**Evaluative Report of the Department**

**Department of Physics**

**Govt. Science College, Jabalpur (MP)**

**(An Autonomous Model College with Potential for Excellence)**

**3. Evaluative Report of the Department**

**Department of Physics**

**Govt. Science College, Jabalpur**

1. **Name of the Department & its Year of Establishment:**

Department of Physics, Session 1896-97

1. **Names of Programmes/Courses Offered (UG, PG, M.Phil., Integrated Masters, Integrated Ph.D. etc):**

**UG-** B.Sc. (Physics, Chemistry & Mathematics) PCM

B.Sc. (Electronics, Physics & Mathematics) EL

B.Sc. (Computer Maintenance, Physics & Mathematics) CM

B.Sc. (Computer Application, Geology & Maths) CA1

B.Sc. (Computer Application, Physics & Mathematics) CA2

B.C.A. (Bachelor of Computer Application)

**PG-** M.Sc. (Physics) **Specialization**: Condensed Matter Physics, Electronics & Digital Electronics.

**Ph.D.-** \*Cosmic Rays, Material Science, Nanotechnology, Theoretical Physics, Opto-electronics (Luminescence).

**\***Recognised Research Centre of Rani Durgawati University, Jabalpur.

1. **Interdisciplinary Courses and Departments involved:**

**All UG Courses**

|  |  |  |
| --- | --- | --- |
| **S.No.** | **UG Course** | **Departments involved** |
| 1 | B.Sc. PCM | Chemistry & Mathematics |
| 2 | B.Sc. EL | Mathematics |
| 3 | B.Sc. CM | Mathematics |
| 4 | B.Sc. CA1 | Mathematics |
| 5 | B.Sc. CA2 | Geology & Chemistry |

1. **Annual/Semester/Choice Based Credit System:**

Semester System

1. **Participation of the Department in the Courses offered by other Departments:**

Courses offered by Chemistry, Geology, Military Science & Mathematics Departments

1. **Number of Teaching Posts sanctioned and filled (Professors/Associate Professors/ Asst. Professors):**

|  |  |  |
| --- | --- | --- |
| **Posts** | **Sanctioned** | **Filled** |
| **Professors** | 1 | 2+4\* |
| **Associate Professors** | Nil | Nil |
| **Assistant Professors** | 21 | 09 |

\*04 Posts upgraded to Promoted Professor from Assistant professor.

1. **Faculty Profile with Name, Qualifications, Designation, Specialization (D.Sc./D.Litt./Ph.D./M.Phil. etc.):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Name** | **Qualifications** | **Designation** | **Specialization** | **No. of Years of Experience** | **No. of Ph.D. Students guided in the last 4 Years** |
| 1 | Dr. Ravi Katare | M.Sc., Ph.D. | Professor & Head | Nuclear Phy, Nano science, Material science & Electronics | 33 | 04 |
| 2 | Dr. R. Mehta | M.Sc., Ph.D. | Professor | Electronics, solid state physics & Luminescence | 34 | Nil |
| 3 | Dr. N. L. Patel | M.Sc., Ph.D. | Professor | Spectroscopy, X-rays, Luminescence & Electronics | 32 | Nil |
| 4 | Dr. P. K. Selot | M.Sc., Ph.D. | Professor | Digital Electronics & Luminescence | 32 | Nil |
| 5 | Dr. S. K. Pandey | M.Sc., Ph.D., LL.B. | Professor | Theoretical Physics, Low Dimensional Systems etc. | 23 | 04 |
| 6 | Dr. R. Agrawal | M.Sc., Ph.D. | Professor | Cosmic Rays, Space Physics & Digital Electronics | 27 | Nil |
| 7 | Dr. M. L. Chauhan | M.Sc., Ph.D. | Astt. Professor | Cosmic Rays, Space Physics & Electronics | 32 | 02 |
| 8 | Dr. R. K. Kuraria | M.Sc.,Ph.D., PGDCA, MBA, | Astt. Professor | Luminescence, Nano science, Material science & Digital Electronics | 32 | 06 |
| 9 | Dr. Mrs. Shashi Kuraria | M.Sc., Ph.D. | Astt. Professor | Luminescence, Nano science, Material science & Digital Electronics | 31 | 02 |
| 10 | Dr. Shailendra Shrivastava | M.Sc., M.Phil., Ph.D., PG Diploma in Elect., MA Yoga, MCA | Astt. Professor | Luminescence, Digital Electronics & Microprocessor | 29 | Nil |
| 11 | Dr. S. K. Dubey | M.Sc.; P.G.D.C.A.; M.Phil.; Ph.D. | Astt. Professor | Microprocessors, Electronics & Radio Physics, Digital Electronics, Nuclear Physics, Cosmic Rays and Space Physics, Computer Architecture and Applications. | 29 | 02 |
| 12 | Dr. Sanjay Awasthi | M.Sc., Ph.D. | Astt. Professor | Nano science, Material science, Computer Maintenance & Electronics | 29 | 03 |
| 13 | Dr. A. K. Bagri | M.Sc., Ph.D. | Astt. Professor | Luminescence, Electronics, Condensed Matter Physics | 11 | Nil |
| 14 | Dr. M. K. Bharadwaj | M.Sc., Ph.D. | Astt. Professor | Nano science, Material science & Electronics | 08 | Nil |
| 15 | Dr. Vibha Choudhary | M.Sc., Ph.D. | Astt. Professor | Material science & Electronics | 08 | Nil |
| 16 \* | Dr. S. K. Shrivastava | M.Sc., Ph.D. | Professor | Cosmic Rays, Space Physics, computer & Electronics | 40 | 02 |
| 17 \* | Dr. Sanjay Kakkar | M.Sc., Ph.D. | Professor | Luminescence & Digital Electronics | 32 | Nil |
| 18 \* | Dr. M. K. Richariya | M.Sc., Ph.D. | Professor | Cosmic Rays, Space Physics & Electronics | 34 | Nil |
| 19 \* | Dr. B. K. Sinha | M.Sc., Ph.D. | Astt. Professor | Luminescence, Nano science & Electronics | 23 | 05 |
| 20 \* | Dr. Mrs. Manjula Jain | M.Sc., Ph.D. | Astt. Professor | Cosmic Rays, Space Physics & Electronics | 32 | Nil |
| 21 \*\* | Dr. Mrs. Shobha Shrivastava | M.Sc., Ph.D. | Astt. Professor | Cosmic Rays, Space Physics & Electronics | 28 | Nil |
| 22 \*\*\* | Dr. M. Kotecha | M.Sc., Ph.D. | Astt. Professor | Nano science, Material science & Electronics | 23 | Nil |
| **\*** Transferred to Other College in June 2015.  \*\* Applied for Voluntary Retirement.  \*\*\* Post Doctoral Fellow at USA. | | | | | | |
| **Guest Faculty (Temporary) as per state Govt. norms** | | | | | | |
| 1 | Dr. Samridhi Paranjape | M.Sc., Ph.D. | Guest Faculty | Electronics | 02 | Nil |
| 2 | Sonal Dhuriya | M.Sc. | Guest Faculty | Electronics | 02 | Nil |
| 3 | Sapna Singh | M.Sc. | Guest Faculty | Electronics | 01 | Nil |
| 4 | Priyanka Dubey | M.Sc. | Guest Faculty | Electronics | 01 | Nil |
| 5 | Nidhi Paroha | M.Sc. | Guest Faculty | Electronics | 01 | Nil |
| 6 | Shruti Nayak | MCA | Guest Faculty | NA | 06 | Nil |
| 7 | Poonam Sen | MCA | Guest Faculty | NA | 05 | Nil |
| 8 | Neha Gupta | MCA | Guest Faculty | NA | 06 | Nil |
| 9 | Kirti Patel | MCA | Guest Faculty | NA | 03 | Nil |
| 10 | Geeta Tiwari | MCA | Guest Faculty | NA | 05 | Nil |
| 11 | Pallavi Shukla | M.Sc. | Guest Faculty | Electronics | 02 | Nil |

1. **Percentage of Classes taken by Temporary Faculty – Programme - wise Information:**

B.Sc. Physics - 25%,

Bachelor of Computer Application - 80%,

B.Sc. Computer Application - 80%,

B.Sc. Computer Maintenance - 80%,

B.Sc. Electronics - 20%

M.Sc. Physics -02%

1. **Programme-wise Student Teacher Ratio:**

UG: 1. B.Sc. Physics = 68.5:1

2. B.Sc. Computer Application = 44:1

3. B.Sc. Computer Maintenance = 44:1

4. B.Sc. Electronics = 42:1

5. BCA = 45:1

PG: M.Sc. Physics = 2.5:1

1. **Number of academic support staff (technical) and administrative staff: sanctioned and** **filled:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Name of the Post** | **Post Sanction** | **Post field** |
| **1** | Academic administrative staff | **Nil** | **Nil** |
| **2** | Lab Technician | Post are sanctioned to college and staff attached in the departments as per requirement | **03** |
| **3** | Lab assistant | ------ do------- | **Nil** |
| **4** | Lab attendant | ------ do------- | **07** |
| **5** | **Peon / Farrash (Daily Wages)** | ------ do------- | **01+02** |
| **6** | **Technical staff (Daily Wages)** | ------ do------- | **03** |

1. **Number of faculty with ongoing projects from a) national b) international funding** **agencies and c) Total grants received. Mention names of funding agencies and grants received project-wise:**
   1. National: 03
   2. International funding agencies: Nil
   3. Total grants received: 2352800/-(Twenty three lacs fifty two thousands and eight hundred)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| s. no. | Faculty name | Title of project | Year | Funding agency | National/ International | Fund received (in Rs) |
| 1 | Dr. S.K. Awasthi | Documentation of Indegignous knowledge of Jabalpur Division | 2011-12 | MPCST | National | Rs.5,00,000/ |
| 2 | Dr. S.K. Awasthi | Study and documentation ofIndigenous knowledge of Shahdol division | 2011-12 | MPCST | National | Rs.4,00,000/ |
| 3 | Dr. S.K. Awasthi | project on synthesis of Hydrogel Metal composites and their electrical, mechanical and chemical characterization, | 2013-14 | UGC | National | Rs.9,09,800/ |
| Ongoing Project | | | | | | |
| 1 | Dr. S.K. Awasthi | Jigyasa, as science communication & popularization program series | 2016-17 | DST | National | 5,43,000/ |

1. **Department projects funded by DST-FIST, DBT, ICSSR etc; total grants received project-wise:**

The College have received DST-FIST grant of Rs. 70 lacs for facility up-gradation teaching, research and also for computer lab. The funds for projects sanctioned by other agencies are mentioned on point no. 11

1. **Research facility / centre with—**

**Research facilities available** - Tensile strength machine, Four probe method, Dual Trace CRO, storage oscilloscope, centrifugal machine, magnetic stirrer, ML & TL Device, Photomultiplier tube, High voltage power supply cooled storage facility, X-ray Spectrographs, Digital weighing machine, oven, furnaces (25-800Co) are available in the research labs.

We have three research labs material science, Luminescence, cosmic rays and space physics in the department.

21 research scholar working under 08 research guide.

Experimental and theoretical research works is going on.

Two of the research scholars are getting National Scholarship & Rajeev Gandhi fellowship.

The inspire scholarship by departments of science and technology (Delhi) has been awarded to two of the students of M.Sc. I Semester.

* State recognition: Yes, by the University
* National recognition: Yes, as the various projects are funded by National Agencies.
* International recognition: Yes, various research papers are published in international Elsevier, solar physics, Thomas and router, willey etc. Faculty members Dr. R.K.Kuraria, Dr. P.K. Selot and Dr. S.K.Awasthi visited abroad for their research paper presentation. At present, Dr. M.Kotecha is working in the field of multi nuclear nuclear magnetic resonance (NMR) spectroscopy, magnetic resonance imaging and tissue engineering at USA.
* Dr. M.Kotecha delivered 17 invited talks in USA from 2012-01/2017.
* Dr. M.Kotecha is member of 13 professional activates in USA.

1. **Publications:** 
   * Number of papers published in peer reviewed journals (national / international) : 250

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No. | Name of faculty | National | International | Total publication |
| 1 | Dr. Ravi Katare | 06 | 08+08 (conf) | 22 |
| 2 | Dr. P. K. Selot | Nil | 01 | 01 |
| 3 | Dr. S. K. Pandey | 10+04(conf) | 02 | 16 |
| 4 | Dr. R. Agrawal | 03 | 18+03(conf) | 24 |
| 5 | Dr. M. L. Chauhan | 04 | 06 | 10 |
| 6 | Dr. R. K. Kuraria | 12 | 08+05(conf) | 25 |
| 7 | Dr. (Mrs) Shashi Kuraria | 18 | 07+04(conf) | 29 |
| 8 | Dr. Shailendra Shrivastava | 08 | Nil | 08 |
| 9 | Dr. S. K. Dubey | 02 | Nil | 02 |
| 10 | Dr. Sanjay Awasthi | 06 | 04 | 10 |
| 11 | Dr. M. K. Bharadwaj | 05 | 02 | 07 |
| 12 | Dr. S. K. Shrivastava | 04 | 06 | 10 |
| 13 | Dr. B. K. Sinha | 13 | 03 | 16 |
| 14 | Dr. (Mrs) Manjula Jain | 04 | 05 | 09 |
| 15 | Dr. (Mrs) Shobha Shrivastava | 04 | 05 | 09 |
| 16 | Dr. M. Kotecha | nil | 52 | 52 |
|  |  |  | Total | **250** |

* + Monographs : Nil
  + Chapter(s) in Books : Total-02,

01 - Dr. M. Kotecha

(i) ch. 20 in “New Development in NMR: Biophysics and Biochem of cartilase by NMR & MRI, pp-529-551.

(ii) ch. 09 in the book “montoring & evaluation of Bio materials and their performances, pp-181-194.

* + Editing Books : Total-03

01 - Dr. M. Kotecha lead editor in book “Magnetic Resonance Imaging in Tissue Engineering”

02 - Prof. S. K. Pandey is Member of Editorial Board of Research Journal ‘Sci-fronts’ (Published by Govt. Science College, Jabalpur with ISSN: 0974-5297) & Member of Screening Committee of Research Journal ‘Naveen Anveshan’ (Published by Pt. S. N. Shukla Govt. Autonomous P.G. College, Shahdol with ISSN: 2395-3497).

03 - Dr. M. L. Chouhan, Member of editorial board ‘Sci Front’ Journal published by Govt. Science College, Jabalpur.

* + Books with ISBN numbers with details of publishers :

1. Wiley

2. Ramprasad & sons, Bhopal (MP)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.No. | Title of the book | Publisher | ISBN | Title of the chapter | Author |
| 1 | Magnetic Resonance Imaging | Wiley Publication | To be published in 2017 | - | Dr. M.Kotecha |
| 2 | R.P. Unified Physics sem-I, II, III, IV ,V,VI | Ramprasad & sons Bhopal | 978-93-80560-19-9, 94-6,  978-93-85589-03-04, 978-93-80560-46-5, 978-93-808560-68-7, 978-93-80560-04-5, | - | B.K.Sinha & M.L.Chauhan |
| 3 | R.P. Unified Practical Physics sem-I, II, III, IV ,V ,VI | Ramprasad & sons Bhopal | 978-93-85589-24-9 | - | B.K.Sinha & M.L.Chauhan |

* + Number listed in International Database (For *e.g*. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.) : 03
  + Citation Index – range / average: Average
  + SNIP : Nil
  + SJR : .99-1.5
  + Impact factor – range / average : .99-5.292
  + h-index : 3.2

1. **Details of patents and income generated:**

Nil.

1. **Areas of consultancy and income generated**

Honorary consultancy in computer maintenance and computer application subjects.

Income: Nil

1. **Faculty recharging strategies :**

* Academic areas where strengthening or supplemental expertise is required are identified in departmental meetings.
* Refresher courses, workshops, conferences, seminars, etc.
* Orientation cum faculty development programmes in the college.
* Meditation and yoga session by Dr. S.K. Shrivastava and kriyayoga by Dr.R.K.Kuraria.

The different courses where teachers have benefitted are :

* Orientation programmes, seminars, workshops, conferences and refresher courses, short term certificate courses.

1. **Student projects:**

* percentage of students who have done in-house projects including inter-departmental: 80%
* percentage of students doing projects in collaboration with industries / institutes:

20% (with BSNL, metrological deptt., railways & MPSEB)

1. **Awards / recognitions received at the national and international level by**

**International level:**

* Dr. Ravi Katare was organizing secretary in International Conferences on Nuclear and Radiochemistry (NUCAR 2013) organized by DAE-BRNS and Govt. Model Science College Jabalpur.
* Dr. Ravi Katare is Member referee board of Naveen Shodh Sansar, International multidisciplinary journal.
* Dr. R.K.Kuraria was member of organizing committee in ICL 2011, Hyderabad.
* Dr. R.K.Kuraria was the chairperson for session in ICL 2014 in Bangalore.
* Dr. R.K. Kuraria has published a research book on “Mechanoluminescence and its applications” Lambard Publication, Germany in 2012
* Dr. R. Agrawal is associate editor and technical editor for five international journals.
* Dr. R.K.Kuraria awarded the black belt in Karate in 2016.
* Dr. M.Kotecha has delivered 17 invited talks in various Universities and scientific centres in America.
* Dr. M.Kotecha is in Task group chair ASTM standard WK55272 “Preclinical assessment of engineered cartilage tissue growth using MRI”.
* Dr. M.Kotecha is a member of 6 various academic societies in USA.

**National level:**

* Dr. Ravi Katare, Convenor, in RTEM 4th march 2016, Govt. Model Science College Jabalpur.
* Dr. R.K.Kuraria was organizing secretary in NCLA 2014, Rani Durgavati University, and Jabalpur.
* Dr. R.K.Kuraria was Organizing Secretary in RTEM 4th march 2016, Govt. Model Science College JBP.
* Prof. S. K. Pandey chaired the session of Theme-14 (Physics) as an expert to evaluate the technical papers presented in the 13th Chhattisgarh Young Scientist’s Congress 2015.
* Dr. S.K. Awasthi is science communicator in state of MP.
* Dr. R.K.Kuraria delivered invited talk at shnkaracharya Engg. College Bhilai, Durg (C.G.) on electroluminescence and its applications -2014.
* Dr. R.K.Kuraria delivered a talk at Govt. OFK College Jabalpur -2013 on Nano science.

**Students**

* Dr. R. Bhatt, Ph.D student of Dr. Ravi Katare was awarded Best Poster Award in National Conference 2014, in Raipur and Gauhati , India
* Shikha Chauhan, under the guidance of Dr.Ravi Katare , won Young Scientist Award in 31st M.P.Young Scientist Congress on 28-29 Feb. 2014, organized by MPCST, Vigyanbhavan, Bhopal.
* Shikha Chauhan, received Best research paper presentation award in NCLA-2016,RTM,University,Nagpur,Feb.18-20,2016
* Shikha Chauhan, under the guidance of Dr.Ravi Katare, achieved best oral research paper presentation award in International Conference on “Recent Trends in Science and Engineering” on 15-16 Jan, 2016,Deptt.of physics and chemistry, Govt.V.Y.T.P.G. Autonomous college, Durg(C.G.)
* Shikha Chauhan under the guidance of Dr.Ravi Katare, achieved best research paper in Poster Presentation Award at University level, Rani Durgavati University, Jabalpur. on national science day celebration (27-28,Feb.)
* Shikha chauhan, awarded “Pratibha Samman” by Chief Minister of M.P. for her outstanding research work.2016.
* Shikha Chauhan, under the guidance of Dr.Ravi Katare has presented research paper in 28 Dec -6 Jan, 2016, an International conference Phosphor safari,2016 in Honkong.

1. **Seminars/ Conferences/Workshops organized and the source of funding (national**

**/international) with details of outstanding participants, if any:**

1. Exhibition of ISRO, in collaboration with Vigyan Bharti -2013 MPCST.
2. Workshop on Science communication and crystallography, in collaboration with Vigyan Bharti -2014, MPCST (National)
3. Workshop on Light and its application, in collaboration with Vigyan Bharti -2015 MPCST (National)
4. National Science day, in collaboration with Vigyan Bharti -2015 MPCST (National)
5. National seminar on Recent Trends in Emerging Materials on 4/3/2016.,Deptt.of Higher Education, Govt. of MP Bhopal.
6. National Science day, in collaboration with Vigyan Bharti -2016 MPCST (National)
7. Parmanu Urja Jan Jagrati Abhiyan, in collaboration with Vigyan Bharti -2016, DST.
8. Key Speakers from Abroad – in NUCAR international conference held in 2013 at the department. Prof Y. Nagame, Japan, Prof M A Denecke, Germany, Prof A Chatt, Canada , Prof H. Walterbeak,The Netherlands, Prof VK Manchanda, South Korea
9. **Student profile course-wise:**

**Admission**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Session** | **Applications**  **received** | **UG (Ist Semester)** | | **Applications**  **received** | **PG (Ist Semester)** | |
| **Male** | **Female** | **Male** | **Female** |
| 2011-12 | 1740 | 136 | 48 | 85 | 17 | 04 |
| 2012-13 | online | 141 | 62 | online | 19 | 04 |
| 2013-14 | online | 140 | 96 | online | 19 | 06 |
| 2014-15 | online | 208 | 86 | online | 18 | 08 |
| 2015-16 | online | 272 | 84 | online | 18 | 08 |

\* Since the admission is through online process of Higher Education department Govt. of MP therefore the detail of application received is not available.

**Student profile course-wise: Pass percentage (Examination result)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **UG** | | | | | **PG** | | | | |
| **Appeared** | **Pass** | **Pass %** | **M** | **F** | **Appeared** | **Pass** | **Pass %** | **M** | **F** |
| 2012 | 172 | 170 | 98.85 | 126 | 44 | 12 | 9 | 75% | 6 | 3 |
| 2013 | 256 | 238 | 78.1 | 168 | 70 | 13 | 13 | 100% | 8 | 5 |
| 2014 | 223 | 147 | 66.0 | 89 | 58 | 23 | 23 | 100% | 9 | 14 |
| 2015 | 282 | 207 | 73.4 | 149 | 58 | 21 | 18 | 83.96% | 9 | 10 |
| 2016 | 337 | 277 | 82.2 | 213 | 64 | 17 | 16 | 94% | 3 | 13 |

1. **Diversity of Students:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the**  **Course**  (refer question no. 2) | **% of**  **students**  **from the**  **College** | **% of students**  **from the State** | **% of students**  **from other**  **States** | **% of**  **students**  **from**  **other countries** |
| UG | Nil | 95 | 5 | Nil |
| PG | 90 | 100 | Nil | Nil |
| Ph.D | 80 | 100 | Nil | Nil |

1. **How many students have cleared Civil Services, Defence Services, NET, SLET, GATE and** **any other competitive examinations?**

**The following BCA students were selected in various companies.**

**Wipro** - 02

**TCS -** 12

1. **Student progression:**

|  |  |
| --- | --- |
| **Student progression** | **Percentage againstenrolled** |
| UG to PG | **2%** |
| PG to M.Phil. | **NA** |
| PG to Ph.D. | **1.5%** |
| Ph.D. to Post-Doctoral | **Nil** |
| Employed |  |
| Campus selection | **8%** |
| Other than campus recruitment | **75%** |
| Entrepreneurs | **>2** |

1. **Diversity of staff:**

|  |  |
| --- | --- |
| **Percentage of faculty who are graduates** | |
| -of the same parent university | 98% |
| -from other universities within the State | 1% |
| -from other universities from other States | 1% |

1. **Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment** **period:03**

1. Manjula Jain 2011

2. Shobha Shrivastava 2013

3. Mahendra Bharadwaj 2014

1. **Present details about infrastructural facilities-- Library :**

a) Library- 6101, total books in departmental Library.

b) Internet facilities for staff and students- Yes

c) Total number of class rooms-as per college time table, shearing with other subject.

d) Class rooms with ICT facility- 01

e) Students’ laboratories-11

f) Research laboratories-03

1. **Number of students of the department getting financial assistance from College:**

|  |  |
| --- | --- |
| Fellowship/scholarship | Done centrally by the college & other Scholarships as per MP Govt. Rules |
| SAF |
| Sports/NCC |
| Cultural |
| Meritorious |

1. **Was any need assessment exercise undertaken before the development of new** **program(s)? If so, give the methodology:**

Departmental meeting are organised occasionally and various academic issues are discussed. Feedback from students are also taken and as per discussions with faculty and students and as per recommendation of last NAAC peer team report on new courses, M.Sc. in Nano science is proposed which is passed in the academic council and proposal has been sent to Rani Durgawati University Jabalpur and to the Department of higher education, Govt. Of MP, Bhopal for approval.

**Need:** To prepare the manpower/students to meet the challenges in the latest field of Nano science.

**Methodology:**

* Identify the students interested in nano science research.
* Suggestions from senior academicians.
* Discussions amongst the faculty members.

1. **Does the department obtain feedback from--**
   1. **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize it? yes**

* Details of the curriculum are discussed by the faculty in departmental meeting as well as personal meeting. Need based modification is done in Board of Studies.
  1. **Students on staff, curriculum as well as teaching-learning-evaluation and what is the response of the department to the same? Yes**
* Feedback on staff and curriculum is taken by department once in a year though IQAC. Suggestions from the students are used to update and revise the curriculum.
* In response to the feedback, the list of experiments are reshuffled.
  1. **Alumni and employers on the programmes and what is the response of the department to the same? Yes**
* Time to time department discuss regarding the content of syllabus with the alumni and informally collect their views and feedback.
* Feedback taken informally by the employers at the time of campus recruitment drive.

1. **List the distinguished alumni of the Department (maximum 10)**

**Presently employed:**

|  |  |  |
| --- | --- | --- |
| Batch | Name | Present position |
| 1 | Sharabh Pachori | Major General in Indian Army |
| 2 | Sanjay Mishra | Regional manager state bank of India, New Yark Branch USA |
| 3 | Dr.Sanjay Dhoble | Associate Prof. Physics R.T.M. University, Nagpur |
| 4 | Dr. Sanjay Tiwari | Prof. Deptt. Of Physics, Pandit Ravisankar University, Raipur, Chhattisgarh |
| 5 | Dr. Kallol Mukharji | Senior Scientist of BARC, Trombay, Mumbai |
| 6 | Dr. Hanumant Shrivastava | Senior Scientist of DAE Govt. Of India |
| 7 | Vivek Sharma | Director Film Industries, India |
| 8 | Sachin Mishra | Computer expert in IBM, Australia |
| 9 | Dr. J.Jamdar | Senior Orthopedic surgeon, Jabalpur |
| 10 | Dr. Sanjay Nema | Famous Cardiologist |
| 11 | Mr. Vineet Deniel | Colonel in Indian Army |
| 12 | Dr. Nitendra Gautam | Scientist, Forensic science lab Sagar MP |

1. **Give details of student enrichment programmes (special lectures/ workshops/**

1. Dr.R.S.Raghuvanshi—Ex. Senior Scientist of Physics group, Atomic Mineral Division BARC, Trombay, Mumbai on “Higg’s Boson” (GOD particle). 21st sept. 2012.

2. Late Dr.B.P.Chandra—Vice Chancellor, Pt. Ravishankar University Raipur. Delivered a lecture on “Organic Light Emitting Diode: The Devices for solid state lightening, on 17 April 2013.

3. Dr.P.D.Sahare— Prof. Deptt. of Physics, and Astronomy, Delhi University, Delhi. Invited talk on 3 march 2012 on “Thermo luminescence on polymers and its application”.

4. Dr.Sanjay Dhoble—Associate Prof.Physics R.T.M.University Nagpur- on “Novel synthesis and characterizations of new materials for eco friendly LED lightening” 10/10/2015.

5. Mr. Abhay Pratap Yadav (an alumnus of Govt. Science College, Jabalpur) from University of Goettingen, Germany delivered a lecture on “Possibilities in the Field of Astrophysics” on 13-02-2016.

1. **List the teaching methods adopted by the faculty for different programmes.**

* Lecture demonstration
* Tutorial
* Q/A session
* Audio Visual System
* Computer And internet
* Project/ Internship
* Interactive session.
* BB method.
* Tutorial method.

1. **How does the department ensure that programme objectives are constantly met and** **learning outcomes monitored?**

* By Conducting various theory and Practical Examinations.
* By competitive discussions at various level
* CCE presentations, assignments, seminars at etc.

1. **Highlight the participation of students and faculty in extension activities.**

* NCC activities
* NSS activities
* Youth festivals
* Sports
* Other extracellular activates, rallies, National days program

1. **Give details of “beyond syllabus scholarly activities” of the department.**

* Social activities/ Yoga/charity activities / helping to poor/teaching to poor
* Problem solving of students/help in the college management/ Lecture in school
* Cleaning campus and Departmental Labs
* Teaching activities in NSS camps

1. **State whether the programme / department is accredited / graded by other agencies. Give details.**

No.

1. **Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the Department:**

**Strength**

* Learned and renowned faculties.
* Well-equipped labs and sufficient number of instruments.
* Skilled non-teaching man-power.
* Well-established computer labs.
* Departmental library.

**Weaknesses**

* Shortage of teaching and supporting staff.
* Lack of advanced research facilities.
* Lack of computer (teaching/non-teaching) staff.
* Non-appropriate ratio of class-rooms and students.
* Lack of sufficient grant.
* Unnecessary hardships in obtaining permissions to utilize the funds.

**Opportunities**

* Opportunities for good research in different fields.
* Self-financed courses at UG level.
* Selection platform for students towards job achievement and further academic advancement through online campus selection drives available at College campus.
* Organization of computer awareness programs for students and staff.
* Guidance for National Level Tests like JEST, NET, GATE and SLET.

**Challenges**

* Increase in students-intake at UG and PG level to improve GER.
* Students for UG courses come from various backgrounds and different boards. They need special attention so far as communication, writing skills and understanding are concerned.
* Teacher-taught ratio needs to be brought at par with the UGC Guidelines.
* Collaboration with the leading National and International Institutes/Universities and R&D Organizations have to be established.
* Regular up-gradation of Instruments/Experiments with state of the art facilities in the light of ever-changing and competitive scientific world.
* To acquire expertise/experts as per fast emerging ‘industrial global trends’ in the field of physics.
* Employability of students needs to be strengthened.

1. **Future Plans of the Department:**

* To initiate/start new courses like M.Sc. (Nanotechnology) and MCA.
* To procure the facilities so as to develop the department as a research centre of repute and to initiate and facilitate the quality research in the department.
* To improve the use of ICT to reach out to all the stake holders of higher education. All the students are being motivated to transact with the teachers and peers through E-mails. They are also being motivated to use ICT and internet as much as feasible.
* To have more National and International linkages. The department is planning to have Mo Us with various academic institutions for M.Sc. project-work and internships.
* To collaborate with various academic/research groups for conducting international/national seminars/workshops in the Department.

1. **Post-accreditation Initiatives:**

The college has already undergone the accreditation process by NAAC twice.

1. The recommendations for quality enhancement of the college/department by the peer team include above all the introduction of new courses under autonomous status, which has been seriously taken up by the authorities.
2. The department has initiated/started the official processes for introduction of a new PG course in “Nano-science” in collaboration with the department of Chemistry.
3. The Physics and Chemistry both departments will run a M.Sc. course in “Nano-science” from the coming academic session if the necessary permissions are granted to this effect.
4. Apart from ongoing research activities in co-ordination with the department of Chemistry, a new optional paper at PG level has also been introduced, which will be taught jointly by both the department.
5. A new laboratory for Condensed Matter Physics has been initiated in the department.
6. The growth of the department is appropriate for the introduction of novelty in the field of teaching, learning and evaluation in the present scenario. The department has purchased new smart boards and new rooms with net facilities (smart class rooms) are being provided to students.
7. The internet facility is available to all the teaching staff and students. The facility of research e-journals is also available to research scholars.
8. Looking to the student’s strength increasing session-by-session in the self-financed courses especially the computer-based courses, the department has purchased 40 new generation computers and the associated required accessories.
9. A central research facility has also been established at the college level to facilitate the above-mentioned academic activities.
10. The department has contributed antique instruments and books (in large number) to the college museum being established recently under the scheme of heritage grant of Rs. 20 lacs.