

Rayat Shikshan Sanstha's

**Shri. Raosaheb Ramrao Patil Mahavidyalaya, Savlaj**

**Tal. - Tasgaon, Dist. - Sangli**

**Maharashtra, India**

**Programme Outcomes of B.A.**

**After completion of this program students will be able to:**

1. Behave as a responsible citizen of nation.
2. Express their views and opinions regarding socio-political and economic issues of present day.
3. Make decisions about their career and personal lives.
4. Communicate with others confidently and use interpersonal skills.
5. Elaborate language, history and culture of our society.
6. Develop research attitude and believe in scientific temperament.
7. Explain various life skills.
8. Develop their overall personality.
9. Be employable in various governmental and non-governmental organizations.
10. Develop entrepreneurship.



  
**PRINCIPAL**  
Shri. Raosaheb Ramrao Patil  
Mahavidyalaya, SAVLAJ, Dist. Sangli

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**Tal. - Tasgaon, Dist. - Sangli**  
**Maharashtra, India**  
**Programme Outcomes of B.Sc.**

**Programme Outcomes of B. Sc. After completion of this program students will be able to:**

1. Explain scientific laws and principles and applies the scientific knowledge to overcome complex problems in the life.
2. Elaborate nature, environment and society critically and rationally.
3. Give explanation terms, facts, concepts, processes, techniques, and principles of subjects.
4. Communicate the scientific knowledge in lingua-franca of the world i.e. English and gain access to the current scientific affairs.
5. Enlighten the people around by uncovering the scientific principles behind the magic and superstitions.
6. Show sensitivity to the matters of environment sustainability and use science for the progress of humanity without damaging the ecosystem.



  
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Compulsory Generic Elective (CGE-1)

Marathi Course-A Semester-I

पाठ्यपुस्तक – शब्दसंहिता

Course Outcom (COs)

- CO1 विद्यार्थ्यांच्या मध्ये भाषा आणि साहित्यविषयी अभिरूची निर्माण होईल.
- CO2 मराठी साहित्य परंपरा, लेखक, कवी यांचा परिचय होईल.
- CO3 विद्यार्थ्यांमध्ये मातृभाषा, राष्ट्रीय एकात्मता आणि उच्च मानवीमूल्यांविषयी व मराठी संस्कृतीविषयी जाणीव निर्माण होईल.
- CO4 विद्यार्थ्यांचा व्यक्तिमत्त्व विकास घडवून विविध परीक्षा आणि स्पर्धा परीक्षांची पूर्वतयारी होईल.
- CO5 निबंधलेखनाच्या माध्यमातून भाषा उपयोजनाची कौशल्ये विकसित होतील.
- CO6 विद्यार्थ्यांना भाषाविषयक ज्ञानाचे आकलन आणि विश्लेषण होईल.

Discipline Specific Core (DSC-A1)

Marathi Course -1 Semester-I

पाठ्यपुस्तक – अक्षरबंध

Course Outcom (COs) :

- CO7 विद्यार्थ्यांची मराठी भाषा आणि साहित्याविषयी अभिरूची विकसित होईल.
- CO8 मराठी साहित्य परंपरा, लेखक, कवी यांचा परिचय होईल.
- CO9 विद्यार्थ्यांमध्ये मातृभाषा, राष्ट्रीय एकात्मकता आणि उच्च मानवीमूल्यांविषयी जाणीव निर्माण होईल.
- CO10 विद्यार्थ्यांचा व्यक्तिमत्त्व विकास घडवून विविध परीक्षा आणि स्पर्धापरीक्षांची पूर्वतयारी करून घेता येईल.
- CO11 चित्रपट आणि प्रसारमाध्यमे यांच्या लेखन आणि उपयोजनाच्या आकलनाचा अवकाश वाढतील.
- CO12 कथा वांग्मय प्रकाराची ओळख होईल.



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Compulsory Generic Elective (CGE-2)

Marathi Course-B Semester-II

पाठ्यपुस्तक – शब्दसंहिता

Course Outcom (COs) :

- CO13 विद्यार्थी मराठी भाषा आणि साहित्याविषयी सजग होतील.
- CO14 विद्यार्थी मराठीतील साहित्य परंपरा, लेखक, कवी यांची माहिती सांगतील
- CO15 विद्यार्थी संत कवींबद्दल माहिती सांगतील
- CO16 विद्यार्थी काव्य प्रवाहांबद्दल माहिती सांगतील.
- CO17 विद्यार्थी आधुनिक कवितेबद्दल सविस्तर माहिती देतील.
- CO18 विद्यार्थी निबंधाचे घटक, प्रकार, वैशिष्ट्ये व प्रात्यक्षिकासह निबंध लिहितील

Discipline Specific Core (DSC-A1)

Marathi Course -2 Semester-II

पाठ्यपुस्तक – अक्षरबंध

Course Outcom (COs) :

- CO19 विद्यार्थी मराठी भाषा आणि साहित्याविषयी सजग होतील.
- CO20 विद्यार्थी मराठीतील साहित्य परंपरा, लेखक, कवी यांची माहिती सांगतील
- CO21 विद्यार्थ्यांमध्ये मातृभाषा, राष्ट्रीय एकात्मता आणि उच्च मानवी मूल्यांविषयी जाणीव निर्माण होईल.
- CO22 विद्यार्थी कवी लोकनाथ यशवंत यांच्याबद्दल सविस्तर माहिती देतील.
- CO23 विद्यार्थी विद्यार्थी नाटक, चित्रपट यांचे परीक्षण करतील. विद्यार्थी बातमी, अग्रलेख लिहितील.



Discipline Specific Core (DSC-C1)

Marathi Course -3 Semester-III

साहित्यकृती : देवबाभळी (नाटक)

प्राजक्त देशमुख, पॉप्युलर प्रकाशन मुंबई, २०१८

Course Outcom (COs) :

- CO24 नाटक वाङ्मयप्रकाराचे आकलन करून घेता येईल.
- CO25 समकालीन नाटकातून नाटककाराच्या समकालाचे प्रतिबिंब कशाप्रकारे प्रकट होते याचा अभ्यास करता येईल.
- CO26 नाट्याभ्यासाद्वारे प्रयोगरूप नाटक व नाट्यक्षेत्रातील ज्ञानसंपादनास चालना मिळेल.
- CO27 नाट्याभ्यासातून सभ्यता, संस्कृती, राष्ट्रीय एकात्मता व बंधुता वाढीस लागेल.
- CO28 विद्यार्थ्यांना नाटक या वाङ्मय प्रकारचे ज्ञान होईल.
- CO29 विद्यार्थ्यांच्यात संवादलेखन कौशल्ये विकसित होईल.

Discipline Specific Core (DSC-C2)

Marathi Course -4 Semester-III

साहित्यकृती : पक्ष्यांचे लक्ष थवे (ना.धो.महानोर) पॉप्युलर प्रकाशन, मुंबई.

Course Outcom (COs) :

- CO30 मराठी काव्यपरंपरा व प्रवाहांची ओळख पटेल.
- CO31 मराठी काव्यातून प्रकट होणारे माणूस आणि समाजातील परस्परसंबंधशोधता येतील.
- CO32 कवितेच्या कलात्मक आकृतिबंधाचे मोल अभ्यासता येतील.
- CO33 काव्यप्रवाहानुरूप काव्यलेखनाचे विशेष अभ्यासता येतील.
- CO34 विद्यार्थ्यांना निसर्गविषयक कविता अभ्यासता येईल.
- CO35 प्रात्यक्षिकाद्वारे काव्यलेखन कौशल्ये रुजतील.



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Discipline Specific Core (DSC-C25)

Marathi Course -5 Semester-IV

साहित्यकृती : चांदण्यात भिजायचं राहून जाऊ नये म्हणून (ललितगद्य)

आ.ह.साळुंखे, लोकायत प्रकाश, सातारा.

Course Outcom (COs) :

- CO36 ललितगद्य यावाङ्मयप्रकाराची ओळख होईल.
- CO37 इतर वाङ्मयप्रकार आणि ललितगद्य यातील अभिव्यक्तीरूपांचा अभ्यास होईल.
- CO38 ललित लेखकाच्या व्यक्तिमत्त्वाची जडणघडण आणि त्याचा समकाल जाणून घेता येईल.
- CO39 वेगळ्या भारतीय प्रांतातील व परदेशातील जीवनदर्शन समजून घेता येईल.
- CO40 ललित साहित्याचे स्वरूप लक्ष्यात येईल.
- CO41 ललित लेखनकौशल्ये विकसित होतील.

Discipline Specific Core (DSC-C26)

Marathi Course -6 Semester-IV

साहित्यकृती : बनगरवाडी (कादंबरी)

व्यंकटेश माडगूळकर, मौज प्रकाशन, मुंबई.

Course Outcom (COs) :

- CO42 कादंबरी या वाङ्मयप्रकाराची ओळख होईल.
- CO43 समकालीन कादंबरीतील नव्या अवकाशाचा शोध घेणे व आधुनिकतेमधील अंतर्विरोध समजेल.
- CO44 मानवीमूल्यांविषयी जाणीव निर्माण होईल.
- CO45 कादंबरीतून संस्कृतीवर व समाजजीवनावर प्रकाश पडला आहे काय जाणता येईल.
- CO46 कादंबरी लेखनाचे विशेष अभ्यासता येणार.
- CO47 आस्वादाची कौशल्ये रुजतील.



प्राचार्य  
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जि. सांगली

Discipline Specific Core (DSC-E1)

Marathi Course -7 Semester-V

साहित्यविचार

Course Outcom (COs) :

- CO48 पौर्वात्य काव्यशास्त्राची ओळख होईल.  
CO49 पाश्चात्य व आधुनिक भारतीय साहित्याचा परिचय होईल  
CO50 ललित व ललितेतर साहित्याचे स्वरूप समजू शकेल.  
CO51 काव्याची लक्षणे आणि प्रयोजने समजतील.  
CO52 साहित्याची निर्मितीप्रक्रिया आणि स्वरूप जाणून घेता येईल.  
CO53 भाषेचे 'अलंकार' समजतील.

Discipline Specific Core (DSC-E2)

Marathi Course -8 Semester-V

मराठी भाषा व भाषाविज्ञान

Course Outcom (COs) :

- CO54 आधुनिक भाषाविज्ञानाचा परिचय होईल.  
CO55 भाषाविज्ञान आणि मराठी भाषा यांचा सहसंबंध उमगेल.  
CO56 भाषेची उत्पत्ती, स्वरूप, कार्य समजेल.  
CO57 स्वनविचार आणि रूपविचार यांचा परिचय होईल.  
CO58 मराठी भाषेची वर्णव्यवस्था समजेल.  
CO59 मराठी भाषेबद्दलची विद्यार्थ्यांची आवड विकसित होईल.



For प्राचार्य  
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Discipline Specific Core (DSC-E3)

Marathi Course -9 Semester-V

मध्ययुगीन मराठी वाङ्मयाचा इतिहास (प्रारंभ ते इ.स.१५००)

Course Outcom (COs) :

- CO60 मध्ययुगीन मराठी वाङ्मय परंपरांचाव इतिहासाचा परिचय होईल.  
CO61 या कालखंडातील वाङ्मय रचनाप्रकारांचा परिचय घडेल.  
CO62 या कालखंडातील वाङ्मयनिर्मितीच्या प्रेरणांचा परिचय होईल.  
CO63 या कालखंडातील वाङ्मयाच्या सांस्कृतिक पार्श्वभूमीचा उलगडा होईल.  
CO64 या कालखंडातील प्रमुख संप्रदाय व ग्रंथनिर्मितीयांचा अनुबंधस्पष्ट करता येतील.  
CO65 या काळातील मराठी भाषेचे स्वरूप स्पष्ट करणे शक्य होईल.

Discipline Specific Core (DSC-E4)

Marathi Course -10 Semester-V

मराठी भाषा व अर्थार्जनाच्या संधी

Course Outcom (COs) :

- CO66 सर्जनशील लेखनप्रक्रिया समजून घेता येईल.  
CO67 वैचारिक लेखनाचे स्वरूप लक्षात येईल.  
CO68 वैचारिक लेखनाची आणि ललितलेखनाची तुलना करता येईल.  
CO69 लेखन, वाचन, भाषण या कौशल्यांचा विकास होईल.  
CO70 शोधनिबंध व प्रकल्पलेखन कौशल्य विकसित होईल.  
CO71 अंतरजालावरील मराठी लेखनपद्धतीचे आकलन होईल.



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Discipline Specific Core (DSC-E5)

Marathi Course -11 Semester-V

वाङ्मय प्रवाहाचे अध्ययन : मध्ययुगीन

पाठ्यपुस्तक : दृष्टांतपाठ

Course Outcom (COs) :

- CO72 मध्ययुगीन महाराष्ट्राची संस्कृती व महानुभवपंथाचा परिचय होईल.
- CO73 दृष्टांतपाठातील आशय व अभिव्यक्तीची वैशिष्ट्यांची ओळख व आकलन होईल.
- CO74 दृष्टांतपाठातील भाषिक वैशिष्ट्यांचा विद्यार्थी आपल्या ललितलेखनात उपयोग करेल.
- CO75 दृष्टांतपाठातील भाषिक वैभवाचा परिचय होईल.
- CO76 महानुभाव साहित्याच्या प्रेरणा व स्वरूपाची ओळख होईल.
- CO77 ग्रंथकार केसोबास यांच्या व्यक्तिमत्त्वाचा परिचय होईल

Discipline Specific Core (DSC-E126)

Marathi Course -12 Semester-VI

साहित्यविचार

Course Outcom (COs) :

- CO78 शब्दशक्तीचे स्वरूप व प्रकार समजतील.
- CO79 साहित्यातील रसप्रक्रिया समजेल.
- CO80 साहित्याची आस्वाद प्रक्रिया समजून येईल.
- CO81 साहित्यनिर्मितीच्या आणि आस्वादाच्या आनंदाची मीमांसा करता येईल.
- CO82 विद्यार्थ्यांचा वाङ्मयीन दृष्टिकोण विकसित होईल.
- CO83 भाषेतील छंद व वृत्ते यांचा अभ्यास करता येईल.



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Discipline Specific Core (DSC-E127)

Marathi Course -13 Semester-VI

मराठी भाषा व भाषाविज्ञान

Course Outcom (COs) :

- CO84 मराठी भाषेची वर्णव्यवस्था समजू शकेल.
- CO85 ध्वनी व अर्थपरिवर्तनाच्या कारणांची व प्रकारांची माहिती होईल.
- CO86 प्रमाणभाषेविषयी माहिती होईल.
- CO87 मराठीची शब्दव्यवस्था (शब्दांच्याजाती) समजतील.
- CO88 बोलींचे स्वरूप व विशेष समजून येईल.
- CO89 विद्यार्थ्यांमध्ये मराठी भाषेबद्दलची आवड विकसित होईल.

Discipline Specific Core (DSC-E128)

Marathi Course -14 Semester-VI

मध्ययुगीन मराठी वाङ्मयाचा इतिहास (प्रारंभ ते इ.स.१५०० ते इ.स.१८००)

Course Outcom (COs) :

- CO90 मध्ययुगीन मराठी वाङ्मयीन परंपरांचा व इतिहाचा परिचय होईल.
- CO91 मध्ययुगीन कालखंडातील वाङ्मय रचनाप्रकारांचा जाणून घेता येतील.
- CO92 मध्ययुगीन कालखंडातील वाङ्मयनिर्मितीच्या प्रेरणांचा परिचय होईल.
- CO93 मध्ययुगीन कालखंडातील वाङ्मयातील सांस्कृतिक पार्श्वभूमीचा उलगडा होईल.
- CO94 मध्ययुगीन कालखंडातील प्रमुख संप्रदाय व ग्रंथनिर्मिती यांचा अनुबंधस्पष्ट करता येईल.
- CO95 मध्ययुगीनकाळातील मराठीगद्य, पद्य रचनेचे विशेष लक्षात येईल.



श्री. रावसाहेब रामराव पाटील  
महाविद्यालय, सावळज  
जि. सांगली

Discipline Specific Core (DSC-E129)

Marathi Course -15 Semester-VI

मराठी भाषा व अर्थार्जनाच्या संधी

Course Outcom (COs) :

- CO96 प्रसारमाध्यमांतील अर्थार्जनाच्या संधी आणि भाषिक कौशल्यांची आवश्यकता ठाऊक होईल.
- CO97 औपचारिक आणि अनैपचारिक क्षेत्रानुसार भाषिक व्यवहार करता येईल.
- CO98 विविधक्षेत्रातील भाषिक कौशल्ये आणि क्षमता विकसित होतील.
- CO99 मुद्रितशोधनाच्या उपयोजनासाठी आवश्यक क्षमता विद्यार्थ्यांमध्ये विकसित होतील.
- CO100 उपयोजित व सर्जनशील लेखनास विद्यार्थ्यांचा शब्दसंग्रह समृद्ध होईल.
- CO101 मुलाखत,संपादन, परीक्षण, ब्लॉगलेखन, संवादलेखन, अशा भाषिक आकृतिबंधाचा परिचय होईल.

Discipline Specific Core (DSC-E130)

Marathi Course -16 Semester-VI

वाङ्मय प्रवाहाचे अध्ययन : ललित गद्य (व्यक्तिचित्रे)

पाठ्यपुस्तक : 'मुलुखावेगळी माणसं' (संपादन)

शिवाजी विद्यापीठ प्रकाशन, कोल्हापूर.

Course Outcom (COs) :

- CO102 ललित वाङ्मयप्रकाराचे स्वरूप ध्यानात येईल.
- CO103 प्रवाहानुरूप मराठीतील व्यक्तिचित्रांचे स्वरूप अभ्यासता येईल.
- CO104 ग्रामीण व उपेक्षित माणसांच्या जीवनव्यवहाराचे आकलन होईल
- CO105 'मुलुखावेगळीमाणसं' ग्रंथातील व्यक्तिचित्रणाचे अभिव्यक्ती, निवेदनपद्धती, भाषाविशेष या घटकांच्या आधारे सैद्धान्तिक विश्लेषण करता येईल.
- CO106 'मुलुखावेगळीमाणसं' ग्रंथातील शैक्षणिक, सामाजिक राजकीय पर्यावरण समजून येईल.
- CO107 'मुलुखावेगळीमाणसं' ग्रंथातील व्यक्तिविशेषांचे आकलन होईल.



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जि. सांगली

रयत शिक्षण संस्थेचे  
श्री रावसाहेब रामराव पाटील महाविद्यालय, सावळज  
हिंदी विभाग (सन 2023-24)

**Course Outcome - हिंदी (पाठ्यक्रम के परिणाम)**

| Sr. No | Course Name | Course Title   | Course Outcomes   |
|--------|-------------|--|---|
| 1      | B.A.-I      | साहित्य जगत  | <ol style="list-style-type: none"> <li>1. इस पाठ्यक्रम के अध्ययन से छात्र हिंदी काव्य की सुदीर्घ परंपरा से अवगत होंगे ।</li> <li>2. इस पाठ्यक्रम के अध्ययन से छात्र हिंदी गद्य की सुदीर्घ परंपरा से अवगत होंगे ।</li> <li>3. हिंदी की प्रसिद्ध रचनाओं के अध्ययन से देश की सामाजिक, सांस्कृतिक एवं राष्ट्रीय पृष्ठभूमि से सुविज्ञ होंगे ।</li> <li>4. छात्र जीवन और जीवन मूल्यों को समझने में सक्षम होंगे ।</li> </ol>   |
| 2      | B.A.-II     | 1.आधुनिक हिंदी गद्य साहित्य-1 और 2<br>2. मध्यकालीन एवं आधुनिक हिंदी काव्य  | <ol style="list-style-type: none"> <li>1. इस पाठ्यक्रम के अध्ययन से छात्र हिंदी गद्य की सुदीर्घ परंपरा से अवगत होंगे ।</li> <li>2. छात्र हिंदी काव्य तथा संतकाव्य की सुदीर्घ परंपरा से अवगत होंगे ।</li> <li>3. इस पाठ्यक्रम के अध्ययन से छात्र हिंदी संतकाव्य तथा राष्ट्रीय काव्यधारा से अवगत होंगे ।</li> </ol>   |
| 3      | B.A.-III    | <ol style="list-style-type: none"> <li>1. विधा विशेष का अध्ययन -दिल्ली ऊँचा सुनती है (नाटक)</li> <li>2. साहित्यशास्त्र और हिंदी समालोचना</li> <li>3. हिंदी साहित्य का इतिहास</li> <li>4. प्रयोजनमूलक हिंदी</li> <li>5. भाषा विज्ञान और हिंदी भाषा</li> </ol> | <ol style="list-style-type: none"> <li>1. इस पाठ्यक्रम के अध्ययन से छात्र नाटक की सुदीर्घ परंपरा से अवगत होंगे ।</li> <li>2. इस पाठ्यक्रम के अध्ययन से छात्रों में आलोचनात्मक प्रवृत्ति का विकास होगा ।</li> <li>3. छात्र हिंदी साहित्य के इतिहास से परिचित होंगे ।</li> <li>4. छात्र कार्यालय के कार्यों की मुलभूत जानकारी एवं कार्यशैली से परिचित होंगे ।</li> <li>5. छात्रों को नई तकनीकी का पता चलेगा ।</li> <li>6. हिंदी के शब्द संपदा के विस्तार की जानकारी प्राप्त होगी ।</li> <li>7. भाषा तथा अनुवाद कौशल्य में दक्षता होगी तो रोजगार प्राप्ति कर अवसर मिलेंगे ।</li> </ol> |



## Program Outcome - हिंदी (कार्यक्रम परिलब्धियाँ / परिणाम)

### बी. ए. हिंदी

1. छात्र साहित्य की प्रमुख रचनाओं से परिचित होंगे ।
2. छात्रों में साहित्य अध्ययन से संवेदनशीलता एवं मानवीय गुणों का विकास होगा ।
3. छात्रों में उच्च अध्ययन एवं शोध कार्य के प्रति रुचि जागृत होंगी तथा उन्हें रोजगार के अवसर प्राप्त होंगे ।
4. छात्र साहित्य की विशिष्ट विधाओं का गहन अध्ययन कर सकेंगे ।
5. छात्रों में शोध एवं समीक्षा के प्रति रुचि उत्पन्न होंगी ।
6. छात्रों को विविध क्षेत्रों में रोजगार के अवसर प्राप्त होंगे ।
7. छात्रों को प्रतियोगिता परीक्षा की तैयारी में सहायता मिलेगी ।
8. छात्रों को हिंदी की विशाल शब्द संपदा की जानकारी होंगी ।
9. मानक हिंदी लेखन एवं वार्तालाप में सहायता मिलेगी ।
10. छात्रों में जीवन दृष्टि एवं मानवीय मूल्यों का विकास होगा ।

## Program Student Learning Outcome - हिंदी (सीखने के प्रतिफल)

### बी. ए. हिंदी

1. किसी भी नई रचना/किताब को पढ़ने/समझने की जिज्ञासा व्यक्त करना ।
2. समाचार पत्रों/पत्रिकाओं में दी गई खबरों/बातों को जानना-समझना।
3. विभिन्न सामाजिक-सांस्कृतिक मूल्यों के प्रति अपने रुझानों को अभिव्यक्त करना।
4. पढ़ी-सुनी रचनाओं को जानना, समझना, व्याख्या करना, अभिव्यक्त करना।
5. अपने व दूसरों के अनभुवों को कहना-सुनना-पढ़ना-लिखना। (मौखिक-लिखित-सांकेतिक रूप में)
6. अपने स्तरानुकूल दृश्य-श्रव्य माध्यमों की सामग्री (जैसे- बाल साहित्य, पत्र-पत्रिकाएँ, टेलिविजन, कंप्यूटर-इंटरनेट, नाटक, सिनेमा आदि) पर अपनी राय व्यक्त करना।
7. साहित्य की विभिन्न विधाओं (जैसे- कविता, कहानी, निबंध, एकांकी, संस्मरण, डायरी आदि) की समझ बनाना और उनका आनंद उठाना।
8. विभिन्न संदर्भों में प्रयुक्त भाषा की बारीकियों, भाषा की लय, तुक को समझना।
9. भाषा की नियमबद्ध प्रकृति को पहचानना और नए संदर्भों/परिस्थितियों में प्रयोग करना।
10. हिंदी भाषा-साहित्य को समझते हुए सामाजिक परिवेश के प्रति जागरूक होना।

  
अध्यक्ष  
हिंदी विभाग



  
प्राचार्य  
श्री आर.आर.पाटील महाविद्यालय, सावळज

**Rayat Shikshan Sanstha's**  
**Shri. Raosaheb Ramrao Patil Mahavidyalaya, Savlaj**  
**Tal. Tasgaon, Dist. Sangli**  
**Department of English**

**Course Outcomes (COs)**  
**B.A. Part I – Ability Enhancement Compulsory Course (AECC 1)**  
**(Compulsory English) (CBCS)**  
**English for Communication**  
**Paper -A**

**Course Outcomes:**

After completion of the course, students will be able:

1. To read and write English efficiently
2. To communicate in English.
3. To analyse poems and prose.
4. To demonstrate his language competence.

**B.A. Part I – Ability Enhancement Compulsory Course (AECC 1)**  
**(Compulsory English) (CBCS)**  
**English for Communication**  
**Paper -B**

**Course Outcomes:**

After completion of the course, students will be able:

1. To read and write English efficiently
2. To communicate in English.
3. To analyse poems and prose.
4. To demonstrate his language competence.

**B.A. Part I (Discipline Specific Core) (DSC- A3)**  
**(English Paper –I) (Semester – I)**  
**Modern Indian Writing in English Translation**  
**(CBCS)**  
**Course Outcomes**

After completion of the course, students will be able :

1. To analyze translated Modern Indian literature in English.
2. To explain short story as a form of literature with reference to the texts prescribed.
3. To demonstrate literary competence.

**B.A. Part I (Discipline Specific Core) (DSC- A3)**  
**(English Paper –II) (Semester – I)**  
**Modern Indian Writing in English Translation**  
**(CBCS)**  
**Course Outcomes**

After completion of the course, students will be able:

1. To analyse translated Modern Indian literature in English.
2. To explain short story as a form of literature with reference to the texts prescribed.
3. To demonstrate literary competence.



**B. A. Part II**  
**ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)**  
**(CBCS)**

**ENGLISH FOR COMMUNICATION**  
**(Compulsory English)**  
**Paper-C**

**Course Outcomes**

After completion of the course, students will be able:

1. To communicate in English, both oral and written.
2. To demonstrate the language skills for use in their personal, academic and professional lives.
3. To obtain employability in various field.
4. To work effectively in job market.
5. To practice both language and soft skills.
6. To actively involve in learning process.

**B. A. Part II**  
**ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)**  
**(CBCS)**

**ENGLISH FOR COMMUNICATION**  
**(Compulsory English)**  
**Paper-D**

**Course Outcomes**

After completion of the course, students will be able:

1. To communicate in English, both oral and written.
2. To demonstrate the language skills for use in their personal, academic and professional lives.
3. To obtain employability in various field.
4. To work effectively in job market.
5. To practice both language and soft skills.
6. To actively involve in learning process.

**B. A. Part II (Discipline Specific Core) (DSC-C5)**  
**English (Paper III) (Semester III) LITERATURE AND CINEMA (CBCS)**

**Course Outcomes:**

After completion of the course, students will be able:

1. To explain film and its relationship to literature to the students
2. To explain film literacy through a working knowledge of basic film terminology
3. To apply critical approaches to engage with film adaptations
4. To demonstrate a clear understanding of literature through film adaptations of literary texts
5. To solve the issues and practices of cinematic adaptations



**B. A. Part II (Discipline Specific Core) (DSC-C5)**  
**English (Paper V) (Semester III) LITERATURE AND CINEMA**  
**(CBCS)**

**Course Outcomes:**

After completion of the course, students will be able:

1. To explain film and its relationship to literature to the students
2. To explain film literacy through a working knowledge of basic film terminology
3. To apply critical approaches to engage with film adaptations
4. To demonstrate a clear understanding of literature through film adaptations of literary texts
5. To solve the issues and practices of cinematic adaptations

**B. A. Part II**  
**(Discipline Specific Core) (DSC-C6)**  
**English (Paper IV) (Semester III)**  
**PARTITION LITERATURE (CBCS)**

**Course Outcomes:**

After completion of the course, students will be able:

1. To explain the causes of partition.
2. To explain the hidden human dimensions of the partition
3. To elaborate on the impact of partition on society

**B. A. Part II**  
**(Discipline Specific Core) (DSC-C6)**  
**English (Paper VI) (Semester III)**  
**PARTITION LITERATURE (CBCS)**

**Course Outcomes:**

After completion of the course, students will be able:

1. To explain the causes of partition.
2. To explain the hidden human dimensions of the partition
3. To elaborate on the impact of partition on society

**B. A. III**  
**Compulsory English**  
**Ability Enhancement Compulsory Course (CBCS)**  
**ENGLISH FOR COMMUNICATION**

**Paper E**

After completion of the course, students will be able:

1. To communicate in English, in oral and written modes, in their day-to-day lives as well as at workplaces.
2. To face job interviews confidently and efficiently.
3. To acquire soft skills required at workplaces and in real life.
4. To learn group behaviour and team work.
5. To learn to value and respect others' opinions and views and develop democratic attitude.
6. Face competitive examinations confidently and efficiently with adequate linguistic confidence.





**B. A.III**  
**Compulsory English**  
**Ability Enhancement Compulsory Course (CBCS)**  
**ENGLISH FOR COMMUNICATION**

**Paper F**

After completion of the course, students will be able:

1. To communicate in English, in oral and written modes, in their day-to-day lives as well as at workplaces.
2. To face job interviews confidently and efficiently.
3. To acquire soft skills required at workplaces and in real life.
4. To learn group behaviour and team work.
5. To learn to value and respect others' opinions and views and develop democratic attitude.
6. Face competitive examinations confidently and efficiently with adequate linguistic confidence.

**B. A. Part III**  
**Special English**  
**INTRODUCTION TO LITERARY CRITICISM (CBCS)**

**Discipline Specific Elective**

**Semester V (Paper VII) (DSE- E11) & Semester VI (Paper XII) (DSE- E136)**

**Course Outcomes:**

After completion of the course, students will be able:

1. Explain the major trends in criticism.
2. Interpret critical concepts.
3. Identify the original contributions to literary criticism.
4. Explain literary and critical movements.
5. Analyze the meaning and appreciate the poems critically.

**B. A.III**  
**English Special**  
**ENGLISH POETRY (CBCS)**  
**Discipline Specific Elective**

**Semester V (Paper VIII) (DSE – E12) and Semester VI (Paper XIII) (DSE – E137)**

**Course Outcomes:**

After completion of the course, students will be able:

1. Trace the development of the poetry in English from the days of Shakespeare to the contemporary India.
2. Appreciate and analyze the poems properly.
3. Explain fairly comprehensive view of the Western and Eastern poetic tradition
4. Explain various literary movements.



**B. A. Part III  
Special English  
ENGLISH DRAMA (CBCS)  
Discipline Specific Elective**

**Semester V (Paper IX) ((DSE – E13) & Semester VI (Paper XIV) (DSE – E138)**

**Course Outcomes:**

After completion of the course, students will be able:

1. Explain different forms of drama.
2. Analyze drama to their ideological or socio-political contexts.
3. Develop creative and imaginative faculties through the reading of drama.
4. Explain various aspects of the drama.

**B. A. Part III Special English  
ENGLISH NOVEL (CBCS)  
Discipline Specific Elective**

**Semester V (Paper X) ((DSE – E14) & Semester VI (Paper XV) (DSE – E139)**

**Course Outcomes:**

After completion of the course, students will be able:

1. Classify different forms of novel.
2. Analyze novels to their ideological or socio-political contexts.
3. Develop creative and imaginative faculties through the reading of novels.
4. Explain various aspects of the novel.

**LANGUAGE AND LINGUISTICS (CBCS)**

**Discipline Specific Elective**

**Semester V –Paper XI (DSE - E15) & Semester VI – Paper XVI (DSE - E140)**

**Course Outcomes:**

After completion of the course, students will be able:

1. Explain concept of communication.
2. Identify varieties of the English language.
3. Demonstrate levels of study of the English language.
4. Explain basic units of grammar.
5. Students know words and phrases.
6. Students know and identify elements and types of clauses.
7. Students know types of sentences.
8. Students know the different ways of structuring clauses



**B.Sc. Part I – Ability Enhancement Compulsory Course (AECC 1)  
(Compulsory English) (CBCS)  
English for Communication**

**Paper -A**

**Course Outcomes:**

After completion of the course, students will be able:

5. To read and write English efficiently
6. To communicate in English.
7. To analyse poems and prose.
8. To demonstrate his language competence.

**B.Sc. Part I – Ability Enhancement Compulsory Course (AECC 1)  
(Compulsory English) (CBCS)  
English for Communication**

**Paper -B**

**Course Outcomes:**

After completion of the course, students will be able:

5. To read and write English efficiently
6. To communicate in English.
7. To analyse poems and prose.
8. To demonstrate his language competence.

**B. Sc.III**

**Compulsory English**

**Ability Enhancement Compulsory Course (CBCS)**

**ENGLISH FOR COMMUNICATION**

**Paper C**

After completion of the course, students will be able:

1. To communicate in English, in oral and written modes, in their day-to-day lives as well as at workplaces.
2. To face job interviews confidently and efficiently.
3. To acquire soft skills required at workplaces and in real life.
4. To learn group behaviour and team work.
5. To learn to value and respect others' opinions and views and develop democratic attitude.
6. Face competitive examinations confidently and efficiently with adequate linguistic confidence.

**B. Sc.III**

**Compulsory English**

**Ability Enhancement Compulsory Course (CBCS)**

**ENGLISH FOR COMMUNICATION**

**Paper D**

After completion of the course, students will be able:

1. To communicate in English, in oral and written modes, in their day-to-day lives as well as at workplaces.
2. To face job interviews confidently and efficiently.



3. To acquire soft skills required at workplaces and in real life.
4. To learn group behaviour and team work.
5. To learn to value and respect others' opinions and views and develop democratic attitude.
6. Face competitive examinations confidently and efficiently with adequate linguistic confidence.



  
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**DEPARTMENT OF GEOGRAPHY**

**Programme Specific Outcomes and Course Outcomes**

**PSOs of Geography**

**B. A. in Geography**

After completion of the course students will be able to:

PSO1: explain definitions, relevant terms and concept of geography.

PSO2: describe principles, theories and models in geography.

PSO3: illustrate idea about detail knowledge regarding Physical features of Earth. .

PSO4: evaluate the relation or complex nature between physical and human environments.

PSO5: interpret geographical data and sources.

PSO6: apply the cartographical techniques to support the inferences of geographical aspects.

PSO7: evaluate the basics of geography.

PSO8: Assess the effects of geographical processes and its impact on physical and human environments.

**COs of Geography:**

**B. A. I Sem. I Paper-I Physical Geography**

CO 1: Identify the internal structure of the Earth.

CO 2: Describe basic terms and concepts in physical geography.

CO 3: Analyze different landforms throughout the world.

CO 4: Illustrate causes and consequences of earthquake and volcanoes.

CO 5: Justify denudation and weathering.

CO 6: Differentiate between map and globe.

**B. A. I Sem. I Paper II HUMAN GEOGRAPHY**

CO 1: Find out terms and concepts in human geography. demographic transition model.



CO 2: Explain population growth and CO 9: Illustrate human migration and classify human settlements.

CO3: Identify functions of urban centers.

CO4: Categorize agriculture, its factors and problems.

CO5: Apply dot, line and polygon through Google Earth Programme.

### **COs-B. A. Part - II GEOGRAPHY**

#### **GEOGRAPHY Paper No.-III**

After completion of the course students will be able to:

CO1: Explain 'Soil Geography as branch of Physical Geography', including its definition, nature, scope, history, and significance.

CO2: describe the factors that influence soil formation.

CO3: define the physical and chemical properties of soils, such as morphology, texture, structure, water, air, temperature, PH, organic matter, and NPK.

CO4: state the genetic classification of soils and the distribution of major soils in Maharashtra.

CO5: describe soil degradation, its causes, consequences and measures to prevent it.

CO6: apply practical knowledge of soil profile, soil sample tools, pH analysis.

#### **RESOURCE GEOGRAPHY, Paper No. IV**

After completion of the course students will be able to:

CO1: define 'Resource Geography' as a branch of Economic Geography.

CO2: explain the concept and classification of Resources.

CO3: describe the worldwide major resources (water, forest, energy and human) with their distribution, utilization and problems.

CO4: identify the major resources and its management in India (water, forest, energy and human) with their distribution, utilization and problems.

CO5: evaluate Sustainable Natural and Human Resource Development and its management at national as well as international level.

CO6: apply cartographic techniques.



## **OCEANOGRAPHY, Paper No. V**

After completion of the course students will be able to:

CO1: define Physical Geography.

CO2: describe basic and fundamental concepts of oceanography.

CO3: analyze the physical and chemical properties of oceans.

CO4: Classify the oceanic currents

CO5: discuss the ocean as food storages as well as storehouse of resources for the future.

CO6: explain impact of man on oceans.

CO7: demonstrate the importance of marine as key resource for the development of any country.

CO8: examine hypsographic curve, wind rose, isohaline and isotherms.

## **AGRICULTURE GEOGRAPHY, Paper No. VI**

After completion of the course students will be able to:

1. define nature, scope, and significance of agriculture geography as a discipline and interdisciplinary nature.
2. Show historical evolution of agriculture and to identify and evaluate the physical and human determinants that influence agricultural activities.
3. examine and compare the major agricultural systems
4. analyze Von Thunen's Theory of Agricultural land-use for its applicability in explaining the spatial organization and patterns of agricultural activities.
5. evaluate the agricultural regionalization, focusing on crop combination and crop diversification, and understand their implications for agricultural productivity and regional development
6. illustrate the distribution patterns of food and nutrition, analyze the causes and spatial patterns of hunger.
7. apply practical skills in interpreting and creating line and bar graphs, divided circles, and proportional squares to represent and analyze agricultural data and its spatial patterns.



## **B. A. Part - II GEOGRAPHY (IDS)**

### **Tourism Geography, Paper- I**

After completion of the course students will be able to:

- CO1: define the fundamental concepts and definitions of tourism and tourist and along with explore the nature and scope of tourism geography as a multidisciplinary field.
- CO2: identify the components of tourism and their interrelationships and analyze recent trends in the industry.
- CO3: evaluate the economic, socio-cultural, and environmental impacts of tourism.

### **Tourism in India Paper No. II**

After completion of the course students will be able to:

- CO1: apply data collection techniques such as field surveys, interviews, questionnaires, and sampling methods in tourism geography research.
- CO2: explain the significance of effective planning and development strategies in the tourism industry.
- CO3: examine different types of tourism centers, including natural, religious, cultural, and historical destinations in India.
- CO4: analyze the development and planning of tourism in Maharashtra, with a focus on Mahabaleshwar or local district tourism centers as a case study.
- CO5: identify challenges and issues associated with tourism development and explore sustainable practices for mitigating negative impacts.

## **PO-B. A. Part - III GEOGRAPHY**

### **Evolution of Geographical Thought, Paper No. VII**

After completion of the course students will be able to:

- CO1: explain the historical evolution of geographic thought.
- CO2: analyze different paradigms in geography.
- CO3: evaluate the contemporary trends in geographical studies.
- CO4: describe the paradigms and debates in the geographical studies.
- CO5: identify the recent trends in geography.

### **GEOGRAPHY OF INDIA Paper No. VIII**

- CO1: define distinct dimensions of India and physical setup of the country.
- CO2: explain the climate of India and mechanism of monsoon of India.
- CO3: illustrate soils and vegetations in India.
- CO4: identify recent trends in regional study.
- CO5: describe the mineral, agricultural and industrial product of the country.
- CO6: analyze the economic setup of the country.





**POPULATION GEOGRAPHY, Paper No. IX**

- CO1: explain the basics of population geography.
- CO2: identify the population growth trends and its distribution.
- CO3: describe the population dynamics.
- CO4: define the population compositions and its characteristics.

**TITLE: Economic Geography Paper No. X**

- CO1: define the basics of economic geography.
- CO2; describe the locational factors of economic activities with special reference to agriculture and industry.
- CO3: define the basics concepts related to manufacturing and major manufacturing industries of selected countries of the world.
- CO4: analyze the transport and trade.

**TITLE: Subject – Urban Geography, Paper No. XI**

- CO1: define the basic of Urban Geography.
- CO2: classify Urban Settlements, Site and Situations.
- CO3: explain relationship between human activities and urban development.
- CO4: describe present problematic situation in Urban and rural areas.
- CO5 design a good urban planning and environmental conservation planning.

**TITLE: Subject – POLITICAL GEOGRAPHY, Paper No. XII**

- CO1: define the Political geography as a fundamental branch of Human Geography.
- CO2: explain the basics and fundamental concepts and theories of Political Geography.
- CO3: recognize resource conflicts and politics of displacement.

**Title: Fundamentals of Map Making and Map Interpretation, Paper No. XIII**

- CO1: define the importance of map making and map Interpretation.
- CO2: describe map, concept of scale and concept of projection.
- CO3: analyze landforms.
- CO4: explain S.O.I. topo maps and I.M.D., weather maps.
- CO5: Apply the skill of map Interpretation.
- CO6: classify different cartographic techniques and methods used for representation of demographic and physio- socio-economic database.

**Title: Advanced Tools, Techniques & Field Work in Geography, Paper No. XIV**

- CO1: explain the importance of field work and advanced Techniques in Geography.
- CO2: apply modern tool and techniques in Geography.
- CO3: use computer for analysis of Geographical data.
- CO4: use instrumental survey.
- CO5: use Arial Photographs, Remote Sensing, GIS and GPS.



*(Signature)*  
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**Tal. - Tasgaon, Dist. – Sangli**  
**Department of Chemistry**  
**Course Outcomes (COs)**

After completion of the course, students will be able to:

**B. Sc. I (NEP-2020) Semester I DSC-3A Paper I (Inorganic Chemistry)**

- CO1-Define introductory inorganic chemistry.
- CO2-Identify size, shape and electron distribution in shells and sub- shells of an atom.
- CO3-Explain different types of bonds and nature of bonding in inorganic compounds.
- CO4- Define nature of bonding, geometry, stability, and magnetic characters of covalent compounds by applying VBT.
- CO5- Describe role of acids and bases in chemistry. The study is useful in all chemical areas.
- CO6- Explain the properties and uses of the compounds of p-block elements.

**B.Sc. Part I (NEP-2020) SEMESTER-I DSE-4A Paper II, Organic Chemistry**

- CO1-Explain the fundamentals and basic principles involved in organic chemistry.
- CO2-Describe the spatial arrangement of atoms of organic molecule and types of stereoisomers.
- CO3-Define general properties and fundamental reactions of aromatic compounds.
- CO4-Explain the basic knowledge of heterocyclic compounds.
- CO5-Describe methods to preparation, physical and chemical properties of some heterocyclic compounds.

**B. Sc. I (NEP-2020) Semester II DSC-3B: Paper -III (Physical Chemistry)**

- CO1-Define basic concepts and rules of logarithms, graphs, derivative and integrations.
- CO2-Explain basic concepts in thermodynamics will be gained by the student.
- CO3-Explain the knowledge about basic concepts in kinetics and first order, second order reactions with characteristics and suitable examples.
- CO4-Describe of surface tension, viscosity and refractive index with suitable examples.
- CO5-Explain of basic concepts in electrochemistry, conductors and conductivity cells.



**B. Sc. I Semester II DSC-4B-Chemistry Paper IV, Analytical Chemistry**

CO1- Describe various analytical procedures and sampling, accuracy and precision terms.

CO2-Compare classical and industrial chemistry.

CO3-Define and explain basic concepts and concentration terms.

CO4-Describe IPR.

CO5-Identify the chromatographic separation technique and terms involved in it.

CO6-Illustrate paper chromatography and thin layer chromatography.

CO7-Describe the various type of titrations, neutralization curves, indicators.

CO8-Define the chemical nature and cleansing action of soap.

**B.Sc.Part II (CBCS) Sem III Paper No. DSC- C3 - Chemistry paper No. V (Physical Chemistry)**

CO1-Define and explain conductivity and transport number of the aqueous solutions with different applications.

CO2-Describe the surface tension, viscosity and refractive index.

CO3-Identify and explain surface phenomena at heterogeneous surfaces.

CO4-Define the various nuclear phenomena and measurement of nuclear radiations.

CO5-Explain third order reaction and theories of reaction rates.

**B.Sc.Part II (CBCS) Sem III Paper No. DSC-C4- Chemistry paper No. VI (Industrial Chemistry)**

CO1-Define and explain basic concepts and concentration terms.

CO2-Compare classical and industrial chemistry.

CO3-Compare unit operations and unit processes .

CO4-Identify some unit operations.

CO5-Explain the process of corrosion and Knowledge of prevention from corrosion.

CO6-Describe of Indian paper industry.

Define the chemical nature and cleansing action of soap.

**B.Sc.Part II (CBCS) Sem IV Paper No. DSC-D3- Chemistry paper No. VII (Inorganic Chemistry)**

CO1-Define and explain basic concepts about coordination complexes.

CO2-Identify the use of chelates in analytical chemistry.

CO3-Explain the properties of P – block elements.

CO4-Summarize the properties of 3d series elements.

CO5-Explain the basic knowledge about the qualitative analysis of inorganic compounds.



**B.Sc. Part II (CBCS) Sem IV Paper No. DSC- D4 - Chemistry paper No. VIII (Organic Chemistry)**

CO1-Describe synthesis, reactivity and applications of carboxylic acids.

CO2-Describe the classification, preparation and applications of amines and diazonium salts.

CO3-Explain the classification, configuration and structure of carbohydrates.

CO4-Explain the nomenclature and reactivity of aldehydes and ketones.

CO5-Analyze organic compounds.

**B.Sc. Part III (CBCS) SEMESTER-V Paper No. DSE-E5, Chemistry Paper No. -IX (Inorganic Chemistry)**

CO1-Explain role of acids and bases in Chemistry.

CO2-Classify non-aqueous solvents are important to describe all chemical properties of solutes and from the research point of view.

CO3-Define geometry, stability and nature of bonding between metal ion and ligand in complexes.

CO4-Use the semiconductors and Superconductors in electrical and electronic devices.

CO5-Use organo-metallic compound in various fields.

CO6-Apply catalyst in industrial fields.

**B.Sc. Part III (CBCS) SEMESTER-V Paper No. DSE-E6 Chemistry Paper No. X (Organic Chemistry)**

CO1-Describe energy associated with electromagnetic radiation and its use in analytical technique.

CO2-Define chromophore, auxochrome and calculation of  $\lambda_{max}$ .

CO3-Describe the vibrational transitions, regions of IR spectrum, functional group recognition.

CO4-Explain the magnetic-nonmagnetic nuclei, shielding-deshielding, chemical shift, splitting pattern

CO5-Describe of molecular ion, fragmentation pattern and different types of ions produced.

Design the structure of organic compound with the help of provided spectral data.



**B.Sc.-III (CBCS) SEMESTER V Paper No. DSE- E7 Chemistry Paper No. XI (Physical Chemistry)**

CO1-Define quantum Chemistry, Heisenberg's uncertainty principle, concept of energy operators (Hamiltonian), learning of Schrodinger wave equation.

CO2-Describe the spectroscopy, Electromagnetic spectrum, Energy level diagram, Study of rotational spectra of diatomic molecules:

CO3-Identify photochemical laws, reactions and various photochemical phenomena.

CO4-Explain the various types of solutions, relations vapour pressure, temperature relations.

CO5-Define the knowledge of emf measurements, types of electrodes, different types of cells, various applications of emf measurements.

**B.Sc. Part III (CBCS) SEMESTER-V Paper No. DSE-E8 Chemistry paper No. XII (Analytical Chemistry)**

CO1-Define the techniques of gravimetric analysis.

CO2-Describe the instrumental analysis of alkali and alkaline earth elements.

CO3-Explain, working and use of optical methods as an analytical tool.

CO4-Explain theory and use of potentiometric titrations.

CO5-Describe the basics of ion exchange and column adsorption chromatography, Quality control practices in analytical industries / laboratories.

**B.Sc. Part III (CBCS) SEMESTER -VI Paper No. DSE-F5, Chemistry Paper No. -XIII (Inorganic Chemistry)**

CO1-Demonstrate mechanism of the reactions involved in inorganic complexes of transition metals.

CO2-Explain the thermodynamic and kinetic aspects of metal complexes.

CO3-Describe the generation of nuclear power apply.

CO4-Identify role of radio isotopes in medicinal, industrial and Archaeology fields.

CO5-Discuss the characteristics, properties and separation of lanthanides and Actinides

CO6-The techniques involve in ore dressing and extraction of cast iron from its ore are discussed.

CO7-Identify the role of various metals and non-metals in our health.



**B.Sc. Part III (CBCS) SEMESTER-VI Paper No. DSE-F6 Chemistry Paper No. XIV  
(Organic Chemistry)**

CO1-Identify the reagents used in organic transformations and various reactions.

CO2-Describe basic terms used in retrosynthetic analysis, retrosynthesis of some organic compounds.

CO3-Explain addition reaction across  $>C=C<$  bond w.r.t. hydrohalogenation, hydration hydroxylation, ozonolysis and addition of halogen, halogen acid, hydrogen, water, etc. across  $-C\equiv C-$  bond.

CO4-Describe the terpenoids and alkaloids w.r.t. occurrence, isolation, characteristics and classification. Analytical and synthetic evidences of Citral and Nicotine.

CO5-Classify drugs, Qualities of ideal drug. Synthesis and uses of some representative drugs and Drug action of sulphadiazine.

**B.Sc. Part III (CBCS) SEMESTER-VI Paper No. DSE-F 7 Chemistry Paper No. XV  
(Physical Chemistry)**

CO1-Define phase rule, learning of One component, Two component and Three component systems phase diagrams with suitable examples.

CO2-Describe the basic concept of Thermodynamics, free energy, Gibbs-Helmholtz equation and its applications, problem related with it.

CO3-Interpret Space lattice, lattice sites, Lattice planes, Unit cell.

CO4-Describe of kinetics, Simultaneous reactions.

CO5-Define the knowledge of distribution law, its modifications, applications of distribution laws, process of extraction, determination of solubility.

**B. Sc. Part III (CBCS) SEMESTER-VI Paper No. DSE-F8 Chemistry Paper No. XVI  
(Industrial Chemistry)**


CO1-Define the whole process of manufacture of sugar and byproducts of sugar industry.

CO2-Describe of physicochemical principles of production of ammonia, sulfuric acid, nitric acid and sodium carbonate along with its manufacturing plant.

CO3-Classify synthesis and applications of various polymers.

CO4-Describe the petroleum Industry, fuels and need of use of ecofriendly fuels.

CO5-Explain of nanotechnology including classification, optical properties, synthesis routes, characterization techniques and applications of nano-materials.

  
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# DEPARTMENT OF HISTORY

## COs

### **Semester 1: Paper 1: Rise of the Maratha Power (1600-1707)**

**After completion of the course, students will be able to:**

1. Explain the history of the Rise of Maratha Power with the emphasis on life and work of Chhatrapati Shivaji Maharaj.
2. describe the sacrifices made by Maratha leaders and people for the sake of freedom sovereignty of the region.
3. interpret the Era of Marathas struggle in the history from 1600 to 1707.

### **Semester II, Paper II: Polity, Society and Economy under the Marathas (1600-1707)**

**After completion of the course, students will be able to:**

1. define the period from 1600 to 1707 as rapid change in the history of Marathas
2. discuss the political, socio-economic and religious life of the people during the period from 1600-1707.
3. illustrate policy and contribution of Chhatrapati Shivaji Maharaj

### **B. A. Part-II: Semester-III Paper No. III - History of Modern Maharashtra (1900 -1960)**

**After completion of the course, students will be able to:**

1. locate the beginnings and growth of nationalist consciousness in Maharashtra
2. evaluate the contribution of Maharashtra to the national movement
3. identifies an account of various movements of the peasants, workers, women and backward classes
4. recognize the background and events which led to the formation of separate state of Maharashtra.

### **B. A. II Sem- IV Paper- V History of Modern Maharashtra (1960 - 2000)**

**After completion of the course, students will be able to:**

1. recognizes the contribution of eminent leaders
2. describe the economic transformation of Maharashtra
3. identify the salient features of changes in society
4. evaluate the growth of education

### **Semester-III: Paper No. IV History of India (1757-1857)**

**After completion of the course, students will be able to:**

1. illustrate significant events leading to establishment of the rule of East India Company
2. analyze colonial policy adopted by the company to consolidate its rule in India
3. identify the structural changes initiated by colonial rule in Indian economy.



4. Explain the various revolts against rule of the East India Company.

**Semester-IV: Paper No. VI History of Freedom struggle (1858-1947)**

1. Evaluate events which lead to the growth of nationalism in India
2. describe major events of the freedom struggle under the leadership of Mahatma Gandhi
3. Explain the contribution of Revolutionaries, Left Movement and Indian National Army
4. examine the concept of Communalism and the causes and effects of the partition of India

**IDS PAPER I: SOCIAL REFORMS IN INDIA**

**After completion of the course, students will be able to:**

1. interpret salient features of prominent socio-religious reform movements
2. recognize the thought and work of Mahatma Phule for radical transformation of Indian society
3. explain the measures taken by Rajashri Shahu Maharaj for emancipation of lower
4. Understand the thoughts of Ambedkar on the annihilation of the caste system classes and women and untouchability in India
5. analyze how the Indian constitution embodies the values of social justice and Equality

**IDS PAPER II: SOCIAL REFORMS IN MAHARASHTRA**

**After completion of the course, students will be able to:**

1. state the beginnings of social reforms in Maharashtra by the Paramhansa Mandali and Prarthana Samaj.
2. interpret the contribution of women reformers
3. illustrate the contribution of social reformers in the fight for social justice
4. examine the role played by educational reforms in transformation of society.



  
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**Course Outcomes (COs) of Economics**

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**B.A. Part – I Economics Course – 1 Indian Economy - I**

**After completion of degree course, student should able to:**

1. describe Structure of the Indian economy and changes taking place therein.
2. identify population Problem of Indian Economy
3. defines challenges before the Indian economy.
4. design the strategy for economic development

**B.A. Part – I Economics Course – 2 Indian Economy – II**

**After completion of degree course, student should able to:**

1. Explain the policies and performance of major sectors in Indian Economy.
2. define the nature, scope, challenges and opportunities of economic reforms.
3. identify causes of agrarian distress and remedies.
4. describe policy reforms regarding the industry and service sector.

**B.A. II SEMESTER- III MACRO ECONOMICS -I (Paper-III)**

**After completion of degree course, student should able to:**

1. define the macroeconomics.
2. describe the concepts, measurement and difficulties in measurement of national income
3. Examine the relationship between supply of money and value of money
4. Assess the theory of employment, consumption and investment function.

**B.A. II SEMESTER-III MONEY AND BANKING (Paper-IV)**

**After completion of degree course, student should able to:**

1. analyze working of banks
2. examine the role of RBI as a central bank.
3. analyze the banking practices
4. elaborate the Credit (Loan) Appraisal and NPA



**B. A. II SEMESTER-IV MACRO ECONOMICS - II (Paper-V)**

**After completion of degree course, student should able to:**

1. define the concept, types, and causes of Inflation.
2. examine the theory of trade cycles.
3. explain Concepts and scope of public finance.
4. analyze the taxation, public expenditure and public debt

**B. A. II SEMESTER- IV BANK AND FINANCIAL MARKETS (PAPER-VI)**

**After completion of degree course, student should able to:**

1. Explain the Indian Financial System
2. Examine the performance Indian financial institutions.
3. Analyze the banking reforms in India.
4. describe banking services know the cyber-crimes in e-banking

**B. A. II SEMESTER- III PRINCIPLES OF CO-OPERATION Course – I GE (IDS)**

**After completion of degree course, student should able to:**

1. Recognize the nature of cooperative movement in India
2. Equip the long history of cooperative movement.
3. Identify the role of registrar and auditor in cooperative movement.
4. Analyze the importance of state aid in Cooperation

**B. A. II SEMESTER -IV CO-OPERATIVES IN INDIA Course – II GE (IDS)**

**After completion of degree course, student should able to:**

1. define the nature of cooperative movement.
2. Analyze the Co-Operative Marketing in India
3. Highlight the progress of co-operative processing societies in India.
4. Identify the role of National Institutions in Co-operation.



  
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## Course Outcomes (COs) of Political Science

### **B. A. Part I Semester I (CBCS)**

#### **Paper I- Introduction to Political Science**

After completion of the following courses, the students will be able to:

- CO – 1 Explain domain Knowledge
- CO – 2 define the importance of Political Science
- CO – 3 describe sub disciplines of Political Science
- CO – 4 illustrate Concept of State and Democracy
- CO – 5 identify Key Concepts of Political Science

### **B. A. Part I Semester II (CBCS)**

#### **Paper II -Indian Constitution**

- CO1- Explain philosophy of Indian Constitution
- CO2- describe Fundamental Rights
- CO3 - enumerate Directive Principles and Fundamental Duties
- CO4- illustrate the working of Legislature, Executive and Judiciary
- CO5- evaluate working and role of Judiciary

### **B.A. II- Political Science Semester III**

#### **Paper-III Political Process in India**

- CO1- Explain nature & characteristics of Indian federalism
- CO2- Describe the Electoral Process in India.
- CO3- Analyze the Party System of India

CO4- Identify Issues in Indian Politics

### **B.A.II Political Science Semester III**

#### **Paper-IV Indian Political Thought Part -I**

- CO1- Explain the thoughts of Kautilya on Politics
- CO2- Describe Mahatma Phule's Political theories
- CO3- Analyze the thoughts of Justice M. G. Ranade on Political Liberalism
- CO4- interpret the thoughts of B. G. Tilak on Cultural Nationalism



### **B.A.II Political Science Semester III**

#### **Compulsory Generic Elective - I CGE Paper-I Public Administration**

CO1- Explain meaning, nature and scope of Public Administration

CO2- Describe the organization, Hierarchy, Coordination, Span of Control, Centralization and Decentralization

CO3- Illustrate Public Corporations

CO4- Analyze changing Perspectives in Public Administration

B.A.II Political Science Semester IV Discipline Specific Course (D35) DSC (D35) Paper-V Local Self Government in Maharashtra

### **B.A.II Political Science Semester IV**

#### **Paper-V Local Self Government in Maharashtra**

CO1- Describe Historical Background of Local Self Government

CO2- Explain Rural Local Self Government

CO3- Illustrate Urban Local Self Government

CO4- Enumerate Constitutional Amendments & Challenges

### **B.A.II Political Science Semester IV**

#### **Paper-VI Indian Political Thought Part -II**

CO1- Explain the thoughts of M. K. Gandhi

CO2- Describe the thoughts of Jawaharlal Nehru

CO3- Illustrate the thoughts of Dr. B. R. Ambedkar

CO4- Evaluate the thoughts of M. N. Roy

### **B.A.II Political Science Semester IV**

#### **Compulsory Generic Elective - II CGE Paper-II Public Administration**

CO1- Explain Personnel Administration

CO2- Describe Financial Administration in India

CO3- Analyze Delegated Legislation

CO4- Identify New Trends in Public Administration





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**Shri. Ravsaheb Ramrao Mahavidyalaya, Savlaj.**

**Department of Psychology**

**2022-23**

**Course Outcomes**

| <b>Class</b> | <b>Paper No.&amp; Name</b>                 | <b>Outcomes</b>  |
|--------------|--|--|
| B.A.-I       | Paper-I<br>Psychology                      | After the completion of this course students will be able to understand :<br>*Explain the Psychological concept.<br>*Perspectives in Psychology: Psychodynamic, Behavioral, Cognitive and Humanistic.<br>*Apply the Gestalt's principles of perceptions.<br>*Classify the stages of sleep.<br>*Examine Classical and Operant conditioning.<br>* Evaluate The foundation of Memory.<br>*Explain the Psychological research methods. |
|              | Paper-II<br>Basic principles of Psychology | After the completion of this course students will be able to understand :<br>*Illustrate the theories and measures of intelligence.<br>* Explain the Motivation Approaches<br>*Analyze the Human Needs and Motivation.<br>* Explain the Roots of Emotions and Emotional Experience.<br>*Demonstrate Personality Approaches and Its assessments.  |

  
Subject Teacher



  
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Rayat Shikshan Sanstha's,

**Shri. Ravsaheb Ramrao Mahavidyalaya, Savlaj.**

**Department of Psychology**

**2022-23**

**Course Outcomes**

| <b>Class</b> | <b>Paper No. &amp; Name</b>        | <b>Outcomes</b>   |
|--------------|------------------------------------|---|
| B.A.-II      | Paper-III<br>Psychology For Living | After the completion of this course students will be able to understand :<br>* Illustrate the Health & Mind - body relationship.<br>* Explain the stress causes & reactions.<br>* Managing stress: change lifestyle & using stress for personal growth.<br>* Classify the Psychological Disorders.  |
|              | Paper-IV<br>Social Psychology      | After the completion of this course students will be able to understand :<br>* Nature and contemporary issues in Social Psychology.<br>* Explain the research methods in Social Psychology.<br>* Develop the Basic channels of Non-verbal Communications.<br>* Apply the Process of Impression Formation and techniques of Impression Management.<br>* Illustrate the Self-presentation and self-esteem.<br>* Analyze the Attitude formation and attitude change. |

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|--|--|---|
|  | <p>Paper-V</p> <p>Modern Social Psychology</p> | <p>After the completion of this course students will be able to understand :</p> <ul style="list-style-type: none"> <li>* Classify the Internal &amp; External sources of Attraction.</li> <li>* Illustrate the Social Influence: Conformity, Compliance.</li> <li>* Explain the Motives for Pro-social Behavior.</li> <li>* Interpret the Factors that Increase Pro-social Behavior &amp; Reduce helping.</li> <li>* Apply the Theories &amp; causes of aggression and techniques for aggression.</li> </ul> |
|  | <p>Paper-VI</p> <p>Applied Psychology</p>      | <p>* After the completion of this course students will be able to understand :</p> <ul style="list-style-type: none"> <li>* Classify the Internal &amp; External Locus Control.</li> <li>* Apply the the Process of Decision Making.</li> <li>* Searching Compatible Careers.</li> <li>* Interpret the Factors that influence first Impression.</li> <li>* Explain the Marriage &amp; other committed relationships.</li> </ul>   |

*Fevale*  
Subject Teacher



*[Signature]*  
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Tal- Tasgaon, Dist- Sangli

Academic Year 2021-22

Department of Statistics

Course outcomes (CO's)

**Course 1: Descriptive Statistics I**

At the end of this course students will be able to,

CO1.1: Know meaning and scope of statistics in various fields and to know various types of data.

CO1.2: Evaluate summary measures, to know concept of attribute, independence and association.

**Course 2: Elementary Probability Theory**

At the end of this course students will be able to,

CO2.1: Explain random and nonrandom experiments and compute probabilities of various events.

CO2.2: Explain concept of independence, conditional probabilities and apply Baye's theorem.

**Course 3: Descriptive Statistics II**

At the end of this course students will be able to,

CO3.1: Compute index numbers by various methods.

CO3.2: Know the concept of correlation and regression and its applications.

**Course 4: Discrete Probability Distributions**

At the end of this course students will be able to,

CO4.1: Know probability models for discrete random variables, concept of Skewness and kurtosis.

CO4.2: Know some standard discrete probability distributions, the concept of Bivariate distributions.

**Course 5: Practical I**

At the end of this course students will be able to,

CO5.1: Represent statistical data diagrammatically and graphically.

CO5.2: Compute measures of central tendency, dispersion, correlation and regression coefficients.

CO5.3: Explain the concept of consistency, association and independence of attributes and compute index numbers.





CO5.4: Know applications of some standard discrete probability distributions.

### **Course 6: Probability Distributions – I**

At the end of this course students will be able to,

CO6.1: Understand the concept of discrete and continuous distributions and evaluate probabilities.

CO6.2: Derive the probability distributions of transformed univariate and bivariate continuous r.v's

### **Course 7: Statistical Methods I**

At the end of this course students will be able to,

CO7.1: Fit multiple linear regression and to compute multiple and partial correlation coefficients.

CO7.2: Know the concept of sampling, vital statistics, mortality, fertility and growth rates.

### **Course 8: Probability Distributions – II**

At the end of this course students will be able to,

CO8.1: Know various continuous probability distributions and to evaluate the various measures.

CO8.2: Understand Chi-square, t and F distributions and inter relations among them.

### **Course 9: Statistical Methods II**

At the end of this course students will be able to,

CO9.1: know the concept of time series, SQC. and to construct various control charts.

CO9.2: Understand the basic terms in testing of hypothesis and apply the large and small sample tests.

### **Course 10: Practical II & Practical III**

At the end of this course students will be able to,

CO10.1: Compute probabilities of standard probability distributions, expected frequencies and test for goodness of fit also to draw random samples by various sampling methods

CO10.2: Fit plane of regression and to compute multiple and partial correlation coefficients.

CO10.3: Construct various control charts and to decide the state of production process.

CO10.4: Apply the large and small sample tests in various hypothesis testing problem.



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Academic Year- 2022-23  
CO's of Mathematics

**B.Sc. Part –I**

**CO1: DSC – A5, Calculus, Paper – I**

Upon successful completion of the course students will able to:

1. Evaluate the limit and examine the continuity of a function at a point.
2. Understand the consequences of mean value theorems for differentiable functions.
3. Apply Leibnitz theorem to obtain higher derivatives of product of two differentiable functions.

**CO2: DSC – A6, Differential Equations Paper – II**

Upon successful completion of the course students will able to:

1. Identify types of differential equations.
2. Solve different types of ordinary differential equations.
3. Understand applications of differential equations.

**CO3: DSC – B5, Multivariable Calculus Paper – III**

Upon successful completion of the course students will able to:

1. Learn conceptual variations while advancing from one variable to several variables in calculus.
2. Set up and solve optimization problems involving several variables.
3. Learn the concept of Jacobian of a transformation.

**CO4: DSC – B6, Basic Algebra Paper – IV**

Upon successful completion of the course students will able to:

1. Use fundamental concepts in Mathematics like sets, relations and functions.
2. Use fundamental concepts in Number theory.
3. Solve examples on congruence.
4. Determine nth roots of unity.
5. Understand various properties of hyperbolic functions



## B.Sc. Part –II

### CO1: DSC – 5C, Real Analysis–I Paper – V

1. Understand types of functions and how to identify them.
2. Use mathematical induction to prove various properties.
3. Understand the basic ideas of Real Analysis.
4. Prove order properties of real numbers, completeness property and the Archimedean property.

### CO2: DSC – 6C, Algebra–I Paper – VI

1. Understand properties of matrices
2. Solve System of linear homogeneous equations and linear non-homogeneous equations.
3. Find Eigen values and Eigen vectors.
4. Construct permutation group and relate it to other groups.
5. Classify the various types of groups and subgroups.

### CO3: DSC – 5D, Real Analysis – II Paper – VII

1. Understand sequence and subsequence.
2. Prove The Bolzano-Weierstrass Theorem.
3. Derive Cauchy Convergence Criterion.
4. Find convergence of series.
5. Apply Leibnitz Test.

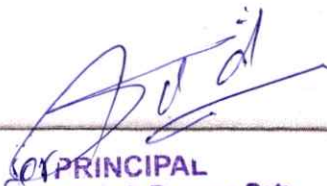
### CO4: DSC – 6D, Algebra-II Paper – VIII

1. Prove Lagrange's theorem.
2. Derive Fermat's theorem.
3. Understand properties of normal subgroups, factor group.
4. Define homomorphism and isomorphism in group and rings.
5. Derive basic properties of rings and subrings.



HEAD

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**Course Outcomes (COs) of Physics**

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After successfully completing this course students will able to:

**Physics Paper I: Mechanics - I (DSC 1 A)**

CO1: Describe the scalar product and vector product and state properties of it.

CO2 Examine various vector related problems using vector algebra.

CO3: Find the degree and order of any differential equation.

CO4: Examine given second order differential equation and recommend suitable solution for it.

CO5: Restate the Newton's laws of motion and distinction between inertial and non-inertial frame of references and illustrate it with routine life experiences.

CO6: Analyze the situation on basis of Newton's laws of motion and suggest solution for it.

CO7: Restate and explain the conservation theorems of linear momentum, angular momentum and energy for a single particle and system of particles.

CO8: Explain the rocket motion and solve related problems.

CO9: Discuss the motion of spherical Shell and solid cylinder rolling down an inclined plane.

**Physics Paper II: Mechanics II (DSC 2 A)**

CO1: Restate Newton's law of gravitation, Conservation laws for a particle in central force field, Kepler's Law, Applications of Satellite in circular motion, Idea of GPS, Concept of weightlessness.

CO2: Determine speed and period of satellite, acceleration due to gravity at height 'h'

CO3: Assess Kinetic energy, Potential energy, Total energy and their time averages.

CO4: Construct and solve second order differential equations to determine solutions for Simple harmonic motion, damped oscillations and forced oscillations.

CO5: Define Stress, Strain, Young's modulus, modulus of rigidity, Bulk modulus, Poisson's ratio and state Hooke's law.

CO6: Calculate bending moment of a rod, depression in a cantilever, twisting couple on a cylinder, work done in twisting a wire.

CO7: Determine rigidity modulus for a torsional pendulum, Determine Moment of Inertia of torsional pendulum

CO8: Use Searls method to determine Y, D and f.

CO9: Revise Surface tension, Surface energy, Angle of contact, wettability, Applications of Surface tension.

CO10: Inspect relation between surface tension, excess of pressure and radius of curvature.

CO11: Construct experiment to determine surface tension by Jaegers method.

**Physics Laboratory DSC-A Lab: Mechanics**

CO1: Use of vernier caliper, screw gauge and travelling microscope to measure length of given objects.

CO2: Determine the Moment of Inertia of disc using auxiliary annular ring a flywheel.

CO3: Determine 'g' by Bar pendulum and Kater's pendulum

CO4: To determine Y of bar by vibration., Y/I of wire by Searls method, modulus of rigidity of wire by torsional oscillations and Poisson's ratio for rubber using rubber tube.

CO5: Study motion of spring and calculate spring constant and value of g.

### **Physics Laboratory DSC-B Lab: Electricity and Magnetism.**

CO1: Use of multimeter to measure resistance, AC and DC voltages, DC current and Checkin electrical fuses.

CO2: Compare the capacities of given condensers by De Sauty's method.

CO3: Study the impedance, resonant frequency, quality factor of series LCR circuit.

CO4: Measurement of constants of B. G.

CO5: Determine high resistance by leakage method.

CO6: Verify Thevenin's and Norton's theorem.

CO6: Explain Parallel LCR circuit to determine its anti-resonant frequency and quality factor.

CO7: determine frequency of AC mains by sonometer.

### **Physics Paper III Electricity and Magnetism I. (DSC 81)**

CO1: Apply surface, line, volume integral to vector fields

CO2: State gauss divergence and stokes theorem.

CO3: Derive potential due to point charge.

CO4: Assess electric field from potential

CO5: Derive expression for energy per unit volume in electrostatics

CO6: Illustrate gauss's theorem in electrostatics

CO7: Explain working of parallel plate capacitor completely filled with dielectric.

### **Physics Paper IV: Electricity And Magnetism-II (DSC 82)**

CO1: Relate the concepts of Reactance, Impedance, Admittance, and Susceptance.

CO2: inspect the LCR series circuit and solve problems related to resonant frequency.

CO3: Analyze the Owen's Bridge and design it as per requirement.

CO4: State the Biot-Savart's law and discuss its applications to straight conductor, circular coil, solenoid carrying current.

CO5: State the Ampere's circuital law and describe the various Magnetic properties of materials.

CO6: Compare the properties of dia-, para- and ferro-magnetic materials and classify them.

CO7: Restate Faraday's laws of electromagnetic induction, Lenz's law.

CO8: Explain the concept of self-inductance and mutual inductance and solve problems related to it.

CO9: Discuss the Equation of continuity of current and write the Maxwell's equations.

CO10: Explain the electromagnetic wave propagation through vacuum and isotropic dielectric medium.

CO11: Discuss the transverse nature of Electromagnetic waves.

### **Physics Paper V: Thermal Physics and Statistical Mechanics - I (DSC C1)**

CO1: Write the four laws of thermodynamics.

CO2: Classify various thermodynamic processes with suitable examples.

CO3: Explain the concept of thermodynamic equilibrium.

CO4: Solve the problems related to work done during thermal and adiabatic processes.

CO5: Inspect the Carnot's cycle and solve problems related to efficiency of it.

CO6: Discuss the concept of entropy with its physical significance and solve the examples of Entropy changes in reversible & irreversible processes.

CO7: Recall mean free path, molecular diameter, Maxwell's law of distribution of velocities, law of equipartition of energy.

CO8: Solve differential equations and derive expression of coefficient of viscosity, thermal conductivity of gas, Diffusion of gas.

CO9: State working principle of various types of thermometers and recommend them as per requirement.

CO10: Compare working and temperature measurement techniques used in mercury thermometer, Platinum resistance thermometer, thermistor as thermometer and Thermocouple as thermometer.

### **Physics Paper VI: Waves and Optics (DSC C2)**

CO1: Explain the simple harmonic motion, nature of wave motion, behaviour of light in various medium.

CO2: Acquire skills to identify and apply formulas of optics and wave physics

CO3: Classify normal modes and normal Co-ordinates, study modes of oscillation of two coupled pendulums and to measure the normal mode frequencies.

CO4: Explain the use of Lissajous figures and compose Lissajous figures of different shapes.

CO5: Explore how humans perceive sound as a basic principle in acoustic design.

CO6: Explain various vacuum pumps and recommend them as per requirement.

### **Physics Paper VII: Thermal Physics and Statistical Mechanics -II (DSC D1)**

CO1: Discuss the concepts of thermodynamics potentials, Enthalpy, Gibbs, Helmholtz, Internal Energy functions. Derive the Maxwell's thermodynamical relations and TdS equations.

CO2: Explain the Clausius- Clapeyron equation and justify the use for various phase changes.

CO3: Illustrate the Joule-Thomson effect and solve the problems related to (CP - CV) and CP/CV.

CO4: Discuss the Blackbody radiation and its importance, Experimental study of black body radiation spectrum. Describe the Concept of energy density, Planck's law and Wien's distribution law.

CO5: Explain the Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.

CO6: Describe phase space, micro and macrostates, accessible microstates.

CO7: State MB distribution laws.

CO8: Determine alpha and beta in MB distribution

CO9: Illustrate B. E and F. D statistics to gases

CO10: Compare and contrast M. B, B.E and F. D statistics

### **Physics Paper VIII: Waves and Optics @SC D2)**

CO1: Explain the cardinal points of an optical system.

CO2: Construct the graphical construction of image using cardinal points.

CO3: Find the resolution, resolving power of optical instruments.

CO4: Compare and contrast between resolution and magnification also explain resolving power of plane diffraction grating and prism.

CO5: Describe the idea of polarization, double refraction.

CO6: Discuss construction, working of Nicol prism and analyze the production and detection of circularly and elliptically polarized light.

CO7: Inspect the situation and justify which phenomena concern to it out of Polarization, Interference and Diffraction of light.

CO8: Solve the Problems related to wavelength of light using diffraction grating.  
CO9: Examine the theory of plane diffraction grating, Fresnel's half period zone plate and Fresnel's diffraction at a straight edge.

### **Physics Laboratory Thermal Physics and Statistical Mechanics I (DSC C1)**

CO1: Determine the value of Stefan's constant.  
CO2: Study the variation of thermo e.m.f across two junctions of a thermocouple, to record and analyse cooling temperatures of hot objects as function of time using thermocouples  
CO3: Determine coefficient of thermal conductivity of Copper by Searls method, Cu by Armstrong method and a bad conductor by Lee's method  
CO4: determine temperature coefficient of resistance by Platinum resistance thermometer.  
CO5: Callibrate resistance temperature device using null method / off balance bridge.

### **Physics Laboratory Thermal Physics and Statistical Mechanics II (DSC C2)**

CO1: Determine Temperature coefficient of resistance using thermometer, specific heat of graphite, ratio of specific heat of air by Kundt's tube.  
CO2: Examine Temperature of flame, Coefficient of thermal conductivity of glass in form of tube, thermal conductivity of metal bar by forbe's method.  
CO3: Calculate Mechanical equivalent of Heat by Callender and Barnes constant flow method.  
CO4: Verify Stefan's fourth power law.

### **Physics Laboratory \Wave and optics I DSC D1)**

CO1: Investigate the motion of coupled oscillators.  
CO2: Determine frequency of electrically maintained tuning forks by Meld's experiment to verify  $f, 2- T$  law,  
CO3: Study the Lissajous figures by using CRO.  
CO4: Examine coefficient of viscosity of water by capillary flow method and viscosity of liquid by Searls viscometer  
CO5: Calculate Velocity of sound using Kundts tube and audio oscillator phase shift method and by resonating bottle.  
CO6: Determine frequency of crystal oscillator.

### **Physics Laboratory Wave and optics II DSC D2)**

CO1: Determine the resolving power of prism and plane diffraction grating  
CO2: Examine the wavelength of sodium light using Newton's ring and diffraction due To straight edge.  
CO3: Find thickness of thin film using interference in wedge shaped thin film.  
CO4: Using Goniometer to study cardinal points and equivalent focal length of an Optical system and Study angle of specific rotation of sugar using polarimeter.



  
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**Course Outcomes (COs) of Botany**

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**B.Sc. Part – I Semester- I Botany Paper I: DSC-13 A: Microbes, Algae and Biofertilizers**

**After completion of degree course, student should able to:**

1. recognize the structure, types and multiplication of viruses.
2. identify bacteria
3. classify Algae and their importance in day today life.
4. explain Procedure for preparation of Biofertilizers- Bacteria and Blue green algae

**B.Sc. Part – I Botany Paper II: DSC-14 A: Cell biology and Analytical techniques**

**After completion of degree course, student should able to:**

1. Explain cell as a structural and functional unit of life.
2. define the nature of cell organelles and cell membrane.
3. use Microscopy.
4. describe Chromatography.

**B.A. Sc. Part-I SEMESTER –II**

**Botany Paper III: DSC-13B: Mycology, Phytopathology and Mushroom cultivation**

**After completion of degree course, student should able to:**

1. define fungi and its characteristics.
2. classify Lichen.
3. Examine Phytopathology
4. apply his knowledge of cultivating mushroom.

**B. Sc. I SEMESTER –II Botany Paper IV: DSC-14B: Archegoniate (Bryophytes, Pteridophytes and Gymnosperms)**

**After completion of degree course, student should able to:**

1. Explain Archegoniate
2. Describe bryophytes.
3. Classify Pteridophytes



4. elaborate Gymnosperms

## **Sem. II**

### **Paper V: Botany Paper V: DSC C13: PLANT SYSTEMATICS AND ANATOMY**

After successful completion of the course, the students will be able

1. To explain the scope and importance of the plant systematics.
2. To describe plant morphology, nomenclature and classification
3. To prepare and demonstrate herbarium and to understand importance of Botanical gardens.
4. To examine internal organization of plant organs.
5. To differentiate and understand plant tissue systems.
6. To analyze the composition of different parts of plant.

### **Paper VI: Botany Paper VI: DSC C14: GENETICS AND MOLECULAR BIOLOGY**

After successful completion of the course, the students will be able

1. To explain the principles of Mendelian inheritance and gene interaction.
2. To differentiate between structural and numerical variations in chromosomes.
3. To analyze and solve genetic problems on linkage and crossing over.
4. To define the composition and significance of nucleic acids.
5. To summarize concept of central dogma and genetic code.

### **Paper VII: Botany Paper VII: DSC D13: PLANT ECOLOGY AND ECONOMIC BOTANY**

After successful completion of the course, the students will be able

1. To illustrate core concepts of biotic and abiotic components.
2. To explain diverse ecosystem, related food web and ecological pyramids.
3. To prepare map of Phytogeographical regions of India.
4. To describe importance of plants and plant products and their utility.
5. To identify the centre of origins of different crop plants.
6. To explain importance and conservation of Germplasm.

**Paper VIII: Botany Paper VIII: DSC D14: PLANT PHYSIOLOGY, NURSERY AND GARDENING TECHNIQUES**

After successful completion of the course, the students will be able

1. To describe various physiological processes in plants.
2. To explain significance and mechanism of photosynthesis.
3. To analyze the process of respiration in higher plants.
4. To design outlines of landscaping and home gardening.
5. To propagate plants by seed and vegetative propagation.
6. To prepare different types of gardens and to know garden equipments.



  
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**Course Outcomes (COs) of Zoology**

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**B.Sc. I Semester I Paper I Animal Diversity**

At the end of the course, students will be able to....

- CO1. explain the role of invertebrates in ecosystem.
- CO2. classify the invertebrates up to the class.
- CO3. describe the different types of locomotion and its mechanism.
- CO4. identify the developmental stages of helminths.
- CO5. describe the food and feeding mechanism of invertebrates.

**DSC – 16 A- Paper -II ANIMAL PHYSIOLOGY**

At the end of the course, students will be able to

- CO1. Explain the working of nerve cell and its signalling.
- CO2. Classify the types of food and explain digestive system and importance of the digestive juices and enzymes.
- CO3. Define the importance of respiratory gases and mechanisms of transportation.
- CO4. Illustrate the functions of kidney, different excretory products and structure of kidney and nephron. Understand the meaning of Osmotic pressure, isotonic, hypotonic, hypertonic
- CO5. Explain the structure, function and importance of heart.

**B.Sc. I Semester II**

**DSC – 15B (CELLBIOLOGY AND EVOLUTIONARY BIOLOGY)**

At the end of the course, students will be able to

- CO1. Describe functions and the composition of the plasma membrane.
- CO2. Explain importance of the nucleus and its functions.
- CO3. Describe Lamarckism and Darwinism.
- CO4. Describe change occurs during the evolution of earth.
- CO5. Explain fossils are important to study the evolution.

**DSC – 16B (GENETICS)**

At the end of the course, students will be able to

- CO1. Describe working of nerve cell and its signalling.

CO2. Illustrate mechanism of inheritance, gene interaction, lethal genes and multiple alleles

CO3. Identify Linkage and Crossing over.

CO4. Classify mutations.

CO5. Classify sex of determination.

### **B.Sc. II (Semester III)**

#### **Paper No. V Course:**

#### **DSC –(ANIMAL DIVERSITY-II)**

At the end of the course, students will be able to

CO1. The classification and general characters of protochordates.

CO2. The cyclostome and general characteristics of Agnathans

CO3. The unique characters of Pisces and Mechanism of Respiration.

CO4. The Venomous and non-venomous snakes, Biting mechanism in snakes.

CO5. The general characters and mechanism of circulation in mammals.

#### **Paper No. VI**

#### **Course: DSC – (Biochemistry)**

At the end of the course, students will be able to

CO1. Describe structure and different types (DNA- A, B, Z form) (RNA tRNA, rRNA, mRNA) and different functions of DNA and RNA.

CO2. Classify carbohydrates metabolism such as Glycolysis, Gluconeogenesis, Glycogenolysis, Kreb's Cycle, Pentose Phosphate Pathway.

CO3. Identify Protein metabolism such as transamination and deamination. Student will be able to understand the Mechanism of Ornithine Cycle

CO4. Explain Mechanism biosynthesis and breakdown of lipids by beta oxidation process.

CO5. Describe nomenclature, Classification, enzyme kinetics, Inhibition, regulations and Isozymes.

### **B.Sc. II Semester IV Paper No. VII Reproductive Biology**

At the end of the course, students will be able to

CO1. Explain histological structure and functions of different cells

CO2. Describe Reproductive cycle of human and its regulations.

CO3. Identify process of fertilization in human.

CO4. Illustrate Male Reproductive systems and organs, glands associated with it.

CO5. Define causes, diagnosis & management of infertility in male and female.

## **Paper No. VIII APPLIED ZOOLOGY**

At the end of the course, students will be able to

CO1. Define Host, Definitive host, Intermediate host, Parasitism, Symbiosis, Commensalism, Reservoir, Zoonosis

CO2. Explain Biology, Control and damage caused by *Helicoverpa armigera*, *Pyrrilla perpusilla*.

CO3. Describe Principles of poultry breeding, Management of breeding stock and broilers, Processing and Preservation of eggs.

CO4. Explain Transmission, Prevention and control of diseases: Tuberculosis, Typhoid.

CO5. Illustrate *Rickettsia prowazekii*, *Borrelia recurrentis* and *Treponema pallidum*.



  
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