. **Prof. Dnyaneshwar R. Nhavi** was the coordinator of the workshop, organized on **22nd February 2019** in which 29 M. Sc. students of PGCSTR and 38 secondary teachers of Jalgaon district were participated.

The inauguration of the workshop was held at the auspicious hands of the great mathematician and chief guest Dr. Chandramauli Joshi. On this occasion, education officer, Z. P., Jalgaon, Prof. J. N. Chaudhari, Head, Department of mathematics, M. J. College, Jalgaon, Mr. Kishor Raje, Ex. Chairman, All India Science Teachers Association and Dr. Mrs. D. S. Bendale, Vice Principal, M. J. College, Jalgaon were present on the dice. The inauguration function was presided over by Dr. V. S. Zope, Principal, K. C. E's Post Graduate College of Science, Technology and Research, Jalgaon. Dr. V. S. Zope introduced the great mathematician Dr. Joshi, mentioning the active efforts taken by him to popularize the mathematics through U-tube and thousands of activities for the students and teachers. Prof. J. N. Chaudhari focused on the development of mathematics department of M. J. College and P. G. College.

Dr. Chandramauli Joshi illustrated various very simple techniques for solving complex mathematical equations. His talk was very impressive, informative and interesting. All the participants were actively involved during his speech and proactively responded to each question raised by him. Dr. Joshi also explained various methods and techniques of solving the mathematical problems with the help of kit, models, charts etc. During Dr. Joshi's speech, he asked some tricky questions to the participants. One of the M. Sc. student of P. G. College Miss Kanchan Yuvaraj Zambare obtained a prize for answering a tricky question. The wonderful thing of the workshop was all the participants were enthusiastic up to the end of the workshop though the subject is difficult.

In the valedictory function, the certificates were distributed, and few participants expressed their opinion about the workshop. Prof. Dnyaneshwar R. Nhavi, Head, Department of Mathematics, P. G. College, Jalgaon and Mrs. Prachi Pawar had put the effort to organize the workshop. Dr. Kunal Ingale, Dr. JVS. Krishnaprasad, Prof. SuhasTayade and the other teachers of department of Mathematics, M. J. College, also provided their supports for the organization of the workshop. Overall the workshop was very fruitful and helpful for creating the awareness in the difficult subject like mathematics.

National Mathematics Day

College has celebrated National Mathematics Day with the collaboration of M. J. College, Jalgaon and Department of Mathematics, KBCNMU, Jalgaon on 22nd December 2018. To create the awareness of mathematics amongst the students, lectures by eminent mathematician were organized along with the poster presentation by the students. Nearly 150 students were participated in this program. In the inauguration function Prof. S. R. Chaudhari, Head, Department of Mathematics, KBCNMU, Jalgaon, Prof. S. T. Bendre, Department of Physics, KBCNMU, Jalgaon, Dr. U. D. Kulkarni, Principal, M. J. College, Jalgaon, Mrs. D. S. Bendale, Vice Principal, M. J. College, Jalgaon, JVS. Krishnaprasad, Department of Mathematics, M. J. College, Jalgaon were present on the dice. Dr. U. D. Kulkarni delivered presidential address.

In the first technical session, Prof. S. R. Chaudhari motivated the students by explaining the contribution by Srinivasa Ramanujan in mathematics. In his speech, he told about the story of theorems proved at the school level by Ramanujan. Students were very much impressed by the video clip about Ramanujan's hard work ship. Twenty-eight students of Post Graduate college, Jalgaon had presented the innovative posters related to mathematics. These posters were well appreciated by the experts. The activity was coordinated by Mr. Dnyaneshwar R. Nhavi!

Power Point Presentation Competition-2019

Post Graduate college of Science, Technology and Research, Jalgaon organized University level power point presentation competition on 25th January 2019 for the students of Organic Chemistry, Microbiology and Biotechnology. The competition was inaugurated at the auspicious hands of Dr. D. G. Hundiwale, Academic Director, K. C. E. Society, Jalgaon, Dr. G. S. Chaudhari and Dr. R. T. Mahajan, Former Principal of PG college. were present at innugration function. On this occasion Dr. V. S. Zope, Principal, P. G. College, Jalgaon and Mr. Rakesh H. Wagh, Co-ordinator of PPT competition also present on the dias. The topics for competition were.

1. Safety Precautions in Laboratory
2. Green Chemistry/Technology
3. Instrumental Methods of Analysis
4. Genetically Modified Organisms
5. Sustainable Biotechnology.

For this competition 23 students were present from various colleges affiliated to KBCNMU, Jalgaon. 16 students were present from different Schools of KBCNMU, Jalgaon. The participants were evaluated on the basis: of content, Innovation, Presentation and Question/Answer. The Chief Guest for the prize distribution function was Dr. R. T. Mahajan. Few students expressed their views about the competition and mentioned that the competition is very fruitful for the overall academic development of the student. The successful participants were awarded prizes for various disciplines as below:

A. Organic Chemistry

1. First prize: Gosavi Dipak Prakash, School of Chemical Science, KBCNMU, Jalgaon.
2. Second prize: Chandravanshi Shikha J., School of Chemical Science, KBCNMU, Jalgaon.
3. Consolation prize: Patil Madhuri Yashwant, PGCSTR, Jalgaon.

B. Microbiology and Biotechnology

1. First prize: Wagh Vaishali Mohan, PGCSTR, Jalgaon.
2. Second prize: Patil Dipika Ravindra, M. J. College, Jalgaon.
3. Consolation prize: Patil Jayesh Mahendra, PGCSTR, Jalgaon.

The examiner for Organic Chemistry was Dr. H. P. Narkhede, Head, Department of Chemistry, Kotecha Mahila Mahavidyalay, Bhusawal and for Microbiology and Biotechnology, was Dr. K. P. Narkhede, Head, Department of Microbiology, M. J. College, Jalgaon. The activity was coordinated by Mr. Rakesh H. Wagh.

International Webinar

Department of microbiology of college organized a one-day International webinar for students of Microbiology and Biotechnology department. Faculty from both departments including Mr. Sandip N. Patil, Mr. Javed Khan, Dr. Sarang Bari, Ms. Manisha Mali, Ms. Diksha Bhat, Ms. Priya Bhoge and Ms. Pratiksha Wankhede along with 35 students from Department of Microbiology and Biotechnology attended the webinar on the topic of **"Trends in Genetic Modification"** held at New conference hall on 9th February 2019. The Webinar was organized by **Microbiologist Society, India and Mahyco Research Foundation Trust's** Badrinarayan Barwale Mahavidyalaya, Jalna.

Key note address was given by **Dr. Usha B. Zehr.** In the two sessions, four lectures were organized including Dr. Usha B. Zehron 'Plant Breeding Innovation: Advances in Agriculture', Dr. Tanzima Yasmin on 'GMO and General Concerns', Prof. Dr. Abdullah Mohammad Sohael on 'Optimization of Genetic Engineering approach for Disease Resistance in Citrus' and Dr. Suhas Bharat Sutar on 'CRISPR/Cas9 mediated editing of Wheat to improve drought tolerance', It was a nice platform to interact with scientists and delegates representing reputed institutions in this field and could update our knowledge.

Sports

PGCSTR has a full-fledged sports facility, coordinated by physical director Mrs. Snehal Raut. In the current academic year, many students have participated in several sports events. Many of the sports events were coordinated by prof. J. V. Khan. A team of 5 boys & 5 girls was participated in Inter Colleges District Level Chess Competition, held on 4th Aug. 2018 in Godavari college of Engineering, Jalgaon. Miss Mansi Joshi from department of organic chemistry (M.Sc. I) won 2nd prize in this competition.

Student's Articles

Speed Maths

Miss Bushra khanam shaikh Mohammad Iliyas,
M. Sc.- I (Mathematics)

You have five seconds to solve 996×997 without using a calculator. This can be solved by using Vedic mathematics. The base of both numbers 996 & 997 is thousand. Subtract each number by 1000 and you get 004 and 003. Now multiply the subtracted numbers and you get 012. After this, cross subtract either of the number 996 minus 003 or 997 minus 004 and you get the same number 993.Therefore you have your answer: 993012.

How to Multiply 43 to 47?

Here the unit digits are 3 and 7, when you add them, it is 10, so understand a simple trick for such cases :
Multiply 4 to next digits := 4*5=50
Now Multiply both the unit digits : = 21
the answer is 2021.

* **The use of vedic mathematics.**

- More than 1700% times faster than normal math: this makes it the world's fastest.
- Eradictes fear of math completely. So if your child has math-phobia high speed vedic Math is a Fun-filled way to do math and arises interest in your child.
- Sharpens your mind, increases mental agility and intelligence.
- Increases your speed and accuracy. Become a mental calculator yourself.
- Improves memory and boosts self-confidence.
- Develops your left and right sides of your brain hence using intuition and innovation. It has been noted that Geniuses have been using the right side of the brain to achieve exceptional results.

◆◆◆

Films about Famous Mathematicians

Mrs. Kanchan Y. Zambare
M. Sc-I (Mathematics)

Hollywood and other movie makers have made so many beautiful films about famous mathematicians.

A Beautiful Mind – John Nash **(2001 Russell Crowe, Jennifer Connelly)**

This movie is about a great mathematician who struggles with paranoid schizophrenia. This condition has adverse effects on how he relates to people. His relationship with his family, friends, and colleagues remains complicated by his inability to maintain that interpersonal connection. To cope and live a relatively healthy life, he seeks professional help along the way. The most significant victory of the mathematician's life is when he eventually wins the Nobel Prize at an advanced age. The leading role is played by Russell Crowe. Russell does an amazing job bringing out the challenges faced by the brilliant mathematical mind of John Nash.

The Imitation Game – Alan Turing (2014)

This movie is a thriller that sees a group of mathematicians and computer scientists crack the Nazi Enigma Code. The code itself was a platform for encrypting messages, and it proved very crucial in war time communications. Set in World War II, the Brits worked hard to decode the content sent using this particular method, to reveal the Germans' plans. The film also sheds some light on the rule of law and the evolution of human rights. Alan Turing, the mathematician leading the British team is later arrested and tortured due to his (then) outlawed sexual orientation. A great movie on a major historical event impacted by a famous mathematician.

The Theory of Everything (2014 Eddie Redmayne, Felicity Jones)

This movie tells the story of a brilliant mathematician and scientist who suffered from motor neuron disease from an early age. The condition made everyday life difficult for this extraordinary mind; making him a social misfit right from the start. His brilliance in physics was beyond impressive. Stephen Hawking (played by Eddie Redmayne), falls in love with a college mate Jane Wilde (Felicity Jones), who later becomes his wife. This couple goes on to achieve beyond what any of them could have imagined. Hawking's study of time begins after he learns that he may not have too long to live, and this marks the start of a great journey of discoveries.

Hidden Figures (2016 Taraji P. Hendson, Janelle Monae, Octavia Spencer)

This is a movie about the triumph of three women over segregation, and how mathematics proved fundamental in sending John Glenn to space (the first American into orbit). The story finds root on the real-life events surrounding the life of women mathematician, Katherine Johnson, a key player in NASA's Mission. Her two colleagues were Dorothy Vaughan, a brilliant computer programmer, and Mary Jackson, a graduate engineer and the leading lady in petitioning school systems to allow her to take courses offered in an all-white school. These three clever ladies show how talent in mathematics and science with race and gender.

The Man Who Knew Infinity (2015 Dev Patel, Jeremy Irons)

This story originates from the real-life events of famous Indian mathematician Srinivasa Ramanujan. In the story, a young man born in Madras, India, is struggling at life, earning a living as a casual laborer. The young man's ability with numbers earns him accounting tasks with his employers. The bosses then encourage him to make his maths work public after they see the brilliance in what he does. Ramanujan writes to a great mathematician, G. H. Hardy, who immediately notices his brilliance and invites him to join Cambridge. He overcomes segregation and works for a long time under Hardy, braving tuberculosis in the process. Though ill, he is later reunited with his family back home after groundbreaking work in mathematics.

Agora (2010 Rachel Weisz, Max Minghella)

Agora in Greek was the name for meeting places in ancient Greece. This movie showcases the battles of long ago between mathematics, science and superstition. The story is about Hypatia, who has three dedicated students under her Davus, Synesius and Orestes. All three male students are attracted to their teacher, who objects to their advances. Beyond religion and other beliefs, Hypatia only finds passion in science and ideas. This fourth century AD mathematician finds focus in a world full of distractions and unrest, where disagreeing factions believe firmly in the death of anyone who opposes them.

◆◆◆

Brick Award

Miss Kavita P. Waghale
M. Sc.- I (Mathematics)

About the award

The award is a tribute to outstanding architectural design as well as to the aesthetic and functional benefits facing bricks, clay blocks and roof tiles can provided in contemporary architecture. The annual brick Awards celebrate the best examples of clay brick in our built environment each year the awards at tract over 300 entries from leading architects, house builders, developers and contractors, across 15 hotly-contested categories. Since 2004, the Wienerberger Brick Award is providing a stage for excellent brick architecture and its architects. Every two years, a great number of projects are entered into the award world-wide. Subsequently, all submitted projects are studied and discussed by an independent panel of architecture journalists, critics and architecture, who narrow down the number to 50 projects split into different categories which are then nominated for the award.

The jury and winners

The award comprises of different categories that are subject to slight change depending on the year and the developments of trends and current topics. For the brick Award 2020 the following categories will be awarded, feeling at Home, Living Together, Working Together, sharing public

Space and Building outside the box. Between January and April 2017, there were 576 worldwide projects submitted for the Wienerberger Brick Award 2018. An independent pre-jury panel consisting of architecture critics and journalists had the challenging task to narrow down this number to a total of 50 projects split into the five categories that were then nominated for the award. Subsequently, an international jury of renewed architects, who change with every award, selected the winners within the categories including tow Grand prize winners.

The brick Award is an international established award and presents outstanding brick architecture. The submission process for the Brick Award will be started and entries are open during January to April. The spectrum of applications ranges from building solution using classic clay blocks, facing bricks and roof tiles to the creative clay pavers and ceramic fascia panels. On May 28th Winenerberger celebrated the eighth brick award at the Albert Hall in Vienna. Besides the press conference and the symposium with an inspiring keynote speech of experts and a panel discussion, the winners were announced.

◆◆◆

Youngest Mathematician in the World

Miss Sarita S. Sharma
M. Sc.- I (Mathematics)

Niels Abel:

Niels Henrik Abel, one of the foremost mathematicians of the 19th century, was born in Norway on August 5, 1802. At the age of 16, he began reading the classic mathematical works of Newton, Euler, Lagrange & Gauss. When Abel was 18 years old, his father died and the burden of supporting the family fell upon him. He took in private pupils and did odd jobs, while containing to do mathematical research. At the age of 19, Abel solved a problem that had vexed leading mathematicians for hundreds of years. He proved that unlike the situation for equation of degree 4 or less, there is no finite formula for solution of general fifth degree equation.

Although Abel died long before the advent of subject that now comprise Abstract Algebra, his solution to the quintic problem laid ground work for many of these subjects. In addition to his work in theory of equation of Abel made outstanding contributions to the theory of Elliptic function, Elliptic integrals, Abelian integrals & infinite series, just when his work was beginning to receive the attention it deserved, Abel contracted tuberculosis. He died on April 6, 1829 at the age of 26. In 1870 Camille Jordan introduced the term Abelian group to honor Abel.

Evariste Galois:

Evariste Galois was born on October 25, 1811 near pairs. He took his first mathematics course when he was 15 and quickly mastered the works of Legendre and Lagrange. 18 Galois wrote his important research article on the theory of equation and submitted it to the French Academy of Science for publication, the paper was given to Cauchy for refereeing Cauchy impressed by the paper, agreed to present it to Academy but never did. At the age of 19, Galois entered a paper of highest quality in the competition for the Grand prize in mathematics, given by

the French Academy of Science. The paper was given to Fourier, who died shortly their after. Galois's paper was never seen again. Galois twice failed his entrance examination to Ecole Polytechnique. He did not know some basic mathematics, and he did mathematics almost entirely in his head, to the annoyance of examiner. Legend has it that Galois become so enraged at stupidity of examiner that he threw an Eraser at him.

Galois spends most of the last years and a half of his Life in prison for revolutionary political offenses. While in prison, he attempted suicide and prophesied his death in a duel. On May 30, 1832 Galois was shot in a duel and died the next day at the age of 20. The life and death of Galois have long been a source fascination and Speculation for Mathematics historians. Among the many concepts introduced by Galois are normal subgroups, Isomorphism, Simple group Finite fields and Galois theory. His work provided a method for disposing of several Famous construct ability problems such as Trisecting an arbitrary angle and doubling a Cube. Galois's entire collected works fill only 60 pages.

◆◆◆

The Prestigious Award in Mathematics-Field Medal

Miss Neha D. Bhamre
M. Sc. – I (Mathematics)

The Fields medal is a prizes awarded to two, three or four mathematicians under 40 years of age. At the international congress of the Fields Medal prize awarded to two, three or four by international mathematical union (IMU), a meeting that takes place every four years.

The Field medal ,established in1936 and named after the Canadian mathematician J.C. Field , is one of the most prestigious awards in the field of mathematics and often described as the "Nobel prize of mathematics".

The Obverse of the field medal

Field Medal	
Awarded for	outstanding contributions in mathematics attributed to young scientists
country	various
presented by	(IMU) International mathematical union
Reward	CA$ 15,000
first awarded	83 years ago, in 1936.
last awarded	2018

The field medal is regarded as one of the highest honors a mathematician can receive , and has been described as the mathematicians Noble prize, although there are several key differences, including frequency of award, number of awards, and age limits. According to the annual academic excellence survey by (ARWU - Academic Ranking of World Universities), the fields medal is consistently regarded as the top award in the fields of mathematics worldwide, and in the another reputation survey conducted by the IREG in 2013-14, the Fields medal came closely after the Abel prize as the second most prestigious international award in mathematics.

The prize comes with a monetary award which since 2006, has been CA$15,000. The name of the awards is in honor of Canadian mathematician John Charles Fields. Fields was instrumental in establishing the award, designing the medal itself, and funding the monetary component.The medal was first awarded in 1936 to finish mathematician Lars Ahlfors and American mathematician Jesse Douglas, and it has been awarded every four years since 1950. It purpose is to give recognition and support to younger mathematical researchers who have made major contributions in 2014. The Iranian mathematician Maryam Mirzakhani become the first woman Fields medalist. In all, sixty people have been awarded the Fields medal.

The most recent group of fields medalists received their awards on 1 august 2018 to the opening ceremony of the IMU international congress, held in Rio de Janerio, Brazil. The medal belonging to one of the four joint winners Caucher Birkar, was stolen shortly after the event. The ICM presented Birkar with a replacement medal a few days later. The monetary award is much lower than the 8,000,000 Swedish Kroner (roughly 1,400,000 Canadian) given with each Noble prize as of 2014 other major awards in mathematics, such as the Abel prize and the Chern medal, have larger monetary prizes compared to the fields medal

Fields medal winners

- **Year 2018**

  1: Peter Scholze, 2: Alessio Figalli, 3: **Akshay Venkatesh,** 4: CaucherBirkar
- **Year 2014**

  1: Maryam Mirzakhani, 2: Artur Avila, 3: Martin Hairer, 4: Manjul Bhargava
- **Year 2010**

  1: Ngo Bao Chau, 2: stanislav Smirnov, 3: Cedric Villani, 4: Elon Lindenstrauss
- **Year 2006**

  1: Terence Tao, 2: Grigori Perelman, 3: Wendelin Werner, 4: Andrei Okounkov

One of the Indian Born Mathematician Akshay Venkatesh has been awarded by Field Medal.

◆◆◆

Metals and Microbes

Mr. Pavan Sanjay Baviskar,
M.Sc. - II (Microbiology)

Element/(s)	Microbial role in elements cycles
C, H, O	Uptake, assimilation, degradation and metabolism of organic and inorganic compounds; respiration (CO_2) production);photosynthesis; photorespiration; CO_2 fixation; biosynthesis of polymers, organic and inorganic metabolite excretion; humus formation; CN_2 production; carbonate formation; oxalate formation; oxalate–carbonate cycle; dissolution of carbonates; methanotrophy; methanogenesis (archaea); hydrocarbon degraders; organometal(loid) degradation;metal(loid) biomethylation and demethylation; xenobiotic oxidation; CO utilization; water uptake; water transport,translocation and conduction (fungal mycelium); hydrogen oxidation and production
N	Decomposition of nitrogenous compounds; assimilation and transformations of organic and inorganic N compounds; N_2fixation (prokaryotes only); nitrification and denitrification; ammonia and nitrite oxidation; anaerobic nitrification; biosynthesis of N-containing biopolymers, e.g. chitin; production of N-containing metabolites and gases, e.g. N_2O; ammonia fermentation under anaerobic conditions; mycorrhizal N transfer to plants (fungi); fixed N transfer to plants(symbiotic N_2 fixers)
P	Dissolution of inorganic phosphates and P-containing minerals in soils and rocks; decomposition of P-containing organic compounds; formation of insoluble P, e.g. polyphosphate, secondary phosphate minerals; release of organically bound P by phosphatases; assimilation and transformation of inorganic P species; oxidation of reduced forms of phosphate, e.g. phosphate; transformations of soil organic P; production of diphosphates and phosphonates; P transfer to plants (mycorrhizas)
S	Degradation of S-containing organic compounds; organic-inorganic S transformations; uptake and assimilation of organic and inorganic S compounds; sulfidogenesis; S(0) accumulation; SO_2 reduction and assimilation; S(0) reduction; oxidation of reduced S compounds, e.g. S(0), thiosulfate, tetrathionate; oxidation of H_2S to S(0); reduction of S(0) to H_2S; dissolution of S-containing minerals in soils and rocks, e.g. sulfides, sulfates
Fe	Bioweathering of Fe-containing minerals in rocks and soils; Fe solubilization by siderophores, organic acids, metabolites etc.; Fe(III) reduction to Fe(II); Fe(II) oxidation to Fe(III); Fe biomineralization, e.g. oxides, hydroxides, carbonates, sulfides; metal sorption to Fe oxides
Mn	Mn(II) oxidation and immobilization as Mn(IV) oxides; Mn(IV) reduction; indirect Mn(IV) O_2 reduction by metabolites, e.g. oxalate; bioaccumulation of Mn oxides to surfaces and exopolymers; contribution to desert varnish formation; biosorption; accumulation; intracellular precipitation; Mn biomineralization, e.g. oxides, carbonates, sulfides, oxalates; metal sorption to Mn oxides
Cr	Cr(VI) reduction to Cr(III); Cr(III) oxidation; accumulation of Cr oxyanions

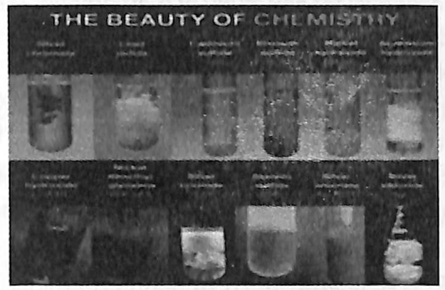
Mg, Ca, Co,	Bioweathering of minerals in rocks and soil; biosorption; uptake and accumulation;
Ni, Zn, Cd, Sr	bioprecipitation, e.g. oxalates, sulfides, phosphates, carbonate; Co(III) reduction
Ag	Reduction of Ag(I) to Ag(0); biosorption; accumulation.
K, Na, Cs	Uptake and accumulation; translocation through mycelium (fungi); concentration in fruit bodies (fungi); mobilization from minerals in soil
Cu	Mobilization from Cu-containing minerals in rocks and soils; CuS formation; biosorption; uptake and accumulation; bioprecipitation, e.g. oxalates.
Se	Reductive transformation of Se oxyanions, e.g. Se(VI) to Se(IV) to Se(0); Se(0) oxidation; biomethylation and demethylation of Se compounds; assimilation of organic and inorganic Se compounds
Te	Reductive transformation of Te oxyanions, e.g. Te(VI) to Te(IV) to Te(0); biomethylation; assimilation of organic and inorganic Te compounds
Pb	Biosorption; lead oxalate formation; biomethylation
Cl, Br, I	Dehalorespiration; biomethylation; accumulation in biomass
Sn	Organotin degradation; sorption and accumulation of soluble Sn species; biomethylation
Au	Reduction of soluble Au species to Au(0); Au mineral dispersion and solubilization
As	Biomethylation of As species, e.g. arsenite to trimethylarsine; reduction of As oxyanions, e.g. arsenate to arsenite; oxidation of As oxyanions, e.g. arsenite to arsenate
Hg	Hg biomethylation; reduction of Hg(II) to Hg(0); oxidation of Hg(0) to Hg(II); Hg volatilization as Hg(0); degradation of organomercurials; biosorption; accumulation
Al	Al mobilization from Al-containing minerals in soils and rocks; aluminosilicate
Si	dissolution; Al precipitation as oxides (early stage of bauxitization); biosorption Uptake of soluble Si species; organic Si complex formation from inorganic silicates; organic siloxane formation; silica silicate and aluminosilicate degradation; Si mobilization through production of chelators, acids, bases, exopolymers; silicification; structural biomineralization (some algae and protozoa)
U, Th	Biosorption; deposition of hydrolysis products; intracellular precipitation; U(VI) reduction to U(IV); U(IV) oxidation to U(VI); U biomineralization, e.g. phosphates; UO_2 formation
Tc	Pertechnetate accumulation; Tc(VII) reduction to Tc(IV); oxide formation
V	Vanadate accumulation; V(V) reduction to V(IV).

Poems on chemistry

Miss Tejal Gajanan Somvanshi
M. Sc. - II (Biotechnology)

Magical Chemistry

A Physical Change changes how things look,
Like tearing the pages in a book,
Or freezing a liquid, like water to ice,
Or painting a house to make it look nice.



A Chemical Change has come to pass
If you see a new solid, liquid, or gas.
The colour may change or the energy too.
A chemical change makes something new.

Love towards chemistry

Love the field of chemistry
With all kinds of energy
Find a renewable source
Use force pass chemistry course.

Study the types of gases
Make sure all the test passes
Clean up after class is done
Have fun, work with only one.

Chemistry is like your soul
With knowledge it has to grow
Like a wizard with a wand
Respond with a better bond.

Algebra

Uzma Naaz Sayyed Sajid,
M. Sc. I (Mathematics)

The quadratic formula expresses the solution of the equation $ax^2+bx+c=0$, where $a\neq0$. Algebra is one of the broad parts of mathematics, together withnumber theory, geometry and analysis. In its most general form, algebra is the study of mathematical symbols and the rules for manipulating these symbols. It includes everything from elementary equation solving to the study of abstractions such as groups, rings and fields. The more basic parts of algebra are called elementary algebra; the more abstract parts are called abstract algebra or modern algebra. Elementary algebra is generally considered to be essential for any study of mathematics, science, or engineering as well as such applications as medicine and economics. Abstract algebra is a major area in advanced mathematics, studied primarily by professional mathematicians.

Elementary algebra differs from arithmetic in the use of abstractions, such as using letters to stand for numbers that are either unknown or allowed to take on many values. Algebra gives methods for writing formulas and solving equations that are much clearer and easier than the older method of writing everything out in words. The word algebra is also used in certain specialized ways.

Different meanings of algebra:

The word algebra has several related meanings in mathematics, as a single word or with qualifiers. As a single word without an article, algebra names a broad part of mathematics. Usually, the structure has an addition, multiplication, and a scalar multiplication. When some authors use the term algebra, they make a subset of the additional assumptions like associative, commutative, initial, and/or finite-dimensional.

◆◆◆

Magical Element in Chemistry

Miss. Vaishali Mohan Wagh
M. Sc. II (Biotechnology)

Characteristics of Nitrous oxide:

- Nitrous oxide is a colourless & odourless gas.
- It is non-flammable.
- It is non-combustible but accelerate the burning of combustible material in fire.
- It is soluble in water. It svapors are heavier than air.

B) Methane(CH_4)

Methane is also known as "Marsh Gas." Because it is produced when vegetation

decomposes naturally within some geographical marshes, swamps. It is a product of the anaerobic bacterial decomposition of vegetable matter under water. Marsh gas, swamp gas and bog gas is a mixture of methane. Hydrogen sulphide and carbon dioxide produced naturally within some geographical marshes, swamps and bogs.

Characteristics of methane

- Methane is composed of four hydrogen atoms and a single carbon atom.
- It is colourless, flammable, nontoxic gas.
- It is considered an odourless gas even though most people smell it like rotten eggs.
- People most often associate methane gas with sewer gas.

C) Deuterium oxide (D_2O)

Deuterium is also known as "Heavy Water." Water composed of deuterium, the hydrogen isotope with a mass double that of ordinary hydrogen & oxygen. In the laboratory, heavy water is employed as an isotopic tracer in studies of chemical and biochemical processes.

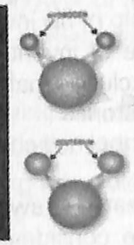
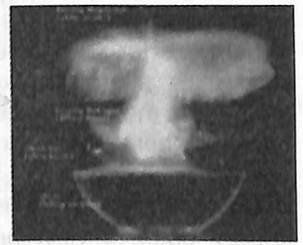
D) Silicon tetrachloride ($SiCl_4$)

Silicon tetrachloride is the inorganic compound with the formula $SiCl_4$.

Silicon tetrachloride is prepared by the chlorination of various silicon compounds.

Characteristics of silicon tetrachloride- It is colourless, fuming liquid with pungent odor.



◆◆◆

Why there is no Nobel Prize in Mathematics?

Miss. Yogita A. Sonar
M.Sc. - I (Mathematics)

Nobel Medal	
Awarded for	Outstanding contribution in physics, chemistry, literature, peace, physiology or medicine and economic science.
Country	Sweden (all prizes except the peace prize), Norway (peace prize only)
Presented by	Nobel Assembly at the Karolinska Institute (physiology or medicine) Norwegian Nobel Committee (peace), Royal Swedish Academy of sciences (physics, chemistry, economic science) Swedish Academy (literature)
Rewards	9 million SEK approx, Rs. 6800000 Indian approx, US dollar 986,000 (2018), a medal and a diploma
First awarded	118 years ago, in 1901.
Number of Laurent's	590 prizes to 935 laureates (as of 2018)
Website	www.nobelprize.org

Alfred Nobel invented the 'dynamite' and he was the holder of 355 patents, excluding the mathematics. With the help of his invention he had got a lot of wealth and therefore he started the Nobel Prize for such type of invention in subjects like medicine, physics, chemistry, literature, economics, and peace, excluded mathematics, because he hated the mathematician.

There were most popular stories

1) The partner of Alfred Nobel had cheated him with the help of mathematician that's why he hated mathematics.

2) The Nobel Prize was created to award outstanding practical invention that benefits the world. But Nobel's point of view he considered mathematics was too theoretical and had not practical applications.

3) Nobel was related to subjects' physics and chemistry. Also, he was invented in literature and medicine, but his mind had suggested him the mathematics was of no interest and not benefited to him.

4) In that time King Oscar 2 of Sweden and Norway himself a mathematician and had established a prestigious mathematics award for mathematical contribution. Therefore, Nobel not considered the mathematics for Nobel Prize award.

5) There was a funny story behind this. There was a mathematics professor who loved a lady, she also loved him. But Alfred was loved that lady, due to this reason he dominated mathematics from the Nobel Prize.

Some of the mathematicians who got the Nobel Prize

- Max Born and Walter Bothe (1954) in subject Quantum mechanics.
- John Forbe Nash (1969) in Economics.
- Clive granger (2003) in Economics.
- Bertrand Russell (1950) in literature.

Periodic Poem: From Mystery to History

Mr. Jain Aadesh Jayantilal
M.Sc.-I (Organic Chemistry)

At the start of this tale, in an ancient Greek land
Two clever forward thinkers thought that science was grand
Plato, Aristotle started talking about the elements
Basic at first; it grew to something much more elegant
Water, air, earth and fire were fundamentals they say saw
But now we know their ideas were just a little too raw
Fast forward through the centuries
People still trying to make sense of these
Elements that grew, It was the scientist who knew
Back in 1863, Newlands explored a new land
To try to find a way to get the elements in hand
With a goal of making sense of all that science had shown
He knew it was a challenge as the elements had grown
Order, logic, and practical use
Elements brought together versus running all loose
Newlands' base idea had an Octave at its heart
He thought elements were simply eight places apart
While he made some advances with his power of eight
Newlands' Octave theory really wasn't all that great.
So five years later in 1869
A Russian called Mendeleev started blowing our minds
With fresh ideas on how to make a better tool
This progressive scientist started writing new rules
He wanted to make amends
Started noticing some trends
His bright idea was to look at atomic mass
Vertical groups, then he left a few gaps
He lined them all up, wrapped like words in a book
With atomic weight behind him, Dimitri found a new hook
Hydrogen, lithium and sodium all with similar features
Showing these connections would be one way he could teach us.
This table went on to showcase noble new gases
Mendeleev's ideas were amazing; they really kicked some ass-ets
Dimitri gave us something firm; something stable
That's why we proudly proclaim him to be Father of the Table.
In chemistry class, you'll be awoken from your slumber

When you realize its secret is an increasing atomic number
Sherlock Holmes might have said, elements are elementary
But the periodic table; simply incredible for you and me
The periodic table: it's not about blinding us with science
It's about elements together with structure and compliance
Yes it's true that the table has a great deal of history
Now through this poem we can break through the mystery
It's not a story; it's not a fable
It's just the lowdown truth about the Periodic Table

◆◆◆

Teacher's Articles

Seven Mathematics Holidays

Mrs. Priyanka S. Mahajan
Department of Mathematics

There are special mathematics holiday and this day where we celebrate mathematics or famous mathematicians' contributions. Because mathematics is not everyone's favorite subject most people do not know there are special days throughout the year for mathematics. Mathematics is a critical part of life and essential in our daily activities.

1. Pythagorean Theorem Day

Any mathematician is conversant with Pythagoras' theorem that states that the area of a triangle can be calculated using the formula $a^2+b^2=c^2$. To mark the significance of this revolutionary discovery, Pythagorean Theorem Day is celebrated on days that align with the formula. The last such holiday was on the 15th August 2017. The numbers $5^2+8^2=17^2$. The next date for this celebration is not until 16th December 2020.

2. Fibonacci Day

On this holiday, we celebrate the Fibonacci sequence. The Fibonacci sequence is a series of numbers where the third number is a sum of the first two numbers before it. This sequence of numbers describes a spiral – often seen in nature. As a milestone in mathematics, Fibonacci's series remains important till today. A sample Fibonacci sequence beginning with 1 would look like this; 1, 1, 2, 3, 5, 8, 13, 21, and so on. Interestingly, the ratio between each number fluctuates around the 'golden ratio' Phi which has its own holiday. Fibonacci Day is on the 23rd November (11, 23) as represented by the first four numbers on the sequence, beginning with 1.

3. Mole Day

This holiday is a mixture of mathematics and chemistry. It celebrates Avogadro's constant, which is 6.02×10^{23}. This mathematics holiday comes about on the 23rd October (10.23). This constant that forms the theme for the day represents the primary method of calculating the mass of a substance. Funny puns are a big part of the day, with games bearing the word 'mole' remaining popular, such as whack-a-mole.

4. Pi Day (π)

Pi is a ratio between the diameter and circumference of a circle. We use the relationship between the two as an accurate method of calculation, and it forms a critical part of mathematics. The concept being that we multiply the diameter of a circle by pi to get its circumference. We therefore have perhaps the most famous mathematics holiday celebrating this fundamental concept. March 14th is the date set for this event, with 3.14 representing the first three numbers of an almost endless sequence of integers in the Pi sequence.

4. Phi Day (Φ)

Phi day is about the 'golden ratio' of approximately 1.618 denoted by the Greek letter phi. Artists love this ratio for paintings (long side to short side). The famous Mona Lisa painting uses the golden ratio in many ways from her face, to the position of her eyes. You will also find it in architecture, and throughout nature from magnetic resonances to sunflowers and nautilus shells. It was last celebrated on 6th Jan 2018 (1/6/18). The next date will be 1/6/2118.

5. E-Day (Euler's Number)

E-Day is celebrated worldwide in countries that write dates in the format where the month comes before the day (m/d format). The holiday gets its name from Euler's number, which starts with 2.7182818 and generally goes on to infinity. This mathematics holiday is therefore celebrated on the 7th of February each year. But 2018 was extra special as it included the first four digits in the date like 2-7-18.

6. World Mathematics Day

This day has more competition event for school children aged 4-18, than holiday and usually celebrated on the first Wednesday of March each year. The chief aim of World Mathematics Day is to nurture the interest in mathematics as a science and to encourage people to be part of mathematics-related fields. On World Mathematics Day, anyone can find fun games about mathematics, and try to share your passion for the subject and inspire someone.

7. National Mathematics Day (India)

Srinivasa Ramanujan was a famous mathematician of Indian origin. Ramanujan was born on 22nd December late in the 19th century in 1887. He unfortunately died at a relatively young age in 1920 after struggling with ill health. Despite what is considered a brief life, he made a significant input into mathematics, starting off as a casual laborer and rising to the status of a national hero. To celebrate his life and contribution to mathematics, the 22nd December was declared National Mathematics Day by Dr. Manmohan Singh in February 2012.

◆◆◆

Motivation for Dreamers

Miss. Pratiksha R Wankhede.
Dept. of Biotechnology

Dealing with problems – change your thinking

So how do you deal with problems? The first and best way is to change the way you think about problems."The way you see the problem is the problem." I like to think of such things as "challenges" rather than problems because "Problem" is a dead-end word. It leaves no room for solutions. When you regard something as a challenge instead, it leaves your mind free to think about how to respond to it. If you see it as a temporary obstacle you are more likely to feel empowered and able to deal with it

David Oyedepo and Chris Oyakhilome, who are both pastors, say that many people have asked them whether they ever have problems in their lives as they always seem to be having it easy and things are always working out for them. Their response is that they don't remember having problems. They add that perhaps the problem came, but they did not recognize it. Their mindset is one of dealing with things as they come and knowing that they have the answer to anything that they face. As they are on God's side, I'm sure they cannot fail to answer.

Dealing with problems -Focus on the desired outcome

A second way to deal with a problem is to focus on the solution instead. Focusing on the problem too much may make it more impossible to solve. This can make the problem so big in your mind that it obscures or overshadows any possible solution. Try instead to think about what life would be like if the problem were solved. This brings your creativity into play and your mind will soon find ways to solve the problem.

According to Albert Einstein "You can't solve a problem with the same kind of thinking that created it." A third way to deal with problems, then, is to alter your viewpoint. One way of doing this is to distance yourself emotionally from the problem. Try looking at the problem as an impartial observer and not as someone actively involved in it. This technique will not only make the problem seem less daunting but will also help you to find possible solutions. When you are emotionally involved in something it clouds your judgment and dulls your creativity. Cannot fail to have answers.

Dealing with problems- Have a sense of humor

Finally, "laugh at your problems; everybody else does." It is important to realize that any problem, no matter how big it may seem at the time, has a solution and is usually not the end of our lives as we may often feel. As long as you are breathing no problem is beyond solving. There is always hope to those that will look for it. Take life in your stride. Do not get bogged down by it and don't ever forget to enjoy it. A free and fun mindset alone will go a long way in helping you to deal with your problems.

Dealing with problems – the conclusion

Look ahead with confidence. Stay focused on what you want and not what's in your way. "Don't be pushed by your problems. Be led by your dreams."

You are all you can be. Go on and be it.

Inspirational Stories in Mathematics

Miss Prachi P. Pawar
Department the Mathematics

This story was about the great mathematician Carl Friedrich Gauss (1777 - 1855).

Once upon a time there was a boy in a class studying with mathematics, one day a mathematics teacher presented a challenging mathematical problem to the class where Gauss is in. The mathematics problem is to add up all the numbers starting from 1 and ending with 100. Every student picked up a piece of paper and started to add up the numbers one after another from number 1 onwards. Every student were still struggling, Gauss immediately solved the problem, went forward to the teacher and told his answer.

Everyone surprised about his action not only his math teacher but the whole class.

Everyone thought he was joking, but the interesting thing is that his answer is correct.

All the students were confused by his problem solving. How did he do that so fast?

He came out a different way of analysing the mathematical problem. Instead of the normal way of adding the first numbers onwards, Gauss looked at the problem with a different way. What he did was to split the range of number from 1 to 100 into two equal halves, 1 to 50 and 51 to 100. He noticed that if he flipped the last half to start from 100, and adding it the two ranges together, he will get something stunting.

He discovered that by adding the first pair, 1+100, he got an answer of 101. For the second pair, 2+99 and 3+98,4+97....., he again got the same answer 101.

This answer of 101 was still valid for the rest of the number pair addition. And since there were 50 pairs of numbers, the final total is 101x50 = 5050.

Volume of PIZZA.

A mathematics person goes to buy Pizza at Pizzahut and took a order of a Pizza to a Pizza guy. When he came he asks a simple question. What is the Volume of your regular Pizza?" The Pizza guy was confused by his question and not answered the asked question. Then mathematics person answered the question, he says:

Assuming thickness (i.e. height) = a, radius = z,

Therefore the volume of Pizza is given by

$V = Pi \times z \times z \times a$. (Volume $V=\pi r^2 h$)

This is story of chief minister Mr. C. N. Annadurai, Tamil Nadu state of India.

The story was about the Numbers. Mr. C. N. Annadurai was known for his proficiency in English and in Tamil and also for presence of mind. Once he went on a foreign tour to Yale University during 1968. There he was requested to speak to the students. During an interactive session held with students, listeners were allowed to ask questions. One of the guys in that hall stood up and asked him to say a hundred words in English which don't contain the letters likes A, B, C or D.

Annadurai immediately answered the question as 1, 2, 3 up to 99 and□..

Everyone present in the hall were surprised and waiting for his 100th word. If he said 'hundred' (100) he would have failed but after 99, he said 'STOP'.
The hall was filled with a minute of huge applause.

Mathematical Knowledge of the great worrier Shambhu Raje.

When the great Maratha worrier Shambhu Raje Bhosale was in the Mirza Raje Jaysing's empire they were plying game which was the chess. In that game they betted and they decided that those who win the game, the looser completed the demanded wish of the winner. The Shambhu Raje won the game and demanded saying so, here is what I want. Look at that chessboard, which has 64 squares. Give me two grains of rice for the first square, 4 grains for the second, 8 for the third and so on till the 64th square.
The king Mirza Raje Jaysing, mistakenly, thought it was a small demand which he could fulfill instantly. The king ordered his servants to get the rice for the brave prince. But the problem was arrived that, so much of rice was not available on the entire planet! The amount of grains he asked for was not available in the Mirza Raje Jaysing's Empire. The amount of grains to fulfill the Prince wish was given by mathematically as,

The geometric series S=(a(a^n-1))/(r-1), where a=2,r=2,n=64.

S=(2(2^64-1))/(2-1)= 2^65-2 .

The geometric series $S=\frac{6(6^n-1)}{r-1}$, where $a=2, r=2, n=64.$

$$s=\frac{2(2^{64}-1)}{2-1}=2^{65}-2.$$

Friend

Mr. R. H. Wagh,
Department of Statistics

You come into my life as a unwelcome face
Not ever knowing your friendship, I would one day embrace
As I wonder through my thoughts and memories of you
It brings many big smiles and laughter so true
I love the special bond that we beautifully share
I love the way you show you really care
Our friendship means the absolute world to me
I only hope this is something I can make you see
Thank you for opening your mind and your soul
I will do all I can to help heal your hearts little holes
Remember, your secrets are forever safe within me
I will keep them under the tightest lock and key
Always remember, if you are ever in need
I will try to be the best friend I can possibly be
Thank you for trusting me right from the start
You truly have got a wonderful heart
I am now so happy I felt that embrace
For now I see the beauty of my best friends face

◆◆◆

Hardy Ramanujan number & The Golden Ratio

Mr. Dnyaneshwar R. Nhavi
Department of Mathematics

1. Hardy Ramanujan number.

The number 1729 is the Hardy-Ramanujan number after a famous number of the British mathematician G. H. Hardy regarding a visit to the hospital to see the Indian mathematician Srinivasa Ramanujan. In Hardy's words: "I remember once going to see him when he was ill at Putney. I had ridden in taxi cab number 1729 and remarked that the number seemed to me rather a dull one, and that I hoped it was not an unfavorable omen. No, he replied, it is a very interesting number; it is the smallest number expressible as the sum of two cubes which was expressed in two different ways. The two different ways are: $1729 = 1^3 + 12^3 = 9^3 + 10^3$.

2. The Golden Ratio

- Everyone's heard of pi and pi =3.14159265359. But do you know what Phi (∅) stands for?
- In mathematics, two quantities are in the golden ratio if their ratio is the same as the ratio of their sum to the larger of the two quantities.
- The Greek letter Phi represents the golden ratio. Its value is: 1.6180339887
- Euclid (c. 325–c. 265 BC), in his Elements, gave the first recorded definition of the golden ratio, which he called, as translated into English, "extreme and mean ratio"
- The golden ratio has the simplest expression (and slowest convergence) as a continued fraction expansion of any irrational number. It is, for that reason, one of the worst cases of Lagrange's approximation theorem and it is an extremal case of the Hurwitz inequality for Diophantine approximations. This may be why angles close to the golden ratio often show up in phyllotaxis (the growth of plants).
- Leonardo Da Vinci used Phi, known in the 1500's as "The Divine Proportion," in a number of his paintings.
- It appeared in Roger Penrose's discovery in the 1970's of "Penrose Tiles," which allowed surfaces to be tiled in five-fold symmetry, a task previously thought impossible.
- The Kaaba, the most sacred site of Islam in Mecca, is located very close to the golden ratio of the distance between the Earth's north and south poles. Even the symbol for Phi, a circle with a line drawn through it, can be thought to represent a zero, or void, divided by one, or Unity, to create beauty, analogous to God creating the universe from nothing.
- Phi is applied in both facial plastic surgery and cosmetic dentistry as a guide to achieving the most natural and beautiful results in facial features and appearance.

3. Four Fours.

There is a way using four fours and any mathematical expression to write all numbers from 1 to 100. Here are a few examples, rest all for you to discover.

$$1 = \frac{(4+4-4)}{4}, 2 = \frac{4\times4}{4+4}, 3 = \frac{(4\times4)-4}{4}, \quad 4 = (4-4)\times4+4, \quad 5 = \frac{(4\times4)+4}{4},$$

$$6 = 4 + \frac{(4+4)}{4}, \ldots\ldots, \quad 25 = 4! + \sqrt{4} - \frac{4}{4}, \ldots\ldots, \quad 50 = 44 + \frac{4!}{4}, \ldots\ldots,$$

$$80 = \sqrt{4^4} + 4\times4, \ldots\ldots, 92 = (4! - \frac{4}{4})\times4, \ldots\ldots, \quad 100 = 4\times4! + \sqrt{4\times4}$$

You can use all arithmetical operators. Special operators like factorial, square root and raise to power are all allowed. Interestingly there is more than one way to express the numbers.

◆◆◆

Teaching Staff (2018-19)

No.	Name of staff member	Qualification	Designation	Subject
1.	Dr. V. S. Zope	M.Sc., Ph.D.	Principal	Chemistry
2.	Mr. R. M. Patil	M. Sc., NET, Pursing Ph.D.	Asst. Prof. & Head	Chemistry
3.	Mr. J. V. Khan	M. Sc., NET, Pursing Ph.D.	Asst. Prof. &Head	Biotechnology
4.	Mr. S. N. Patil	M. Sc., NET,	Asst. Prof. &Head	Microbiology
5.	Mr. D. R. Nhavi	M. Sc., SET, Pursing Ph.D.	Asst. Prof. &Head	Mathematics
6.	Mr. Rakesh Wagh	M. Sc. SET	Asst. Prof. &Head	Statistics
7.	Dr. Sarang S. Bari	M. Sc., Ph.D.	Assistant professor	Biotechnology
8.	Dr. Kunal Patil	M. Sc., Ph.D.	Assistant professor	Chemistry
9.	Dr. Yogita Jadhav	M. Sc. Ph.D.	Assistant professor	Statistics
10	Miss. Snehal Raut	M.P.Ed., SET	Physical Director	Sports
11	Miss Amita Varhade	M.A., M. Lib., SET	Librarian	Library
12	Miss. Pratiksha Wankhede	M. Sc.	Assistant professor	Biotechnology
13	Miss. Priya Bhoge	M. Sc.	Assistant professor	Microbiology
14	Miss. Diksha Bhat	M. Sc.	Assistant professor	Microbiology
15	Miss. Manisha Mali	M. Sc.	Assistant professor	Microbiology
16	Miss. Rupali Chaudhari	M. Sc.	Assistant professor	Chemistry
17	Miss. Kirti Nakve	M. Sc.	Assistant professor	Chemistry
18	Miss. Ujjwala Marathe	M. Sc.	Assistant professor	Chemistry
19	Mr. Malik Khan	M. Sc.	Assistant professor	Chemistry
20	Miss. Priyanka Mahajan	M. Sc.	Assistant professor	Mathematics
21	Miss. Prachi Pawar	M. Sc.	Assistant professor	Mathematics
22	Mr. Akash Wagh	M. Sc.	Assistant professor	Statistics

Non-teaching Staff

No.	Name of Staff Member	Qualification	Designation	Place of Work
1	Mr. Shailendra Narkhede	M. Com.	Clerk	Office
2	Mr. Chaitali Gajre	M. Com.	Clerk	Office
3	Mr. Ulhas Patil	M.A., M. Lib.	Librarian	Library
4	Mr. Ganesh Mali	B.A.	Peon	Biotechnology
5	Mr. Kamlesh Gosavi	B.A.	Peon	Chemistry
6	Mr. Digamber Khachne	S.S.C	Peon	Microbiology
8	Mr. Sachin Bari	B.Sc.	Attendant	Office

PGCSTR in News

लोकमत

पी. जी. कॉलेजमध्ये 'रिदम' चा समारोप

लोकमत न्यूज नेटवर्क

जळगाव : केसीई संस्थेच्या विज्ञान, तंत्रज्ञान व संशोधन महाविद्यालयाच्या (पी.जी. कॉलेज) 'रिदम' या स्नेहसंमेलनात शेवटच्या दिवशी नृत्यांसह, गायन, अंताक्षरी स्पर्धांनी रंगत आणली.

कार्यक्रमाचे उद्घाटन प्रशासकीय संचालक डॉ. दिलीप हुंडीवाले यांच्या हस्ते झाले. यावेळी प्राचार्य डॉ.विश्वनाथ झोपे उपस्थित होते. गणेश वंदना, रंगीलो मारो ढोलना, घुमर रे, लगन लगी, काली चिडी, खली बली यासह आदिवासी, कोळी गीत व पारंपारिक नृत्य सादर झाले. संदेसे आते है, ए मेरे वतन यासह पारंपारिक गीते विद्यार्थ्यांनी गायले.

शेतकरी आत्महत्या विषयी नाट्य तसेच मिमिक्रीदेखील स्नेहसंमेलनात सादर झाली. अंताक्षरी स्पर्धेत चार संघ तयार करण्यात आले होते. चित्रपटातील गीतांमुळे स्पर्धेत रंगत आली.

विद्यार्थी अणि विद्यार्थिनींनी या कार्यक्रमांचा मनसोक्त आनंद लुटला. यानिमित्ताने त्यांच्या कला आणि गुणांचे प्रदर्शन घडले.

सायंकाळी मान्यवरांच्या हस्ते विविध कार्यक्रमातील उत्कष्ट सादरीकरण करणाऱ्यांना पारितोषिक वितरण झाले.

सकाळ

परिसर मुलाखतीमध्ये 'केसीई'च्या दोघांची निवड

जळगाव, ता. २० : केसीई सोसायटीच्या पोस्ट ग्रॅज्युएट कॉलेज ऑफ सायन्स टेक्नॉलॉजी आणि रिसर्चच्या नियुक्ती कक्षांतर्गत एस. पी. फार्मास्युटिकल्सद्वारे एम.एससी ऑरगॅनिक केमिस्ट्री, बायोटेक्नॉलॉजी व मायक्रोबायोलॉजीच्या विद्यार्थ्यांसाठी परिसर मुलाखती घेण्यात आल्या. कंपनीचे व्यवस्थापक सुदीप राणे तसेच क्वालिटी कंट्रोल ऑफिसर प्रमोद पाटील व किशोर देशमुख यांनी मुलाखती घेतल्या होत्या. त्यात ऑरगॅनिक केमिस्ट्रीच्या पौर्णिमा हरिकिसन जोशी व गौरव अरुण मराठे या दोघांची निवड करण्यात आली आहे. निवड झालेल्या विद्यार्थ्यांचे संस्थेचे अध्यक्ष एन. जी. बेंडाळे, प्राचार्य डॉ. व्ही. एस. झोपे यांनी अभिनंदन केले.

PPT स्पर्धा 25 को

जलगांव, सं. स्थानीय केसीई सोसाइटी के विज्ञान यंत्रज्ञान और संशोधन महाविद्यालय की ओर से एम एस्सी के छात्रों के लिए विद्यापीठ स्तरीय पीपीटी स्पर्धा का आयोजन किया गया है. यह स्पर्धा 25 जनवरी को सवेरे 10 बजे महाविद्यालय के सभागृह में होगी. जैविक यंत्रज्ञान, सूक्ष्मजीवशास्त्र और आर्गोनिक विषय के छात्रों के लिए यह स्पर्धा आयोजित की गयी है. इसमें सेफ्टी प्रिकॉशन इन लैबोरेटरी, ग्रीन केमिस्ट्री, शाश्वत जैविक यंत्रज्ञान यह विषय दिए गयें हैं. स्पर्धा में एक महाविद्यालय से सिर्फ 2 छात्र ही हिस्सा ले सकेंगे. छात्रों को स्पर्धा में शामिल होने का आवाहन प्राचार्य वीएस झोपे और समन्वयक राकेश वह ने किया है.

'सर्टिफिकेट कोर्स इन 'स्टॅटिस्टिकल ॲप्रोचेस ऑफ ॲनॅलेसीस'ची १६ रोजी होणार परीक्षा

जळगाव | केसीई सोसायटीच्या पी. जी. कॉलेजमधील विद्यार्थ्यांची सर्टिफिकेट कोर्स इन 'स्टॅटिस्टीकल ॲप्रोचेस ऑफ ॲनॅलेसीस'ची अंतिम परीक्षा (प्रात्यक्षिक व लेखी) १६ व १७ मे रोजी सकाळी १० ते ५ च्या दरम्यान घेण्यात येणार आहे, असे कॉलेजचे प्राचार्य प्रा. व्ही. एस. झोपे यांनी कळविले आहे.

QUICK NEWS

केसीई का पुरस्कार वितरण 17 को

जलगांव, सं. स्थानीय केसीई सोसाइटी के पोस्ट ग्रेजुएट कॉलेज ऑफ़ सायंस टेक्नोलॉजी एंड रिसर्च की प्राप्सेक्टिव रिसर्च स्कीम के तहत छात्रों ने प्रोजेक्ट प्रस्तुत किये थे. इसका निरिक्षण कर उल्लेखनीय प्रोजेक्ट बनानेवाले छात्रों को चुना गया है. इन छात्रों को प्रो.सत्येंद्र मिश्रा के हाथों पुरस्कार देकर सम्मानित किया जाएगा. यह सम्मान कार्यक्रम 17 मई को दोपहर 4 बजे महाविद्यालय में ही होगा.

छात्रों का होगा सम्मान

इस समय उपस्थित रहने का आवाहन प्राचार्य वीएस झोपे ने किया है. स्पर्धात्मक और आधुनिक सोच सामने रखकर केसीई के महाविद्यालय ने एम एससी, बायोटेक्नोलॉजी, माइक्रोबायोलॉजी आर्गेनिक, केमिस्ट्री, गणित और स्टैस्टिक कोर्स शुरू किये हैं. छात्रों में संशोधन को लेकर रूचि बढ़ाने के लिए भी महाविद्यालय से विभिन्न उपक्रम चलाएं जाते हैं. जिसमें प्राप्सेक्टिव रिसर्च स्कीम का खासतौर से उल्लेख किया जा सकता है. इसके साथ ही हर साल पॉवरपॉइंट प्रेजेंटेशन कॉम्पटिशन जैसे उपक्रम भी चलाएं जाते हैं.

गुणगौरव • 'मूजे'च्या पी जी महाविद्यालयात पारितोषिक वितरण

प्रास्पेक्टीव रिसर्च स्कीमच्या २१ विद्यार्थ्यांना पारितोषिके

प्रोजेक्टसमध्ये काय हवे याविषयी दिल्या टिप्स

प्रतिनिधी | जळगाव

१८ प्रोजेक्ट्समध्ये ६९ विद्यार्थ्यांचा सहभाग

सहभागी विद्यार्थ्यांमधून काढण्यात आले प्रथम, द्वितीय क्रमांक

'साडी डे'ची धमाल

म. टा. प्रतिनिधी, जळगाव

एम. जे. महाविद्यालय परिसरातील केसीई संस्थेचे विज्ञान तंत्रज्ञान व संशोधन महाविद्यालय (पी. जी. कॉलेज) च्या 'रिदम' या स्नेहसंमेलनाच्या निमित्ताने शुक्रवारी साडी डे आणि चॉकलेट डे साजरा झाला. यात विद्यार्थ्यांनी धमाल केली. सकाळच्यासुत्र महाविद्यालयातील परिसर हा विद्यार्थ्यांच्या उत्साहाने भरला होता. विद्यार्थ्यांनी एकमेकांना चॉकलेट देवून आनंद लुटला.

विद्यार्थिनींनी विविध साड्यांचे पेहराव करून सहज येथले. पारंपरिक, पैठणी, नवारी, नऊवारी, साडीवरी साड्या घातलेल्या विद्यार्थिनींनी सेल्फीदेखील काढले. शनिवारी (दि. १२) सकाळी १० वाजता स्नेहसंमेलनाचे उद्घाटन माजी प्राचार्य डॉ. जी. एस. चौधरी यांच्या हस्ते होणार आहे.

यावेळी प्राचार्य डॉ. व्ही. एस. झोपे उपस्थित राहतील. दिवसभरात फूड फेस्टिवल, मेहंदी, रंगोळी स्पर्धा होतील. रक्तदान शिबीर देखील होईल. दुसऱ्या दिवशी संस्कृतिक कार्यक्रमाचे उद्घाटन प्रशासकीय संचालक डॉ. दिलीप हुंडीवाले यांच्या हस्ते होईल. रविवारी दिवसभरात नृत्य, नाट्य, गायन सादर होतील. संध्याकाळी ४ वाजता बक्षीस वितरण होणार आहे.

मू.जे.मध्ये शाश्वत जैवतंत्रज्ञान विषयावर शुक्रवारी स्पर्धा

■ जळगाव । दि.२२ । प्रतिनिधी

केसीई सोसायटीच्या विज्ञान तंत्रज्ञान आणि संशोधन महाविद्यालयातर्फे (पीजी कॉलेज) एम.एससी.च्या विद्यार्थ्यांसाठी विद्यापीठस्तरीय पीपीटी स्पर्धा दि.२५ रोजी सकाळी १० वाजता महाविद्यालयात आयोजित करण्यात आली आहे. जैवतंत्रज्ञान, सूक्ष्मजीवशास्त्र आणि ऑर्गेनिक केमिस्ट्री विषयाच्या विद्यार्थ्यांसाठी ही स्पर्धा आहे. यात सेफ्टी प्रिकॉशन इन लेबोरेटरी, ग्रीन केमिस्ट्री, शाश्वत जैवतंत्रज्ञान आदी विषय देण्यात आले आहे. स्पर्धेत विद्यार्थ्यांनी सहभागी व्हावे असे आवाहन प्राचार्य डॉ.व्ही.एस.झोपे, समन्वयक प्रा.राकेश वाघ यांनी केले आहे.

Toppers of M. Sc. 2017-18

Biotechnology

Miss. Snehal Dilip Lathi - (1st)
(University 2nd rank holder)

Miss. Asha Prabhakar Patil - (2nd)

Microbiology

Miss. Harshada Suresh Nikam(1st)

Miss. Aishwarya Vilas Saitwal (2nd)

Organic Chemistry

Miss. Rupali Anil Chaudhari (1st)

Miss. Ujjwala Vasant Marathe (2nd)

Tree Plantation Progarm

Blood Donation Camp

Intellectual Property Rights (IPR) Workshop Dr. Vikas Gite School of Chemical Science KBC NMU, Jalgoan

Glimpses of RHYTHM-2019 (Annual Gathering on 12-14th Feb.)

Inauguration by Dr. D.G. Hundiwale Academic Director, K.C.E Society & Dr. S.N. Bharambe

Finale of Chess Competition between Miss. Mansi Joshi & Miss. Shruti Bhokare

Winning Moments of Cricket Teams

Teachers Day Celebration

Induction Training Workshop Dr. D.G. Hundiwale Director, K.C.E. Society, Dr. R.T. Mahajan, Dr. G.S. Chaudhari Former Principals & Dr. V.S. Zope, Principal PGCSTR

Prospective Researchers' Scheme (PRS) Award Function Prof. Satyendra Mishra, UICT, KBC NMU, Jalgaon

Industrial Visit

RHYTHM-2019

KCE Society's Platinum Jubilee Journey

Publisher
DR. V. S. ZOPE
Principal, PGCSTR, Jalgaon
Contact no. 0257-2236036

Chief Editor
DR. SARANG S. BARI

Printing
KCE'S SPARK DESIGN & PRINT SERVICES, JALGAON
Contact no. 0257 2251918

Periodic Table Clock
(Based on Theme of Magazine)