



SATPUDA EDUCATION SOCIETY, JALGAON JAMOD'S

# Arts & Commerce College

Warwat Bakal Tq. Sangrampur Dist - Buldhana (M.S.)

- Principal -

**Dr. Shriram Yerankar**

M.A., M.Phil, Ph.D.

9423722316

NAAC Reaccredited with 'B' Grade

College Code : 327

- President -

**Shri. Krushnarao Ingle**

(Ex. M.L.A.)

07266-221449

Website : [www.acscwb.co.in](http://www.acscwb.co.in)

E-mail : [327accwb@gmail.com](mailto:327accwb@gmail.com)

## Criterion 6- Governance, Leadership and Management

### 6.1 Institutional Vision and Leadership

**6.1.2 The effective leadership is visible in various institutional practices such as decentralization and participative management.**

Metric No.	Sr. No.	Content / File Description
6.1.2	A	Practices Of Decentralization and Participative Management
	B	Supporting Documents, A
	C	A Case Study Showing Decentralization and Participative Management in The Institution
	D	Supporting Documents, C (Academic-Calendar-2023-24 Of Economics, Commerce and Chemistry Department)



*[Signature]*  
Principal

Arts & Commerce College  
Warwat Bakal Dist. Buldhana



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## CERTIFICATE

This is to certify that the documents attached as supporting documents for **Criterion VI Governance, Leadership and Management** are verified from the college record and found to be correct to the best of my knowledge.



**Principal**

Arts & Commerce College  
Warwat Bakal Dist. Buldana



College Development Committee (CDC) is the constitutional body that the college is required to set up under the state universities act. By constituting the various committees as per the guidelines make certain the participation of all stakeholders. The CDC comprises the members from teachers, non-teaching staff, students, the society, academicians and the management. All the important policy decisions regarding the academic administration of the college are discussed and approved by the CDC. It also governs the financial management. It also approves major submissions to the Authorities, especially Government bodies, NAAC and University for properness and effectiveness of required information. In a way CDC ensures the decentralization of responsibilities and power and acts as role model for participative management.

At functional level various dedicated committees are formed as per the constitutional guidelines of UGC and SGBAU and for that faculty members as well as administrative staff members are given representation in various committees and cell. The faculty members through various committees in coordination with fellow faculty share knowledge among the committee members, and staff members and finally submit reports to the Principal, IQAC and Management from time to time. Every year, the composition of different committees is changed to ensure efficient and effective functioning of the curricular, co-curricular, extracurricular and other developmental activities, and to make certain uniform exposure of duties for academic and professional development of faculty members and administrative staff members.

At operational level principal not only interacts with government and external agencies but also complete government and university compliances, and other proceedings in the office, faculty members maintain interactions with the concerned departments of the affiliating university. Principal with the help of administrative staff and faculty members execute different academic, administrative, extension related, co- and extracurricular activities.

This shows that college ensures the decentralization of responsibilities and power and acts as role model for participative management by enhancing the quality at various levels - Management, College Development Committee, Principal, IQAC Committee, NAAC Committee, Various Committees, Administrative and Non-teaching Staff, NCC, NSS, and other stakeholders are also involved in the decentralization and participative management.

## B: Supporting Documents A

### Glimpses of College Council:

‘कॉलेज कौन्सिल सभा’

आज दि 09/01/2023 का दुपारी बिक 2:00 वाजता. मा. प्राचार्य जी अध्यक्षता में महाविद्यालय का कॉलेज कौन्सिल की सभा पार पठनी. समेत खाली सही करवाई सहसा उपस्थित हो।

- 1) प्राचार्य जी. श्रीराम चौरास
- 2) डॉ. एम. पी. सातन
- 3) डॉ. आर. एम. जोरडे.
- 4) डॉ. एस. आर. मुर्ग
- 5) डॉ. जी. एस. पंकर
- 6) श्री. एस. एम. साकोडे.
- 7) श्री. डॉ. यु. धुंको.
- 8) डॉ. एस. डाव्यू. रीग.
- 9) श्री. एस. एस. डेसाय
- 10) डॉ. एम. आर. लोको
- 11) श्री. एस. डी. डेको.
- 12) श्री. एस. डेको. डेको
- 13) डॉ. एस. जे. डेको.
- 14) डॉ. ली. डी. डेको
- 15) श्री. एस. आर. सातन.
- 16) डॉ. जे. जी. डेको
- 17) डॉ. एस. एस. डेको
- 18) डॉ. डी. जे. डेको
- 19) श्री. एस. एस. डेको
- 20) श्री. जे. पी. साकोडे
- 21) डॉ. एस. जे. मोरे.
- 22) श्री. एस. एस. साकोडे.
- 23) श्री. एस. डी. देसाय.
- 24) डॉ. एस. एस. पवार. (सचिव)

सही  
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दिनांक 09/01/2023 का कॉलेज कौन्सिल सभा सुपरी पत्राचार समेत सहसा सही करवाई गयी।  
1) मागील सभा के निर्णय लागू करायेंगे.



ગોળેન ગોળીન સમીપ ડો. સુભાષ વઘાર પાંચે માગીલ સમીપે કલિસાલ વાપલે મસલા સદસ્યાંગી (વઘી પાન ઉપાસીત ન લેલ્યા મુકે માગીલ સમીપે કલિસાલ સર્વનુમતે બાધમ બરબાલ માલ.

2) વિદ્યાપીઠવ્યા વિષમ સુનાવ્યા આત્મપર્યંત લાગતેવ ત્રીજાભાગર નાપી કરો.

આજવ્યા સમીપાર વિષમ સુનાવ્યા ઉઘાડે રબર વ્યા પરિલેવ ગ્યા-ગ્યા વિષમવ્યા નિબાલ લાગતા તે સંબંધીત સાધ્યાપણાંગી સમીલ સંગ્રા કલગલ બરામ રિલે. વ્યાનુસાર બલ્યા શાસ્ત્રેવ વિષમવા નિબાલ રવાલિલ સમાલે કાલે-સેમ ૦૫

૧) મરાઠી ઝાનિવાર્ય	- 75.86%
૨) મરાઠી સાહિત્ય	30.00%
૩) ફેપ્સી	84.14%
૪) કલિલેલ	63.12%
૫) રાત્પદાસ	64.58%
૬) ઝાલકાસ	71.43%

સેમ-૦૬.

૧) મરાઠી ઝાનિવાર્ય - 83.33% ૨) મરાઠી સાહિત્ય - 83.33% ૩) ફેપ્સી - 43.75% ૪) કલિલેલ - 82.11% ૫) રાત્પદાસ - 45.16% ૬) મરાઠી ઝાનિવાર્ય - 67.05% નિબાલ લાગતા. તર વિદ્યાન શાસ્ત્રેવ નિબાલ રવાલિલ સમાલે લાગતવાયે સંબંધીત સાધ્યાપણાંગી સંગ્રાગલે. બી લસી સેમ-૦૫, ૧) કોમિટ્ટી - 56.86% ૨) બોલની - 70.59% ૩) ફૂલોંગી - 76.47% ૪) મિનિલસ - 47.06 ૫) સીપીલસ - 41.18%

બી લસી સેમ-૦૬. ૧) કોમિટ્ટી - 94.52% ૨) બોલની - 75.00% ૩) ફૂલોંગી - 76.67% ૪) મિનિલસ - 61.54% ૫) સીપીલસ - 61.54% ૭૦% નિબાલ લાગતા. વ્યાનુસાર સમાલે વાલિય શાસ્ત્રેવ નિબાલ. બી લોમ સેમ-૦૫ વ્યા નિબાલ.

१) इंग्ली - ६५.२६१. २) मराठी - ८२.१११.  
३) कॅपिटल अकाउंटिंग - ५६.५८१. ४) निवडलेल्या  
रॉटारिअन - ४३.१६१. ५) इन्कम टॅक्स - ४१.०५१.  
६) इंडियन मॅनेजमेंट सिस्टम ७८.९५१ (६)  
आय.टी. व निवडलेल्या छात्रांनी सीसीटी-११ ७८.९५१.  
निष्काळ लागला.

सी.एम.सी.एम. ८०-चा निष्काळ -

१) इंग्ली - ८९.८९१. २) मराठी - ८७.६६१. ३)  
इन्वॉन्सिवस ऑफ डेव्हलपमेंट - ५७.३०१. ४) ई.ए.ए.  
११ - ९६.३८१. ५) कंप्यूटिंग - ६७.४२१. ६) मॅनेजमेंट  
अकाउंटिंग ७९.७८१. व ७) इंटरनेट अफ डी प्लेन  
९०.०११. निष्काळ लागला.

तर महाविद्यालयात खुला झालेल्या P.C. मॅट्रिक्युलेशन  
निष्काळ घेवयात झालेली समाने लागू पाहणे संबंधीत  
साध्यापणांनी समेत सांगून अर्जात जोडावे.

१) कला शास्त्राच्या राज्यशास्त्र विषयाचा सीएम-११-चा  
निष्काळ ८९.६६१. तर अर्थशास्त्र विषयाचा सीएम-११  
चा निष्काळ १००१ लागला.

२) वाणिज्य शास्त्राच्या P.C. सीएम-११-चा निष्काळ  
७५१. इतका लागला.

३) विज्ञान शास्त्राच्या P.C. सीएम-११-चा निष्काळ  
घेवयात झालेली समाने लागू पाहणे.

१) ज्युमिस्ट्री - ९५१. २) ज्योडिंग ९०१. लागला. तर  
इंग्ली विषयाचा निष्काळ अद्ययावत लागू पाहणे  
असे संबंधीत सांगितले.

सर्व विषयांचे सीएम-११ व सीएम-१२  
२०२३-चे निष्काळ जागळे लागलेले आहेत, मात्र  
मराठी साहित्य सीएम-०५-चा निष्काळ समाधान  
कारण नाही. तेव्हा संबंधीत साध्यापणांनी  
आपल्या विषयाचा निष्काळ मागलेला नाही  
कला लागलेल्या बाबते काळजी घेऊन लगेत  
असे मा. उच्च शिक्षण समेत सांगून सर्वाना  
अर्जात जोडावे.

३) आजच्या समवेत पद्धती व पद्धत्यात वर्गातील  
निवडलेल्या झालेल्या परीक्षांमार्फत यशस्वी...



સૌરાષ્ટ્રીય સન 2023-24 ની વર્ષિક મહાવિજ્ઞાન પ્રકલ્પ સમીક્ષા અર્થે આભારપત્ર સુવેશીત થયેલું. સુવેશીતના અંગે મા. ડા. અમીની વિદ્યાર્થીનીઓએ જણાવ્યું કે આ પ્રકલ્પ સમીક્ષા-૧ સમજાવવામાં આવી હતી અને તેમાં આવી રવાના થઈને મહાવિજ્ઞાન દેવન સમીક્ષા અંગત બેઠકે. બી. એ. માન 9 નંબર 108 બી. વર્ગ ૧૫., બી. એમ માન-9 - 49; બી. એસ માન-9 79; ભર P. એ. - ૫૫ બી. એમ - માન-9 - 40 ; ગાંધીજીન માન-9, 17, રામજીન માન-9, 92, ભર. એસી - ફૂલોની માન. 9, 06, ભર. એસી માન-9, નોંધની માન-9, 92 ભર રસાયણશાસ્ત્ર માન-9, - ૫૫ 20 વિદ્યાર્થીની આભારપત્ર સુવેશીત થયેલું.

ફૂલોની વિદ્યાર્થી ભર. એસી માન 9 - ૫૫ નોંધની રાજ માર્ગ બધી જાહેરના આદેશ તેજા સંબંધિત સાધનાઓની આપણ વિદ્યાર્થી વિદ્યાર્થીની સંબંધિત સુવેશીત વાંચી રવાના થયેલું બરાબર. ભર. એ. વિદ્યાર્થી 107. વાંચી મારા વાંચી રવાના સંબંધિત વિદ્યાર્થી સંબંધિત પગથિયો બરાબર હશે મા. ડા. અમીની સંબંધિત સંગ્રહ મળે.

૬) આભારપત્ર મહાવિજ્ઞાનના આભારપત્ર ITCAC ને નેચ સંબંધિત બેઠકે આરંભવાઈને - ૫૫ બરાબર.

મહાવિજ્ઞાનના આભારપત્ર NAAC ના આરંભ સુવેશીત ન બરાબર રવાના થઈને મહાવિજ્ઞાનના આભારપત્ર ITCAC ને આભારપત્ર બેઠકે આરંભવાઈને આદેશ મા. અમીની બેઠકે આભારપત્ર ITCAC ને સમજાવવામાં ગે. મિ. રામજી સારા આવી રવાના થઈને મહાવિજ્ઞાન દેવન સમીક્ષા અંગત બેઠકે.

મહાવિજ્ઞાનના આરંભ સુવેશીત બરાબર રવાના થઈને રિ. 22 માર્ચ 2023 ના મહાવિજ્ઞાનના 5.5.12 રિપોર્ટ નેચ કોમ્પિયુટર નેચરના સંગ્રહિત બેઠકે. ભર. એ. મા. D.V. આભારપત્ર ભર. એ. classification 06 ને 2023 પત્ર સમજાવવામાં આરંભ થઈ.

સાબિત થયે. આ અધ્યાપન (PNC qualification) સંબંધીની જાણ થયેલે બાદે. 10 ઓગસ્ટ 2023 પૂર્વે સર્વીસે રજાઈ હાઈ બોર્ડિંગમાં તથા અસેલ. તથા બીજા સર્વ વિષયમાં P.P.T તથા અસેલિય લઈ નિર્દેશ. I.R.C. ને સર્વ સંબંધીત માહિતીઓ ફોલો કરેલ. તથા રીજીસ્ટ્રેશન સન 2022-23 ના નક્કર રિપોર્ટ રિસેલ 2023 પૂર્વે મોકલવા કહે. અને સંગ્રહ સમીક્ષા કરવાત કરવા ફોલો.

ચાલુ કોલેજ બાંધકામ માં અભ્યાસીની વર્ક બાંધકામ મહાવિદ્યાલયમાં કરાવવામાં બોજાસેલ. ગોલ્ડ બોર્ડિંગ માત્ર બાદે કરેલે સંબંધીત. આખરે મહાવિદ્યાલયમાં 5.5.7 સ્કેમિસે કરાવવા પૂર્ણ કરાવેલે 70 રૂબે માત્ર બોજાસેલ પૂર્ણ કરાવેલ. 30 રૂબે માત્ર ફોલો કરાવેલ. તેવા તે માત્ર કરાવવા પૂર્ણ કરાવવામાં સુચન બાદ, લાંબાની સંબંધીત સંબંધીત, નક્કર, MCC, ખર્ચ, પાલિકામાં, વાલેમાંની સુધાર સંબંધીત કરાવવા બાંધકામ. તેવા તે બાંધકામ કરાવવા સંબંધીત સુચનમાં પાર પાડી વાલેમાંની-જાલે માત્ર કરાવવામાં સુચન બાદ મેલે મા. અભ્યાસીની સમીક્ષા સંગ્રહ સંબંધીત કરાવેલે.

૫) મહાવિદ્યાલય વિજ્ઞાન સમીક્ષા રીજીસ્ટ્રેશન સંબંધીત નિર્દેશોમાં પૂર્ણ..

મહાવિદ્યાલય વિજ્ઞાન સમીક્ષા હી મહાવિદ્યાલય સંબંધીત સંબંધીત વાલેમાંની સમીક્ષામાં. તથામાંની સંબંધીત હી વિજ્ઞાનમાં બાંધકામમાં સંબંધીત પાડેલ. તથા મા. અભ્યાસીની સમીક્ષા સંબંધીત. તથામાંની મહાવિદ્યાલય વિજ્ઞાન સમીક્ષા કરાવેલે સર્વ સંબંધીત કરાવેલે સંબંધીત સમીક્ષા. તથામાંની સંબંધીત નિર્દેશોમાં નિર્દેશ કરાવેલે કરાવેલે.

૭) મહિલા સંબંધીત:- કી. મેલે સંબંધીત સંબંધીત નાવામાં સુચન મા. કી. સુચન પૂર્ણ કરેલે તથા



ਯਾਹਨ ਆ. ਕੀਰੀਆਨੀ ਲਿਖਤ ਦੇ ਅਨੁਸਾਰ ਹੋਵੇ।

27 જો. સરિપ રાજે. સાંચા બાવાને મુખ  
પા. જે. મુખાલ પવાડ હે જોત તડ કામુમોજ  
પા. જે. સરિપ રાજે રામીકે.

3) ଡି. ପାଣିଃ ଶିକ୍ଷିତ. ପିଲାମାନଙ୍କୁ ପ୍ରଭାବ  
ଧାରୀ ପିଲାମାନଙ୍କୁ ଡି. ଡି. ପାଣିଃ ଡି. ଡି.  
ପାଣିଃ ଡି. ଡି. ପାଣିଃ ଡି. ଡି. ପାଣିଃ  
ଡି. ଡି. ପାଣିଃ ଡି. ଡି. ପାଣିଃ ଡି. ଡି.

वर्ष १९५० में मेरा खेती, मेरा खेती  
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६) मा. आर्यभट्टाचार्य आनुमानिके नेकेवर-पर्यन्त  
वेवारे विवर :-

9) दि. 92106/2023 पर्यंत IRR कोमोर्टी  
 वर यांनी KMAC च्या हजेरी अंदाजनात असलेली  
 जेनर्स, फ्रीझ व इतर साहित्य यादी यादी तयार  
 करून मला हजेरी यादी ठरवून सांगितले.

୨୩ ମାର୍ଚ୍ଚ ପାଠ୍ୟ, ମେଢ଼ିଆ, ଝିଞ୍ଜୁମିଟିଆ, ମାଟିଆ  
 ଝିଞ୍ଜୁମିଟିଆ ଝିଞ୍ଜୁମିଟିଆ. ଝିଞ୍ଜୁମିଟିଆ ଝିଞ୍ଜୁମିଟିଆ  
 ଝିଞ୍ଜୁମିଟିଆ ଝିଞ୍ଜୁମିଟିଆ ୨୦୨୩-୨୪ ଝିଞ୍ଜୁମିଟିଆ  
 ଝିଞ୍ଜୁମିଟିଆ ଝିଞ୍ଜୁମିଟିଆ ଝିଞ୍ଜୁମିଟିଆ ଝିଞ୍ଜୁମିଟିଆ  
 ଝିଞ୍ଜୁମିଟିଆ

[illegible]

19.02.2016 (01/02/2016)

सचिव (प्रमाणन एवं  
विकास)

# " कॉलेज कॉन्सिल बाधा "

ता. दि. ११/०७/२०२४ ला बुधारी ठीक ०३:००  
जागला मा. माध्याची मध्य कावेरवाली महाविद्यालयात  
कॉलेज कॉन्सिलची सभा पार पडली. समेत खालील सभा  
कारणांवर सदस्य उपस्थित होते.

१) मा. माध्याची जे श्रीराम येराकार (अध्यक्ष)	सहस्र	सही
२) मा. मा. एम. पी. सावळ	(सहस्र)	सही
३) मा. डॉ. भार. एस. जोरडे	-१-	सही
४) मा. डॉ. एस. भार. मर्कर	-१-	सही
५) मा. डॉ. जी. एस. पेंडसे	-१-	सही
६) मा. एस. एस. माळोडे	-१-	सही
७) मा. डॉ. पु. कुंढके	-१-	सही
८) मा. डॉ. एस. डळकर. राजा	-१-	सही
९) मा. एस. एस. मलिक	-१-	सही
१०) मा. डॉ. एस. भार. सोळंके	-१-	सही
११) मा. एस. डॉ. डळके	-१-	सही
१२) मा. एस. डळकर. इंगळे	-१-	सही
१३) मा. डॉ. एस. जोरडे	-१-	सही
१४) मा. डॉ. एस. जी. इंगळे	-१-	सही
१५) मा. एस. भार. फुलकर	-१-	सही
१६) मा. डॉ. जे. जी. डेज	-१-	सही
१७) मा. डॉ. एस. एस. हिताकार	-१-	सही
१८) मा. डॉ. डॉ. जे. रीतकर	-१-	सही
१९) मा. एस. एस. रीतकर	-१-	सही
२०) मा. डॉ. पी. सावळ	-१-	सही
२१) मा. डॉ. एस. जे. मोरे	-१-	सही
२२) मा. एस. एस. एस. पेंडसे	-१-	सही
२३) मा. एस. डॉ. देवामुख	-१-	सही
२४) मा. डॉ. एस. एस. पवार	(सहस्र)	सही

दि. १०/०७/२०२४ च्या कॉलेज कॉन्सिल  
सुमना पवारानुसार समेत सर्व विषयांवर संशोधन सभा  
कारणाने झाली.

१) मागील सभेचे इतिहासाचायुक्त जागला आहे.  
कॉलेज कॉन्सिलचे सदस्य सुमना पवार सही सुमना



2) સામાજિક ન્યાય અને 2023-24 સહીત  
પરિચય અને સમાવેશ કરવો.

2) સામાજિક ન્યાય અને 2023-24 સહીત  
પરિચય અને સમાવેશ કરવો.

[illegible]

17) वैद्यनाथ सामिन्दा राजकीय महाल झारख.  
73 मार्च 1911 - डा. सी. ए. डी. - डॉ. सुभाष च.

7) मौलिक अधिकार - डॉ. सुभाष मुखर्जी

7) Director's Office - Director - Mr. [illegible]  
27 HOD Cell - Head of Department - Mr. [illegible]  
Joint Council - Joint - Mr. [illegible]

27 HOD Cell - Kanchan  
28 Student Council - Rajeev - HIO Yash

- Student Council - Mr. ...
- Anti Rugging Committee - Mr. ...

- Anti Regulatory Committee
- ICC on the other hand - gives out the redressal cell -

cc Student Grievance Redressal Cell -

Q. Student's name is \_\_\_\_\_  
 Name:- Mr. Yashwar Singh  
 Date: \_\_\_\_\_

202108.  
10) Women Development Cell:- 24/08/2021  
Dr. Hitesh Bhatnagar

4) Student Development Cell - 24th Nov 2023

e) The Innovation and Entrepreneurship Development Cell (IEDC) KANSURAM

90) NCC Advisory Cell - 2 members,  
Principal and

720 Mentor Mentee महोदय. श्री. सीतल  
महोदय, एक एक-एक ही धारणा.

3) एन डीपी समिती जमिनी रद्यापन करणेबाबत  
रीहाणिक सन २०२४-२५ पासून जमिन  
रीहाणिक वीरल डामलात आवाग्याच वीसनागे  
वरील वसुन त्यासमागे महाविद्यालय तराव कार्य  
जवळपासही एन डीपी समिती रद्यापन करणे आचार्य  
डॉ. ही समिती वीरल रीहाणिक जमीनपासून  
रद्यापन करणाला वेईल डाले समिल सर्वांनुकाले  
वरीलवात डाले.

५) आचारसङ्ग्रह व विधि विनियोग का प्रारम्भ यहाँ करा।  
मार्गदर्शक विषय सभा-का सर्व विषय-का  
विषय का प्रारम्भ आचारसङ्ग्रह-का आरम्भ  
मा. अरुणदाजी समेत होकर आरम्भ सर्व विषय-का  
आचारसङ्ग्रह विधि-का पूर्ण प्रारम्भ सर्व सदस्यों  
सहित सङ्ग्रह आरम्भ करें। तथा करीब १५ मिनट  
सभा-का आचारसङ्ग्रह पूर्ण होकर प्रारम्भ  
विद्यार्थियों का अङ्गठन करें १५ मिनट सर्व विषय-का  
प्रारम्भ यहाँ करें। अर्थात् मा. अरुणदाजी  
समेत सर्व का प्रारम्भ होकर।

୨) ନିମ୍ନଲିଖିତ କୌଣସି ଗୁଣ ଲେଖିବା।

સુભદ્રા મહાવિદ્યાલયમાં યુગ્મીયોગ્યતા  
દર્શાવેલ છે. ૨૦૨૨-૨૩  
અને ૨૦૨૩-૨૪ માટે (સિ. ૨૩-૧-૨૦૨૩)  
સુભદ્રા મહાવિદ્યાલયમાં યુગ્મીયોગ્યતા  
દર્શાવેલ છે.



નિચીલ લેવા હાથે નિર્ધારિત જાહેરવાર મુદત  
જાત થશે મા. ડાહ્યાદા જે કાર્યો સર  
સરવાળાની નિર્ધારિત વ્યવસ્થા નેલા.

ક) વિવિધ વિભાગના પરિવહન, પંચાયત સમીક્ષા  
જાહેર-પત્રી.

સ્થાનના દુરગત મહાવિદ્યાલયના પરિવહન  
પત્રીમાં જાહેરવાર જરૂરી કાર્યો મહાવિદ્યા  
કાં. માંથી પુરા પુરવાળાના હોવા જાહેરવાર  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
તેજા પુરવાળાના પરિવહન, પત્રીમાં જાહેરવાર  
હોવા મહાવિદ્યા કાં. માંથી પુરા પુરવાળાના  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.

ક) ICAC જે નોંધાયેલ નિયંત્રિત જાહેરવાર  
માનવા સમીક્ષા મહાવિદ્યાલયના

ICAC નોંધાયેલ હોવા જાહેરવાર જરૂરથી  
પરિવહન જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.  
કાર્યો જાહેરવાર જરૂરથી મુદત નિર્ધારિત થશે.

ક) મહાવિદ્યાલય વિભાગ સમીક્ષા પરિવહન જાહેરવાર  
નિયંત્રિત જાહેરવાર

વિભાગ ૦૪/૦૮/૨૦૨૩ ના નોંધાયેલ નોંધાયેલ  
સમીક્ષા મુદત જા. ૦૫ મુદત જા. સમીક્ષા જા. સમીક્ષા  
મહાવિદ્યાલય વિભાગ સમીક્ષા સમીક્ષા સમીક્ષા



3) मा. डॉ. गजानन पेंढर सांगी स्वर्गीय  
- श्री दीपदास जुगाधामजी पेंढर समुची सित्यर महाविद्याल-  
यामधून मराठीत स्नेहाल कला होल्डर स्नेहाकृत ५०१  
५०१ १-क परिलोपीक जातिने जेले.



૧) મી. ડૉ. સંતોષ દાલે રાજી. સે. ગણિતશાસ્ત્ર  
 દાલે રાજી. સે. ગણિતશાસ્ત્ર મુલામણ B.COM III  
 મહા સુનામણ રોગ-ચાર 1001/૧૫ ના B.COM III  
 મહા મુલામણ (સુનામણ રોગ-ચાર સી. મગધેશ્વર  
 લખાઈ દાલે રાજી. સે. ગણિતશાસ્ત્ર 1001/૧૫ ના સુનામણ  
 \* પારિતોષિક મળે.

૨) મી. સંતોષ દાલે રાજી. સે. ગણિતશાસ્ત્ર  
 - મિત્ર નામદેવ દાલે રાજી. સે. ગણિતશાસ્ત્ર  
 બી. લક્ષ્મી 1001/૩, લોકાવલીરામ લા વિદ્યાવતી  
 સંસ્થાના 700 મિલિટોનાના વિદ્યાર્થી 1111/૧૫  
 પારિતોષિક મળે.

૩) મી. ડૉ. સુનામણ મુનિ રાજી. સે. ગણિતશાસ્ત્ર મહા  
 સુનામણ મુનિ રાજી. સે. ગણિતશાસ્ત્ર B.A. 1001/૩  
 મહા સુનામણ વિદ્યાવતી સંસ્થાના 700 મિલિટોનાના  
 વિદ્યાર્થી 1001/૧૫ ના પારિતોષિક મળે  
 કરવાત કાલે.

૪) દાલે રાજી. સે. ગણિતશાસ્ત્ર વિદ્યાવતી લાલે. દાલે  
 દાલે રાજી. સે. ગણિતશાસ્ત્ર 1001/૩, 1001/૨ ના 1001/૩  
 મહા સંસ્થાના 700 મિલિટોનાના સુનામણ  
 વિદ્યાર્થી મુલે 1001/૧૫ ના પારિતોષિક  
 મળે કરવાત કાલે.

૫) દિનાંક 20 જાન્યુઆરી 2024 ના મહાવિદ્યાલય  
 લેવાત રોગ-ચાર આરોગ્ય શિક્ષણાલય મહા  
 દિ. 20 જાન્યુઆરીના મી. સંતોષ દાલે  
 મહા રાજી. સે. ગણિતશાસ્ત્ર વિદ્યાવતી મહાવિદ્યાલય  
 મહા આરોગ્ય શિક્ષણાલય આરોગ્ય કરવાત  
 કાલે કાલે. આ આરોગ્ય શિક્ષણાલય મુલે વિદ્યા  
 ના સંસ્થાના 700 મિલિટોનાના સુનામણ  
 કરવાત કાલે. આમના વિદ્યાર્થીના 700  
 મિલિટોનાના કરવાત કાલે દિ. 13/1/2024  
 ના રાજી. સે. ગણિતશાસ્ત્ર મુલે વિદ્યાવતી  
 શિક્ષણાલય મળે મળે મળે મળે મળે મળે  
 રાજી. સે. ગણિતશાસ્ત્ર મળે.

૩૧૭ મા. ડાહ્યાણાંચા અમુમલીને વેલેવર-પર્યોના ચેનારે  
વિષય.

આપલ તેની જોગાનાંહી વિષય સલ્લાઓની  
ડપારચેલ જેના બાંહી મા. ડાહ્યાણાંચા અમુમલીનાં  
બાંહી પુસાને સરેરી જાણાચી ડાહ્યેલ ત્યાંજરીલ  
પરોજ વિડલાચા ડાહ્યાણાંચા આપલ વિષયાચા  
ડાહ્યાણાંચા પુસાનોચી રાહી પંચપાલચાં  
૩૧ માનેલાંહી પ્રાંત હયાલી કુલે સાંચુર અવગત  
જેલ. કાલે રોલે જોલે જોલેલીચી સપીલ  
જે સુમાર પવાર ચાંની ડપારચેલ સલ્લા જ મા.  
ડાહ્યાણાંચા આમાર માનુજ મા. ડાહ્યાણાંચા  
અમુમલી સમા સપેલચાં મારીર જેલે.



ડાહ્યાણાં  
જોલેલ જોલેલી



સાચેવ  
જોલેલ જોલેલી



# ARTS & COMMERCE COLLEGE WARWAT BAKAL

The following Committees have been formed from the session 2023 – 2024, with vide resolution no. 02 in the College Council Meeting held on 11/01/2024.

The administration of the college is vested in the principal, who gives overall direction and controls the operational and functional activities of the college to ensure smooth functioning. Various committees are formed to align with compliance authorities including UGC, State and Central Government, SGBAU, JDHE, and NAAC. These committees are instrumental in achieving NAAC's objective of comprehensive and objective evaluation of higher education institutions, with a focus on quality enhancement and continuous improvement. The involvement of various experts ensures a thorough and fair evaluation process. These committees play a crucial role in evaluating the college's performance, focusing on quality improvement. The committees for ARTS & COMMERCE COLLEGE WARWAT BAKAL for 2023–24 to 2027–2028 or one NAAC cycle period are announced, and all staff are likely to understand and fulfil their committee responsibilities. Regulations, guidelines and nature of work or responsibilities are created to support collaboration and effectiveness without intending any disciplinary action. Each committee member is accountable for their tasks, and in the absence of the designated in-charge, the next senior member assumes the role. The in-charge records committee members, assigns tasks, and ensures a smooth transition of responsibilities. Handing and taking over of duties should be prompt, overseen by the designated committee member if the in-charge is absent.

A: Statutory committees are constituted to ensure proper functioning of management of academic, financial and general administrative affairs. This committee are as follows:

NAME	CHAIRPERSON	IN-CHARGE SECRETARY/ CONVENER/ COORDINATOR	MEMBERS
COLLEGE COUNCIL:	Dr. Shriram Yerankar	Dr. Subhash Pawar	All Permanent Teachers
HOD CELL:		Dr. Subhash Pawar	All Subject HOD's
STUDENT COUNCIL:	Dr. Shriram Yerankar	As per compliance authority guidelines	As per compliance authority guidelines
ANTI RAGGING COMMITTEE:		Dr. Sushil Deshmukh Presiding Officer	Dr. Subhash Gurjar, Dr. Sanjay Tale, Dr. Vijayanand Ingle

INTERNAL COMPLAINT COMMITTEE (ICC)		Dr. Megha Solanke Presiding Officer	Dr. Madhuri Hingankar, Dr. Subhash Gurjar, and other members as per the UGC norms
STUDENT GRIEVANCE REDRESSAL CELL	Dr. Subhash Pawar	Mr. Nagesh W. Ingle	Dr. Kishor Theng, Ms. Sonali Tayde, Mr. Nilesh Shelke
WOMEN DEVELOPMENT CELL (WDC)		Dr. Madhuri Hingankar	Dr. Subhash Gurjar, Dr. Sanjay Tale, Dr. Vijayanand Ingle
STUDENTS DEVELOPMENT CELL:		Mr. Kiran Sabale	Dr. Subhash Gurjar, Dr. Megha Solanke, Mr. Nilesh Shelke
THE INNOVATION & ENTREPRENEURSHIP DEVELOPMENT CELL (IEDC)		Mr. Santosh Mahsal	Dr. Rajendra Korde, Mr. Suresh Bhalalak
NCC ADVISORY CELL:		Dr. N.P. Safav	Dr. Rajendra Korde, Mr. Kiran Sabale, Dr. Satish Rane, 1 representative from NCC unit. Secretary of Student Council,
NSS ADVISORY	Dr. Shriram Yerankar	Mr. Suresh Bhalalak Secretary	District Superintendent, Project Director (DRDA. Z.P. Buldhana), Sarpanch of Adapted Village, Mr. Aanand Dhundale,
MENTOR MENTEE		Ms. Sonali Tayde	All Permanent Teachers

B: Committees that look into different aspects of administration and also as and when required advise the principal on specific issues. These committees are as follows, ensure guidance promptly appreciated greatly

NAME	CONVENER/ COORDINATOR	MEMBER 1	MEMBER 2	MEMBER 3
ADMISSION COMMITTEE	Dr. Rajendra Korde	Dr. Vijayanand Ingle	Mr. Suresh Bhaltadak	Ms. Sonali Tayade
TIME TABLE COMMITTEE AND ACADEMIC CALENDAR COMMITTEE	Dr. Subhash Pawar	Dr. Satish Rane	Dr. Megha Solanke	Mr. Santosh Mhasal
CULTURAL PROGRAMMES COMMITTEE	Dr. Nishigandh Satav	Mr. Nilesh Shelke	Ms. Sonali Tayade	Dr. Rajendra Korde
NATURE CLUB	Dr. Kishor Theng	Mr. Nilesh Shelke	Dr. Madhuri Hingankar	
EXAMINATION COMMITTEE	Dr. Vijayanand Ingle	Mr. Nilesh Shelke	Dr. Megha Solanke	Mr. Anand Dhundale
DISCIPLINE AND WELFARE CELL	Dr. Gajanan Paikar	Dr. Madhuri Hingankar	Mr. Sunil Makode	Dr. Dnyaneshwar Sherkar
EXCURSION COMMITTEE	Dr. Satish Rane	Dr. Megha Solanke	Dr. Subhash Gurjar	Dr. Subhash Pawar
ATTENDANCE COMMITTEE	Mr. Santosh Mhasal	Dr. Megha Solanke	Dr. Satish Rane	Mr. Anand Dhundale
CONFERENCE AND SEMINAR COMMITTEE	Dr. Dnyaneshwar Sherkar	Dr. Madhuri Hingankar	Dr. Vijayanand Ingle	Dr. Subhash Pawar
GAMES AND SPORTS COMMITTEE	Dr. Gajanan Paikar	Mr. Anand Dhundale	Dr. Rajendra Korde	Mr. Suresh Bhaltadak
REMEDIAL CLASSES COMMITTEE	Dr. Satish Rane	Miss. Sonali Tayade	Dr. Subhash Pawar	Mr. Nagesh Ingle
FEEDBACK COMMITTEE	Mr. Nilesh Shelke	Dr. Subhash Gurjar	Dr. Sajay Tale	Dr. Dr. Madhuri Hingankar
COMPETITIVE FORUM	Mr. Nityanand Dahake	Mr. Nagesh Ingle	Dr. Nandkishor More	Ms. Sonali Tayade
STUDENT PLACEMENT COMMITTEE	Mr. Nityanand Dahake	Dr. Sanjay Tale	Mr. Nilesh Shelke	Dr. Megha Solanke

PROSPECTUS COMMITTEE & MAGAZINE COMMITTEE	Mr. Santosh Mhasal	Dr. Nishigandh Satav	Mr. Suresh Bhaltadak	Ms. Sonali Tayade
CERTIFICATE COURSES COMMITTEE	Dr. Subhash Pawar	Ms. Sonali Tayade	Dr. Satish Rane	Mr. Kiran Sabale
API & TEACHER PLACEMENT COMMITTEE	Dr. Sanjay Tale	Mr. Sushil Deshmukh	Dr. Subhash Pawar	Dr. Subhash Gurjar
PURCHASE COMMITTEE	Dr. Subhash Gurjar	Dr. Nishigandh Satav	Mr. Ajay Chopade	Mr. Santosh Mhasal
LIBRARY ADVISORY COMMITTEE	Dr. Subhash Gurjar	Mr. Sunil Makode	Dr. Kishor Theng	Mr. Nagesh Ingle
STUDENTS ALUMNI ASSOCIATION COMMITTEE	Mr. Nagesh Ingle	Dr. Rajendra Korde	Dr. Madhuri Hingankar	Mr. Suresh Bhaltadak
CAMPUS PHYSICAL MAINTENANCE COMMITTEE	Dr. Gajanan Paikar	Dr. Nishigandh Satav	Mr. Santosh Mhasal	Mr. Ajay Chopade
PARENT TEACHER ASSOCIATION COMMITTEE	Dr. Rajendra Korde	Mr. Suresh Bhaltadak	Miss. Sonali Tayade	Dr. Subhash Pawar
RESEARCH AND DEVELOPMENT COMMITTEE	Dr. Dnyaneshwar Sherkar	Dr. Sanjay Tale	Dr. Megha Solanke	Dr. Subhash Gurjar
INDUSTRY-INSTITUTE PARTNERSHIP CELL	Mr. Santosh Mhasal	Mr. Suresh Bhaltadak	Mr. Sushil Deshmukh	Dr. Megha Solanke
ANTI-DISCRIMINATION CELL	Mr. Anand Dhundale	Dr. Madhuri Hingankar	Mr. Sushil Deshmukh	
AWARD OF DEGREES AND OTHER AWARDS	Dr. Subhash Pawar	Ms. Sonali Tayade	Dr. Satish Rane	Mr. Nilesh Shelke
SCIENCE CLUB/COMMERCE CLUB/FINE ART CLUB	Dr. Megha Solanke	Dr. Madhuri Hingankar	Mr. Suresh Bhaltadak	
CBCS SUBJECT COMMITTEE / OEC	Dr. Subhash Gurjar	Dr. Satish Rane	Mr. Santosh Mhasal	
GOEC	Dr. Madhuri Hingankar	Mr. Suresh Bhaltadak	Mr. Suresh Bhaltadak	
EVS	Dr. Dnyaneshwar Sherkar	Dr. Sanjay Tale	Mr. Anand Dhundale	



BHASHA / LITERACY COMMITTEE	Dr. Nishigandh Satav	Mr. Nagesh Ingle	Mr. Aanand Dhundale	
WEBSITE UPDATION COMMITTEE	Mr. Sushil Deshmukh	Mr. Kiran Sabale	Dr. Nishigandh Satav	Dr. Sanjay Tale
EVENT ORGANIZING COMMITTEE	Dr. Satish Rane	Dr. Sanjay Tale	Mr. Suresh Bhaltadak	D.Nandkishor More
CANTEEN UPKEEP COMMITTEE	Mr. Aanand Dhundale	Mr. Santosh Mhasal	Dr. Subhash Gurjar	
STUDENT QUALITY ASSURANCE CELL (SQAC)	Mr. Kiran Sabale	Dr. Dnyaneshwar Sherkar	Dr. Nishigandh Satav	Ms. Sonali Tayde
OBSERVANCE OF IMPORTANT DAYS AND JAYANTI AND PUNYATHITHI	Dr. Rajendra Korde	Mr. Nagesh Ingle	Dr. Subhash Pawar	Dr. Megha Solanke
CYBER CLUB	Mr. Kiran Sabale	Dr. Satish Rane	Mr. Sushil Deshmukh	Ms. Sonali Tayde
COLLEGE STAKEHOLDER COOPERATIVE STORE	Mr. Sunil Makode	Dr. Rajendra Korde	Mr. Ajay Chopade	
DOCUMENTATION AND DRAFTING COMMITTEE	Mr. Santosh Mhasal	Dr. Subhash Gurjar	Dr. Satish Rane	Dr. Madhuri Hingankar
PUBLICATION COMMITTEE AND ALBUM COMMITTEE	Dr. Nandkishor More	Mr. Nityanand Dahake	Dr. Rajendra Korde	Mr. Sushil Deshmukh
FLS	Dr. Rajendra Korde	As per compliance authority		

Note: A student representative should be nominated to their committee by the convener or coordinator of that committee.

  
IQAC Coordinator

  
College Council Secretary

  
Principal

Arts & Commerce College Warwat Bakal    Arts & Commerce College Warwat Bakal    Arts & Commerce College Warwat Bakal

Satpuda Education Society, Jalgaon (Jamod)'s  
**Arts & Commerce College, Warwat (Bakal)**  
Tq- Sangrampur Dist – Buldhana (444202)

Dr. Subhash S. Pawar  
Principal

■ 9420446032

Shri. Krushnarao Ingle (Ex M.L.A)  
President

■ (07266) 221449

College Code: 327

E mail- [accwb327@gmail.com](mailto:accwb327@gmail.com) / [accwb327@sgbau.ac.in](mailto:accwb327@sgbau.ac.in)

Outward No. *Q* /2023

Date 28/07/2023

**GRIEVANCE REDRESSAL CELL FOR SEXUAL  
HARASSMENT AGAINST WOMEN**

Grievance Redressal cell for Sexual Harassment against Women' in Arts and Commerce College, Warwat Bakal, Dist-Buldhana is constituted as per the University norms (University Letter No. 77/2012 dated 21/06/2012)

For the Session 2023-24 to 2024-25

- |                          |                                 |            |
|--------------------------|---------------------------------|------------|
| 1. DR. MEGHA SOLANKE     | (Assistant Professor)           | CHAIPERSON |
| 2. NITIN SATAV           | (Management Representative)     | MEMBER     |
| 3. DR.MADHURI HINGANKAR  | (Female Teacher Representative) | MEMBER     |
| 4. DR.SUBHASH GURJAR     | (Male Teacher Representative)   | MEMBER     |
| 5. AJAY CHOPADE          | (Non Teaching Representative)   | MEMBER     |
| 6. ADV. SUVARNA GOTMARE  | (Lady Lawyer)                   | MEMBER     |
| 7. MISS SONALI TAYADE    | (Assistant Professor)           | MEMBER     |
| 8. PAYAL SUNIL KANDARKAR | (Female Student)                | MEMBER     |
| 9. Navin Haribhau Tayade | (Male student)                  | MEMBER     |

  
Principal  
Arts & Commerce College,  
Warwat Bakal Dist.Buldhana



Satpuda Education Society, Jalgaon (Jamod)'s  
**Arts & Commerce College, Warwat (Bakal)**  
Tq- Sangrampur Dist - Buldhana (444202)

Dr. Subhash S. Pawar  
Principal

Shri. Krushnarao Ingle (Ex M.L.A)  
President

☎ 9420446032

College Code: 327

☎ (07266) 221449

E mail- [accwb327@gmail.com](mailto:accwb327@gmail.com) / [accwb327@sgbau.ac.in](mailto:accwb327@sgbau.ac.in)

Outward No. 78 / 2023

Date 78 / 7 / 2023

To,

Adv. Suvama Gotmare

Civil Court, Sangrampur

Dist- Buldana

Subject: Nomination to be a member as a Lady Lawyer on 'GRIEVANCE REDRESSAL CELL FOR SEXUAL HARASSMENT AGAINST WOMEN' at Arts and Commerce College, Warwat Bakal.

Ref. University Letter No. 77/2012 dated 21/06/2012

Respected Madam,

This gives me an immense pleasure to nominate you on the aforesaid committee constituted at our college for the session 2022-23 to 2023-24.

You are hereby requested to accept the nomination and co-ordinate us in order to safeguard the right of women at workplace.

Thanking You!

Enclosure:

I. List of Committee members.

*Suvama*  
*Adv*  
*28/07/23*

  
Principal  
Arts & Commerce College,  
Warwat Bakal Dist. Buldana

शैक्षणिक सत्र 2023-2024

महिला तैमिळ छात्र प्रतिबंधक समिती याचा

दि. 20/10/2023 रोजी महाविद्यालयातील  
महिला तैमिळ छात्र प्रतिबंधक समिती याच्या दुर्गति  
लील जायला महाविद्यालयात आयोजित करण्यात आला  
यावेळी जवळील जवळील उपस्थित होते.

- १) डॉ. श्रीराम मेरठकर (प्रमुख)
- २) श्री. लिलित सातव (संस्था प्रतिनिधी)
- ३) प्रा. डॉ. मेधा रं. मोळ्ळे (समन्वयक)
- ४) डॉ. सुवर्णा गोतमरे (महिला शिक्षक)
- ५) प्रा. डॉ. माधुरी सु. शिंगकर (महिला शिक्षक प्रतिनिधी)
- ६) प्रा. डॉ. सुभाष गुर्जर (पुरुष शिक्षक प्रतिनिधी)
- ७) श्री. अजय चौपडे (शिकवेलीर कमिटी प्रतिनिधी)
- ८) प्रा. कु. सोनळी अ. लायडे (विशेष प्रतिनिधी)
- ९) कु. पंचक सु. कुंडरकर (विद्यार्थी प्रतिनिधी)
- १०) निविन ह. लायडे (विद्यार्थी प्रतिनिधी)

दि. १८/१०/२०२३ रोजीच्या  
महिला तैमिळ छात्र प्रतिबंधक समितीच्या सुचनाप्रमाणानुसार  
दि. २०/१०/२०२३ रोजी महाविद्यालयात याचा  
घेव्यात आला यावेळी खालील विषयावर  
आविश्कार याचा करण्यात आला.

अभिप्रेत करित येणारे विषय

विषय क्र. १

मागील सत्राचे झालेले वाचून कामास आले  
यावेळी मागील सत्राचे झालेले वाचून  
ले सर्वेच्या रांगतीने कामास करण्यात आले

विषय क्र. २



2. महिला कुम्वारी व विद्यार्थिनी जांचासाठी  
होणार नाही याबद्दल द्याता छेने

महाविद्यालयात काम करणाऱ्या महिला व  
विद्यार्थिनी होणार नाही याबद्दल जांचावर आल्या  
होणार नाही व त्यांना जन्मातूनच तागावक  
देण्याबद्दल प्राचमीली चमारांभी आणल्या प्रमाण  
आणि जांचात विद्यार्थी व कुम्वारींनी आकाश कुंज  
विले पाहिले, जाचबरोबर तुम्ही जेप्रकार उद्भवणार नाही  
याकरिता प्रत्येक कुम्वारींनी आपआपल्या स्तरावर  
वेळोवेळी विद्यार्थिनी यासंबंधी खुबसा द्यात जावा  
तुम्ही सर्वांमुळे ठरविवात आले.

विषय क्र. 3

वर्तमान प्राप्ति होणाऱ्या तक्रारीचे निवारण करणे

विवरण

महाविद्यालयातील महिला कुम्वारी व विद्यार्थिनी  
जांचावर आल्या होणार नाही यासंबंधी सर्व  
प्रमाण केव्हाचानंतरही मरणाचे प्रकरण उद्भवल्यास  
असंबंधीची माहिती ताकाद समितीकडे देवात जावी.  
व अशा वेळी समितीचे विशेष सभा घेतातून  
तक्रारीचे निवारण करावे. प्रथम आपल्या स्तरावर  
असंबंधीत व्यक्तीला समज घ्यावी, त्यानंतरही पुन्हा असा  
प्रकार घडून आल्यास असंबंधीत प्रकरण पोलीस  
स्टेशन कडे खुपूद करण्यात जावे, तुम्ही  
सर्वांमुळे ठरविवात जावे.

विषय क्र. 4

महाविद्यालयात महिला जनजागृती विषय  
कार्यक्रम आयोजित करणे

महाविद्यालयातील महिला कुम्वारी व  
विद्यार्थिनी प्रथम होणाऱ्या हदरीने त्यांच्यामध्ये  
जनजागृती निर्माण व्हावी याकरिता महाविद्यालयात  
महिला जनजागृती कार्यशाळा, महिला  
आवृत्तीच्या कार्यशाळा, कायदे विषयक शिबिर  
इत्यादी कार्यक्रम आयोजन करण्यात यावे.

ગાકરિયા જ્ઞાપાત્ર - યોગિયા - પ્રેક્ષક, સમાજસુધારક એવે  
- સમર્થકોના સુવર્ણ વર્ષના લોકો.

સંકલન

- સમાજસુધારક  
- ગાકરિયા જોગિયા સંસ્થા  
- પ્રતિષ્ઠાપત્ર - ગાકરિયા



## **6.1.2. Practices of decentralization and participative management**

### **C: A CASE STUDY SHOWING DECENTRALIZATION AND PARTICIPATIVE MANAGEMENT IN THE INSTITUTION**

The College is having decentralized and participative management system with sufficient independence for all staff members of the college, which helps in maintaining and developing better, inters relationships among all departments particularly HOD's are empowered with administrative and academic autonomy to discharge their duties smoothly and efficiently. The delegation of authority and responsibilities by principal to HOD's can be stated as follows'

- Every HOD's prepare their own teaching plan and also asked their departmental teachers to prepare teaching plan subject wise at the beginning of the session so that teachers may know what students need to learn, how it will be taught, and how learning will be measured.
- HOD's prepare their departmental academic calendar so that he can observed whether the assigned tasks, activities are completed within specific time or set deadlines and inculcate among the teachers about the significance of professional standard.
- HOD's leads in making planning of departmental activities for the professional development of teachers such as guest lecture, seminar, workshops.
- HOD's sees that whether the submission of assignment and internal marks is carried out within the time specified by SGBAU guidelines.
- HOD's in consultation with certified courses coordinators from this academic session sees that whether the certified courses examination, declaration of results and distribution of certificates has been done properly or not.
- HOD's discuss with departmental teachers about the time table for remedial classes and what strategy should be developed for SMA.
- H.O.D.s are empowered by principal to make adjustments in the operational and functional duties of their departmental teachers.

## **6.1.2. Practices of decentralization and participative management**

### **Supporting Documents C**



SATPUDA EDUCATION SOCIETY, JALGAON (JAMOD)'S

# **ARTS & COMMERCE COLLEGE**

WARWAT BAKAL DIST- BULDANA

## **Department of ECONOMICS**

**DEPTMENTAL ACADEMIC  
CALENDAR 2023-24**



## Departmental Academic Calendar (2023-24)

Sr.No.	Activity	Commencement	Cessation	
01	First Session	9/07/2023	07/11/2023	
02	First Term Vacation	08/11/2023	27/11/2023	
03	Teaching Days (Even Semesters)	25/07/2023	07/11/2023	
04	Winter Vacation	08/11/2023	27/11/2023	
05	Second Session	28/11/2023	27/04/2024	
06	Summer Vacation	29/04/2024	10/06/2024	
07	Commencement of next Academic session	11/06/2024		

Sr. No.	Public Holiday	Day & Date
01	Moharam	Saturday 29 July 2023
02	Independence Day	Tuesday 15 August 2023
03	Parsi New Year	Wednesday 16 August 2023
04	Rakshabandhan	Wednesday 30 August 2023
05	Ganesh Chaturthi	Tuesday, 19 September, 2023
06	Gauri Pujan	Friday 22 September 2023
07	Anant Chaturdashi	Thursday 28 September 2023
08	Gandhi Jayanti	Monday 02 October 2023
09	Dasara	Tuesday, 24 October, 2023
10	Christmas	Monday 25 Desember 2023
11	Republic Day	Friday, 26 January, 2024
12	Shivaji Maharaj Jayanti	Monday 19 February 2024
13	Mahashivratri	Friday 8, March 2024
14	Holi (Second Day)	Monday, 25, March, 2024
15	Good Friday	Friday, 29, March, 2024
16	Gudhipadwa	Tuesday 09, April, 2024
17	Ramzan Id	Thursday, 11 April, 2024
18	Shriram Navami	Wednesday 17, April, 2024

### Teaching Periods Available per month during the session 2023-24

Faculty : ARTS

Subject : Economics

		ODD SEMESTER									EVEN SEMESTER					
Class	Periods	JULY -22	AUG -21	SEP T-21	OC T-21	NO V-21	DEC -21	JAN -22	Total	JAN -22	FE B-22	MA R-22	April -22	MA Y-22	JUN -22	Total
BA I	Theory	15	19	21	14	16	01	9	95	00	6	28	27	10	00	71
BA II	Theory	00	13	20	16	16	0	9	74	00	6	27	26	7	00	66
BA III	Theory	00	12	21	16	15	01	10	75	00	6	28	26	7	00	67
MA.I	Theory	00	00	13	12	12	18	16+2	73	00	6	18	17	7	00	48



TEACHING PLAN OF DEPARTMENT OF ECONOMICS			
<b>Theory BA SEM I</b>	Sr. No.	Topic to be covered	Lectures Available
	01	Introduction to Economics	20
	02	Demand and Supply	18
	03	Cost and Revenue Analysis	19
	04	Market Structures	20
	05	Factors of Production	18
<b>Theory BA SEM II</b>	Sr. No.	Topic to be covered	Lectures Available
	01	Geographical and Economy Features of Maharashtra	15
	02	Population Features of Maharashtra	14
	03	Agricultural Economy	14
	04	Industry and Infrastructure in Maharashtra	13
	05	Economy of Vidarbha	15
<b>Theory BA SEM III</b>	Sr. No.	Topic to be covered	Lectures Available
	01	Introduction to Macro Economics	15
	02	Money and Value of Money	14
	03	Inflation and Deflation	15
	04	Production and Employment	15
	05	International Trade	15
<b>Theory BA SEM IV</b>	Sr. No.	Topic to be covered	Lectures Available
	01	Commercial bank	14
	02	Central Bank	13
	03	Co-operative Bank and Nabard	12
	04	International Monetary Fund & World Bank	13
	05	Recent Services in banking Sector	14
<b>Theory BA SEM V</b>	Sr. No.	Topic to be covered	Lectures Available
	01	Indian Economy and Planning	15
	02	Agriculture	15
	03	Industry	15
	04	External sectors and Important areas of concern	14
	05	Environment and pollution	16
<b>Theory BA SEM VI</b>	Sr. No.	Topic to be covered	Lectures Available
	01	Introduction of Demography	14
	02	Fertility and Mortality	13
	03	Migration of population	13
	04	Urbanization of population	13
	05	Population and Development	14

TEACHING PLAN OF DEPARTMENT OF ECONOMICS (M.A.I & II)			
	Sr. No.	Topic to be covered	Lectures Available
Theory M.A.I SEM I	1	Research Methodology & IPR	
	2	Advanced Micro Economics-I	69
	3	Advanced Macro Economics-I	70
	4	Agriculture Economics	
	5	Rural & Urban Development	68
Theory M.A.II SEM III	1	Economic Growth, Development & Planning-I	62
	2	International Trade & Finance -I	
	3	Financial Institutions & Market	52
	4	Research Methodology for Economic	
Theory M.A.I SEM II	1	Advanced Micro Economics-II	89
	2	Advanced Macro Economics-II	
	3	Public Economics	86
	4	Human Development	
Theory M.A.II SEM IV	1	Economic Growth, Development & Planning- II	
	2	International Trade & Finance -II	85
	3	Demography	76
	4	Welfare Economics	
	5	Project	

**ACADEMIC ACTION PLAN 2023-24**  
**Department of Economics**

01	Name of the Department	Economics
02	Name of faculty members with qualification	1)Dr.Subhash Gurjar (M.A.Eco,M.phil,Ph.d,SET) 2) Miss.ArchanaBarabde M.A.(Economics) 3) Mr. Dhananjay Sonone (M.A.M.Phil,B.ed.)
03	Refresher Course/ Orientation Program/ Short Term Course/ Any Others	01
04	Research Publication	i) Book Publication
		01
		ii) Chapter in Book
		01
		iii) Research Articles in UGC CARE listed Journal
		02
		iv) Research Paper in conference/ seminar (Presentation)
		02
		v) Research Paper in conference/ seminar proceeding (Publication)
		00
05	Conference/ Seminar/ Workshop (To be organized)	vi) Conference/ Seminar/ Workshop (To be attended)
		02
		vii) Resource Person/ Chairperson
		01
		viii) Ph. D registered/Ongoing/Awarded
		Awarded
		xv ) Ph. D guide and no. of students registered /to be registered under
		Ph.d Guide
		xvi) Minor/ Major Project
		---
06	Collaboration	01
07	Consultancy	00
08	Extension Activities and Social Responsibility	Nil
		Social awareness program



09	Academic Activities to be organized (Guest lecture, class room seminar, contest, education tour, celebration of birth and death anniversary of national leaders, no. of visiting & guest faculties etc.)	Guest lecture :- 01 Seminar :- 02 Education tour :- 01 Bank visit :- 01 Farm visit :- 01
10	Innovative and Best Practices <ul style="list-style-type: none"> <li>Name of the title of the practice.</li> <li>Introduction</li> <li>Objectives</li> <li>Theme/ context</li> <li>The practice</li> <li>Evidence of success</li> <li>Problems encountered and resources required</li> </ul>	Banking awareness
11	Any other if you wish to add	---
12	Curriculum Enrichment (Draft the letter to the concerned BOS of University)	Paper setting Moderation Discuss the syllabus

**ARTS AND COMMERCE COLLEGE**  
**Warwat Bakal, Dist- Buldana**

**Department of Economics**

**Perspective Plan for Curriculum Implementation 2023-24**

BA Part I SEM I		
Unit	Available Lectures	Duration
I Introduction to Economics	18 periods	August 30 to September 2021
II Demand & Supply	18 periods	September 2021 to October 2021
III Cost & Revenue	17 periods	November to December 2021
IV Market Structures	17 periods	December 2021 to January 2022
V Factors of Production	17 periods	January 2022
BA Part II SEM III		
Unit	Available Lectures	Duration
I Introduction to Macro Economics	10 periods	August 30 to September 2021
II Money & Value of Money	10 periods	September 2021 to October 2021
III Inflation & Deflation	10 periods	November to December 2021
IV Production & Employment	11 periods	December 2021 to January 2022
V International Trade	09 periods	January 2022
BA Part III SEM V		
Unit	Available Lectures	Duration
I Indian Economy and Planning	12 periods	August 30 to September 2021
II Agriculture	11 periods	September 2021 to October 2021
III Industry	11 periods	November to December 2021
IV External Sectors & Important areas of concern	11 periods	December 2021 to January 2022
V Environment and pollution	11 periods	January to February 2022
BA Part I SEM II		
Unit	Available Lectures	Duration
I Geographical & Economy Features of Maharashtra	18 periods	January to February 2022
II Population features of Maharashtra	18 periods	February to March 2022
III Agricultural Economy	17 periods	March to April 2022
IV Industry & Infrastructure in Maharashtra	17 periods	April To MAY 2022
V Economy of Maharashtra	18 periods	MAY 2022
BA Part II SEM IV		
Unit	Available Lectures	Duration

I Commercial Bank	18 periods	January to February 2022
II Central Bank	18 periods	February to March 2022
III Co-operative Bank & Nabard	18 periods	March to April 2022
IV International Monetary fund & World Bank	17 periods	April To MAY 2022
V Recent services in Banking sector	17 periods	MAY 2022
<b>BA Part III SEM VI</b>		
<b>Unit</b>	<b>Available Lectures</b>	<b>Duration</b>
I Introduction of Demography	18 periods	January to February 2022
II Fertility and Mortality	17 periods	February to March 2022
III Migration of Population	18 periods	March to April 2022
IV Urbanization of Population	17 periods	April To MAY 2022
V Population and Development	18 periods	MAY 2022

**Department of Economics**  
**Perspective Plan for Co-curricular Activities 2023-24'**

Sr. No.	Activity	Tentative Duration
1.	Welcome Program of First year students	Third Week of September 2023
2.	Book published	September 2023
3.	Quiz Competition of Banking	October 2023
4.	Study Circle Formation of Economics	October 2023
5.	Celebration of National consumer day	24 December 2023
6.	Bank Visit	Last week of December 2023
7.	Celebration of World consumer day	15 March 2024
8.	Farm Visit	April 2024



SATPUDA EDUCATION SOCIETY, JALGAON (JAMOD)'S  
**ARTS & COMMERCE COLLEGE**  
WARVAT BAKAL DIST- BULDANA

**DEPARTMENT OF COMMERCE**

**DEPTMENTAL ACADEMIC  
CALENDAR 2023-24**

## Departmental Academic Calendar (2023-24)

Sr. No.	Activity	Commencement	Cessation	TotalDays
01	First Session	03/07/2023	07/11/2023	104
02	Admission Process	03/07/2023		
03	Teaching Days(Odd Semesters)	15/07/2023	07/11/2023	90
04	Induction Program for First Year Students	11/07/2023	14/07/2023	04
05	First Term Vacation	08/11/2023	27/11/2023	20
06	Odd Semesters University Exam	08/11/2023	30/12/2023	39
07	Academic Session (Second Session)	28/11/2023	27/04/2024	121
08	Teaching Days (Even Semesters)	05/01/2024	27/04/2024	90
09	Second Term Vacation	29/04/2024	10/06/2024	43
10	Even Semesters University Exam	29/04/2024	10/06/2024	35
11	Commencement of next Academic session	11/07/2024	-----	----

Sr. No.	Public Holiday	Day & Date
01	Moharam	Saturday 29/07/2023
02	Independence Day	Tuesday 15/08/2023
03	Parsi New Year	Wednesday 16/08/2023
04	Rakshabandhan	Wednesday 30/08/2023
05	Shri Ganesh Chaturthi	Tuesday 19/09/2023
06	Anant Chaturthi	Thursday 28/09/2023
07	Mahatama Gandhi Jayanti	Monday 02/10/2023
08	Dasara	Tuesday 24/10/2023
09	Christmas	Monday 25/12/2023
10	Republic Day	Friday 26/01/2024
11	Chatrapti Shivaji Maharaj Jayanti	Monday 19/02/2024
12	Mahashivratri	Friday 08/03/2024
13	Holi (Second Day)	Monday 25/03/2024
14	Good Friday	Friday 29/03/2024
15	Gudhi Padwa	Tuesday 09/04/2024
16	Ramzan ID (Id-UI-Fitar)	Thursday 11/04/2024
17	Shriram Navmi	Wednesday 17/04/2024



## Time Table

Faculty : Commerce

Subject : BEC, ITA, STA,CMA,I&WWW

Dr.S.W.Rane.

Period	1	2	3	4	5	6
Day / Time	11:00 to 11:48	11:48 to 12:36	12:36 to 1:24	1:34 to 2:22	2:22 to 3:10	3:10 to 3:58
MON	II	III	I		III	
TUE	II	III	I		III	
WED	II	III	I		III	
THUS	III	I	II		III	
FRI	III	I	II		II	
Period	1	2	3	4	5	6
Day / Time	07:30 to 08:18	08:18 to 09:06	09:06 to 09:54	10:04 to 10:52	10:52 to 11:40	11:40 to 12:28
SAT		III	II			

## Allotted Workload

Subject : COMMERCE

Year : 2023-

24

Sr. No.	Class	No. of periods per week			Paper Allotted
		Lectures	Tutorials	Practical	
1	B.Com I	05	----	----	
2	B.Com II	05+02	----	----	
3	B.Com III	05+05	----	----	
4	M.Com I				
5	M.Com II				

Total Workload per week (L+T+P) : 22 (L) + 00 (T) = 22 (17 hrs. 36 m)

		ODD SEMESTER						EVEN SEMESTER				
Class	Periods	July 23	Aug 23	Sept 23	Oct 23	Nov 23	Total	Jan 24	Feb 24	Mar 24	Apr 24	Total
B.Com I (PEC, BEC)	Theory	11	20	19	20	5	75	18	20	18	17	73
B.Com II (MM, BMS)	TH. (ITA)	11	20	19	20	5	75	18	20	18	17	73
	TH. (BMS)	04	08	10	08	02	32	07	08	08	08	31
B.Com III (CMA, I&WWW )	TH. (CMA)	11	20	19	20	5	75	18	20	18	17	73
	TH. (I&WW W)	11	20	20	20	5	76	19	20	20	17	76
M.com I MEC,S MA	TH. MEC,S EM											
M.Com II	TH.											

Teaching Plan for Theory (First Semester) Class : B com Part I (PEC) CBCS			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	INTRODUCTION	13	
02	UTILITY APPROACH	13	
03	ELASTICITY OF DEMAND	13	
04	PRODUCTION FUNCTION	12	
05	COST AND REVENUE	12	
06	Skill Enhancement Module	12	
Teaching Plan for Tutorial (Second Semester) Class : B com Part I (BEC) CBCS			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	BUSINESS AND MANEGERIAL ECONOMICS	13	
02	MARKET STRUCTURE	13	
03	MARKET STRUCTURE	13	
04	FACTORS PRICING	12	
05	FACTORS PRICING	12	
06	Skill Enhancement Module	12	
Teaching Plan for Theory (Third Semester) Class : B com Part II (AUD) CBCS			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	MEANING OF AUDITING	13	
02	TYPE S OF AUDIT	13	
03	INTERNAL CHECK SYSTEM	13	
04	AUDITORS REPORT	13	
05	COMPANY AUDIT	13	
06	SKILL MODULES	10	
Teaching Plan for Theory (Fourth Semester) Class : B COM II (IT) CBCS			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	BASIC CONCEPT-INCOME TAX	12	
02	COMPUTATION OF INCOME FROM SALARY	13	
03	INCOME FROM HOUSE PROPERTY	15	
04	BASIC CONCEPT CAPITAL ASSETS	15	
05	DEDUCATION MADE TO GROSS TOTAL INCOME	12	
06	SKILL MODULES	08	



Teaching Plan for Theory (Third Semester)		Class : B com Part II (BMS) CBCS	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	PLACE/CHANNEL DECISION	13	
02	PROMOTION DECISION	13	
03	SKILL MODULES	10	
Teaching Plan for Theory (Fourth Semester)		Class : B COM Part II (BST) CBCS	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	INDEX NUMBER	12	
02	CORRELATION	13	
03	SKILL MODULES	12	
Teaching Plan for Theory (Fifth Semester)		Class : B com Part III (CAC) CGS	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	COST ACCOUNTING	15	
02	MATERIAL COST	15	
03	LABOUR COST	15	
04	OVERHEADS	15	
05	PROCESS COSTING	15	
Teaching Plan for Theory (Sixth Semester)		Class : B com Part III (MAC) CGS	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	MANAGEMENT ACCOUNTING	15	
02	BREAK-EVEN-ANALYSIS	15	
03	RATIO ANALYSIS	15	
04	BUDGET	15	
05	BUDGETARY CONTROL	15	
Teaching Plan for Theory (Fifth Semester)		Class : B COM Part III (I&WW-I) CGS	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	NETWORK	15	
02	INTERNET	15	
03	ELECTRONIC MAIL	15	
04	THE WORLD WIDE WEB (W3C)	15	
05	DESIGNING WEBSITE/WEBPAGE	15	
Teaching Plan for Theory (Sixth Semester)		Class : B com Part III (I&WW-II) CGS	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	WEB BROWSING	15	
02	WEB DIRECTORY	15	
03	SOCIAL NETWORKING	15	
04	GOOGLE DRIVE	15	
05	M.S. FRONT PAGE EXPRESS	15	

## Time Table

Faculty : Commerce

Subject : B.COM Part I PBM, PBO, CFS-I/II,  
B.COM Part II COA, CAT,  
B.Com Part III BRFC, CLAW, EOE-I/II

**Dr.S.J.Tale**

Period	1	2	3	4	5	6
Day / Time	11:00 to 11:48	11:48 to 12:36	12:36 to 1:24	1:34 to 2:22	2:22 to 3:10	3:10 to 3:58
MON		B.Com II	B.Com III	B.Com I	B.Com I	
TUE		B.Com I	B.Com III	B.Com III	B.Com II	
WED		B.Com II	B.Com III	B.Com III	B.Com I	
THUS		B.Com II	B.Com I	B.Com III	B.Com I	
FRI	B.Com I	B.Com II	B.Com III	B.Com III		
Period	1	2	3	4	5	6
Day / Time	07:30 to 08:18	08:18 to 09:06	09:06 to 09:54	10:04 to 10:52	10:52 to 11:40	11:40 to 12:28
SAT	B.Com III	B.Com I		B.Com III		

## Allotted Workload

Subject : COMMERCE

Year : 2023-

24

Sr. No.	Class	No. of periods per week			Paper Allotted
		Lectures	Tutorials	Practical	
1	B.Com I	08	----	----	
2	B.Com II	05	----	----	
3	B.Com III	10	----	----	
4	M.Com I				
5	M.Com II				

Total Workload per week (L+T+P) : 23 (L) + 00 (T) = 23 (18 hrs. 24 m)



## Time Table

Faculty : Commerce

Subject : B.COM Part I PBM, PBO, CFS-I/II,  
B.COM Part II COA, CAT,  
B.Com Part III BRFC, CLAW, EOE-I/II

Dr.S.J.Tale

Period	1	2	3	4	5	6
Day / Time	11:00 to 11:48	11:48 to 12:36	12:36 to 1:24	1:34 to 2:22	2:22 to 3:10	3:10 to 3:58
MON		B.Com II	B.Com III	B.Com I	B.Com I	
TUE		B.Com I	B.Com III	B.Com III	B.Com II	
WED		B.Com II	B.Com III	B.Com III	B.Com I	
THUS		B.Com II	B.Com I	B.Com III	B.Com I	
FRI	B.Com I	B.Com II	B.Com III	B.Com III		
Period	1	2	3	4	5	6
Day / Time	07:30 to 08:18	08:18 to 09:06	09:06 to 09:54	10:04 to 10:52	10:52 to 11:40	11:40 to 12:28
SAT	B.Com III	B.Com I		B.Com III		

## Allotted Workload

Subject : COMMERCE

Year : 2023-24

Sr. No.	Class	No. of periods per week			Paper Allotted
		Lectures	Tutorials	Practical	
1	B.Com I	08	----	----	
2	B.Com II	05	----	----	
3	B.Com III	10	----	----	
4	M.Com I				
5	M.Com II				

Total Workload per week (L+T+P) : 23 (L) + 00 (T) = 23 (18 hrs. 24 m)

# CLAW, EOE-I/II

		ODD SEMESTER						EVEN SEMESTER				
Class	Periods	July 23	Aug 23	Sept 23	Oct 23	Nov 23	Total	Jan 24	Feb 24	Mar 24	Apr 24	Total
B.Com I SEM I / II (PBO, PBM CFS-I&II)	PBM/PBO (T)	10	19	18	19	4	70	17	19	17	16	69
	CFS-I /CFS-II (T/P)	10	19	18	19	4	70	17	19	17	16	69
B.Com II SEM III/ IV (COA/CAT)	COA /CAT (T)	11	20	19	20	5	75	18	20	18	17	73
B.Com III SEM V/VI (BRFC/CLAW EOE-I&II)	BRFC/ CIAW (T)	11	20	20	20	5	76	19	20	20	17	76
	EOE I /EOE-II (T)	11	20	20	20	5	76	19	20	20	17	76

Teaching Plan for Theory (First Semester) Class : B com Part I (PBM)			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Management Concept	14	
02	Planning	14	
03	Organizing	14	
04	Directing	14	
05	Controlling	14	
Teaching Plan for Tutorial (First Semester) Class : B com Part I (CFS-I)			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Fundamentals of Computer	14	
02	Computer Organization	14	
03	Memory organization of Computer	14	
04	Input/Output Devices of Computer System	14	
05	Word Processing Working with Text IMS-WORD 2007]	14	
Teaching Plan for Theory (Second Semester) Class: B com Part I (PBO)			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Commerce and Industry	13	
02	Business	14	
03	Merger and Acquisition	14	
04	New Enterprises	14	
05	Trade in India	14	
Teaching Plan for Tutorial (Second Semester) Class : B com Part I (CFS-II)			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Operating System	14	
02	Operating System [Advance]	14	
03	Modern communications {Concepts only}:	13	
04	Word Processing working with Table and t3raphics: IMS-WORD 20071	14	
05	PowerPoint Presentation	14	
Teaching Plan for Theory (Third Semester) Class : B com Part II (COA)			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Issue, Forfeiture and Re-issue of Shares.	15	
02	Final Accounts of Company	15	
03	Profit Prior to Incorporations.	15	
04	Amalgamation of Company	15	



05	Absorption of Company	15	
<b>Teaching Plan for Theory (FourthSemester)</b>		<b>Class : B COM II (CAT)</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Final Accounts of Banking Company	15	
02	Final Accounts of Fire and Accident Insurance Company	15	
03	Liquidation of Company	15	
04	Valuation of Goodwill	14	
05	Valuation of Shares	14	
<b>Teaching Plan for Theory (FifthSemester)</b>		<b>Class : B com Part III(BRFC)</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Indian Contract Act1872	16	
02	Special Contacts	15	
03	Sales of Goods Act, 1930 and Consumer Protection Act, 1986	15	
04	Negotiable Instrument Act, 1881	15	
05	Goods and Sewices Tax Act, 2017	15	
<b>Teaching Plan for Theory (FifthSemester)</b>		<b>Class : B COM Part III (EOE-I)</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Basics of E-Commerce	16	
02	E-Commerce in India	15	
03	Retail E-Commerce	15	
04	B28 E-Commerce	15	
05	E- Payment and E-Banking	15	
<b>Teaching Plan for Theory (SixthSemester)</b>		<b>Class : B com Part III (CLAW)</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Introduction; Definition, Silent Features of Company, Act 2013	15	
02	Incorporation of Company	15	
03	Share Capital of Company	15	
04	Securities Market	15	
05	Company Secretary and Company Meetings	16	
<b>Teaching Plan for Theory (Sixth Semester)</b>		<b>Class : B COM Part III (EOE-II)</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	Internet E-Commerce Business Models	16	
02	B2C Internet Marketing	15	
03	B28 Online Marketing	15	
04	E-Governance	15	
05	E- Governance Models	15	

## Time Table (2023-24)

Faculty : COMMERCE

Subject

:FAC,IFS,ITB,BST,EOD,BIS

Dr. S.R.Bhaltadak

Period	1	2	3	4	5	6
Day / Time	11:00 to 11:48	11:48 to 12:36	12:36 to 1:24	1:34 to 2:22	2:22 to 3:10	3:10 to 3:58
MON	III (EOD)	I (FAC)		II (IFS)		II (ITB)
TUE	III (EOD)	II(IFS)	II (ITB)	I (FAC)		II (BST)
WED	III (EOD)	I (FAC)	II (BST)	II (ITB)		I (BIS)
THUS	II (ITB)	III (EOD)		II (IFS)	II (BST)	
FRI		III (EOD)	I (FAC)	II (IFS)		I (BIS)
Period	1	2	3	4	5	6
Day / Time	07:30 to 08:18	08:18 to 09:06	09:06 to 09:54	10:04 to 10:52	10:52 to 11:40	11:40 to 12:28
SAT	I (FAC)	II (IFS)		II (ITB)		

## Allotted Workload

Subject: FAC,IFS,ITB,BST,EOD,BIS

Year : 2023-24

Sr. No.	Class	No. of periods per week			Paper Allotted
		Lectures	Tutorials	Practical	
1	B.COM.I (FAC)	05	----	----	
2	B.COM.II (IFS)	05	----	----	
3	B.COM. II (ITB)	05	----	----	
4	B.COM.II (BST)	03	---	----	
5	B.COM.III (EOD)	05	----	-----	
6	M.Com.I(BIS)	02	---	---	

Total Workload per week (L+T+P) : 25 (L) + 00 (T)+00(P) = 25 (20 Hrs)



**Faculty : COMMERCE**  
**:FAC,IFS,ITB,BST,EOD,BIS**

**Subject**

		ODD SEMESTER						EVEN SEMESTER				
Class	Periods	July 23	Aug 23	Sep 23	Oct 23	Nov 23	Total	Jan 24	Feb 24	Mar 24	Apr 24	Total
B.Com I (FAC)	Th. (FAC)	14	24	21	22	04	85	20	20	22	20	82
B.Com II (IFS, ITB, BST)	TH. (IFS)	--	22	21	22	04	69	20	21	22	20	83
	TH. (ITB)	--	21	21	23	06	71	20	20	21	19	80
	TH. (BST)	--	11	12	13	03	39	11	13	12	10	46
B.Com III (EOD)	TH. (EOD)	--	22	22	21	05	70	17	21	20	20	78
M.Com.I (BIS)	TH. (BIS)	--	08	09	08	02	27	08	07	08	06	29

### TEACHING PLAN 2023-24

Teaching Plan for Theory (First Sem.)		Class : B.Com. Part I	Sub- Principles of
Accountancy			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	BOOK KEEPING & ACCOUNTANCY	13	
02	ACCOUNTING TRANSACTION	13	
03	SUB-SIDIARY BOOKS	13	
04	RECTIFICATION OF ERROR	12	
05	DEPRICIATION ACCOUNTING	12	
06	SKILL ENHANNCEMENT MODULE	12	
	<b>TOTAL</b>	<b>75</b>	
Teaching Plan for Theory (Second Sem.)		Class : B.Com. Part I	Sub- Finanncial
Accounting			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	FINAL ACCOUNTS OF INDIVIDUAL	12	
02	BILL OF EXCHANGE	12	
03	ACCOUNTS OF NON PROFIT ORGANIZATION	12	
04	FINAL ACCOUNTS OF CO-OPERATIVE SOCIETIES	13	
05	FINAL ACCOUNTS OF PARTENERSHIP FIRMS	13	
06	SKILL ENHANNCEMENT MODULE	13	
	<b>TOTAL</b>	<b>75</b>	
Teaching Plan for Theory (Third Sem.)		Class : B.Com. Part II	Sub- Monetary System
Sr. No.	Topic to be covered	Lectures	Lectures Utilized

		Available	
01	MONEY	13	
02	VALUE OF MONEY	13	
03	PRICE FLUCTUATIONS	13	
04	MONEY MARKET	12	
05	DEMONITIZATION IN INDIA	12	
06	SKILL ENHANNCEMENT MODULE	12	
	<b>TOTAL</b>	<b>75</b>	

**Teaching Plan for Theory (Fourth Sem.)**      **Class : B.Com. Part II**      **Sub- Indian Financial System**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	INDIAN FINANCIAL MARKET	13	
02	INDIAN BANKS	13	
03	COMMERCIAL BANKS	13	
04	RESERVE BANK OF INDIA	12	
05	STOCK EXCHANGE	12	
06	SKILL ENHANNCEMENT MODULE	12	
	<b>TOTAL</b>	<b>75</b>	

**Teaching Plan for Theory (Third Sem.)**      **Class : B.Com. Part II**      **Sub- Information Technology &**

**Processing**      **Business Data**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	DATA & DATA PROCESSING	07	
02	DATABASE	07	
03	DATABASE MANAGEMENT SYSTEM	07	
04	SPREADSHEET PACKAGE	13	
05	FORMULAS,FUNCTIONS AND CHART IN EXCELS	11	
06	PRACTICALS	30	
	<b>TOTAL</b>	<b>75</b>	

**Teaching Plan for Theory (Fourth Sem.)**      **Class : B.Com. Part II**      **Sub- Information Technology & Business Data Processing-II**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	INFORMATION TECHNOLOGY	07	
02	COMPUTERISED ACCOUNTING SOFTWARE PACKAGE	07	
03	PRACTICALY ACCOUNTING WITH TALLY	07	
04	INVENTORY FEATURE OF TALLY	13	
05	TALLY REPORTS & TAX FEATURES	11	
06	PRACTICALS	30	
	<b>TOTAL</b>	<b>75</b>	

**Teaching Plan for Theory (Third Sem.)**      **Class : B.Com. Part II**      **Sub- Marketing Mangement**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	INTRODUCTION TO MARKETING MANAGEMENT	13	
02	PRODUCT DICISION	13	
03	PRICE DICISIONS	13	
	<b>TOTAL</b>	<b>39</b>	

**Teaching Plan for Theory (Fourth Sem.)**      **Class : B.Com. Part II**      **Sub- Business Math. Statistics**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	H.C.F & L.C.M.,RATIO,LINEAR EQUATION, PROPORTION	13	
02	STATISTICS MEANING, SCOPE,LIMITATION, DATA COLLECTION	13	
03	STANDARD DEVIATION	12	
	<b>TOTAL</b>	<b>38</b>	

**Teaching Plan for Theory (Fifth Sem.)**      **Class : B.Com. Part III**      **Sub- Business**



<b>Environment</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	INDIAN BUSINESS ENVIRONMENT	15	
02	INDIAN AGRICULTURAL ENVIRONMENT	15	
03	INDIAN INDUSTRIAL ENVIRONMENT	15	
04	INDIAN SERVICE ENVIRONMENT	15	
05	INDIA & FOREIGN TRADE ENVIRONMENT	15	
	<b>TOTAL</b>	<b>74</b>	
<b>Teaching Plan for Theory (Sixth Sem.)</b>		<b>Class : B.Com. Part III</b>	<b>Sub- Economics Of</b>
<b>Development</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	ECONOMIC DEVELOPMENT	15	
02	ECONOMIC GROWTH MODELS	15	
03	ECONOMIC GROWTH MODELS	18	
04	GROWTH- BALANCED & UNBALANCED	18	
05	DEVELOPMENT OF CAPITAL- HUMAN & FINANCIAL	18	
	<b>TOTAL</b>	<b>84</b>	
<b>Teaching Plan for Theory (First Sem.)</b>		<b>Class : M.Com. Part I</b>	<b>Sub- Banking &amp; Insurance</b>
<b>service</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	COMMERCIAL BANKS	12	
02	RESERVE BANK OF INDIA	12	
	<b>TOTAL</b>	<b>30</b>	
<b>Teaching Plan for Theory (Second Sem.)</b>		<b>Class : M.Com. Part II</b>	<b>Sub- Strategic</b>
<b>Management</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	CONCEPT OF STRATEGY	12	
02	ENVIRONMENTAL ANALYSIS & DIAGNOSIS	12	
	<b>TOTAL</b>	<b>30</b>	

## ARTS & COMMERCE COLLEGE, WARVAT BAKAL

### Department : Commerce PROGRAMS SCHEDULE ( 2023 - 24)

Sr. No.	Particulars	Date
1.	Teacher Day celebrates	05 Sept. 2023
2.	Study Circle Formation	12 Dec. 2023
3.	Debate	15 Dec. 2023
4.	Group Discussion	17 Jan. 2024
5.	World Consumer Day	15 March 2024
6.	Bank Visit	08 April 2024
7.	Guest Lecture	19 April 2024

### ACADEMIC ACTION PLAN 2023-24

01	Name of the Department		Commerce & Management
02	Name of faculty member		1. Dr. Satish Rane 2. Dr. Sanjay Tale 3. Dr. Suresh Bhaltadak
03	Refresher Course/ Orientation Program/ Short Term Course/ Any Others to be participated		03
04	Research Publication Plan	i) Book Publication	03
		ii) Chapter in Book	03
		iii) Research Articles in UGC CARE listed Journal	03
		iv) Research Paper in conference/ seminar (Presentation)	03
		v) Research Paper in conference/ seminar proceeding (Publication)	03
		vi) Conference/ Seminar/ Workshop (To be attended)	04
		vii) Ph. D registered/Ongoing/Awarded	--
05	Conference/ Seminar/ Workshop (To be organized)		01
06	Extension Activities and Social Responsibility (to be participated)		04
07	Academic Activities to be organized		04



ARTS & COMMERCE COLLEGE, WARVAT BAKAL

Department of Chemistry

ACADEMIC CALENDER 2023-2024

1. Session- I: From Monday, 3rd July, 2023 to Tuesday, 7<sup>th</sup> November, 2023
- 2, Diwali Vacation: Wednesday, 8<sup>th</sup> November, 2023 to Monday, 27<sup>th</sup> November, 2023
3. Session-II: Tuesday, 28<sup>th</sup> November, 2023 to Saturday, 27<sup>th</sup> April, 2024
4. Summer Vacation: Monday, 29<sup>th</sup> April, 2024 to Monday, 10<sup>th</sup> June, 2024

Days available during Academic Year 2023-2024

Sr. No.	Activity	Commencement	Cessation	Total Days
1	First Session	Monday, 3rd July, 2023	Tuesday, 7 <sup>th</sup> November, 2023	104
2	Teaching Days (First Session)	Saturday, 15th July, 2023	Tuesday, 7 <sup>th</sup> November, 2023	90
3.	First Term Vacation	Wednesday, 8 <sup>th</sup> November, 2023	Monday, 27 <sup>th</sup> November, 2023	20
4.	Non-instructional days	Wednesday, 8 <sup>th</sup> November, 2023	Saturday, 30 <sup>th</sup> December, 2023	
5.	Second Session	Tuesday, 28th November, 2023	Saturday, 27 <sup>th</sup> April, 2024	121
6.	Teaching Days (Second Session)	Friday, 5 <sup>th</sup> January, 2024	Saturday, 27 <sup>th</sup> April, 2024	90
7.	Preparation for Summer Examination/ Non Instructional Days	Monday, 1 <sup>st</sup> January, 2024	Thursday, 4 <sup>th</sup> January, 2024	04
8.	Second Term Vacation	Monday, 29 <sup>th</sup> April, 2024	Monday, 10 <sup>th</sup> June, 2024	43

**ARTS & COMMERCE COLLEGE, WARVAT BAKAL**

**Department of Chemistry**

Vide the SGB Amravati University Gazette, following Public Holidays are declared for 2023-2024

अ. क्र. (Sr.No.)	सण/सुट्ट्या (Festivals/Holidays)	दिवस व दिनांक (Day & Date)
१.	मोहरम Moharum	शनिवार, दि. २९ जुलै, २०२३ Saturday, 29 <sup>th</sup> July, 2023
२.	स्वातंत्र्य दिन Independence Day	मंगळवार, दि. १५ ऑगस्ट, २०२३ Tuesday, 15 <sup>th</sup> August, 2023
३.	पारशी नूतनवर्ष (शहेनशाही) Parsi New Year (Shahenshahi)	बुधवार, दि. १६ ऑगस्ट, २०२३ Wednesday, 16 <sup>th</sup> August, 2023
४.	रक्षाबंधन Rakshabandhan	बुधवार, दि. ३० ऑगस्ट, २०२३ Wednesday, 30 <sup>th</sup> August, 2023
५.	श्रीगणेश चतुर्थी ShriGanesh Chaturthi	मंगळवार, दि. १९ सप्टेंबर, २०२३ Tuesday, 19 <sup>th</sup> September, 2023
६.	गौरीपूजन Gouri Poojan	शुक्रवार, दि. २२ सप्टेंबर, २०२३ Friday, 22 <sup>nd</sup> September, 2023
७.	अनंत चतुर्दशी/ईद-ए-मिलाद Anant Chaturdashi/Id-E-Milad	गुरुवार, दि. २८ सप्टेंबर, २०२३ Thursday, 28 <sup>th</sup> September, 2023
८.	महात्मा गांधी जयंती Mahatma Gandhi Jayanti	सोमवार, दि. २ ऑक्टोबर, २०२३ Monday, 2 <sup>nd</sup> October, 2023
९.	दसरा Dasara	मंगळवार, दि. २४ ऑक्टोबर, २०२३ Tuesday, 24 <sup>th</sup> October, 2023
१०.	ख्रिसमस Christmas	सोमवार, दि. २५ डिसेंबर, २०२३ Monday, 25 <sup>th</sup> December, 2023
११.	प्रजासत्ताक दिन Republic Day	शुक्रवार, दि. २६ जानेवारी, २०२४ Friday, 26 <sup>th</sup> January, 2024
१२.	छत्रपती शिवाजी महाराज जयंती Chatrapati Shivaji Maharaj Jayanti	सोमवार, दि. १९ फेब्रुवारी, २०२४ Monday, 19 <sup>th</sup> February, 2024
१३.	महाशिवरात्री Mahashivratri	शुक्रवार, दि. ८ मार्च, २०२४ Friday, 8 <sup>th</sup> March, 2024
१४.	होली (दुसरा दिवस) Holi (Second Day)	सोमवार, दि. २५ मार्च, २०२४ Monday, 25 <sup>th</sup> March, 2024
१५.	गुड फ्रायडे Good Friday	शुक्रवार, दि. २९ मार्च, २०२४ Friday, 29 <sup>th</sup> March, 2024
१६.	गुढीपाडवा Gudhi Padwa	मंगळवार, दि. ९ एप्रिल, २०२४ Tuesday, 9 <sup>th</sup> April, 2024
१७.	रमझान ईद (ईद-उल-फितर) Ramzan Id (Id-UI-Fitar)	गुरुवार, दि. ११ एप्रिल, २०२४ Thursday, 11 <sup>th</sup> April, 2024
१८.	श्रीराम नवमी Shriram Navmi	बुधवार, दि. १७ एप्रिल, २०२४ Wednesday, 17 <sup>th</sup> April, 2024



**PROGRAMS SCHEDULE (2023-2024)**

Sr. No.	Particulars	Date	Name of Teacher
01	Chemistry Study Circle Inauguration		Prof. N.D. Dahake
02	Industrial Visit UG		Prof. K.P. Sabale
03	National Science Day		Common to All Department
04	Chemical Plant Visit PG		Prof. N.M. Wankhade Prof. Manisha Bakal
06	Seminar Competition UG and PG		Prof. N.M. Wankhade Prof. Manisha Bakal Prof. Dr. V.D. Ingale
07	Workshop on ICT Tools in Chemistry		Prof. N.S. Shelke Prof. K.P. Sabale
08	AUCTA Workshop		Prof. N.D. Dahake Prof. N.S. Shelke Prof. K.P. Sabale Prof. Dr. V.D. Inagale Prof. N.M. Wankhade Prof. Manisha Bakal

Mr. N. D. Dahake  
HOD

# Time Table

1) Mr. Nityanand Devidas Dahake

Subject: Chemistry

Faculty: Science

Period	1	2	3	4	5	6	7	8	9
Day / Time	8:00 to 8:48 (P)	8:48 to 9:36 (P)	9:36 to 10:24 (P)	11:00 to 11:48	11:48 to 12:36	12:36 to 1:24	2:30 to 3:18 (P)	3:18 to 4:06 (P)	3: to 4:54 (P)
MON	P	P	P			T			
TUE	P	P	P	T					
WED	P	P	P	T			P	P	P
THUS	P	P	P		T		P	P	P
FRI	P	P	P				P	P	P
Day / Time				07:30 To 08:18	08:18 To 09:06	09:06 To 09:54	10:04 to 12:52 To 12:52 to 3.06		
SAT						T	P	P	P

## Allotted Workload

Subject: Chemistry

Year: 2023-2024

Sr. No.	Class	No. of periods per week			Paper Allotted
		Lectures	Tutorials	Practical	
1	B.Sc.-1	02		12	
2	B.Sc.-2	02		12	
3	B.Sc.-3	01			
4	M.Sc.-1	01		--	
5	M.Sc.-2	01		--	

Total Workload per week (L+P): 07 (L) +24 (P) = 31 (L) (24.8 hrs.)

## Available Teaching days in 2023-2024

Odd SEM teaching Days (90): 15/07/2023 to 07/11/2023 = 90

Even SEM Teaching Days (90): 05/01/2024 to 27/04/2024 = 90

	JUL-23	AUG-23	SEP-23	OCT-23	NOV-23	JAN-24	FEB-24	MAR-24	APR-24
MON	03	04	04	04	01	04	03	03	04
TUE	02	04	04	04	01	04	04	04	04
WED	02	03	04	04	01	04	04	04	03
THUS	02	05	03	04	01	03	05	04	03
FRI	02	04	04	04	01	03	04	03	04
SAT	02	04	05	04	01	04	04	05	03
Total	13	24	23	24	06	22	24	25	21
	94					82			



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[illegible]

**1) Mr. Nityanand Devidas Dahake**

<b>Teaching Plan for Theory (First Semester)</b>			
<b>Class: BSc Part-I</b>			
<b>Sr. No.</b>	<b>Topic to be covered</b>	<b>Lectures Available</b>	<b>Remark</b>
<b>Unit -2 Acids and Bases, Non-aqueous Solvents</b>			
	A) Acids and Bases- Arrhenius, Bronsted-Lowry, and Lewis's theory of acids and bases, Theory of solvent systems and Lux-Flood concept of acids and bases. Hard and soft acids and bases. Pearson's HSAB or SHAB principle with important applications. B) Nonaqueous Solvents-Requirements of a good solvent. Water as a universal solvent. Physical properties of solvents namely liquid range, dielectric constant, dipole moment, heat of vaporization and solubility behavior. Classification of solvents. Acid base, precipitation, redox, solvolysis and complexation reactions in liquid ammonia. Merits and demerits of liquid ammonia as a solvent.	30	
<b>Unit – 3 Basics of Organic chemistry</b>			
	A) Electronic Displacement and Reactive Intermediates: Inductive, Electromeric, Resonance, Mesomeric effects, Hyperconjugation and their applications, dipole moment, homolytic and heterolytic fission with suitable examples. Electrophiles and nucleophiles. Types, shape and their relative stability of carbocations, carbanions, free radicals and carbenes and nitrene. B) Aliphatic Hydrocarbons: Formation and reaction of alkanes, Formation of alkenes and alkynes by elimination reactions (with mechanism of E1, E2, E1cb), Saytzeff and Hofmann eliminations, Reactions of alkenes and alkynes, Diels-Alder reaction. C) Structural isomers: Definition, classification, and examples.	30	
<b>Teaching Plan for Practical (First Semester)</b>			
<b>Class: BSc Part-I</b>			
<b>Sr. No.</b>	<b>Topic to be covered</b>	<b>Lectures Available</b>	<b>Remark</b>
	1. Preparation of Acetyl derivative of aromatic primary amine (aniline or toluidine). 2. Preparation of Benzanilide (Benzoylation).	186	



	3. Preparation of Benzoic acid from Benzamide (Hydrolysis). 4. Preparation of Benzoic acid from benzaldehyde (Oxidation). 5. Preparation of phenyl-azo- $\beta$ -naphthol dye (Diazotization) 6. Base catalyzed Aldol Condensation (Synthesis of dibenzyl propanone). 7. Preparation of p-nitro acetanilide from acetanilide. 8. Determination of surface tension of a given liquid using Stalagmometer 9. Determination of the parachor value of -CH <sub>2</sub> - group (methylene) using Stalagmometer 10. Determination of coefficient of viscosity of aqueous solution of ethanol or polymer at room temperature 11. Determination of unknown percentage composition of given glycerol solution from standard 2%, 4%, 6%, 8% and 10% solutions of glycerol 12. Determination of the heat of solution of KNO <sub>3</sub> (5% solution)		
<b>Teaching Plan for Theory (Third Semester)</b> <b>Class: BSc Part-2</b>			
Sr. No.	Topic to be covered	Lectures Available	Remark
<b>Unit-4 Stereochemistry</b>			
	A) Optical isomerism: Isomerism, Types of isomerism, Stereoisomerism, Optical isomerism, asymmetric carbon atom, Element of symmetry, chirality (up to two carbon atoms), enantiomers, diastereoisomers, meso compounds, configuration, relative and absolute configurations, DL and RS nomenclature (for up to 2 chiral carbon atoms), racemization and resolution (by chemical method). optical isomerism in allenes and biphenyls. B) Geometrical isomerism: Cis-trans & E-Z nomenclature (for up to two C=C systems) with examples and applications. C) Conformational isomerism: Conformational isomers, Newman & Sawhorse projection formulae, conformations of ethane, n-butane and cyclohexane, their energy level diagrams. conformation of cyclic systems mono-substituted cyclohexanes.	29	
<b>Unit – 6 Thermodynamics and Phase equilibrium</b>			
	A) Thermodynamics: First law of Thermodynamics and its limitations, Need of Second law. Carnot's heat engine, derivation of expression for the work done and efficiency of Carnot's engine. Statements of Second law of thermodynamics. Concept of Entropy, Physical significance of Entropy, Derivation of expression for the Entropy change for an ideal gas in terms of pressure, temperature and volume. Entropy changes for an ideal gas for isothermal, isobaric and isochoric processes, Entropy of fusion, sublimation, vapourization, transition and its calculations. Entropy	29	

	<p>changes for reversible and irreversible processes. Entropy changes as a criteria for spontaneity. Numerical.</p> <p>(B) Phase Equilibrium: Raoult's Law and its limitations. Ideal and non-ideal solution. Classification of binary solutions of completely miscible liquids (I, II and III) on the basis of Raoult's Law. Phase diagrams of Phenol-Water, Triethylamine-Water and Nicotine-Water system. Nernst distribution law and its applications to association and dissociation of solute in one of the immiscible solvents. Process of extraction. Derivation of the formula for the amounts of the solute left unextracted after nth extraction. Numerical</p>		
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### Teaching Plan for Practical (Third Semester)

#### Class: BSc Part-2

<p>Exercise-1 Inorganic</p> <ol style="list-style-type: none"> <li>1) Estimation of <math>\text{Ba}^{2+}</math> as <math>\text{BaSO}_4</math>.</li> <li>2) Estimation of <math>\text{Fe}^{3+}</math> as <math>\text{Fe}_2\text{O}_3</math> using china and silica crucible.</li> <li>3) Estimation of <math>\text{Ni}^{2+}</math> as Ni-DMG using sintered glass crucible.</li> <li>4) Estimation of copper (II) in commercial copper sulphate sample by iodometric titration.</li> <li>5) To determine the percentage of calcium carbonate in precipitated chalk.</li> <li>6) To determine volumetrically the amounts of sodium carbonate and sodium hydroxide present together in the given solution</li> <li>7) Preparation of standard solution of an acid (oxalic acid) &amp; a base (sodium bicarbonate) by weighing and calculation of concentrations in terms of strength, normality, molarity, molality, formality, % by weight, % by volume, ppm, ppb and mole fraction.</li> <li>8) Preparation of standard solution of hydrochloric acid by dilution and calculation of concentrations in terms of strength, normality, molarity, molality, formality, % by weight, % by volume, ppm, ppb and mole fraction.</li> </ol> <p>Exercise II: Physical Chemistry Experiments</p> <ol style="list-style-type: none"> <li>9) Determination of molecular weight of solute by Rast's method</li> <li>10) To determine activation energy of a reaction between <math>\text{K}_2\text{S}_2\text{O}_8</math> and KI.</li> <li>11) Determination of thermodynamic values (<math>\Delta S^\circ</math>, <math>\Delta H^\circ</math>, and <math>\Delta G^\circ</math>) from the dissociation of a weak acid.</li> <li>12) To determine transition temperature of <math>\text{MnCl}_2 \cdot 4\text{H}_2\text{O}</math>.</li> <li>13) To study critical solution temperature (CST) of phenol water system.</li> </ol>	186	
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	14) To determine the partition coefficient of $\text{CH}_3\text{COOH}$ between $\text{H}_2\text{O}$ and $\text{CCl}_4$ 15) To determine the partition coefficient of Benzoic acid between $\text{H}_2\text{O}$ and toluene.		
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### Teaching Plan for Theory (Fifth Semester)

Class: BSc Part-3

Sr. No.	Topic to be covered	Lectures Available	Remark
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### Unit-1 Coordination Compounds

**Coordination Compounds:** Important terms namely molecular or addition compounds, double salts, complex salts, complex ion, ligand, coordination number, central metal ion, etc. Werner's theory of coordination and its experimental verification on the basis of conductance data and formation of  $\text{AgCl}$  precipitate in case of cobalt ammines. Sidgwick's electronic interpretation and its drawbacks, effective atomic number. IUPAC rules for nomenclature of coordination compounds. Structural isomerism-ionization, linkage and coordination in complexes. Geometrical isomerism in octahedral complexes of the type  $\text{Ma}_4\text{b}_2$ ,  $\text{Ma}_3\text{b}_3$ ,  $\text{Ma}_2\text{b}_2\text{c}_2$ ,  $\text{Ma}_4\text{bc}$ ,  $\text{M}(\text{AA})_2\text{b}_2$ . Square planar complexes of the type  $\text{Ma}_2\text{b}_2$  and  $\text{Ma}_2\text{bc}$ . Optical isomerism in octahedral complexes of type  $\text{Ma}_2\text{b}_2\text{c}_2$ ,  $\text{Mab c d e f}$ ,  $\text{M}(\text{AA})_3$ ,  $\text{M}(\text{AA})_2\text{b}_2$  and tetrahedral complexes of the type  $\text{Mab cd}$  and  $\text{M}(\text{AA})_2$ . Optical isomerism in square planar complexes. Valence bond theory as applied to structure and bonding in complexes of 3d-series elements (Only 4 and 6 coordinates complexes). Inner and outer orbital complexes. Magnetic properties of complexes of 3d series elements. Limitations of VB theory  
B] Chelates: Definition, classification and applications of chelates in analytical chemistry. Stability of chelate with special reference to chelate effect.

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### Teaching Plan for Theory (Second Semester)

Class: BSc Part-1

Sr. No.	Topic to be covered	Lectures Available	Remark
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### Unit 2

A) VSEPR Theory: Various rules under VSEPR theory to explain molecular geometry (following examples may be taken to explain various rules-  $\text{SnCl}_2$ ,  $\text{CH}_4$ ,  $\text{NH}_3$ ,  $\text{H}_2\text{O}$ ,  $\text{SF}_4$ ,  $\text{ClF}_3$ ,  $\text{XeF}_4$ ,  $\text{XeO}_3$ ,  $\text{PCl}_3$ . Limitations of VSEPR theory)  
B) Molecular Orbital Theory: Postulates of MO theory. LCAO

30

	approximation. Formation of bonding and antibonding MOs. Rules for LCAO. MO energy level diagram. Concept of bond order. MO structure of homonuclear diatomic molecules of namely He <sub>2</sub> , H <sub>2</sub> , N <sub>2</sub> and O <sub>2</sub> . Stability sequence of species of O <sub>2</sub> i.e. O <sub>2</sub> , O <sub>2</sub> <sup>+</sup> , O <sub>2</sub> <sup>2+</sup> , O <sub>2</sub> <sup>-</sup> and O <sub>2</sub> <sup>2-</sup> . Paramagnetic nature of O <sub>2</sub> . MO structure of heteronuclear diatomic molecules viz. NO, HF and CO (Coulson's structure). Explanation of important properties of CO viz. – triple bond, almost nonpolar nature, electron donor and acceptor behavior. Comparison of VB and MO theories.		
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### Unit 3

	<p><b>A) Haloalkanes:</b> Vinyl chloride - Synthesis from acetylene and ethylene dichloride, reactions with aqueous and alcoholic KOH, polymerization. Allyl chloride - Synthesis from propylene, reactions with aqueous and alcoholic KOH. Allyl bromide - Synthesis from propylene using NBS, reaction with HBr. Comparison of reactivity of vinyl and allyl chloride.</p> <p><b>B) Haloarenes:</b> Chlorobenzene - Synthesis from phenol, reaction with acetonitrile. Bromobenzene - Synthesis from silver salt of benzoic acid (Hunsdiecker reaction), Wurtz-Fittig reaction. Iodobenzene - Synthesis from benzene diazonium chloride, Ullmann reaction. Benzyl chloride - Synthesis from toluene and benzene, reactions with Mg and NaCN. Comparison of reactivity of chlorobenzene and benzyl chloride, benzyne intermediate mechanism.</p> <p><b>C) Polyhydric alcohols:</b> Ethylene glycol - Synthesis from ethylene and ethylene dibromide, reactions with PCl<sub>5</sub>, CH<sub>3</sub>COOH and acetone, dehydrations using conc. H<sub>2</sub>SO<sub>4</sub>, ZnCl<sub>2</sub> and phosphoric acid. Pinacol - Synthesis from acetone and α- diketone, Pinacol-Pinacolone rearrangement (mechanism). Glycerol - Synthesis from propylene and 3-chloropropylene, reactions with HNO<sub>3</sub>, HCl and Na, dehydration using KHSO<sub>4</sub></p>	30	
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### Teaching Plan for Practical (Second Semester)

#### Class: BSc Part-1

Sr. No.	Topic to be covered	Lectures Available	Remark
	<p>Complete analysis of simple organic compounds (like urea, thiourea, benzoic acid, Salicylic acid, oxalic acid, glucose, naphthalene, para-toluidine, benzamide, etc.) containing one or two functional groups involving following steps.</p> <p>i) Preliminary examination  ii) Detection of elements  iii) Detection of functional groups  iv) Determination of melting point  v) Preparation of derivative and determination of its melting</p>	168	



	point vi) Performance of spot test, if any 1. Qualitative analysis of compound-1 2. Qualitative analysis of compound-2 3. Qualitative analysis of compound-3 4. Qualitative analysis of compound-4 5. Qualitative analysis of compound-5 6. To determine the strength of oxalic acid by titration with $\text{KMnO}_4$ . To determine strength of FAS by titration with $\text{KMnO}_4$ using internal indicator. 8 Determination of temporary hardness of water sample. 9 To determine the strength of oxalic acid by titration with $\text{KMnO}_4$ . 10 To determine strength of FAS by titration with $\text{KMnO}_4$ using internal indicator. 11 Determination of order of reaction of hydrolysis of methyl acetate by an acid. 12 To study kinetics of saponification of ethyl acetate by $\text{NaOH}$ .		
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### Teaching Plan for Theory (Fourth Semester)

Class: BSc Part-2

Sr. No.	Topic to be covered	Lectures Available	Remark
<b>Unit 1</b>			
	<p>A) Noble Gases-Inertness of noble gases. Compounds of noble gases-only structure and bonding in <math>\text{XeF}_2</math>, <math>\text{XeF}_4</math>, <math>\text{XeF}_6</math>, <math>\text{XeO}_3</math>, and <math>\text{XeO}</math>. B) Polarisation-Definition, polarising power, polarizability, effect of polarization on nature of bond. Fajan's rules of polarisation and its applications.</p> <p>B) General Principles of Metallurgy: Definition of metallurgy, steps in metallurgy. Ore dressing by gravity separation, froth floatation and electromagnetic separation. Calcination, roasting, smelting and refining of metals. Meaning of terms hydrometallurgy and pyrometallurgy.</p>	30	
<b>Unit-3</b>			
	<p>A) Soaps and Detergents Soaps: -Introduction, Manufacture of soaps by i) Kettles process, ii) Hydrolyser process, Cleansing action of soap. Synthetic Detergents: -Introduction, Synthetic detergent classification, i) Anionic detergent, ii) Cationic detergents, iii) Non-ionic detergents. Synthetic detergent versus soaps, Soft versus Hard detergents. B) Reactive methylene compounds: Malonic Ester: Synthesis from acetic acid, Synthetic applications Synthesis of acetic acid, succinic acid, glutaric acid, crotonic acid and malonyl urea. Acetoacetic ester: Synthesis from ethyl acetate, Synthetic applications- Synthesis of acetic acid, propionic acid, isobutyric acid, succinic acid, glutaric acid, crotonic acid, acetyl acetone and 4-methyl</p>	30	

	uracil. C) Carbohydrates: Constitution of glucose, cyclic structure, Pyranose and Furanose structure, Epimerization, conversion of glucose to fructose and vice-versa, Introduction to fructose, ribose, 2-deoxyribose, maltose, sucrose. (their structures only-determination not needed).		
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### Teaching Plan for Practical (Fourth Semester)

Class: BSc Part-2

Sr. No.	Topic to be covered	Lectures Available	Remark
	<b>Exercise-1 organic</b> 1 To prepare glucose from cane sugar. 2 To determine the iodine value of the given Oil or Fat. 3 Determination of equivalent weight of an organic acid. 4 Determination of equivalent weight of an ester by saponification. 5 Preparation of soap from oil or fat. 6 Determination of properties of soaps (at least two samples) with respect to pH, Foam, interaction with oil, and hard water test. 7 Isolation of casein from milk. 8 Isolation of lactose from milk. <b>Exercise II: Physical Chemistry Experiments</b> 9 Determination of standard electrode potential of Cu/Cu+2 or Zn/Zn+2 electrodes potentiometrically. 10 To determine dissociation constant of weak acid by conductometry. 11 To determine dissociation constant of weak acid by potentiometry. 12 To determine dissociation constant of dibasic acid by pH-metry. 13 To determine solubility and solubility product of sparingly soluble salts conductometrically. 14 To study strong acid and strong base titration by pH-metry. 15 To determine pH of a soil sample by pH-meter. 16 To verify Beer's Lambert's law using KMnO <sub>4</sub> /K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . 17 To determine solubility of benzoic acid at different temperature and heat of solution.	180	

### Teaching Plan for Theory (Sixth Semester)

Class: BSc Part-3

Sr. No.	Topic to be covered	Lectures Available	Remark
<b>Unit 6</b>			
	<b>A] Electrochemistry:</b> (i) Types of electrodes - Standard hydrogen electrode, Calomel electrode, Quinhydrone electrode and Glass electrode. Principle of Potentiometric titration. Study of acid-base, redox and precipitation titration. (ii) pH of a solution and pH scale. Determination of pH of a solution using hydrogen, quinhydrone and glass electrodes.	16	



	<p>Advantage and disadvantage of these electrodes. pH-metric titrations. Determination of pka of a weak acid by pH-metric measurement. (iii) Concentration cells - Types of concentration cells, concentration cell without transfer and determination of its emf. (iv) Numericals</p> <p><b>B] Nuclear Chemistry:</b> (i) Shell model of a nucleus - Assumptions, evidences for existence of magic numbers, advantages and limitations. (ii) Liquid drop model of a nucleus - Assumptions, similarities between nucleus and liquid drop, advantages and limitations, explanation of nuclear fission reaction on the basis of liquid drop model. (iii) Nuclear force and its explanation on the basis of Meson theory. (iv) Characteristics of nuclear reaction, difference between nuclear and chemical reactions. Calculation of Q value of a nuclear reaction. (v) Characteristics of nuclear fission reaction, fission yield. Fission reaction as an alternative source of energy. (vi) Nuclear fusion reaction - Characteristic of a nuclear fusion reaction. Thermonuclear reactions as a source of energy of sun and other stars. Fusion reactions as a potential future source of energy. (vii) Applications of radio isotopes in industry, agriculture, medicines and bio-sciences with two examples each</p>		
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### Teaching Plan for Theory (First Semester)

Class: MSc Part-1

Sr. No.	Topic to be covered	Lectures Available	Remark
<b>Unit – V Basic Stereochemistry</b>			
	Isomerism, Concept of chirality and molecular dissymmetry Enantiomeric relationships, diastereomeric relationships, Cahn-Ingold-Prelog System to describe configuration at chiral centers R and S, E and Z nomenclature, molecules with more than one chiral center, meso compounds, threo and erythro isomers, Homotopic, Enantiotopic, and Distereotopic Groups (Faces), method of resolution, optical purity, topicity of ligands, prochirality, Inter conversion of Newman, Sawhorse and Fischer projection.	15	

### Teaching Plan for Theory (Second Semester)

Class: MSc Part-1

Sr. No.	Topic to be covered	Lectures Available	Remark
<b>Unit-1 Molecular Rearrangement</b>			
	<p><b>Electron deficient carbon:</b> Pinacol-Pinacolone, Semi-Pinacol Wagner- Meerwein, Tiffenev – Demjnov ring expansion, and Arndt-Eistert synthesis, Dienone-phenol rearrangement, Wolf rearrangement.</p> <p><b>Electron deficient nitrogen:</b> Hofmann, Lossen, Curtius, Schmidt, Neber, Stieglitz and Beckmann rearrangements.</p> <p><b>Base catalysed rearrangements:</b> Benzil-Benzilic</p>	15	

	acid, Favorskii, Sommelet-Hauser and Pummerer rearrangement, <b>Fragmentation reactions:</b> Electron push and pull requirement, Beckmann, Eschenmoser, Alicyclic-Grobb fragmentation.		
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### Teaching Plan for Theory (Third Semester)

Class: MSc Part-2

Sr. No.	Topic to be covered	Lectures Available	Remark
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#### Unit-3

	<b>A) Ultraviolet and visible spectroscopy:</b> Laws of photochemistry-Basic law of absorption-Beer-Lambert law, electronic absorption transitions-correlation of electronic structure with molecular structure-simple chromophore groups - effects of conjugation- effect of solvent on electronic transition, <b>B) Woodward -Fisher rules</b> for $\alpha$ , $\beta$ unsaturated carbonyl compounds, dienes & aromatic systems with extended conjugation – Ultraviolet spectra of aromatic and heterocyclic compounds, Fieser-Kuhn rule, Steric effect in biphenyls. Instrumentation, Applications to organic and inorganic compounds	31	
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### Teaching Plan for Theory (Fourth Semester)

Class: MSc Part-2

Sr. No.	Topic to be covered	Lectures Available	Remark
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#### Unit-3

	<b>A) Nuclear Magnetic Resonance Spectroscopy:</b> <b>Recapitulation of basic principle and general terms;</b> equivalence and magnetic equivalence (Homotopic proton, Enantiotopic proton, Diastereotopic proton), shielding and deshielding, chemical shift, factors affecting chemical shifts, spin-spin coupling (n+1) rule, Factors affecting coupling constant; Karplus curve variation of coupling constant with dihedral angle., first order (interaction between two, three, four, and five nuclei) and non-first order spectra - classification of spin system like AX,AX <sub>2</sub> ,ABX,AMX,ABC,A <sub>2</sub> B <sub>2</sub> etc. Hetero nuclear coupling in <sup>1</sup> H NMR – deuterium exchange. Simplification of complex spectra; high field spectra, nuclear magnetic double resonance; shift reagent; solvent effect, nuclear Overhauser effect [NOE]. Fourier transforms technique. Dynamic NMR to study hindered rotation (DMF, DMA, biphenyls, annulenes); cyclohexane ring inversion. <b>B) Carbon-13 NMR spectroscopy:</b> - C-13 Nucleus, Chemical Shift and factor affecting <sup>13</sup> C NMR, Types of <sup>13</sup> C NMR Spectra: proton coupled (spin-spin splitting), Proton decoupled, Off resonance, DEPT, APT and NOE, Applications in organic chemistry.	30	
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### Time Table: Odd Semester/ Even Semester

**Name: Mr. K P Sabale**

Faculty: SCIENCE

Subject: CHEMISTRY

	Period	1	2	3	4	5	6
		<b>Practical</b>	<b>Theory</b>				<b>Practical</b>
	Day / Time	8 to 10:24(Pr)	11:00 to 11:48	11:48 to 12:36	12:36 to 1:24	1:34 to 2:22	2:22 to 4:46(Pr)
UG	MON	II(B <sub>1</sub> )			II(T)		II(B <sub>2</sub> )
UG	TUE	II(B <sub>1</sub> )			II(T)		II(B <sub>2</sub> )
UG	WED	III(C <sub>1</sub> )		I(T)			
PG	WED					MSC-I	
UG	THUR	III(C <sub>1</sub> )			I(T)		
UG	FRI	I(A <sub>1</sub> )	III(T)				--
			7:30 to 8:18	8:18 to 9:06	9:06 to 9:54	10:04 to 12:28	12:28 to 2:52
UG	SAT					BSc-I(P)(A <sub>1</sub> )	--
PG	SAT		MSC-II				

### Allotted Workload

Subject: CHEMISTRY

Year: 2023-24

Sr. No.	Class	Allotted workload per week		
		Lectures	Practical	Paper Allotted
1	BSc-I	02	2 x 3 = 06	02
2	BSc-II	02	4 x 3 = 12	02
3	BSc-III	01	2 x 3 = 06	01
4	MSc-I	01	-	01
5	MSc-II	01	-	01
6	Total	07(Th)	24(Pr)	07

Total Workload (UG+PG) per week (T+P): 07 (L) + 24 (Pr) = 31 (24Hrs.48 min.)

UG Workload per week (T+P): 05 (L) + 24 (Pr) = 29 (23 Hrs.12 min.)

# Teaching Periods Available per month during the session 2023-24 (Odd/Even Sem)

Faculty: SCIENCE

Subject: CHEMISTRY

		ODD SEMESTER						EVEN SEMESTER				
Class ↓	Periods →	JUL-2023	AUG-2023	SEP-2023	OCT-2023	NOV2023	Total	JAN-2024	FEB-2024	MAR-2024	APR -2024	Total
BSc-I	Theory	04	08	07	08	02	29	07	09	08	06	30
	Practical	04	08	09	08	02	31	07	08	08	08	31
BSc -II	Theory	05	08	07	08	02	30	08	07	07	07	29
	Practical	10	16	14	16	04	60	16	14	14	14	58
BSc- III	Theory	02	04	04	04	01	15	03	04	03	04	14
	Practical	04	08	07	08	02	29	07	09	08	06	30
MSc-I	Theory	02	03	04	04	01	14	04	04	04	03	15

## Allotted Units 2023-24

Sr No	Unit Name					
	Class	Odd Semester	Unit No	Class	Even Semester	Unit No
1	BSc-1	Aromatic Compounds	IV	BSc-1	A) Ionic Bonding. B) Polarization. C) VBT	I
2	BSc-1	Gaseous State	V	BSc-1	Chemical Kinetics	VI
3	BSc-2	A) P-Block Element B) Chemistry of elements of transition series	II	BSc-2	A) Inner Transition Elements B) Extraction of Elements	II
4	BSc-2	A) Aldehydes & Ketones B) Carboxylic Acids	III	BSc-2	A) Electrochemistry-I B) Electrochemistry-II	V
5	BSc-3	Crystal Field theory & Electronic Spectra of transition Metal Complexes	II	BSc-3	A) NMR Spectroscopy B) Mass Spectroscopy	IV
6	MSc-I	Group Theory	III	MSc-1	Metal-Ligand Bonding	I
7	MSc-1	Symmetry & Group Theory		MSc-1		

Teaching Plan for Theory (First Semester)				Class : BSc Part I CBCS	
Sr. No.	Topic to be covered			Lectures Available	Lectures Utilized
	Unit- IV Aromatic Compounds			14	14
Unit IV	<b>A) Structural Properties:</b> Aromaticity and Huckel's rule (Benzenoid and Non-Benzenoid compounds), Kekule and Dewar structures, Molecular orbital diagram of benzene, Anti-aromatic and non-aromatic compounds. <b>B) Orientation effect:</b> Effect of substituent groups, Activating and deactivating group, Theory of reactivity and orientation on the basis of inductive and resonance effects. <b>A) Electrophilic aromatic substitution:</b> Halogenation, nitration, Sulphonation and Friedel Craft's alkylation/acylation with their mechanism.				
	Unit Test				
	Unit-V Gaseous State			15	15
Unit-V	Postulates of kinetic theory of gases, Maxwell-Boltzmann distribution of velocities (only qualitative treatment), RMS velocity, Average velocity, Most probable velocity, Relationship between RMS velocity and Average velocity, RMS velocity and Most probable velocity, Mean free path, Collision diameter, Collision number or Collision frequency, Deviation of real gases from ideal behavior, Explanation of deviations, Derivation of van der Waal's equation for real gases. Critical phenomenon, Andrew's experiment (isotherms of carbon dioxide) Critical constant Pc, Tc, Vc in terms of van				



	der Waal's constant (a, b) Derivation of reduced equation of state, Law of corresponding state, Numerical.		
	<b>Unit Test</b>		
<b>Teaching Plan for Practical (First Semester)</b>		<b>Class : BSc Part I</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
	<b>Exercise-1 Organic Preparations</b>		
1	Preparation of Acetyl derivative of aromatic primary amine (aniline or toluidine).		
2	Preparation of Benzanilide (Benzoylation).		
3	Preparation of Benzoic acid from Benzamide (Hydrolysis).		
4	Preparation of Benzoic acid from benzaldehyde (Oxidation).		
5	Preparation of phenyl-azo- $\beta$ -naphthol dye (Diazotization)		
6	Base catalyzed Aldol Condensation (Synthesis of dibenzal propanone).		
7	Preparation of p-nitroacetanilide from acetanilide.		
	<b>Exercise II: Physical Chemistry Experiments</b>		
8	Determination of surface tension of a given liquid using Stalagmometer		
9	Determination of the parachor value of $-\text{CH}_2-$ group (methylene) using Stalagmometer		
10	Determination of coefficient of viscosity of aqueous solution of ethanol or polymer at room temperature		
11	Determination of unknown percentage composition of given glycerol solution from standard 2%, 4%, 6%, 8% and 10% solutions of glycerol		
12	Determination of the heat of solution of $\text{KNO}_3$ (5% solution)		
<b>Teaching Plan for Theory (Second Semester)</b>		<b>Class : BSc Part I</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
	<b>Unit I &amp; Unit VI</b>	<b>30</b>	
<b>01</b>	<b>Unit- I</b>	<b>15</b>	
	<p><b>A) Ionic bonding:</b> Definition of ionic bond. Factors affecting ionic bond formation (energetic of ionic bond formation ionization energy, electron affinity and lattice energy). Born-Haber's cycle to determine lattice energy. Solvation and solvation energy, factors affecting solvation energy.</p> <p><b>B) Polarization:</b> Definition, polarizing power, polarizability, effect of polarization on nature of bond. Fajan's rules of polarization and its applications.</p> <p><b>C) Valence bond theory:</b> Directional nature of covalent bond. Hybridization, types of hybridization to explain geometries of <math>\text{BeCl}_2</math>, <math>\text{BF}_3</math>, <math>\text{CH}_4</math>, <math>\text{PCl}_5</math>, <math>\text{SF}_6</math> and <math>\text{IF}_7</math></p>		
	<b>Unit Test</b>		
<b>02</b>	<b>Unit-VI- Chemical Kinetics</b>	<b>15</b>	
<b>A]</b>	<p>Explanation of terms like rate of reaction, order of a reaction and molecularity. Definition with one example of zero, first and second order reaction. Half-life period of a reaction. Derivation of rate equation for first and second order reaction with equal initial concentration and different initial concentration of a reactant. Characteristics of first and second order reaction. Examples of first and second order reaction and their kinetics study with modified rate equation viz. thereactions (i) decomposition of <math>\text{H}_2\text{O}_2</math>, (ii) reaction between <math>\text{K}_2\text{S}_2\text{O}_8</math> and <math>\text{KI}</math>, (iii) hydrolysis of methyl acetate catalyzed by acid, (iv) saponification of ethyl acetate by <math>\text{NaOH}</math> and (v) inversion of cane sugar. Determination of order of a reaction by integration, graphical, equifractional change, vant Hoff's differential method and Ostwald's isolation method. Effect of temperature on reaction rates. Arrhenius equation, activation energy and its determination using Arrhenius equation. Numerical.</p>		
<b>B]</b>	<b>Unit Test</b>		
<b>Teaching Plan for Practical (Second Semester)</b>		<b>Class : BSc Part I</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
	<b>Exercise-1 Organic Qualitative Analysis</b>	<b>26</b>	
	<p>Complete analysis of simple organic compounds (like urea, thiourea, benzoic acid, Salicylic acid, oxalic acid, glucose, naphthalene, para-toluidine, benzamide, etc.) containing one or two functional groups involving following steps.</p> <p>i) Preliminary examination</p> <p>ii) Detection of elements</p> <p>iii) Detection of functional groups</p> <p>iv) Determination of melting point</p> <p>v) Preparation of derivative and determination of its melting point</p>		



	Performance of spot test, if any		
1	Qualitative analysis of compound-1		
2	Qualitative analysis of compound-2		
3	Qualitative analysis of compound-3		
4	Qualitative analysis of compound-4		
5	Qualitative analysis of compound-5		
<b>Exercise II: Volumetric Analysis</b>			
6	To determine the strength of oxalic acid by titration with $\text{KMnO}_4$ .		
7	To determine strength of FAS by titration with $\text{KMnO}_4$ using internal indicator.		
8	Determination of temporary hardness of water sample.		
9	Determination of order of reaction of hydrolysis of methyl acetate by an acid.		
10	To study kinetics of saponification of ethyl acetate by $\text{NaOH}$ .		

#### Teaching Plan for Theory (Third Semester)

Class : BSc Part II CBCS

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>Unit -II P- Block Elements</b>	15	14
A]	P-Block Elements-Comparative study of 16th and 17th group elements with reference to electronic configuration, ionization energy and oxidation states. Oxidizing properties of halogens with reference to oxidation potential. Interhalogen compounds, structure and bonding's. Introduction to fluorocarbons. B) <b>Chemistry of elements of transition series:</b> Definition of transition elements. General characteristics of transition elements. Comparative study of first transition series elements (3d) with reference to following properties: (i) Electronic configuration (ii) Atomic and ionic size (iii) Ionization energy (iv) Metallic nature (v) Oxidation states (vi) Magnetic properties (vii) Color of salts (viii) Catalytic properties (ix) Complex formation behavior. Study of 4d and 5d series elements-Electronic configuration. Comparison of 3d series elements with 4d and 5d series elements with respect to size, oxidation states, magnetic properties and colour		
	<b>Unit Test</b>		
02	<b>Unit-III A) Aldehydes &amp; Ketones</b>	15	14
	Introduction, Structure of carbonyl group, acidity of $\alpha$ hydrogen in carbonyl compounds. Preparation of aldehydes and ketones from appropriate alcohol, dihalide, alkyne. 2 Preparation of benzaldehyde from benzene (Gattermann-Koch synthesis/reaction) and toluene. Preparation of acetophenone from benzene and ethyl benzene. Chemical Reactions: Reaction with $\text{HCN}$ , $\text{ROH}$ , $\text{NaHSO}_3$ , $\text{NH}_2$ - groups derivatives. Iodoform test, Reactions of aldehydes & /or ketones: Aldol condensations Reformatsky, Mannich, Perkin, Cannizzaro's, Benzoin reaction with mechanism, Knoevenagel, Stobbe, Wittig reaction only. Clemmensen, Wolff-Kishner, MPV and $\text{LiAlH}_4$ reductions. B) Carboxylic acids: Structure and reactivity of carboxylic groups. Acidity of carboxylic acids, effects of substituents on acids strength. Oxalic acid: Preparation from ethylene glycol and cyanogen. Reactions: Reaction with ethyl alcohol, ammonia, glycerol and action of heat. Lactic acid: Preparation from acetaldehyde and pyruvic acid. Reactions: Reaction with ethanol, $\text{PCl}_5$ , action of heat, oxidation and reduction. Benzoic acid: Preparation from toluene, benzyl alcohol, phenyl cyanide and benzamide. Reactions: Reaction with ethanol, $\text{PCl}_5$ and ammonia. Salicylic acid: Preparation by Reimer-Tiemann reaction. Reactions: Reaction with $\text{CH}_3\text{COCl}$ , $\text{CH}_3\text{OH}$ and $\text{C}_6\text{H}_5\text{OH}$ . Hell- Volhard -Zelinsky Reaction.		
	<b>Unit Test</b>		

#### Teaching Plan for Practical (Third Semester)

Class : BSc Part II

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>Exercise I: In-organic</b>	58	
A)	1 Estimation of $\text{Ba}^{2+}$ as $\text{BaSO}_4$ . 2 Estimation of $\text{Fe}^{3+}$ as $\text{Fe}_2\text{O}_3$ using China dish and silica crucible. 3 Estimation of $\text{Ni}^{2+}$ as $\text{Ni-DMG}$ using sintered glass crucible. 4 Estimation of copper (II) in commercial copper sulphate sample by iodometric titration. 5 To determine the percentage of calcium carbonate in precipitated chalk. 6 To determine volumetrically the amounts of sodium carbonate and sodium hydroxide present together in the given solution 7 Preparation of standard solution of an acid (oxalic acid) & a base (sodium bicarbonate) by weighing and calculation of concentrations in terms of strength, normality, molarity, molality, formality, % by weight, % by volume, ppm, ppb and mole fraction. 8 Preparation of standard solution of hydrochloric acid by dilution and calculation of concentrations in terms of strength, normality, molarity, molality, formality, % by		



	weight, % by volume, ppm, ppb and mole fraction.		
<b>B)</b>	<b>Exercise-II: Physical Chemistry experiments</b>		
	9 Determination of molecular weight of solute by Rast's method 10 To determine activation energy of a reaction between $K_2S_2O_8$ and KI. 11 Determination of thermodynamic values ( $\Delta S^\circ$ , $\Delta H^\circ$ , and $\Delta G^\circ$ ) from the dissociation of a weak acid. 12 To determine transition temperature of $MnCl_2 \cdot 4H_2O$ . 13 To study critical solution temperature (CST) of phenol water system. 14 To determine the partition coefficient of $CH_3COOH$ between $H_2O$ and $CCl_4$ 15 To determine the partition coefficient of Benzoic acid between $H_2O$ and toluene.		
<b>Teaching Plan for Theory (Fourth Semester)</b>		<b>Class : BSc Part II</b>	
<b>Sr. No.</b>	<b>Topic to be covered</b>	<b>Lectures Available</b>	<b>Lectures Utilized</b>
<b>01</b>	<b>Unit- II</b>	<b>14</b>	
<b>A]</b>	<b>A) Inner Transition Elements:</b> Definition, Lanthanides and Actinides. Comparative study of Lanthanides with respect to following properties: (i) Electronic configuration (ii) Atomic and ionic radii lanthanide contraction-definition, cause and effect of lanthanide contraction (iii) Oxidation states (iv) Magnetic properties (v) Color of salts (vi) Complex formation behavior. Occurrence of lanthanides. Isolation of lanthanides by ion exchange method. Actinides- Electronic configuration and oxidation states. Comparison of lanthanides and actinides. <b>B) Extraction of elements:</b> Principles involved in extraction of elements. Major methods of extraction of elements. Factors affecting choice of extraction method. Thermodynamics of reduction processes Ellingham diagrams for oxides and importance of this diagram (only preliminary ideas).		
<b>C]</b>	<b>Unit Test</b>		
<b>02</b>	<b>Unit-V Electrochemistry</b>	<b>15</b>	
	Conductance of electrolyte solution. Specific, equivalent and molar conductance. Determination of conductance of electrolyte solution, variation of specific and equivalent conductance with dilution for strong electrolyte. Conductometric titrations. Applications of conductometric titration. Migration of ions under the influence of electric field. Transport number of ions. Determination of transport number by Hittorf's method and Moving boundary method. Kohlrausch's law of independent migration of ions. Determination of $\alpha$ and degree of dissociation $\alpha$ of a weak electrolyte. Determination of dissociation constant of weak electrolyte. Numerical. B) Electrochemistry-II pH of a solution and pH scale. Determination of pH of solution using Hydrogen, Quinhydrone and Glass electrodes. Advantages and Disadvantages of these electrodes. pH metric titrations. Determination of $pK_a$ of a weak acid by pH metric titration. Potentiometric titration. Advantages of Potentiometric titrations. Study of following potentiometric titrations- (a) Acid-Base (b) Redox (c) Precipitation. Numerical.		
	<b>Unit Test</b>		
<b>Teaching Plan for Practical (Fourth Semester)</b>		<b>Class : BSc Part II</b>	
<b>Sr. No.</b>	<b>Topic to be covered</b>	<b>Lectures Available</b>	<b>Lectures Utilized</b>
<b>01</b>	<b>Exercise I: Organic</b>	<b>48</b>	
	1 To prepare glucose from cane sugar. 2 To determine the iodine value of the given Oil or Fat. 3 Determination of equivalent weight of an organic acid. 4 Determination of equivalent weight of an ester by saponification. 5 Preparation of soap from oil or fat. 6 Determination of properties of soaps (at least two samples) with respect to pH, Foam, interaction with oil, and hard water test. 7 Isolation of casein from milk. 8 Isolation of lactose from milk.		
<b>02</b>	<b>Exercise II: Physical Chemistry Experiments</b>		
	9 Determination of standard electrode potential of $Cu/Cu^{+2}$ or $Zn/Zn^{+2}$ electrodes potentiometrically. 10 To determine dissociation constant of weak acid by conductometry. 11 To determine dissociation constant of weak acid by potentiometry. 12 To determine dissociation constant of dibasic acid by pH-metry. 13 To determine solubility and solubility product of sparingly soluble salts conductometrically. 14 To study strong acid and strong base titration by pH-metry.		

	15 To determine pH of a soil sample by pH-meter. 16 To verify Beer's Lambert's law using $\text{KMnO}_4/\text{K}_2\text{Cr}_2\text{O}_7$ . 17 To determine solubility of benzoic acid at different temperature and heat of solution.		
<b>Teaching Plan for Theory (Fifth Semester) Class : BSc Part III</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>Unit II</b>	15	14
A]	<b>Crystal Field Theory (CFT):</b> Postulates of CFT, Crystal field splitting in octahedral, distorted octahedral, square planar tetrahedral complexes, concept of CFSE, high spin and low spin complexes on the basis of $\Delta_0$ and pairing energy, distribution of electrons in $t_{2g}$ and $e_g$ orbitals in high spin and low spin octahedral complexes. Factor affecting magnitude of crystal field splitting in octahedral complexes.		
B]	<b>Electronic Spectra of Transition Metal Complexes:</b> Introduction to spectra, selection rules for d-d transitions, spectroscopic terms-determination of ground term symbols for $d^1$ to $d^{10}$ , spectra of $d^1$ and $d^9$ octahedral complexes, Orgel diagram for $d^1$ and $d^9$ states, electronic spectrum of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ complex ion. Spectrochemical series.		
C]	<b>Unit Test</b>		
<b>Teaching Plan for Practical (Fifth Semester) Class : BSc Part III</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>Exercise 1: Inorganic Preparations</b>	60	
	1. Preparation of tetraamminecopper (II)sulphate. 2. Preparation of hexaamminenickel (II)chloride. 3. Preparation of potassiumtrioxalate aluminate (III). 4. Preparation of Prussian blue. 5. Preparation of chrome alum. 6. Preparation of sodium thiosulphate and dithionite. (Comment on VB structure, magnetic properties and color of 1, 2 and 3 complexes)		
02	<b>Exercise II: Physical Chemistry experiments</b>		
	1. To determine strength of given HCl solution conductometrically. 2. To determine strength of given $\text{CH}_3\text{COOH}$ solution conductometrically. 3. To determine strength of given HCl solution potentiometrically. 4. To determine strength of HCl and $\text{CH}_3\text{COOH}$ in a given mixture conductometrically. 5. To determine redox potential of $\text{Fe}^{+2}/\text{Fe}^{+3}$ system potentiometrically. 6. To determine molecular weight by Rast's method. 7. To determine specific rotation of optically active compound by Polarimeter.		
<b>Teaching Plan for Theory (Sixth Semester) Class : BSc Part III</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>Unit-IV NMR &amp; Mass</b>	14	
A]	<b>NMR spectroscopy:</b> Introduction, spin quantum number, instrumentation, Aspects of NMR- number of signals (equivalent and non-equivalent protons), positions of signals (chemical shift), intensities of signals, splitting of signals (spin-spin coupling), coupling constant, applications. [8].		
B]	<b>Mass spectroscopy:</b> Introduction, theory, instrumentation-(ion sources), Mass spectra of neopentane and methanol, molecular ion peak, base peak, metastable peak, Rules of fragmentation, applications		
C]	<b>Unit Test</b>		
<b>Teaching Plan for Practical (Sixth Semester) Class : BSc Part III</b>			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>Exercise I: Organic Chemistry Experiments</b>		
	1. Estimation of formaldehyde. 2. Estimation of glycine. 3. Estimation of ascorbic acid (vitamine C). 4. Estimation of phenol by bromination method. 5. Estimation of aniline by bromination method. 6. Estimation of urea by hypobromite method. 7. Estimation of unsaturation by bromination method. 8. Determination of iodine value of oil.		



	<p>9. Determination of equivalent weight of an ester by saponification.</p> <p>10. Separation of a mixture of methyl orange and methylene blue by thin layer chromatography (using benzene).</p> <p>11. Separation of a mixture of 2,4-dinitro phenyls of acetaldehyde and benzaldehyde by thin layer chromatography (using benzene : petroleum ether = 3:1).</p> <p>12. Separation of a mixture of dyes by thin layer chromatography (using cyclohexane: ethyl acetate = 8.5:1.5).</p> <p>13. Separation of a mixture of 2,4-dinitro phenyls of acetaldehyde and benzaldehyde by thin layer chromatography (using toluene: petroleum ether).</p>		
02	<b>Exercise II: Physical Chemistry experiments</b>		
	<p>1. To determine dissociation constant of weak acid by conductometry.</p> <p>2. To determine dissociation constant of weak acid by potentiometry.</p> <p>3. To study potentiometric titration of KCl and AgNO<sub>3</sub>.</p> <p>4. To determine dissociation constant of dibasic acid by pH-metry.</p> <p>5. To verify Beer's Lambert's law using KMnO<sub>4</sub> /K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>.</p> <p>6. To determine pH of a soil sample by pH-meter.</p> <p>7. To determine solubility and solubility product of sparingly soluble salts conductometrically.</p> <p>8. To study strong acid and strong base titration by pH-metry. Distribution of Marks for Practical Examination</p>		

**Time Table for UG (Odd & Even Semester)**

Faculty : SCIENCE

Subject : CHEMISTRY

Period	1	2	3	4	5	6
Day / Time	08:00 to 10:24	11:00 to 11:48	11:48 to 12:36	12:36 to 01:24	01:24 to 2:22	2:30 to 4:54
MON	II (P) B <sub>1</sub>	III (T)				II (P) B <sub>2</sub>
TUE	II (P) B <sub>1</sub>		III (T)			II (P) B <sub>2</sub>
WED	III (P) C <sub>1</sub>					
THUS	III (P) C <sub>1</sub>					
FRI	I (P) A <sub>1</sub>			II (T)		I (P) A <sub>2</sub>
		7:30 to 8:18	8:18 to 9:06	9:06 to 9:54		10.04to 12.28 12.28 to 2.52
SAT			I (T)			I(P) A <sub>1</sub> I(P) A <sub>2</sub>

**Allotted Workload**

Subject : CHEMISTRY

Year : 2023-2024

Sr. No.	Class	No. of periods per week			Unit Allotted
		Lectures	Tutorials	Practical	
1	B.Sc I	01	---	4×3=12	01
2	B.Sc II	01	---	2×3=06	01
3	B.Sc III	02	---	2×3=06	02

**Allotted Workload**

Subject : INORGANIC CHEMISTRY (M.Sc.)

Year : 2023-2024

Sr. No.	Class	No. of periods per week			Unit Allotted
		Lectures	Tutorials	Practical	
1	M.Sc. I	02	---	---	02
2	Total	02	---	--	02

Total Workload per week (L+T+P) : 02(L) + 00 (P) = 02 (2.0 Hrs.)



# Teaching Periods Available per month during the session 2023-24

Faculty : SCIENCE

Subject :

CHEMISTRY

Class	ODD SEMESTER							EVEN SEMESTER				
	Periods	JUL -23	AUG -23	SEP -23	OCT -23	NOV -23	Total	JAN -24	FEB -24	MAR -24	APR -24	Total
B.Sc I	Theory	02	04	05	04	01	16	04	04	05	03	16
	Practical	16	32	36	32	08	124	28	32	32	28	120
B.Sc II	Theory	02	04	04	04	01	15	03	04	03	04	14
	Practical	10	16	14	16	04	60	16	14	14	16	60
B.Sc III	Theory	05	08	07	08	02	30	08	07	07	08	30
	Practical	12	24	21	24	06	87	21	27	24	18	90

(Note: B. Sc-I & II Year 2T=1PR 45Min. & B.Sc.-III Year 3T=1PR 48 Min.)

## Syllabus:

Teaching Plan for Theory (First Semester)				Class : B.Sc Part I	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized		
01	Unit-VI	16L			
	<p>A) Liquid State:</p> <p>Definition of surface tension, Its SI unit and effect of temperature on surface tension, Derivation of expression for relative surface tension by stalagmometer method. Applications of surface tension. Viscosity, definition of coefficient of viscosity, Its SI unit and effect of temperature on viscosity, Derivation of expression for relative viscosity by Ostwald's viscometer method, Applications of viscosity.</p> <p>B) Physical Properties and Molecular Structure:</p> <p>I. Electrical Properties:</p> <p>(i) Polar and non-polar molecules. Dipole moment.</p> <p>(ii) Induced polarization and orientation polarization. Clausius Mossotti equation (only qualitative treatment).</p> <p>(iii) Measurement of dipole moment by temperature and refractivity methods.</p> <p>(iv) Applications of dipole moment for the determination of molecular structure. i.e. percentage ionic character of covalent bonding, molecular geometry, cis-trans isomers, ortho, meta and para isomers of a disubstituted benzene.</p> <p>II. Magnetic Properties:</p> <p>(i) Paramagnetic and diamagnetic substances, origin of paramagnetism, diamagnetism, ferromagnetism and antiferromagnetism.</p> <p>(ii) Volume, specific, mass and molar susceptibility. Relationship between molar magnetic susceptibility and magnetic moment.</p> <p>(iii) Relationship between magnetic moment and number of unpaired electrons.</p> <p>(iv) Gouy's balance method for determination of magnetic susceptibility.</p>	14			

	(v) Application of magnetic moment in the determination of molecular structure. (vi) Numerical		
	<b>Unit Test</b>	01	
<b>Teaching Plan for Practical (First Semester)</b>		<b>Class : B.Sc Part I</b>	
Sr. No.	List of Practical/Laboratory Experiments/Activities etc	Lectures Available	Lectures Utilized
		<b>186L</b>	
01	Preparation of Acetyl derivative of aromatic primary amine (aniline or toluidine).	15	
02	Preparation of Benzanilide (Benzoylation).	15	
03	Preparation of Benzoic acid from Benzamide (Hydrolysis).	15	
04	Preparation of Benzoic acid from benzaldehyde (Oxidation).	15	
05	Preparation of phenyl-azo- $\beta$ -naphthol dye (Diazotisation)	15	
06	Base catalysed Aldol Condensation (Synthesis of dibenzal propanone).	15	
07	Preparation of p-nitroacetanilide from acetanilide.	16	
08	Determination of surface tension of a given liquid using Stalagmometer	16	
09	Determination of the parachor value of -CH <sub>2</sub> - group (methylene) using Stalagmometer	16	
10	Determination of coefficient of viscosity of aqueous solution of ethanol or polymer at room temperature.	16	
11	Determination of unknown percentage composition of given glycerol solution from standard 2%, 4%, 6%, 8% and 10% solutions of glycerol	16	
12	Determination of the heat of solution of KNO <sub>3</sub> (5% solution)	16	
<b>Teaching Plan for Theory (Second Semester)</b>		<b>Class : B.Sc Part I</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>UNIT-IV</b>	<b>16L</b>	
	A) Phenols: Phenol - Synthesis from toluene, cumene and salicylic acid, Kolbe's carboxylation reaction, Fries rearrangement, Reimer-Tiemann reaction, bromination, acidity of phenol.	04	
	B) Ethers and epoxides: Diethyl ether - Synthesis from ethanol, Williamson's synthesis, reactions with cold and hot HI and acetic anhydride. Crown ethers - Brief introduction to crown ethers and its applications. Ethylene oxide - Synthesis from ethylene, ring opening reactions with Grignard reagent, HCN and H <sub>2</sub> S, reduction with Zn + CH <sub>3</sub> COOH, dimerization to dioxane (mechanism). Styrene oxide - Synthesis from styrene, ring opening reactions with acid and alkali, reduction with LiAlH <sub>4</sub> .	10	
	C) Thiols and thioethers: Ethanethiol - Synthesis from ethyl iodide, oxidations with I <sub>2</sub> and H <sub>2</sub> O <sub>2</sub> . Diethyl sulphide - Synthesis from ethyl bromide, Williamson's synthesis, desulphurization with Raney Ni, decomposition with alkali	02	
<b>Teaching Plan for Practical (Second Semester)</b>		<b>Class : B.Sc Part I</b>	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
		<b>180L</b>	



01	<p>Exercise I: Organic Qualitative Analysis (05)</p> <p>Complete analysis of simple organic compounds (like urea, thiourea, benzoic acid, Salicylic acid, oxalic acid, glucose, naphthalene, para-toluidine, benzamide, etc.) containing one or two functional groups involving following steps.</p> <p>i) Preliminary examination  ii) Detection of elements  iii) Detection of functional groups  iv) Determination of melting point  v) Preparation of derivative and determination of its melting point  vi) Performance of spot test, if any</p>	138	
	1) Qualitative analysis of compound-1	27	
	2) Qualitative analysis of compound-2	27	
	3) Qualitative analysis of compound-3	28	
	4) Qualitative analysis of compound-4	28	
	5) Qualitative analysis of compound-5	28	
02	Exercise II: Volumetric Analysis	42	
	6) To determine the strength of oxalic acid by titration with $\text{KMnO}_4$ .	6	
	7) To determine strength of FAS by titration with $\text{KMnO}_4$ using internal indicator.	6	
	8) Determination of temporary hardness of water sample.	6	
	9) Estimation of $\text{Zn}^{++}$ ions by complexometric titration.	6	
	10) Prepare $0.1\text{NH}_2\text{SO}_4$ solution and find out its exact normality using NaOH as an intermediate solution and $0.1\text{N}$ oxalic acid as a standard solution.	6	
	11) Determination of order of reaction of hydrolysis of methyl acetate by an acid.	6	
	12) To study kinetics of saponification of ethyl acetate by NaOH	6	
Teaching Plan for Theory (Third Semester) Class : B.Sc Part II			
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	UNIT-I	15L	
		14	
	<p><b>A] Volumetric Analysis:</b></p> <p>(a) <b>Introduction:-</b> Volumetric analysis, titrant, titrate, end point, equivalence point, indicator etc. Requirements of volumetric analysis. Definition of standard solution, primary standard substance. Requirements of primary standard substance. Terms to express concentrations namely- molarity, normality, molality, mole fraction and percentage. (Simple numericals expected).</p> <p>(b) <b>Acid-Base titrations:-</b> Types of acid base titrations. pH variations during acid base titration. Acid base indicators. Modern theory (Quinoniod theory) of acid base indicators. Choice of suitable indicators for different acid base titrations.</p> <p>(c) <b>Redox Titrations:-</b> General principles involved in redox titrations (redox reactions, redox potentials, oxidant, reductant, oxidation number). Brief idea about use of <math>\text{KMnO}_4</math>, <math>\text{K}_2\text{Cr}_2\text{O}_7</math> as oxidants in acidic medium in redox titrations. Use of <math>\text{I}_2</math> in iodometry and iodimetry. Redox indicators-external and internal indicators. Use of starch as an indicator. Iodometric estimation of Cu (II).</p>	08	

	<b>B] Gravimetric Analysis:</b> Definition. Theoretical principles underlying various steps involved in gravimetric analysis with reference to estimation of barium as barium sulphate. Coprecipitation and post precipitation. (Definition, types and factors affecting).	06	
	<b>Unit Test</b>	01	

#### Teaching Plan for Practical (Third Semester)

Class : B.Sc Part II

Sr. No.	Topic to be covered	Lectures Available <b>180L</b>	Lectures Utilized
<b>01</b>	<b>Exercise-1 Inorganic</b>	<b>100</b>	
1	Estimation of Ba <sup>2+</sup> as BaSO <sub>4</sub> .	15	
2	Estimation of Fe <sup>3+</sup> as Fe <sub>2</sub> O <sub>3</sub> using china and silica crucible.	15	
3	Estimation of Ni <sup>2+</sup> as Ni-DMG using sintered glass crucible.	15	
4	Estimation of copper (II) in commercial copper sulphate sample by iodometric titration.	15	
5	To determine the percentage of calcium carbonate in precipitated chalk.	15	
6	To determine volumetrically the amounts of sodium carbonate and sodium hydroxide present together in the given solution	14	
7	Preparation of standard solution of an acid (oxalic acid) & a base (sodium bicarbonate) by weighing and calculation of concentrations in terms of strength, normality, molarity, molality, formality, % by weight, % by volume, ppm, ppb and mole fraction.	14	
8	Preparation of standard solution of hydrochloric acid by dilution and calculation of concentrations in terms of strength, normality, molarity, molality, formality, % by weight, % by volume, ppm, ppb and mole fraction.	20	
	<b>Exercise II: Physical Chemistry Experiments</b>	6	
9	Determination of molecular weight of solute by Rast's method	7	
10	To determine activation energy of a reaction between K <sub>2</sub> S <sub>2</sub> O <sub>8</sub> and KI.	7	
11	Determination of thermodynamic values ( $\Delta S^\circ$ , $\Delta H^\circ$ , and $\Delta G^\circ$ ) from the dissociation of a weak acid.	60	
12	To determine transition temperature of MnCl <sub>2</sub> ·4H <sub>2</sub> O.	8	
13	To study critical solution temperature (CST) of phenol water system.	8	
14	To determine the partition coefficient of CH <sub>3</sub> COOH between H <sub>2</sub> O and CCl <sub>4</sub>	6	
15	To determine the partition coefficient of Benzoic acid between H <sub>2</sub> O and toluene.	6	

#### Teaching Plan for Theory (Fourth Semester)

Class : B.Sc Part II

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
<b>01</b>	<b>UNIT-VI</b>	<b>14L</b>	
	Photochemistry: Photochemical and thermal reactions. Lambert's law (Statement and derivation). Beer's law (Statement and derivation). Reasons for deviations from Beer's law. Laws of photochemistry- Grotthus-Draper law, Stark-Einstein law. Quantum yield of photochemical reaction. Reasons for high and low quantum yields. Experimental determination of quantum yield. Photosensitized reactions. Kinetics of photochemical decomposition of HI. Fluorescence	14	



	and Phosphorescence. Selection rule for electronic transitions. Internal conversion and Intersystem crossing. Explanation of Fluorescence and Phosphorescence on the basis of Jablonski Diagram. Chemiluminescence and Bioluminescence (with examples). Numerical		
04	UNIT TEST	01	
Teaching Plan for Practical I (Fourth Semester)		Class : B.Sc Part II	
Sr. No.	Topic to be covered	Lectures Available 180L	Lectures Utilized
01	Exercise-1 Organic	120	
1	To prepare glucose from cane sugar.	20	
2	To determine the iodine value of the given Oil or Fat.	20	
3	Determination of equivalent weight of an organic acid.	20	
4	Determination of equivalent weight of an ester by saponification.	20	
5	Preparation of soap from oil or fat.	20	
6	Determination of properties of soaps (at least two samples) with respect to pH, Foam, interaction with oil, and hard water test.	20	
7	Isolation of casein from milk.	60	
8	Isolation of lactose from milk	6	
	Exercise II: Physical Chemistry Experiments.	6	
9	Determination of standard electrode potential of Cu/Cu+2 or Zn/Zn+2 electrodes potentiometrically.	6	
10	To determine dissociation constant of weak acid by conductometry.	6	
11	To determine dissociation constant of weak acid by potentiometry.	6	
12	To determine dissociation constant of dibasic acid by pH-metry.	5	
13	To determine solubility and solubility product of sparingly soluble salts conductometrically.	5	
14	To study strong acid and strong base titration by pH-metry.	5	
15	To determine pH of a soil sample by pH-meter.	5	
16	To verify Beer's Lambert's law using KMnO4/K2Cr2O7.	5	
17	To determine solubility of benzoic acid at different temperature and heat of solution.	5	
Teaching Plan for Theory (Fifth Semester)		Class : B.Sc Part III	
Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	UNIT-III & IV	30L	
	UNIT-III	14L	
	A] Heterocyclic compounds: Nomenclature, Pyrrole: Synthesis from acetylene, succinimide and furan, Basicity, Electrophilic substitution reactions (orientation) – nitration, sulphonation, acetylation and halogenation, Molecular orbital structure	04	
	Pyridine: Synthesis from acetylene and pentamethylene diamine hydrochloride, Basicity, Electrophilic substitution reactions (orientation) – nitration, sulphonation, Nucleophilic substitution reactions (orientation)- with NaNH <sub>2</sub> , C <sub>6</sub> H <sub>5</sub> Li and KOH	03	
	Organometallic compounds: Grignard reagents: Methyl magnesium bromide- Synthesis from methyl bromide (only reaction) Synthetic applications: Electrophilic substitution reactions-formation of alkanes, alkenes, higher alkynes and other organometallic compounds, Nucleophilic substitution reactions- Reaction with aldehydes and ketones, ethylene oxide, acetyl chloride, methyl cyanide and CO <sub>2</sub> .	04	

	Methyl lithium-Synthesis and reaction with water, formaldehyde, acetaldehyde, acetone, ethylene oxide and CO <sub>2</sub> .	03	
04	<b>UNIT-IV</b>	14L	
	<b>a)Dyes:</b> Classification on the basis of structure and mode of application, Preparation and uses of Methyl orange, Crystal violet, Phenolphthalein, Alizarin and Indigo	05	
	<b>b)Drugs:</b> Analgesic and antipyretics: Synthesis and uses of phenylbutazone. Sulpha drugs: Synthesis and uses of sulphanilamide and sulphadiazine. Antimalarials: Synthesis of chloroquine from 4,7 dichloroquinoline and its uses	05	
	<b>c)Pesticides:</b> Insecticides: Synthesis and uses of malathion. Herbicides: Synthesis and uses of 2,4 dichloro phenoxy acetic acid (2,4-D). Fungicides: Synthesis and uses of thiram (tetramethyl thiuram disulphide).	04	
05	<b>UNIT TEST</b>	02	

**Teaching Plan for Practical (Fifth Semester) Class : B.Sc Part III**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>EXERCISE I: Inorganic Preparation (06)</b>	87 L	
	1. Preparation of tetraamminecopper (II)sulphate.	18	
	2. Preparation of hexaamminenickel (II)chloride.	3	
	3. Preparation of potassiumtrioxalate aluminate (III).	3	
	4. Preparation of Prussian blue.	3	
	5. Preparation of chrome alum.	3	
	6. Preparation of sodium thiosulphate and dithionite. (Comment on VB structure, magnetic properties and color of 1, 2 and 3 complexes)	3	
02	<b>EXERCISE II: Physical Chemistry Experiments (06)</b>	69	
	1. To determine strength of given HCl solution conductometrically.	10	
	2. To determine strength of given CH <sub>3</sub> COOH solution conductometrically.	10	
	3. To determine strength of given HCl solution potentiometrically.	10	
	4. To determine strength of HCl and CH <sub>3</sub> COOH in a given mixture conductometrically.	10	
	5. To determine redox potential of Fe <sup>+2</sup> /Fe <sup>+3</sup> system potentiometrically.	10	
	6. To determine molecular weight by Rast's method.	10	
	7. To determine specific rotation of optically active compound by Polarimeter.	09	

**Teaching Plan for Theory (Sixth Semester) Class : B.Sc Part III**

Sr. No.	Topic to be covered	Lectures Available	Lectures Utilized
01	<b>UNIT-II</b>	30L	
	<b>a)Organometallic Chemistry:</b> Definition, nomenclature and classification of organometallic compounds. Metal carbonyls- definition and classification. Preparation, properties, structure and bonding in Ni(CO) <sub>4</sub> , Fe(CO) <sub>5</sub> , Cr(CO) <sub>6</sub> . Nature of M-C bond in metal carbonyls.	14	
	<b>b)Inorganic Polymer:</b> Definition and classification. Silicones: preparation, properties structure and bonding and applications. Phosphonitrile halides polymers- preparation, properties, structure and bonding in cyclic polymers	05	
	<b>c)Bioinorganic Chemistry:</b> Essential and trace elements in biological processes. Biological role of Na <sup>+</sup> , K <sup>+</sup> , Ca <sup>2+</sup> and Mg <sup>2+</sup> ions. Metalloporphyrins-Haemoglobin and Myoglobin and their role in oxygen transport	05	
	<b>Unit Test</b>	04	
02	<b>UNIT-III</b>	01	
	<b>A] Electronic spectroscopy:</b> Introduction, theory, instrumentation, types of electronic transitions, presentation of electronic spectrum, terms used- chromophore, auxochrome, bathochromic shift, hypsochromic shift, hyperchromic effect and hypochromic effect, Applications in the structure determination of dienes, In-unsaturated aldehydes and ketones, aromatic compounds	14L	
	<b>B] Infrared spectroscopy:</b> Introduction, Types of molecular vibrations- stretching and bending, Calculation of vibrational modes, force constant, instrumentation,	07	
		07	



interpretation of IR, H-stretching, triple bond, double bond and Finger print regions, IR spectra of H <sub>2</sub> O, CO <sub>2</sub> , C <sub>2</sub> H <sub>5</sub> OH, CH <sub>3</sub> CHO, CH <sub>3</sub> COOH and CH <sub>3</sub> CONH <sub>2</sub> .			
03	UNIT TEST		
Teaching Plan for Practical (Sixth Semester)		01	
Class : B.Sc Part III			
Sr. No.	Topic to be covered	Lectures Available 180L	Lectures Utilized
01	<b>EXERCISE I: Organic Chemistry Preparation (13)</b>	<b>100</b>	
	1. Estimation of formaldehyde.	8	
	2. Estimation of glycine.	8	
	3. Estimation of ascorbic acid (vitamine C).	8	
	4. Estimation of phenol by bromination method.	8	
	5. Estimation of aniline by bromination method.	8	
	6. Estimation of urea by hypobromite method.	8	
	7. Estimation of unsaturation by bromination method.	8	
	8. Determination of iodine value of oil.	8	
	9. Determination of equivalent weight of an ester by saponification.	8	
	10. Separation of a mixture of methyl orange and methylene blue by thin layer chromatography (using benzene).	7	
	11. Separation of a mixture of 2,4-dinitro phenyls of acetaldehyde and benzaldehyde by thin layer chromatography (using benzene : petroleum ether = 3:1).	7	
	12. Separation of a mixture of dyes by thin layer chromatography (using cyclohexane:ethyl acetate = 8.5:1.5).	7	
	13. Separation of a mixture of 2,4-dinitro phenyls of acetaldehyde and benzaldehyde by thin layer chromatography (using toluene: petroleum ether).	7	
02	<b>EXERCISE II: Physical Chemistry Experiments (08)</b>	<b>80</b>	
	1. To determine dissociation constant of weak acid by conductometry.	10	
	2. To determine dissociation constant of weak acid by potentiometry.	10	
	3. To study potentiometric titration of KCl and AgNO <sub>3</sub> .	10	
	4. To determine dissociation constant of dibasic acid by pH-metry.	10	
	5. To verify Beer's Lambert's law using KMnO <sub>4</sub> /K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .	10	
	6. To determine pH of a soil sample by pH-meter.	10	
	7. To determine solubility and solubility product of sparingly soluble salts conductometrically.	10	
	8. To study strong acid and strong base titration by pH-metry. Distribution of Marks for Practical Examination	10	
Teaching Plan for Theory (First Semester)			
Class : M.Sc Part I			
Sr. No.	Topic to be covered	Lectures Available 10L	Lectures Utilized
	<b>Unit-IV Boron Cage compounds</b>		
	<b>A) Boron Hydride:</b> IUPAC nomenclature, classification (closo, nido, arachno and klado), structure, bonding and topology of boranes, 4-digit coding (STYX rule and/or Lipscomb rule) numbers for B <sub>2</sub> H <sub>6</sub> , B <sub>3</sub> H <sub>8</sub> , B <sub>3</sub> H <sub>9</sub> , B <sub>4</sub> H <sub>10</sub> , B <sub>5</sub> H <sub>9</sub> , B <sub>5</sub> H <sub>11</sub> , B <sub>6</sub> H <sub>10</sub> , B <sub>6</sub> H <sub>12</sub> , B <sub>7</sub> H <sub>11</sub> , B <sub>8</sub> H <sub>12</sub> , B <sub>12</sub> H <sub>14</sub> etc, polyhedral skeletal electron pair theory (WADE'S rule), Bronsted acidity of higher boranes	08	
	<b>B) Carboranes and Metallocarboranes:</b> Classifications, nomenclatures, types, cage and geometry according to WADE'S rule	02	
1	<b>UNIT V</b>		
	<b>Metal carbonyl and nitrosyls</b>		
	<b>A) Metal Carbonyl:</b> Basic ideas (18 electron counting rule, hapticity, ligand contribution to electron counting including CO as a ligand), classification, preparation and uses of metal carbonyls, EAN rule, MO's of CO; nature of bonding in metal carbonyls, modes of ligation (bonding modes) by CO as a ligand (Terminal and bridging) bond order of CO and IR spectroscopy, Carbonyl clusters, types of carbonyl clusters, calculation of number of M-M bonds by WADES rule of metal carbonyl cluster.	10L	
		07	

B) Metal nitrosyls: Types, preparation and properties, Structure and use of sodium nitroprusside, structure and nature of metal-nitrosyl bond in metal nitrosyls, EAN rule		03	
Teaching Plan for Theory (Second Semester)		Class : M.Sc Part I	
1	UNIT V	Lectures Available	Lectures Utilized
	Reaction Mechanism of Transition Metal complexes-I	10L	
	Types of substitution reactions in transition metal complexes, attacking reagents electrophilic and nucleophilic, Energy profile diagram with terminology includes substrate, transition state or activated complex, Substitution reactions in octahedral complexes (SN1 and SN2), lability and inertness, interpretation of lability and inertness of transition metal complexes on the basis of VBT and CFT. Factors affecting the lability of a complex, Kinetics of substitution reactions in octahedral complexes: acid hydrolysis, factors affecting acid hydrolysis, base hydrolysis, conjugate base mechanism, direct & indirect evidences in favour of conjugate mechanism, anation reaction, reaction without metal ligand bond cleavage.	10	
2	UNIT VI :	10L	
	Reaction Mechanism of Transition Metal complexes-II		
	Substitution reaction in square planer complexes: the trans effect, trans-directing series, cis effect, steric effect, solvent effect, effect of leaving group, effect of charge, effect of nucleophile, effect of temperature. Trans effect theories, uses of trans-effect, mechanism of substitution reactions in Pt(II) complexes. Electron transfer reactions. Types of electron transfer reactions, conditions of electron transfer, and mechanism of one-electron transfer reactions, outer sphere and inner sphere mechanisms, two electron transfer reactions.	10	



*[Signature]*  
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