

**Minutes of Meeting of 4<sup>th</sup> Board of Studies  
Department of Physics**

**Central University of Jharkhand, Brambe, Ranchi**

Forth meeting of Board of Studies of Department of Physics (DoP) was held on 24<sup>th</sup> Oct 2019 in the VC's conference room to discuss and accord different issues of the Department. Following members attended the meeting:

- |   |                        |
|---|------------------------|
| 1. Prof. S Medhekar, Prof. & Head, DoP                              | Convener & Chairperson |
| 2. Prof. D. P. Ojha, Dept. of Phys. Sambalpur Univ., Orissa         | External Member        |
| 3. Prof. V. S. Pandit, Outstanding Scientist (Retd.), VECC, Kolkata | External Member        |
| 4. Prof. R. K. Dey, DoC   | Member                 |
| 5. Prof A. C. Pandey, Head, DGI                                     | Member                 |
| 6. Prof. Manoj Kumar, Head, DEVS                                    | Member                 |
| 7. Dr. Hrishikesh Mahato, Asst. Prof. DoM                           | Member                 |
| 8. Dr. Dharmendra Singh, Asst. Prof., DoP                           | Member                 |
| 9. Dr. Vineet Kumar Agotiya, Asst. Prof., DoP                       | Member                 |

External member Prof. B K Singh, Dept. of Physics, BHU, Varanasi could not attend the meeting due to his preoccupations.

Prof. S. Medhekar, Chairperson of the committee warmly welcomed the respected guests (External Experts) and members and provided a decorous introduction to the esteemed guests.

Agenda-wise resolutions made in the meeting are as attached;

Reference no.	Agenda Items	Page no. as in the agenda																																																																																								
DoP/ BOS: 2019 /4/00 1	Confirmation of the minutes of the 3 <sup>rd</sup> meeting of the Board of Studies held on 28.08.2018.  Committee confirms the minutes of the 3 <sup>rd</sup> meeting of the Board of Studies held on 28.08.2018. The board members also took note on the action taken report presented by the Chairperson.	--																																																																																								
DoP/ BOS: 2019 /4/00 2	Students' admissions in various courses of studies in the Academic Year 2019.  The Students admitted in the department for PG and Ph D courses in the academic year 2019 are detailed as below  Batch 2019 Admitted (MSc 2 years) <table border="1"> <thead> <tr> <th>Sl.NO</th> <th>State</th> <th>Total</th> <th>Male</th> <th>Femal e</th> <th>Ge n</th> <th>OBC</th> <th>SC</th> <th>ST</th> <th>EWS</th> <th>PH</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Jharkha nd</td> <td>10</td> <td>07</td> <td>03</td> <td>03</td> <td>03</td> <td>01</td> <td>03</td> <td>00</td> <td>00</td> </tr> <tr> <td>2</td> <td>Bihar</td> <td>01</td> <td>00</td> <td>01</td> <td>01</td> <td>00</td> <td>00</td> <td>00</td> <td>00</td> <td>00</td> </tr> <tr> <td>3</td> <td>West Bengal</td> <td>05</td> <td>05</td> <td>00</td> <td>03</td> <td>02</td> <td>00</td> <td>00</td> <td>00</td> <td>00</td> </tr> <tr> <td>4</td> <td>Uttar Pradesh</td> <td>02</td> <td>02</td> <td>00</td> <td>01</td> <td>00</td> <td>00</td> <td>00</td> <td>01</td> <td>00</td> </tr> <tr> <td>5</td> <td>Odisha</td> <td>19</td> <td>12</td> <td>07</td> <td>11</td> <td>04</td> <td>03</td> <td>00</td> <td>01</td> <td>00</td> </tr> <tr> <td>6</td> <td>Telanga na</td> <td>01</td> <td>01</td> <td>00</td> <td>00</td> <td>01</td> <td>00</td> <td>00</td> <td>00</td> <td>00</td> </tr> <tr> <td>7</td> <td>Rajasth</td> <td>01</td> <td>01</td> <td>00</td> <td>00</td> <td>01</td> <td>00</td> <td>00</td> <td>00</td> <td>00</td> </tr> </tbody> </table>	Sl.NO	State	Total	Male	Femal e	Ge n	OBC	SC	ST	EWS	PH	1	Jharkha nd	10	07	03	03	03	01	03	00	00	2	Bihar	01	00	01	01	00	00	00	00	00	3	West Bengal	05	05	00	03	02	00	00	00	00	4	Uttar Pradesh	02	02	00	01	00	00	00	01	00	5	Odisha	19	12	07	11	04	03	00	01	00	6	Telanga na	01	01	00	00	01	00	00	00	00	7	Rajasth	01	01	00	00	01	00	00	00	00	1
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8	Assam	01	01	00	01	00	00	00	00	
Total		40	29	11	20	11	04	03	02	00

Self Finance Mode Admitted Student 2019 (MSc 2 years)

Sl.NO	State	Total	Male	Female	Gen (Admitted)	OBC	SC	ST	EWS	PH
1	Jharkhand	01	01	00	01	00	00	00	00	00
2	Odisha	02	01	01	02	00	00	00	00	00
Total		03	02	01	03	00	00	00	00	00

Batch 2019 Ph.D Scholar Admitted

Sl.NO	State	Total	Male	Female	Gen (Admitted)	OBC	SC	ST	EWS	PH
1	Jharkhand	02	01	01	02	00	00	00	00	00
2	Punjab	01	01	00	01	00	00	00	00	00
3	West Bengal	01	01	00	01	00	00	00	00	00
4	Uttar Pradesh	01	01	00	01	00	00	00	00	00
5	Jammu and Kashmir	01	01	00	00	00	01	00	00	00
Total		06	05	01	05	00	01	00	00	00

Board members expressed happiness on almost full admissions in 2 years M. Sc. Program and good numbers of admissions in Ph. D. Program.

While the discussions on the Ph. D. admissions and Ph. D. entrance examinations, board members opined that "research methodology" may be taught somewhere in the M. Sc. course as special/elective/optional paper or may be made a part of their final project work. This would be very beneficial to them in the CUCET Ph D entrance examination wherein a large number of questions are asked on "research methodology".

DoP/ BOS: 2019 /4/00 3	Ph D Award to Ms. Sneha Bharti Linda (CUJ/P/2013/PHDAP/002)  Committee noted the award of Ph. D. degree to Ms. Sneha Bharti Linda (CUJ/P/2013/PHDAP/002).	2
DoP/ BOS: 2019 /4/00 4	Ph D Award to Ms. Indrani Nilima (CUJ/P/2014/PHDAP/001)  Committee noted the award of Ph. D. degree to Ms. Indrani Nilima (CUJ/P/2014/PHDAP/001).	3
DoP/ BOS: 2019 /4/00 5	Pre-Ph.D. submission seminar of Mr. Alok Kumar (CUJ/P/2015/PHDAP/001)  Committee noted Pre-Ph.D. submission seminar of Mr. Alok Kumar (CUJ/P/2015/PHDAP/001).	4
DoP/ BOS: 2019 /4/00 6	Ph.D. thesis submission of Mr. Alok Kumar (CUJ/P/2015/PHDAP/001)  Committee noted Ph. D. thesis submission of Mr. Alok Kumar (CUJ/P/2015/PHDAP/001).	5

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*Mishra*  
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*Standard* *Agar* *Prisha* *24.10.19* *Sharma* *24.10.19*

DoP/ BOS: 2019 /4/00 7	Ph.D. Progress reports of Mr. Pankaj Kumar Giri (CUJ/P/2014/PHDAP/003)  Committee noted the progress reports of Mr. Pankaj Kumar Giri, (CUJ/P/2014/PHDAP/003) and recommended his continuation in the Ph. D. Programme.  Further, the committee felt that work of Mr. Giri is sufficient in quality and quantity for Ph D thesis submission.	6-9
DoP/ BOS: 2019 /4/00 8	Ph.D. Progress reports of Mr. Amritraj Mahato (CUJ/P/2016/PHDAP/002)  Committee noted the progress reports of Mr. Amritraj Mahato (CUJ/P/2016/PHDAP/002) and recommended his continuation in the Ph. D. Programme.	10-12
DoP/ BOS: 2019 /4/00 9	Upgradation of Mr. Amritraj Mahato from JRF to SRF  Committee noted Upgradation of Mr. Amritraj Mahato (CUJ/P/2016/PHDAP/002) from Junior Research Fellow (JRF) to Senior Research Fellow (SRF).	13
DoP/ BOS: 2019 /4/01 0	List of external experts for PhD thesis evaluation of Mr. Amritraj Mahato (CUJ/P/2016/PHDAP/002).  The board members advised to place the list of external experts for PhD thesis evaluation of Mr. Amritraj Mahato (CUJ/P/2016/PHDAP/002) before Research Advisory Committees (RAC) of the candidate. Once the list is approved by the RAC, the same may be sent to the external members of the Board of studies for their perusal and consent.	--
DoP/ BOS: 2019 /4/01 1	Results of PhD Admissions 2019  Committee members noted the Results of PhD Admissions 2019 and expressed happiness on the good number of admissions compared to the previous years.	14-15
DoP/ BOS: 2019 /4/01 2	Fee receipts of PhD candidates of PhD Candidates Mr. Abhishek Kumar Mishra, Mr. Manohar Lal, Mr. Nilaksha Ghosh, Mr. Nitin Sharma, Ms. Pooja Sharma, Mr. Rohitash Upadhyay  Committee perused the fee receipts of PhD candidates of PhD Candidates Mr. Abhishek Kumar Mishra, Mr. Manohar Lal, Mr. Nilaksha Ghosh, Mr. Nitin Sharma, Ms. Pooja Sharma, Mr. Rohitash Upadhyay and ratified their admission in the Ph D programme in the Department of Physics.	16-21
DoP/ BOS: 2019 /4/01 3	Minutes of Departmental Research Committee (DRC): Allotments of Ph.D. guides and formation of RAC's of newly admitted Ph. D. students 2019  Committee perused the Minutes of Departmental Research Committee (DRC) regarding Allotments of Ph.D. guides and formation of RAC's of newly admitted Ph. D. students 2019 and approved those.	22-23
DoP/ BOS: 2019 /4/01 4	Notification of Research Advisory Committees (RAC) of PhD Candidates Mr. Abhishek Kumar Mishra, Mr. Manohar Lal, Mr. Nilaksha Ghosh, Mr. Nitin Sharma, Ms. Pooja Sharma, Mr. Rohitash Upadhyay  Committee noted the Notification issued from the examination section of Research Advisory Committees (RAC) of PhD Candidates Mr. Abhishek Kumar Mishra, Mr. Manohar Lal, Mr. Nilaksha Ghosh, Mr. Nitin Sharma, Ms. Pooja Sharma, Mr. Rohitash Upadhyay	24-25
DoP/ BOS: 2019	Minutes of RACs meeting: allotment of Course work papers of Mr. Abhishek Kumar Mishra, Mr. Manohar Lal, Mr. Nilaksha Ghosh, Mr. Nitin Sharma, Ms. Pooja Sharma, Mr. Rohitash Upadhyay	26-27

*Handwritten notes:*  
Abhishek  
24/10/19  
Pooja  
24/10/19

*Handwritten signatures and dates:*  
Santosh Agnihotri  
Pooja  
24.10.19  
D. Sinha  
24.10.19  
A. S. S.

/4/01 5	Committee perused the Minutes of RACs meeting regarding allotment of Course work papers of Mr. Abhishek Kumar Mishra, Mr. Manohar Lal, Mr. Nilaksha Ghosh, Mr. Nitin Sharma, Ms. Pooja Sharma, Mr. Rohitash Upadhyay and approved those.	
DoP/ BOS: 2019 /4/01 6	Details of Induction program -2019  Committee noticed the details of Induction program -2019 and praised the efforts made by Dr. Vineet Kumar Agotiya in conduction of the program.	28-30
DoP/ BOS: 2019 /4/01 7	Departmental Promotion  Committee noted departmental promotion of Smt. Nirmala Paul from Laboratory Assistant to Technical assistant.	31
DoP/ BOS: 2019 /4/01 8	Joining of Projet Fellows in the department. <ul style="list-style-type: none"> <li>• Mr. Rohitash Upadhyay</li> <li>• Mr. Siddhatha Solanki</li> </ul> Committee noted the joining of Mr. Rohitash Upadhyay and Mr. Siddhatha Solanki as Project Fellows in the Department of Physics.	32-35
DoP/ BOS: 2019 /4/01 9	Joining of Projet Associate-I in the department <ul style="list-style-type: none"> <li>• Mr. Nitin Sharma</li> </ul> Committee noted the joining of Mr. Nitin Sharma as Project associate-I in the Department of Physics.	36-37
DoP/ BOS: 2019 /4/02 0	Student placement-2019  Committee noted and commended the student placement of the department in 2019.	38
DoP/ BOS: 2019 /4/02 1	Revision in the syllabus of Accelerator Physics.  Committee discussed the changes suggested by Dr. Dharmendra singh in the syllabus of Accelerator Physics (PHY/726090) and resolved to revise the syllabus as per advised by the external experts. The revised draft is given below. Struck-off topics are removed in the revised syllabus. Members also suggested to include Volume numbers and web references of the book in the references.  <b>Accelerator Physics</b> <b>UNIT-I</b> Introduction to accelerators: Motion of charged particles in electric and magnetic fields, <del>E x B drift</del> Brief history and basic principle of various particle accelerators, DC Accelerators: Cockcroft-Walton, Van-de-graaff, Tandem.  <b>UNIT-II</b> Linear accelerating structures, <del>Transit time factor</del> , Wideroe and Alverazlinac, Electron linac, Ion linac, <del>Empty cavity wave types and modes</del> , <del>Loaded cavity</del> Space harmonies, Travelling wave and Standing wave structures, RFQ linac.  <b>UNIT-III</b> Basic principle of cyclotron, Classical cyclotron, AVF cyclotron, <del>Isœchronisms and shape of the magnetic field</del> , <del>Injection</del> , <del>Extraction</del> , <del>Beam quality</del> . High current cyclotrons, Separated sector and superconducting cyclotrons. Microtron and Betatron.  <b>Unit-IV</b> Synchrotron and storage rings: Basic principle, <del>alternating gradient principle</del> , Electron and ion Synchrotron, Synchrotron radiation source, Total radiated power, Fixed target and moving target, collider principle, <del>Beam cooling</del> . Transverse beam dynamics: Elements of beam Transport, Electrostatic and magnetic lenses.	39

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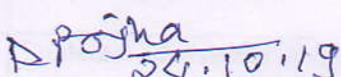
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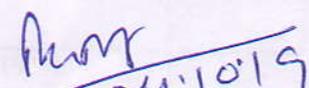
	<p><b>UNIT-V</b> Dipole magnet, Quadrupole magnet, Equations of motion, field index, Betatron oscillations, Weak and strong focusing, Transfer matrix technique, Longitudinal Beam Dynamics: Longitudinal phase space dynamics, Momentum compaction, Principal of Phase stability, Equation of motion, Synchrotron oscillation,</p> <p><b>UNIT VI</b> Ion Sources: Principle of ionization, Ion sources for positive ions - Duoplasmatron, PIG, ECR, Ion sources for negative ions- surface, Beam formation. Application of accelerators (Briefly): Basic research, medicine and industry.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Accelerator Physics, S. Y. Lee.</li> <li>2. Helmut Wiedemann, Particle Accelerator Physics.</li> <li>3. M. Reiser, Theory and design of charged particle beams.</li> <li>4. D. Edwards and M. Syphers, An introduction to the physics of high energy accelerators.</li> <li>5. S. Humphries, Principle of charge particle acceleration: Free on net</li> <li>6. Proceedings of CAS (CERN): Free on net</li> </ol>	
<p>DoP/ BOS: 2019 14/02 2</p>	<p>Initiation of B.Sc. (Physics) Program.</p> <p>Committee in principal, recommended the initiation of B.Sc. (Physics) Program with an intake of around 60. The external members opined that whenever the department decides to start the program, prior to it, a syllabus of the program may be prepared as per UGC guidelines and circulated among the external members of the board for their consent.</p> <p>It was further resolved to recommend addition in faculty (at least 01 Professor + 02 Associate Professors + 04 Assistant Professor) and staff (at least 01 Technical assistant + 01 Laboratory assistant + 01 Laboratory attendant) for smooth running of the program.</p> <p>Laboratory and other infrastructure may be improved accordingly</p>	<p>--</p>

Prof. Ratan Kumar day explained the modalities of MOOCS and LOCF to the members.

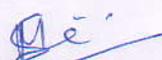
The meeting concluded with a vote of thanks proposed by Prof. A. C. Pandey.

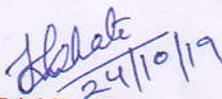
  
(Prof. D. P. Ojha)

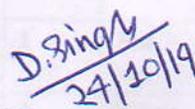
  
(Prof. V. S. Pandit)

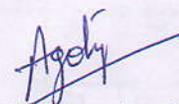
  
(Prof. R. K. Dey)

  
(Prof. A. C. Pandey)

  
(Dr. Manoj Kumar)

  
(Dr. Hrishikesh Mahato)

  
(Dr. Dharmendra Singh)

  
(Dr. Vineet Kumar Agotiya)

  
(Prof. Sarang Medhekar)