



**Sharnbasveshwar**  
College of Science  
Kalaburagi - 585103  
(Karnataka)

Estd. 1956



**ಶರಣಬಸವೇಶ್ವರ**

ಬಿಜ್ಜಾನ ಮಹಾದಿವ್ಯಾಲಯ,  
ಕಲಬುರಗಿ-೫೮೫ ೧೦೩  
( ಕರ್ನಾಟಕ )



**Institutions Run by Centenary Celebrated**

**Sharnbasveshwar Vidya Vardhak Sangha, Gulbarga**  
**Sharnbasva University, Gulbarga** 2013

1. Sharnbasveshwar Vidya Vardhak Sangha, Gulbarga 1903
2. Godutai Engineering College for Women, Gulbarga 2011
3. Appa Institute of Engineering & Technology, Gulbarga 2002
4. Appa Institute of Engineering Science & Technology  
M.Tech. in Comp. & Digital Electronics 2011
5. Veerappa Nisly Engineering College, Shorapur 2010
6. Lingraj Appa Engineering College, Bidar 2011
7. Doddappa Appa Institute for MCA, Gulbarga 1999
8. Doddappa Appa Institute of MBA, Gulbarga 1998
9. Appa Institute of MBA (VTU) Gulbarga 2007
10. Godutai Institute of MBA (For Women) Gulbarga 2011
11. Lingarajappa Institute of MBA, Bidar 2011
12. Veerappa Nisly Institute of MBA, Shorapur 2011
13. Appa Research Institute, Gulbarga 2012  
(Recognized by Mysore University, Mysore)
14. Sharnbasveshwar Science College, Gulbarga 1956
15. Post Graduate studies in Computer Science  
Sharnbasveshwar College of Science, Gulbarga 2012
16. Post Graduate studies in Master of Tourism  
Administration 5 year integrated Course (MTA) 2007
17. Post Graduate Studies in Master of Arts in  
Journalism & Mass Communication, Godutai College, Gulb. 2009
18. Post Graduate Studies in Master of Fine Arts,  
Sharnbasveshwar Arts College, Gulbarga 1957
19. Sharnbasveshwar Residential Public School,  
with State & CBSC Syllabus, Gulbarga 1967
20. Sharnbasva Public School Residential Independent  
Junior Science College, Shorapur. 2011
21. Sharnbasva Public School's Residential Independent  
Junior Science College, Bidar 2011
22. Sharnbasveshwar Antharwani Community Radio, (FM) Gulb. 2009
23. Mahadevi Girls Higher Primary School, Gulbarga 1934
24. Mahadevi Girls High School, Gulbarga 1960
25. Sharnbasveshwar Composite P.U. College, Gulbarga 1949
26. Sharnbasveshwar Ind. P.U. College of Science, Gulbarga 1956
27. Sharnbasveshwar College of Commerce, Gulbarga 1961  
with Post-Graduate Diploma in Business Management
28. SSK. Basveshwar College of Arts & Science, Basavakalyan 1967
29. Sharnbasveshwar Printing & Publication, Gulbarga 1969
30. Godutai Doddappa Appa P.U. College for Women, Gulbarga 1971
31. Godutai Doddappa Appa Arts & Commerce  
College for Women, Gulbarga 1973
32. Sharnbasveshwar Granthavishwa Vidya Nilaya, Gulbarga 1978
33. Sharnbasveshwar College of BBM, Gulbarga 1996
34. Doddappa Appa Residential P.U. Science College, Gulbarga 1999
35. Muktabika Residential Ind. P.U. Science College  
For Girls, Gulbarga 1999
36. Godutai Doddappa Appa BCA College for Women, Gulbarga 2001
37. Muktabika Residential BCA College for Women, Gulbarga. 2001
38. Doddappa Appa BCA College, Basavakalyan 2001
39. Sharnbasveshwar BCA College, Gulbarga 2001
40. Muktabika Residential BBM College, Gulbarga 2004
41. Sharnbasveshwar BBM College, Basavakalyan 2004
42. Godutai College of Education (B.Ed), Gulbarga 2004
43. Sharnbasveshwar B.Ed. (E.M.), Gulbarga 2004
44. Godutai D.Ed. College for Women, Gulbarga 2004
45. Komalatai Resi. P.U. College for Girls, Basavakalyan 2006
46. Sharnbasveshwar Residential Public School, Basavakalyan 2006
47. Sharnbasveshwar D.Ed. College, Basavakalyan 2004
48. Doddappa Appa B.Ed. College, Basavakalyan 2004
49. Sharnbasveshwar Public Library, Gulbarga 1918

(Affiliated to Gulbarga University, Kalaburagi and Recognised by the  
Government of Karnataka)

☎: (08472) 221941, • Fax : 08472-241492,

email: sbcscg@rediffmail.com, www.sharnscience.org

Ref.No SBCS/4N/CA/2016-17  
To, 74

Date: 15-06-2016

The Under Secretary (FD-III)  
University Grants Commission  
New Delhi-110002

Sub: Submission of COC Chemical Analysis details report & Audited  
Utilization Certificate during the academic Year 2015-16

Ref: Your Letter F.No4-347/2011(COC), dated 12.01.2012

Sir,

With reference to the above mentioned subject, I am herewith  
submitting Career Oriented Course-“Chemical Analysis” detail report & Audited  
utilization Certificate of Expenditure of grants received under UGC scheme of Career  
Oriented Course for the academic year 2015-16

Kindly acknowledge the receipt of the same.

Thanking you.

Yours Faithfully

  
PRINCIPAL

Encl:

1. UGC Sanction Letter
2. Approved Syllabus copy.
3. Students Enrolment list.
4. Result Sheet.
5. Utilization Certificate-Annexure-IV
6. Statement of expenditure-Annexure-V
7. Remuneration paid to coordinator/Teaching Staff-receipt.



**SHARNBASVESHVAR COLLEGE OF SCIENCE,  
GULBARGA-585103, KARNATAKA**  
(Affiliated To Gulbarga University, Gulbarga)

**Progress Report**  
On  
**Career Oriented Course - "Chemical Analysis"**  
For the academic year 2015-16

Approved By Gulbarga University Gulbarga &  
Sanctioned By



ज्ञान-विज्ञान विमुक्तये

**University Grant Commission**  
New Delhi-110002



UNIVERSITY GRANTS COMMISSION  
35-FEROZSHAH ROAD  
NEW DELHI-110 001

F. No. 4- 347/2011(COC)

January, 2012  
12 JAN 2012

The Under Secretary (FD-III)  
University Grants Commission  
New Delhi-110002

Sub: - Release of Grant-in-aid to Shri. Sharanabasaveshwar Science College, Gulbarga, Dist. Gulbarga, Karnataka-585103 under the UGC scheme of Career Oriented Courses-reg.

Sir,

With reference to the proposal submitted by Shri. Sharanabasaveshwar Science College, Gulbarga, Dist. Gulbarga, Karnataka-585103 under the UGC scheme of Career Oriented Courses, I am directed to convey the approval of the University Grants Commission for starting the following Career Oriented Courses in the above mentioned College from the academic year 2011-12.

Courses Approved	Seed Money approved (Rs. in lakh)	Grant released (90%)
<u>Science</u>		
1. Hardware and Networking	Rs. 10.00	Rs. 9,00,000/-
2. Chemical Analysis	Rs. 10.00	Rs. 9,00,000/-
<b>Total</b>	<b>Rs. 20.00</b>	<b>Rs. 18,00,000/-</b>

I am also directed to convey the sanction of the University Grants Commission for payment of Rs. 18,00,000/- (Rupees Eighteen Lakh only) to the Principal, Shri. Sharanabasaveshwar Science College, Gulbarga, Dist. Gulbarga, Karnataka-585103 as 90% grant (Seed Money) under the scheme of Career Oriented Courses.

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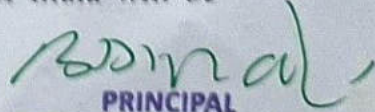
The assistance available in the programme is only in the form of a one - time as "Seed Money". The amount may be utilized for the purchase of books and journals augmentation of laboratory facilities, equipment and payment of remuneration to the Guest faculty only.

The terms and conditions of the approval and grant released are as per the guidelines of the scheme.

1. The sanctioned amount is debitable to the following Heads and is valid for payment during the current financial year 2011-12.

S. No.	Component	Head of A/c	Amount
1.	General 77.5%	5.(i) Code No. 31	13,95,000/-
2.	SC 15%	1B h(i) (b) Code No. 31	2,70,000/-
3.	ST 7.5%	1B h(ii) (b) Code No. 31	1,35,000/-

2. The amount of grant shall be drawn by the Under Secretary (Drawing and Disbursing Officer), University Grants Commission on the Grants -in -aid bill and shall be disbursed to the credited to the Principal, **Shri. Sharanabasaveshwar Science College, Gulbarga, Dist. Gulbarga, Karnataka-585103** through Demand Draft/Mail Transfer.
3. The grant is subject to the adjustment on the basis of Utilization Certificate in the prescribed proforma submitted by the University/College/Institution.
4. The University/College shall maintain proper accounts only on approved items of expenditure.
5. The Utilization Certificate to the effect that the grant has been utilized for the purpose for which it was sanctioned shall be furnished to the University Grants Commission **On receipt of the same, 10% grant would be sanctioned to the grantee Institution.**
6. The assets acquired wholly or substantially out of the University Grants Commission grant shall not be disposed or encumbered or Utilized for the purposes other than those for which the grant was given, without proper sanction of the University Grants Commission and should, at any time the college ceases to function, such assets shall revert to the University Grants Commission.
7. A Register of Assets acquired wholly or substantially out of the grant shall be maintained by the University in the prescribed form.
8. The grantee institution shall ensure the Utilization of grants-in-aid for which it is being sanctioned/paid. In case non-utilization/part utilization, the simple interest @ 10% per annum as amended from time to time on unutilized amount from the date of drawl to the date of refund as per provisions contained in General Financial Rules of Govt. of India will be charged.

  
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9. The University/ College shall implement the programme from the academic year 2011-12 positively and UGC to be informed in this regard.
10. The University/Institute/College is strictly following the UGC Regulations on curbing the menace of Ragging in Higher Education Institutions 2009.
11. The interest earned by the University/College/Institute on this grants in aid shall be treated as additional grant and may be shown in the U.C./Statement of expenditure to be furnished by grantee institutions.
12. The University/College shall follow strictly all the instructions issued by the Govt. of India from time to time with regard to reservation of posts for scheduled Caste and Scheduled Tribes.
13. The University/College shall fully implement the Official Language Policy of Union Govt. and comply with the Official Language Act, 1963 and Official Language (use for officially purpose of the Union) Rules, 1976 etc.
14. The Sanction issues in exercise of the delegation of powers vide Commission office order No. 25/92 dated May.01, 1992.
15. **The Universities/ Colleges shall submit Annual Progress Report to the UGC office.**
16. **The Universities/ Colleges already running the Career Oriented Courses and completed 5 years would submit the audited utilization certificate/ statement of expenditure immediately to the UGC for settlement the accounts.**
17. The funds to the extent are available under the scheme and have been noted in BCR for the year 2011-12 at S. No. \_\_\_\_\_ Page No. \_\_\_\_\_.

Yours faithfully,

(Sunita Chugh)  
Under Secretary

**Copy forwarded for information and necessary action to:**

1. The Principal, Shri. Sharanabasaveshwar Science College, Gulbarga, Dist. Gulbarga, Karnataka-585103 to intimate the receipt of the letter as well as the receipt of the sanction grant.
2. The Secretary to the Government of Karnataka, Deptt. of Education, Bangalore.
3. The Registrar, Gulbarga University, Jnana Ganga, Gulbarga-585106.
4. Office of Director, General, Audit General Revenues, AGCR Bldg., I.P. Estate, New Delhi.
5. Guard File, UGC, New Delhi.

*Usha*  
(Usha Naidu)  
Section Officer

*Rasman*  
PRINCIPAL  
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OF SCIENCE, GULBARGA

*Bysesh*  
PRINCIPAL  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA



**GULBARGA UNIVERSITY**  
 "Jnana Ganga", GULBARGA - 585 106, Karnataka, India.

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 Grams: UNIGUL

ಕ್ರ. ಸಂ. ಗುವಿಗು/ವಿಮವಿ/ಬಿಟಿಎಸ್/2012-13/ ೦/

ದಿನಾಂಕ: 1-4-13

**ಅಧಿಸೂಚನೆ**

ವಿಷಯ: 2012-13 ನೇ ಸಾಲಿನಿಂದ "Chemical Analysis of Water" COP  
 ಕೋರ್ಸಿನ ಸ್ನಾತಕ ಕೋರ್ಸಿನ ಪಠ್ಯಕ್ರಮ ಜಾರಿಗೊಳಿಸುವ ಬಗ್ಗೆ.  
 ಉಲ್ಲೇಖ: 1) ರಸಾಯನಶಾಸ್ತ್ರ ಸ್ನಾತಕ ಅಧ್ಯಯನ ಮಂಡಳಿ  
 ನಿರ್ಣಯ (1) ದಿನಾಂಕ: 28.09.2012  
 2) ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಗೊತ್ತುವಳಿ ಸಂಖ್ಯೆ 23  
 ದಿನಾಂಕ: 23.11.2012

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ಉಲ್ಲೇಖ (2) ರ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ನಿರ್ಣಯದಂತೆ, "Chemical Analysis of Water" ಸ್ನಾತಕ "Career Orientation Programme" ನ ಕೋರ್ಸಿನ ಪಠ್ಯಕ್ರಮವನ್ನು 2012-13ನೇ ಸಾಲಿನಿಂದ ಜಾರಿಗೆ ಬರುವಂತೆ ಈ ಮೂಲಕ ಪ್ರಕಟಗೊಳಿಸಲಾಗಿದೆ.

ಸದರಿ ವಿಷಯವನ್ನು ವಿದ್ಯಾರ್ಥಿಗಳ ಹಾಗೂ ಸಂಬಂಧಪಟ್ಟ ಶಿಕ್ಷಕರ ಗಮನಕ್ಕೆ.

*(Signature)*  
 ಕುಲಸಚಿವರು 24-3-13

ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ

ಗೆ.

- 1) ಅಧ್ಯಕ್ಷರು, ರಸಾಯನಶಾಸ್ತ್ರ ಅಧ್ಯಯನ ಮಂಡಳಿ, ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ.
- 2) ಸಂಬಂಧಪಟ್ಟ ಕೋರ್ಸು ಹೊಂದಿರುವ ಮಹಾವಿದ್ಯಾಲಯದ ಪ್ರಾಂಶುಪಾಲರಿಗೆ.

ಪ್ರತಿ:

- 1) ಕುಲಸಚಿವರು (ಮೌಲ್ಯಮಾಪನ), ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ.
- 2) ಕುಲಪತಿಗಳ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿ / ಕುಲಸಚಿವರ ಆಪ್ತ ಸಹಾಯಕರ ಮಾಹಿತಿಗಾಗಿ.

ಶ್ರೀ ಶಾರ್ಣವೇಶ್ವರ ಶಿವಗುರುಪ್ಪೇಸ್ವರ ಅಶ್ವಿನ ಮಹಾವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ  
 Dr. (Sd-) Sharnaveshwar  
 Chemical Analysis Coordinator

*(Signature)*  
 5/4/2013

*(Signature)*  
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 OF SCIENCE, GULBARGA

**Certificate Course in Chemical Analysis Of Water**  
**One year course (Approved by GUG)**

**I Teaching**

Theory: 4 hours per week (Paper- I & Paper- II).  
Practical: 3 hours per week (Practical- I) in first term.  
Similarly 3 hours per week (Practical- II) in Second term.  
*The above work has to be completed within the academic year.*

**II Examination**

Theory Paper- I and Paper- II of 3 hours duration each for 80 marks, internal assessment for 20 marks (conduct two tests and take average).

Practical- I and Practical- II of 3 hours for 50 marks each. (40 marks each for final examination and 10 marks each for internal assessment).

**Question paper pattern**

Theory: Question paper contains three sections.

Section A: There shall be Fifteen bits of one mark each; candidate has to answer all ( $1 \times 15 = 15$ ).

Section B: There shall be seven questions of 5 marks each; candidate has to answer any Five. Total marks will be 25 ( $5 \times 5 = 25$ ).

Section C: There shall be six questions of 10 marks each; candidate has to answer any Four. Total marks will be 40 ( $4 \times 10 = 40$ ).

Practical: Distribution of practical marks

Experiment	Journal	Viva-voce	Internal assessment	Total marks
Practical-I (30 marks)	05	05	10	50marks
Practical- II (30 marks)	05	05	10	50marks

**Paper-I**

**General Chemical Analysis (64 hours)**

**1 SI units:** Basic units, derived units, inter conversion of units 2 hours

**2 Stoichiometry:**

Mole concept, Avogadro number. Atomic weight, equivalent weight of elements, acids, bases, oxidizing agents and reducing agents. Molecular weight. Concept of Normality, molality and molarity.

Volumetric techniques and Gravimetric techniques in brief. 10 hours

**3 Analytical chemistry:**

Role of Analytical chemistry, types of analysis, classification of analytical methods, selecting an analytical method, factor affecting the analytical method, cleanliness and neatness in the analytical laboratory, laboratory note book and its importance, safety in the laboratory. 10 hours

**4 Laboratory Operations And Practices-**

Filtration, drying, measuring volume, stoichiometry and graphs, concentration, percentage solute, activity, titration of a solution, parts per thousand (ppt) and parts per million (ppm), standards, chemical standards, sample preparation, drying samples, weighing, dissolving, decomposition of organic matter, ionization, precipitation.

Analytical balances (electronic, mechanical, semi micro, micro), errors in weighing, cleaning glass apparatus, preparations before calibration operation, calibration of glassware. 16 hours

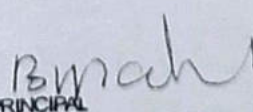
**5 Sampling:**

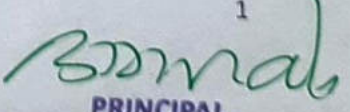
Sampling techniques, sampling statistics, variability in the sample, sample stability, field sampling. Sample preparation, sample decomposition and dissolution-decomposing samples with inorganic acids, microwave decomposing, decomposing organic samples, decomposing inorganic materials with fluxes, selecting and handling reagents. 10 hours

**6 Errors and evaluation:**

Central value, mean, arithmetic mean, median, precision, standard deviation, accuracy, types of errors, minimizing errors, significant figures and computations, reporting of analytical data, evaluation of data, uses of statistics. 08 hours

**7 Computers in water analysis:** Use of computers in the water analysis, handling analytical results, instrument control and signal processing, computer data bases for analytical information, laboratory information management, laboratory computer systems. 08 hours

  
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### Books Recommended:

1. Analytical Chemistry –Dr Alka L. Gupta, Pragathi Prakashan, Meerut.
2. The Chemical Analysis of Water: General Principles and Techniques– DTE Hunt, Anthony Leslie Wilson
3. Fundamentals of Analytical Chemistry–D A Skoog, DM West, Holler and Crouch, Saunders publishing, Newyork.
4. Qualitative Analysis– RA Day and AL Underwood,Prentice Hall, Inc, New Delhi.
5. Instrumental methods of Chemical Analysis–Chatwal and Anand, Himalaya Publications.
6. Modern Analytical Chemistry–Harvey, Harcourt Publishers.
7. Vogel's text book of Quantitative Chemical Analysis– J Mendham, RC Denney, Indian reprint Pearson Education Pvt, Ltd., New Delhi.
8. Instrumental methods and Chemical Analysis—H Kaur, Pragathi Prakashan, Meerut.
9. Text book of Quantitative Chemical Analysis—A I Vogel (ELBS)
10. Text book of Organic Chemistry—Bahl and Arun Bahl

### Paper-II Water Analysis (64 hours)

#### 1. Water as a component of environment:

Sources of water- atmospheric water, surface water, stored water, ground water, human use of water. 2hours

#### 2. Water pollution:

Water pollutants, classification of water pollutants with explanation, origin of water pollutants, sources of water pollutants-Natural, domestic sewage, agricultural wastes, industrial wastes, radioactive wastes.

Effect of water pollutants-physicochemical effects, biological effects, toxic effects, pathogenic effects. Types of water pollution-physical pollution, inorganic pollution, organic pollution, biological pollution, oil pollution, pesticide pollution, radioactive pollution. 10hours

#### 3. Water quality standards:

Water quality standards related to public health, environment and agriculture-Drinking water standards, bacteriological standards, irrigation standards- salinity, water infiltration rate, specific ion toxicity, miscellaneous, sodium concentration, stream standards, effluent standards. Chemical and biological parameters for evaluation of aquatic environment. 12hours

#### 4. Collection of Water samples:

Ruttner water sampler, Von Dorn water sampler, Thermos-flask water sampler, pump samplers. Collection of water samples for irrigation, Handling and preservation of water samples, collection of biological matter of water. 06hours

#### 5. Physical analysis of water:

colour-platinum-cobalt method, Forel-Ule colour method, Movement, Temperature- measurement of surface temperature, measurement of sub-surface temperature, Odour and taste, Transparency, Turbidity. 06hours

#### 6. Chemical analysis of water:

$P^H$ , conductivity, measurement of Electrical conductivity(soluble salts concentration), acidity, alkalinity, total dissolved salts, total solids, dissolved oxygen(oxygen meter method, Winkler's method), calcium by Versenate method (temporary hardness), calcium plus magnesium (total hardness), sodium and potassium, chloride, fluorides, sulphate, boron, free carbon dioxide, total carbon dioxide, hydrogen sulphide, silica, phosphates, total carbohydrate, dissolved carbohydrate, oil and grease. Biochemical Oxygen demand (BOD), Chemical Oxygen demand (COD). 12 hours

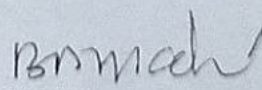
#### 7. Analysis of Different Forms Of Nitrogen:

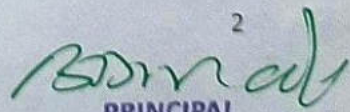
Ammonia, nitrite, nitrate, total organic nitrogen (TON), dissolved organic nitrogen (DON), particulate organic nitrogen (PON) present in water samples. 06hours

#### 8. Instrumental Analysis of water:

Applications of the following instruments in the physico-chemical analysis of water-Uv solution spectro photometry and colorimetry, Flame emission spectrometry, Atomic-Absorption Spectrometry (AAS), Mass spectrometry, Infrared spectrometry, High performance liquid chromatography,  $P^H$ -meter and turbidometry. 10hours

### Books Recommended:

  
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1. Methods in Environmental Analysis Water soil and air—PK Gupta
2. Water pollution—VP Kudesia, Pragathi Prakashan, Meerut.
3. Analytical Chemistry—Dr Alka L. Gupta, Pragathi Prakashan, Meerut.
4. The Chemical Analysis of Water: General Principles and Techniques—DTE Hunt, Anthony Leslie Wilson.
5. Analytical Chemistry Vol I, II and III—Subhash and Sathish, Pragathi Prakashan, Meerut.
6. Instrumental methods of Chemical Analysis—Gurudeep R Chatwal and Anand, Himalaya Publications.
7. Chromatography—BK Sharma, GOEL Publications.
8. Basic concepts of Analytical Chemistry—SM Khopkar, New Age International Publications.
9. Standard methods of Chemical analysis—FJ Welchar, Vol. I and II.
10. Electroanalytical Chemistry—BH Voigies, John Wiley Publications.

#### Practical-I

- I.
  1. Introduction to the laboratory glass wares used in chemical analysis.
  2. Giving knowledge about laboratory note book and its importance, safety in the analytical laboratory, laboratory operations and practices.
  3. Calibration of Burette, pipette, volumetric flask and fractional weights.
  4. Use of balances: rough, chemical and electronic balances.
- II. Volumetric Analysis:
  1. Determination of total hardness (Ca & Mg) present in the water
  2. Estimation of alkalinity due to Sodium carbonate and bicarbonate in the given water sample.
  3. Determination of Acidity of a given water sample.
  4. Determination of dissolved oxygen in the given water sample.
  5. Estimation of Chemical Oxygen Demand
  6. Estimation of amount of chloride present in the given water sample by using Mohr's method.
- III Gravimetric Analysis:
  1. Estimation of Mg as its axinate present in 250ml of given sample of water.
  2. Estimation of sulphate present in 250ml given solution using barium chloride.
  3. Estimation of Ca as calcium oxalate present in 250ml of given sample of water.

#### Practical-II

- I. Identification of following ions present in the water sample by chemical tests.  
Acid radicals— Carbonate, bicarbonate, chloride, fluoride, sulphate, nitrate  
Basic radicals—copper, lead, cadmium, iron, zinc, calcium, magnesium, sodium and potassium
- II. Instrumentation Exercises:
  1. Estimation of  $\text{Cu}^{2+}$  present in the given solution colorimetrically.
  2. Estimation of  $\text{CO}_3^{2-}$  and  $\text{HCO}_3^-$  present in the given solution by  $\text{pH}$  meter.
  3. Determination of  $\text{pH}$  of acetate buffer by potentiometrically.
  4. Determination of Ferrous ammonium sulphate using standard  $\text{K}_2\text{Cr}_2\text{O}_7$ , potentiometrically

#### Books Recommended:

1. Advanced Practical Inorganic chemistry—Gurudeep Raj(goel publications)
2. Advanced practical Physical Chemistry—JB Yadav
3. Instrumental methods of Chemical Analysis—Gurudeep chatwal and Anand(Himalaya publications)
4. Industrial Chemistry—BK Sharma(goel publications)
5. Practical Chemistry—OP Pandey, DN Bajpai(S Chand publications)
6. A Text book of Quantitative chemical analysis—AI Vogel
7. A Text book of Qualitative chemical analysis—AI Vogel
8. Analytical Chemistry—Dr Alka L. Gupta, Pragathi Prakashan, Meerut.
9. The Chemical Analysis of Water: General Principles and Techniques—DTE Hunt, Anthony Leslie Wilson
10. College practical chemistry—Patel, Jakali, Mohandas, Israney, Turakhia(Himalaya Publishing House)

PRINCIPAL  
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Sharnbasveshwar College of Science, Gulbarga

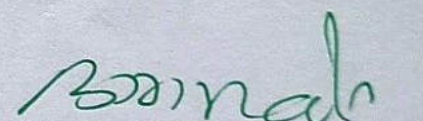
UGC Sponsored and Gulbarga University Gulbarga Approved COC course  
In Chemical Analysis 2015-16

List of Teaching Faculty

Sl no	Name of the teacher and Institution
1	Ms Gouramma Patil Lecturer in Chemistry Sharnbasveshwar College of Science, Kalaburagi
2	Mr Siddaram Patil Lecturer in Chemistry Sharnbasveshwar College of Science, Kalaburagi
3	Ms Babita Phand Working as a Chemist in Nirmal Products, #14, Kotnur (D) Near Shree Guru College, Ram Mandir, Gulbarga – 585102
4	Ms Reshma Working as a microbiologist in Nirmal Products, #14, Kotnur (D) Near Shree Guru College, Ram Mandir, Gulbarga – 585102



Coordinator



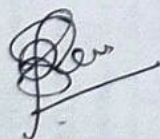
Principal PRINCIPAL  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA

Co-ordinator  
UGC, Career Oriented Course (Chemical Analysis)  
Sharnbasveshwar College of Science,  
GULBARGA-3.

# Sharnbasveshwar College of Science, Gulbarga

List of the selected students for chemical analysis course – 2015-16

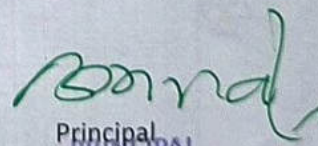
S.No	College Roll No.	Register No.	Name	Father,s name
1	44	1445296	PRAJYOTH DALVI	PRAKASH
2	06	1446166	ANITA	RAMESH
3	07	1446167	ANJALI	NAGARAJ BABSHETTY
4	08	1446168	ANKITA	CHETANANAND
5	16	1446175	DHANAMMA	SHARANAPPA KESARATTI
6	18	1446180	GHODAKE JYOTI	LAXMAN
7	24	1446183	LAKSHMI	SANTOSH KAMEGAONKAR
8	28	1446187	LAXMI	DATTAPPA
9	29	1446188	LAXMI	RAJSHEKAR
10	30	1446189	LINGAMBIKA S DHOOLGONDA	SHIVAPUTRA
11	34	1446193	MAMATA	VEERAREDDY
12	46	1446202	PRATIBHA	SHIVAPPA
13	50	1446206	RADHAKRISHNA	RAMACHARYA BUDUR
14	51	1446207	RAKESH	MAILARI
15	57	1446214	SARASWATI	DATTAPPA
16	58	1446215	SHARANABASAPPA	DEVINDRAPPA
17	59	1446216	SHILPA	BHIMASHANKAR
18	60	1446217	SHILPA	MALLIKARJUN REDDY
19	68	1446225	SHRUTI	SUBHASH
20	73	1446231	SUPRIYA	VASUDEVRAO
21	74	1446232	SURESH	PRABHU BADIGER
22	75	1446234	SUSHMITA	BABURAO
23	78	1446237	VIJAYALAXMI CHOUDRI	CHANNABASAPPA
24	190	1446348	LAXMI	SHIVALINGAYYA
25	199	1446357	PRIYANKA	DEVANAND
26	205	1446362	SAMHITA Y V KULKARNI	VENKATESH
27	212	1446368	SUJATA	BABU
28	214	1446370	SUSHMITA	CHANDRASHEKAR
29	218	1446373	VAISHNAVI SHASTRI	ANIL RAJ SHASTRI
30	15	1446375	DEEPIKA DANDAGI	MALLIKARJUN
31	193	1446384	NEELANKANTHARAO	NAGENDRAPPA



Coordinator

Co-ordinator

UGC, Carrier Oriented Course (Chemical Analysis)  
Sharnbasveshwar College of Science,  
GULBARGA-3.



Principal

SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA

COLLEGE CODE: C312 Class: BSc V and VI Sem FOR ACADEMIC YEAR 2015-16

Course: Chemical Analysis

Sl No	Roll No	Reg. No	Candidates Name	Father Name	Theory Paper-I			Theory Paper-II			Practical-I			Practical-II			Grand Total
					Theory	LA for 80M	LA for 20M	Total 100	Theory	LA for 80M	LA for 20M	Total 100	Expt for 40M	LA for 10M	LA for 10M	Total	
1	44	1445296	PRAJYOTH DALVI	PRAKASH	71	20	91	62	20	82	40	10	50	39	10	49	272
2	6	1446166	ANITA	RAMESH	77	20	97	70	20	90	40	10	50	40	10	50	287
3	7	1446167	ANJALI	NAGARAJ BABSHETTY	72	20	92	64	20	84	39	10	49	40	10	50	275
4	8	1446168	ANKITA	CHETANANAND	63	20	83	68	20	88	37	10	47	40	10	50	268
5	16	1446175	DHANAMMA	SHARANAPPA KESARATTI	59	20	79	63	20	83	36	10	46	35	10	45	253
6	18	1446180	GHODAKE JYOTI	LAXMAN	70	20	90	69	20	89	38	10	48	39	10	49	276
7	24	1446183	LAKSHMI	SANTOSH K	72	20	92	71	20	91	40	10	50	40	10	50	283
8	28	1446187	LAXMI	DATTAPPA	73	20	93	67	20	87	39	10	49	40	10	50	279
9	29	1446188	LAXMI	RAJSEKHAR	58	20	78	57	20	77	33	10	43	32	10	42	240
10	30	1446189	LINGAMBIKA S D	SHIVAPUTRA	72	20	92	70	20	90	40	10	50	40	10	50	282
11	34	1446193	MAMATA	VEERAREDDY	64	20	84	70	20	90	36	10	46	35	10	45	265
12	46	1446202	PRATIBHA	SHIVAPPA	71	20	91	67	20	87	38	10	48	40	10	50	276
13	50	1446206	RADHAKRISHNA	RAMACHARYA BUDUR	70	20	90	69	20	89	39	10	49	37	10	47	266
14	51	1446207	RAKESH	MAILARI	72	20	92	69	20	89	38	10	48	40	10	50	279
15	57	1446214	SARASWATI	DATTAPPA	70	20	90	65	20	85	38	10	48	39	10	49	272
16	58	1446215	SHARANABASAPPA	DEVINDRAPPA	68	20	88	66	20	86	39	10	49	39	10	49	272
17	59	1446216	SHILPA	BHIMASHANKAR	70	20	90	69	20	89	39	10	49	39	10	49	277
18	60	1446217	SHILPA	MALLIKARJUN REDDY	72	20	92	62	20	82	40	10	50	39	10	49	273
19	68	1446225	SHRUTI	SUBHASH	71	20	91	65	20	85	37	10	47	39	10	49	272
20	73	1446231	SUPRIYA	VASUDEVARAO	72	20	92	71	20	91	39	10	49	39	10	49	281
21	74	1446232	SURESH	PRABHU BADIGER	70	20	90	60	20	80	39	10	49	38	10	48	267
22	75	1446234	SUSHMITA	BABURAO	70	20	90	69	20	89	40	10	50	37	10	47	276
23	78	1446237	VIJAYALAXMI CHOUDRI	CHANNABASAPPA	71	20	91	71	20	91	40	10	50	39	10	49	281
24	190	1446348	LAXMI	SHIVALINGAYYA	69	20	89	76	20	96	39	10	49	40	10	50	284
25	199	1446357	PRIYANKA	DEVANAND	69	20	89	73	20	93	38	10	48	40	10	50	280
26	205	1446362	SAMHITA Y V KULKARNI	VENKATESH	72	20	92	68	20	88	40	10	50	40	10	50	280
27	212	1446368	SUJATA	BABU	74	20	94	71	20	91	38	10	48	38	10	48	281
28	214	1446370	SUSHMITA	CHANDRASHEKAR	67	20	87	68	20	88	40	10	50	39	10	49	274
29	218	1446373	VAISHNAVI SHASTRI	ANIL RAJ SHASTRI	64	20	84	72	20	92	39	10	49	40	10	50	275
30	15	1446375	DEEPIKA DANDAGI	MALLIKARJUN	79	20	99	77	20	97	40	10	50	39	10	49	295
31	193	1446384	NEELANKANTHARAO	NAGENDRAPPA	74	20	94	71	20	91	37	10	47	38	10	48	280

*Banadi*  
Principal  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA

*[Signature]*  
Coordinator  
UGC, Career Oriented Course (Chemical Analysis)  
Sharnbasveshwar College of Science,  
GULBARGA-3.

Sharnbasveshwar College of Science, Gulbarga

Result of UGC Sponsored (Gulbarga University Gulbarga Approved) COC course in **Chemical Analysis**, examination held in April-2016 is hereby declared.

The candidates with following Register Number are passed with distinction.


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College: C312 Sharnbasveshwar College of Science, Gulbarga  
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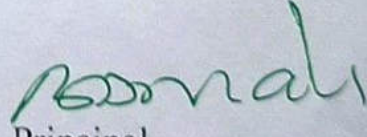
1445296	1446166	1446167	1446168	1446175
1446180	1446183	1446187	1446188	1446189
1446193	1446202	1446206	1446207	1446214
1446215	1446216	1446217	1446225	1446231
1446232	1446234	1446237	1446348	1446357
1446362	1446368	1446370	1446373	1446375
1446384				

**Result Analysis**

College: C312 Sharnbasveshwar College of Science, Gulbarga  
Department: Chemistry  
Course: UGC Sponsored (Gulbarga University Gulbarga Approved)  
COC course in **Chemical Analysis**.

Number of candidates registered for the course: 31  
Number of candidates appeared for the examination: 31  
Number of candidates passed the examination: 31  
Percentage of passing: 100%

  
(H. Swarnupa Rani)  
Coordinator  
Co-ordinator  
Carrier Oriented Course (Chemical Analysis)  
Sharnbasveshwar College of Science,  
GULBARGA-3.

  
Principal  
PRINCIPAL  
SHARNBASVESHWAR  
COLLEGE OF SCIENCE, KALABURAGI.



**SHIVASHARANAPPA & COMPANY**

Cell : +91-99863 10941

**CHARTERED ACCOUNTANTS**

Plot No. 2, Near Mahadevi Flour Mill, Udaya Nagar, Jewargi Colony

KALABURAGI-585 102 - E-mail : s\_hbiradar@yahoo.co.in - sharanu.ca2009@gmail.com

**CA. Shivasharanappa H. Biradar**

B.Com,ACA

Date :

Ref:

### **UTILISATION CERTIFICATE**

It is to certified that the grant of **Rs.18,00,000/-**(Rupees Eighteen Lakh only) approved by the University Grant Commission for Career Oriented Courses in colleges for Hardware and Networking and Chemical Analysis has been utilized by the College as per details given in the University Grants Commission in its letter No-F.No.4-347/2011(COC) dated 12-01-2012 and that all these terms and conditions have been fulfilled by the college and the grant has been utilized for the purpose for which it was approved. It is further certified that the inventories of permanent or semi-permanent assets created/ acquired wholly or mainly out of the grants given by the University Grants Commissions as indicated above are being maintained in the prescribed form and are being kept up-to-date and these assets have not been disposed off, encumbered or utilized for any other purpose. If as a result of check or audit objection, some irregularity is noticed at a later stage, the college shall be bound to refund the amount objected to.

PLACE: KALABURAGI.

DATE: 02-06-2016.



For SHIVASHARANAPPA & CO.  
CHARTERED ACCOUNTANTS

*SH. Shivasharanappa H. Biradar*  
SHIVASHARANAPPA.H.BIRADAR.  
(PROPRIETOR)

PRINCIPAL *Sharnbasveshwar*  
PRINCIPAL  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA

**SHIVASHARANAPPA & COMPANY**

Cell +91-99863 10941

**CHARTERED ACCOUNTANTS**

Plot No. 2, Near Mahadevi Flour Mill, Udaya Nagar, Jewargi Colony

KALABURAGI-585 102 - E-mail : s\_hbiradar@yahoo.co.in - sharanu.ca2009@gmail.com

**CA. Shivasharanappa H. Biradar**

B.Com,ACA

Date .

Ref No.

1.Name of the College : Sharanabasveshwar College of Science

Name of the Career Oriented Course : Hardware &amp; Networking and Chemical Analysis.

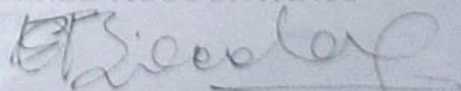

2.No.&amp; date of UGC's approval No. : F.No.4- 347/2011(COC) Dated 12-01-12

3.Period to which the accounts related:w.e.f: 01/04/2015 to 31/03/2016 Details of actual expenditure incurred of Rs.2,02,108-00,Grant approved Rs.20,00,000-00 and Grant released Rs.18,00,000-00 and expenditure Unspent balance of Rs. 5,16,545-00 Seed Money.

Particulars	Amount
<b>I. Hardware &amp; Networking</b>	
a) Equipments / Chemicals	30,236-00
b) Books	11,872-00
c) Co Ordinator Remuneration	5,000-00
d) Remuneration to Guest Faculty	<u>75,000-00</u>
<b>II.Chemical Analysis</b>	--
a) Equipments/Chemicals	--
b) Books	5,000-00
c) Co Ordinator Remuneration	<u>75,000-00</u>
d) Remuneration to Guest Faculty	
<b>Total</b>	<b>2,02,108-00</b>

PLACE:KALABURAGI.

DATE: 02-06-2016.

For SHIVASHARANAPPA & CO.  
CHARTERED ACCOUNTANTS  
SHIVASHARANAPPA.H.BIRADAR.  
(PROPRIETOR)  
PRINCIPAL  
SHARANABASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA



Annexure V

UNIVERSITY GRANTS COMMISSION  
(CAREER ORIENTED PROGRAMME)  
PROFORMA FOR SUBMISSION OF STATEMENT OF EXPENDITURE  
INCURRED FOR THE INTRODUCTION OF CAREER ORIENTED COURSES

1. Name of the College/University: **Sharnbasveshwar College of Science, Gulbarga**  
Name of the Career Oriented Course: **Chemical Analysis.**
2. No. & date of UGC's approval: F. No.4-347/2011(COC), dated 12.01.2012
3. Period to which the accounts related: w.e.f. 01.04.2015 to 31.03.2016 Details of actual Expenditure incurred: Rs. 80,000.00 Grant approved Rs. 10,00,000.00 Grant released Rs. 9,00,000.00 Expenditure Unspent balance (i) (ii) (iii) (iv) Rs. 2,44,559.00

Seed Money:

I.) Books/Journals	: Rs. NIL
II.) Equipment	: Rs. NIL
III) Guest Faculty	: Rs. 75,000.00
IV) Remuneration of Co-ordinator	: Rs.5,000.00

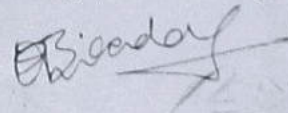
Note:

- I.) The statement of expenditure should be filled up separately for each Career Oriented Courses.
- II) List of equipment purchased should be submitted.
- III) Details of periods taken, amount paid to each teacher by name under guest faculty and internal faculty should be submitted.


  
Coordinator

UGC, Career Oriented Course (Chemical Analysis)  
Sharnbasveshwar College of Science,  
GULBARGA-3

Govt. Auditor/C.A.



Principal

  
PRINCIPAL  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA



## STATEMENT SHOWING THE EXPENDITURE DETAIL FOR THE CAREER ORIENTED COURSE (UGC -XI PLAN) DURING THE ACADEMIC YEAR, 2015-16

Name of Career Oriented Programme: **Chemical Analysis**

NAME OF THE COLLEGE : SHARNBASVESHWAR COLLEGE OF SCIENCE, GULBARGA

GRANT SANCTION LETTER NO. : F. No.4-347/2011(COC), dated 12.01.2012

S.No.	Particulars	Total amount
01	Remuneration to Programme coordinator per year	5,000.00
02	Remuneration Paid to the Faculty members @ 250 per period (Theory:150 & Practical:150)	75,000.00
03	Books & Reading Materials (Books)	--
04	Equipments/ Chemicals	--
05	Contingency	Nil
	Total expenditure in Rs.	80,000



COURSE CO-ORDINATOR  
(Dr. Smt Swaruprani.H)

Co-ordinator  
UGC, Career Oriented Course (Chemical Analysis)  
Sharnbasveshwar College of Science,  
GULBARGA-3.



PRINCIPAL  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA

*Received*  
PRINCIPAL  
SHARNBASVESHWAR  
COLLEGE OF SCIENCE, GULBARGA

Sharnbasveshwar College of Science, Kalaburagi

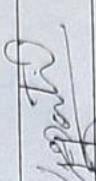

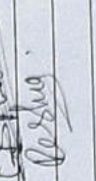
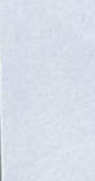
UGC Sponsored and Gulbarga University Gulbarga Approved COC course  
In Chemical analysis

REMUNERATION PAID TO FACULTY MEMBERS FOR CAREER ORIENTED COURSE DURING THE ACADEMIC YEAR 2015-2016  
(UGC XI PLAN)

NAME OF THE COLLEGE : SHARNBASVESHWAR COLLEGE OF SCIENCE, KALABURAGI

NAME OF THE PROGRAMME : CHEMICAL ANALYSIS

GRANT SANCTION LETTER NUMBER : F No.4-347/2011(COC) JAN.2012


S.NO.	Name of the Faculty	No. of hours taken (Theory + Practical)	From - To	Amount at Rs 250 per hour	Signature of the Faculty
1	Miss. Gouramma Patil	220	July-2015 - May -2016	55,000/-	
2	Mr. Siddaram Patil	58	--	14,500/-	
3	Miss. Babita Phand	12	--	3,000/-	
4	Miss..Reshma	10	--	2,500/-	
	TOTAL	300		75000.00	



Coordinator

  
PRINCIPAL

SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA

  
Principal PRINCIPAL  
SHARNBASVESHWAR  
COLLEGE OF SCIENCE, GULBARGA



ಶರಣಬಸವೇಶ್ವರ  
ವಿಜ್ಞಾನ ಮಹಾವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ-585 103

ನಗದಿ ಪುಸ್ತಕ ಸಂ..... ಶಾಖೆ ಸಂಖ್ಯೆ.....

ಹಣ ಸಂದಾಯ ಬಾಕಿ

ರೂ 5000/-..... ದಿನಾಂಕ.....

ಖರ್ಚು (ಖಾತೆಗೆ).....

ಹೆಸರು..... Sivaruprami H.....

ಹಣ (ಅಕ್ಷರದಲ್ಲಿ) ರೂಪಾಯಿಗಳು..... five thousand only.....

ಪ್ರಾಣಿಯಿಂದ ಪಾವತಿಯಾಗುವ..... Towards Payment of Co-ordinator's Remuneration.....

for C.O.C. Chemical Analysis Course for the Year 2015-16.....

Cheque No:.....

ಕೊಟ್ಟವರ ರುಪು

Sharnbasveshwar

ಹಣ ಪಡೆವವರ ರುಪು

(10-ordinator)

SHARNBASVESHWAR COLLEGE OF SCIENCE, GULBARGA

Sharnbasveshwar  
PRINCIPAL  
SHARNBASVESHWAR COLLEGE  
OF SCIENCE, GULBARGA