



PATNA WOMEN'S COLLEGE

Autonomous
PATNA UNIVERSITY

3rd Cycle NAAC Accredited at A Grade with CGPA 3.58/4
'College with Potential for Excellence' (CPE) status accorded by UGC
Avila Convent, Bailey Road, Patna – 800 001, Bihar



Progress Report for the year 2019-2020

1. Name of the College : PATNA WOMEN'S COLLEGE,
Autonomous
2. Name of Coordinator, designation, Address, Phone nos. : **Dr. Aprajita Krishna**
Coordinator, Star College Scheme,
Head, Dept. of Physics
Dean, National, International
Collaborations and Consultancy
Patna Women' s College
Bailey Road, Patna, 800001
Ph. No. 9431632519
E-mail:krishna.aprajita@gmail.com
3. Assessment Duration : 2019 – 2020, 2018 – 2019 (Annexure I)
Duration in Years : Two years
4. Details of Departments Supported:

Sl No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			With Ph.D.	Without Ph.D.
1.	Physics	<ul style="list-style-type: none">B.Sc. Physics Honours 3-year course.M.Sc. Physics (start from 2020 July)	4	1 (Pursuing Ph.D.)
2.	Chemistry	<ul style="list-style-type: none">B.Sc. Chemistry Honours 3-year course.	5	1 (Pursuing Ph.D.)

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3.	Zoology	<ul style="list-style-type: none"> B.Sc. Zoology Honours 3-year course. M.Sc. Zoology (start from 2019 July) 	2 + 4 Net Qualified	1 (Pursuing Ph.D.)
4.	Botany	<ul style="list-style-type: none"> B.Sc. Botany Honours 3-year course. 	4	2 (Pursuing Ph.D.)
5.	Computer Science	<ul style="list-style-type: none"> B.Sc. (Hons) in Computer Applications Post Graduate Diploma in Computer Applications Credit based Add – on Certificate Course in Computer Literacy Programme (College Level) Credit based Add – on Certificate Course in Web Designing (College Level) Credit based Add-on Certificate Course in Financial Accounting (Tally) (College Level) 	1 Net Qualified	4 (Pursuing Ph.D.)
6.	Microbiology	<ul style="list-style-type: none"> B.Sc. Microbiology Honours 3-year course. 	2 Net Qualified	4 (Pursuing Ph.D.)

5. Number & Date of Advisory committee meeting: Not Held. Request has been sent.

6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

- Enhanced Scientific Temperament among students. Enhanced analytical and critical thinking of students.
- Inter departmental activities increased the collaborative learnings.
- Enhancement of hands-on-learning. Students are coming up with innovative ideas of developing smart gadgets after the training programmes of Robotics.
- More research activities undertaken with the help of this scheme. Many new types of equipment in multiples have been bought from the DBT grant which has helped the students to undertake many innovative research projects.
- It has increased the interaction of teaching, non-teaching and students creating a consortia for


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academic progress. Exposure trips have helped students to broaden their practical knowledge.

7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

- Practical Training Programs on Applications of Artificial Intelligence (AI) and Internet of Things (IoT).
- Online Training Programmes.
- Webinar and Conferences ongoing.

- Specialised training has been imparted like
 - ❖ Aircraft maintenance
 - ❖ Hydroponics
 - ❖ Mushroom Culture
 - ❖ Vermi Composting
 - ❖ Pisciculture.

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).

- Not Release of Funds on time.
The Expenditure done with internal resources.
- The work load on the teachers sometimes delays the implementation and utilization of the DBT grant. Extra working hours for Faculty members.
- Difficulty in finding appropriate training institutes in the upcoming technologies of Computer Science in Bihar.

9. Key performance indicators

S. no	Indicator	Pre-support (2016-2017)								During /After Support(2018-2019)								Remarks
1	No. of students admitted	Total =								Total =								
		M= NA				F=336				M=NA				F=356				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
						18	2	48	268					21	4	51	280	
2	No. of students passing out (%) Students Admitted/passing out (pass %)	90 %								92 %								
3	Drop-out rates	10 %								8%								


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4	No. of students opting for MSc	50 %	52 %	
5	Average marks	Maximum First Division	Maximum First Division	

9.6. No. of hands-on experiments being Conducted :
Department of Computer Science

Event	Topic	Resource Person	No of Beneficiary
Hands on Training	Arduino Programming	Mr. Rohit Singh, Electrical and Electronics Department, Netaji Subhash Institute of Technology	150
Hands on Training	Basics of Robotics	1. Mr. Vivekanand Prasad, Founder and Director, Techprolabz, School of Robotics Patna 2. Mr. Jaynendra Sharma, Co-founder, Techprolabz	160
Hands on Training	Internet of Things (IoT) Raspberry Pi	1. Mr. Riyaz Jamaal, R & D Associate, Techprolabz 2. Mr. Vivek Dadarao Katore, Techprolabz	80
Hands on Training	Gesture Robotics	1. Mr. Vivek Dadarao Katore, Techprolabz 2. Ms. Nitika Raizada, Techprolabz	140
Hands on Training	Wireless Robotics	Mr. Vivek Dadarao Katore, Techprolabz	80
Hands on Training	Drone	1. Mr. Jaynendra Sharma, Co-founder, Techprolabz 2. Mr. Vivekanand Prasad, Founder and Director, Techprolabz	80


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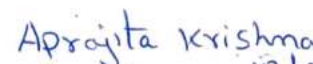
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Hands on Training	Network Security	1. Mr. Riyaz Jamaal, R & D Associate, Techprolabz 2. Mr. Vivekanand Prasad, Founder and Director, Techprolabz	160
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Department of Physics

Event	Topic	No of Beneficiary
Hands on training	Hall Effect	50
Hands on training	Bar Pendulum	50
Hands on training	CRO	50
Hands on training	RC. Couple amplifier	50
Hands on training	OPAM	50
Hands on training	Skill Enhancement lab on Electricity	50
Hands on training	Skill Enhancement lab on Magnetism	50
Hands on training	Skill Enhancement lab on Optics	50
Hands on training	Skill Enhancement Presentation on Electricity & Magnetism	50
Hands on training	Skill Enhancement Presentation on Optics	50


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Department of MBIO (Microbiology)

• HANDS ON TRAINING ON BASIC TECHNIQUES IN MICROBIOLOGY

Date: 25th & 26th Sept, 2019

A hands-on training On BASIC TECHNIQUES IN MICROBIOLOGY was organized for the students of B.Sc. IInd year from the Department of Botany, Zoology and Chemistry. They learned various streaking techniques, preparation of broth cultures enumeration of microorganisms. Students individually performed pouring of media followed by streaking through quadrant, T- and zig-zag streaking techniques on their respective plates and observe their streaked plates for visibility of single colony. They also calculated CFU using colony counter.

9.7. No. of new Experiments: -

Department of Zoology

- Name of experiment - Isolation and Identification of microorganism.
- Name of experiment - Estimation of Calcium by Titrimetry.
- Name of experiment - Estimation of Lactose in Milk.

Department of Microbiology

- Name of experiment: Isolation of bacterial genetic material
Outcome- bacterial DNA was isolated using extraction kit and separated on agarose gel.
- Name of experiment- Isolation of *E. coli* by enrichment culture technique from Indian currency
Outcome- some pathogenic bacteria were isolated like *E. coli* & *Staphylococcus aureus*.
- Name of experiment- Isolation of bacteria from spoiled fruit of local market
Outcome- bacteria diversity was observed on LB Agar media. Further those were pure cultured and can be used in metabolite production.
- Name of experiment- Calculation of Blood group frequency
Outcome- students were taught about calculating blood group frequency which can help students to take projects related to it in future.

Department of Botany

List of New Practical's/demonstrations introduced in the department in last one year: Not any

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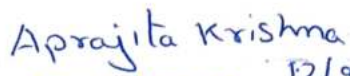
Department of Chemistry

- **Name of the experiment** – Determination of calories and nutrients contents in different varieties of sprouts.
- **Name of experiment** – Determination of heavy metal in different sample of water.
- **Name of experiment** – Preparation of biodiesel from fresh and waste vegetable oil
- **Name of experiment** – Determination of lead and cadmium in henna
- **Name of experiment** – Smoke absorber and generation of electricity from CO_2
- **Name of experiment** – Separation of amino acid by chromatographic technique
- **Name of experiment** – Determine the strength of given acetic acid solution conductometrically by titrating against a standard solution of hydroxide.
- **Name of experiment** – Determine the strength of given ferrous ammonium sulphate solution potentiometrically by titrating against by KMnO_4

Department of Computer Science

- **Hands on Experiment** of Analysis of Heavy Metals in E-Waste by Mr. Sumit Ranjan, Scientist-I, Central Research Laboratory, PWC, Patna from 02.04.19 to 06.04.19 on the students for Science Departments.
- **Demonstrations** of Sensor based Smart gadgets. using sensors by Mr. Vivekanand Prasad, Founder and Director, Techprolabz, Patna on 23.10.19 for the students of Science Departments.


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9.8. Publications (scopus indexed) / patents, if any: -

- Ms. Anshu : Research Paper on “Moving Digital Transformation of India Forward” in the Journal of Information and Computational Science, Volume 10 Issue 4 – 2020, ISSN: 1548-7741, UGC –Care Group – II Certified Journal. Web- www.joics.org / E-mail- submitjoics@gmail.com. International Level.
- Ms. Anshu : Research Paper on “Impact of COVID pandemic on World tourism – Economic and Socio-cultural Aspects” in DRSR Journal, ISSN : 2347 - 7180 / Volume 10 Issue 07 No. 20 Month July Year 2020 in DOGO Rangsang Research Journal. Web : www.drsrcjournal.com. UGC –Care Group – I Journal. National Level.
- Ms Renu Kumari : Research Paper on “Moving Digital Transformation of India Forward” in the Journal of Information and Computational Science, Volume 10 Issue 4 – 2020, ISSN: 1548-7741, UGC –Care Group – II Certified Journal. Web- www.joics.org / E-mail- submitjoics@gmail.com. International Level.
- Dr. Aprajita Krishna ; Book on Internet of things and Wireless Sensor Networks Published by Amazon
- Ms. Renu Kumari : Research Paper on “Impact of COVID pandemic on World tourism – Economic and Socio-cultural Aspects” in DRSR Journal, ISSN : 2347 - 7180 / Volume 10 Issue 07 No. 20 Month July Year 2020 in DOGO Rangsang Research Journal. Web : www.drsrcjournal.com. UGC –Care Group – I Journal. National level.
- Ms. Renu Kumari : Research Paper on “Study of E-Commerce and Social Media Analytics” in Alochanachakra Journal, ISO : 7021 - 2008 / Volume IX Issue VI June-2020 in AC Journal. Web : www.alochanachakra.in / E-Mail – submitacj@gmail.com . UGC –Care Group – I Journal. National level.
- Pinky Prasad, Tanuja and Sheila Bedi (2020). “Comparative Assessment of Endoglucanase Activity of Cellulolytic Bacterial Strains on Untreated and Pretreated Natural Cellulosic Wastes”. *International Journal of Current Microbiology and Applied Sciences* 9(5): 1974 – 1987. International Level
- Gaurav I, Singh T, Thakur A, Kumar G, Rathee P, Kumari P, Sweta K (2020). “Synthesis, *in-vitro*, and *in-silico* evaluation of silver nanoparticles with root extract of *Withania somnifera* for antibacterial activity via binding of penicillin binding protein-4”. *Current Pharmaceutical Biotechnology*. DOI: 10.2174/1389201021666200702152000. International Level
- Thakur A, Mishra AP, Panda B, Rodríguez DCS, Gaurav I, Majhi B (2020). Application of artificial intelligence in pharmaceutical and biomedical studies. “*Current Pharmaceutical Design*. DOI: 10.2174/1381612826666200515131245”. International Level

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- **Ms Jaya Philip**, (Microbiology), Int.J.Curr.Microbiol.App.Sci. 9(06): 3149-3157, 2020, "Effect of Fungi Isolated from Different Plastic Polluted Sites on Low Density Polyethylene Material Degradation with reference to SEM Analysis"
 - **Ms. Arti Kumari** (Microbiology), IJRAR, E-ISSN2348-1269, P- ISSN 2349-5138, 2019, "In silico prediction of Glabridin potency against Human Tyrosinase in hyperpigmentation condition"
 - **Ms. Arti kumari** (Microbiology), International Journal of Pharmaceutical Sciences and Drug Research Advance Research, 2019, "Phytochemical Screening of root extracts of Glycorrhizaglabra by Spectroscopic methods (UV-Vis Spectrophotometer, FTIR and HPLC)"
 - **Ms. Satyamvada Swayamprabha** (Microbiology), National journal of Life Sciences, 2019, "Potential of B. cereus (Accession No. KC172044.1) as a Probiotic degrader of chlorpyrifos".
 - **Ms. Satyamvada Swayamprabha** (Microbiology), International Journal of Current Research in Life Sciences, 2019, "Efficiency of the Probiotic bacteria in degradation of the pesticide chloropyrifos present in agricultural soil".
 - **Dr. Preeti Swarupa** (Microbiology), Journal of Pure and Applied Microbiology, ISSN: 0973-7510 [vol-13(2): 1053-1061, 2019, "Characterization of pH Dependent Growth Response of Agriculturally Important Microbes for Development of Plant Growth Promoting Bacterial Consortium"
 - **Dr. Preeti Swarupa** (Microbiology), Journal of Pure and Applied Microbiology, ISSN: 0973-7510 [vol-12(4), 2149-2157, 2019 "Impact of Chlorpyrifos on Plant Growth Promoting Rhizabacteria Isolated from Abelmoschusculentus".
- 9.9. Training received by Faculty: -**

Faculty Development Programme in **Python Programming** was organized by the Department of Computer Science for all the faculty members of Science Departments from 14.05.2019 – 30.06.2019 in association with Aztech Technology & Engineers Private Ltd.

9.10. Exhibitions/seminars /training courses conducted: -

Department of Zoology

- A. Exhibition:** Scientific Model Exhibition in Vigyan Utsav from 28.02.20-29.02.20
- B. Seminars :** NA
- C. Training :** NA

Department of Physics

Date	Event	Topic	Resource Person	Venue
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24.10.19	Model Competition	Best out of Waste	Dr. Shobha Srivastava Dr. M.S.A. Ansari	Department of Physics, PWC
16.11.19	Out reach Programme	Industrial training at airport Patna	Dr. Aprajita Krishna Dr. Rohit Singh Dr. Kavita Verma	Patna Airport
29.2.2020	Vigyan Utsav	Model Competition		Stage Hall & Room No. 204 (Sc. Block), PWC
29.2.2020	Vigyan Utsav	Model Competition		Stage Hall & Room No. 204 (Sc. Block), PWC
5.2.2020	Outreach Programme	Innovative Council In collaboration with IQAC		Patna airport

Department of Chemistry

POSTER EXHIBITION

DATE	TOPIC OF POSTER COMPETITION	NO. OF BENEFICIARY
10.02.2020	Benefits of Green Chemistry	44 Students

SEMINARS : NA

Model Making Competition

Date	Topic of Model Making Competition	No. of Beneficiary
04.02.2020	Working Model Competition	52 Students

TRAINING COURSES : NA

Department of Botany

Date	Event	Topic	Resource Person	Venue
29.01.2020	Working model Competition cum Exhibition	"Non conventional Energy Sources"	Dr Shahla Yasmin, Dr Amrita and Dr Vijay Kumar	Room No. 306 Science Block, PWC
04.02.2020	Educational trip	Green audit, soil analysis	Dr Urvashi Sinha, Dr Anjana Sinha,	Botanical Garden, Patna

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10.02.2020	Industrial visit	Working of the plant and Analysis of quality	Mr Sushil Kumar, Senior Staff of Sudha Dairy, Patna	Sudha Dairy, Patna
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Department of Microbiology


Date	Topic of Model Making Competition	No. of Beneficiary
23.10.2019 & 24.10.2019	Workshop on Gel Electrophoretic Technique	80 Students

A two days workshop was organized for the students of IIIrd semester and IIIrd year students from the Department of in which students of Microbiology, Botany, Zoology and Chemistry. Students were given demonstration on the protocol of genomic DNA isolation from bacterial cells. The genomic DNA which was isolated was run on agarose gel electrophoresis system. Agarose gel was cast and stained with ethidium bromide and then run at particular voltage. Then the gel visualized under UV transilluminator.

Date	Topic of Model Making Competition	No. of Beneficiary
28.01.2020 & 29.01.2020	CULTIVATION OF PLEUROTUS MUSHROOM: under Mushroom Culture Technique	85 Students

Mushroom cultivation was done by the students of 4th semester generic (comprising of Botany, Zoology and Chemistry) in B.Sc. IMB 3rd year students. It included sterilization of mushroom straw which would serve as base for cultivation. The straw and other ingredients were mixed with spawn of Pleurotus species which was procured from mushroom Kendra, Patna. Further packaging was done by layering method as well as mixed bag method. After that bags were placed on sterilized rack and covered with sack in cool environment. Bags were watered regularly until fleshed of mushroom were observed. Lecture on mushroom cultivation was also taken.

Date	Topic of Model Making Competition	No. of Beneficiary
14.02.2020	Competition on Microorganisms in Fermented Food	30 Students


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Fermented food competition was held for the 4th semester students. They prepared fermented foods like Naan, Idli, Pizza, Shahi Tukra, Dhokla. Students prepared explanatory poster explaining the fermentation reaction taking place, emphasizing on microorganisms involved.

Date	Topic of Model Making Competition	No. of Beneficiary
15.02.2020	Training on Assessment of Quality of Milk	

Training program on assessment of milk quality was organized for the students of generic 2nd semester (comprising of Botany, Zoology and Chemistry). They performed Methylene Blue Reduction Test to study the quality of milk. They also performed Gram staining of milk sample. Various microorganisms causing the spoilage of milk were also studied.

Date	Topic of Model Making Competition	No. of Beneficiary
28.2.2020 & 29.2.2020	In Vigyan Utsav: Organized SCIENCE THEME BASED CULTURAL EVENT	200 Students

The Department of Microbiology coordinated the **innovative science theme based cultural events**. The students performed dance drama, Nukkar natak etc on topics like COVID-19, save water, robotics, clean India, contributions of scientists, etc which created awareness among youths.

Department of Computer Science

Date	Event	Topic	Resource Person	No. Of Beneficiary
January – June 2020	Spoken Tutorial	Java Programming Python Program. Arduino Program.	Spoken Tutorial, IIT Mumbai	160

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29.02.2020	Vigyan Utsav	Short Film Making Competition	Dr. Anuradha Krishna, Govt. Polytechnic, Dept of Science and Technology Dr. Chandra Shekhar Singh Joint Director (Technical), Govt. Polytechnic, Dept of Science and Technology Dr. Anant Kumar Joint Director (Science) Govt. Polytechnic, Dept of Science and Technology	160
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9.11. Books/journals subscribed from grants: -

Department of Microbiology

Sl. No.	Book name	Author	Publisher	No. of Copies	Price	Net Amount
1.	Molecular Biology of the Cell	Albert	Garland Science	01	6765.00	6765.00
2.	Principles of Fermentation Technology	Stansbury	Elsevier	01	1295.00	1295.00
3.	Molecular Biology of the Gene	Watson	Pearson	05	899.00	4495.00
4.	KarpCell Biology	Iwasa and Marshall	Wiley	04	4478.25	17913.00
5.	An Introduction to probability & statistics	Rohtagi	Wiley	01	789.00	789.00
6.	Statistical Inference	Casella	Cengage Learning	01	775.00	775.00
7.	Mahajan's methods in Biostatistics	Bratati Banerjee	The health Sciences ibdc	01	450.00	450.00
8.	Introduction to Biostatistics	Banerjee	S. Chand	01	325.00	325.00
9.	Principles of gene manipulation &	Primrose	Blackwell	01	2975.00	2975.00


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	genomics					
10.	Textbook of Life Sciences	Rajveer Singh	ibdc	01	450.00	450.00
11.	Introduction to Microbiology	Scqueira & Kapoor	New Age International Publishers	02	499.00	998.00
12.	Biostatistic basic and advance	Manju Pandey	MV learning	01	795.00	795.00
13.	Molecular Biology	P.K. Gupta	Rastogi	01	425.00	425.00
14.	Biostatistics	P.N. Arora	Himalaya Publishing House	01	525.00	525.00
15.	Microbiology	Pelczar	Mc Graw Hill	01	895.00	895.00
16.	Biochemistry	S.N. Gupta	Rastogi	01	625.00	625.00
17.	Cell Biology	Verma & Agarwal	S. Chand	01	695.00	695.00
18.	Textbook of Microbiology	Dubey & Maheshwari	S. Chand	01	725.00	725.00
19.	Microbiology	R.P. Singh	Kalyani	01	395.00	395.00
20.	Advanced Biotechnology	R.C. Dubey	S. Chand	01	595.00	595.00
21.	Molecular Biology	Sambham urthy	Narosa Publishing house	01	675.00	675.00
22.	The Cell	Cooper	Sinauer Associates	01	4495.00	4495.00
Total						Rs.48075=00

Department of Botany

Sl. No.	Name of Book	Rate (in Rs.)	Cost (in Rs.)	Date of Order Placed	Date of Purchase
1.	Leninger Principles of Biochemistry(01)	\$ 181.95/	13592/-	18/09/2019	29/09/2019

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2.	Lewis Gene XII(1)	\$105/-	7844/-	18/09/2019	29/09/2019
3.	Lewis Gene XI (1)	2895/-	2895/-	18/09/2019	29/09/2019
4.	Lewis Gene X (01)	2495/-	2495/-	18/09/2019	29/09/2019
5.	Lewis Gene I X (1)	1895/-	1895/-	18/09/2019	29/09/2019
6.	I Genetics (01)	859/-	859/-	18/09/2019	29/09/2019
		Less 15%	4437/-		
		Grand total	Rs. 25,142/-		

Department of Computer Science

Sl. No	Name of Book	Author	Qty	Price	Gross
1.	Arduino Programming in 24 Hrs.	Richard Blum	1	Rs 675/-	Rs 675/-
2.	Arduino Programming with .NET and Sketch	Kurniawan	1	Rs. 459/-	Rs. 459/-
3.	Building Arduino PLCs: The Essential techniques you need to Develop Arduino	Seneviratne	1	Rs. 509/-	Rs. 509/-
4.	Core Python Programming	Rao	2	Rs. 699/-	Rs. 1398/-
5.	Introduction to Artificial Intelligence and Expert Systems	Patterson	2	Rs. 549/-	Rs. 1098/-
6.	Python: The Complete Reference	Martin	1	Rs. 725/-	Rs. 725/-
7.	Tally. ERP 9 With GST	Tepl	1	Rs. 297	Rs. 297
8.	Theory of Computation	Moret	1	Rs. 829/-	Rs. 829/-

Total: Rs. 5990/-

Disc (15%): Rs. 898.50/-

Amount Payable: Rs. 5092/-

9.12. Outreach activities: -

Date	Event	Topic	Resource Persons	Venue
16.11.19	Outreach Programme	Industrial training at airport Patna	1. Dr. Aprajita Krishna 2. Dr. Rohit Singh	Patna Airport

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		3. Dr. Kavita Verma	
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9.13. Colleges mentored to apply for DBT Star College: -

Mentoring	Status
Patna Science College	Received Grant
A.N. College Patna	Received Grant
Ganga Devi College Patna	Not accepted after presentation
R.D. and D.J. College Munger	Rejected at Initial Stage
Jamalpur College	Rejected at Initial Stage

9.14. Invited Lectures: -

Name, designation, host institute of guest faculty invited:

Name	Designation	Host Institute	Date of Visit	Topic of Lecture
Dr. P. K. Tiwari,	Principal Incharge, Incubation Center	IIT, Patna	23.10.19	Technology, Innovation & Startup
Mr. Vivekanand Prasad	Founder and Director	Techprolabz, Patna	23.10.19	Technology, Innovation & Startup
Dr. Parikshit Bansal	Intellectual Property Rights Educator	Bansal IP Associates, Mohali, Punjab	14.02.20	Usefulness of Intellectual Property Rights for Students and Teachers
Ms. Kompal Bansal	Patent Agent	Intellectual Property & IT Technology Cell	14.02.20	Usefulness of Intellectual Property Rights for Students and Teachers
Dr. Gopal Sharma	Deputy Director	Zoological Survey of India,	24.08.2019	Water Crisis and its Conservation

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		Patna		
Dr. Jainendra Kumar	Dean Science and Retd. Prof. Botany, Patliputra University	Patliputra University	29/08/2019	"Scientific approach for conservation of drug yielding plants for everybody's use"
Prof. M.P. Trivedi	Prof., Head Department of Botany	Patna Science College	12/10/2019	"Speciation in higher plants"
Anurag Sahay NIT Patna	Asst. Professor	NIT Patna	18.7.19	Entropy Fluctuation and information: From the rubber band to the black hole.
Dr. Shankar Kumar	Associate Professor	Patna Science College	5.12.19	Laser: Unconventional Light Source
Dr. Akhilesh Kumar Gupta	Asst. Professor	Patna Science College	6.12.19	Quantum Physics: A Struggle Between Physics and Non Physics

NOTE: Annexure II – Photographs Attached.

10. Self Evaluation

Department:


A. PHYSICS

A.1. Objective (as stated in proposal)

Project Work

1. Synthesis and characterization of Nanoparticles
2. Characterization of Archaeological Artefacts with the help of non invasive techniques.

Summer Training


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To visit Hospitals and to provide exposure to the medical instruments working under the principles of Physics, like CT, MRI and NMR scanning

Industrial Visit

1. To visit the manufacturing unit of transformer at Electricity department and to learn different types of transformers.
2. To visit industries involve in production of electrical wire so that students can learn the process of insulation etc.

A.2. % Achieved – Project Work – 100%

Summer Training – 60%

Industrial Visit – 100%

A.3. Reasons for underachievement / If achieved, state in quantitative metrics

Summer Training is done on Aircraft Maintenance, instead of Hospital instruments. The main reason was the availability of Hospital and Semester Exam of students.

B. ZOOLOGY

B.1 Objective (as stated in proposal)

Project Work

Efficacy of earthworms species to bio accumulate heavy metals or other contaminants of water.

Summer Training

To visit Zoological Survey of India as part of their Invertebrata curriculum to observe the specimens in the museum and learn about Systematics

Industrial Training

To learn the immunological techniques and to study histo pathological slides in Pathology laboratory.

B.2. % Achieved – Project Work – 100%

Summer Training – 100%


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Industrial Visit – 70%

B.3. Reasons for underachievement / If achieved, state in quantitative metrics

Instead of Pathology Lab, the Immunological techniques were studied in Central Research Laboratory, PWC

C. CHEMISTRY

C.1. Objective (as stated in proposal)

Project Work

1. Physico chemical quality of various ponds of Patna.
2. Analysis of drinking water quality

Summer Training

To visit IIT's and NCL to study the working of different instruments and gain exposure to analytical instrumentation techniques.

Industrial Training

To visit industries at Electroplating & gold plating unit to gain knowledge about the basic Principles involved in electroplating process

C.2. % Achieved – Project Work – 100%

Summer Training – Not Achieved

Industrial Visit – Not Achieved

C.3. Reasons for underachievement / If achieved, state in quantitative metrics

Summer Training – Students are not ready to pay that much cost

Industrial Visit – Less interest is shown in DBT Project.

D. BOTANY

D.1. Objective (as stated in proposal)

Project Work

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1. To study the flora of heritage sites and to do the green audit
2. Herbal gardening
3. Hydro culture

Summer Training

Micro propagation of various herbal plants

Industrial Training

To visit Plant Tissue culture labs and Mushroom production lab around Patna

D.2. % Achieved – Project Work – 90%

Summer Training – Not Achieved

Industrial Visit – 100%

D.3. Reasons for underachievement / If achieved, state in quantitative metrics

Project Work – Herbal gardening not done

Summer Training was given in the Central Research Laboratory only.

E. INDUSTRIAL MICROBIOLOGY

E.1. Objective (as stated in proposal)

Project Work

Isolation of Micro organisms from the heritage sites.

Summer Training


To isolate and study some useful potential microflora from the archeological sites

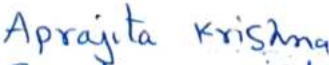
Industrial Training

To visit Plant Tissue culture labs and Mushroom production lab around Patna

E.2. % Achieved – Project Work – 100%

Summer Training – 100%


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Industrial Visit – 100%

E.3. Reasons for underachievement / If achieved, state in quantitative metrics

F. COMPUTER SCIENCE

F.1 Objective (as stated in proposal)

Project Work

To design a drone-based sensor and implement it to prepare a database for the Heritage sites in Bihar.

Summer Training

1. Hardware course
2. 3D Animation
3. Web Designing
4. Financial Accounting

Industrial Training

1. To visit IT parks of India
2. Leading software industries

F.2. % Achieved – Project Work – 100%

Summer Training – 100%

Industrial Visit – Not Achieved

F.3. Reasons for underachievement / If achieved, state in quantitative metrics

Summer training – Instead of 3D Animation and Web Designing, the department had conducted In – House training programmes throughout the year for students such as, Network Security, Raspberry Pi (IOT)

In the Hardware Course, different training programs were conducted as Arduino programming, Basics of Robotics.

Also, the department had conducted, Faculty Development Programme for the faculties of Science Departments on “Python Programming”

Industrial Visit was planned at end Semester but not done due to Covid Pandemic.

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09. Key performance indicators

Annexure 1-: Photographs of Events



Hands on Training on "Arduino Programming" Hands on Experiment on "Analysis of Heavy Metals in E. Waste"



Hands on Training on "Network Security" Hands on Training on "Drone"



Hands on Training on "Gesture / Wireless Robotics"

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Guest Lecture on 'Water Crisis and its Conservation'



Isolation and Identification of Microorganism



Analysis of pH, Titrable Acidity and Ascorbic Acid content in various fruits



Poster Competition on 10.02.2020 Topic : "Benefits of green chemistry"



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Working Model Competition on 04.02.2020



Science Fest: Short Film Making Competition



Guest Lecture on "Usefulness of Intellectual Property Rights for Students and Teachers"



Sudha Dairy, Patna visit by the students

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CULTIVATION OF *Pleurotus* MUSHROOM UNDERMUSHROOM CULTIVATION



Mushrooms placed on racks



Packaging of spawn



Mixing of straw and other components



Cultured Mushrooms

TRAINING ON ASSESSMENT OF QUALITY OF MILK

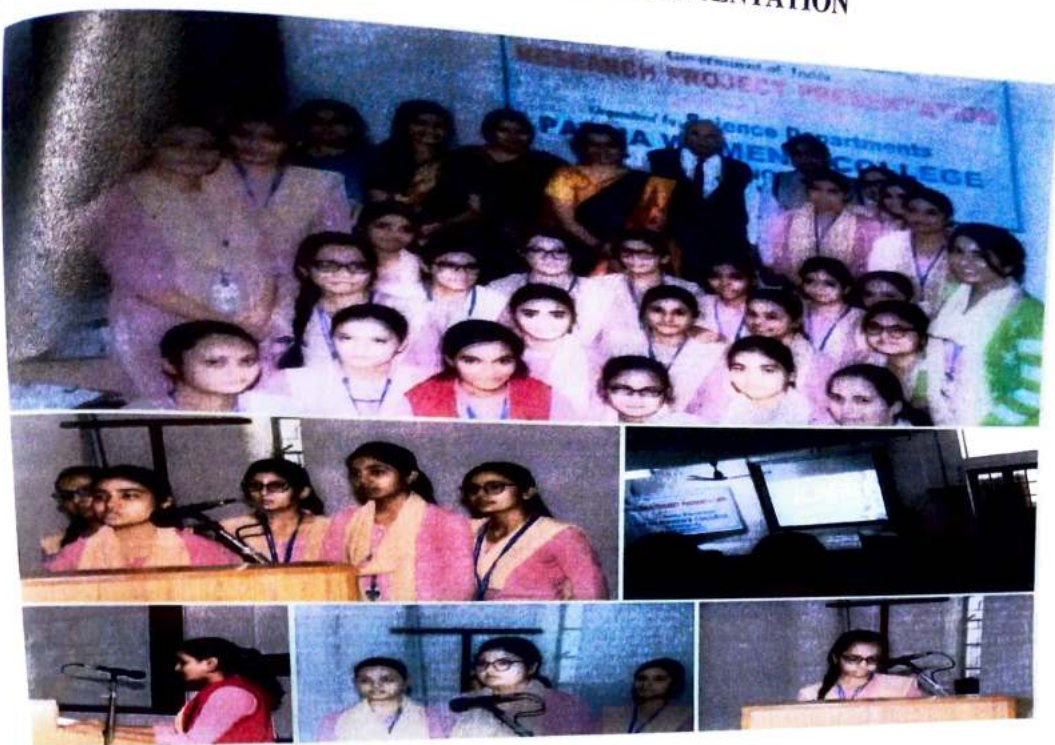


Group photograph after certificate

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DBT RESEARCH PROJECT PRESENTATION



Speech contest on the topic "Has Technology detached us from the Society"



Guest Lecture on "Conservation of drug yielding plants for everybody's use"



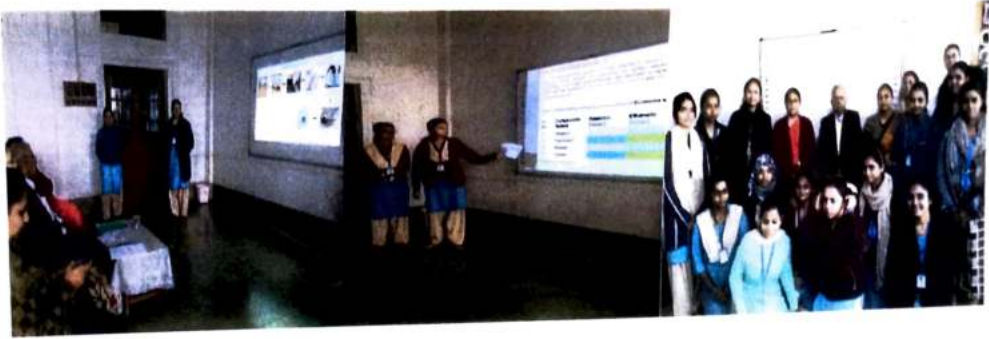
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Guest Lecture on "Speciation in Higher Plants"




Research Project Presentation; Judge- Prof. Ajai Kishor Sharan, Retd. Professor, V.K.S.U, Ara



Working model competition cum exhibition on the topic "Non conventional sources of energy"




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An Educational trip to Botanical Garden, Patna



1) Industrial Visit to Sudha Dairy Plant, Fulwarisarif, Patna



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