BOTANY

1. Name of the Department : BOTANY

2. Year of establishment : 1946

3. Is the Department part of a School/Faculty of the university?
   Yes, Faculty of Science

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)

   P.G. Courses viz., M. Sc., Botany; M. Sc., Agricultural Biotechnology, M.Sc., Horticulture and Landscape Management, M.Phil., Ph.D. programmes

5. Interdisciplinary programmes and departments involved
   Ph.D. programmes with Department of Pharmaceutical Sciences, AU

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   Nil

7. Details of programmes discontinued, if any, with reasons.
   Nil

8. Examination System: Annual/Semester/Trimester/Choice Based Credit System
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments:
   Nil

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>06 (CAS)</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>03</td>
</tr>
<tr>
<td>Asst. Professor</td>
<td>04</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. O. Aniel Kumar</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Cytogenetics &amp; Biosystematics</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>Name</td>
<td>Qualification</td>
<td>Position/Subject</td>
<td>Classes</td>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------</td>
<td>----------------------------------------------------</td>
<td>---------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Dr. A. Arundhati</td>
<td>M.Sc., Ph.D.</td>
<td>Professor Molecular Genetics &amp; Genetic Engg.</td>
<td>27</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Dr. K. Uma Devi</td>
<td>M.Sc., Ph.D.</td>
<td>Professor Molecular Biology &amp; Genetics</td>
<td>26</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Dr. Y. Venkateswara Rao</td>
<td>M.Sc., Ph.D.</td>
<td>Professor In vitro studies &amp; Cytogenetics</td>
<td>26</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Dr. B. Venkateswara Rao</td>
<td>M.Sc., Ph.D.</td>
<td>Professor Cytogenetics</td>
<td>19</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Dr. B. Sujatha</td>
<td>M.Sc., Ph.D.</td>
<td>Professor Crop Physiology</td>
<td>19</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Dr. P. K. Rattan Kumar</td>
<td>M.Sc., Ph.D.</td>
<td>Associate Professor Fungal Biotechnology</td>
<td>08</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Dr. D. Sandhya Deepika</td>
<td>M.Sc., Ph.D.</td>
<td>Associate Professor Microbiology, Mycology and Insect-plant interactions</td>
<td>13</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dr. S. B. Padal</td>
<td>M.Sc., Ph.D.</td>
<td>Associate Professor Ethnobotany</td>
<td>01</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dr. P. Balarama Swamy Yadav</td>
<td>M.Sc., M.Phil., Ph.D.</td>
<td>Assistant Professor Plant Biotechnology</td>
<td>07</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dr. G. Mohan Narasimha Rao</td>
<td>M.Sc., M.Phil., Ph.D.</td>
<td>Assistant Professor Marine algae and Mangroves</td>
<td>07</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Dr. S. Subba Tata</td>
<td>M. Sc., M.Tech., Ph.D.</td>
<td>Assistant Professor (C) Biotechnology</td>
<td>08</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dr. S. V. S. N. Dora</td>
<td>M.Sc., Ph.D.</td>
<td>Assistant Professor (C) Biotechnology</td>
<td>07</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors
   - Prof. V. Padmaja – Emeritus professor

13. Percentage of classes taken by temporary faculty – programme-wise information
   - M.Sc., Agricultural Biotechnology: Dr. S. Subba Tata (Assistant Professor Contract) – 90%
   - M.Sc., Horticulture and Landscape Management: Dr. S. V. S. N. Dora (Assistant Professor Contract) – 90%

14. Programme-wise Student Teacher Ratio
   - M. Sc., Botany: 1:10
   - M.Sc., Agricultural Biotechnology: 1:6
   - M.Sc., Horticulture and Landscape Management: 1:4.4

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual

16. Research thrust areas as recognized by major funding agencies
   - Plant Molecular Biology: UGC-SAP-CAS-I
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the teacher</th>
<th>Title of the project</th>
<th>Funding Agency</th>
<th>Amount in Rs.</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prof. V. Padmaja</td>
<td>Development of bio pesticide formulations for crop protection.</td>
<td>UGC</td>
<td>10.87 Lakh</td>
<td>2010-2013</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration : 
   b) International collaboration : Nil

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

   UGC-SAP-CAS-I (2012-2017) : Rs. 1,25,00,000/-

20. Research facility / centre with

   • State recognition
     University of Hyderabad, Hyderabad
     Osmania University, Hyderabad
     National Research Centre for Sorghum: Hyderabad
     ICRISAT–Patancheru, Hyderabad

   • National recognition
     National Botanical Research Institute, Lucknow
     Spices Research Board, Cochin

   • International recognition
     Molecular Entomology Max Planck Institute of Chemical Ecology, Jena, Germany
     University of Hohenheim
     Alabama University, USA
     Alcorn State University, USA

21. Special research laboratories sponsored by / created by industry or corporate bodies

   Nil

22. Publications:

   120
23. **Details of patents and income generated**

24. **Areas of consultancy and income generated**
   Nil

25. **Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad**
   Nil

26. **Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)**
   Nil

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs)**
   Nil

28. **Student projects**
   - Percentage of students who have done in-house projects including inter-departmental projects: Nil
   - Percentage of students doing projects in collaboration with other universities industry / institute: Nil

29. **Awards / recognitions received at the national and international level by**
   Faculty: Nil

30. **Seminars/ Conferences/Workshops organized and the source of funding (National International) with details of outstanding participants, if any.**
   Conducted a National Seminar on Genomes, Environment and Human Welfare - Retrospect and prospect, during 22nd & 23rd March, 2013 under UGC-SAP-CAS-I

31. **Code of ethics for research followed by the departments**
   Yes, the codes of ethics are followed for research and the guidelines formulated by the Board of studies lays emphasis on prevention of plagiarism. This is checked during submission presentation given by the candidate. So as a preventive measure, the students are advised to check for any sort of plagiarism before submission.

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Applications received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Sc., Botany</td>
<td>800</td>
<td>45</td>
<td>78</td>
</tr>
<tr>
<td>M. Sc., Agricultural Biotechnology</td>
<td>1500</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td>M. Sc., Horticulture and Landscape management</td>
<td>800</td>
<td>15</td>
<td>29</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
33. Diversity of student:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Sc., Botany</td>
<td>95</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc., Agricultural Biotechnology</td>
<td>95</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M. Sc., Horticulture and Landscape Management</td>
<td>95</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Phil.</td>
<td>95</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>95</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

33. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise

a. M. Sc., Botany : 12
b. M.Sc, Agricultural Biotechnology : 10

34. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>20</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>20</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>05</td>
</tr>
<tr>
<td>Employed</td>
<td>---</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>40</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>--</td>
</tr>
</tbody>
</table>

35. Diversity of Staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td>11</td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>1</td>
</tr>
<tr>
<td>universities outside the country</td>
<td>-</td>
</tr>
</tbody>
</table>

36. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:

Nil

37. Present details of departmental infrastructural facilities with regard to

a) Library : Departmental having 3700 books
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 6
d) Class rooms with ICT facility : 3
e) Students’ laboratories : 11
f) Research laboratories : 2
38. **List of doctoral, post-doctoral students and Research Associates**
   a) from the host institution/university : 76  
   b) from other institutions/universities : Nil  

39. **Number of post graduate students getting financial assistance from the university**
   2 students with Prof. Jillella Venkateswarlu centennial commemoration studentship  

40. **Was any need assessment exercise undertaken before the development of new programme(s)? If so highlight the methodology.**
   The feedback obtained from the alumni, experts and industries instigated the started the new courses like Agricultural Biotechnology and Horticulture and Landscape Management. The curriculum is regularly updated based on the feedback from the stake holders both in the conventional and newly started courses.  

41. **Does the department obtain feedback from**
   a. **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**
      Staff Council meetings for feedback assessments are conducted and the feedback is analysed and used in designing and modifying the syllabi.  
   b. **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**
      Taking feedback from the students by giving feedback forms provided by the IQAC. The data is analysed and will be used to improve the respective processes.  
   c. **Alumni and employers on the programmes offered and how does the department utilize the feedback?**
      Conducting the Alumni meetings in the Department for suggestions and development. This is used to improve the quality of the department.  

42. **List the distinguished alumni of the department (maximum 10)**
   About 50 members are well occupied in distinguished positions  

43. **Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.**
   Weekly student seminars were conducted in very course subject wise by a senior faculty member in that particular subject.  

44. **List the teaching methods adopted by the faculty for different programmes.**
   Both conventional and power point presentations. Interactive learning, field visits, student assignments and group discussions are conducted to promote learning  

45. **How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?**
   Allotment of faculty members for counselling the students is done to monitor them. Continuous assessment, observation during academic activities, exams, contributions of new thoughts and ideas are all taken into account for monitoring of the students.  

46. **Highlight the participation of students and faculty in extension activities.**
   Awareness programmes regarding the anti-ragging
47. Give details of “beyond syllabus scholarly activities” of the department: Nil

48. State whether the programme/department is accredited/graded by other agencies? If yes, give details.

Department has accredited as Centre of Advanced Study by UGC

49. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

Procuring the advanced analytical equipments for student’s laboratories and Research laboratories for educating them to new knowledge.

50. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:
1) Well expertised faculty members in diverse fields of Botany, Biotechnology and Microbiology
2) Good infrastructure and lab facilities
3) Good reputation of the department
4) Image of the university

Weaknesses
Reduced opportunities in recent years for students through Campus placements

Opportunities:
1) The course has demand and there is scope for providing international exposure to the students by way of MoU’s with foreign organisation.
2) Development of networking with more industries and organisations.
3) Consultancy services can be provided.
4) Application of enhanced ICT

Challenges:
1) To improve students for national merit exams
2) Building a network of alumni
3) To improve the course demand
4) To develop employability skills in students.
5) Promote international standard research.

51. Future plans of the department.

Teaching learning:
- To propose to conduct a National seminar with collaboration of DST
- To propose to conduct a National workshop Curriculum related future plans.
ENVIRONMENTAL SCIENCES

1. Name of the Department : ENVIRONMENTAL SCIENCES
2. Year of establishment : 1976
3. Is the Department part of a School
   Yes, Faculty of Science
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.):
   P.G. M.Sc., M.Phil., & Ph.D.
5. Interdisciplinary programmes and Departments involved:
   Bio-Technology
6. Courses in collaboration with other universities, Industries, foreign institutions, etc:
   Dept. of Microbiology Dept. of Forestry
7. Details of programmes discontinued, if any, with reasons:
   Nil
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System:
   Semester end with continual assessment
9. Participation of the department in the courses offered by other departments
   Dept. of Statistics & Geo-Engineering
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others) :

<table>
<thead>
<tr>
<th></th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>06 (CAS)</td>
</tr>
<tr>
<td>Associate Prof.</td>
<td>Nil</td>
</tr>
<tr>
<td>Asst. Prof.</td>
<td>Nil</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE.U.B. Reddy</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Restoration, Conservation and Management of ecosystems; Global Environmental issues, Waste Management, Disaster Management.</td>
<td>20 Yrs.</td>
<td>Ph.D – 5 M.Phil.- 1</td>
</tr>
</tbody>
</table>
12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

1) Prof. G.R.K. Naidu, Emeritus Professor, Department of Environmental Sciences, Sri Venkateswara University, Tirupati.
2) Prof. Amots Dafni, Institute of Revolution, University Haifa, Israel.
3) Prof. P.M. Satya Sai (DGM), Professor, Homi Bhabha National Institute, BARC, Kalpakam -603102.

13. Percentage of classes taken by temporary faculty – programme-wise information : Nil

14. Programme-wise Student Teacher Ratio : 15:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, Filled and actual

2

16. Research Thrust Areas

17. **Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the teacher</th>
<th>Title of the project</th>
<th>Funding Agency</th>
<th>Amount in Rs.</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prof. E.U.B.Reddi</td>
<td>A study to explore the possibilities of bio-controlling Eichornia corassipes – A troublesome exotic aquatic weed of Kolleru lake.</td>
<td>DST</td>
<td>15,00,000</td>
<td>4 years</td>
</tr>
<tr>
<td>2.</td>
<td>Prof. E.U.B.Reddi</td>
<td>Coastal Geomorphology and information systems towards Hazards preparedness (Project sanctioned, but not executed)</td>
<td>CSIR</td>
<td>6,12,667</td>
<td>3 years</td>
</tr>
<tr>
<td>3.</td>
<td>Prof. E.U.B.Reddi</td>
<td>Flora and funa in and around Nuclear Power Plant at Kovvada, Srikakulam</td>
<td>DAE, BRNS</td>
<td>30,00,00</td>
<td>3 Years 2013-2016</td>
</tr>
<tr>
<td>4.</td>
<td>Prof. K.Kameswara Rao</td>
<td>“Assessing the potential of carbon sequestration by land use sectors of Eastern Ghats and studies on carbon dynamics with land use changes</td>
<td>DST</td>
<td>38,73,200</td>
<td>3 years</td>
</tr>
<tr>
<td>5.</td>
<td>Prof. K.Kameswara Rao</td>
<td>All India Coordinated Research Project on “Sacred Grove Ecosystem Services Assessment of Eastern Ghats</td>
<td>MoEF</td>
<td>57,00,000</td>
<td>5 Years 2012-2017</td>
</tr>
<tr>
<td>6.</td>
<td>Prof. P.V.V. Prasada Rao</td>
<td>Studies on Bio stabilization of waste water from sago food industry for irrigation use under the supervision of Prof. P.V.V. Prasada Rao, Principal Investigator</td>
<td>UGC</td>
<td>9,26,300</td>
<td>3 Years 2010-2013</td>
</tr>
<tr>
<td>7.</td>
<td>Prof. P.V.V. Prasada Rao</td>
<td>Chemical Characterization and Source Identification of Atmospheric Particulates in Visakhapatnam Bowl Area”</td>
<td>DST</td>
<td>5,24,000</td>
<td>3 Years 2010-2013</td>
</tr>
<tr>
<td>8.</td>
<td>Prof. P. S. Raja Sekhar</td>
<td>Studies of Nesting Ecology and Conservation of Olive Ridley Sea Turtle (Lepidochelys Olivacea) at Godavari River Mouth of Andhra Pradesh</td>
<td>UGC</td>
<td>12,00,000</td>
<td>3 Years 2012-2015</td>
</tr>
<tr>
<td>9.</td>
<td>Prof. T. Byragi Reddy</td>
<td>Ambient Air quality of Visakhapatnam Port Trust, Visakhapatnam</td>
<td>MOEF</td>
<td>1,10,00,000</td>
<td>3 Years 2010-2013</td>
</tr>
<tr>
<td>10.</td>
<td>Prof. T. Byragi Reddy</td>
<td>A Study to explore the possibilities of bio-controlling Eichornia crassipes- A troublesome exotic aquatic weed of Kolleru Lake Eichornia crassipes-</td>
<td>DST</td>
<td>15,00,000</td>
<td>5 Years 2009-2014</td>
</tr>
<tr>
<td></td>
<td>Project Title</td>
<td>Investigator</td>
<td>Funding Agency</td>
<td>Amount</td>
<td>Duration</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>----------------------</td>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td>11</td>
<td>DAE Project on Baseline Assessment of Trace metal &amp; radio activity in Different Environmental matrices and atmospheric PM 2.5 at the new BARC Visakhapatnam, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>DAE</td>
<td>17,500</td>
<td>1 Year</td>
</tr>
<tr>
<td>12</td>
<td>Monitoring of Ground Water quality at 60 locations in Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>APPCB</td>
<td>2,00,000</td>
<td>1 Year</td>
</tr>
<tr>
<td>13</td>
<td>Monitoring of ground water in Pydibheemavaram area and surroundings, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>APPCB</td>
<td>1,25,000</td>
<td>1 Year</td>
</tr>
<tr>
<td>14</td>
<td>Monitoring of Ground Water quality at Kapuluppada MSW dump site and surroundings, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>APPCB</td>
<td>1,25,000</td>
<td>1 Year</td>
</tr>
<tr>
<td>15</td>
<td>Monitoring of Air Quality &amp; Water Quality in and around Visakhapatnam Port Trust area, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>VPT, MOEF</td>
<td>30,00,000</td>
<td>2009-2010</td>
</tr>
<tr>
<td>16</td>
<td>Flue gas analysis of chimneys and engines of Visakhapatnam Port Trust (VPT)</td>
<td>Prof. T. Byragi Reddy</td>
<td>DAE, BRNS</td>
<td>46,50,000</td>
<td>4 Years</td>
</tr>
<tr>
<td>17</td>
<td>Monitoring of ground water quality in some area of Araku and Paderu mandal, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>UGC</td>
<td>11,00,000</td>
<td>3 Years</td>
</tr>
<tr>
<td>18</td>
<td>Biodiversity around the proposed campus of BARC Visakhapatnam, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>DAE, BRNS</td>
<td>25,00,000</td>
<td>3 Years</td>
</tr>
<tr>
<td>19</td>
<td>Flora and fauna in and around Nuclear Power Plant at Kovvada, Srikakulam, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>DAE, BRNS</td>
<td>30,00,000</td>
<td>3 Years</td>
</tr>
<tr>
<td>20</td>
<td>Ambient Air quality of Visakhapatnam, VPT, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>MoEF</td>
<td>29,00,000</td>
<td>1 Year</td>
</tr>
<tr>
<td>21</td>
<td>Baselines Assessment of Trace metal and Radio activity in different Environmental matrices and Atmospheric PM 2.5 at the proposed NPP at Kovvada, Srikakulam, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. T. Byragi Reddy</td>
<td>DAE, BRNS</td>
<td>49,00,000</td>
<td>3 Years</td>
</tr>
<tr>
<td>22</td>
<td>Pollination biology of endemic and endangered plant species, Decalepis Hamiltonian (Asclepiadaceae) and Shorea tumbuggaia (Dipterocarpaceae), funded by Department of Science and Technology, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. A.J. Solomon Raju</td>
<td>DST</td>
<td>13,00,000</td>
<td>3 Years</td>
</tr>
<tr>
<td>23</td>
<td>Reproductive ecology, conservation and management of Cycas beddomei Dyer and Cycas sphaerica Roxb. (Cycadaceae), funded by Council of Scientific &amp; Industrial Research, Andhra Pradesh, Visakhapatnam</td>
<td>Prof. A.J. Solomon Raju</td>
<td>CSIR</td>
<td>12,00,000</td>
<td>3 Years</td>
</tr>
<tr>
<td>24</td>
<td>Morphometry and Phylogeography of honeybees and stingless bees of Andhra Pradesh, funded by Department of Biotechnology, New Delhi. 2008-2011. Principal Investigator</td>
<td>Prof. A.J. Solomon Raju</td>
<td>DBT</td>
<td>34,00,000</td>
<td>3 Years</td>
</tr>
</tbody>
</table>
25. Prof. A.J. Solomon Raju

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Funding Agency</th>
<th>Amount</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>All India Coordinated Research Project on Reproductive Biology of Four Rare Endangered and Threatened (RET) Tree species namely, Hildegardia populifolia (Roxb.) Schott. &amp; Endl., Eriolaena lushingtonii Dunn (Sterculiaceae), Syzygium alternifolium (Wt.) Walp. (Myrtaceae) and Shorea roxburghii (Dipterocarpaceae) of Andhra Pradesh</td>
<td>MoEF</td>
<td>24,00,000</td>
<td>3 Years 2010-2014</td>
</tr>
</tbody>
</table>

26. Prof. A.J. Solomon Raju

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Funding Agency</th>
<th>Amount</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive biology of some mangrove plant species at Coringa mangrove forest”, funded by Ministry of Environment &amp; Forests, Govt. of India, New Delhi.</td>
<td>MoEF</td>
<td>15,00,000</td>
<td>3 Years 2011-2014</td>
</tr>
</tbody>
</table>

27. Prof. A.J. Solomon Raju

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Funding Agency</th>
<th>Amount</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollination ecology of Wendlandia glabrata DC. and Wendlandia tinctoria (Roxb.) DC. (Rubiaceae), the rare tree species of Eastern Ghats of Andhra Pradesh, funded by Council of Scientific and Industrial Research, New Delhi</td>
<td>CSIR</td>
<td>23,00,000</td>
<td>3 Years 2011-2014</td>
</tr>
</tbody>
</table>

28. Prof. A.J. Solomon Raju

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Funding Agency</th>
<th>Amount</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive biology, conservation and management of endemic and globally endangered rare species, Boswellia ovalifoliolata (Bursevaceae) and Terminalia pallida (Combretaceae) at Sheshachalam Hills, Andhra Pradesh</td>
<td>UGC</td>
<td>7,50,800</td>
<td>3 Years 2009-2012</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration

BRNS, APPCB, DAE, Visakhapatnam Port Trust (VPT)

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

1.2 Crores

20. Research facility / centre with

- State recognition: Yes
- National recognition: Yes

21. Special research laboratories sponsored by / created by industry or corporate bodies:

No
22. **Publications:**

- Number of papers published in peer reviewed journals (National / International): 108
- Chapters in Books: 04
- Edited Books: 04
- Books with ISBN with details of publishers: 03

23. **Details of patents**

Nil

24. **Areas of consultancy**

Environmental Impact Assessment (EIA) Water Quality Analysis, Trimax and Ramkee Industries. Income Generated about Rs.4,00,000 to RMC, A.U.

25. **Faculty selected nationally / internationally to visit other laboratories/institutions industries in India and abroad:**

**Visit Institutions in Abroad**

1. Prof. P.S. Raja Sekhar, Marine Research Institute & Aquarium (MRIA) Baltimore, U.S.A.
2. Prof. A.J. Solomon Raju,
3. International Conference on Agricultural, Chemical... Thailand,
4. International Conference on Ornithological congress of....at Thailand,
5. International Conference at Bangkok, Thailand
6. Guiding his foreign research scholars at Tanzania, & Ethiopia
7. 26th International congress for conservation Biology at Baltimore Conservation Centre, Baltimore, Maryland, USA
8. Conference at Bangkok
9. 2nd Global Conference on Entomology at Kuching, Malaysia

26. **Faculty serving in National committees b) International committees c) Editorial Boards d) any other (please specify)**

- Prof. A.J. Solomon Raju, MOEF Research Projects Committee Member.
- Prof. P.S. Raja Sekhar, Research Advisory Committee Member (RAC), UNDP Project, A.P. Forest Department, Andhra Pradesh.

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

UGC Academic Staff College: 2- Re-Fresher Courses in Environmental Sciences
1- Orientation Programme in Life sciences

28. **Student projects**

- Percentage of students who have done in-house projects including inter-departmental projects: 100%
- Percentage of students doing projects in collaboration with other universities industry / institute: 60%

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

| 1. | Prof. K. Kameswara Rao | Nominated by the Government of Andhra Pradesh: Member, Board of Governors: EPTRI, Hyderabad |
| 2. | Nomination by the Government of Andhra Pradesh: Member, A.P. State Pollution Board |

Andhra University, Visakhapatnam
2. Prof. P.V.V. Prasada Rao  
Member Advisory Committee., Nuclear Disaster Management to Visakhapatnam city

3. Dr. A.J. Solomon Raju  
MoEF Research Project on Pollination Biology, Coringa Mangrove Forest, Andhra Pradesh

- Students: Vruksha Mitra Awards owned by the II & III Semester Students

30. Seminars/ Conferences/Workshops organized and the source of funding (National / International) with details of outstanding participants, if any.

<table>
<thead>
<tr>
<th>No.</th>
<th>Participant Name</th>
<th>Event Title</th>
<th>Source of Funding</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prof. P.V.V. Prasada Rao</td>
<td>National Solid and Hazardous waste management for safety, health and environment – Funded by APPCB &amp; A.U.</td>
<td></td>
<td>16-17th March, 2009</td>
</tr>
<tr>
<td>4.</td>
<td>Prof. A.J. Solomon Raju</td>
<td>A National Committee Meeting on Mangroves and Coral Reefs – Funded by MoEF</td>
<td></td>
<td>29th-30th September, 2009</td>
</tr>
</tbody>
</table>

31. Code of ethics for research followed by the departments

As per the Andhra University Guidelines and Tradition, the code of ethics is followed as decided by the Board of Studies. Plagiarism is checked before submission of research articles and students are advised to avoid plagiarism to prevent resubmission.

32. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question No. 4)</th>
<th>Applications Received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>M.Sc., Environmental Sciences</td>
<td>17</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

33. Diversity of Students

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Phil /Ph.D</td>
<td>65</td>
<td>35</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

Nil
35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>30</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>30</td>
</tr>
<tr>
<td>Employed</td>
<td>40</td>
</tr>
<tr>
<td>Campus Selection</td>
<td>40</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>60</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>Nil</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States</td>
</tr>
<tr>
<td>from universities outside the country</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period**

Nil

38. **Present details of departmental infrastructural facilities with regard to**

   a) Library : Yes
   b) Internet facilities for staff and students : Yes
   c) Total number of class rooms : 2
   d) Class rooms with ICT facility : No
   e) Students’ laboratories : 2
   f) Research laboratories : 1

39. **List of doctoral, post-doctoral students and Research Associates**

   a) From the host institution/university : 2
   b) From other institutions/universities : Nil

40. **Number of post graduate students getting financial assistance from the university.**

Nil

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

Only existing curriculum is revised periodically by obtaining feedback from outgoing students, stake holders proving jobs like pollution boards, different agencies. The feedback from alumni is also considered and the modifications are discussed at length and syllabus is approved by Board of studies and later approved by Academic Senate of University.

42. **Does the department obtain feedback from**

   a) **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

   YES: The feedback is used in the assessment of lacunas in teaching development practices and used to enhance the teaching learning abilities.
b) **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

Considering the Students feedback on staff and curriculum, appropriate modifications and revisions of the curriculum and teaching methods are adopted.

c) **Alumni and employers on the programmes offered and how does the department utilize the feedback?**

Yes, the feedback of the Alumni and employers is utilised for strengthening the quality and development of the programmes offered by the department.

### 43. List the distinguished alumni of the department (maximum 10)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name and Affiliation of the Alumni</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Dr. A. Eswar, Regional Manager Syndicate Bank, Dabagardens, Visakhapatnam, A.P., India.</td>
</tr>
<tr>
<td>6.</td>
<td>Sri. E. Ashok, Senior Environment Officer International Development Bank of India (IDBI), New Delhi, India.</td>
</tr>
<tr>
<td>7.</td>
<td>Dr. P. Appala Raju, General Manager Environment, SGS Laboratories International, Visakhapatnam, A.P. India.</td>
</tr>
<tr>
<td>8.</td>
<td>Dr. N. Srinivas, Head Department of Environmental Studies GITAM University, Visakhapatnam, A.P. India.</td>
</tr>
<tr>
<td>9.</td>
<td>Dr. P.V. Subba Rao, Senior Research Officer Ministry of Environment and Forests (MoEF), New Delhi.</td>
</tr>
<tr>
<td>10.</td>
<td>Dr. A.V.V.S. Swamy, Head Department of Environmental Sciences, Nagarjuna University, Guntur, A.P.</td>
</tr>
</tbody>
</table>

### 44. Give details of student enrichment programmes (special lectures/workshops/seminar) involving external experts.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Visitor</th>
<th>Purpose of Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prof. N.H. Ravindranath, IISC</td>
<td>Lecture on Climate Change</td>
</tr>
<tr>
<td>2.</td>
<td>Dr. G.V. Subrahmaniam, Advisor, MOEF</td>
<td>Interaction with Teaching Staff for possibility for projects submission</td>
</tr>
<tr>
<td>3.</td>
<td>Dr. J.R. Bhatt Director, MoEF, Govt. Of India</td>
<td>MoEF Meeting</td>
</tr>
<tr>
<td>4.</td>
<td>Dr. B.P. Nilaratna, Joint Secretary, MoEF, Govt. of India</td>
<td>MoEF Meeting</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. B. Parsheera, Special Secretary, MoEF, Govt. of India</td>
<td>MoEF Meeting</td>
</tr>
<tr>
<td>6.</td>
<td>Dr. S.K. Sai, Professor, BARC, Chennai</td>
<td>Nuclear Atomic Waste Management</td>
</tr>
</tbody>
</table>
45. List the teaching methods adopted by the faculty for different programmes.

Class room teaching, Field work oriented inventory methods and application of innovative methodologies, Audio Visual Teaching Aids and Industrial Projects are adopted by the faculty. The students are encouraged to give seminars and participate in group discussions.

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

Constantly monitoring the property objectives and learning outcomes by obtaining feedbacks from the Students in a periodical manner, Research Scholars and Experts from Industries, Refresher Course and Orientation Programme Participants of Academic Staff College are adopted in a continuous assessment.

47. Highlight the participation of students and faculty in extension activities.

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

Education and Awareness Campaign to School Children and College Students, Health and Hygienic campaign in Slum Environments and encouraging students in competitions, paper presentations in the conferences and conducting rally in the slum areas.

49. State whether the programmes / department is accredited / graded by other agencies ? If yes, give details

No

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

- Conservation and Management of Natural Resources
- Propagation and Conservation of Plant Resources of Eastern Ghats
- Environmental Pollution, Monitoring and Management.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:
1. Department is undertaking Inter Disciplinary Research and Consultancies
2. Faculty Members involvement in the State and Central Government Bodies
3. Students Participation and Training in Major Industries
4. Enrolment of Research Scholars of Multi-Disciplinary Research Approach
5. Employment Generation to students in Multi-Disciplinary areas

**Weaknesses:**
1. Campus placements are reducing during the last 4-5 years which need to be improved

**Opportunities:**
1. The course has demand and there is scope for providing international exposure to the students by way of MoU’s with foreign organisation.
2. Development of networking with more industries and organisations.
3. Job opportunities are more
4. Consultancy services can be provided.

**Challenges:**
1. To improve students for national merit exams
2. Building a network of alumni
3. To improve the course demand
4. To improve the industry orientation and involvement

**52. Future plans of the department.**
1. To establish a Centre for Urban Ecology and Ecological Governance Curriculum related future plans

2. To introduce Safety, Health and Environmental Part-Time Diploma Course(SHE) for Environmental Sciences students, Research Scholars, Industry Executives and Administrators
GEOLOGY

1. Name of the Department : GEOLOGY
2. Year of establishment : 1941
3. Is the Department part of a School/ Faculty of the university? Yes, Faculty of Science
4. Names of programmes offered:
   1) M.Sc. Geology, 2) M.Sc. Marine Geology, 3) M.Sc. (Tech) Applied Geology, 4) M.S. Geology (5 Year Integrated), M.Phil and Ph.D
5. Interdisciplinary programmes and departments involved :
   Dept. Geophysics, Centre for studies on Bay of Bengal and Dept. of Chemistry
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   Advanced PG Diploma in Mineral Exploration and Resource Evaluation (Jointly with AU and GSI TI, Hyderabad)
7. Details of programmes discontinued, if any, with reasons :
   Nil
8. Examination System:
   Semester end with continual assessment
9. Participation of the department in the courses offered by other departments:
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/Others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>11</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>--</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>4 (Contract)</td>
</tr>
<tr>
<td>Others</td>
<td>4 (Guest Faculty)</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. C.V. Raman</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Mineralogy 2) Marine Geology</td>
<td>29</td>
<td>--</td>
</tr>
<tr>
<td>Prof. T. Vinoda Rao (HoD)</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Hydrogeology 2) Environmental Geology</td>
<td>29</td>
<td>--</td>
</tr>
<tr>
<td>Name</td>
<td>Degree</td>
<td>Position</td>
<td>Research Interests</td>
<td>M. Year</td>
<td>Y. Year</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------</td>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Prof. V. V. Nageswara Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Petrology Geology 2) Economic Geology &amp; Indian Mineral Deposits</td>
<td>29</td>
<td>02</td>
</tr>
<tr>
<td>Prof. G. Satyanarayana</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Geomorphology Remote Sensing &amp; GIS</td>
<td>29</td>
<td>--</td>
</tr>
<tr>
<td>Prof. M. Jagannadha Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Coal Geology 2) Mineral Exploration &amp; Mineral Beneficiation</td>
<td>27</td>
<td>07</td>
</tr>
<tr>
<td>Prof. P. Bhanumurthy</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Sedimento logy 2) Marine Geology</td>
<td>27</td>
<td>--</td>
</tr>
<tr>
<td>Prof. N. Subba Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Hydrogeology 2) Environmental Geology</td>
<td>27</td>
<td>01</td>
</tr>
<tr>
<td>Prof. T. Y. Naidu</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Stratigraphy &amp; Micropaleontology 2) Marine Geology</td>
<td>27</td>
<td>03</td>
</tr>
<tr>
<td>Prof. D. Deva Varma</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Sedimentology 2) Fuel Geology</td>
<td>20</td>
<td>01</td>
</tr>
<tr>
<td>Prof. K. Satyanarayananreddy</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>1) Marine Geology 2) Mineralogy</td>
<td>20</td>
<td>01</td>
</tr>
<tr>
<td>Prof. E. N. Dhanamjaya Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Geomorphology, Remote Sensing &amp; GIS</td>
<td>20</td>
<td>03</td>
</tr>
<tr>
<td>Dr. J. Venkata Ramana</td>
<td>Ph.D.</td>
<td>Assistant Professor (c)</td>
<td>Economic Geology</td>
<td>7</td>
<td>--</td>
</tr>
<tr>
<td>Dr. M. Srinivasa Rao</td>
<td>Ph.D.</td>
<td>Assistant Professor (c)</td>
<td>Geochemistry</td>
<td>7</td>
<td>--</td>
</tr>
<tr>
<td>Dr. G. Raja Rao</td>
<td>Ph.D.</td>
<td>Assistant Professor (c)</td>
<td>Cartography &amp; GIS</td>
<td>7</td>
<td>--</td>
</tr>
<tr>
<td>Dr. K. Arjunudu</td>
<td>Ph.D.</td>
<td>Assistant Professor (c)</td>
<td>Petrology</td>
<td>7</td>
<td>--</td>
</tr>
<tr>
<td>Dr. B. Thirupathi Rao</td>
<td>Ph.D.</td>
<td>Guest Faculty</td>
<td>Mining &amp; Engineering Geology</td>
<td>4</td>
<td>--</td>
</tr>
<tr>
<td>Dr. K. Sudhakar</td>
<td>Ph.D.</td>
<td>Guest Faculty</td>
<td>Indian Mineral Deposits</td>
<td>4</td>
<td>--</td>
</tr>
<tr>
<td>Dr. K. Ravi Kumar</td>
<td>Ph.D.</td>
<td>Guest Faculty</td>
<td>Fuel Geology</td>
<td>1</td>
<td>--</td>
</tr>
</tbody>
</table>

12. List of Senior Visiting Fellows, Adjunct Faculty, Emeritus Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. R. Kaladhar</td>
<td>Adjunct Faculty/ Senior Visiting Fellows</td>
</tr>
<tr>
<td>Dr. P.S.N.Murthy</td>
<td>Visiting Fellow, Deputy Director, NMDC, India</td>
</tr>
<tr>
<td>Dr. A. Santharam</td>
<td>Visiting Fellow, Deputy Director, IBM, India</td>
</tr>
<tr>
<td>Prof. K.V. Subba Rao</td>
<td>Visiting Fellow, IIT, Mumbai</td>
</tr>
<tr>
<td>Dr. N. Kutumba Rao</td>
<td>Visiting Fellow, Director, GSI TI, Hyderabad</td>
</tr>
<tr>
<td>Dr. S. K. Wadhavan</td>
<td>Visiting Fellow, DDG, GSI TI, Hyderabad</td>
</tr>
<tr>
<td>Prof. O.P. Varma</td>
<td>Visiting Fellow, Department of Earth Sciences, IIT, Roorkee</td>
</tr>
<tr>
<td>Prof. H.B. Srivastava</td>
<td>Visiting Fellow, Department of Geology, Banaras Hindu University, Varanasi</td>
</tr>
</tbody>
</table>
13. Percentage of classes taken by temporary faculty – Programme-wise information

10

14. Programme-wise Student Teacher Ratio

- M.Sc. Geology – 7:1
- M.Sc. Marine Geology – 6:1
- M.S. Geology (5Year Integrated) – 8:1

15. Number of Academic Support Staff (technical) and administrative staff Sanctioned, filled and actual:

11

16. Research thrust areas as recognized by major Funding Agencies:

UGC, DST, MoEF, MoES, CSIR, ONGC, etc

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Name of the Project</th>
<th>Duration</th>
<th>Name of the Principal Investigator</th>
<th>Funding Agency</th>
<th>Amount Sanctioned (in lakhs)</th>
<th>Ongoing/Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Studies on exsolved phase mineralogy and chemical finger printing of placer ilmenites from North coastal Andhra Pradesh to establish from North Coastal Andhra Pradesh to establish genetic affinities and to evolve economic implications”</td>
<td>2008-2011</td>
<td>Prof. M. Jagannadha Rao</td>
<td>DST, New Delhi</td>
<td>12.0</td>
<td>Completed</td>
</tr>
<tr>
<td>“A study on process chemistry and product characterization of zeolite synthesis from coal flyash and its applicability in soil remediation and conditioning”</td>
<td>2008-2011</td>
<td>Prof. M. Jagannadha Rao</td>
<td>UGC, New Delhi</td>
<td>5.5</td>
<td>Completed</td>
</tr>
</tbody>
</table>
### Spatial Characterization studies of Cleat and Fracture Patterns of Coal formation from Godavari Valley Coal Basin to Evaluate the zones of Coal Bed Methane migration and accumulation using Remote Sensing and Field Studies

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Jagannadha Rao</td>
<td>ISRO</td>
<td>10.09</td>
<td>Completed</td>
</tr>
</tbody>
</table>

### Holocene Evolution of Mahanadi Delta

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Jagannadha Rao</td>
<td>ONGC</td>
<td>83.0</td>
<td>Completed</td>
</tr>
</tbody>
</table>

### Geohydrological reponse of seawater intrusion in coastal aquifers of Visakhapatnam – Kochcherla coast, A.P”

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Bhanumurthy</td>
<td>DST</td>
<td>47.34</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Sedimentary Sequential Stratigraphic Model of Kolleu Lake”

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Bhanumurthy</td>
<td>NRDMS</td>
<td>25.28</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Validation, Dissemination and Refinement of Location Specific Coastal Ocean State Forecast System”, Hyderabad.

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Bhanumurthy</td>
<td>INCOIS</td>
<td>59.24</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Deciphering groundwater potential and suitable groundwater quality zones in a part of Prakasam District, Andhra Pradesh through the application of remote sensing and GIS techniques, Sponsored by

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Subba Rao</td>
<td>UGC</td>
<td>9.88</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Development and management of groundwater resources in a coastal region: a study from Prakasam District, Andhra Pradesh.

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Subba Rao</td>
<td>DST</td>
<td>18.00</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Identification of recharge zones through hydrogeological approach in Vaarahi River Basin, Andhra Pradesh.

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Subba Rao</td>
<td>DST</td>
<td>10.00</td>
<td>Completed</td>
</tr>
</tbody>
</table>

### Elemental Geochemistry and Partitioning Patterns in Sediment cores off Cauvery River, East Coast of India

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institute</th>
<th>Score</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. Satyanarayana Reddy</td>
<td>MoES, Co-Investigator</td>
<td>9.14</td>
<td>Completed</td>
</tr>
</tbody>
</table>
Integrated studies of coastal and nearshore processes-The Window to Ocean state forecast

<table>
<thead>
<tr>
<th></th>
<th>2008-2011</th>
<th>Prof. K. Satyanarayana Reddy</th>
<th>INCOIS, Co-Investigator</th>
<th>35.20</th>
<th>Completed</th>
</tr>
</thead>
</table>
Satellite imaginary studies of Godavari delta, Andhra Pradesh.

<table>
<thead>
<tr>
<th></th>
<th>2007-2010</th>
<th>Prof. E. N. Dhanamjaya Rao</th>
<th>ONGC Principal Investigator</th>
<th>9.00</th>
<th>Completed</th>
</tr>
</thead>
</table>
Geological evaluation of fluorine enriched bodies due to pegmatites in parts of Visakhapatnam and EastGodavari districts (Eastern Ghat Terrain), AP, India.

|                              | 2005-2008 | Dr. K. Arjunudu | DST, New Delhi | 13.69 | Completed |

18. Inter-institutional collaborative projects and associated grants received a) National collaboration, b) International collaboration:
Nil

19. Departmental Projects Funded by DST-FIST; UGC-SAP/CAS, MoEF; MoEarth Sciences, ONGC, AICTE, etc.; Total Grants received
Rs.7,81,54,711/-

20. Research facility / centre with National Recognition

21. Special research laboratories sponsored by / Created by industry or corporate bodies
Nil

22. Publications:
Journals : 78

23. Details of patents
Nil

24. Areas of consultancy
Groundwater and Mineral Exploration

25. Code of ethics for research followed by the Departments:
General rules of Andhra University are strictly followed. The presubmission talk of the candidate will be assessed from the point of view of plagiarism and quality of the research and the student is allowed to submit. The faculty are encouraged to carry out quality research work and publish the same in peer reviewed journals.

26. Faculty selected Nationally / Internationally to visit other Laboratories / Institutions/Industries in India and Abroad:
Nil
27. Faculty serving in  
   a) National Committees  
   b) International committees  
   c) Editorial Boards  
   d) any other (please specify)

- Prof. E. N. Dhanamjaya Rao, DST WoS Subject Expert (Earth and Atmospheric Sciences);
- Prof. T.Y. Naidu, National Advisory Committee

28. Faculty recharging strategies (UGC, ASC, Refresher / Orientation Programs, Workshops, Training Programs and similar Programs):

Nil

29. Student Projects

a) Percentage of students who have done in-house projects including inter-departmental projects  
   : 100%

b) Percentage of students doing projects in collaboration with other universities / industry / institute  
   : 65%

30. Awards / Recognitions received at the national and international level by

Faculty : Yes, National

Doctoral / Post Doctoral Fellows : Young Scientists - 03

31. Seminars/ Conferences/Workshops organized and the source of funding (National / International) with details of outstanding participants, if any.

<table>
<thead>
<tr>
<th>#</th>
<th>Faculty Name</th>
<th>Title</th>
<th>Source Funding</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Prof. D. Rajasekhar Reddy</td>
<td>Geoheritage-Need for an Indian Activism</td>
<td>29-31 May, 2013</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Prof. K. Viswanad</td>
<td>Energy Alternatives</td>
<td>31st Oct 2012</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Prof. M. Jagannadha Rao</td>
<td>Indian Petroleum and Non- conventional Energy Resources- Present Trends and Futures Intiatives</td>
<td>30th Jun, 2013</td>
<td></td>
</tr>
</tbody>
</table>
32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc Geology</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>M.Sc Marine Geology</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>M.Sc(Tech)Applied Geology (3Years)</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>M.S. Geology (5Year Integrated)</td>
<td>25</td>
<td>7</td>
</tr>
</tbody>
</table>

33. **Diversity of Students:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from Universities outside the Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Phil/ Ph.D</td>
<td>90</td>
<td>10</td>
<td>Nil</td>
<td>--</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise**

27

35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to Ph.D.</td>
<td>15</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>10</td>
</tr>
<tr>
<td>Employed</td>
<td>75</td>
</tr>
<tr>
<td>Campus Selection</td>
<td>34</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>66</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>10</td>
</tr>
</tbody>
</table>

36. **Diversity of Staff**

<table>
<thead>
<tr>
<th>Percentage of Faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other Universities within the State</td>
</tr>
<tr>
<td>from Universities from other States</td>
</tr>
<tr>
<td>Universities outside the Country</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the Assessment Period**

Nil

38. **Present details of Departmental Infrastructural facilities with regard to**

a) Library : Yes
b) Internet facilities for Staff and Students Library : Yes
c) Total number of class rooms: 11

d) Class rooms with ICT facility: 09

e) Students’ Laboratories: 10

f) Research Laboratories: 05

39. List of Doctoral, Post-Doctoral Students and Research Associates

From the host institution/university: Doctoral: 27
From other institutions/universities: Young Scientists: 03

40. Number of Post-Graduate and Research Students getting financial assistance:

75%  

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

The interaction with the need based industries, alumni and academia initiated the new course like Applied Geology, Marine Geology and 5 year integrated M.S. programme. The curriculum is regularly reviewed by the board of studies and updated periodically.

42. Does the department obtain feedback from

   a) Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

       Yes, Regularly the feedback is obtained and used for updating the syllabus by following the practices like discussions in the faculty meetings, department committees and board of studies.

   b) Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

       Yes, The feedback collected from students is utilized for improving the teaching skills of faculty and on Curriculum for appropriate improvements and revisions of the curriculum

   c) Alumni and employers on the programmes offered and how does the department utilize the feedback?

       Utilize the Feedback of the Alumni and employers for Strengthening and Development of the Departmental Programmes undertaken by Geology Department.

43. List the distinguished alumni of the department (maximum 10)

1. Dr. V.R.Kolla, Chief Advisor, Reliance Petro Chemicals
2. Dr. Shasavatharam, Director, Alkor Petroo
3. Dr. Mohinuddin, Consultant to GSPC
4. Dr. P.S.R. Raju, Industrialist
5. Dr. P.S.N.Murthy, ESSAR, Gujarat
6. Sri. J. C. Mohanty, I.A.S.
7. Sri. Venkata Rami Reddy, I.A.S
8. Sri. A. Ravi Krishna, I.A.S
9. Sri. K. Ravi Sankar, Assistant Commissioner, Commercial Tax
44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the Visitor</th>
<th>Purpose Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prof. H.B. Srivastava, Dept. of Geology, BHU, Varanasi</td>
<td>Lecture on Deformation patterns developed due to collision of India with Asia: An Analogue Modelling</td>
</tr>
<tr>
<td>2.</td>
<td>Dr. N. Kutumba Rao, Director, GSI TI, Hyderabad</td>
<td>Lectures on Geological Aspects</td>
</tr>
<tr>
<td>3.</td>
<td>Prof. O.P. Varma, Dept. of Earth Sciences, IIT, Roorkee</td>
<td>Lectures on Ore Geology</td>
</tr>
<tr>
<td>4.</td>
<td>Dr. A. Santha Ram, Dy. Director, IBM</td>
<td>Lectures on Mining Geology</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. P. S. N. Murthy, Dy. Director, NMDC</td>
<td>Lectures on Structural Geology</td>
</tr>
<tr>
<td>6.</td>
<td>Dr. S. K. Wadhawan, DDG, GSITI, Hyd</td>
<td>Lectures on Mineral Exploration</td>
</tr>
</tbody>
</table>

45. List the teaching learning methods adopted by the faculty for different programmes


46. How does the Department ensure that programme objectives are constantly met and learning outcomes are monitored?

Constantly monitoring the property of objectives and learning outcomes by obtaining Feedbacks from the Students, Research Scholars and Experts from Mining Industries, Refresher Course and Orientation Programme, Feedback from Participants of Academic Staff Colleges.

47. Highlight the participation of students and faculty in extension activities.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Student</th>
<th>Name of seminars/quiz/debates/cultural/social</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>M. Sc. Previous/ Final Year Students</td>
<td>20th World Population Day Celebration</td>
<td>11-07-08</td>
</tr>
<tr>
<td>2.</td>
<td>M. Sc. (Tech). Applied Geology Previous/ Final Year Students</td>
<td>World Ozone Day - Rally</td>
<td>16-09-09</td>
</tr>
<tr>
<td>3.</td>
<td>M. Sc. Marine Geology Previous/ Final Year Students</td>
<td>World Water Day</td>
<td>23-03-10</td>
</tr>
<tr>
<td>4.</td>
<td>M. S. Geology (Integrated) Course Previous/ Final Year Students</td>
<td>Earth Day</td>
<td>22-04-11</td>
</tr>
<tr>
<td>5.</td>
<td>M. Sc. (Tech). Applied Geology Previous/ Final Year Students</td>
<td>World Environmental Day</td>
<td>05-06-12</td>
</tr>
<tr>
<td>6.</td>
<td>M. Sc. Marine Geology Previous/ Final Year Students</td>
<td>Geologist Day</td>
<td>21-03-13</td>
</tr>
</tbody>
</table>

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

Education and Awareness Campaign to school Children and College Students, Health and Hygienic campaign in Slum Environments.
49. **State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.**

No

50. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**


51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOT) of the department.**

**Strengths:**
- Existing infrastructure and Learning Resources in the form of experienced faculty
- Highly place alumni of the department in different fields like professional, administrative and academics.

**Weaknesses:**
- Reduction in campus placements and reduction in opportunities in public sector undertakings like ONGC

**Opportunities:**
- The Department of Geology, A.U. is in urban area located on the East Coast with vast mineral resources
- Ample scope of increasing the consultancy activity
- Well trained students with good ranks choose this programme and hence can have better job opportunities in industries all over India.

**Challenges:**
- Converting this department as model department for meeting the future challenges in the profession.
- Motivation of the alumni of the department for their support and participation in the upgradation of the department.

52. **Future plans of the department.**

a) To Promote Urban and Rural Water Resources Development and Management Programmes through the Centre of CHGWM which is under the control of Geology Department.

b) Collaborative research with organizations like ONGC, GAIL, NMDC etc.
GEO-PHYSICS

1. Name of the Department : GEO-PHYSICS

2. Year of establishment : 1949

3. Is the Department part of a School/Faculty of the university?
   Yes, Faculty of Science

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.) :

5. Interdisciplinary programmes and departments involved :
   - Collaborative projects with Geology
   - Meteorology & Oceanography
   - Geography
   - Geo-Engineering & Chemistry are in progress
   - The department houses Centre for Hydrology and Ground Water Management and many of the faculty members are involved in utilizing the facilities available with this centre.
   - Also the department utilizes the facilities like ICPMS, wet lab and other infrastructure available with the Centre for Studies on Bay of Bengal.

6. Courses in collaboration with other universities, industries, foreign institutions, etc. :
   Students will do their project works during the final year at various institutions / Industries like NIO, NGRI, IIG, NCAOR, NRSC, ONGC, GSI, AMD, APGWB, CGWB, etc., No course work in collaboration with foreign Universities.

7. Details of programmes discontinued, if any, with reasons:
   Nil

8. Examination System :
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments :
   The students of Geophysics will attend the Choice Based courses offered by the Department of Geology, Meteorology & Oceanography, Nuclear Physics, Physics, Chemistry, PNCO, and Statistics. The Junior faculty usually attends the orientation / refresher courses offered by the academic staff colleges and also at other institutions.
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/Guest faculty)

<table>
<thead>
<tr>
<th>Role</th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>1</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
</tr>
<tr>
<td>Teacher Associate</td>
<td>1</td>
</tr>
<tr>
<td>Guest faculty</td>
<td>4</td>
</tr>
<tr>
<td>Sir Arthur cotton Geospatial chair</td>
<td>1</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. P.Rama Rao</td>
<td>M.Sc (Tech.), Ph.D</td>
<td>Professor &amp; Head</td>
<td>Gravity &amp; Magnetic data Interpretation, Electro-magnetic methods</td>
<td>24</td>
<td>Ph.D: 2, M.Phil:1</td>
</tr>
<tr>
<td>Sri M.R.S. Sampath Kumar</td>
<td>M.Sc.</td>
<td>Associate Professor</td>
<td>Environmental Hydrology, Water Quality, Marine Geophysics, Mineral &amp; Water Exploration, Remote sensing</td>
<td>24</td>
<td>Nil</td>
</tr>
<tr>
<td>Dr. S.K. Begum</td>
<td>M.Sc. (Tech.), Ph.D</td>
<td>Assistant Professor</td>
<td>Magneto Tellurics</td>
<td>6</td>
<td>Nil</td>
</tr>
<tr>
<td>Dr. M. Subrahmanyam</td>
<td>M.Sc. (Tech.), Ph.D</td>
<td>Scientist ‘B”</td>
<td>Gravity &amp; Magnetic data Interpretation, Seismology</td>
<td>24</td>
<td>Ph.D:1</td>
</tr>
<tr>
<td>Dr. M. Jyothi Prakash</td>
<td>M.Sc. (Tech.), Ph.D</td>
<td>Assistant Professor (Contract)</td>
<td>Gravity &amp; Magnetic data Interpretation</td>
<td>8</td>
<td>Nil</td>
</tr>
<tr>
<td>Smt. V. Mary Padma</td>
<td>M.Sc, M.Phil</td>
<td>Teaching Associate</td>
<td>Hydrologic Modelling, Water Quality</td>
<td>6</td>
<td>Nil</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

1. Prof. Peter Weidelt, Germany
2. Sri. V. Rangachari, GGM, ONGC, Chennai
3. Sri. Y.M.S. Reddy, ED & Basin Manager, ONGC, Chennai
4. Dr. Ch. Sivaji, DST, New Delhi
5. Dr. V.S. Sarma, N.G.R.I., Hyderabad
6. Dr. D. Gopala Rao, Emeritus Scientist, CSIR, Hyderabad
7. Dr. S.K.G. Krishmacharyulu, SRTM University Nanded.
8. Sri. D.P. Sinha, G.M, Head SPIC, ONGC, Mumbai
9. Sri. Philipp Meier Jurich
10. Dr. T.S. Rama Krishna, Director, Geophysics (Retd.) GSI Hyderabad
11. Dr. S.P. Sharma, IIT Kharagpur
12. Prof. B. Madhusudhana Rao, Dept. Of Geophysics, Osmania University
14. Prof. Manik Talwani
15. Prof. A.D Ahluwalia, Head, Geology, Punjab University
16. Dr. A. Ghosh Bobba, Canada
17. Dr. S.K. Vadwhan, DDG, GSITI, Hyderabad
18. Prof. K.K. Sharma, University of Madras
20. Sri. K. S. Rao, DGM (W), ONGC, Rajahmundry
22. Dr. K.S. Krishna, Scientist, NIO, GOA.
23. Dr. K.A. Kamesh Raju, Scientist, NIO, GOA
24. Dr. M.V. Ramana, Scientist, NIO, GOA
25. Sri. T. Ram Prasad, Scientist, NIO, GOA

13. Percentage of classes taken by temporary faculty – programme-wise information


14. Number of Academic Support Staff (technical) and administrative staff Sanctioned, filled and actual:

06

15. Research thrust areas as recognized by major funding agencies:

1. Structure and tectonics of Eastern Gharts Mobile Belt
2. Crustal Structure over Bastar Basin
3. Ground water exploration and quality in and around Visakhapatnam
4. Salt water intrusion studies along Visakhapatnam and Srikakulam coast
5. Broad band seismic networking
6. Coastal processes
7. Basement and Geohydrological studies in Kolleru Lake Basin

16. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

- Geophysical investigations to understand the nature and extent of Kolleru lake basin, (DST, NRDMS project), PI: Prof. P. Rama Rao, Grants received 16 lakh
- Development of a spatial data information system for water quality evaluation and management in Kolleru lake basin, (DST, NRDMS project), PI: Dr. M. Subrahmanyam, Co. PI: Prof. K.V.V. Satyanarayana, Grants received 25 lakh.
- Geohydrological response of sea water intrusion in coastal aquifers of Visakhapatnam – Kocherla coast, Andhra Pradesh, (DST project), PI: Prof. K.V.V. Satyanarayana, Grants received 45 lakh

17. Inter-institutional collaborative projects and associated grants received  
   a) National collaboration:

   One with IIG of 1 Lakh

18. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

   DST FIST Level: 1, 95 Lakh so far

19. Research facility / centre with State recognition:

   Hydrochemistry lab for water quality analysis

   National recognition:

   Latest state of the art equipment viz. 48 Channel seismograph and Ground penetrating radar acquired under DST FIST

20. Special research laboratories sponsored by / created by industry or corporate bodies

   1. The Indian Institute of Geomagnetism, Mumbai established its Geomagnetic observatory in the AU campus. Through which continuous Geomagnetic data is recorded. The data is accessible to the research user community in the university.

   2. The department houses Centre for Hydrology and Ground Water Management and many of the faculty members are involved in utilizing the facilities available with this centre.

   3. Also, the department utilizes the facilities like ICPMS, wet lab and other infrastructure available with the Centre for Studies on Bay of Bengal

21. Publications:

   - Research papers: 9
   - Edited Books: 2

22. Details of patents and income generated:

   Nil

23. Areas of consultancy and income generated

   Ground Water Exploration, Water quality studies, Basement investigations, Degaussing studies, Income: 2.5 lakh. A free consultation is also offered by the faculty members regarding the water quality studies and the location of Ground water for public.

24. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad:

   - One of the faculty members Prof. P. Rama Rao represented the Indian Delegation Under the ILTP visit to Electromagnetic research centre, Moscow, Russia in July 2007.

   - Majority of the faculty will often visit the National laboratories like National Geophysical Research Institute, National Institute of Oceanography and Indian Institute of geomagnetism and National Remote Sensing Agency either for their research work or attend some other activity organized by these centers
25. Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)

National: 2, International: 1, Editorial boards: 4

26. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):

ASC, Refresher / orientation programs: 3, Workshops: 3

27. Student Projects:
   - Percentage of students who have done in-house projects including inter-departmental projects: 10%
   - Percentage of students doing projects in collaboration with other universities/industry/institute: 90%

28. Awards / Recognitions received at the national and international level by

Faculty: DST’s, Sir Aurthur Cotton Geospatial Chair
Students: The SEG Student Chapter Vice Presidents of the last 4 years getting chance to participate in the Students Leadership Symposium (SLS) organised during SEG Annual convention at Houston, USA. Mr. Satyakumar M.SC (Tech) Geophysics student participated during September 2013 the SLS programme at Houston, USA

29. Seminars/ Conferences/Workshops organized and the source of funding (national/international) with details of outstanding participants, if any.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Seminars</th>
<th>Dates</th>
<th>Source of Funding</th>
<th>Distinguished Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Deep Crustal Studies with Special Reference to Sedimentary Basins</td>
<td>28-02-09</td>
<td>UGC</td>
<td>Prof. Peter Weidelt Germany Dr. V. Vijaya Rao, Scientist, NGRI</td>
</tr>
<tr>
<td>3.</td>
<td>Geosciences &amp; Water Resources for Sustainable Development (GWRSD)</td>
<td>10-11, Feb. 2011</td>
<td>DST, MOES UGC, NGRI IIG, IGU</td>
<td>Dr. V.P. Dmri, NGRI Dr. (Mrs) Mita Rajaram, IIG Dr. B.K. Bansal, MOES Dr. D.R. Prasad Raju, DST</td>
</tr>
</tbody>
</table>

30. Code of ethics for research followed by the departments

The progress of Research Scholars will be assessed for every 3 months by Department Research Committee (DRC) and the suggestions will be given to the candidates before the submission of the thesis. This facilitates transparency in the work to the entire department, avoiding duplication of work by others. The candidate has to present the entire work of thesis for proper recommendations by DRC. In addition the candidate must have one publication in any of the reputed journals before the submission of thesis. The research scholars are encouraged to present their work in international and national seminars/forums for getting good suggestions and to progress in the right direction.
31. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc (Tech)</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>M.Sc Marine</td>
<td>11</td>
<td>06</td>
</tr>
<tr>
<td>M.Sc Hydrology</td>
<td>05</td>
<td>10</td>
</tr>
</tbody>
</table>

32. **Diversity of Students:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc (Tech)</td>
<td>84</td>
<td>16</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc Marine</td>
<td>84</td>
<td>16</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc Hydrology</td>
<td>84</td>
<td>16</td>
<td>Nil</td>
<td>-</td>
</tr>
</tbody>
</table>

33. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise:**

- 20

34. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>5</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>15</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>0.5</td>
</tr>
<tr>
<td>Employed</td>
<td>75</td>
</tr>
<tr>
<td>Campus selection</td>
<td>10</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>5</td>
</tr>
</tbody>
</table>

35. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td>100%</td>
</tr>
<tr>
<td>From other universities within the State</td>
<td>Nil</td>
</tr>
<tr>
<td>From universities from other States</td>
<td>Nil</td>
</tr>
<tr>
<td>From universities outside the country</td>
<td>Nil</td>
</tr>
</tbody>
</table>

36. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

- Nil

37. **Present details of Departmental Infrastructural facilities with regard to**

1. Library : Yes
2. Internet facilities for Staff and Students Library : Yes
3. Total number of class rooms : 05
4. Class rooms with ICT facility : 02
5. Students’ Laboratories : 04
6. Research Laboratories : 01

38. **List of doctoral, post-doctoral students and Research Associates**

   From Host University : 07
   From other University : 08

39. **Number of post graduate students getting financial assistance from the university.**

   One student from M.Sc(Tech) Geophysics who stood first in the previous year will get Rs.5000 per month as scholarship from ONGC academy every year.

40. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology:**

   The department suffering lack of sufficient faculty due to superannuation’s. With this constraint, the department felt that it could not offer 3 courses (item No. 4) from the next academic year. Hence an exercise in the BOS meeting held in August, 2013 was initiated to run a single course in M.Sc(Tech) Geophysics With Exploration Geophysics / Hydrology / Marine Geophysics specializations from the academic year 2014-15.

41. **Does the department obtain feedback from**

   a) **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

      The feedback will be analyzed in the Departmental Staff / DC/DRC and the necessary suggestions will be implemented thereafter in the curriculum development.

   b) **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

      The students feedback on the said items will be dealt separately by each Teacher with each of the students either in class room or in a complete session devoted for this. The curriculum modifications proposed by students will be discussed in the annual BOS meeting periodically

   c) **Alumni and employers on the programmes offered and how does the department utilize the feedback?**

      Any modifications in the course programme offered to suit the industry / employer will be addressed every year in the Annual BOS and necessary modifications are incorporated there in.

42. **List the distinguished alumni of the department (maximum 10)**

   1. Dr. K.S. Krishna, Scientist, NIO, Goa
   2. Dr. T. Harinarayana, Director, GERMI, Ahmadabad
   3. Shri. V. Rangachari, E.D Basin Manager(Retd), ONGC
   4. Prof. M. Radha Krishna, IIT, Mumbai
   5. Prof. R.G.S. Sastri, IIT, Roorkee
   6. Dr. B.K. Bansal, Adviser, MOES, New Delhi
   7. Shri. A.G.B. Reddi, DDG(Retd), GSI
   8. Prof. S.K.G. Krishnamacharyulu, Director, School of Earth Sciences, SRTM University, Nanded
   9. Dr. K.A. Kamesh Raju, Scientist-G, NIO, Goa
   10. Prof. P.Rajendra Prasad (Former Rector)
43. **Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.**

The Department is having two students chapter namely:

1. Society of Petroleum Geophysicists, Students chapter
2. Society of Exploration Geophysicists, Students chapter

Under this various activities like special lectures by experts, students seminars, Quiz/Debate competition and also bringing awareness on Earth Sciences to high school children were undertaken. To name a few:

A. Special Lectures:
   i. What is Gravity anomaly By prof. I.V. Radhakrishna Murthy, on 29-07-2013
   ii. Natural Gas By Shri. N. Bhattacharya, CG(S), ONGC, on 30-07-2013
   iii. Well Logging By Shri. B.A. Rao, CG(W), ONGC, on 05-11-2103
   iv. Fundamentals of Geology By Prof. M.J. Rao, Director, DSI, A.U on 06-11-2013
   v. Quiz competitions to High school children

      **Preliminary Round** - 07-07-2013
      **Final Round**  - 03-08-2013

The students of Geophysics Department very often batch wise make visits to PAPA (Public and Police association for street children) Home and taught voluntarily mathematics, physics, chemistry & computer science subjects to the children besides offering Food, Books, and other needy items by collecting money among the students.

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

   OHP/LCD Projection/Audio /Video programs/field works/projects

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

   The Department Quality circle periodically monitors the objectives and their achievements. For any deficits in the objectives aimed, quality circles will initiate remedial measures to achieve the said goals. Also from time to time the syllabus is upgraded catering the needs of the industry & maintain standards with universities in the country and abroad.

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

   The students are participating in clean and green programme, organizing blood donation camps in & outside the campus. Also students are on voluntary basis taking classes on Earth Sciences at orphan homes

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

   The Department houses
   1. Association of hydrologists of India under which a scientific journal is released quarterly. The Association also undertakes annual conventions with a main concern to Ground Water Hydrology.
   2. Alumni association of Department of Geophysics of Andhra University is functioning periodically and the suggestions of Alumni for the benefit of the Department are brought to the notice of the authorities through Head of the Department of Geophysics for the proper implementation.
48. State whether the programme/department is accredited/graded by other agencies? If yes, give details.

The University as a whole accredited by NAAC and for ISO certification. The Department is a part of it.

49. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

The Department is known for:
- Gravity and Magnetic interpretation and related software development
- Confirming the presence of charnockites as the basement rock in the EGMB comprising coastal districts of Andhra Pradesh
- Water quality studies in and around Visakhapatnam
- Regional Geophysical surveys for structure and tectonics.
- Sedimentary basin exploration.

The idea of introducing Geophysics as a subject of study in Andhra University was conceived during 1946, when the Government of India felt the need for establishing a post graduate course in geophysics in two Indian universities for more advanced exploration methods for earth resources like oil, minerals and water and study of the atmosphere. The Andhra University in the south and Banaras Hindu University in the north were selected for the purpose. The Department of Geophysics was started in 1949 to train students in two branches viz., (1) Meteorology and Oceanography and (2) Physics of Earth. It is not a mere coincidence that the Geological Survey of India had commenced extensive geophysical surveys for oil in the Cambay Basin a couple of years later in 1948. It signifies the vision of successive Vice-Chancellors of this University to initiate new courses to provide trained manpower to cater to the needs of the Nation. Although Benaras Hindu University introduced Geophysics in 1948, it formed only a part of the curriculum. Thus, Andhra University has the credit of starting for the first time in the country a full-fledged M.Sc. course in Geophysics. Consistent with the novel and healthy practices that the University had followed, the Department was initially headed, in succession, for proper orientation and direction by retired Directors of Indian Meteorological Department Dr. N.K. Sur and Dr. S.R. Savur, and later by renowned geologists like Prof. M.S. Krishnan, retired Director of Geological Survey of India and Dr. C. Mahadevan. The erstwhile Department of Geophysics was bifurcated into Department of Geophysics and Department of Meteorology and Oceanography in 1962, and Prof. B.S.R. Rao, who was deputed and trained at the Imperial College, London for the purpose was appointed Head of the Department of Geophysics. During this period, the department has produced more than one thousand five hundred post graduates, serving different international, national and local organizations dealing with cherished ideas of the department, eighty five doctoral degrees and about eight hundred research publications in reputed journals.

The alumni of the department occupy coveted positions in different scientific institutions/professional organizations like NGRI, NIO, NCAOR, NRSC, IIG, GSI, AMD, IMD, SOI, MoES, DST State and Central Groundwater Boards in the country and also playing key roles both in abroad and India in corporate sector engaged in fossil fuel business.

Many of our alumni are rendering their services to International and Indian academic institutions for the betterment of geophysical education and research. Some of the alumni have even established their own companies that are able to provide state of the art services in the almost every facet of geosciences including hydrocarbon, mineral and water resources, geotechnical services etc. Some of the alumni are engaged in policy making in national and international arenas as officers of Ministries of Science & Technology, Earth Sciences, Environment and Forest and also as science counselors in Indian Embassies outside India.
The curriculum of the geophysics course has always been a balanced blend of topics concerning solid earth geophysics and geophysical exploration for locating oil, minerals, water. When a compromise had to be made, the tilt was always towards the latter. When it has been increasingly realized that root cause for the dynamics of the earth’s crust lies within the oceans, the University was prompt in introducing the M.Sc. course in Marine Geophysics in 1976, again for the first time in India.

Hydrology has always been a part of the syllabus of the geophysics course. Frequent failures of monsoon, increased dependence on groundwater for drinking purpose and more so for irrigation, depleting groundwater resources due to over exploitation, increase in the occurrence of extreme events like storms, cyclones, tidal waves etc. warranted the need to initiate academic programmes dealing with exploration, assessment, integration and management of water resources in the country. A PG diploma course in “Hydrology and Ground Water Exploration” started in 1980 as a part-time programmes for Professionals was later restricted into a regular M.Sc. course in Hydrology in 1985 to cater to wider community.

The Department has always been active in research. The department has carried out pioneering research in Gravity and Magnetic fields which made a significant impact on the formulation of efficient interpretation techniques and associated development of algorithms. Further, apart from filed studies, studies on electrical model experiments and interpretation techniques have lead to the identification of wall effects and modified Mooney technique. Studies on seismology had lead to the concept of seismic zonation and delineation of crustal structures. The design and development of Brukshaw and Rao apparatus has laid strong foundations in this country to the fields of palaeo and rock magnetisms. Studies on groundwater geophysics and hydrochemistry have lead to the concept of use of hydrochemistry to alleviate the sub-surface geology and the impact of groundwater fluctuations vis-à-vis the hydro geological conditions on the water quality variations. The initial research in gravity and magnetic fields has won the Van Weelden Prize of European Association of Exploration Geophysicists.

Quite a good number of iterative inversion techniques embedding new algorithms developed at Andhra University have lead to the development of automatic interpretation of potential filed data with minimum personal bias and judgment and maximum optimization. In magnetics, methods of inversion developed that concern with the difficult case of bodies magnetized in an unknown direction, the case most relevant to India, where in the remanent magnetization does not lie parallel to the present day earth’s magnetic field. New concepts like the direction of measurement and the density difference were introduced to benefit generalization of gravity and magnetic inversion schemes.

An exclusive class of inversion scheme viz., the Wenner deconvolution, which neither uses the optimization schemes, nor needs the calculation of the initial values, has been significantly modified and two new methods were suggested which utilize simultaneously the positions of pairs of anomaly points in the construction of linear equations. These methods, have found immense application in the interpretation of self potential anomalies of sheets and magnetic anomalies of horizontal cylinders, resulting in drastic reduction in the mathematical operations with improved reliability of the results.

The Eastern Ghat Mobile Belt (EGMB) with its complex geology and tectonics could be better understood from the results of magnetic studies carried out in Andhra University, confirming the often challenged Charnokite basement. The conspicuous trend of the magnetic anomalies in parts of EGMB could bring out convincing arguments not only in the orogeny of the Eastern Ghats but also established the presence of Charnokite basement together with the Khondalite suit of rocks that extends into the intervening Krishna–Godavari (K-G) basin and the associated sedimentation.

The marine and coastal studies using an integrated approach has led to the reconstruct of the paleostrand line dynamics in western krishna delta leading to the prediction of transgression and regression events and the associated sea level changes along the east coast of India. The
hydrochemical model studies have lead to the identification of sub-surface sedimentary environments and sedimentary facies analysis in the Krishna Godavri deltaic region. The integrated multidisciplinary research work carried out on Kolleru lake and its environs could locate the evolitional history of the lake far beyond the believed Holocene and the lake to be still resilient from ecological perception. The studies in Isostasy indicate that the empirical relations widely used over the years should be replaced. The field investigations on chromite ores helped in evolving better exploration strategies for this important ore in the Indian geological environment. The analysis of marine magnetic anomalies indicate that the Bay of Bengal is characteristically underlain by graben like structures on the Moho, which are in turn filled with volcanic emplacements, 85°E being one such example. The Remote Sensing and aerial photographic studies taken up by the department have provided an easy approach to determine the quality of surface water bodies.

The research carried out in the department has culminated in the publishing more than 600 research articles in journals of national and international repute and over 100 Ph.D degrees. The monograph and the books published in the field of Gravity and Magnetics remain the main sources of reference for the students and researches of Geophysics in India. The software developed for the interpretation of potential fields is widely used. Most of the teachers of the department have been on the expert committees of DST, MoEs, UGC, CSIR, MoEF and many national and international agencies.

The computer software developed for gravity and magnetic interpretation is of immense use for professional geophysicists which are otherwise priced heavily. Another text book on “Crustal structure of Bay of Bengal” show cases the role of the department in Ocean research. Organization of national seminars / workshops and training courses is a regular feature. The expert services of the teachers are sought not only by the University regularly, but also by CSIR, DST, MoEs and UGC. The department with its inherent strengths was able to form and initiate a National Scientific body ‘Association of Hydrologists of India’ to share the scientific and technological Achievements and developments in the field of Hydrological sciences and also had the distinction of bring out a journal ‘Journal of Applied Hydrology’ for the last 35 years. The department also had the distinction of bringing out special volumes of A.P. Akademi of Sciences Journal on specific topics of contemporary relevance. The department is involved in collaborative research with NGRI, NIO, GSI, APSGWD, AMD, ONGC.

50. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Major Strengths:**
1. Premier institution and completed more than 6 Decades of Service in Geophysical Education
2. First to introduce the M.Sc. Marine Geophysics course
3. Major Geophysical Equipment
4. Alumni working in various organisations / Institutions in the country.
5. Located nearer to various Geological Provinces for under taking research in thrust area.

**Major Weaknesses:**
1. Requirement for a Remote sensing Lab
2. Requirement of a Modern simulation lab.

**Opportunities:**
1. Students employment in Oil companies like ONGC, GSI etc.,
2. Abroad Studies
3. UGC SAP
4. DST FIST LEVEL II
Challenges:

1. To improve Faculty strength & to improve students / Teachers ratio
2. To Strengthen Field Training
3. To acquire latest state of the art Geophysical equipment
4. Students employment Betterment
   MOU’s with Oil industries / Research Organizations.

51. Future plans of the department.

1. To increase field training to the students
2. To improve interaction with industry by way of entering MOU
3. To acquire GIS software packages
4. To acquire Geophysical data processing and interpretation software’s
5. To go for UGC-SAP program / Fist LEVEL II
6. To start five year integrated course in Geophysics
7. To acquire a field vehicle for the students field training
GEOGRAPHY

1. Name of the Department : GEOGRAPHY
2. Year of establishment : 1972
3. Is the Department part of a School/Faculty of the university? Yes, Faculty of the University
4. Names of programmes offered:
   M.Sc, M.Phil. and Ph.D.
5. Interdisciplinary programmes and departments involved:
   Nil
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   Nil
7. Details of programmes discontinued, if any, with reasons:
   Nil
8. Examination System:
   Semester end with continual assessment
9. Participation of the department in the courses offered by other departments:
   Nil
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/Others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (Including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>3</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>-</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>1</td>
</tr>
<tr>
<td>Others (Cartographer )</td>
<td>2</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. T.V. Krishna</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Bioclimatology</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>Dr. P. Suneetha</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Urban studies</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Dr. G.V. Narasimha Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Urban Geography</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>Dr. Anuja Tigga</td>
<td>Ph.D.</td>
<td>Asst. Professor</td>
<td>Agriculture Geography</td>
<td>14</td>
<td>1</td>
</tr>
</tbody>
</table>
12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:
   a. Prof S.Sachidevi-UGC Fellow.;
   b. Prof. B.Hema Malini- Emeritus Professor.

13. Percentage of classes taken by temporary faculty – programme-wise information
   M.Sc (Geography)-15%

14. Programme-wise Student Teacher Ratio
   10:1

15. Number of academic support staff (technical) and administrative staff:
   02

16. Research thrust areas
   a. Urban climates & Climate change
   b. Aquaculture & Agriculture distribution and perspectives in Geography
   c. Land use and Land cover
   d. Environmental Issues

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

   Principal Investigator: Prof S.Sachidevi-UGC Fellow., National Funding agency
   UGC for three years 2012-2015. Total Grant Rs.10,41,00,800.00

18. Inter-institutional collaborative projects and associated grants received:
   Nil

19. Departmental projects funded by DST-FIST; UGC –SAP / CAS, CPE; DBT, ICSSR AICTE, etc, total grants received:
   Total grants received: Rs 50,00,000.00

20. Research facility / centre with
   State recognition : Yes
   National recognition : Yes

21. Special research laboratories sponsored by / created by industry or corporate bodies; GIS/RS computer lab is funded / acquired by DST-FIST programme

22. Publications:
   - Number of papers published in peer reviewed journals
     (National / International) : 39
   - Books with ISBN with details of publishers : 01

23. Details of patents:
   Nil
24. **Areas of consultancy:**
   Regional Planning

25. **Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad**

   Nil

26. **Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)**

   Nil

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

   1. National seminar on sustainability of cities: Environmental challenges conducted on 26 September 2011 By Prof TV. Krishna and Prof P. Sunceeta.
   3. International Conference on Climate ; Present concerns on 23 June 2013 Organised by Prof B.Hema Malini

28. **Student projects**

   a. Percentage of students who have done in-house projects including inter-Departmental Projects : Nil
   b. Percentage of students doing projects in collaboration with other universities industry / institute : Nil

29. **Awards / recognitions received at the national and international level by Doctoral / post doctoral fellows :**

   1. Dr.P Swarnalatha-UGC Fellow
   2. Dr.G Tamminaidu- Indian Council of Social Sciences Research Fellow.
   3. Dr. N Appalaraju- Indian Council of Social Sciences Research Fellow.

30. **Seminars/ Conferences/Workshops organized and the source of funding (national / International) with details of outstanding participants, if any.**

   3. International Conference on Climate; Present concerns on 23 June 2013.

31. **Code of ethics for research followed by the departments**

   The Department is strictly adhere to code of ethics for research that was formulated in the university guidelines formed by Board of research studies. The University is very serious about the aspect of mall practices and plagiarism in research. The aspect of plagiarism has been controlled and checked by departmental research committees during the resubmission presentation given by the candidate. The foundations of research values are very strong in the University. However, as a preventive measure the department communicated to all the research students to check before submission about the plagiarism.
32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>86</td>
<td>90</td>
</tr>
</tbody>
</table>

33. **Diversity of Students:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no.4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc</td>
<td>100%</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>PhD</td>
<td>60%</td>
<td>Nil</td>
<td>Nil</td>
<td>40%</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

NET: 01

35. **Student Progression:**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>20</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>20</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>25</td>
</tr>
<tr>
<td>Employed</td>
<td>60</td>
</tr>
<tr>
<td>Campus Selection</td>
<td>30</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>70</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>---</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td>75%</td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>---</td>
</tr>
<tr>
<td>from universities from other States from universities outside the country</td>
<td>25%</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

Nil

38. **Present details of departmental infrastructural facilities with regard to**

a) Library : Yes
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 2
d) Class rooms with ICT facility : 1
e) Students laboratories : 2
f) Research laboratories : 1
39. **List of doctoral, post-doctoral students and Research Associates**

a) from the host institution/university : 03  
b) from other institutions/universities : Nil

40. **Number of post graduate and research students getting financial assistance**

Research Scholars – 6

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology**

The University has a well organised system of curriculum design and development. Each Department has a Board of Studies at UG & PG levels consisting of experts from the faculty of the Department and from other Universities, representatives from industry and student representatives. Concerned subjects in different departments are grouped as one faculty and a senior teacher is nominated as the Chairperson. The Boards of Studies scrutinize two issues i.e., need assessment and feedback from the stakeholders before designing and developing the curriculum.

The need assessment is made basing on market surveys, public opinion, experts views, industry requirements, MoU entered with other institutions/organisations, state policies, guidelines framed by UGC and other national apex bodies and regional requirements. The feedback is obtained formally and informally from faculty, students, alumni, employers and academic experts periodically following systematic procedures.

The draft curriculum will be discussed at length in periodic meetings of respective Boards of Studies and the final draft will be placed before the Academic Senate for approval. The Academic Senate is the final authority to approve the new programmes, curriculum, modifications in curriculum, syllabus, regulations, etc. in the existing programmes.

42. **Does the department obtain feedback from**

a) **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

Yes, the department obtains feedback from faculty on curriculum, teaching, learning and evaluation. The feedback collected will be analysed and placed before the departmental committee and staff council. The feedback on curriculum will be used in designing / modifying the syllabi. The feedback on teaching learning evaluation will be used to improve the respective processes.

b) **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

Yes, the department collect the feedback from students on staff curriculum on teaching learning and evaluation processes. The data is analyzed and corrective measures are taken accordingly.

c) **Alumni and employers on the programmes offered and how does the department utilize the feedback?**

Yes, the feedback from alumni and employees on programmes offered is collected and such information is used for improvement of quality of the department.
43. **List the distinguished alumni of the department (maximum 10)**
   1. Dr. K.N.Prudviraj (Banaras Hindu University -Vasanasi)
   2. Dr. V.Raghava Swamy (NRSO- Hyderabad)
   3. Dr. S.V.B.Krisahna Bhaghavan (APSRAC Hyderabad)
   4. Dr.P.V.S.P.Prasada Raju (APSRAC Hyderabad)
   5. Dr.T.Ramesh (APSRAC Hyderabad)
   6. Dr.Y.V.N.Krahnamurthy (IIRS Dehradun)
   7. Prof.B.Mahalaskmi (NnagarjunaUniversity)
   8. Prof.M.Sambasivarao (SKDU)
   9. Prof.K.Nageswara Rao (AUEC)

44. **Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.**
   - Special lecture delivered by our senior faculty of other departments in the University.
   - Quiz programmes, Debate and Elocutions computations were conducted.

45. **List the teaching methods adopted by the faculty for different programmes.**
   Multimedia, only the teaching methods adopted by the faculty members include lecture methods, seminars, project work, assignments, field visits, interactive learning and experiential learning.

46. **How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?**
   M.Sc Geography course mainly oriented with Geographical Information System (GIS) Remote Sensing. This subject boosts the employment potentiality in research Organisations like NRSO, APSRAC, Municipal corporations and like departments in central and state governments.
   **Monitoring Process:** Each and every programme is monitored throughout the period to ensure conformity with what has been set as course objectives and leaning outcomes. The methods adopted for the purpose includes continuous assessment, observations, semester end tests and results, participations in competitions, contributions of new thoughts and ideas, and innovativeness and leadership.

47. **Highlight the participation of students and faculty in extension activities.**
   The students and faculty have attended the following community development programmes Organized by Andhra University:
   1. Mass tree plantation programme
   2. Blood donation programme
   3. Health for all Run
   4. World Earth Day celebrations

48. **Give details of “beyond syllabus scholarly activities” of the department**
   - Counselling moral ethics, advise for competitive examinations.
   - Organizing student seminars, technical quiz, group discussion, event exhibition, state of art technology awareness programme, arranging expert lectures from industry & research institutions, encouraging students to competitions and paper presentation in the conferences.

49. **State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.**
   NAAC
50. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

The Department of Geography since its inception from 1972 is significantly contributing for the advancement of knowledge in Geography. During the last five years it has been working in tune with the contemporary problems in Geography. It also involved in Bioclimatology, Urban Studies, Urban Geography Agricultural Geography and Regional Planning. It has involved in Urban Development and Rural Planning of India.

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths:**
1. Image of the university
2. Highly experienced faculty
3. High ranking students (Preferred university for students)

**Weakness:**
1. Unable to find 100% placement in Campus Placement

**Opportunities:**
1. Development of networking with more number of industries and research based social organizations.
2. Application of enhanced ICT
3. Providing international exposure to the students by way of MoU’s with foreign organization

**Challenges:**
1. Catching with changes at the global level in respect of curriculum and teaching environments
2. Building the network of alumni
3. Developing students with employability skills

52. **Future plans of the department.**

The following are the some of the future plans of the department:

- Starting a PG Diploma in Regional Planning and Urban Development in collaboration with VUDA from the Academic Year 2016-17.
- Develop Advanced Geography laboratory by getting funds from UGC under non SAP Programme.
- Conduct Two workshops on Recent Advances in Urban Geography New Paradigms of Regional imbalance and city size Distribution
Andhra University, Visakhapatnam

**BIO-CHEMISTRY**

2. Name of the Department: BIO-CHEMISTRY

3. Year of establishment: 1971

4. Is the Department part of a School/Faculty of the university? Yes, Faculty of Science

5. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)

   PG, M.Phil., Ph.D.

6. Interdisciplinary programmes and departments involved:

   Microbiology, Biotechnology, Pharmacy and Botany

7. Courses in collaboration with other universities, industries, foreign institutions, etc

   Not applicable

8. Details of programmes discontinued, if any, with reasons:

   Not Applicable

9. Examination System: Annual/Semester/Trimester/Choice Based Credit System:

   Semester end with continual assessment

10. Participation of the department in the courses offered by other departments

    Yes

11. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others):

    |                | Actual (including CAS & MPS) |
    |----------------|-------------------------------|
    | Professor      | 2                             |
    | Associate Professors | -                           |
    | Asst. Professors | 3                             |
    | Others         | One Guest faculty             |

12. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Ph.D./ M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. K.P.J. Hemalatha</td>
<td>M.Sc., Ph.D</td>
<td>Professor</td>
<td>Plant Biochemistry, Enzymology, Microbial technology</td>
<td>Ph.D: 02 M.Phil: 04</td>
</tr>
</tbody>
</table>
13. **List of senior Visiting Fellows, adjunct faculty, emeritus professors**
   - Prof. G Seshgiri Rao (Emeritus Professor)
   - Prof. D Siva Prasad (adjunct faculty)

14. **Percentage of classes taken by temporary faculty – programme-wise information**
    
15. **Programme-wise Student Teacher Ratio**
    10:1

16. **Number of academic support staff (technical) and administrative staff**
    10

17. **Research thrust areas as recognized by major funding agencies**
    - Bioactive compounds from natural sources
    - Marine microorganisms as a source of bioactive compounds
    - Micro propagation
    - Animal cell culture to test the efficacy of Bioactive compounds
    - Anti-inflammatory compounds
    - Anti-arthritic compounds

18. **Number of faculty with on-going projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.**

<table>
<thead>
<tr>
<th>Name of the faculty</th>
<th>Funding agency</th>
<th>National/International</th>
<th>Grants received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. K.P.J. Hemalatha</td>
<td>UGC-MRP, Delhi</td>
<td>National</td>
<td>10,06,800</td>
</tr>
<tr>
<td>Prof. K.P.J. Hemalatha</td>
<td>DST-PURSE</td>
<td>National</td>
<td>3,70,000</td>
</tr>
<tr>
<td>Prof. T. Raghava Rao</td>
<td>UGC-MRP, Delhi</td>
<td>National</td>
<td>11,20,000</td>
</tr>
<tr>
<td>Prof. T. Raghava Rao</td>
<td>DST, Delhi</td>
<td>National</td>
<td>32,00,000</td>
</tr>
<tr>
<td>Dr. P. Radhika</td>
<td>DST (W), Delhi</td>
<td>National</td>
<td>10,50,000</td>
</tr>
<tr>
<td>Dr. P. Radhika</td>
<td>UGC-MRP, Delhi</td>
<td>National</td>
<td>10,50,000</td>
</tr>
<tr>
<td>Dr. P. Subhashini Devi</td>
<td>UGC-Minor, Delhi</td>
<td>National</td>
<td>1,19,000</td>
</tr>
<tr>
<td>Dr. P. Aparanji, Assistant Professor (Contract)</td>
<td>DST-PURSE</td>
<td>National</td>
<td>70,000</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Dr. P. Aparanji, Assistant Professor (Contract)</td>
<td>DST(w)</td>
<td>National</td>
<td>10,000</td>
</tr>
<tr>
<td>Dr. P. Aparanji, Assistant Professor (Contract)</td>
<td>DST</td>
<td>National</td>
<td>12,000</td>
</tr>
</tbody>
</table>

19. Inter-institutional collaborative projects and associated grants received

Nil

20. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

DST-FIST, UGC-Non SAP, UGC-SAP, DBT

21. Research facility / centre with

State Recognition : Yes
National Recognition : Yes

22. Special research laboratories sponsored by / created by industry or corporate bodies

Nil

23. Publications:

1. Number of papers published in peer reviewed journals (national/international) : 102
2. Chapters in Books : 5
3. Edited Books : 2

24. Details of patents and income generated : Nil

25. Areas of consultancy and income generated : Nil

26. Faculty selected nationally / internationally to visit other laboratories institutions industries in India and abroad : 01

27. Faculty serving in

a) National committees : --
b) International committees : --
c) Editorial Boards d) any other (please specify): 02

28. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):

04

29. Student projects

a) Percentage of students who have done in-house projects including inter-departmental projects : 40%
b) Percentage of students doing projects in collaboration with other universities Industry / institute : 60%

Andhra University, Visakhapatnam
30. Awards / recognitions received at the national and international level by : Nil

31. Seminars/ Conferences/Workshops organized and the source of funding (National/International) with details of outstanding participants, if any. (Last 5 years)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Title of the programme</th>
<th>Period</th>
<th>Sponsors</th>
<th>National/International</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Biological and alternative energies –Present and future</td>
<td>30th-31st August, 2009</td>
<td>UGC, DST, APCOST</td>
<td>National</td>
</tr>
<tr>
<td>4.</td>
<td>A Colloquium on protease inhibitors: Noble role in Physiology and Medicine</td>
<td>October, 2010</td>
<td>Andhra University</td>
<td>National</td>
</tr>
<tr>
<td>5.</td>
<td>National Conference on Cellular and Molecular Immunology</td>
<td>September 2010</td>
<td>DST,DBT, CSIR,APSCHE,APCOST</td>
<td>National</td>
</tr>
<tr>
<td>7.</td>
<td>National seminar on Potentials of bioactive compounds</td>
<td>25th to 26 March 2013</td>
<td>UGC</td>
<td>National</td>
</tr>
<tr>
<td>8.</td>
<td>CME and National seminar on Immune interface with parasites</td>
<td>7th to 8th December 2013</td>
<td>DST,DBT, CSIR,APSC HE,APCOST</td>
<td>National</td>
</tr>
</tbody>
</table>

32. Code of ethics for research followed by the departments:

The general code of ethics as stipulated by University will be followed for checking plagiarism. Review of the research work done by students is done on regular basis and pre talk will be conducted before submission and proper suggestions will be incorporated in the thesis. At the time of viva voce examination again verification the thesis will be done for incorporation of corrections and suggestions as per examiner. All the experiments related to animals are being conducted as per the different guidelines and proper ethical committee clearance will be obtained before experimentation.

33. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Applications received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>MSc</td>
<td>56</td>
<td>12</td>
<td>45</td>
</tr>
<tr>
<td>Non-Core</td>
<td>29</td>
<td>10</td>
<td>19</td>
</tr>
</tbody>
</table>

34. Diversity of Students

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc</td>
<td>80%</td>
<td>20%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
35. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise

11

36. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>20%</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>20%</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctorial</td>
<td>10%</td>
</tr>
<tr>
<td>Employed</td>
<td>55%</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>5%</td>
</tr>
</tbody>
</table>

37. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States from</td>
</tr>
<tr>
<td>universities outside the country</td>
</tr>
</tbody>
</table>

38. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period

01

39. Present details of departmental infrastructural facilities with regard to

a) Library : Yes
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 02
d) Class rooms with ICT facility : 01
e) Students’ laboratories : 02
f) Research laboratories : 07

40. List of doctoral, post-doctoral students and Research Associates

a) from the host institution/university : 10
b) from other institutions/universities : 02

41. Number of post graduate students getting financial assistance

Nil

42. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

Before undertaking the revision of syllabus, a need based study will be conducted by interacting with the existing students, alumni and industries. The opinion of the senior faculty of other universities is also obtained. The faculty will discuss the suggestions and accordingly the syllabus will be drafted. The board of studies will discuss the syllabus once again which consists of student member, industries nominee, and recommend the same for approval to Academic Senate.
43. Does the department obtain feedback from
   a) Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

   Yes. The feedback obtained will be discussed in the regular meetings and corrective measures will be undertaken for improving the quality of teaching.

   b) Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

   Yes. At the end of each semester the feedback is collected and evaluated. The grading will be arrived at by IQAC and the teachers are advised accordingly for improvement required if any.

   c) Alumni and employers on the programmes offered and how does the department utilize the feedback?

   Yes. Alumni of our department regularly visit the department and the feedback given by them will be utilized for improving the quality of the performance of the department.

44. List the distinguished alumni of the department (maximum 10)
   a) Prof. Rama Rao Athota Former Vice-Chancellor, SK University, Anantpur
   b) Suverna Rani IAS
   c) GVSS Prasad IFS
   d) Avaraju IFS
   e) Kamal Kumar IPS
   f) Uday Bhaskar IFS
   g) Sachidanada Murthy IFS
   h) Prof. Karuna Kumar, Mysore University, Mysore
   i) Prof. Parthasarthy SV University, Tirupathi
   j) Prof. A Siva Prasad, Leeds University, Leeds, UK
   k) Prof. B Moorthy, Beyloore college of Medicine, Huston, USA

45. Give details of student enrichment programmes (special lectures / workshops/ seminar) involving external experts.
   a) Expert lectures under SAP Programme, Workshops, Weekly seminars, Exhibitions, Project work

46. List the teaching methods adopted by the faculty for different programmes.
   a) Class room teaching using OHP, LCD
   b) Demonstrations
   c) Group discussions
   d) Quiz programmes

47. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?
   a) Through student feedback
   b) Evaluating the percentage of Pass
   c) Selection in national tests like CSIR, GATE, NET ICMR fellowships

48. Highlight the participation of students and faculty in extension activities.
   Student seminars
49. **Give details of “beyond syllabus scholarly activities” of the department.**
   
a) Sending students to other universities/ National labs for Project work  
b) Conducting the competetions among students on aspects like paper reading, seminar presentations etc.   
c) Expert lectures are being conducted by distinguished visitors and alumni of the department during their visits.

50. **State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.**

   Indian Immunology society (IIS) selected the Department as a nodal centre for organizing CME (continued Medical Education Programme) program

51. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

   Modernization of existing labs, Bioinformatics labs with internet connection and software, Procuring latest equipment, Furnishing the seminar hall/class room with latest public audio, visual aids including LCD, Strengthening the existing Departmental library with latest text books, reference books and journals.

52. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

   **Strengths of the department:**
   - University Grants Commission, New Delhi sanctioned Rs.20 lakhs under Non-SAP Grants, considering the achievements and accomplishments of the departments.
   - UGC-SAP sanctioned 36 lakhs
   - Department is recognized by DST- FIST progamee by sanctioning -50.00 lakhs
   - A good number of research scholars are working in various fields of Biochemistry
   - Well quipped labs
   - Collaborative research with Andhra Medical College, Visakhapatnam, Food Allergy Oxidative stress in Vitiligo patients, Inter-disciplinary research work with Siddhartha Medical College, Vijayawada, Urolithiasis Research activity in association with Regional Public health laboratory, Visakhapatnam Water & food analysis

   **Weakness:**
   1. Securing the placements for the students through campus.

   **Opportunities:**
   Improving the consultancy services as there is vast potential for growth of hospitals and pharmaceutical industries around Visakhapatnam.

   **Challenges:** Building the network of the alumni for improving the facilities of the department.
   Improve in the empolyment potential of the students by making them more competetive.

53. **Future plans of the department.**

   1. To Enhances the scientific temperament and motivation  
   2. To Improves career betterment opportunities for students  
   3. To Facilitates better Inter-disciplinary research work  
   4. To Hands on experience suitable for scientific research positions  
   5. To Betters interaction with industry and society
BIO-TECHNOLOGY

1. Name of the Department: BIOTECHNOLOGY

2. Year of establishment: 1996

3. Is the Department part of a School/Faculty of the university?
Yes, Faculty of Science

4. Names of programmes offered
M.Sc Biotechnology & Ph.D Biotechnology

5. Interdisciplinary programmes and Departments involved
Nil

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
Nil

7. Details of programmes discontinued, if any, with reasons
Nil

8. Examination System
Semester end with continual assessment

9. Participation of the department in the Courses offered by other departments
Department of Marine Living Resource Academic Staff College

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th>Post</th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>01</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>---</td>
</tr>
<tr>
<td>Asst. Professor</td>
<td>01</td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
<tr>
<td>Teaching Associate (C)</td>
<td>01</td>
</tr>
<tr>
<td>Guest Faculty</td>
<td>04</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of years of experience</th>
<th>No. of Ph.D/M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. M.S. Chakravarty</td>
<td>M.Sc; Ph.D</td>
<td>Professor &amp; Head</td>
<td>Marine Biotechnology Marine Biology Aquaculture &amp; Fisheries</td>
<td>30</td>
<td>Ph.D: 4 Registered:2 M.Phil: 3</td>
</tr>
<tr>
<td>Dr. P. Sudhakara Rao</td>
<td>M.Sc; Ph.D</td>
<td>Assistant Professor (contract)</td>
<td>Plant Tissue Culture</td>
<td>8</td>
<td>–</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------</td>
<td>-------------------------------</td>
<td>----------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Mrs. P. Bindiya</td>
<td>M.Sc; M.Phil (Ph.D)</td>
<td>Teaching Associate (contract)</td>
<td>Microbial technology</td>
<td>9</td>
<td>–</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:
   Nil

13. Percentage of classes taken by temporary faculty programme-wise information:
   66.6%

14. Programme-wise Student Teacher Ratio:
   20:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:
   8

16. Research thrust areas as recognized by major funding agencies:
   - Environmental Biotechnology
   - Plant Biotechnology
   - Animal Technology
   - Microbial technology
   - Marine Biotechnology

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise:
   Nil

18. Inter-institutional collaborative projects and associated grants received
   a) National collaboration b) International collaboration: Nil

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:
   Nil

20. Research facility / centre with:
   Nil

21. Special research laboratories sponsored by created by industry or corporate bodies:
   Nil

22. Publications:
   Number of papers published in peer reviewed journals
   (national/international): 37
   Citation Index – range / average: SJR
   Impact Factor – range: 0.1 to 6.5
23. Details of patents and income generated:
Nil

24. Areas of consultancy:
Free consultancy on Environment

25. Faculty selected nationally / mental Monitoring to East Coast internationally to visit other laboratories Energy Pvt.Ltd. for Thermal Power Plant / institutions /industries in India and abroad:
Nil

26. Faculty serving in National committees b) International committees c) Editorial Boards d) any other (please specify)
Prof. M.S.Chakravarty : 11, Dr. P. Sudhakara Rao : 3

27. Faculty recharging strategies (UGC, ASC, Refresher orientation programs, workshops, training programs and similar programs):
Nil

28. Student projects
Percentage of students who have done in-house projects including inter-departmental projects : 3.3%
Percentage of students doing projects in collaboration with other universities industry / institute : 97.7%

29. Awards / recognitions received at the national and international level by Faculty:
Prof. M.S.Chakravarty received Distinguished Scientist award by Asian Marine Conservation Association, Kolkata.

30. Seminars/Conferences/Workshops organized and the source of funding (national international) with details of outstanding participants, if any:
Nil

31. Code of ethics for research followed by the departments:
The university code of research is strictly followed for good laboratory practices Under Good Laboratory Practices, the contaminating experimental waste is either burnt or buried. Proper protective gears are used in the laboratories while conducting the experiments.
The checking of plagiarism in the publications is followed stringently. The research students are advised to check before submission for any plagiarism.

32. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Applications Received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Biotechnology</td>
<td>1500 ( Approx)</td>
<td>4</td>
<td>21</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
33. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Biotechnology</td>
<td>90%</td>
<td>10%</td>
<td>Nil</td>
<td>-</td>
</tr>
</tbody>
</table>

34. How many students have cleared Civil Services and Defense Services examinations, SET, GATE and other competitive examinations? Give details category-wise.

Nil

35. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>Nil</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>10% (approximately)</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>Nil</td>
</tr>
<tr>
<td>Employed</td>
<td>Nil</td>
</tr>
<tr>
<td>Campus selection</td>
<td>Nil</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>Nil</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>--</td>
</tr>
</tbody>
</table>

36. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States</td>
</tr>
<tr>
<td>universities outside the country</td>
</tr>
</tbody>
</table>

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:

Nil

38. Present details of departmental infrastructural facilities with regard to

a) Library books : 5000
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 4
g) Class rooms with ICT facility : 2
h) Students’ laboratories : 2
i) Research laboratories : 1

39. List of doctoral, post-doctoral students and Research Associates:

a) from the host institution/university:
   Doctoral (Full Time) : 03
   CSIR, NET and JRF : 04
b) from other institutions/universities : 01
41. **Number of post graduate students getting financial assistance from the university:**

<table>
<thead>
<tr>
<th></th>
<th>SC</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

42. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology:**

Initially the department was started based on the need based study taking into account about the demand for M.Sc. (Biotechnology) in the different Pharmaceutical and Biotechnological industries. The Board of studies scrutinises the issues from the stakeholders before designing and developing the curriculum. The syllabus is regularly modified on the need based studies conducted with interaction of industries and the drafted curriculum is approved by the Academic Senate. The alumni feed back is also taken into account along with the feedback obtained from the faculty, students, employers and academic experts.

43. **Does the department obtain feedback from**

   a. **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

   Yes. The feedback is obtained and analysed thoroughly for improving the respective processes. It is used for the upgradation of the teaching-learning process.

   b. **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

   Yes. The feedback is collected from the students. The obtained feedback is used to strengthen the teaching skills

   c. **Alumni and employers on the programmes offered and how does the department utilize the feedback?**

   Yes. It is used to update the curriculum with recent developments in the field. Thus the quality of the department is improved.

44. **List the distinguished alumni of the department (maximum 10)**

| Dr. B. Sasi Sekhar, Staff Scientist at National Institutes of Health Washington D.C. USA. |
| Dr. Chelikani Prasen Kumar  
Associate Professor  
Dept. of Oral Biology D033 Dental Building  
780 Bannatyne AvenueWinnipeg, MB  
Canada, R3E 0W2  
Tel: 204.789.3705; Fax: 204.789.3913 |
| Dr. M.S.N. Patrudu, Biology Scientist Team Leader at RxBio.Inc CANADA |
| Dr. Bapi Raju Kurada  
Research Scientist  
College of Medicine  
University of Illinois at Chicago  
Chicago, Illinois  
USA-Mobile: 001-312 731 7647 |
| Dr. Galam Lakshmi,  
Faculty Joy McCann Culverhouse Airway Disease Center.Division of Allergy and Clinical Immunolog. |
| Dr. Sujatha BoddetiAssociate Professor.  
Department of BiotechnologyBR. Ambedkar University |
Department of Internal Medicine  
V.A. Medical Center13000 Bruce B. Downs Blvd (111D) Tampa, FL 33612Phone: 813-974- 5502 US  

Andhra University, Visakhapatnam  
Department of Internal Medicine  
V.A. Medical Center13000 Bruce B. Downs Blvd (111D) Tampa, FL 33612Phone: 813-974- 5502 US  

Dr. Srinivas Parimi Assistant Registrar  
ASPIN MEDICAL COLLEGE  
Adelaide Area, ADELAIDE Australia  

Dr. DEEPTI KANUPARTHI  
SIENTIST BOSTON UNIVERSITY.  
BOSTAN. deptifgora@yahoo.com USA  

Dr. Lokeswari Nallabilli  
Assistant Professor  
Department of Biotechnology  
BR. Ambedkar University,Srikakulam. A.P.  

Dr. DEEPTI KANUPARTHI  
SIENTIST BOSTON UNIVERSITY.  
BOSTAN. deptifgora@yahoo.com USA  

Dr. DEEPTI KANUPARTHI  
SIENTIST BOSTON UNIVERSITY.  
BOSTAN. deptifgora@yahoo.com USA  

51. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.  

The students are oriented to new knowledge by exposing them to advanced expertise and equipment available in the Department and at other related institutes.
52. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths:**
1) Dedicated staff
2) Good infrastructure
3) Popularity of the course (preferred course by rankers)
4) Good reputation of the department
5) Good name of the university

**Weaknesses:**
Reduced opportunities in recent years for students through campus placements

**Opportunities:**
1) The course has demand and there is scope for providing international exposure to the students by way of MoU’s with foreign organisations.
2) Development of networking with more industries and organisations.
3) Job opportunities are more
4) Consultancy services can be provided.

**Challenges:**
1) To improve students for national merit exams
2) Building a network of alumni
3) To improve the course demand
4) To improve the industry orientation and involvement
5) Promote international standard research

53. **Future plans of the department.**

**Curriculum related future plans**
1) To obtain research grants
2) To propose a National Seminar with collaboration of DST
3) To propose a Workshop on techniques of Biotechnology to college teachers who are involved in teaching Biotechnology
MICROBIOLOGY

1. Name of the Department : MICROBIOLOGY

2. Year of establishment : 1999

3. Is the Department part of a School/Faculty of the university?
Yes, Faculty of Science

4. Names of programmes offered :
M.Sc. (Microbiology), M.Phil. and Ph.D.

5. Interdisciplinary programmes and departments involved:
Nil

6. Courses in collaboration with other universities, industries, foreign institutions, etc. :
Nil

7. Details of programmes discontinued, if any, with reasons:
Nil

8. Examination System :
Semester end with continual assessment

9. Participation of the department in the courses offered by other departments:
NA

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>1</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr.K.P.J. Hemalatha</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Fermentation technology, Environmental Microbiology, Biodegradation</td>
<td>28 Years</td>
<td>Ph.D. 1 (awarded Ph.D.2(submitted))</td>
</tr>
<tr>
<td>Dr.P.Lakshmi,</td>
<td>M.Sc., Ph.D.</td>
<td>Asst. Professor (Contract)</td>
<td>Phytochemistry, Molecular Biology</td>
<td>5 Years</td>
<td></td>
</tr>
</tbody>
</table>
12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:
   Prof. B.V. Sandeep, Prof. R. Muralikrishna.

13. Percentage of classes taken by temporary faculty – programme-wise information:
   60%

14. Programme-wise Student Teacher Ratio:
   M.Sc., 35:1

15. Number of academic support staff (technical) and administrative staff:
   5

16. Research thrust areas as recognized by major funding agencies:
   1. Fermentation technology
   2. Microbial Enzymology
   3. Environmental Microbiology
   4. Biodegradation

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Number of the faculty</th>
<th>Name of the Project (Ongoing Projects)</th>
<th>Duration</th>
<th>Funding Agency</th>
<th>Amount Sanctioned (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. K.P.J. Hemalatha</td>
<td>Studies on alkaline protease from the Bacillus species</td>
<td>3 years</td>
<td>UGC-MRP, New Delhi</td>
<td>10,06,800</td>
</tr>
<tr>
<td>K. Ambicadevi (DST - Women Scientist ‘A’)</td>
<td>Isolation &amp; Characterization of Sphigomonas from Marine samples to degrade polythene bags</td>
<td>3 years</td>
<td>DST – Women Scientist ‘A’</td>
<td>21,00,000</td>
</tr>
<tr>
<td>Dr. K. Sunanda Kumari (DST – Young Scientist)</td>
<td>Investigation on the diversity chemical characterization and biological evaluation of culturable actinomycetes associated with marine sponges</td>
<td>3 years</td>
<td>DST – Young Scientist</td>
<td>25,00,000</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received
   a) National collaboration – NIO-JRF

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:
   Nil

20. Research facility / centre with:
   National recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies
   Nil

22. Publications:
   - Number of papers published in peer reviewed journals : 51
   - Papers published in last five years : 42
   - Edited Books : 02
23. **Details of patents and income generated:**

Nil

24. **Areas of consultancy and income generated:**

Nil

25. **Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad:**

Nil

26. **Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify):**

Nil

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the programme Attended by Dr. P. Lakshmi</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>UGC-Academic Staff College will organize a Short Term Course “Computer Applications for Teachers and Research Scholars”</td>
<td>17th – 22nd March, 2014</td>
</tr>
<tr>
<td>2.</td>
<td>“Radiochemistry and Applications of Radioisotopes” Conducted Jointly by Physical &amp; Nuclear Chemistry and Chemical Oceanography, Andhra University Dept. of Biochemistry, Andhra University</td>
<td>6th – 11th Jan, 2014</td>
</tr>
<tr>
<td>4.</td>
<td>“Mushroom Cultivation” training programme organized by the Dept. of Horticulture, Govt. of Andhra Pradesh, Visakhapatnam</td>
<td>4th March, 2009</td>
</tr>
<tr>
<td>5.</td>
<td>“Mathematical Algorithms and Statistical analyses” organized by College of Science and Technology, Andhra University, Visakhapatnam.</td>
<td>7-11th Apr, 2009</td>
</tr>
<tr>
<td>6.</td>
<td>Training programme in DNA Fingerprinting, by Helini Biomolecules, Hyderabad.</td>
<td>18th March, 2010</td>
</tr>
<tr>
<td>7.</td>
<td>Refresher course on Biotechnology, organized by Agri-biotech foundation (APNLBP), Hyderabad and Dept. of Biotechnology, College of Science and Technology, Andhra University, Visakhapatnam.</td>
<td>1st -21st Feb, 2011</td>
</tr>
<tr>
<td>8.</td>
<td>Attended a refresher course on Plant Biotechnology sponsored by Andhra Pradesh-Netherlands Biotechnology Programme</td>
<td>02-02-2009 To 23-12-2009</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the programme Attended by Dr. K. Sunanda Kumari</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Plant Biotechnology sponsored by Andhra Pradesh-Netherlands Biotechnology Programme</td>
<td>03-04-2005 To 24-12-2005</td>
</tr>
<tr>
<td>2.</td>
<td>Attended a refresher course on Plant Biotechnology sponsored by Andhra Pradesh-Netherlands Biotechnology Programme</td>
<td>02-02-2009 To 23-12-2009</td>
</tr>
</tbody>
</table>

28. **Student projects**

- Percentage of students who have done in-house projects including inter-departmental projects: 30%
- Percentage of students doing projects in collaboration with other universities / industry / institute: 70%
29. **Awards / recognitions received at the national and international level by Faculty**

- Prof. K.P.J. Hemalatha Fellowship award of the Indian Society of Agricultural Biochemists, 2013.
- Dr. P. Lakshmi Sri. V.B.V. Reddy Research medal (Gold medal) College of Science & Technology, Andhra University, Visakhapatnam
- Dr. P. Lakshmi Best Paper presentation, International symposium on current PG Dept. of Biotechnology, Dr. V.S. Krishna Govt. College, Vsp, AP, India approaches in Bioresource management held during 08-09\textsuperscript{th} March, 2010

30. **Seminars/ Conferences/Workshops organized and the source of funding (national/ international) with details of outstanding participants, if any.**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Dates of the event</th>
<th>Name of the Event</th>
<th>Name of the Conveners</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30\textsuperscript{th}-31\textsuperscript{st} May, 2012</td>
<td>National Seminar on ‘Present Perspectives of Bioactive Molecules and Biotechnology’ (Sponsored by DST-PURSE, ICMR, A.P Akademi of Sciences, APCOST)</td>
<td>Prof. K.P.J. Hemalatha</td>
</tr>
<tr>
<td>2.</td>
<td>28, 29, 30 June 2010</td>
<td>National workshop on “New frontiers in microbial biotechnology” (Sponsored by UGC, CSIR)</td>
<td>Prof. G. Subbarangaiah</td>
</tr>
<tr>
<td>3.</td>
<td>18, 19, 20 October 2008</td>
<td>National workshop on recent Developments in Microbiology (Sponsored by UGC, CSIR)</td>
<td>Prof. G. Subbarangaiah</td>
</tr>
</tbody>
</table>

31. **Code of ethics for research followed by the departments:**

The general guidelines formulated by Andhra University are followed for maintaining quality in research. Good laboratory practices are maintained in the department to prevent contamination of cultures etc. during research. Ethical values in research like prevention of plagiarism are followed by continuous monitoring of the research in the department.

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Applications received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc 2012-14</td>
<td>-</td>
<td>20</td>
<td>54</td>
</tr>
</tbody>
</table>

33. **Diversity of Students**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc (2012-14)</td>
<td>85</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D</td>
<td>92</td>
<td>-</td>
<td>8</td>
<td>-</td>
</tr>
</tbody>
</table>

33. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**
34. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to Ph.D.</td>
<td>20</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>-</td>
</tr>
<tr>
<td>Employed</td>
<td>80</td>
</tr>
<tr>
<td>Campus selection</td>
<td>40</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>60</td>
</tr>
</tbody>
</table>

35. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are</th>
</tr>
</thead>
<tbody>
<tr>
<td>graduates of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States</td>
</tr>
<tr>
<td>from universities outside the country</td>
</tr>
</tbody>
</table>

36. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:

Nil

37. Present details of departmental infrastructural facilities with regard to

a) Library : 350
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 2
d) Class rooms with ICT facility : 2
e) Students’ laboratories : 2
f) Research laboratories : 1

38. List of doctoral

- From the host institution/university : 11
- From other institutions/universities : 01

39. Number of post graduate students getting financial assistance:

Nil

40. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

Keeping in view of the development of industries like pharmaceutical, bulk drug, fisheries etc. around Visakhapatnam, Andhra University felt the need for the course like Microbiology and started it. A need based study is conducted and the curriculum was developed. The curriculum is regularly modified to suit the changing needs of the industry.

41. Does the department obtain feedback from

- Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

Yes. Used for necessary modifications of the syllabus.
• Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Yes, the department utilizes the students feedback in improving the curriculum and teaching-learning programme.

• Alumni and employers on the programmes offered and how does the department utilize the feedback?

The department utilizes the feedback in improving the curriculum and research programmes. The constructive feedback from both the sources is used to improve quality of education.

42. List the distinguished alumni of the department (maximum 10)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the alumni</th>
<th>Year of batch</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ch. Chandra Mouli</td>
<td>2010-12</td>
<td>CRPF, New Delhi</td>
</tr>
<tr>
<td>2</td>
<td>Rajesh</td>
<td>2006-08</td>
<td>Scientist – B, Andaman Island</td>
</tr>
<tr>
<td>3</td>
<td>Sai Srinivas</td>
<td>2003-05</td>
<td>Forest officer</td>
</tr>
<tr>
<td>4</td>
<td>Goldy</td>
<td>2003-05</td>
<td>Group-II officer, Nellore, AP</td>
</tr>
<tr>
<td>7</td>
<td>Rambabu</td>
<td>2002-04</td>
<td>Executive Microbiologist in pharma Co., Hyd.</td>
</tr>
<tr>
<td>8</td>
<td>K. Sunanda Kumari</td>
<td>2002-04</td>
<td>DST – Young scientist, Department of Microbiology, AU</td>
</tr>
<tr>
<td>9</td>
<td>K. Jyothi</td>
<td>2000-02</td>
<td>Asst. Professor in Sri Sivani College of Pharmacy, Srikakulam</td>
</tr>
<tr>
<td>10</td>
<td>Ch. Sireesha</td>
<td>2000-02</td>
<td>Lecturer in Dr. LB college, Visakhapatnam</td>
</tr>
<tr>
<td>11</td>
<td>K. Geetha</td>
<td>2000-02</td>
<td>Lecturer in Womens Govt. college, vskp</td>
</tr>
</tbody>
</table>

43. Give details of student enrichment programmes special lectures by the following external experts. Details of workshops / seminars were given already.

<table>
<thead>
<tr>
<th>Period / Date</th>
<th>Name &amp; Institutional affiliation of guests</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-11-2008</td>
<td>Prof. R.R. Venkata Raju, Dean, Academic Affairs, S.K. University.</td>
</tr>
<tr>
<td>23-03-2009</td>
<td>Dr. Gopi Podila., University of Alabam, USA</td>
</tr>
<tr>
<td>23-07-2010</td>
<td>Prof. Gopal Reddy, HOD. Dept. of Microbiology, Osmania University</td>
</tr>
<tr>
<td>30-08-2010</td>
<td>Prof. A. Siva Prasadaraao, Professor of Membrane Biology, University of Leeds, UK.</td>
</tr>
<tr>
<td>16-07-2011</td>
<td>Prof. Roman Reddy Ganta, Professor, Kansas State University, USA.</td>
</tr>
<tr>
<td>30-07-2011</td>
<td>Bhagavatula Moorthy, Professor, Baylor College of Medicine, Texas,</td>
</tr>
<tr>
<td>04-08-2011</td>
<td>Prof. Rama Rao Athota, Dept. of Microbiology, Immunology, &amp; Parasitology, School of Medicine, University of Addis Ababa, Ethiopis.</td>
</tr>
<tr>
<td>22-08-2011</td>
<td>Dr. Salomi Suneetha, Associate Professor College of Horticulture, Dr. YSR Horticultural University</td>
</tr>
<tr>
<td>08-09-2011</td>
<td>Dr. D.N. Rao, Professor, Department of Biochemistry, AIIMS, New Delhi</td>
</tr>
<tr>
<td>30-08-2012</td>
<td>Prof. Rama Rao Athota, former Vice-Chancellor, S.K. University</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
44. List the teaching methods adopted by the faculty for different programmes.
   - LCD presentations, OHP presentations.
   - The faculty also utilises methods which involves experimental as well as interactive teaching.

45. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?
   1. By monitoring the performance of the M.Sc., students in the mid and semester end examinations and conducting tutorial classes for weak students.
   2. By monitoring monthly project reports of the research scholars.
   3. This gives an insight into the manner in which the course conformity is being achieved with respect to the objectives of the course.

46. Highlight the participation of students and faculty in extension activities.
   1. 97% of the M.Sc., first year students enrolled for NSS.
   2. 3% of the M.Sc., first year students enrolled for NCC.
   3. Students are encouraged to participate in weekly departmental seminars, workshops and seminars of the sister departments.
   4. Students are encouraged to participate in sports, quiz and essay competitions conducted by Andhra University and other institutions.

47. Give details of “beyond syllabus scholarly activities” of the department.
   1. Students are advised to participate actively in scientific exhibition conducted by Andhra University.
   2. M.Sc., students participated in women empowerment programme conducted by the department of women studies.
   3. Research scholars participated in training programme of the statistical methods conducted by Statistics Department of Andhra University.

48. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.
   No

49. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.
   1. Providing material for CSIR, UGC, GATE, ICMR–NET examinations.
   2. Inculcating personality development and moral values in students.

50. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:
   a) M.Sc., results 100%
   b) Percentage of students and scholars attendance
   c) Research projects ongoing
d) Students participation in Weekly seminars  
e) Infra structural facilities available  
f) On and off campus placements  

Weaknesses:  
a) No permanent teaching faculty  
b) No permanent Non-teaching faculty  

Opportunities:  
a) Industries  
b) Research laboratories  
c) Quality Control laboratories  
d) Colleges as lecturers  

Challenges:  
a) Catching with changes at the global level in respect of curriculum and teaching environments  
b) Building the network of alumni for the welfare of the department.  

51. Future plans of the department.  
- Pilot scale production of bioactive compounds such as enzymes, antibiotics and vitamins from microorganisms.  

Project related plan  
1. Controlling environmental pollution by enhancing polythene degradation by using microorganisms.  
2. Production of biodegradable polymers.
HUMAN GENETICS

1. Name of the Department : HUMAN GENETICS

2. Year of establishment : 1972

3. Is the Department part of a School/Faculty of the university? :
   Yes, Faculty of Science

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
   M.Sc (Human Genetics), M.Phil. and Ph.D

5. Interdisciplinary programmes and departments involved:
   Nil

6. Courses in collaboration with other universities, industries, foreign institutions, etc. :
   Nil

7. Details of programmes discontinued, if any, with reasons:
   Nil

8. Examination System :
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments :
   Nil

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/Guest faculty)

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof.G.Sudhakar</td>
<td>MSc.M.Ed.Ph.D</td>
<td>Professor</td>
<td>GeneticEngineering and Counselling &amp; Molecular Genetics</td>
<td>20 years</td>
<td>M.Phil - 11 Ph.Ds. - 20</td>
</tr>
<tr>
<td>Dr.V.L.Kalpana</td>
<td>M.Sc.M.Phil., Ph.D</td>
<td>Asst.Prof</td>
<td></td>
<td>07 years</td>
<td>M.Phil - 1 Ph.Ds. - 1</td>
</tr>
<tr>
<td>Dr. V. Lakshmi</td>
<td>M.Sc.M.Phil., Ph.D</td>
<td>Asst.Prof</td>
<td>Human Molecular Genetics</td>
<td>07 years</td>
<td>M.Phil - 1 Ph.Ds. - 1</td>
</tr>
<tr>
<td>Dr.M.Ramesh</td>
<td>M.Sc.,Ph.D</td>
<td>Asst.Prof</td>
<td>Biochemical Genetics and Genetic Toxicology</td>
<td>10 years</td>
<td>-</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance
12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:
   Nil

13. Percentage of classes taken by temporary faculty programme-wise information
   60%

14. Programme-wise Student Teacher Ratio
   1:4

15. Number of academic support staff (technical) and Administrative staff: sanctioned, filled and actual:
   08

16. Research thrust areas
   Human Cytogenetics, Human Molecular Genetics and Genetic Engineering and Public Health

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the Teacher Designation</th>
<th>Major Projects Ongoing</th>
<th>Minor Projects Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prof. G. Sudhakar</td>
<td>Migration, Poverty and access to Health Care: a multi-centric study on people’s access and health system’s responsiveness in fast growing smaller cities: Visakhapatnam, Andhra Pradesh. (Taskforce Project on Health care systems), funded by Indian Council of Medical Research (ICMR), New Delhi. Total cost of the project : 37,12,473/= (Indian Council of Medical Research, New Delhi, India)</td>
<td>Study of Obesity among School children of Visakhapatnam City” Starter Research Grant (UGC Minor Research Grant) funded by the Andhra University, Visakhapatnam. During the year 2005-06. (Rs. 15000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cyto and Molecular Study on Mentally Retarded in North Coastal Andhra Pradesh”. Dr. V. Lakhsmi Kalpana, Asst. Professor as Principal Investigator, Prof. G. Sudhakar, Co-Principal Investigator, Total Cost of the Project: 7,25,000=00) (UCC)</td>
<td>-</td>
</tr>
<tr>
<td>S.No.</td>
<td>Name of the programme</td>
<td>Details</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>4 Weeks Orientation Course Organized by UGC Academic Staff College, A.U</td>
<td>From 15-04-2008 to 12-05-2008</td>
<td></td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received
   a) National collaboration : Nil

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:
    Nil

20. Research facility / centre with
    State recognition : Yes
    National recognition : Yes

21. Special research laboratories sponsored by / created by industry or corporate bodies
    Common Facility developed by the University

22. Publications:
    12

23. Details of patents and income generated:
    Nil

24. Areas of consultancy and income generated:
    Nil

25. Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad:
    01

26. Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)
    Editorial Board: 02

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).
Dr. V. Lakshmi, Asst. Professor

1. UGC-sponsored Orientation Course. UGC Academic Staff College, Visakhapatnam
   Apr. 15th – 12th May, 2008

2. National workshop on “Statistics in Genomics” Indian Statistical Institute, Kolkata
   12th – 14th Jan. 2010

28. Student Projects
   - Percentage of students who have done in-house projects including inter-departmental projects : Nil
   - Percentage of students doing projects in collaboration with other universities / industry / institute : Compulsory Project work in IV Sem, Collaborative with R&D labs

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

   Nil

30. Seminars/ Conferences/Workshops organized and the source of funding (national/international) with details of outstanding participants, if any.

   Nil

31. Code of ethics for research followed by the departments:

   The general code of ethics stipulated by university is followed. Proper ethical clearances are obtained whenever humans and animals are used for carrying out research/surveys

32. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc., Human Genetics</td>
<td>06</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>85</td>
<td>90</td>
</tr>
</tbody>
</table>

33. Diversity of Students:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc., Human Genetics</td>
<td>70</td>
<td>30%</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>M.Phil in Human Genetics</td>
<td>70</td>
<td>30%</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D. in Human Genetics</td>
<td>75</td>
<td>20%</td>
<td>Nil</td>
<td>5%</td>
</tr>
</tbody>
</table>

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise. :

   Nil
35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>10%</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>20%</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>10%</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States</td>
</tr>
<tr>
<td>universities outside the country</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

Nil

38. **Present details of departmental infrastructural facilities with regard to**

1. Library : Yes
2. Internet facilities for staff and students : Yes
3. Total number of class rooms : 04
4. Class rooms with ICT facility : Nil
5. Students’ laboratories : 06
6. Research laboratories : 01

39. **List of doctoral, post-doctoral students and Research Associates**

1. from the host institution/university : 01
2. from other institutions/universities : Nil

40. **Number of post graduate students getting financial assistance:**

Eligible students receive funding from the state government under different welfare schemes in force from time to time.

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

The need assessment in the form of interaction with alumni, employers etc. will be conducted before the revision is undertaken in course structure.

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

Yes--The feedback is utilised in formatting the syllabus and class work.
Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Yes-- The feedback from students on staff curriculum and on teaching learning and evaluation processes is well analysed and used for implementation of beneficial measures.

Alumni and employers on the programmes offered and how does the department utilize the feedback?

Yes—The quality of the department is improved by taking critical comments and suggestions from alumni and employers.

43. List the distinguished alumni of the department (maximum 10)
   1. Dr. Ravindranadh Duggirala, San Antonio, USA
   2. Dr. Vara Prasad Manchem, USA
   3. Dr. R. Rajani Kumari, USA
   4. Dr. Raj Gopal Pandrangi, USA
   5. Dr. P. Balakrishna Murthy, IIBAT, Chennai
   6. Dr. C.R. Srikumari, Institute of Basic Medical Sciences, Taramani, Chennai

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.:

Yes

45. List the teaching methods adopted by the faculty for different programmes.

Seminars, project work, assignments, field visits, interactive learning and experiential learning are used to the extent possible.

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

The students are monitored through different activities like presentations, participation in competitions, contribution of ideas and also through exams held. It is checked whether the learning is in agreement with the objectives of the course.

47. Highlight the participation of students and faculty in extension activities.:

Nil

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

The department organizes student seminars, technical quiz, group discussion, event exhibition and encourages student participation in scientific conferences.

49. State whether the programme/department is accredited/graded by other agencies? If yes, give details.:

Nil

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied:

A genetic counselling is set up to provide the information to the needy.
51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths:**

1. The Teachers in the department are involved in Genetic Counselling services to different Diseases to the public and the cases directed different hospitals.

**Weakness:**

1. Unable to find 100% placement in Campus Placement (for Arts, science and law colleges)

**Opportunities:**

1. Providing international exposure to the students by way of MoU’s with foreign organization.

**Challenges**

1. Catching with changes at the global level in respect of curriculum and teaching environments
2. Building the network of alumni
3. Developing students with employability skills
4. Promoting research at international standards

52. **Future plans of the department.**

To improve the genetics counselling services to the public
INORGANIC AND ANALYTICAL CHEMISTRY

1. Name of the Department : INORGANIC & ANALYTICAL CHEMISTRY

2. Year of establishment : 1983

3. Is the Department part of a School/Faculty of the university? Yes, Faculty of Science

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters Integrated Ph.D., D.Sc., D.Litt., etc.) :

5. Interdisciplinary programmes and departments involved :
M.Phil., Ph.D. and Research Projects
Departments involved – Pharmacy, Botany, Physics, Environmental Sciences, Center for Bay of Bengal, Organic Chemistry

6. Courses in collaboration with other universities, industries, foreign institutions, etc. Nil

7. Details of programmes discontinued, if any, with reasons Nil

8. Examination System: Annual/Semester/Trimester/Choice Based Credit System
Semester end with continual assessment

9. Participation of the department in the courses offered by other departments:
Microbiology (M.Sc. Microbiology), Botany (M.Sc. Forest Management)

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others):

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>3</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>2</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>1</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./ M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Vani</td>
<td>M. Sc., Ph.D.,</td>
<td>Professor</td>
<td>Inorganic Chemistry</td>
<td>28</td>
<td>M.Phil: 7 Ph.D: 6</td>
</tr>
</tbody>
</table>
G. Nageswa Rao
Dr. T. Siva Rao
Mrs. A. Mary Uma Bla
Dr. K. Basavaiah
Dr. B.B.V. Sailaja

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Position</th>
<th>Department</th>
<th>M.Phil</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. Nageswa Rao</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Inorganic Chemistry</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Dr. T. Siva Rao</td>
<td>M.Sc. Ph.D.</td>
<td>Professor</td>
<td>Bio-Inorganic Chemistry</td>
<td>17</td>
<td>05</td>
</tr>
<tr>
<td>Mrs. A. Mary Uma Bla</td>
<td>M.Sc.</td>
<td>Associate Professor</td>
<td>Inorganic Chemistry</td>
<td>28</td>
<td>-</td>
</tr>
<tr>
<td>Dr. K. Basavaiah</td>
<td>M.Sc. Ph.D.</td>
<td>Associate Professor</td>
<td>Chemistry</td>
<td>07</td>
<td>-</td>
</tr>
<tr>
<td>Dr. B.B.V. Sailaja</td>
<td>M.Sc. Ph.D.</td>
<td>Asst. Professor</td>
<td>Bio-Inorganic Chemistry</td>
<td>07</td>
<td>01</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

1. Prof. N. Someswara Rao, (Emeritus Professor) Dept. Of Inorganic & Analytical Chemistry
2. Prof. M.S. Prasada Rao (Adjunct Professor), Dept. Of Inorganic & Analytical Chemistry, A.U.

13. Percentage of classes taken by temporary faculty – programme-wise information

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Branch Name</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Analytical Chemistry</td>
<td>70%</td>
</tr>
<tr>
<td>2.</td>
<td>Bio-Inorganic Chemistry</td>
<td>50%</td>
</tr>
<tr>
<td>3.</td>
<td>Environmental Chemistry</td>
<td>25%</td>
</tr>
<tr>
<td>4.</td>
<td>Inorganic Chemistry</td>
<td>50%</td>
</tr>
</tbody>
</table>

14. Programme-wise Student Teacher Ratio:

- Inorganic Chemistry Final Year : 3:1
- Bioinorganic Chemistry : 3:1
- Analytical Chemistry : 5:1
- Environmental Chemistry : 3:1
- M.Sc Previous : 30:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:

17

16. Research thrust areas

- Mechanistic studies on electron transfer reactions of amino acids.
- Chemical speciation and bioavailability
- Photo catalysis of Nano materials
- Nano hybrid materials
- Environmental chemistry
- Analytical & Environmental chemistry
- Coordination chemistry and chemical speciation
- One dimensional Intrinsic conducting polymers nanostructures
- Semiconductor Nanocrystals
- Metal nanoparticles
- Nanohybrids of conducting polymers / metal nanoparticles
- Nanohybrids of conducting polymers /magnetic nanoparticles for EMI shielding applications
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Name of the Investigator</th>
<th>Title of the project and duration</th>
<th>Amount sanctioned (Rs. in lakhs)</th>
<th>Funding Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.Someswara Rao</td>
<td>Study on the Impact of the Developmental Activities on the Quality of the surface and ground drinking water resources in Konaseema Area of Andhra Pradesh 2005-2008</td>
<td>11.0</td>
<td>Ministry of Environment and Forests, Govt.of India</td>
</tr>
<tr>
<td>N.Someswara Rao</td>
<td>Studies on the Advance Detection of Fires in Coal Mines with special reference to Singareni Collieries Company Ltd.2002-2007</td>
<td>166.8</td>
<td>Ministry of Coal</td>
</tr>
<tr>
<td>N.Someswara Rao</td>
<td>Base line survey on air, water, soil quality, radioactivity and aquatic biota in and around the project site of new BARC campus, Visakhapatnam, Andhra Pradesh 2008-2009</td>
<td>46.75</td>
<td>BARC, India</td>
</tr>
<tr>
<td>N.Someswara Rao</td>
<td>Assessment of the efficiency of the steel mesh (Net) system installed near General Cum Cargo Berth in port to control dust pollution</td>
<td>5.75</td>
<td>Visakhapatnam Port Trust</td>
</tr>
<tr>
<td>N.Someswara Rao</td>
<td>Baseline assessment of trace metal and radioactivity in different environmental matrices and atmospheric PM 2.5 at the new BARC campus, Visakhapatnam, Andhra Pradesh 2010-2011</td>
<td>18.0</td>
<td>BRNS, India</td>
</tr>
<tr>
<td>N.Someswara Rao</td>
<td>Monitoring of Air and Water Quality in and around Visakhapatnam Port Trust area 2010-2013</td>
<td>103.18</td>
<td>Visakhapatnam Port Trust</td>
</tr>
<tr>
<td>N.Someswara Rao</td>
<td>Monitoring of Air Quality in Visakhapatnam area and Monitoring of pesticide residues in East and West Godavari 2010-2011</td>
<td>10.0</td>
<td>A.P. Pollution Control Board (APPCB)</td>
</tr>
<tr>
<td></td>
<td>Monitoring of Flue gas from the Launches, Tugs etc. moving in the Prot area 2007-2011</td>
<td>12.4</td>
<td>Visakhapatnam Port Trust</td>
</tr>
<tr>
<td>Dr. T. Siva Rao</td>
<td>Synthesis and Characterization of nano catalysts for oxidation of hazardous pollutants - 2011-2013</td>
<td>7.19</td>
<td>UGC</td>
</tr>
<tr>
<td>Dr. T. Siva Rao</td>
<td>Synthesis and Characterization of Beryllium doped TiO$_2$/Polythiophen hybrid nano composites for optoelectronic applications 2011-2013</td>
<td>1.9</td>
<td>DST-PURSE Program</td>
</tr>
<tr>
<td>Dr. B.B.V. Sailaja</td>
<td>Some studies on the physico chemical properties of the peptide complexes of Biological Importance 2011-2013</td>
<td>3.7</td>
<td>DST-PURSE Program</td>
</tr>
<tr>
<td>Dr. K. Basavaiah</td>
<td>Mn- doped II-IV semiconductor nanocrystals 2007 under UGC-unassigned grants</td>
<td>0.15</td>
<td>Andhra University</td>
</tr>
<tr>
<td>Dr. K. Basavaiah</td>
<td>A Novel Class of Nanostructured Aerogel : Potential Materials for removal of heavy metals from contaminated water (MOES / 11-mrdf/128/p/08 ) 2009-2011</td>
<td>4.38</td>
<td>Ministry of Earth Sciences, New Delhi (On-going)</td>
</tr>
<tr>
<td>Dr. K. Basavaiah</td>
<td>Design and Synthesis of a novel class of Nano-composites of Conducting Polymer an Semiconductor Nanocrystal for Opto-Electronics applications 2011-2013</td>
<td>8.97</td>
<td>UGC-India, Major research project-(On-going)</td>
</tr>
</tbody>
</table>
Dr. K. Basavaiah  |  Design and development of a novel class of highly conducting and transparent nanostructured polyaniline dispersion: Towards flexible polymer opto-electronics application  |  1.4  |  A.U., Visakhapatnam under DST-PURSE Programme

18. **Inter-institutional collaborative projects and associated grants received:**
a) National collaboration:

Nil

19. **Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:**

DST-FIST: Rs. 75,00,000

20. **Research facility / centre with National recognition:**

COSIST Laboratory-UGC

21. **Special research laboratories sponsored by / created by industry or corporate bodies:**

Nil

22. **Publications:**

1. Monographs : 01
2. Chapters in Books : 03
3. Papers Published : 25

23. **Details of patents**

Nil

24. **Areas of Consultancy:**

Nil

25. **Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad:**

Prof. G. Nageswara Rao visited Laboratories of University of Druban, South Africa 2007-08.

26. **Faculty serving in**

a) **National committees**

   Member, Expert Committee, University Grants Commission, New Delhi

b) **Editorial Boards**

   Prof. G. Nageswara Rao
   Editor, Journal of Modern Medicinal Chemistry
   Editor, World Journal of Analytical Chemistry
   Editor, International Journal of Applied and Natural Sciences

c) **Any other (please specify)**

   Prof. G. Nageswara Rao
   Regional Chairman, Vandemataram Campaign, Nominated by Ministry of Youth Affairs, Government of India
Reviewer to Journals by Prof. G. Nageswara Rao

1. Academia Journal of Agricultural Research (3)
2. Acta Chimica Slovanica (1)
3. African Journal of Biotechnology (1)
4. African Journal of Environmental Science and Technology (1)
5. African Journal of Food Science and Technology (2)
7. American Chemical Society Journal (1)
8. American Journal of Experimental Agriculture (1)
9. American Science Journal (1)
10. Applied Surface Science (2)
12. Chemical Industry and Chemical Engineering Quarterly (1)
13. Chemical Papers (1)
14. Herald Journals of Biochemistry and Bioinformatics (1)
15. Herald Journals of Environmental and Health Sciences (1)
16. Herald Journal of Microbiology and Biotechnology (2)
17. Inderscience (1)
18. Indian Journal of Chemistry (2)
19. International Journal of Biochemistry and Biotechnology (1)
20. International Journal of Chemical and Analytical Science (1)
22. International Research Journal of Pharmacy and Pharmacology (1)
23. Journal of Biophysics (1)
24. Journal of Cell and Animal Biology (1)
25. Journal of Clinical Medicine and Research (2)
26. Journal of Medicine and Medical Sciences (1)
27. Journal of Indian Chemical Society (2)
28. Journal of Research in Environmental Science and Toxicology (1)
29. Journal of Scientific Research and Reports (1)
30. Journal of Saudi Chemical Society (1)
31. Journal of Toxicology and Environmental Health Sciences (1)
32. Nucleosides, Nucleotides and Nucleic Acids (1)
33. Proceedings of National Academy of Sciences (1)
34. Standard Research Journal Of Medicinal Plants (1)
35. South African Journal of Chemistry (2)
36. Spectrochimica Acta (1)
37. Transnational Journal of Agriculture and Soil Sciences (1)
38. Universal Journal of Microbiology and Biochemistry (1)

Dr. T. Siva Rao

1. Peer Reviewer to International Journal of Hazardous Materials
2. Peer Reviewer to International Journal of Materials Research
3. Peer Reviewer to Polish Journal of Chemical Technology
4. Peer Reviewer to Environmental Chemistry Letters

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

Prof. G. Nageswara Rao

- Academic staff orientation course, Andhra University, Visakhapatnam, Jan.22 - Feb.18, 1992
- Academic staff Refresher course, Andhra University, Visakhapatnam, Feb. 25, 1995
- Academic staff Refresher course, Andhra University, Visakhapatnam, February 8 - 28, 2001

Dr. T. Siva Rao
- Academic staff College, Orientation course, Andhra University, Visakhapatnam, March 11th - March 31st, 2001
- Academic staff College, Refresher course, Andhra University, Visakhapatnam, April 16th - 10th May, 2001.
- Academic staff College, Refresher course, Andhra University, Visakhapatnam, July 25th - 14th August, 2007

28. Student projects
   a. Percentage of students who have done in-house projects including inter-departmental projects : Nil
   b. Percentage of students doing projects in collaboration with other universities industry / institute : Nil

29. Awards / recognitions received at the national and international level by Faculty
   Prof. G. Nageswara Rao
   1. Dr Sarvepalli Radhakrishnan Award-Best Academician of the year 2008 by Andhra University
   2. Best Researcher award 2000 by Andhra University

Doctoral / post doctoral fellows
   1. Prof. G. Nageswara Rao - Post-doctoral Research Fellow (1998-99), Univ. of Durban-Westville, Durban, South Africa

30. Seminars/ Conferences/Workshops organized and the source of funding (national / International) with details of outstanding participants, if any.

Dr. T. Siva Rao,
- Convener – Recent Trends and Future Perspectives in Material Science, June, 2013

Prof. G. Nageswara Rao
- Joint Local Secretary, 95th Indian Science Congress, 3-7 January, 2008, Andhra University, Visakhapatnam
- Co-director, National Seminar on Analytical Chemistry – its importance in industry, environment and health, 24-26, September, 2010, Andhra University, Visakhapatnam.
- Joint-Organizing Secretary, National Seminar on Recent Trends and Future Perspectives in Materials Science, 28-29, June, 2013, Andhra University, Visakhapatnam.
- Coordinator, Orientation programme, UGC-Academic Staff College, Andhra University, July 24-August 20, 2013.

31. Code of ethics for research followed by the departments

Yes, the department strictly adheres to code of ethics for research that was formulated by the university. The seriousness of the University about the aspect of mall practices and plagiarism in research is reflected through the control and check done by the departmental research
committees during the presubmission presentation given by the candidate. As a preventive measure the department communicated to all the research students to check before submission about the plagiarism.

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Analytical Chemistry First + Final Year</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>M.Sc. Bio-Inorganic Chemistry</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>M.Sc. Environmental Chemistry</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>M.Sc. Inorganic Chemistry</td>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

33. **Diversity of students**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Analytical Chemistry</td>
<td>78</td>
<td>22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc. Bio-Inorganic Chemistry</td>
<td>85</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc. Environmental Chemistry</td>
<td>83</td>
<td>17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc. Inorganic Chemistry</td>
<td>77</td>
<td>23</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

Civil Services & other competitive examinations: 20

35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>35</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>30</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>70</td>
</tr>
<tr>
<td>Employed</td>
<td>30</td>
</tr>
<tr>
<td>Campus selection</td>
<td>80</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>20</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>5</td>
</tr>
</tbody>
</table>

35. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td>84%</td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>16%</td>
</tr>
</tbody>
</table>
36. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period

Dr. K. Basavaiah, Assistant Professor, Ph.D. awarded 2013.

37. Present details of departmental infrastructural facilities with regard to

a) Library : Yes
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 5
d) Class rooms with ICT facility : Nil
e) Students’ laboratories : 5
f) Research laboratories : 3

38. List of doctoral, post-doctoral students and Research Associates

a) From the host institution/university : Nil
b) Post Doctoral students from university : 01
c) From other institutions/universities last six years : 14

39. Number of post graduate students getting financial assistance:

Eligible students are funded by different welfare programmes in force by the state government

40. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

Initially the feedback obtained from the alumni, employers is considered for commencement of a new programme. Then a series of discussions will be conducted by the faculty and board of studies for preparing the draft which will be again discussed with the employers requesting for their suggestions. It will be finally discussed in the board of studies and approved as per the university procedures.

41. Does the department obtain feedback from

1. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?
   Feedback is collected from the staff which is utilised to improve the course structure from time to time.

2. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?
   The feedback from the students is collected and properly analysed inorder to promote better ways of improving the teaching-learning-evaluation system.

3. Alumni and employers on the programmes offered and how does the department utilize the feedback?
   To Improve the quality of the education provided by the department the feedback from the alumni and employers is utilised.

42. List the distinguished alumni of the department (maximum 10)

1. Sri. J.D. Seelam, M.P
2. Dr. A. Visveswara Rao – IRS
3. Dr. D. Yogeswara Rao Member Scientific Advisory
4. Prof. Peddi Reddi – IIT – Bhubaneswar
5. Prof. P. Nageswara Rao, NIT, Warangal
6. Prof. U. Varada Raju, IIT, Chennai
7. Dr. Y.V. Swamy, Deputy Director, IICT
8. Dr. M. Suresh, Khator
9. Dr. A. I. Robin - USA
10. Prof. Seshu B. Desu – USA
11. Prof. M. Saratchandra Babu, Gitam University

43. Give details of student enrichment programmes (special lectures / workshops/ seminar) involving external experts.


44. List the teaching methods adopted by the faculty for different programmes.

The faculty adopts methods like making Power point presentations, including experimental learning, seminars and interactive discussions for better teaching.

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

Results committee discusses the outcomes of the department regularly and makes arrangement to conduct bridge courses and student counselling for the students who have back logs or any the doubts. In this way the students are regularly monitored through exams as well as through their participation in competitions, discussions, etc. These measures give a scope to judge the extent of objectives being fulfilled in designing this course.

46. Highlight the participation of students and faculty in extension activities.

Faculty and students of the department are participated in the Blood donation camps, and students participated in sports events 80 hours per year.

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

The department organises Student Seminars, Industrial tours for better learning and it also encourages students to participate in symposia and conferences to gain exposure.

48. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

NAAC & ISO certified department

49. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

1. Senior Most professors in the department Prof. P. Vani and Prof. G. Nageswara Rao working on basic research on chemical kinetics and computer modelling studies for chemical speciation.
2. Other Teachers (Dr. T. Siva Rao, Dr. B.B.V. Sailaja and Dr. K. Basavaiah) working on applied research

50. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Major Strengths

- Knowledgeable faculty(One of the Senior Most Prof. N. Someswara Rao selected for UGC-BSR Fellow and Three senior teachers awarded Best Teacher award by AP Govt.)
- Excellent curriculum

Andhra University, Visakhapatnam
- Good Research work
- Quality research
- Good no. of publications

Weaknesses and
- Lack of Infrastructural facilities
- No advanced instrumental techniques for better research
- Lack of teaching staff
- No Funding for Research from the university

Opportunities
- Campus placements are offered in best industries and Educational Institutions
- Good opportunities for students to get selected CSIR, APSET & GATE
- Students can get employment in Govt. Organizations

Challenges
- To create the state of the art analytical laboratories to gear up to the increasing demands in Analytical Chemistry.
- Improving the quality of teaching by strengthening the faculty of the department.
- Strengthening the alumni support

51. Future plans of the department:

Plans related to infrastructure development
- Strengthen the department with Infrastructural facilities and Research facilities

Teaching Learning
- Encourage the teaching faculty to apply for more no. of Research Projects.
- Conducting the seminars frequently for renew the knowledge of Teachers, Scholars and students by interacting withrewound personalities who invited as resource person for seminars.
- Conducting invited lectures by inviting Scientist from premier institutes in India.
- Encourage the Junior faculty members of the department to attend Refresher courses, Summer & Winter schools to be conducted at different parts of India.
ORGANIC CHEMISTRY

1. Name of the Department : ORGANIC CHEMISTRY

2. Year of establishment : 1932

3. Is the Department part of a School/Faculty of the university?
   Yes, Faculty of Science

   M.Sc Organic Chemistry, M.Sc CHEMISTRY and ANALYSIS of FOODS, DRUGS & WATER, M.Phil and Ph.D

5. Interdisciplinary programmes and departments involved:
   Collaborative Research work with companies through EMR students.

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   Ph.D

7. Details of programmes discontinued, if any, with reasons:
   Nil

8. Examination System:
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments
   Members of the department Participate in the courses offered by Engineering Chemistry

10. Number of teaching posts sanctioned, filled and actual (Professors/ Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>-</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>5</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof.B. Venkateswara Rao</td>
<td>M.Sc., Ph.D</td>
<td>Professor</td>
<td>Organic Chemistry</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>Dr. V. Siddaiah</td>
<td>M.Sc., Ph.D</td>
<td>Asst.Professor</td>
<td>Organic</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:

Nil

13. Percentage of classes taken by temporary faculty – programme-wise information:

50 %

14. Programme-wise Student Teacher Ratio:

M.Sc Organic Chemistry: 50:6
M.Sc CHEMISTRY and ANALYSIS of FOODS, DRUGS & WATER: 12:2

15. Number of academic support staff (technical) and administrative staff:

10

16. Research thrust areas:

Natural Products, Synthetic Organic Chemistry

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise :

National

18. Inter-institutional collaborative projects and associated grants received:

Nil

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received. :

UGC-SAP PHASE II

20. Research facility / centre with :

State recognition, National recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies:

Nil

22. Publications:

10

23. Details of patents:

Nil
24. **Areas of consultancy:**
Organic Synthesis

25. **Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad:**
Nil

26. **Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)**
Members in selection committees of other universities

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):**
Nil

28. **Student projects**
   - Percentage of students who have done in-house projects including inter-departmental projects: 10%
   - Percentage of students doing projects in collaboration with other universities / industry / institute: 10%

29. **Awards / recognitions received at the national and international level by:**
Nil

30. **Seminars/Conferences/Workshops organized and the source of funding (national/international) with details of outstanding participants, if any. :**
05

31. **Code of ethics for research followed by the departments:**
The normal code of research as stipulated by university is planned pre-talk and reviewes.

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc Organic Chemistry</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>M.Sc Foods, Drugs &amp; Water</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

33. **Diversity of the students:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Organic Chemistry</td>
<td>70</td>
<td>30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc Foods, Drugs &amp; Water</td>
<td>80</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

04

35. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>20</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>40</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>2</td>
</tr>
<tr>
<td>Employed</td>
<td>40</td>
</tr>
<tr>
<td>Campus selection</td>
<td>90</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>10</td>
</tr>
</tbody>
</table>

36. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td>50</td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>50</td>
</tr>
</tbody>
</table>

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:

Nil

38. Present details of departmental infrastructural facilities with regard to

- Library : 1
- Internet facilities for staff and students : 1
- Total number of class rooms : 3
- Class rooms with ICT facility : 1
- Students’ laboratories : 3
- Research laboratories : 3

39. List of doctoral, post-doctoral students and Research Associates:

- From the host institution/university
- From other institutions/universities

40. Number of post graduate and research students getting financial assistance

90%

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

The department is one of the oldest departments in Andhra University. The curriculum is modified based on the needs of the industry feedback periodically as it is one of the major employers of the department.
42. Does the department obtain feedback from
   - Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?
     
     Yes and it is used in modifying the syllabus through BOS Meetings
   - Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?
     
     Yes the feedback is utilized for better teaching practices and syllabus modification.
   - Alumni and employers on the programmes offered and how does the department utilize the feedback?
     
     The feedback of alumni is very valuable as majority of the alumni are occupying prominent positions and it helped in upgrading the syllabus.

43. List the distinguished alumni of the department (maximum 10):
   1. Deva H. Puranam, Global Director of Quality, Thermo Fisher Scientific
   2. Dr. P. R. Rao, Vice President, Dr. Reddy Labs.
   3. Dr. Ch. Vijaya Kumar, Senior Research Scientist, USA
   4. Dr. B. Babu Rao, CEO, Raghu Sea Foods Pvt. Ltd.
   5. Prof. K. Paravathiswara Rao, USA
   6. Dr. Ch. Rajeswara Rao, CSIR Labs.

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts:
   Weekly seminars

45. List the teaching methods adopted by the faculty for different programmes
   Traditional and ICT based teaching

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?
   By students feedback

47. Highlight the participation of students and faculty in extension activities:
   Clean and green and blood donation camps.

48. Give details of “beyond syllabus scholarly activities” of the department:
   Seminars and workshops

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.
   As part of university the department was accredited by NAAC

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied
   Department was traditionally strong in NATURAL PRODUCTS RESEARCH
51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department:

- Strong in NATURAL PRODUCTS RESEARCH
- Strong in PROJECTS HANDLING
- Weak in instruments maintenance
- Strong in job Opportunities for students
- Challenges are provision of advanced scientific equipment

52. Future plans of the department:

Short term: provision modern LABS

LONG term: provision of advanced scientific equipment with help of UGC and DST.
1. **Name of the Department**: PHYSICAL AND NUCLEAR CHEMISTRY & CHEMICAL OCEANOGRAPHY

2. **Year of establishment**: 1941 – The erstwhile department Chemistry is Trifurcated into Three Departments in 1983

3. **Is the Department part of a School/Faculty of the university?**
   Yes, Faculty of Sciences

4. **Names of programmes offered:**
   M.Sc. PNCO, M.Phil and Ph.D.

5. **Interdisciplinary programmes and departments involved**:
   M.Sc. Microbiology and Bio-technology

6. **Courses in collaboration with other universities, industries, foreign institutions, etc.:**
   Research Fellows working in Dr. Reddy’s laboratories and NGRI have Collaborative research in the Department.

7. **Details of programmes discontinued, if any, with reasons:**
   Nil

8. **Examination System**:
   Semester end with continual assessment

9. **Participation of the department in the courses offered by other departments**
   Non-core: System design, Microbiology, Botany and Nuclear Physics

10. **Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)**

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
</tr>
</tbody>
</table>

11. **Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance**

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. R. Muralikrishna</td>
<td>M.Sc., Ph.D</td>
<td>Professor</td>
<td>Development of New materials in radioactive waste disposal</td>
<td>27 Years</td>
<td>08</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:
   1. Prof. N.S. Sarma, emeritus professor

13. Percentage of classes taken by temporary faculty – programme-wise information
   Nil

14. Programme-wise Student Teacher Ratio:
   9:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:
   06

16. Research thrust areas as recognized by major funding agencies:
   1) Radioactive waste disposal
   2) Chemical Kinetics micelles
   3) Marine sediments
   4) CDOM in Marine water surface

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise:
   02

18. Inter-institutional collaborative projects and associated grants received
   a) National collaboration: Nil

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:
   DST-FIST: 41 lakhs

20. Research facility / centre with:
   State recognition, National recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies:
   Nil

22. Publications:
   05
23. **Details of patents and income generated**: 
Nil

24. **Areas of consultancy and income generated**: 
Analysis of coal samples Hydrocarbons, plywood samples etc., 25,000 per annum (approximately)

25. **Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad**: 
Nil

26. **Faculty serving in**: 
International committees: 2

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, Workshops, training programs and similar programs)**: 
Teachers are attending in academic staff college orientation programming and Refresher courses.

28. **Student projects**: 
Above 10% of students are undergoing during Summer project program in National laboratories like NIO, NPL, AIISE BARC

29. **Awards / recognitions received at the national and international level by Faculty**: 
Doctoral / post doctoral fellows: 1

30. **Seminars/ Conferences/Workshops organized and the source of funding (national International) with details of outstanding participants, if any**: 
National Workshop on Radiochemistry & Application of Radioisotopes (Jan 6-11, 2014) in collaborations with BARC, Mumbai

31. **Code of ethics for research followed by the departments**: 
One of the few departments engaged in nuclear chemistry research and hence safety precautions are followed on par with international standards. The research scholars are trained to follow the SOP very carefully to avoid accidents.

32. **Student profile programme-wise**: 

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>P.G.</td>
<td>55</td>
<td>65</td>
</tr>
</tbody>
</table>

33. **Diversity of the Students**: 

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.G.</td>
<td>75</td>
<td>25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Phil.</td>
<td>90</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D</td>
<td>70</td>
<td>20</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise:

20

35. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>5</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>10</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>20</td>
</tr>
<tr>
<td>Employed</td>
<td>85</td>
</tr>
<tr>
<td>Campus selection</td>
<td>70</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>30</td>
</tr>
</tbody>
</table>

36. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
</tbody>
</table>

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:

Nil

38. Present details of departmental infrastructural facilities with regard to

a) Library: 200
b) Internet facilities for staff and students: Yes
c) Total number of class rooms: 04
d) Students’ laboratories: 04
e) Research laboratories: 03

39. List of doctoral, post-doctoral students and Research Associates:

Nil

40. Number of post graduate students getting financial assistance from the university:

80%

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology:

The syllabus is revised for every 3-4 years keeping in view of the developments in the field.

42. Does the department obtain feedback from

- Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

Yes. The obtained feedback is used for modification of content of the syllabus.
• Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?:

The feed back comments of the students are communicated to the teachers and necessary modifications are being done to improve the quality of teaching.

• Alumni and employers on the programmes offered and how does the department utilize the feedback?:

Yes. The distinguished alumni are in continuous contact with the department and provide valuable feedback and suggestions in improving the quality of the course curriculum.

43. List the distinguished alumni of the department (maximum 10)

- Dr. M. Sai Baba, Senior Scientific Officer, IGCAR, Kalpakkam.
- Dr. B. R. Prasada Reddy, ONGC, Chennai
- Dr. B. Ramanjaneyulu, Scientist, BARC, Mumbai
- Sri. K.Pitchaiah, Scientist, IGCAR, Kalpakkam.

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts:

Student seminars

45. List the teaching methods adopted by the faculty for different programmes:

Class room teaching, Power point presentation

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

By counselling students regularly for their progression

47. Highlight the participation of students and faculty in extension activities:

Student’s participation in NSS activities and blood donation camps.

48. Give details of “beyond syllabus scholarly activities” of the department.:

Extra classes are taken to give guidance in competitive examinations like NET, APSET.

49. State whether the programme/department is accredited/graded by other agencies? If yes, give details:

Nil

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.:

By organising scientific exhibition to high school students.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department:

1. Time and Punchality of faculty, Research Scholars, Students and Office staff.
2. Lack of Certain infrastructure facility.
3. Job potential is high.
4. Development of competitive spirit

52. Future plans of the department:

Bringing the status of the Department on tune with Central University
METEOROLOGY & OCEANOGRAPHY

1. Name of the Department: METEOROLOGY & OCEANOGRAPHY
2. Year of establishment: 1948
3. Is the Department part of a School/Faculty of the university:
   Yes, Faculty of Science
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
5. Interdisciplinary programmes and departments involved
   Curriculum having Interdisciplinary programmes with other Earth Science Departments.
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   1. M.Tech. CSSTAP Program in collaboration with ISRO at IIRS Dehradun
7. Details of programmes discontinued, if any, with reasons:
   Nil
8. Examination System:
   Semester end with continual assessment
9. Participation of the department in the courses offered by other departments
   Interdisciplinary Teaching & Research with other Departments on climate change and Environmental Impact Studies.
10. Number of teaching positions at present:

<table>
<thead>
<tr>
<th>Designations</th>
<th>No’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>3</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>1</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>3</td>
</tr>
<tr>
<td>DST-Young Scientists</td>
<td>3</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Qualification</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. K.V.S.R. Prasad</td>
<td>Professor &amp; HOD</td>
<td>M.Sc., Ph.D. Oceanography</td>
<td>Physical oceanography &amp; Coastal Dynamics</td>
<td>28</td>
<td>7</td>
</tr>
</tbody>
</table>
### Prof. S.S.V.S. Ramakrishna
- **Professor & Chairman BOS**
- **M.Sc., Ph.D. Meteorology**
- Numerical modeling, cyclones and Monsoons
- 23
- 4

### Prof. (Mrs) G.Bharathi
- **Professor**
- **M.Sc., Ph.D Physics**
- Atmospheric Physics and Remote Sensing
- 23
- 1/1

### Dr. (Mrs) P.Suneetha
- **Associate Professor**
- **M.Sc., Ph.D Meteorology M.Tech. Atmospheric sci.**
- Agricultural and Hydro Meteorology
- 07
- 07

### Dr. C.V.Naidu
- **Assistant Professor**
- **M.Sc., Ph.D Meteorology**
- Tropical Meteorology and Monsoon Dynamics
- 07
- 4

### Dr. V.Lakshmana Rao
- **Assistant Professor(C)**
- **M.Sc., Ph.D Meteorology**
- Fluid Dynamics and Dynamics of Atmosphere

### Dr. K.Muni Krishna
- **Assistant Professor(C)**
- **M.Sc., Ph.D Physical Oceanography**
- Indian Ocean dynamics, Physical Oceano-graphy

<table>
<thead>
<tr>
<th>12. List of senior Visiting Fellows, adjunct faculty, emeritus professors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prof. B S R Reddy : Adjunct Faculty</td>
</tr>
<tr>
<td>2. Prof. O S R U Bhanu Kumar : Emeritus Professors</td>
</tr>
<tr>
<td>3. Prof. V Brahmananda Rao : Honorary Professors</td>
</tr>
<tr>
<td>4. Prof. D V Bhaskara Rao : Honorary Professors</td>
</tr>
<tr>
<td>5. Dr. R R Rao : Honorary Professors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. Percentage of classes taken by temporary faculty – programme-wise information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• M.Sc. Meteorology : 40%</td>
</tr>
<tr>
<td>• M.Sc. Physical Oceanography : 60%</td>
</tr>
<tr>
<td>• M.Tech. Atmospheric Science : 40%</td>
</tr>
<tr>
<td>• M.Tech. Oceanic Science : 60%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14. Programme-wise Student Teacher Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>• M.Sc. Meteorology : 1:10</td>
</tr>
<tr>
<td>• M.Sc. Physical Oceanography : 1:10</td>
</tr>
<tr>
<td>• M.Tech. Atmospheric Science : 1:04</td>
</tr>
<tr>
<td>• M.Tech. Oceanic Science : 1:04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Number of academic support staff (technical) and administrative staff: At Present:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16. Research thrust areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Climate Change in Ocean Atmospheric Sciences</td>
</tr>
<tr>
<td>2. Numerical Weather Prediction</td>
</tr>
<tr>
<td>3. Coastal and Near shore Dynamics</td>
</tr>
<tr>
<td>4. Agriculture Meteorology</td>
</tr>
<tr>
<td>5. Remote Sensing</td>
</tr>
<tr>
<td>6. Ocean Atmospheric Modelling</td>
</tr>
</tbody>
</table>
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Name of the Investigator</th>
<th>Title of the project and duration</th>
<th>Amount sanctioned (Rs. in lakhs)</th>
<th>Funding Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof K.V.S.R.Prasad</td>
<td>Study of Eddies in Bay of Bengal in relation to the upper ocean thermal variability and life cycle of tropical cyclones</td>
<td>29.80</td>
<td>MoES</td>
</tr>
<tr>
<td>Prof. K.V.S.R.Prasad</td>
<td>Studies on salinity intrusion and tidal variations along Upputeru at Kolleru lake</td>
<td>12.5</td>
<td>DST</td>
</tr>
<tr>
<td>Prof. K.V.S.R.Prasad</td>
<td>A comprehensive study of Internal waves from observations and Non-Hydrostatic modeling</td>
<td>30.98</td>
<td>NRB</td>
</tr>
<tr>
<td>Prof K.V.S.R.Prasad</td>
<td>Application of SARAL (ALTIIKA) for estimation of erosion along Visakhapatnam coast</td>
<td>28.6</td>
<td>SAC</td>
</tr>
<tr>
<td>Prof.S.S.V.S.Ramakrishna</td>
<td>Understanding the biases in climate forecasting system</td>
<td>59.64</td>
<td>MoES</td>
</tr>
<tr>
<td>Prof.S.S.V.S.Ramakrishna</td>
<td>Indian ocean warm pool during 1950-2005</td>
<td>34.8</td>
<td>INCOIS</td>
</tr>
<tr>
<td>Prof.S.S.V.S.Ramakrishna</td>
<td>Development of a site specific dynamical tropical cyclone and other extreme weather early warning system for Kalpakkam</td>
<td>40.54</td>
<td>DAE</td>
</tr>
<tr>
<td>Prof.S.S.V.S.Ramakrishna</td>
<td>Simulation of rainfall events around Kolleru lake using MM5: Impact nudging</td>
<td>11.37</td>
<td>DST</td>
</tr>
<tr>
<td>Dr.S.Ramalingeswara Rao</td>
<td>Studies of North east monsoon</td>
<td>-</td>
<td>CSIR</td>
</tr>
<tr>
<td>Dr.B.Mahendranath</td>
<td>Variability of total ozone column</td>
<td>22.00</td>
<td>DST</td>
</tr>
<tr>
<td>Dr.P.Ramesh Kumar</td>
<td>Lightning and Climate change</td>
<td>21.00</td>
<td>DST</td>
</tr>
<tr>
<td>Dr.B.Sridevi</td>
<td>Modelling of Upwelling Zones</td>
<td>22.5</td>
<td>DST</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration: ICMAM Chenni, Shoreline Management Plan, MoES, IITM Pune, MAPAN Project
b) International collaboration: Monsoon Mission, MoES

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

- DST-FIST – Phase – I    - Rs. 30 Lakhs
- DST-FIST – Phase – II   - Rs. 53.6 Lakhs
- UGC-Non-Sap            - Rs. 20 Lakhs

20. Research facility / centre with

National recognition : Yes
International recognition : Yes
21. **Special research laboratories sponsored by / created by industry or corporate bodies**


22. **Publications:**

- Papers published in journals (national / international) : 66
- Chapters in Books : 05
- Edited Books : 02

23. **Details of patents:**

Nil

24. **Areas of consultancy**

1. **Environmental Impact assestment Studies Rs.1.00 lakh**
2. **Potential Fishing Zones** : Free to fishermen
3. **Weather Observations for Agriculture** : Free

25. **Faculty selected nationally / internationally to visit other laboratories / institutions Industries in India and abroad**

1. Prof. D.V.Bhaskara Rao, Visiting Professor, Jackson University
2. Prof. K.V.S.R.Prasad, Visiting Professor, Indian Maritime University
3. Prof. S.S.V.S.Ramakrishna, Visiting Professor, SAC, Ahmedabad
4. Prof. G.Bharathi, Visiting Professor, S V University, Tirupati
5. Dr. C.V.Naidu, Visiting Professor, S V University, Tirupati

26. **Faculty serving in**

a) **National committees**

1. Prof. D V Bhaskara Rao, Member, DST, Advisory board on Atmospheric Sciences
2. Prof. K V S R Prasad, Member, DST, Fast track Young Scientist Scheme for Earth and Atmospheric Sciences, Selection committee member for Universities and National Institutes.
3. Prof. G Bharathi, Selection committee member for Universities and National Institutes.
4. Dr. C V Naidu, Selection Committee member for UPSC

b) **International Committees**

Prof. S S V S Ramakrishna, Monsoon Mission/Ministry of Earth Sciences, Selection committee member for Universities and National Institutes.

27. **Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

To update their knowledge in Teaching and Research Faculty are attending Refresher and orientation programs, presenting Research papers on National and International seminars and work shops, participation in the discussions.

**Outside visits**

1. Participated in the UNESCO/IOC Leadership Development Programme: Module 1: Strategic Overview of Senior Level Leadership held at INCOIS during 10th – 14th May, 2008.
2. Participated in the 1st International ISRO-CNES workshop on SARAL held at Space Applications Centre, Ahmedabad during 22nd - 23rd April 2008.
3. Participated in the brainstorming session on the role of atmospheric sciences in the context of climate change in India held at Department of Meteorology & Oceanography, Andhra University, Visakhapatnam during 8th – 9th July, 2008.
4. Participated in the ARGO Users workshop held during 19th – 22nd July 2008 at INCOIS, Hyderabad.
5. Participated in the DST - FIST level II Subject expert committee meeting held at SRM University, Chennai on 18th September 2009.
6. Participated in the brainstorming session on Vision for R & D in atmospheric sciences for a decade held at IISc, Bangalore during 22nd -24th October 2009.
7. Participated in the Group Monitoring workshop on atmospheric sciences research 10th - 12th December, 2009.
9. Participated Inter National Conference on Coastal Change and Environment during 24th – 26th October 2010 held at CUSAT, Kochi.
11. Participated in the ICMAM steering committee meeting held at ICMAM – PD, Chennai on 28th April 2010.
12. Participated Inter National Conference on Coastal Change and Environment” held at CUSAT, Kochi during 24 - 26th October 2010.
13. Participated in the IInd International ISRO-CNES workshop on SARAL held at Space Applications Centre, Ahmedabad during 15 - 17th December 2010.
17. Participated and presented a poster on “Role of Upper Ocean Thermal features in Rapid Intensification of Tropical Cyclones over North Indian Ocean” in Pacific Ocean Remote Sensing Conference (PORSEC - 2012) during 05th – 09th November 2012, held at IMA house, Kochi, Kerala, India.
18. Participated and presented a paper on “Upper Ocean Thermal features during Tropical Cyclones over Bay of Bengal” in Tech Samudra-2012, International Conference cum Exhibition on Technology of the Sea, during 06th - 08th December 2012, held at Indian Maritime University, Visakhapatnam, India.
20. Participated and presented a paper on “Modelling Studies on Variation of Wave Parameters along Visakhapatnam during the Monsoon Seasons” in IMSP Annual Monsoon Workshop held at ITM Pune during 19-20th February 2013.
22. Participated and presented a paper on “Identification of Potential energy sources along Indian coast” in national symposium on Coastal Natural Resources: Scientific strategies for development,conservation and management(NSCNR) held at Center for
23. Participated and presented a paper on "Detection of Oilspill in Indian maritime environment using Synthetic Aperture Radar" in national symposium on Coastal Natural Resources: Scientific strategies for development, conservation and management (NSCNR) held at Center for Studies on Bay of Bengal during 09-10th December 2013.


32. C. V. Naidu, G.Ch. Satyanarayana, K. Durgalakshmi, L. Malleswara Rao, G. Jeevana Mounika and A. Dharma Raju. ‘Spatial Variations of northeast monsoon rainfall over South Peninsula India’ Second International workshop on frontiers of atmospheric physics and technology, Department of Physics, Yogi Vemana University, Kadapa during 01-03 March, 2012.


35. C.V. Naidu, G. Ch. Satyanarayana, K. Durgalakshmi, L. Malleswara Rao, A. Dharma Raju and G. Jeevana Mounika.” Onset of northeast monsoon over South Peninsular India” National Space Science Symposium (NSSS-2012) at Sri Venkateswara University, Tirupati, during 14-17 February-2012.


38. C.V. Naidu, K. Durgalakshmi, G. Ch. Satyanarayana, L. Malleswara Rao, A. Dharma Raju and G. Jeevana Mounika (2012). Observational evidence of the spatial and temporal variability of Indian summer monsoon rainfall (Communicated to Global Planetary Change)


28. Student projects

In Curriculum for M.Sc. Courses Interdepartmental project work being undertaken in the fourth Semester - 100%

Percentage of students doing projects in collaboration with other universities / industry / institute For M.Tech Programmes Second and Fourth Semesters Students doing Internship and Projects in Collaboration with National Laboratories - 100%

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

Faculty

Prof. K.V.S.R Prasad

- Andhra University Best Researcher award for the year 2013.
- Dr. Sarvepalli Radhakrishnan award for Best Academician of the year 2010.

Doctoral / post doctoral fellows : 16

Students

N.Durga Manikanta, IAS summer fellowship- Banglore and Mumbai.

30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.

National

1. SERC School on Ocean – Atmosphere Interactions and Global Change (3 Weeks) - 2010
2. PAC AS Group monitoring workshop on Atmospheric Science Research Projects -- 2008
3. Brainstorming session on the role of atmospheric sciences in the context of climate change in India --2008

31. **Code of ethics for research followed by the departments**

The Board of Studies has formulated strict guidelines which covers the following aspects:

1. Avoiding Duplication of Research
2. Visibility of the focus of the Research
3. Checks adopted in the Departmental level quality which covers ethical values.
4. Plagiarism check in the research is strictly implemented

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme</th>
<th>Admitted (2013 – 14)</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Meteorology</td>
<td>29</td>
<td>23</td>
</tr>
<tr>
<td>M.Sc. Physical Oceanography</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>M.Tech. Atmospheric Science</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>M.Tech. Oceanic Science</td>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>

33. **Diversity of students**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc- Meteorology</td>
<td>70</td>
<td>30</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc-Physical Oceanography</td>
<td>70</td>
<td>30</td>
<td>Nil</td>
<td>-</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

1. CSIR / UGC NET : 12
2. SET : 04
3. UPSC (Met grade II) : 08

35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to Ph.D.</td>
<td>35</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>12</td>
</tr>
<tr>
<td>Employed</td>
<td>50</td>
</tr>
<tr>
<td>Campus selection</td>
<td>15</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>23</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>15</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
36. **Diversity of staff:**

   100%

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period**

   Dr. P Suneetha, Ph.D. Awarded in the Year, 2012.

38. **Present details of departmental infrastructural facilities with regard to**

   1. **Library** : Text Books – 170, Journals - 12
   2. **Internet facilities for staff and students** : Yes
   3. **Total number of class rooms** : 06
   4. **Class rooms with ICT facility** : 03
   5. **Students’ laboratories** : Synoptic Laboratory, Instrumentation Lab, Computer Lab, Field Training program
   6. **Research laboratories** : Oceanographic Laboratory, Ocean Atmospheric Modelling Lab equipped with advanced software’s facilities like Mike 21, Mat Lab, SMS etc. Modelling of Atmospheric pollution and Networking Lab

39. **List of doctoral, post-doctoral students and Research Associates from the host institution/university**

   Young Scientists : 03
   Doctoral Students : 13

40. **Number of post graduate and research students getting financial assistance**

   13

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

   The University has a well organised system of curriculum design and development. Organized one day work shop before starting a course on M.Tech. Oceanic Science. The Boards of Studies scrutinize two issues i.e., need assessment and feedback from the stakeholders before designing and developing the curriculum. In the Board of Studies assessment exercise was undertaken for the development of existing programs. For the National needs, to start a diploma course on climatic change in Agriculture experts were invited for curriculum design. The feedback is obtained formally and informally from faculty, students, alumni, employers and academic experts periodically following systematic procedures.

42. **Does the department obtain feedback from**

   a) **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

   Yes, for the National needs knowledge was updated by the faculty and Syllabus being revised time to time. The feedback of the faculty is utilised in improving the learning as well as evaluation processes.
b) **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

Yes, Students feedback was considered and implemented in the department. This involvement of students gives a chance for improving the education system.

c) **Alumni and employers on the programmes offered and how does the department utilize the feedback?**

A feedback from the distinguished alumni was considered and implemented. The constructive suggestions given by the employers are also considered while designing courses.

43. **List the distinguished alumni of the department (maximum 10)**

1. Prof. T.N.Krishna Murthy, USA
2. Dr.T.A.D.Murthy, Tsunami warning Center, Canada
3. Dr.Rupa Kumar, WMO expert-Climate change Geneva
4. Dr.P.S.Rao, Advisor-scientist-G, DST
5. Dr.Ramesh, Project coordinator-Scientist-G, MoES
6. Dr.R.R.Rao, Chairman O.E.P- NRB
7. Sri K.H.Rao, Head – NRSC
8. Dr.Rashmi Sharma, Head- SAC
9. Dr.A.K.S.Gopalan, Former Director- SAC
10. Dr.V.S.Ramakrishna, Director- CRIDA

44. **Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.**

1. Special Lecturers are arranged by involving experts from the National Laboratories
2. Students Seminars are organized in every week.
3. Encouraging students to participate in the workshops organized in the University level.

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

The following are the teaching methods adopted by the faculty:

1. Power point presentations
2. Organized field works
3. Sea exposure programs
4. Organized E learning programs

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

1. Feedback from the Industry/National Laboratories is taken and the curriculum was updated. Recent teaching methods implemented and exposure to the field observations is provided.
2. The learning outcomes are monitored through exams and other academic activities that are earlier proposed.

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

1. Beach cleaning programs.
2. Clean and Green programs in the University level.
3. Educate fishermen/farmers on precautions taken at the time of disasters like cyclones, rip currents etc.

48. Give details of “beyond syllabus scholarly activities” of the department.
   1. Students and Research Scholars are actively participated and educated the people those who are living along the coastal regions at the time of disasters
   2. Giving lecturers at schools and Degree Colleges on Climate Change and National disasters.

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details :
   Yes, NAAC

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.
   Significant contributions include:
   - Identification and estimation of Upwelling zones in North Indian Ocean
   - Dynamics involved in the formation of Sand-spit near Kakinada
   - Internal waves generation and propagation using SAR images
   - Real time prediction models for tropical cyclones of Bay of Bengal
   - Statistical models prediction of seasonal rainfall of Indian monsoon
   - Real time high resolution short range weather prediction for Andhra region

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department :

   Strengths:
   1. Dept is unique in the country offering research and teaching on Ocean-Atmospheric Sciences.
   2. Present day scenario on climate change number of programmes taken up for societal importance.

   Opportunities:
   Bright opportunities in the field of research, industry, agriculture etc.

   Challenges:
   1. Lack of awareness in the secondary and UG level on this course.
   2. Climate change and global warming, sea level rise, intensity of cyclones and natural disasters etc., are major challenges.

52. Future plans of the department :

   Plans related to infrastructure development:
   - Develop numerical Models on Ocean-Atmospheric problems, address the coastal hazards and develop manpower in this field.
NUCLEAR PHYSICS

1. Name of the Department : NUCLEAR PHYSICS

2. Year of establishment : 1956

3. Is the Department part of a School/Faculty of the university? Yes, Faculty of Sciences

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)

   M.Sc. Nuclear Physics, M.Phil. and Ph.D. in Nuclear Physics

5. Interdisciplinary programmes and departments involved :

   Nil

6. Courses in collaboration with other universities, industries, foreign institutions, etc.

   Ph.D(EMR) with IUAC, New Delhi and BARC, Vizag.

7. Details of programmes discontinued, if any, with reasons

   Nil

8. Examination System

   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments

   Nil

10. Number of teaching posts sanctioned (Professors/Associate Professors/Asst. Professors/others)

    |                          | Actual (including CAS & MPS) |
    |--------------------------|-----------------------------|
    | Professor                | 1                           |
    | Associate Professors     | -                           |
    | Asst. Professors         | 2                           |
    | Others                   | 2                           |

Andhra University, Visakhapatnam
11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance during the last 5 years

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. A. Durga Prasada Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Material Science</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Dr. P.V. Madhusudhana Rao</td>
<td>Ph.D.</td>
<td>Asst. Professor</td>
<td>Nuclear Reaction Dynamics, In-beam Spectroscopy, Nuclear Astrophysics</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>P.V. Lakshmi Narayana</td>
<td>M.Sc.</td>
<td>Asst. Professor</td>
<td>Nuclear physics</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

- Prof. S. Lakshmi Narayana
- Prof. S. Bholoka Reddy

13. Percentage of classes taken by temporary faculty – programme-wise information

42%

14. Programme-wise Student Teacher Ratio

<table>
<thead>
<tr>
<th>Programme</th>
<th>Student Teacher Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Nuclear Physics</td>
<td>15 : 1</td>
</tr>
</tbody>
</table>

15. Number of academic support staff (technical) and administrative:

12

16. Research thrust areas

- Nuclear Physics
- Atomic Physics
- Nuclear Analytical techniques
- Accelerator Mass Spectrometry (AMS)

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

01
18. **Inter-institutional collaborative projects and associated grants received:**

<table>
<thead>
<tr>
<th>Name of the Investigator</th>
<th>Title of the project and duration</th>
<th>Amount sanctioned</th>
<th>Funding Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. S. Lakshminarayana</td>
<td>New Band Terminating structures in A~160 Nuclei 2007-2010(3-Years)</td>
<td>5,00,000</td>
<td>Inter-University Accelerator Centre, New Delhi</td>
</tr>
<tr>
<td>Dr. P.V.Madhusudhana Rao</td>
<td>Octupole Correlations in Pu and Np Nuclei. 2008-2011(3-Years)</td>
<td>5,00,000</td>
<td>Inter-University Accelerator Centre, New Delhi</td>
</tr>
<tr>
<td>Dr. P.V.Madhusudhana Rao</td>
<td>Search for Antimagnetic Rotation in A~100 Nuclei. 2009-2012(3-Years)</td>
<td>5,00,000</td>
<td>UGC-DAE Consortium for Scientific Research, Kolkata Centre</td>
</tr>
<tr>
<td>Dr. P.V.Madhusudhana Rao</td>
<td>Spectroscopy of neutron-rich nuclei. 2008-2009(1-Year)</td>
<td>50,000</td>
<td>Andhra University, Starter Research Scheme</td>
</tr>
<tr>
<td>Mr. P.V. Lakshminarayana</td>
<td>Trace Elemental Analysis of Marine Sediments 2008-2009(1-Year)</td>
<td>50,000</td>
<td>Andhra University, Starter Research Scheme</td>
</tr>
</tbody>
</table>

19. **Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.**

Nil

20. **Research facility / centre with:**

State recognition, National recognition

21. **Special research laboratories sponsored by / created by industry or corporate bodies:**

Nil

22. **Publications during the last five years**

Number of papers published in peer reviewed journals (national / international) : 21

23. **Details of patents:**

Nil

24. **Areas of consultancy:**

Nil

25. **Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad :**

Nil

26. **Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify) :**

1) Prof. S. Lakshminarayana, served as Subject Committee member in Physics nominated by Board of Intermediate Education, A.P.
2) Prof. S. Lakshminarayana, Nominated as subject expert for selection of project fellows by Inter University Accelerator Centre, New Delhi.

3) Dr. A. Durga Prasada Rao, nominated by the American Biographical Institute, Honorary appointment to the Research Board of Advisors. (2003)

4) Dr. P. V. Madhusudhana Rao, IUAC Nominee and Expert member in the selection Committees for Research Scholars in UGC Funded Research Schemes of Inter-University Accelerator Centre, New Delhi (2009-2012)

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):

Faculty attended 4 workshops and training programs

28. Student projects

- Percentage of students who have done in-house projects including inter-departmental projects: Nil
- Percentage of students doing projects in collaboration with other universities industry / institute: Nil

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

Nil

30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.:

Nil

31. Code of ethics for research followed by the departments

The Department strictly adheres to code of ethics for research that was formulated in the university guidelines formed by Board of Research Studies. The University is very serious about the aspect of mal practices and plagiarism in research. The aspect of plagiarism has been controlled and checked by departmental research committees during the resubmission presentation given by the candidate. The foundations of research values are very strong in the University. However, as a preventive measure the department communicated to all the research students to check before submission about the plagiarism.

32. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Nuclear Physics</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>M.Phil</td>
<td>04</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>05</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>--</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
33. **Diversity of Students:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Nuclear Physics</td>
<td>83</td>
<td>17</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>M.Phil.</td>
<td>90</td>
<td>10</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>75</td>
<td>25</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

10

35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>05</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>15</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>05</td>
</tr>
<tr>
<td>Employed</td>
<td>80</td>
</tr>
<tr>
<td>Campus selection</td>
<td>30</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>50</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates of the same university</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>from other universities within the State</td>
<td>0</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

01

38. **Present details of departmental infrastructural facilities with regard to**

1. Library : Yes
2. Internet facilities for staff and students : Available for both staff and students
3. Total number of class rooms : 02
4. Class rooms with ICT facility : 01
5. Students’ laboratories : 04
6. Research laboratories : 04

39. **List of doctoral, post-doctoral students and Research Associates:**

**Doctoral Students**

1. from the host institution/university : 3
2. from other institutions/universities : Nil
40. Number of post graduate and research students getting financial assistance:

75%

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

The University has a well organised system of curriculum design and development. Each Department has a Board of Studies at PG levels consisting of experts from the faculty of the Department and from other Universities, representatives from industry and student representatives. Concerned subjects in different departments are grouped as one faculty and a senior teacher is nominated as the Chairperson. The Boards of Studies scrutinize two issues i.e., need assessment and feedback from the stakeholders before designing and developing the curriculum.

The need assessment is made basing on market surveys, public opinion, experts views, industry requirements, MoU entered with other institutions/organisations, state policies, guidelines framed by UGC and other national apex bodies and regional requirements. The feedback is obtained formally and informally from faculty, students, alumni, employers and academic experts periodically following systematic procedures.

The draft curriculum will be discussed at length in periodic meetings of respective Boards of Studies and the final draft will be placed before the Academic Senate for approval. The Academic Senate is the final authority to approve the new programmes, curriculum, modifications in curriculum, syllabus, regulations, etc. in the existing programmes.

42. Does the department obtain feedback from:

- Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

Yes, the department obtains feedback from faculty on curriculum, teaching, learning and evaluation. The feedback collected will be analysed and placed before the departmental committee and staff council. The feedback on curriculum will be used in designing / modifying the syllabi. The feedback on teaching learning evaluation will be used to improve the respective processes.

- Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Yes, the department collect the feedback from students on staff curriculum on teaching learning and evaluation processes. The data is analyzed and corrective measures are taken accordingly.

- Alumni and employers on the programmes offered and how does the department utilize the feedback?

Yes, the feedback from alumni and employees on programmes offered is collected and such information is used for improvement of quality of the department.

43. List the distinguished alumni of the department (maximum 10)

- Prof. B.V. Tirumala Rao
- Prof. B. Mallikarjuna Rao
- Dr. K.V.R. Kumar
- Dr. P.J. Raju
- Dr. A. Rameshwar Rao
44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

- Organized student seminar and training programmes by inviting experts from industry and research organizations.

45. List the teaching methods adopted by the faculty for different programmes.

- Class room teaching using ICT Method
- Question Based Interactive method of teaching
- Class room seminars
- Experienced study methods
- Continual evaluation through class room based surprise tests

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

Program Objectives:

For M.Sc. Nuclear Physics: To train the students on Nuclear physics and to build good scientists in Nuclear Physics.

Expected Learning Outcomes: The students are expected to become good professionals in Nuclear physics. They are able to conduct experiments and innovate new knowledge in nuclear physics.

Monitoring Process: Each and every programme is monitored throughout the period to ensure conformity with what has been set as course objectives and leaning outcomes. The methods adopted for the purpose includes continuous assessment, observations, semester end tests and results, participations in competitions, contributions of new thoughts and ideas, and innovativeness and leadership.

47. Highlight the participation of students and faculty in extension activities.

The department faculty and students have participated the following extension activities during the last five years:

- Blood Donation camps
- Science Exhibition organized in Andhra University
- Environment and pollution protection Programme

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

Organizing student seminars, technical quiz, group discussion, event exhibition, state of art technology awareness programme, arranging expert lectures from industry & research institutions, encouraging students to competitions and paper presentation in the conferences

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details. :

NAAC with A grade
50. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

The Department of Nuclear Physics at Andhra University is the only one of its kind in India, meant for advanced level teaching and research in Nuclear Physics. The Laboratories for Nuclear Research were instituted as a part of the Physics Department in October 1954 with Professor Swami Jananananda as its founder leader. The Department was organized into a full-fledged one in 1956. Prof. V. Lakshminarayana who took the reins of the department from Prof. Swami Jananananda in 1969 established various fields of research in Nuclear Spectroscopy, Nuclear reactions and interaction of Gamma Radiation. He is a renowned international expert in in-beam Nuclear Spectroscopy. He was awarded the Best Teacher Award by A.P. State Government and National Lectureship by UGC. Prof. K. Venkata Reddy extended the research in Nuclear Spectroscopy using Beta Ray Spectrometers. He was awarded the Best Teacher Award by A.P. State Government. Late Prof. K. Parthasaradhi expanded the horizons of research in the interaction of Photons with Matter and is renowned expert in Radiation Physics. Prof. B.V. Tirumala Rao extended the horizons of in Beam Nuclear Spectroscopy by carrying out pioneering research at the Nuclear Science Centre, New Delhi and at University of Bonn Germany. He is instrumental in establishing a live collaboration of this department with University of Bonn Germany. His collaborative experiments carried out in Germany resulted in the observation of magnetic rotational bands in nuclei of higher spins for the first time which resulted in explaining the behaviour of nuclei at higher angular momentum. Prof. B. Mallikarjuna Rao was instrumental in starting research in applied aspects such as Radiation Oncology. The UGC recognized the Department as a centre for carrying out advanced level research in Nuclear Spectroscopy under “Departmental Support Programme”, in 1978. The Department has on its staff highly qualified teachers. Most of them gained extensive experienced in advanced laboratories in Europe and U.S.A.

Nuclear techniques are being used in diagnostic medical application (radio iodine to thyroid disorders) in collaboration with the doctors of the local hospital. They are also being used in the investigation of relative concentrations of certain ores (Mn, Cu, etc) in collaboration with the staff of the Geology Department and environmental pollution studies in air and water samples. The Faculty of the department have made significant contribution for advancement both in theory and applications of nuclear physics.

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths**

- Well qualified and committed faculty
- Well established laboratories
- Interdisciplinary research and industry interactions
- Image of the University

**Weakness**

- Unable to find 100% placement in Campus Placement.

**Opportunity**

- Development of networking with more number of industry and research based organizations.
- Application of enhanced ICT
- Providing international exposure to the students by way of MoU’s with foreign organization
- Growing demand for Nuclear Medicine
Challenges

- Catching with changes at the global level in respect of curriculum and teaching environments
- Building the network of alumni
- Developing students with employability skills
- Promoting research at international standards

52. Future plans of the department

The following are the future plans of the department for coming next five years

- To establish advanced research centre and mini nuclear reactor in collaboration with BARC and other funding agencies.
- To conduct workshops / training programmes in nuclear physics in collaboration with funding agencies such as UGC, DST and CSIR.
PHYSICS

1. Name of the Department: PHYSICS

2. Year of establishment: 1926

3. Is the Department part of a School/Faculty of the university?
   Yes, Faculty of Sciences

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
   M.Sc. Physics, M.Sc. Space Physics, M.Phil and Ph.D

5. Interdisciplinary programmes and departments involved
   - The Department offers two non-core papers in Physics for the students of other departments who are interested in learning Physics and Atmospheric Physics and Space Physics (Departments of Systems design, Meteorology, Nuclear Physics and Chemistry) and Advanced Analytical Techniques for introducing the Physics concepts in measurement techniques.
   - In the Physics Curriculum advanced topics in Electronics and Materials sciences are included

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
   The department is the nodal centre for the Diploma and M.Tech Courses in Atmospheric and Space Physics being offered by the Centre for Space Science and Technology Education in the Asia and Pacific (CSSTE-AP), a United Nation Organisation unit. This course is an international programme sponsored by UN.

   The department recognised various Atmospheric and Space establishments as EMR Research centres for getting the Extra Mural Research Students registered for Ph.D. and M.Phil. Programmes in the department.

7. Details of programmes discontinued, if any, with reasons:
   Nil

8. Examination System:
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments:
   Many faculty members deliver lectures in Physics in other departments on specific topics of interest to the concerned departments.

10. Number of teaching posts in the department at present (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>6</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>1</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of students guided the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. V. Veeraiah</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Materials Science and Theoretical Physics</td>
<td>35</td>
<td>Ph.D: 09 M.Phil: 07</td>
</tr>
<tr>
<td>Prof. K. Niranjan</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Space &amp; Atmospheric Physics</td>
<td>29 years</td>
<td>Ph.D.s: 10 M.Phil: 07</td>
</tr>
<tr>
<td>Prof. D SV V D Prasad</td>
<td>M.Sc.,Ph.D.</td>
<td>Professor</td>
<td>Space Physics</td>
<td>24 years</td>
<td>Ph.D.s: 04 M.Phils: 04</td>
</tr>
<tr>
<td>Prof. K. Samatha</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Ultrasonics &amp; Solid State Physics</td>
<td>28 years</td>
<td>Ph.D.s: 07 M.Phil: 03</td>
</tr>
<tr>
<td>Prof. T. Aruna Mani</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Space Physics</td>
<td>20 years</td>
<td>Ph.D.s: 02 M.Phil: 02</td>
</tr>
<tr>
<td>Prof. M. Indira Devi</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>–do–</td>
<td>20 years</td>
<td>M.Phils: 05</td>
</tr>
<tr>
<td>Dr. P.S.V. Subba Rao</td>
<td>M.Sc., Ph.D.</td>
<td>Asst. Professor</td>
<td>Solid State Physics</td>
<td>11 years</td>
<td>Ph.D.: 1 M.Phil: 06</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:
   1. Prof. K. Sambasiva Rao, CSIR Emeritus Scientist
   2. Prof. R.D. Ratna Raju- Honorary Professor

13. Percentage of classes taken by temporary faculty – programme-wise information:
   Nil

14. Programme-wise Student Teacher Ratio :
   M.Sc. Physics : 23:1
   M.Sc. Space Physics : 6:1

15. Number of academic support staff (technical) and administrative staff:
   22

16. Research thrust areas :
   - Space & Atmospheric Physics
   - Solid State Physics
   - Materials Science
   - Theoretical Physics
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Name of the Faculty</th>
<th>Title of the Project/ Funding agency</th>
<th>Duration</th>
<th>Budget (Rs. in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. V. Veeraiah</td>
<td>Synthesis of Fluorescent organic dyes stable in sea water NSTL</td>
<td>2011-12</td>
<td>9.63</td>
</tr>
<tr>
<td>Prof. V. Veeraiah</td>
<td>Design, synthesis and characterization of novel lasing organic dye supported by molecular modelling investigation for special applications, DRDO Project IV</td>
<td>2011-14</td>
<td>45.21</td>
</tr>
<tr>
<td>Prof. V. Veeraiah</td>
<td>Synthesis, structural properties of nano particles metal complexes, UGC MRP</td>
<td>2013-16</td>
<td>10.48</td>
</tr>
<tr>
<td>Prof. K. Niranjan</td>
<td>ISRO-GBP Aerosol Radiative Forcing Over India ISRO</td>
<td>2007 onwards – continuing</td>
<td>95.00</td>
</tr>
<tr>
<td>Prof. K. Niranjan</td>
<td>ISRO-GBP (NOBLE) Network of Boundary Layer Experiments ISRO</td>
<td>2011 onwards</td>
<td>79.00</td>
</tr>
<tr>
<td>Prof. K. Niranjan</td>
<td>Space Science Promotion Scheme ISRO</td>
<td>2012 onwards</td>
<td>50.00</td>
</tr>
<tr>
<td>Prof. K. Niranjan</td>
<td>Balloon Borne Investigation of ESF Triggers in collaboration with TIFR, PRF and SPL AOARD under US Air Force</td>
<td>2011-12</td>
<td>13.50</td>
</tr>
<tr>
<td>Prof. K. Niranjan</td>
<td>Space and Frequency domain interferometry for HF Doppler Radar for Ionospheric studies ISRO-CAWSES</td>
<td>2006-2009</td>
<td>14.20</td>
</tr>
<tr>
<td>Prof. D.S.V.V.D. Prasad</td>
<td>Effect of Geomagnetic storms on Ionosphere-Thermosphere system ISRO-CAWSES</td>
<td>2007-2010</td>
<td>7.50</td>
</tr>
<tr>
<td>Dr. P.S.V. Subbaro</td>
<td>Synthesis and characterization of nano ferrites and their composites for high frequency applications DST-PURSE</td>
<td>20011-12</td>
<td>3.70</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received
   a) National collaboration
   b) International collaboration
1. The Department is an active participant in the Geosphere - Biosphere Programme of Indian Space Research Organisation in the Aerosol Radiative forcing estimation and the characterization of the Atmospheric Boundary layer over the Indian region
2. The department significantly contributed to the ISRO-CAWSES programme in assessing the Climate and weather of Sun-Earth System
3. The research group in Atmospheric and space Physics has active collaboration with ISRO, Space Physics Laboratory, Vikram Sarabhai Space Centre, Trivandrum, Physical Research Laboratory, Ahmedabad, National Atmospheric Research Lab, Tirupati, Indian Institute of Geomagnetism, Mumbai, IITM, Pune and National Physical Laboratory, New Delhi.

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

The Department was identified as a Centre for Advanced Study in Physics by the University Grants Commission during 2007-2012.
20. Research facility / centre with

NMR Research Centre was newly established with XI Plan UGC Grants

1. State recognition
2. National recognition
3. International recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies:

Nil

22. Publications:

88

23. Details of patents:

Nil

24. Areas of consultancy:

Nil

25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad:

Prof. K. Niranjan : Visiting Professor, Nagoya University, Japan

26. Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)

National Committees: 8

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

The University periodically organises Orientation Programmes and Refresher courses for this purpose and the faculty participate in the same as per UGC Norms.

28. Student projects

1. M.Sc. Space Physics: 100 % (Do projects at one of the national laboratories for 8 weeks as a part of their curriculum)

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

Faculty : 03

30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.

1. ICARB- W and ARFI Review Meeting August 2008 _ review done by Dr. Madhavan Nair, the then Chairman ISRO and Secretary Department of Space
2. SERC Training Programme on Atmospheric and Space Physics, Sept- 2008- Sponsored by Department of Science & Technology, Govt. of India
3. DST Programme Advisory Committee (Atmospheric Sciences) meeting - December 2010

Andhra University, Visakhapatnam
4. “Glimpses of Space Sciences – Impressions of the Novice” - one day seminar organised by Andhra University and Physical Research Lab, Ahmedabad under the Centre for Space Science Education in the Asia and Pacific, 21 February 2013.

5. DST Programme Advisory Committee meeting (Atmospheric Sciences) June 2013

6. Training programme on Nuclear Magnetic Resonance Spectroscopy, 6-8 March 2014

7. IASC- Andhra University workshop on functional materials and their applications in devices, 3-4 April 2014.

31. **Code of ethics for research followed by the departments**
   - Checks on duplication of work
   - Mutual Exchange of information on Research Programmes
   - Pre Presentation by Ph.D. Students

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Physics</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>M.Sc. Space Physics</td>
<td>02</td>
<td>08</td>
</tr>
</tbody>
</table>

33. **Diversity of students**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Physics</td>
<td>75</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc. Space Physics</td>
<td>75</td>
<td>25</td>
<td>-</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

15

35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>20</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>15</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>5</td>
</tr>
<tr>
<td>Employed</td>
<td>65</td>
</tr>
<tr>
<td>Campus selection</td>
<td>20</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>80</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>-</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td></td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>20</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

Nil

38. **Present details of departmental infrastructural facilities with regard to**

- Library : 3500 volumes
- Internet facilities for staff and students : yes
- Total number of class rooms : 3
- Class rooms with ICT facility : Nil
- Students’ laboratories : 4
- Research laboratories : 7

39. **List of doctoral, post-doctoral students and Research Associates**

1. from the host institution/university : 65%
2. from other institutions/universities : 35% (including EMR)

40. **Number of post graduate and research students getting financial assistance**

PG : 70%, Research : 60%

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

The curriculum revision is being undertaken periodically taking into consideration the current thrust areas of research and the needs of the employers.

42. **Does the department obtain feedback from**

- Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?
  
  This feedback is used in periodic curriculum modification and assessment methodology

- Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?
  
  Yes: The consolidated feedback is circulated to the concerned staff member with suggestions of improvement if any

- Alumni and employers on the programmes offered and how does the department utilize the feedback?
  
  Yes. This is also used to upgrade the syllabus
43. List the distinguished alumni of the department (maximum 10)
   - Prof. B. Rama Chandra Rao, Former Vice-Chairman UGC and Former Director, EDCIL
   - Dr. B.V. Krishna Murthy, Former Director, SPL, Vikram Sarabhai Space Centre, Trivandrum
   - Prof. J.H. Sastri, Former Director, Indian Institute of Astrophysics
   - Dr. C.A. Reddi, Former Director, SPL, VSSC, Trivandrum
   - Dr. U.V. Girish Kumar, General Manager, BPCL, Mumbai
   - Dr. P C S Devara, Former Dy. Director, IITM, Pune
   - Dr. G. Bhagavannarayana, Chief Scientist, NPL, New Delhi

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

The department invites distinguished academic personalities from National Labs, IITs and other premier institutions to give guest lectures and for generating collaborative research programmes.

45. List the teaching methods adopted by the faculty for different programmes.

   - Usage of audio visual methods for classroom teaching
   - Demonstration and laboratory experiments for better communication of concepts

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

   Student feedback, monitoring the quality of research publications. Review during post Mid semester examinations

47. Highlight the participation of students and faculty in extension activities.

The faculty deliver lectures in UG Colleges and schools to introduce the thrust area and areas of contemporary research interest as a part of the outreach programmes. Some of the students are enrolled in the NSS and NCC Programmes and actively participate in the extension services.

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

Some of the students are being nominated for workshops conducted by National laboratories to provide interaction with the scientists working in the respective fields.

A student operated reading room for 24 hour access to text books, magazines and news letters.

49. State whether the programme/department is accredited/graded by other agencies? If yes, give details.

The department is one of the 10 universities in India identified for Promotion of Space Science Education Identified as a UGC Centre for advanced study.

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

   1. The department was initially well known for significant research work in the areas of spectroscopy
2. One of the pioneering centres to start Space Sciences Research in the country and contributed richly to the understanding of the equatorial and low latitude ionospheric physics and dynamics.

3. Now is identified as a nodal centre in the Geosphere biosphere programmes with significant thrust in Atmospheric aerosols and Boundary layer physics with potential applications in climate change studies.

4. The Department contributed significantly in the Trans ionospheric Radio wave propagation, Space weather studies that are required for the state of the art technological systems like satellite communication and satellite based navigation systems (Contributed significantly to the ISRO-AAI GAGAN Programme on satellite based Navigation).

5. A NMR Research centre was recently established in the Department of Physics Andhra University as a central facility.

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths**
- Fully qualified staff, participation of faculty in research programmes of contemporary scientific relevance, well known for quality research in Space Physics.

**Weaknesses**
- Faculty shortage

**Opportunities**:
- Campus placements, Research positions in National labs and premier institutes, post doctoral research positions abroad.

**Challenges**
- To improve the quality of research and to be identified as one of the premier departments in physics.

52. **Future plans of the department.**

1. To strengthen the academic curriculum and to enhance the teaching learning process to make the qualifying students most competitive.

2. To strengthen the research groups by creating new facilities and promoting quality research programmes so that the qualifying doctoral students will find better career opportunities both in India and abroad.
SYSTEMS DESIGN

1. Name of the Department : SYSTEMS DESIGN
2. Year of establishment : 2008
3. Is the Department part of a School/Faculty of the university? Yes, Faculty of Science
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
   M.Sc (Electronics & Instrumentation), M.Phil, Ph.D.
5. Interdisciplinary programmes and departments involved:
   No
6. Courses in collaboration with other universities, industries, foreign institutions, etc. :
   No
7. Details of programmes discontinued, if any, with reasons
   M.Sc. (Tech.) Electronic & Instrumentation
   M.Sc. (Tech.) VLSI Design
   M.Sc. (Tech.) DSP & ESD
   All the above three courses have been converted as M.Sc. (Electronics & Instrumentation) with VLSI Design and DSP & ESD as specialization
8. Examination System : Semester end with continual assessment
9. Participation of the department in the courses offered by other departments
   Nil
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>01</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>01</td>
</tr>
<tr>
<td>Asst. Professors (C)</td>
<td>01</td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
<tr>
<td>Teaching Associates</td>
<td>04</td>
</tr>
<tr>
<td>Guest Faculties</td>
<td>04</td>
</tr>
</tbody>
</table>
11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Purnachandra Rao</td>
<td>M.Sc. (Tech.), Ph.D</td>
<td>Professor</td>
<td>Electronics, Instrumentation</td>
<td>28</td>
<td>8-Ph.D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12-MPhil</td>
</tr>
<tr>
<td>D.B. Venkatadri</td>
<td>M.Sc. (Tech)</td>
<td>Asso. Professor</td>
<td>Electronics, Instrumentation</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Smt. N.P. Lavanya Kumari</td>
<td>M.Sc., M.Phill., M.Tech</td>
<td>Asst. Professor (C)</td>
<td>VLSI Design, VHDL</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>Sri. M.B.N. Bhushanamu</td>
<td>M.Sc., M.Phill., M.S.</td>
<td>Teaching Associate</td>
<td>Neural Networks, VLSI Signal Processing, Testing and Verification, ASIC Design, Electronics</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>Smt. K.S.S. Soujanya Kumari</td>
<td>M.Sc., M.Phill.</td>
<td>Teaching Associate</td>
<td>Networks &amp; VLSI Design</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>Smt. L. Yamini Swathi</td>
<td>M.Sc., M.Phill.</td>
<td>Teaching Associate</td>
<td>DSP, RTOS, Mobile Communications</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>Ms. A. Sarvani</td>
<td>M.Sc.(Tech.), M.Tech</td>
<td>Guest Faculty</td>
<td>Instrumentation, Wireless Communications</td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>Sri. M. Hareesh Babu</td>
<td>M.Sc.(Tech.)</td>
<td>Guest Faculty</td>
<td>Microcontrollers and DSPs</td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>Sri. B. Benarji</td>
<td>M.Tech.</td>
<td>Guest Faculty</td>
<td>Digital Signal Processing</td>
<td>04</td>
<td></td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:

Nil
13. Percentage of classes taken by temporary faculty – programme-wise information

<table>
<thead>
<tr>
<th>Course</th>
<th>No of Students</th>
<th>Faculty</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Electronics &amp; Instrumentation (1stSem)</td>
<td>60</td>
<td>02(P)</td>
<td>06(T)</td>
</tr>
<tr>
<td>M.Sc Electronics &amp; Instrumentation (3rdSem)</td>
<td>29</td>
<td>01(P)</td>
<td>06(T)</td>
</tr>
<tr>
<td>M.Sc. Electronics (ESD) (3rdSem)</td>
<td>11</td>
<td>00(P)</td>
<td>05(T)</td>
</tr>
</tbody>
</table>

14. Programme-wise Student Teacher Ratio

<table>
<thead>
<tr>
<th>Course</th>
<th>No of Students</th>
<th>Faculty</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Electronics &amp; Instrumentation (1stSem)</td>
<td>60</td>
<td>08</td>
<td>1:8</td>
</tr>
<tr>
<td>M.Sc Electronics &amp; Instrumentation (3rdSem)</td>
<td>29</td>
<td>07</td>
<td>1:4</td>
</tr>
<tr>
<td>M.Sc. Electronics (ESD) (3rdSem)</td>
<td>11</td>
<td>05</td>
<td>1:2</td>
</tr>
</tbody>
</table>

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:

06

16. Research thrust areas as recognized by major funding agencies:

Instrumentation

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

- a. Investigation of Fibre reinforced polymer nano composites for vibration damping applications - 3.7 Lakhs
- b. Development of portable Doppler SODAR system for wind Farm siting applications – 13.47 Lakhs

18. Inter-institutional collaborative projects and associated grants received

Nil

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

Nil

20. Research facility / centre with:

State recognition, National recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies

Nil

22. Publications:

- Number of papers published (national / international) : 10
- Edited Books - 1st Year B.Sc Electronics Telugu Academy

Andhra University, Visakhapatnam
23. Details of patents and income generated:
Nil

24. Areas of consultancy and income generated:
Nil

25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad

Prof. M. Purnachandra Rao

26. Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)

Prof. M. Purnachandra Rao

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):

Nil

28. Student projects

Percentage of students who have done in-house projects including inter-departmental projects: 75%

Percentage of students doing projects in collaboration with other universities / industry / institute: 25%

29. Awards / recognitions received at the national and international level by
Nil

30. Seminars/ Conferences/Workshops organized and the source of funding (national / International) with details of outstanding participants, if any.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Names of the Conference/Seminars/ Workshop</th>
<th>Period</th>
<th>National / International</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Workshop on “Mixed Signal Processing and recent advances in Electronics”</td>
<td>21st Dec 2006</td>
<td>National</td>
</tr>
<tr>
<td>2</td>
<td>Workshop on “Low Power VLSI Design and Technology”</td>
<td>3rd Feb 2007</td>
<td>National</td>
</tr>
<tr>
<td>3</td>
<td>National Seminar on “VLSI Technology”</td>
<td>10th-12th July 2008</td>
<td>National</td>
</tr>
<tr>
<td>4</td>
<td>National workshop on “Advanced Digital signal Processing”</td>
<td>24th-26th July 2008</td>
<td>National</td>
</tr>
<tr>
<td>5</td>
<td>National Seminar on “VLSI signal Processing”</td>
<td>12th -14th August 2008</td>
<td>National</td>
</tr>
<tr>
<td>7</td>
<td>National Seminar on “VLSI Design”</td>
<td>11th-13th September 2008</td>
<td>National</td>
</tr>
<tr>
<td>8</td>
<td>National Seminar on “Microcontroller Architecture and Interfacing”</td>
<td>25th -27th September 2008</td>
<td>National</td>
</tr>
<tr>
<td>9</td>
<td>Workshop on “Embedded System Level Design”</td>
<td>17th April 2010</td>
<td>National</td>
</tr>
</tbody>
</table>


15. Seminar on Semiconductor Technology Exploration Program (STEP 2K11) 8th – 10th August 2011 National


17. National Conference on “EMI/EMC/EMS in Design” 21st & 22nd December 2011 National


20. Workshop on “Microelectronics” conducted by IEI 9th November 2013 National


31. Code of ethics for research followed by the departments:
Follow the general code of research as stipulated by university.

32. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme</th>
<th>Selected</th>
<th>Pass Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Electronics &amp; Instrumentation (1stSem)</td>
<td>39</td>
<td>21</td>
</tr>
<tr>
<td>M.Sc. Electronics &amp; Instrumentation (3rdSem)</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>M.Sc. Electronics (ESD) (3rdSem)</td>
<td>08</td>
<td>03</td>
</tr>
</tbody>
</table>

33. Diversity of Students

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Electronics &amp; Instrumentation (1stSem)</td>
<td>80</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc. Electronics &amp; Instrumentation (3rdSem)</td>
<td>80</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc. Electronics (ESD) (3rdSem)</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

NET : − 02
GATE : − 06
Competitive Examinations – 03
35. **Student progression**

<table>
<thead>
<tr>
<th>Student Progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG to PG</td>
<td>Nil</td>
</tr>
<tr>
<td>PG to M.Phil.</td>
<td>01</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>03</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>Nil</td>
</tr>
<tr>
<td>Employed</td>
<td>Nil</td>
</tr>
<tr>
<td>- Campus selection</td>
<td>Nil</td>
</tr>
<tr>
<td>- Other than campus recruitment</td>
<td>100</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>Nil</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
<td>100%</td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>Nil</td>
</tr>
<tr>
<td>from universities from other States from</td>
<td>Nil</td>
</tr>
<tr>
<td>universities outside the country</td>
<td>Nil</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

04 (M.Phil.), 01 (Ph.D.)

38. **Present details of departmental infrastructural facilities with regard to**

1. Library : YES
2. Internet facilities for staff and students : YES
3. Total number of class rooms : 07
4. Class rooms with ICT facility : 07
5. Students’ laboratories : 05
6. Research laboratories : 01

39. **List of doctoral, post-doctoral students and Research Associates**

- from the host institution/university : 02
- from other institutions/universities : Nil

40. **Number of post graduate students getting financial assistance from the university.**

All the eligible students are provided with different social welfare funding provided by state government

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

The department was originally started based on the need based study conducted by the university
42. **Does the department obtain feedback from faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

YES and used for the improvement of the course structure

**Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

YES. It is used for improving the teaching skills of the faculty and course work.

**Alumni and employers on the programmes offered and how does the department utilize the feedback?**

This being a department started in recent times it is yet to be started on a regular basis. However, the constructive suggestions provided informally by the alumni during their interaction with faculty are taken care off in the modification of the curriculum.

43. **List the distinguished alumni of the department (maximum 10)**

The alumni are in the junior and middle management groups.

44. **Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts:**

Nil

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

PPT, VIDEOS

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

1. Weekly written test
2. Class-room Seminars

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

Blood Donation Camps

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

a. Expert Lectures
b. Technical Debates

49. **State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.**

NAAC

50. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

Nil
51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

**Strengths:**
- a. Well-equipped laboratories
- b. Well-equipped Seminar Hall
- c. Wi-Fi connectivity
- d. Multi-Media Teaching aids
- e. Department Library

**Weaknesses:**
- a. Lack of sufficient permanent faculty

52. Future plans of the department.

P. G. Diploma courses for the science and engineering graduates
STATISTICS

1. Name of the Department : STATISTICS

2. Year of establishment : 1951

3. Is the Department part of a School/Faculty of the university?  
   Yes, Faculty of Sciences

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)

5. Interdisciplinary programmes and departments involved

<table>
<thead>
<tr>
<th>Programme</th>
<th>Departments Involved</th>
</tr>
</thead>
</table>

6. Courses in collaboration with other universities, industries, foreign institutions, etc.  
   Nil

7. Details of programmes discontinued, if any, with reasons:  
   Nil

8. Examination System :  
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments
   - MBA in Commerce and Management
   - MS in Economics
   - MA in Human Resource Management
   - M.Tech in Mechanical Engineering
   - B.Tech/M.Tech in Computer Science and Systems Engineering

10. Number of teaching posts sanctioned (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>3</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>2</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
</tr>
</tbody>
</table>
11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance during the last 5 years

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of years of experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. K. Srinivas Rao</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Stochastic Modelling, Statistical Inference, Computational Statistics, Biometrics and Operations Research</td>
<td>28</td>
<td>Ph.D. -22 M.Phil-02</td>
</tr>
<tr>
<td>Dr. B.V. Suryanarayana</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Operations Research</td>
<td>33</td>
<td>Ph.D. -01</td>
</tr>
<tr>
<td>Dr. K. Nirupama Devi</td>
<td>Ph.D.</td>
<td>Professor</td>
<td>Operations Research and Queuing Theory</td>
<td>27</td>
<td>Ph.D. -03</td>
</tr>
<tr>
<td>Dr. L. Venkateswara Rao</td>
<td>Ph.D.</td>
<td>Associate Professor</td>
<td>Queuing Theory and Operations Research</td>
<td>27</td>
<td>Nil</td>
</tr>
<tr>
<td>Dr. B. Muniswamy</td>
<td>Ph.D.</td>
<td>Associate Professor</td>
<td>Econometrics, Operations Research, Statistical Inference and Statistical Computing &amp; Data Analysis.</td>
<td>06</td>
<td>Ph.D. -02 M.Phil-02</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

- Prof. T.J. Rao, former Professor ISI Kolkata, Adjunct Professor, C.R. Rao AIMSC, Hyderabad
- Prof. S. Rao Jammalamadaka, Professor, University of California, Santabarbara, USA
- Prof. M.B. Rao, Professor, University of Cincinnati, Ohio, USA.
- Prof. V. Lakshmikantham, Former Professor, ISI, Delhi.

13. Percentage of classes taken by temporary faculty – programme-wise information

38%

14. Programme-wise Student Teacher Ratio

<table>
<thead>
<tr>
<th>Programme</th>
<th>Student Teacher Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Statistics</td>
<td>1 : 8</td>
</tr>
<tr>
<td>M.Sc. Computer Science and Statistics</td>
<td>1 : 5</td>
</tr>
</tbody>
</table>

15. Number of academic support staff (technical) and administrative

05

16. Research thrust areas

- Stochastic Modeling
- Operations Research
- Data Mining
- Distribution Theory
- Econometrics
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

Under UGC-DRS-SAP the following projects are sanctioned
- Study on Model Based Image Segmentation and its Applications
- Study on Performance Evaluation of Stochastic Communication Networks
- Stochastic Modeling for Signal Processing and Imaginary Analysis
- A Collaborative Study with Visakha Steel Plant in Designing X Bar Control Charts for Non-Gaussian Variates.

18. Inter-institutional collaborative projects and associated grants received:

National collaboration:
Design and development of Queuing analyzer for stochastic flow control system and its applications to TTD Queue complex in collaboration with S.V. University, Tirupati funded by DST, New Delhi 9.30 Lakhs

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.
- DST-FIST; grants received-13 lakhs
- UGC-DRS-SAP-1; grants received-59.5 Lakhs

20. Research facility / centre with:
State recognition, National recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies:
Statistical Laboratory funded by UGC

22. Publications during the last five years
- Number of papers published in peer reviewed journals (national/ international): 82
- Chapters in Books: 01
- Edited Books: 03
- Books with ISBN with details of publishers: 01

23. Details of patents:
Nil

24. Areas of consultancy
- Business Analytics
- Statistical Analysis
- Quality Consultancy

25. Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad:
- Prof. K. Srinivas Rao Visited and delivered lectures at IICT, Hyderabad.
• Prof. K. Srinivasa Rao visited and delivered lectures at National Atmospheric Research Laboratory, Gadanki, Tirupati.
• Prof. K. Srinivas Rao visited and delivered lectures at TCS, Think Centre, Bangalore.
• Prof. K. Srinivas Rao visited and delivered lectures at BHEL, Hyderabad.
• Prof. K. Srinivas Rao visited and delivered lectures at Aurobindo Pharma Limited, Pydibhimavaram, Srikakulam.
• Prof. K. Srinivas Rao visited and delivered lectures at Lucus TVS Ltd. Chennai.
• Prof. K. Srinivas Rao visited and delivered lectures at Symbiosys Technologies, Visakhapatnam.
• Prof. K. Srinivas Rao visited and delivered lectures at Centre for Mathematical Sciences, Pala.
• Dr. B. Muniswamy visited and delivered lectures at Symbiosys Technologies, Visakhapatnam.

26. Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify):

• Prof. K. Srinivas Rao Chief editor, Journal of ISPS
• Prof. K. Srinivas Rao Editor, IJMSAF
• Prof. K. Srinivas Rao Associate Editor, AUJAS
• Prof. K. Srinivas Rao Editorial board member, JGSA
• Prof. K. Srinivas Rao, Planning Board Member, DST Centre for Mathematical Centre, Pala
• Prof. K. Srinivas Rao Served as Vice President ORSI
• Prof. K. Srinivas Rao Executive Committee Member ISPS
• Prof. K. Srinivas Rao Scientific Member, Institutional review board, Shankar Foundation
• Dr. B. Muniswamy Editorial board member, Journal of Statistics, Lahor

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs):

119

28. Student projects

• Percentage of students who have done in-house projects including inter-departmental projects: 70%
• Percentage of students doing projects in collaboration with other universities industry / institute: 30%

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

• Faculty: 01
• Students: 04

30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.

The following are the workshops/training programme/seminars/ conferences organised in the Department during the last 5 years.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Title of the Programme</th>
<th>Period</th>
<th>Eminent persons visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Training programme on Data analysis using SPSS</td>
<td>February, 2014</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>National Workshop on Data Analysis using SPSS</td>
<td>22nd August 2013</td>
<td>Dr. B. Chakrabhorthy, IBM SPSS, Ltd, Bangalore</td>
</tr>
<tr>
<td>3</td>
<td>National Seminar on recent advances in stochastic modeling and its applications</td>
<td>10th – 11th February, 2013</td>
<td>Dr. U. Murallidhar, USA, Prof. T. J. Rao, Prof. RRL. Kantham, Prof. Dhanvanthan, Prof. Hara Gopal</td>
</tr>
<tr>
<td>4</td>
<td>Training the trainers program on market research and business analytics</td>
<td>29th November to 7th December 2012</td>
<td>Dr. Dayalan, TCS, Dr. P. Ravi, TCS, Dr. SK. Kumar, TCS</td>
</tr>
<tr>
<td>5</td>
<td>National workshop on Recent Advances in Statistical Signal Processing and its Applications</td>
<td>24th – 27th, August, 2012</td>
<td>Prof. Debasis Kundu, Prof. PC. Jha, Dr. Koteswara Rao</td>
</tr>
<tr>
<td>6</td>
<td>National Workshop on Data mining and its applications</td>
<td>11th – 14th, March 2011</td>
<td>Prof. B.K. Das, Prof. SN. Honda, Dr. Bhujanga Rao, Dr. A.K. Singh</td>
</tr>
<tr>
<td>7</td>
<td>Training Program on Mathematical Algorithms and Statistical Analysis</td>
<td>2nd – 7th August, 2010</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>International Conference on Statistics, Probability, Operations Research, Computer Science and allied areas in conjunction with 8th Joint Statistical meeting of IISA and 29th ISPS annual conference</td>
<td>4th – 8th January 2010,</td>
<td>Prof. C.R. Rao, Prof. SRS. Vardhan, Prof. Winston, Prof. Jammalamadaka, Prof. B.L. S.P. Rao, Prof. D. Montegomery, Prof. Keerthiphari, Prof. Sengupta and many others</td>
</tr>
<tr>
<td>9</td>
<td>International Workshop on Recent Advances in Mathematical Algorithms and Data Analysis</td>
<td>2nd – 5th January 2010</td>
<td>Prof. M.B. Rao, Prof. J. K. Ghosh, Prof. Milinda Swamy, Dr. Avinash Gupta</td>
</tr>
<tr>
<td>10</td>
<td>Training Program on Mathematical Algorithms and Statistical Analysis</td>
<td>October, 2009</td>
<td>--</td>
</tr>
<tr>
<td>11</td>
<td>Training Program on Mathematical Algorithms and Statistical Analysis</td>
<td>1st – 5th May, 2009,</td>
<td>--</td>
</tr>
<tr>
<td>12</td>
<td>Workshop on Statistical packages and data analysis for research scholars and Faculty</td>
<td>31st March – 4th April, 2009</td>
<td>--</td>
</tr>
</tbody>
</table>

31. **Code of ethics for research followed by the departments**

The Department strictly adheres to code of ethics for research that was formulated in the university guidelines formed by Board of Research Studies. The University is very serious about the aspect of malpractices and plagiarism in research. The aspect of plagiarism has been controlled and checked by departmental research committees during the resubmission presentation given by the candidate. The foundations of research values are very strong in the University. However, as a preventive measure the department communicated to all the research students to check before submission about the plagiarism.
32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Statistics</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>M.Sc. Computer Science and Statistics</td>
<td>04</td>
<td>17</td>
</tr>
<tr>
<td>M.Phil</td>
<td>04</td>
<td>03</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>08</td>
<td>06</td>
</tr>
</tbody>
</table>

33. **Diversity of Students :**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of Students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Statistics</td>
<td>80</td>
<td>20</td>
<td>-</td>
<td>--</td>
</tr>
<tr>
<td>M.Sc. Computer Science and Statistics</td>
<td>85</td>
<td>15</td>
<td>-</td>
<td>--</td>
</tr>
<tr>
<td>M.Phil</td>
<td>90</td>
<td>07</td>
<td>03</td>
<td>--</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>75</td>
<td>10</td>
<td>--</td>
<td>15</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

43

35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>05</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>15</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctor</td>
<td>02</td>
</tr>
<tr>
<td>Employed</td>
<td>80</td>
</tr>
<tr>
<td>Campus selection</td>
<td>40</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>60</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
</tbody>
</table>
37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

Nil

38. **Present details of departmental infrastructural facilities with regard to**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>1885</td>
</tr>
<tr>
<td>Internet facilities for staff and students</td>
<td>Available for both staff and students</td>
</tr>
<tr>
<td>Total number of class rooms</td>
<td>04</td>
</tr>
<tr>
<td>Class rooms with ICT facility</td>
<td>04</td>
</tr>
<tr>
<td>Students’ laboratories</td>
<td>01</td>
</tr>
<tr>
<td>Research laboratories</td>
<td>01</td>
</tr>
<tr>
<td>Seminar Hall</td>
<td>01</td>
</tr>
</tbody>
</table>

39. **List of doctoral, post-doctoral students and Research Associates:**

**Doctoral Students**

1. from the host institution/university : 18
2. from other institutions/universities : 07

40. **Number of post graduate and research students getting financial assistance:**

75%

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

The University has a well organised system of curriculum design and development. Each Department has a Board of Studies at PG levels consisting of experts from the faculty of the Department and from other Universities, representatives from industry and student representatives. Concerned subjects in different departments are grouped as one faculty and a senior teacher is nominated as the Chairperson. The Boards of Studies scrutinize two issues i.e., need assessment and feedback from the stakeholders before designing and developing the curriculum.

The need assessment is made basing on market surveys, public opinion, experts views, industry requirements, MoU entered with other institutions/organisations, state policies, guidelines framed by UGC and other national apex bodies and regional requirements. The feedback is obtained formally and informally from faculty, students, alumni, employers and academic experts periodically following systematic procedures.

The draft curriculum will be discussed at length in periodic meetings of respective Boards of Studies and the final draft will be placed before the Academic Senate for approval. The Academic Senate is the final authority to approve the new programmes, curriculum, modifications in curriculum, syllabus, regulations, etc. in the existing programmes.

42. **Does the department obtain feedback from: Yes**

**Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

Yes, the department obtains feedback from faculty on curriculum, teaching, learning and evaluation. The feedback collected will be analysed and placed before the departmental committee and staff council. The feedback on curriculum will be used in designing / modifying the syllabi. The feedback on teaching learning evaluation will be used to improve the respective processes.
Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Yes, the department collect the feedback from students on staff curriculum on teaching learning and evaluation processes. The data is analyzed and corrective measures are taken accordingly.

Alumni and employers on the programmes offered and how does the department utilize the feedback?

Yes, the feedback from alumni and employees on programmes offered is collected and such information is used for improvement of quality of the department.

43. List the distinguished alumni of the department (maximum 10)

- Prof. R. Radhakrishna, Former Chairman, Statistics Commission.
- Prof. A. Srinivas Rao, Professor, University of Texas, USA
- Sri M. Anjineyarapasad, Executive Director, Syndicate Bank, Bangalore
- Sri Venkata Reddy, IRS
- Sri Dhanraj, Former Deputy Chairman, Visakhapatnam Port Trust
- Dr. U.V. Somayajulu, CEO, Sigma Research and consulting, New Delhi
- Sri Krishna Murthi, Principal Advisor. Govt. Of India, Ministry of Tele Communication.
- Sri. S. Satyanarayana, IAS, Municipal Commissioner, Visakhapatnam
- Sri. U. Muralidhar, Senior Vice President, HSBC, Analytics Division, USA
- Prof. Rajendra Prasad, ISI, Bangalore
- Sri. C.S. Ranganatham, ISS, Additional Director General, CSO, New Delhi

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

- Prof. T. J. Rao delivered lectures on Modern methods of sampling
- Prof. M. B. Rao delivered lectures on Bioinformatics using Probability Distributions
- Prof. J.S. Rao delivered lectures on Circular Distributions
- Students seminars are conducted in every year and students are encouraged to present papers.
- Training programs on Data Analysis using Statistical Packages are organized every year for students.
- Interactive program with Eminent personalities in Statistics like Prof. C.R. Rao, Prof. BLS Prakash Rao, Prof. Winstan, Prof. Chaganti S Rao, Prof. Panthula V. Sastry, etc, were arranged during the last two years.
- Students were involved in consultancy projects done by the department.

45. List the teaching methods adopted by the faculty for different programmes.

- Class room teaching using ICT Method
- Question Based Interactive method of teaching
- Class room seminars
- Experienced study methods
- Continual evaluation through class room based surprise tests
46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?

Program Objectives:
- **M.Sc. Statistics**: To train the students on Statistical methods and techniques with latest advancement of knowledge in Statistics.
- **M.Sc. Computer Science & Statistics**: To train the students in Statistics and Computer Science with latest Statistical methods and softwares.

Expected Learning Outcomes:
- **M.Sc. Statistics**: The students are expected to become good professionals in Statistics. They are able to analyze data sets in different fields of Industry and Research organizations. They should become good system analyst and model builders. They are able to conduct market research surveys, social surveys and Industrial surveys and generate reports. They are able to assist the decision makers through providing correct insights via Data analysis. They are also able to become good trainers in training the people in Statistics.
- **M.Sc. Computer Science & Statistics**: The students are expected to become good Statisticians and Software professionals. They are able to do Business analytics and assist the corporates in their data analysis. They should become good Statistical software developers and able to analyze the data sets from different domains.
- **Monitoring Process**: Each and every programme is monitored throughout the period to ensure conformity with what has been set as course objectives and leaning outcomes. The methods adopted for the purpose includes continuous assessment, observations, semester end tests and results, participations in competitions, contributions of new thoughts and ideas, and innovativeness and leadership.

47. Highlight the participation of students and faculty in extension activities.

The department faculty and students have participated the following extension activities during the last five years:
- Blood Donation camps
- Swine Flu Awareness Programme
- Statistical Training Programmes
- Science Exhibition organized in Andhra University
- ISPS Project work competition
- Environment and pollution protection Programme
- Memberships: ISPS, K.N. Memorial Society, IASA, ORSI AND SC&ST activities
- Conducted training programmes in various Industries

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

Organizing student seminars, technical quiz, group discussion, event exhibition, state of art technology awareness programme, arranging expert lectures from industry & research institutions, encouraging students to competitions and paper presentation in the conferences

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details:

NAAC with A grade
50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

The department of Statistics was started in 1951 under the guidance of Prof. K. Nagabhushanam. The department is the third Indian university to start M.Sc. Statistics course. It is the pioneer department to introduce Econometrics, Operations Research and Demography papers as electives at PG level. As founder member of Indian Econometric Society Prof. Nagabhushanam was responsible to propagate Econometrics in India. His contributions in Stochastic Processes especially in Harmonizable process are well received provided a pathway to do research in a new area of Statistics. He also worked in dam models which are still used in several banks to calculate the bank reserves. He conducted the Socio-Economic Survey of Nagarjuna project area in 1960 which is still taken as a benchmark for construction of the irrigation projects in implementing the rehabilitation projects. He served as sectional president Mathematical Sciences of Indian Science Congress Association in 1951.

Prof. P.V. Avadhani was a legendary figure who worked with Prof. Bilingslay and developed new methods of estimation for point processes. His contributions in Demography are immense and he was responsible to start Population Research Centre in Andhra University sponsored by Government of India. He conducted the first Visakhapatnam City – Traffic Survey in 1972 which was a benchmark for conducting the traffic surveys in India. Prof. C.S.K. Bhaghavan brought lot of contributions in Inferences of Stochastic Processes and Probability Distributions.

Prof. PVS Sarma worked in Stationary models of Population which were very useful in obtaining the population estimates of a Country. Prof. C.V. Seshachalapathy worked in Random coefficient linear models which formed a basis for developing several Econometric models. Prof. P. Sambamurhty worked in linear models which were useful for analyzing several Experimental Designs.

Prof. J. Lakshmi Narayana worked in Statistical Quality control and developed new methods for designing control charts for variables. He also worked in Inventory models and Queuing theory which were very useful for material management in Industries. Prof. Vivekananda Murthy worked in Manpower models useful for Visakhapatnam Port trust. His models were applied in Visakhapatnam port for optimal scheduling of Manpower. He also worked in Demography and Actuarial Statistics. The contributions he made in Manpower models are well received by contemporary researchers and applied in several Industries. He also conducted a research project on manpower generation in organized and unorganized sectors through modelling funded by UGC.

Prof. K. Srinivasa Rao had designed and developed Interdependent Queuing models which have applied in designing several communication systems and production processes. He also developed a dynamic bandwidth allocation strategy to reduce congestion in buffers of communication networks. He also developed and analyzed several communication network models using compound Poisson bulk arrival processes which are very useful for scheduling LAN, VAN and MAN. He conducted a research project on Inference in queuing models applied to railway reservation system funded by UGC. This project is the basis for implementing computerized railway reservation system with any queue for any place. He developed various Probability distributions such new symmetric distribution, family of bimodal distributions, generalized Laplace type distributions, Generalized Gaussian type distributions which are proved to be very useful in analyzing the datasets arising at agricultural, biological experiments. He also pioneered in introducing integration of model based methods with Heuristic methods in image segmentation and image analysis. He also developed and analyzed text independent speaker identification models. He also developed several stochastic models in Inventory control in particular economic production quantity models with random production rates. This has provided a new field for research in the area of Inventory models. He also developed stochastic models for controlling cancer cell growth and optimal drug design in chemotherapy. His models in recurrent communicable diseases are highly appreciated by contemporary researchers. He also developed the basic statistics manual.
in business analytics for TCS, Bangalore to carry out market research surveys. The methods he developed in data mining for Time Series using vector ARIMA models are very useful in analyzing several data sets.

Prof. M. Chitti Babu worked in Bio-Statistics and made contributions in developing Probability distributions for estimating T.B. patients in a region. He also conducted on Effects of Craniates in the prevalence of T.B. Prof. B.V. Suryanarayana worked in facility location models which are useful for regional planning. He also worked in transportation models. Prof. K. Nirupama Devi worked in Inventory Models for detiorating items using mixtures of distributions. She also done a project on optimal operating polices in the Inventory management of sea food industry using stochastic models funded by UGC. Dr. L.V. Rao worked in Interdependent queuing models with Erlangian service time distributions. His models are very useful in computer communication networks. He also conducted a project on analysis of stochastic models arising in interdependent stochastic systems. Dr. B. Muniswamy worked in applications of distributed lag models and demand analysis which are very useful for analyzing Industrial surveys and banking institutions. He also worked in designing and developing goodness of fit test for logistic regression with continuous covariates. He developed a statistical test in discrete regression models for over dispersed and zero inflated count data which was highly appreciated for contemporary researchers.

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths**
- Well qualified and comitted faculty
- Well established statistics laboratory
- Well established alumni
- Interdisciplinary research and industry interactions
- Image of the University

**Weakness**
- Unable to find 100% placement in Campus Placement.

**Opportunity**
- Development of networking with more number of industry and research based social organizations.
- Application of enhanced ICT
- Providing international exposure to the students by way of MoU’s with foreign organization
- Growing demand for Statistical consultancy services

**Challenges**
- Catching with changes at the global level in respect of curriculum and teaching environments
- Building the network of alumni
- Developing students with employability skills
- Promoting research at international standards

52. **Future plans of the department**

The following are the future plans of the department for coming next five years

- To establish data analytic research centre for decision making in collaboration with other departments and funding agencies.
- To start a PG Diploma in data analysis using statistical packages through school of distance education.
- To conduct workshops / training programmes in data analysis and statistical packages in collaboration with IBM, SPSS.
- To establish a statistical consultancy centre
APPLIED MATHEMATICS

1. Name of the Department : APPLIED MATHEMATICS
2. Year of establishment : 1942
3. Is the Department part of a School/Faculty of the university?  
   Yes, Faculty of Science
4. Names of programmes offered:
   (i) M.Sc. (Applied Mathematics), (ii) M.Phil. (Full-Time & Part-Time)  (iii) Ph.D. (Full-Time & Part-Time)
5. Interdisciplinary programmes and departments involved:
   Statistics, Meteorology & Oceanography, Physics.
6. Courses in collaboration with other universities, industries, foreign institutions, etc.:
   Research work is carried out in collaboration with the faculty of the other universities such as University of Hyderabad, JNTU (Hyderabad), CRR Advanced Institute of Mathematics, Statistics and Computer Science in India and Baylor University, Georgian Southern University, Auburn University, Florida Institute of Technology (USA) etc.
7. Details of programmes discontinued, if any, with reasons
   Not Applicable
8. Examination System
   Semester end with continual assessment
9. Participation of the department in the courses offered by other departments
   Instrumentation Engineering, Meteorology and Physical Oceanography, Pharmacy and Computer Science Engineering.
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th>Role</th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>2</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>1</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>1</td>
</tr>
<tr>
<td>Others (D.S.T. Inspire Fellows)</td>
<td>4</td>
</tr>
</tbody>
</table>
11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of years of experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. V. Uma Maheswara Rao</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Relativity and Cosmology</td>
<td>30</td>
<td>10 Ph.Ds</td>
</tr>
<tr>
<td>Dr. K. Rajendra Prasad</td>
<td>M.Sc., Ph.D., D.C.S&amp;A.</td>
<td>Professor</td>
<td>Boundary Value Problems</td>
<td>23</td>
<td>9 Ph.Ds</td>
</tr>
<tr>
<td>Dr. M. Vijaya Santhi</td>
<td>M.Sc., Ph.D.</td>
<td>Associate Professor</td>
<td>Relativity and Cosmology</td>
<td>8</td>
<td>--</td>
</tr>
<tr>
<td>Dr. P. Vijaya Laxmi</td>
<td>M.Sc., Ph.D.</td>
<td>Assistant Professor</td>
<td>Operations Research</td>
<td>8</td>
<td>2 Ph.Ds</td>
</tr>
</tbody>
</table>

12. List of senior Visiting Fellows, adjunct faculty, emeritus professor:

1. Prof. N. V. Vignesam
2. Prof. K. S Rao
3. Prof. V. Ch. Venkaiah
4. Prof. C. P. Singh
5. Prof. Y. Vasudeva Rao
6. Prof. C. Sastri
7. Prof. I. H. Naga Raja Rao
8. Prof. Zafar Ahsan
9. Prof. C. Santhamma
10. Prof. Durvasula
11. Prof. V. Vani Prasad
12. Prof. A. Sitapati
13. Prof. T. K. V. Iyengar
15. Prof. K. N. Murthy
16. Prof. Tangavelu
17. Prof. P. V. Arunachalam
18. Prof. M. A. Srinivas
19. Prof. G. Sarojamma

13. Percentage of classes taken by temporary faculty programme-wise information

15%

14. Programme-wise Student Teacher Ratio

15 : 1

15. Number of academic support staff (technical) and administrative staff

4

16. Research thrust areas

a) Boundary Value Problems
b) Operations Research
c) Relativity and Cosmology
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total Grants received. Give the names of the funding agencies project title and grants received project – wise.

- National : 01
- Total grants received : Rs 1,80,000
- Funding Agency : UGC
- Project Title : Optimal Design and Control of Queuing Models with Vacations
  Minor Research Grant, No.F.No.41-1389/2012 (SR), dated July 30 2012.

18. Inter-institutional collaborative projects and associated grants received :

- National collaboration: Prof. Y. Narasimhulu, Central University of Hyderabad, Prof. M. A. Srinivas, INTU (Hyderabad), Prof. P. V. S. Anand, CRR Advanced Institute of Mathematics, Statistics and Computer Science, Hyderabad.
- International collaboration: The department has collaborative research with Prof. Johnny Henderson, Baylor University (USA).

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:

- Nearly Rs.10 Lakh annual NBHM Grant for combined library of Applied Mathematics and Mathematics Departments.
- The department is approved for Faculty recharge program of UGC, and is expecting certain new faculty will join in the department from this scheme.

20. Research facility / centre with

State recognition : Yes
National recognition : Yes

21. Special research laboratories sponsored by / created by industry or corporate bodies

Nil

22. Publications:

- Number of papers published in peer reviewed journals
  (National / International) : 75
- Chapters in Books : 06
- Edited Books : 04
- Books with ISBN with details of publishers : 03

23. Details of patents

Nil

24. Areas of consultancy

Nil

25. Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad

Nil
26. Faculty serving in
   a) National committees b) International committees c) Editorial Boards d) any other (please specify) The faculty of the department are in committees and Editorial Boards and acted as reviewers and referees of national and international journals and member of the American Mathematical Society
   i) Prof. V. U. M. Rao
   ii) Prof. K. Rajendra Prasad

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

   Faculty participated in 10 refresher and orientation Programmes

29. Student projects
   - percentage of students who have done in-house projects including inter-departmental projects : Nil
   - percentage of students doing projects in collaboration with other universities industry / institute : Nil

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

   Faculty : 1
   Doctoral / post doctoral fellows : 1
   Students : 4

31. Seminars/Conferences/Workshops organized and the source of funding (National/International) with details of outstanding participants, if any

04

32. Code of ethics for research followed by the departments :

   The department follows the general code of ethics stipulated by the university. During the presubmission talk the Department Research Committee (DRC) verifies the quality of work and plagiarism. The DRC takes into consideration suggested corrections as indicated by the Ph.D examiners and conducts open viva, and the candidate is expected to answer the queries raised by the audience.

33. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc.</td>
<td>11</td>
<td>29</td>
</tr>
<tr>
<td>M.Phil.</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

34. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc.</td>
<td>70%</td>
<td>30%</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>M.Phil.</td>
<td>60%</td>
<td>35%</td>
<td>5%</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>60%</td>
<td>30%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>
34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise

8

35. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>20%</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>10%</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>10%</td>
</tr>
<tr>
<td>Employed</td>
<td>70%</td>
</tr>
<tr>
<td>Campus selection</td>
<td>30%</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>70%</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>Nil</td>
</tr>
</tbody>
</table>

36. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States</td>
</tr>
<tr>
<td>from universities outside the country</td>
</tr>
</tbody>
</table>

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period

1

38. Present details of departmental infrastructural facilities with regard to

a) Library : 6000 books
b) Internet facilities for staff and students : Yes
c) Total number of class rooms : 4
j) Class rooms with ICT facility : 1
k) Students’ laboratories : 1
l) Research laboratories : 1

40. List of doctoral, post-doctoral students and Research Associates

a) from the host institution/university : 10
b) from other institutions/universities : 6

41. Number of post graduate and research students getting financial assistance :

i) Financial assistance from Applied Mathematics alumni : 40
ii) DST Inspire Fellowships for Research Scholars : 4

Andhra University, Visakhapatnam
42. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology:

- The University has a well organised system of curriculum design and development. The Department has a Board of Studies consisting of experts from the faculty of the Department and from other Universities, representatives from industry and student representatives. Based on the need assessment and feedback from the stakeholders, the curriculum is developed.
- The feedback is obtained formally and informally from faculty, students, alumni, employers and academic experts periodically following systematic procedures.
- The draft curriculum will be discussed in periodic meetings of faculty, Boards of Studies and the final draft will be placed before the Academic Senate which is the final authority for approval of syllabus.

43. Does the department obtain feedback from

   a. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

      Yes. The collected feedback is analysed by the Departmental Committee and Staff Council and it will be used for the modification of existing syllabus and in the design of new syllabus. It will be also used for teaching learning process.

   b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

      Yes. The feedback is collected at the end of each semester and used for improving teaching-learning and evaluation processes.

   c. Alumni and employers on the programmes offered and how does the department utilize the feedback?

      The feedback is also collected from the alumni regularly and used for modification of the syllabus and teaching process.

44. List the distinguished alumni of the department (maximum 10):

   1. Dr. K.V.S. Rama Rao, NASA, USA.
   2. Dr. Y. Syamala Devi, BELL Labs, USA. Singapore
   3. Dr. A. Venkata Rao, NASA, USA.
   4. Dr. P.V. Subba Rao, Head of Applied Mathematics, VIKRAM SARABHAI Research Centre, Trivandrum
   5. Dr. V. Adi Murthy, Distinguished Scientist, ISRO, Tumba.
   6. Dr. V. Vignesam, ISRO, Head, Satellite Division.
   7. Dr. S. Krishna Kumar, Senior Scientist, Gas Turbine Research Centre, Bengaluru.
   10. Sri K. V. Ramana Murthy, Asst. Commissioner, IT.
   11. Dr. V. Vani Prasada Rao, ISS, Dy. Secretary, Ministry of Planning.

45. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

   Special lectures by eminent professors like

   Prof. C. C. A. Sastri (Dalhouse University, USA), Prof. V. Ch. Venkaiah (C. R. Rao Institute, Hyderabad), Prof. Zafar Alshar (Aligarh Muslim University, Naga[ir), Prof. Y. Vasudeva Rao (Visiting Professor, IIT Bhubaneswar), Prof. C. Shanthamma (Former Professor of
List the teaching methods adopted by the faculty for different programmes:

Besides regular classroom teaching methods such as chalk or talk, teaching in computer applications, ICT Applications are being adopted. Students are also given for NET coaching. Student/Scholar Seminars are also organized on regular basis.

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

- In P.G. program, improving the subject competency of the students and the learning outcomes of each student is monitored by conducting the regular tests, assignments and quiz programs. The students and scholars are encouraged to participate in seminars, and prizes are awarded to outstanding students.
- Research scholars are trained to identify the new research areas and pursue research in their fields of interest.
- The Students are assessed through frequent class tests and unit tests and final semester examinations. Further, regular departmental committee meetings are held to assess the progress of the syllabus, preparing teaching plans, etc.

Highlight the participation of students and faculty in extension activities:

- Students and teachers participate in clean and green Programme which is meant to clean the premises of Applied Mathematics / Mathematics / Statistics Departments and surroundings. All the NSS students participate in this programme.
- The students actively participate in donating blood during blood donation camps.

Give details of “beyond syllabus scholarly activities” of the department:

Organizing student seminars, technical quiz, group discussion, event exhibition, state of art technology awareness programme, arranging expert lectures from industry & research institutions, encouraging students to competitions and paper presentation in the conferences

State whether the programme/ department is accredited/ graded by other agencies? If yes, give details

Nil

Briefly highlight the contributions of the department in generating new knowledge, basic or applied:

52. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department:**

**Strengths**
- Highly experienced faculty
- One of the oldest departments in the country to offer this specialized programme
- Highly placed aluni of the department

**Weakness**
- Unable to achieve 100% placements for the students.

**Opportunities**
- The Department is having good network with international institutions to improve its research output and having scope for developing research facilities.
- The Applied Mathematics is having wider scope for training the people in different domains of knowledge.

**Challenges:**
- The great challenge is to introduce new techniques in Mathematics that are in tune with the latest developments. Present focus is mainly to make the syllabus more effective and useful to the students.

53. **Future plans of the department:**

- To submit proposals for UGC - SAP / Non SAP grants for the department.
- To conduct Two day National seminar on Ramifications in Applied Mathematics during 2015 through sponsorship from funding agencies such as UGC, DST, CSIR and NBHM.
- To conduct a workshop on Applied Mathematics and Applications to real world problems during 2017.
- To extend support to research activities by giving scholarships, prizes and travel Grants with financial support from Applied Mathematics Trust.
- Faculty of the department planning to apply DST/UGC/CSIR projects in the thrust areas.
MATHEMATICS

1. Name of the Department : MATHEMATICS

2. Year of establishment : 1932

3. Is the Department part of a School/Faculty of the university?
Yes, Faculty of Science

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
PG-(M.A./M.Sc.), M.Phil., Ph.D. in Mathematics

5. Interdisciplinary programmes and departments involved
Three interdisciplinary collaborative research programmes have been carried out with department of Zoology. These works are related to Ecosystem Modelling pertaining to Chilka Lake, Orissa and Kolleru lake, Andhra Pradesh.

6. Courses in collaboration with other universities, industries, foreign institutions, etc.
Nil

7. Details of programmes discontinued, if any, with reasons:
Nil

8. Examination System:
Semester end with continual assessment

9. Participation of the department in the courses offered by other departments
Members of this department are participating in teaching a few papers in the courses offered by departments of Economics and Geology.

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>7</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>2</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of years of experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. P. Ranga Rao</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Lattice Theory</td>
<td>33</td>
<td>4/2</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
12. List of senior Visiting Fellows, adjunct faculty, emeritus prof
   : Nil
13. Percentage of classes taken by temporary faculty – programme-wise information

   Programme: M.A./M.Sc Mathematics

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>45%</td>
</tr>
<tr>
<td>2009-10</td>
<td>25%</td>
</tr>
<tr>
<td>2010-11</td>
<td>25%</td>
</tr>
<tr>
<td>2011-12</td>
<td>25%</td>
</tr>
<tr>
<td>2012-13</td>
<td>20%</td>
</tr>
<tr>
<td>2013-14</td>
<td>0%</td>
</tr>
</tbody>
</table>

14. Programme-wise Student Teacher Ratio :
   18:1 (M.A./M.Sc Mathematics)
15. Number of academic support staff (technical) and Administrative staff::
   03
16. Research thrust areas :
   Lattice Theory, C- Algebras, Fuzzy set theory, Fixed point theory, Dynamical Systems, Cryptography
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

Number of faculty with projects: 05

1. Project Title: Sheaf representation of almost distributive lattices- applications in Computer sciences, Funding Agency: UGC Grant: Rs. 10,90,800


3. Project Title: Dynamics and Optimal Management of Renewable Resources Subjected to Allee Effects, Funding Agency: National Board for Higher Mathematics, Department of Atomic Energy

4. Project Title: Chilka Lake Ecosystem modelling: Phase II (Interdisciplinary), Funded Agency: Ministry of Earth Sciences, Government of India

5. Project Title: Ecosystem Modelling for Kolleru Lake (Interdisciplinary), Funding Agency: Department of Science and Technology, Government of India

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration  
b) International collaboration

This department is part of a Node within National Network in Mathematical and Computational Biology with central Node at IISc Bangalore. In this programme support is extended to bachelor's and master's students to undertake internship, to carryout collaborative research programmes with International organisations to conduct workshops and conferences.

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:

Nil

20. Research facility / centre with:

National recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies:

Nil

22. Publications: 317

International and National: 326
Books Published: 20

23. Details of patents:

Nil

24. Areas of consultancy:

Nil

25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad:

Nil
26. Faculty serving in a) National committees b) International committees c) Editorial Boards d) any other (please specify)

<table>
<thead>
<tr>
<th>Name of the Body / Academy (National &amp; Inter National level )</th>
<th>Name and Position, if any</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian Society for Mathematical Biology</td>
<td>Prof. P.D.N. Srinivasu, Joint Secretary</td>
</tr>
<tr>
<td>Indian Science Congress Association</td>
<td>Prof. G.V.R. Babu, Life Member</td>
</tr>
<tr>
<td>A.P. Society for Mathematical Sciences</td>
<td>All the faculty of the Dept. of Mathematics are Life Members</td>
</tr>
<tr>
<td>Prof. S. Meenakshisundaram Memorial Society</td>
<td>All the faculty of the Dept. of Mathematics are Members</td>
</tr>
<tr>
<td>Cryptology Research Society of India</td>
<td>Prof. N.V.E.S. Murthy, Prof. K.K.M. Sarma and Dr. P. Anuradha Kameswari, Life Members</td>
</tr>
<tr>
<td>Pacific Optimization Group, Hong Kong</td>
<td>Prof. P.D.N. Srinivasu, Member</td>
</tr>
<tr>
<td>International Society of Ecological Modelling</td>
<td>Prof. P.D.N. Srinivasu, Member</td>
</tr>
<tr>
<td>American Association for the Advancement of Science, U.S.A</td>
<td>Prof. P.D.N. Srinivasu, Member</td>
</tr>
</tbody>
</table>

Positions held by the faculty of the Department:

<table>
<thead>
<tr>
<th>Name of the Faculty</th>
<th>Nature of the Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. G.C. Rao</td>
<td>Chief Editor, International Journal of Algebra, Number Theory and Applications</td>
</tr>
<tr>
<td></td>
<td>Editor, The Journal of Indian Academy of Mathematics</td>
</tr>
<tr>
<td>Prof. N.V.E.S. Murthy</td>
<td>Member, Editorial Board for the Journals:</td>
</tr>
<tr>
<td></td>
<td>The International Journal of Contemporary Advanced Mathematics</td>
</tr>
<tr>
<td></td>
<td>The International Journal of Science and Engineering Applications</td>
</tr>
<tr>
<td></td>
<td>The Computer science and Technology Division of ACCSI Research Journal</td>
</tr>
<tr>
<td></td>
<td>Reflections des ERA- Journal of Mathematical Sciences</td>
</tr>
<tr>
<td>Prof. G.V.R. Babu</td>
<td>Member, Editorial Board, Mathematical Journal of Interdisciplinary Sciences</td>
</tr>
<tr>
<td></td>
<td>Member of CAS Committee at Mrs. AVN College, Visakhapatnam</td>
</tr>
<tr>
<td>Prof. G.V.R. Babu &amp; Prof. P.D.N. Srinivasu</td>
<td>Member of CAS Committee at Acharya Nagarjuna University, Guntur</td>
</tr>
</tbody>
</table>

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

- Senior faculty take part as resource persons in Refresher/ Orientation courses conducted by UGC-Academic Staff College.
- Workshops are also conducted to train researchers on computation oriented softwares such as MATLAB.
- Junior faculty members attend various advanced courses offered by academic institutions across the country apart from undergoing refresher courses offered by academic staff colleges.

28. Student projects

- Percentage of students who have done in-house projects including inter-departmental projects: Nil
29. **Awards / recognitions received at the national and international level by**

- Prof. G.C Rao is awarded 'The Best Researcher Award' in 81 and 82 Convocation of Andhra University
- Two Doctoral students of this department received Dr. D.S. Kothari Post Doctoral Fellowship
- One Doctoral Student received Post Doctoral fellowship from National Board for Higher Mathematics
- Two Ph.D. students have received K.V.Rao Scientific Society Annual Research Award in 2008 and 2010.

30. **Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.**

Public lectures have been arranged on 29-6-2012 in the context of National Mathematical Year 2012 and 125th birth centenary celebrations of Srinivasa Ramanujan, funded by National Board for Higher mathematics.

Winter school on Measure Theory and Functional Analysis has been conducted during 25-11-2013 to 6-12-2013 for post graduate students funded by National Board for Higher mathematics.

31. **Code of ethics for research followed by the departments**

- All the research students are made to give seminars to assess their understanding in the subject of their study to establish novelty of their work
- The research students are made to submit progress reports periodically
- The doctoral Committee looks into the quality of the work being done by the research students
- The committee also promotes strict measures to avoid plagiarism. The guidelines formulated by the Board of studies are also strictly followed. The students and scholars are advised to take all precautions to avoid plagiarism.

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Admitted</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc. Mathematics</td>
<td>22</td>
<td>61</td>
</tr>
</tbody>
</table>

33. **Diversity of Students**

<table>
<thead>
<tr>
<th>Name of the Programme</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.A./M.Sc. Mathematics</td>
<td>2013 100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

34. **How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise:**

07
35. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>42</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>20</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>5</td>
</tr>
<tr>
<td>Employed</td>
<td>33</td>
</tr>
<tr>
<td>Campus selection</td>
<td>15</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>85</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>2</td>
</tr>
</tbody>
</table>

36. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
</tbody>
</table>

37. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

Nil

38. **Present details of departmental infrastructural facilities with regard to**

| Library                        | 5000 books. |
| Internet facilities for staff and students | Yes            |
| Total number of class rooms    | 5             |

39. **List of doctoral, post-doctoral students and Research Associates**

There is one Research Associate Dr. Berhanu Assaye Alaba, Bahirdar University, Ethiopia supported by C V Raman International fellowship

40. **Number of post graduate and research students getting financial assistance**

103 students are receiving financial assistance from Social Welfare Department.

41. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

The department is one of the oldest departments in university to start the PG programme. The course curriculum is regularly modified to suit the needs of the changing society by inviting suggestions from the alumni and other stakeholders recruiting the students.

42. **Does the department obtain feedback from**

**Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

The faculty feedback is implemented in designing of the course.

**Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

The feedback is utilised to modify the teaching learning process to suite the student needs. Need based changes are also being brought into the curriculum in the Board of Studies from time to time.
Alumni and employers on the programmes offered and how does the department utilize the feedback?

Appropriate measures are taken to implement the suggestions given by the alumni and employers based on the viability and necessity.

43. List the distinguished alumni of the department (maximum 10)

- Prof. C.R. Rao, Padma Vibhushan Awardee, Bhatnagar awardee
- Prof. D. Ramakotaiah, Former VC of Acharya Nagarjuna University
- Prof. B.L.S. Prakasa Rao, Bhatnagar Awardee, Former Director, ISI Calcutta
- Prof. S.B. Rao, former Director, ISI Calcutta
- Prof. V. Narayana Murty (Pittsburg, U.S.A)
- Dr. V.N. Murty, World Bank
- Sri. T.S. Rao, former DGP of police, A.P.
- Sri. K. Madhava Sarma, IAS
- Sri. R.S. Nataraja Murty, former Chief Post Master General of A.P.
- Sri. M.V. Narayana Rao, former DGP of police, A.P.

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

The Department of Mathematics has been conducting (i) remedial classes to slow learners (ii) CSIR NET Coaching classes (iii) Student seminars.

- Organized one day research motivation lectures on the occasion of 125th Birth Anniversary of Srinivasa Ramanujam on 29-06-2012. These lectures were delivered by Prof. V. Kannan, and Prof.S.Kumaresan of Hyderabad Central University.
- The Department organized a ‘Mathematics Exhibition’ during 12-02-2011 to 16-02-2011, on ancient history of Mathematics, Works on Vedic Mathematics, interesting puzzles and several Mathematical Models were exhibited. Faculty, Research Scholars and students of the department actively participated in the exhibition. The exhibition was thronged by the students of various schools and colleges in and around Visakhapatnam.

45. List the teaching methods adopted by the faculty for different programmes.

The teaching methods adopted by the faculty members include lecture methods, seminars, project work, assignments, field visits, interactive learning and experiential learning

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

By holding question-answer sessions and student seminars and by the students performance in the mid-term and end semester examinations the monitoring is done.

47. Highlight the participation of students and faculty in extension activities.

1. Members of this department have conducted a series of training programmes on MATLAB to research scholars of the university Coordinated conduct of sessions on Mathematics in the INSPIRE camps conducted for school students
2. Acted as resource persons in the INSPIRE camps.
3. Conduct workshops and schools for post graduate students
48. **Give details of “beyond syllabus scholarly activities” of the department.**

Activities such as exhibitions, Seminars, workshops are held related to Mathematics and its development.

49. **State whether the programme/ department is accredited/ graded by other agencies? If yes, give details. :**

NAAC

50. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

This department is well known for its contributions in teaching and research. So far about 900 articles have been published from this department since its inception. Several outstanding researchers have headed this department and made quality contributions in several thrust areas. The department is making academic contribution both in basic as well as applied fields in Mathematics. The number of papers published in national/international journals (32/98), their impact factors, and the number of Ph.D's produced (31) in the last five years itself is a testimony for the performance of the department in generating new knowledge.

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths:**
- Unity, Discipline, punctuality, sincerity, knowledge
- Research Specilization in number of thrust areas
- Ability to carry out multi institutional collaborations
- Ability to coordinate inter disciplinary, inter departmental and inter institutional research activities

**Weaknesses**
- Does not have a computer Laboratory and hence not in a position to offer courses with computation and programming orientation.

**Opportunities:**
- To mould students to take up their career in academics and drive them to pursue research.

**Challenges**
- To improve the quality of the students and to motivate and prepare them to write qualifying examinations such as GATE and CSIR (NET) for achieving higher status in academia. Building the network of alumni

52. **Future plans of the department.**

**Project related plan**

Applied for SAP assistance and PURSE programme for financial support for developmental activities
MARINE LIVING RESOURCES

1. Name of the Department : MARINE LIVING RESOURCES

2. Year of establishment : 1976

3. Is the Department part of a School/Faculty of the university?
   Yes, Faculty of Science

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
   P.G. Courses viz., M. Sc., Marine Biology & Fisheries; M. Sc., Coastal Aquaculture & Marine Biotechnology; M. Sc., Marine Biotechnology, M.Phil and Ph.D

5. Interdisciplinary programmes and departments involved:
   Nil

6. Courses in collaboration with other universities, industries, foreign institutions, etc. :
   Nil

7. Details of programmes discontinued, if any, with reasons. :
   Nil

8. Examination System: Annual/Semester/Trimester/ Choice Based Credit System:
   Semester end with continual assessment

9. Participation of the department in the courses offered by other departments:
   Nil

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th></th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>2</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>3</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>4</td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of years of experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. M. S. Chakravarty</td>
<td>M.Sc., Ph.D.</td>
<td>Professor</td>
<td>Marine Biology, Marine Biotechnology and Aquaculture</td>
<td>30</td>
<td>7</td>
</tr>
</tbody>
</table>

Andhra University, Visakhapatnam
### List of senior Visiting Fellows, adjunct faculty, emeritus professors:

Nil

### Percentage of classes taken by temporary faculty – programme-wise information

- Dr. P. Rama Chandra Ganesh (Assistant Professor, Contract) - M. Sc., Marine Biotechnology and Marine Biology & Fisheries: 75%
- Dr. I. R. Sisrisha (Assistant Professor, Contract) - M. Sc., Coastal Aquaculture and Marine Biotechnology: 75%

### Programme-wise Student Teacher Ratio

- M. Sc., Marine Biology & Fisheries: 6 : 29
- M.Sc., Coastal Aquaculture & Marine Biotechnology: 7 : 24
- M.Sc., Marine Biotechnology: 6 : 17

### Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual

12

### Research thrust areas as recognized by major funding agencies

- Bioactive Marine Natural Products
- Biodiversity
- Conservation
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the teacher</th>
<th>Title of the project</th>
<th>Funding Agency</th>
<th>Amount in Rs.</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prof. M.S.Chakravarty</td>
<td>Monitoring studies of the Sea and Tekkali Creek in relation to the environmental parameter, ECEPL, Hyderabad.</td>
<td>ECEPL, Hyd.</td>
<td>20.0 lakhs</td>
<td>3 years</td>
</tr>
<tr>
<td>2</td>
<td>Miss. K.Uma Devi</td>
<td>DBT- Bioinformatics programme</td>
<td>DBT</td>
<td>40.0 lakhs</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Dr. P.Yedukondala Rao</td>
<td>Studies on efficiency of marine bivalves larvae as live feed to larvae of Asian sea bass, tiger shrimp, white shrimp and giant fresh water prawn</td>
<td>UGC-MRP</td>
<td>10.78 lakhs</td>
<td>3 years</td>
</tr>
<tr>
<td>4</td>
<td>Dr. P.Janakiram</td>
<td>Emerging diseases in shrimp hatchery systems with a special emphasis on overmoult and swollen hindgut syndrome</td>
<td>UGC-MRP</td>
<td>9.36 lakhs</td>
<td>3 years</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration : 1 (CSIR-NMITLI project on “Biofuel from Microalgae”-206.5 lakhs)

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

DBT- Rs 40 lakhs

20. Research Facility / centre with :
Special research laboratories sponsored by / created by industry or corporate bodies.
- CSIR-NMITLI sponsored by CSIR for Biofuel research
- DBT- BIF sponsored by DBT for Bioinformatics research.

21. Publications:

69

22. Details of patents and income generated : Nil

23. Areas of consultancy and income generated : Nil

24. Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad :

Nil

25. Faculty serving in

a) National committees : 10
b) International committees : Nil
c) Editorial Boards : 05
d) Any other (please specify) : 2 Referee in Indian Journal of Fisheries

Andhra University, Visakhapatnam
26. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

ASC - 3, Refresher - 5, Orientation programmes – 4, Training programmes- 12, Workshops – 24

27. Student projects

Nil

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

Nil

29. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.

- Training programmes, 2 workshops conducted – DBT Funding
- National Seminar (UGC Funding)

30. Code of ethics for research followed by the departments:

Standard ethical code is followed as given by the University. The students and scholars are strictly advised to refrain from plagiarism.

31. Student profile programme-wise:

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Applications received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc., Marine Biology &amp; Fisheries</td>
<td>81</td>
<td>23</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>88</td>
<td>92</td>
</tr>
<tr>
<td>M.Sc., Coastal Aquaculture and Marine Biotechnology</td>
<td>81</td>
<td>24</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>92</td>
<td>95</td>
</tr>
<tr>
<td>M.Sc., Marine Biotechnology</td>
<td>81</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
<td>85</td>
</tr>
</tbody>
</table>

32. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc., Marine Biology &amp; Fisheries</td>
<td>87</td>
<td>13</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc., Coastal Aquaculture and Marine Biotechnology</td>
<td>84</td>
<td>16</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc., Marine Biotechnology</td>
<td>82</td>
<td>18</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

33. How many students have cleared Civil Services and defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.
34. **Student progression**

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>25</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>20</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctorial</td>
<td>-</td>
</tr>
<tr>
<td>Employed</td>
<td>55</td>
</tr>
<tr>
<td>Campus selection</td>
<td>80</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>20</td>
</tr>
</tbody>
</table>

35. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from universities from other States</td>
</tr>
</tbody>
</table>

36. **Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

02

37. **Present details of departmental infrastructural facilities with regard to**

- **Library**: 418 books
- **Internet facilities for staff and students**: Yes
- **Total number of class rooms**: 8
- **Class rooms with ICT facility**: Nil
- **Students’ laboratories**: 4
- **Research laboratories**: 4

38. **List of doctoral, post-doctoral students and Research Associates**

1. From the host institution/university : 15
2. From other institutions/universities : NIL

39. **Number of post graduate students getting financial assistance from the university.**

Nil

40. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

Visakhapatnam is having wide coastal region and fishing industry is growing tremendously. To meet the needs of the growing needs of the fishing industry the courses were designed and modified accordingly from time to time.

41. **Does the department obtain feedback from**

- Faculty on curriculum as well as teaching-learning-evaluation? If yes how does the department utilize the feedback?

Conducting Staff meetings for feedback assessments from the course wise discussions. This will help students to have better learning.
• Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

The feedback is collected regularly at the end of each semester and analyzed by IQAC. The analyzed information is circulated to the faculty concerned and discussed in teaching-learning practices.

• Alumni and employers on the programmes offered and how does the department utilize the feedback?

The feedback is asked for and the suggestions are taken for implementation for positive changes in the course work.

42. List the distinguished alumni of the department (maximum 10)

About 150 members are well occupied in distinguished positions

43. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

Weekly student seminars are conducted in every course subject wise.

44. List the teaching methods adopted by the faculty for different programmes.

Classroom teaching (Traditional), Overhead projections and Powerpoint presentations are the used methods. Interactive learning is ensured throughout.

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

Allotment of faculty members for counselling the students.

46. Highlight the participation of students and faculty in extension activities.

Awareness programmes regarding the anti-ragging

47. Give details of “beyond syllabus scholarly activities” of the department:

Nil

48. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

Nil

49. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

Procuring the advanced analytical equipments for student’s laboratories and Research laboratories for educating them to new knowledge.

50. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:
- Well expertise faculty members in diverse fields.
- Well equipped laboratories
- Dedicated staff
Opportunities

- Bright employment opportunities

Challenges

- Location of Potential Fishing Zones and passing the information to fishermen
- To spread the knowledge to fish farmers
- Involving fishermen in departmental programmes
- Involvement of alumni.

51. Future plans of the department.

Teaching Learning

- To propose to conduct a National seminar & National workshop collaboration with UGC.

Curriculum related future plans

- Planning to train the students for scuba diving
- To conduct industrial tours regarding fishery oriented centres and field works
ZOOLOGY

1. Name of the Department : ZOOLOGY
2. Year of establishment : 1946
3. Is the Department part of a School/Faculty of the university? :
   Yes, Faculty of Science
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated M.Sc. (Zoology), M.Sc. (Fishery Science), M.Phil. and Ph.D.
5. Interdisciplinary programmes and departments involved:
   Nil
6. Courses in collaboration with other universities, industries, foreign institutions, etc.:
   Nil
7. Details of programmes discontinued, if any, with reasons :
   Nil
8. Examination System :
   Semester end with continual assessment
9. Participation of the department in the courses offered by other departments :
   YES, Faculty of the department are involved in taking classes in courses like M.Sc. Microbiology and M. Sc Bio technology run by the Department of Microbiology Biotechnology.
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Actual (including CAS &amp; MPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>07</td>
</tr>
<tr>
<td>Others</td>
<td>3 (Guest faculty) Temporary</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>Years of Experience</th>
<th>No. of Ph.D./M.Phil. students guided for the last 4 Years</th>
</tr>
</thead>
</table>
12. List of Senior Visiting Fellows, Adjunct faculty, Emeritus professors

Visiting Fellows:
- **Prof. Rajanna**, Chairman, Department of Biological Sciences, Alcorn State University, Lorman, Mississippi, USA
- **Prof. D.V. Subba Rao**, Bedford University of Oceanography, Canada
- **Prof. G. Petroni**, Department of Biological Sciences, University of PISA, ITALY
- **Prof. Sergey Fokin**, Department of Biological Sciences, University of PISA, ITALY

Adjunct faculty: Prof. Prabhakara Rao,
Emeritus Professor: Prof. A.V. Raman

13. Percentage of classes taken by temporary faculty – programme-wise information:
- M.Sc., Zoology = 2%
- M.Sc., Fishery Science = 24%

14. Programme-wise Student Teacher Ratio
M.Sc., Zoology: 10:1
M.Sc., Fishery Science: 7:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual
Technical = 2, Administrative Staff = 13

16. Research thrust areas as recognized by major funding agencies:
- Marine Biology
- Marine Parasitology
- Fish Immunology
- Aquaculture
- Toxicology
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

**a) National Projects**

<table>
<thead>
<tr>
<th>Title of the Project &amp; Faculty involved</th>
<th>Funding Agencies</th>
<th>Total grants received (Rs. in lakhs)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. K. Sreeramulu Impact of Ocean parameters of fishery resources &amp; development and validation of regional algorithms for Ocean colour constituents of Visakhapatnam coast.</td>
<td>INCOIS</td>
<td>84.00</td>
<td>2013-2017</td>
</tr>
<tr>
<td>Prof. U. Shameem DNA Barcoding of Monogenoidean parasites of commercially important Marine Fishes of North Coastal Andhra Pradesh, Bay of Bengal.</td>
<td>UGC</td>
<td>10.08</td>
<td>2012-2015</td>
</tr>
<tr>
<td>Prof. C. Annapurna Geo-Spatial Technologies: Restoration of Kolleru Lake Ecosystem. Collaboration with BOB, DST, New Delhi</td>
<td></td>
<td>17.00</td>
<td>On going</td>
</tr>
<tr>
<td>Prof. C. Annapurna Monitoring of algal blooms (harmful) along East Coast of Indian and Development of predictive model and identification of algal cysts through field experiments.</td>
<td>NRSC/ISRO Hyderabad</td>
<td>16.00</td>
<td>2010-2014</td>
</tr>
<tr>
<td>Prof. C. Annapurna Inventory of meiobenthic organisms for the ports of Kandla, Mangalore, Kochi, Tuticorin, Chennai, Paradeep, Haldia and Kolkata Ministry of shipping (in collaboration with NIO, Goa)</td>
<td></td>
<td>70.00</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Prof. C. Annapurna Assessing macro and meiobenthic diversity off Goa Coast with special reference to OMZ MOES, SIBER, New Delhi (collaboration with NIO - Goa)</td>
<td></td>
<td>47.00</td>
<td>2011-2016</td>
</tr>
<tr>
<td>Prof. C. Manjulatha Survey on trace elements in water, sediments &amp; mud crab S. serrata along the coastal A.P, India. UGC-DAE</td>
<td></td>
<td>0.25</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Prof. Y. Prabhakara Rao (Retired) Peptide toxins of therapeutic value from toxoglossan molluscs collected from Indian coasts. (Inter-institutional) (Collaboration with Indian Institute of Science, Bangalore and NCBS, Bangalore) Department of Biotechnology, New Delhi</td>
<td></td>
<td>Rs.18.97 lakhs</td>
<td>2009-2014</td>
</tr>
<tr>
<td>Ecosystem modeling for Kolleru Lake- A shallow eutrophic freshwater body in AP (Collaboration with EPTRI, ANGRAU,APSRAC, NRSC, Hyderabad)</td>
<td>Department of Science &amp; Technology, New Delhi</td>
<td>Rs.11 lakhs</td>
<td>2009-2014</td>
</tr>
<tr>
<td>Ameliorative effects of Ginko biloba extract on lead –induced oxidative stress in rat, liver and kidney UGC- Major Research Project</td>
<td></td>
<td>11,90,200</td>
<td>2013-2016</td>
</tr>
</tbody>
</table>
b) International Projects

<table>
<thead>
<tr>
<th>Prof. C. Kalavathi (Retired)</th>
<th>PISA, ITALY</th>
<th>Dipartimento di Biologia, Universita di Pisa, Via A. Volta n°4/6, 56/26 PISA, Italy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Y. Prabhakara Rao</td>
<td>NIH, USA</td>
<td>National Institute of Health, USA through Alcorn State University, Lorman, Mississippi, USA</td>
</tr>
<tr>
<td>“IRES CINAR PATHOBACTER” Co-Ordinated by Dr. Giulio Petroni, Unita di Protistologia-Zoologia, Dipartimento di Biologia, Universita di Pisa, Via A. Volta n°4/6, 56/26 PISA, Italy.</td>
<td>US$67,465</td>
<td>2010-2014</td>
</tr>
</tbody>
</table>

18. Inter-institutional collaborative projects and associated grants received

National collaboration:
Collaboration with EPTRI, ANGRAU - AP SRAC, NRSC, Hyderabad.

International collaboration:
MIRT, USA & CINAR - PATHOBACTER, Pisa, ITALY

19. Departmental projects funded by (DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.) total grants received. :

DST-FIST - 25,00,000/ -

20. Research facility / centre with

<table>
<thead>
<tr>
<th></th>
<th>State recognition</th>
<th>National recognition</th>
<th>International recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

21. Special research laboratories sponsored by / created by industry or corporate bodies:

Nil

22. Publications:

Number of papers published in journals
(National / International) : 99
Monographs : 02
Chapters in Books : 05
Edited Books : 02
Books with ISBN with details of publishers : 01

23. Details of patents and income generated:

Nil

24. Areas of consultancy and income generated:

Nil
25. Faculty selected nationally / internationally to visit other laboratories / institutions/ industries in India and abroad:
 Nil

26. Faculty serving in
a) National committees

<table>
<thead>
<tr>
<th>Name</th>
<th>National committees</th>
<th>Type of membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. D.E Babu</td>
<td>Berhampur University, Orissa</td>
<td>Selection committee member for Assistant professor</td>
</tr>
<tr>
<td></td>
<td>Lucknow University, LUCKNOW</td>
<td>Selection committee member for Professor, Assistant professor</td>
</tr>
<tr>
<td></td>
<td>Vikram Simhapuri University, Nellore</td>
<td>Selection committee member for Associate professor, Assistant professor</td>
</tr>
<tr>
<td></td>
<td>Orissa Public Service Commission</td>
<td>Expert</td>
</tr>
<tr>
<td></td>
<td>Union public Service Commission (UPSC)</td>
<td>Head examiner</td>
</tr>
<tr>
<td></td>
<td>Punjab Public Service Commission, Lucknow</td>
<td>Expert</td>
</tr>
<tr>
<td></td>
<td>Union public Service Commission (UPSC)</td>
<td>Expert</td>
</tr>
<tr>
<td>Prof. K. Sreeramulu</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Prof. U. Shameem</td>
<td>Indian Society for Parasitology, Lucknow</td>
<td>Vice-President</td>
</tr>
<tr>
<td></td>
<td>Helminthological Society of India, Lucknow.</td>
<td>Executive Member</td>
</tr>
<tr>
<td></td>
<td>Indian Journal of Helminthology</td>
<td>Editorial Board Member</td>
</tr>
<tr>
<td>Prof. B. V. Sandeep</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Prof. Ch. Bharati</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Prof. C. Annapurna</td>
<td>Berhampur University</td>
<td>Subject expert and Vice chancellors nominee</td>
</tr>
<tr>
<td></td>
<td>IWST, Visakhapatnam</td>
<td>Subject expert</td>
</tr>
</tbody>
</table>

b) International committees: Nil
c) Editorial Boards

<table>
<thead>
<tr>
<th>Name</th>
<th>Name of Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. D.E Babu</td>
<td>Indian Journal of comparative Animal physiology</td>
</tr>
<tr>
<td>Prof. U. Shameem</td>
<td>Indian Journal of Helminthology</td>
</tr>
<tr>
<td>Prof. C. Manjulatha</td>
<td>Yes</td>
</tr>
</tbody>
</table>

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, Training programs and similar programs). :
Yes
- No. of Seminars / Workshops attended by faculty : 25
- No. of training programmes attended by faculty : 05

28. Student projects
- Percentage of students who have done in-house projects including inter-departmental projects : Nil
- Percentage of students doing projects in collaboration with other universities industry / institute : Nil
29. **Awards / recognitions received at the national and international level by**

No. of Awards received by Faculty : 5.

1 **Prof. U. Shameem**

2013: Scientist of the Year 2013: National Environmental Science Academy, New Delhi.

2013: Honorary Fellowship of the Society of Life Sciences (F.S.L.Sc.) for contribution in the field of Life Sciences.

2012: Merit Award from the Helminthological Society of India, Lucknow for the work done in the field of Parasitology for the year 2012.

2010: Siksha Shiromani Award by Council for Creative Literature & Education, Hyderabad.

30. **Seminars/ Conferences/Workshops organized and the source of funding (National / International) with details of outstanding participants, if any.**

- Work shop on ‘Fish Parasites: Taxonomy : Capacity Building - February 2007 - MoES
- 19th National Congress of Parasitology - November 2007 - ISP & Other funding agencies.
- National seminar on ‘Parasite Taxonomy, Biodiversity and Fish Health: Environmental impact” - March 2010 – MoES
- Symposium on Landmark research in Marine Biology the Indian Context
- Hands on Training Programme for Fisheries Professionals on Techniques for Identification Pathobiology and Control of Fish Parasites - January 2013 - NFDB
- Workshop on Aquatic Animal Health and Biodiversity March, 2014 – AU – UGC & APSCHE

31. **Code of ethics for research followed by the departments :**

Guidelines would be followed for using vertebrate animals such as rats, mice used for research project. University Animal Ethics Committee a registered body would go through the research project and suggest the methods to be adopted and they assess the research projects frequently and form the guidelines on use of experimental animals.

32. **Student profile programme-wise:**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>Applications received</th>
<th>Selected</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>M.Sc., Zoology</td>
<td>95</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>M.Sc., Fishery Science</td>
<td>62</td>
<td>34</td>
<td>28</td>
</tr>
</tbody>
</table>

33. **Diversity of Students**

<table>
<thead>
<tr>
<th>Name of the Programme (refer to question no. 4)</th>
<th>% of students from the same university</th>
<th>% of students from other universities within the State</th>
<th>% of students from universities outside the State</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc., Zoology</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.Sc., Fishery Science</td>
<td>90</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise:

43

35. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG to M.Phil.</td>
<td>14</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>26</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctor</td>
<td>6</td>
</tr>
<tr>
<td>Employed</td>
<td>64</td>
</tr>
<tr>
<td>Campus selection</td>
<td>18</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>50</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>6</td>
</tr>
</tbody>
</table>

36. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
</tbody>
</table>

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:

Nil

38. Present details of departmental infrastructural facilities with regard to

<table>
<thead>
<tr>
<th>Library</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet facilities for staff and students</td>
<td>Yes</td>
</tr>
<tr>
<td>Total number of class rooms</td>
<td>06</td>
</tr>
<tr>
<td>Class rooms with ICT facility</td>
<td>02</td>
</tr>
<tr>
<td>Students’ laboratories</td>
<td>08</td>
</tr>
<tr>
<td>Research laboratories</td>
<td>10</td>
</tr>
</tbody>
</table>

39. List of doctoral, post-doctoral students and Research Associates

<table>
<thead>
<tr>
<th>Doctoral student</th>
<th>68</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Associates</td>
<td>02</td>
</tr>
<tr>
<td>from other institutions/universities</td>
<td>02</td>
</tr>
</tbody>
</table>

40. Number of post graduate and research students getting financial assistance:

07

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

No new programmes are started in recent years. The modification of the syllabus is being done on regular basis considering the feedback of eminent professors of other universities, employers, alumni and students.
42. Does the department obtain feedback from
Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

Yes. The feedback on curriculum by the faculty is being utilized for improving the quality and standard of the student performance.

Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Yes. The feedback is being utilized for enhancing and updating the curriculum keeping the latest changes in syllabi and for self-analysis of individual teachers.

Alumni and employers on the programmes offered and how does the department utilize the feedback?

Yes. The feedback is used to improve the job oppurtunities of the students passing out of the department.

43. List the distinguished alumni of the department (maximum 10)
   a) Dr. K.V. Rao (Retd), Secretary Industries A.P Govt.
   b) Dr. Satya Gopal, IAS, DG, NIPHM, Govt. of India
   c) Muralidhar IPS, DIG (Kolakata division)
   d) Udaya lakshmi, IAS, MD, Tribal Welfare Department, A.P. Govt. Hyderabad
   e) Prof. T. Rama Krishna Rao (Retd), Department of Zoology, Delhi University
   f) Dr. C. Nageswara Rao (Retd) Deputy Director, ZSI, Kolkata
   g) Dr. Kiran Kumar Scientist, CCMB, Hyderabad

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

Guest lectures by subject experts from other Universities and Institutes are being arranged whenever possible.

45. List the teaching methods adopted by the faculty for different programmes.

LCD, OH, PP Audio, Video, Group discussion

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

Yes

Group discussions with faculty, feedback from students and research scholars

47. Highlight the participation of students and faculty in extension activities.

1. Guidance to aqua farmers in management of culture ponds
2. Advice industries on pollution control strategies
3. Advice to fish farmers on disease management and application of recent technologies

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

Student tours to Institutes for academic awareness.

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

No
50. **Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

The Zoology Department, Andhra University has a prolonged history. Established in 1946 with strong foundations laid by its founder professors and the concerted efforts of successive Heads of the Department and the faculty members, the Department over the years has shown vast progress in all its teaching, research and extension activities.

While research in the basic aspects of Zoology was the focus in the initial stages, in course of time there has been a diversification of research activities, and new frontier areas of research accommodating a wide spectrum of specializations, have been introduced keeping in view the trends in research and the need. Intensive studies are now being carried out in modern and much sought after fields like Marine Benthos, Modelling, Aquaculture and Disease management, Taxonomy Biodiversity, Marine Parasitology, Toxicology, Molecular Biology and Fish Immunology.

**The contributions made in these areas are substantial as judged by the**

- Papers published in peer reviewed high impact journals,
- The numerous Ph.Ds produced as a means of capacity building in the students including some from South Africa,
- The participation and organization of national and international seminars, international collaborative exchange programmes.
- The research schemes undertaken with funds from various funding agencies etc.
- Many of the faculty members in recognition of their contributions received best researcher, best academician awards in addition to National awards.(as mentioned in the proforma).

In tune with progress in research and teaching, the facilities in the Department have also improved considerably. A central laboratory and a computer laboratory with LAN facility have been established with the funding provided by UGC SAP and DST FIST Programmes. There is a full-fledged seminar hall, a good library with large collection of books and an excellent museum. The faculty members are also having well equipped laboratories, established with the funding provided in various research projects.

The Department is organizing MSc Zoology and M.Sc Fishery Science courses. It is also offering M.Sc Zoology through Distance mode. The syllabi for the various courses are updated from time to time so as to include the modern aspects. The motive is to maintain quality and high standards.

During the last one decade, the department has organized many seminars/workshops as a means of dissemination of knowledge and interaction of scientists from different regions with expertise in different fields.

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

**Strengths:**
- International recognition as major centre for marine biological parasitological and Toxicological studies.
- International collaborative programmes with Universities in Belgium, Sweden with financial Assistance from European Commission.
- Museum with rare specimens.
- The department has strong base for undertaking research in diverse fields such as Taxonomy, Biodiversity, environmental toxicology, aquaculture, fish diseases, fish immunology and Marine benthos.
- Both M.Sc Zoology/ M. Sc fishery Science programs with 56/32 student’s strength are running effectively with placement of students in various jobs.
Weaknesses:
- Lack of proper supporting staff with professional skills.
- Lack of funds and technical assistance for maintaining costly equipment, computer laboratory etc.

Opportunities: The students will get the opportunity to serve as
- As faculty members in PG and UG educational institutions
- In state and central fisheries institutions as Research and field officers.
- Jobs in central institutions like CMFRI, CIFA, CIFE, SIFT, ZSI
- Can appear for IAS, group 1 examinations
- To pursue Ph.D and Post-Doctoral programmes in foreign countries.

Challenges:
- Establish linkages and organize student exchange programmes with other institutions in India and abroad.
- Develop virtual class rooms to enable students to listen to lectures delivered by eminent scientist from other institutions
- Tapping the potential of information and communication technologies in the acquisition and dissemination of knowledge.
- Make the M.Sc Zoology / M.Sc. Fishery Science courses effective and globally competitive, create interface between the department, industry and community
- Capacity building through infrastructure development, upgradation of laboratories and library
- Conduct add on courses in the evening to improve communication and writing skills
- Promote extension activities.

52. Future plans of the department:
- Up gradation of the present central laboratory
- To bring the department in to the fold of UGC-SAP and subsequent recognition as centre for excellence.
- Introduce innovative programme in teaching and research by developing inter departmental and interdisciplinary programmes.
- To undertake Industry – Departmental collaborative training and research programmes that are mutually beneficial
- Involve students in extension activities relevant to their course.
- Establishment of disease laboratory